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Distancing the Dead: Late Chalcolithic Burials in Large Maze Caves in the Negev Desert, Israel

Uri Davidovich, Micka Ullman, Boaz Langford, Amos Frumkin, Dafna Langgut, Naama Yahalom-Mack, Julia Abramov, and Nimrod Marom

The Late Chalcolithic of the southern Levant (ca. 4500–3800 B.C.E.) is known for its extensive use of the subterranean sphere for mortuary practices. Numerous natural and hewn caves, constituting formal extramural cemeteries, were used as secondary burial localities for multiple individuals, reflecting and reaffirming social order and/or communal identity and ideology. Recently, two large complex caves located in the northern Negev Highlands, south of the densely settled Late Chalcolithic province of the Beersheba Valley, yielded skeletal evidence for secondary interment of select individuals accompanied by sets of material culture that share distinct similarities. The observed patterns suggest that the interred individuals belonged to sedentary communities engaging in animal husbandry, and they were deliberately distanced after their death, both above-ground (into the desert) and underground (deep inside subterranean mazes), deviating from common cultural practices.

Keywords: mortuary practices; cave burials; social deviancy; Chalcolithic; animal husbandry; Levant; Ashalim Cave; Qina Cave

Natural caves are landscape features that commonly incorporate spiritual qualities owing to their strangeness and chthonic associations (Moyes 2012). From the Neolithic onward, in tandem with assuming a lesser role within the mundane, human use of caves continued to develop Palaeolithic traditions in which the underground was considered a sphere where humans, nature, and supernatural beings interacted (Clottes 2003; Lewis-Williams 2002; Sieveking 1997). Within the context of sedentary societies, caves were often regarded as liminal landscapes, in accord with their evident environmental and structural deviation from open-air settlement sites as well as their spatial remoteness, sometimes located beyond the diurnal range of subsistence (Tomkins 2009). In this capacity, caves were ideal settings to perform communal rites of...
passage (Crothers 2012; Heyden 2005; Whitehouse 1992) and were used frequently and cross-culturally for burial (e.g., Barker 2005; Dowd 2015; Tomkins 2009).

Obviously, caves could be exploited only insofar as they appeared in the landscape, and their position and natural features “condition[ed] the scale, distribution, organization, and nature of human activities conducted in them” (Straus 1990: 278). In karstic regions dotted with numerous caves of various types and morphologies, such as most highland regions of the southern Levant, cultural preferences were no less significant in determining which caves would be used and for what purposes. In those regions, a variety of cave attributes, both environmental (size, structure, micro-environment) and cultural (accessibility, visibility, distance from settlements), influenced social patterns of selecting certain caves or cave types for particular activities (Davidovich 2008; Eriksen 1997; Garcia 2013; Ullman 2014). In the context of burial practices, studying these attributes could be used, alongside commonly researched aspects of body treatment and grave assemblages (Binford 1972; O’Shea 1984), to infer mortuary variability associated with social distinctions (Leach 2008; Prüfer 2005), cosmological perceptions (Geller 2006), and ideological world views (Nativ 2014).

While rock shelters, small caves, and exterior sections of larger caves were commonly used by numerous cultures for multiple purposes, including ritual and burial, it seems that specific motivation was required for humans to brave the utter darkness, disorientation, and technical difficulties of movement associated with large, complex caves. Penetrating deep into composite, maze-like caves also forces people out of their mental “comfort zone,” entailing behavioral and cognitive adaptations (Montello and Moyes 2012; Whitehouse 2001). For these reasons, human activity deep within large and/or maze caves is rare and almost entirely ritually driven, involving a bodily experience very different from the everyday (Whitehouse 2001). In this study, we discuss two maze cave burial complexes from the northern Negev Desert in Israel (Fig. 1), dated to the Late Chalcolithic period (late 5th millennium B.C.E.). The recently discovered human and artificial remains from the depths of these caves, dubbed Qina and Ashalim Caves, contextually investigated vis-à-vis the already diverse Late Chalcolithic use of caves for mortuary purposes, shed new light on the religious world and social mechanisms of one of the latest pre-urban societies in the Levant, embodied in the physical and symbolic distancing of specific individuals away from living communities and communal cemeteries.

The Late Chalcolithic in the Southern Levant

The Ghassulian culture of the Late Chalcolithic southern Levant (ca. 4500–3800 B.C.E.) comprises multifarious sedentary societies characterized by developed settlement systems in areas located on the fringe of the Mediterranean climate zone suitable for dry farming, the best known of which is the Beersheba Valley bordering the Negev Desert (Levy and Alon 1983). Subsistence of Ghassulian societies was based on intensified agricultural production supplemented by animal husbandry, primarily of sheep/goat and cattle, exploited in part for secondary products such as milk and hair (Grison 1995). Increased specialization and technological sophistication as compared with preceding cultures is attested in pottery and lithic production as well as in numerous other realms of material culture. The most innovative of all crafts was undoubtedly metallurgy, as demonstrated by the earliest wide-scale distribution of copper-based artifacts, the products of sophisticated industries (Bar-Adon 1980; Golden 2010; Goren 2014; Shalev and Northover 1993). The scholarly discourse on Ghassulian societies is highlighted by dynamic debates concerning the level of social complexity, mechanisms of wealth accumulation and distribution, as well as the existence and possible social role of institutionalized cult (e.g., Gilead 1988; Levy 1995; Rowan and Golden 2009).

One of the hallmarks of Ghassulian culture is the wide-ranging exploitation of the subterranean sphere, unparalleled in any other period along the Neolithic–Bronze Age continuum in the southern Levant. Small natural cavities, as well as underground pits, shafts, and systems of interconnected spaces and chambers carved in loose sediments and soft rocks, were used in such mundane contexts as habitation, storage, and refuse, mainly in lowland regions (e.g., Gilead 1987; Govrin 1987; Schefelowitz and Oren 2004). The most extensive use of caves was, however, for mortuary purposes. A variety of single, isolated caves, both hewn and karstic, as well as clusters of hewn cavities, functioned as formal off-settlement cemeteries, commonly associated with secondary burials (e.g., Nativ 2014; Perrot and Ladiray 1980). These cemeteries, limited in distribution to the Mediterranean climate zone of the southern Levant and generally scattered across the coastal plain and adjacent regions, usually contained disarticulated bones of dozens of interred individuals placed in unique designated receptacles—ceramic ossuaries, ossuary jars, and stone basins—as well as bone heaps with no receptacles. The burials were accompanied by an assortment of mortuary offerings, which may consist solely of “mundane,” utilitarian artifacts (e.g., pottery vessels, flint tools, spindle whorls) or include more sumptuous objects, such as elaborate basalt vessels and metal articles. Above-ground cemeteries, sharing the multiplicity of dead and the mortuary practices of cave cemeteries regarding secondary burials and the use of designated receptacles, are also known to exist, mainly in the more southerly settled regions, a variety of cave attributes, both environmental (size, structure, micro-environment) and cultural (accessibility, visibility, distance from settlements), influenced social patterns of selecting certain caves or cave types for particular activities (Davidovich 2008; Eriksen 1997; Garcia 2013; Ullman 2014). In the context of burial practices, studying these attributes could be used, alongside commonly researched aspects of body treatment and grave assemblages (Binford 1972; O’Shea 1984), to infer mortuary variability associated with social distinctions (Leach 2008; Prüfer 2005), cosmological perceptions (Geller 2006), and ideological world views (Nativ 2014).
Fig. 1. (a) Location of the studied area within its eastern Mediterranean context; (b) topographic map of the southern Levant with main karstic caves containing Late Chalcolithic mortuary remains; and (c) topographic model of the northern Negev Desert and the Beersheba Valley showing sites mentioned in the text. (Maps by M. Ullman and U. Davidovich)
regions (Goren and Fabian 2002; Gorzalczany 2006; Levy and Alon 1985). Extramural Late Chalcolithic cemeteries are usually interpreted as the burial grounds of certain communities or lineages, playing a significant role in regulating social order through wealth display (Golden 2010: 51; Gopher and Tsuk 1996a: 223; Ilan and Rowan 2011: 106) and/or in the reinforcement of communal and individual identities (Nativ 2014: 128; Nativ and Gopher 2011: 236). Considering their assumed location within village territories, it has also been suggested that cemeteries were deliberately positioned to serve as territorial markers underpinning land tenure (Winter-Livneh, Svoray, and Gilead 2012). In any event, common Late Chalcolithic mortuary practices indicate the continued concern of the living for the dead through secondary burials and emphasize the importance of final interment within communal cemeteries, probably reflecting the central role of ancestry (following Bloch 1971 and Hertz 1960).

Within the broad range of underground spaces used for burial during the Late Chalcolithic, two karstic caves stand out: Peqiʿin (Gal, Shalem, and Smithline 2011; Shalem, Gal, and Smithline 2013) and Nahal Qanah (Gopher and Tsuk 1996a) (see Fig. 1b). These caves are located in sparsely inhabited, well-watered highland regions (Upper Galilee and western Samaria, respectively) and exhibit active karst formations such as stalagmites and stalactites. Peqiʿin Cave is rather small, comprising one main hall divided into several units, whereas Nahal Qanah Cave is more complex and contains several chambers and passages in different levels, the result of aging processes affecting isolated hall caves in this region (Frumkin and Fischhendler 2005; Frumkin et al. 2009). Both caves have yielded rich and diverse assemblages of burial receptacles and grave goods along with multiple interments, albeit of different quantities (estimated minimum number of individuals [MNI] of 453 and 23, respectively). Their outstanding finds and locations have elicited several interpretations that go beyond the basic hypotheses related to common mortuary practices of the period; it has been suggested that, owing to its exceptionally high number of burials, Peqiʿin served as a regional cemetery for Galilean populations (Shalem, Gal, and Smithline 2013: 447), while Nahal Qanah was assumed to have had a cultic role associated with “secret cult activities” (Joffe 2003: 55).

**Qina and Ashalim Caves**

**Environment and Formation Processes**

The two caves that are the focus of the present study are located in the northern part of the arid Negev Desert (see Fig. 1). This region is marked by northeast-trending anticlines, forming major topographic ridges, and separated by wide synclinal valleys. The area receives ca. 100–120 mm of annual rainfall, concentrated in the rainy season from October to May and supporting sparse steppe and desert vegetation. Qina Cave, the eastern of the two caves, opens in the right bank of a canyon of the same name (Fig. 2a), traversing the Zohar-Kidod Ridge toward Nahal Hemar (Hemar Valley), the main catchment draining the northeastern Negev to the southern basin of the Dead Sea. Ashalim Cave, located 46 km southwest of Qina Cave, is situated in moderate topography of low hills in the northwestern flank of Boqer Ridge, drained through the Besor Valley to the Mediterranean Sea (Fig. 2b). Both caves are located beyond the southern boundary of sedentary Late Chalcolithic Ghassulian settlements that stretch along the southern outskirts of the Beersheba Valley and include, among others, the sites of Tel Arad, small Tel Malhata, Tel Esdar, the Beersheba settlement cluster (Tell Sheva, Hurvat Beter, Abu Mataar, Bir Safadi), and Shiqmim (Fig. 1c). While Qina Cave is only a few kilometers distant from the eastern segment of the valley, Ashalim Cave is located ca. 30 km south of the closest contemporaneous settlements and approximately 18 km from the southernmost sites with Ghassulian cultural affinities (the herders’ stations in Nahal Sekher [Gilead and Goren 1986]). In fact, Ashalim Cave is located well within the territory of the “Timnian” culture, a concurrent entity typified by desert groups subsisting mainly on herding and hunting while occasionally engaging in exploitation of other natural resources located in the desert regions south of the Levant, such as copper, Eocene flint, and Red Sea shells (Rosen 2002; 2011).

The Qina and Ashalim Caves are among the four largest caves in the whole Negev Desert and the only large caves (> 300 m in total length of passages) with archaeological remains in this region known to date. Both have a complex system of interconnected passages and chambers, the result of karstic dissolution; however, they differ in their overall structure—Qina being a large sub-horizontal (two-dimensional) maze (Figs. 3, 4), while Ashalim is smaller but comprises a three-dimensional maze (Figs. 5, 6). Such isolated maze caves were typically formed in the southern Levant under confined hypogenic conditions during the Oligocene to early Miocene within the Late Cretaceous massive limestone of the Shivta Formation (Frumkin and Fischhendler 2005; Frumkin, Langford, and Porat 2017). Regional geological conditions, coupled with cave morphology, which includes smoothed walls, elliptical cross-sections of passages (Fig. 7a), and solution domes in chambers’ ceilings, testify to their initial formation below the water table of far-field groundwater systems (Frumkin et al. 2017). Regional uplifting, associated with the formation of the Dead Sea Rift during the Late Neogene, emptied the caves of groundwater, a process followed by
Fig. 2. (a) The two entrances to Qina Cave, looking southwest; and (b) the shaft-like entrance to Ashalim Cave, looking northeast. Entrances are indicated by arrows. (Photos by B. Langford)
the deposition of speleothems under vadose conditions during the Pliocene and Pleistocene in Ashalim Cave Hall C (Vaks et al. 2013; 2017). At this stage and possibly earlier, ceiling collapse became a dominant formation process, and its products were deposited on the original floors of most chambers in both caves, creating elevated, uneven bouldered surfaces. The present entrances into the subterranean systems formed where subaerial erosion breached cave passages, allowing animals and humans to penetrate the underground voids.

Qina Cave is one of the largest limestone caves in the southern Levant (cf. Langford and Frumkin 2013), and its current length of passages totals 1,411 m (see Fig. 3). It has two small entrances, ca. 60 m apart, opened in the steep right bank of the ravine (see Fig. 2a). The southern entrance, the more visible of the two, enables relatively easy access into a ca. 90 m-long corridor (designated X and Y on the cave map [see Figs. 3, 4]), discovered already in the mid-1980s (see below). The second entrance, first observed in early 2013, is hidden behind a large boulder and gives way, through three narrow squeezes, into Hall A, a large rounded chamber strewn with boulders. A very small, hidden opening in the northwestern side of the hall, reached by squeezing through a narrow shaft between the boulders, leads into the inner sections of the cave, composed of halls and chambers of various

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**Fig. 3.** General plan of Qina Cave with space designations and survey basket locations (for details, see App. A). Arrows indicate the most difficult squeezes. For the enlarged sections (rectangles 1–5) see Figure 8. (Drawing by S. Yaaran, B. Langford, and M. Ullman)
sizes connected by a maze of passages (Fig. 7a, b). En route to the innermost segments of the cave (Halls K–N), there are further extremely narrow and hidden squeezes that must be negotiated, the most difficult of which are indicated in Figure 3. The newly discovered subterranean system eventually connects with the “original” cave (Corridor X–Y) through a very low (20–30 cm) and long (ca. 30 m) passage (W), along which it is particularly arduous to crawl.

Ashalim Cave is considerably smaller than Qina Cave (570 m in total length) but extends over several levels, totaling more than 30 m in vertical difference (see Figs. 5, 6) (Frumkin and Langford 2017). The sole entrance to the cave was breached in the ceiling of its larger hall (Hall A) and is visible only from the immediate surroundings (see Fig. 2b). The shaft-like entrance drains colluvial sediments through runoff into the hall; these sediments accumulated over time up to the level of the shaft, enabling a relatively easy descent into the cave today. It is possible, however, that during the Late Chalcolithic the entrance was more challenging and perhaps demanded the use of ropes. At the bottom of the hall is a series of smaller galleries (B, C), which was already studied in past archaeological and palaeo-environmental explorations of the cave (see below). Narrow squeezes (indicated in Figs. 5, 6) lead from these galleries down to the lowermost level of the cave, where a long boulder-strewn corridor extends from northwest to southeast (Passage D). From the southern end of this corridor (Chamber Dc [Fig. 7c]), one can continue into the inner sections of the cave, which include several medium-sized chambers (E, H, I, K, L) connected by a three-dimensional maze of narrow passages.

Formation processes in the caves during the Holocene, apart from human-induced processes (discussed in detail below), may be divided between geomorphic and biogenic agents, the latter having particular significance from a post-depositional perspective. Sediments of aeolian and colluvial origins were deposited in the exterior sections of the caves, predominantly in Ashalim Cave Hall A (see above). These deposits had minimal impact on the inner sections of the caves, where sediment accumulation of geological origin was limited to the products of bedrock erosion, usually deposited above and between the boulders that cover most interior chambers. No active deposition of speleothems was noted, and regional studies show that dry conditions prevailed in the Negev Desert throughout the Holocene (Vaks et al. 2017).
Striped hyenas (Hyaena hyaena), porcupines (Hystrix indica), and insect-feeding bats (Microchiroptera) are the dominant mammals active in the caves, as evident from the considerable accumulations of dung and guano in pockets between the boulders or in quasi-flat areas (Fig. 7e, f). Animal bones, brought and consumed by hyenas, are sporadically spread in several segments of both caves but are especially abundant in Corridor X–Y, the southern exterior section of Qina Cave, which served as an active den until recently (see below). Occasional complete skeletons of small mammals and birds were also noted, the remains of animals that died inside the caves.

Previous Explorations

Both caves were discovered and partially explored during the last decades. The first documented visit of Ashalim Cave by a National Parks Authority ranger in 1970 led to a brief survey of the cave by Rudolph Cohen, inspector of the Israeli Department of Antiquities and Museums (today, the Israel Antiquities Authority)
Cohen, who dubbed it “Nahal Zal zal Cave,” surveyed its exterior sections (Hall A and Gal-leries B, C on our map; cf. Cohen 1985: 8, fig. 1), possibly as far as Chamber Dc (see below). He discovered typical Late Chalcolithic Ghassulian pottery, including complete and semi-complete vessels, in addition to some Early Bronze Age and Middle Bronze Age I (= Intermediate Bronze Age) sherds but did not indicate exact find spots (Cohen 1971; 1985: 7–8; 1999: 20). He hypothesized that the cave was used for habitation during the Late Chalcolithic and noted the typological resemblance of the pottery assemblage to those from the Beersheba Valley settlements. This likeness was corroborated by the results of a petrographic examination of a few vessels, demonstrating that most of them originate in the latter region (Goren 1999).

Qina Cave was first reported by Yehuda Govrin, then of the Department of Antiquities, who surveyed the southern exterior section of the cave (our Corridor X–Y) in the mid-1980s as part of a yet-unpublished cave survey in the Nahal Hemar drainage basin, which followed the discovery of the treasures of Pre-Pottery Neolithic Nahal Hemar Cave (Bar-Yosef and Alon 1988). During this survey, a dense scatter of animal and human bones was observed on the surface of the corridor, reflecting its use as an active striped hyena den, and a large bone sample was subsequently collected by Liora Kolska Hor-witz for taphonomic studies (Horwitz and Smith 1988; Kerbis-Peterhans and Horwitz 1992). In 2000, the same corridor was briefly excavated by Govrin together with Hanan Eshel, an operation that produced a small collection of material culture remains dated to the Late Chalcolithic, Early Bronze Age, and the Roman and Mamluk periods (Eshel and Govrin 2003).

Methods

The renewed study of Qina and Ashalim Caves was conducted as part of a new research program, led by two of the authors (Uri Davidovich and Micka Ullman), which examines the exploitation patterns of large cave systems by southern Levantine early complex societies. This initiative builds on recent advancements in speleo-logical research in the region, the result of continuous

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1 In previous publications, the formerly known segment of Qina Cave (currently designated Corridor X–Y) was alternatively referred to as “Horvat Uza Den” (Horwitz and Goldberg 1989: 73; initially reported as a “second den” in Horwitz and Smith 1988) and “Nahal Qina Cave” (Eshel and Govrin 2003; see also Langford and Ullman 2015). Due to the resemblance of the designation “Nahal Qina Cave” to that of another famous late prehistoric cave site in the southern Levant (i.e., Nahal Qanah Cave [Gopher and Tsuk 1996a]), we decided to omit the first word and label the entire cave system discussed here (both the “old” and “new” sections) “Qina Cave.”
explorations conducted by the Israeli Cave Research Center over the past 35 years, which included the discovery and mapping of large, previously unknown caves and cave sections (Frumkin, Langford, and Porat 2017; Langford and Frumkin 2013). Several Israeli Cave Research Center exploratory expeditions between 2011 and 2013 mapped, for the first time, the interior (southern) sections of Ashalim Cave and revealed the second entrance to Qina Cave, which led to the discovery of this uniquely large subterranean system that eventually con-

Fig. 7. (a) A typical passage in Qina Cave; (b) the southwestern part of Hall K, the largest hall of Qina Cave; (c) Micka Ullman points to the find spot of an intact multi-handled jar covering infant skeletal remains (Ash-2) discovered in Ashalim Cave Chamber Dc; (d) human bones belonging to an aged woman (Qn-1) heaped above and between several large boulders in Qina Cave Hall R, with an almost intact jar placed on top; (e) human skull of a young adult female (Qn-3) below a large boulder near the northern wall of Qina Cave Chamber M, embedded in accumulated bat guano; and (f) base fragment of a closed ceramic vessel and several fragments of human femur and tibia in Qina Cave Chamber P, surrounded by porcupine coprolites. (Photos by M. Ullman, B. Langford, and S. Yaaran)
nected with the “original” section of the cave discovered by Govrin. In the interior segments of both caves, human skeletal remains as well as Late Chalcolithic artifacts were observed, stimulating the systematic archaeological work that soon followed.

As a result of the relatively thin deposits in the interior sections of both caves (see above), artifacts and ecofacts were generally encountered on the surface, and no excavation was required to uncover them. Thus, archaeological fieldwork was based on systematic coverage of entire cave areas, including barely accessible sectors, and total surface retrieval of artifacts and human bones according to spatially defined localities (designated “collection units” or “baskets”), which were sequentially numbered and marked on cave maps (Figs. 3, 5, 6, 8; Apps. A, B). Each space was thoroughly surveyed by teams of three–eight surveyors, with an attempt to scan not only current cave “floors” but also smaller spaces concealed between and below boulders as well as hidden fissures. This was occasionally accompanied by manual removal of small and medium-sized rocks, particularly where surface finds indicated possible post-depositional gravitational slithering of anthropogenic remains. The recording of each basket included a detailed description of its content and location, with particular attention to the state of preservation and possible damage or movement caused by post-depositional processes, as well as on-site photography. All the collected materials were then carefully wrapped to enable their safe transport to cave entrances.

The artifactual categories retrieved from the two caves include pottery, flint, stone, shell, wood, metal, and ivory (see below). All artifacts were typologically and technologically scrutinized in order to facilitate a comparative investigation vis-à-vis artifactual assemblages of other Late Chalcolithic sites, particularly settlement sites located in the neighboring region of the Beersheba Valley, as well as Ghassulian mortuary sites. Some of the artifacts were further subjected to chemical, isotopic, or mineralogical analyses (metal, stone), taxonomic identification (wood, shell, ivory), radiocarbon dating (wood), in addition to provenance and functional studies.

Animal bones, observed together with other faunal traces (coprolites, hair, footprints) in various segments of both caves, were regularly described in the field. In addition, all visible animal bones from Ashalim Cave were collected and taphonomically examined in the laboratory. As this small collection reflects minor biological activities of rodents or larger mammals, it is not presented in this article. The comprehensive taphonomic study conducted on a large bone sample (containing both human and animal bones) from the exterior southern section of Qina Cave (Horwitz and Smith 1988; Kerbis-Peterhans and Horwitz 1992) was used as a reference for inferring post-depositional biogenic damage to the human bones retrieved from the interior segments of the cave. For both caves, analyses of human skeletal remains used conventional standards to determine age and sex as well as to identify pathologies and the type and degree of post-depositional damage.

3 For details, see Langgut et al. 2016; and Yahalom-Mack et al. 2015.
4 The osteological remains from Qina and Ashalim Caves were sequentially numbered as part of the retrieved collection units (= baskets). Skeletal material that could be attributed to the same individual, based on both osteological evidence and relative provenance, were given an individual designation (sequentially numbered for each cave: Ash-1, etc. for Ashalim Cave and Qn-1, etc. for Qina Cave). The bones were cleaned of excess sediments and reassembled anatomically. All the remains underwent comprehensive anthropological analysis, including morphometric and morphological studies, as well as age and sex evaluations. Age determination was based on suture closure (Buikstra and Ubelaker 1994), tooth eruption and attrition rate (Lovejoy 1985), epiphyseal closure (Bass 1995; White and Folkens 2005), presence of osteophytes and arthritic lesions on vertebral bodies (Nathan 1962), and sternal end of clavicle and ribs (Işcan, Loth, and Wright 1984). For young individuals, age was evaluated from stages of tooth eruption (Buikstra and Ubelaker 1994) and postcranial bone size (Schaefer, Black, and Scheuer 2009). Sex determination was based on the morphology of the skull (Bass 1995; Buikstra and Ubelaker 1994) and/or on humerus and femur maximum head diameter and maximum epicondylar width (Bass 1995; White 1991). Estimation of adult stature was based on long bones of lower and upper limbs (Bass 1995). MNI at each site was estimated based on cranial material (Lie 1980) in combination with relevant spatial observations. In addition, the remains underwent macro-inspection for bone and dental pathologies in order to determine levels of health and trauma. Trauma was identified through observations such as fractures, lesions, bone remodeling, and cut-marks (Roberts and Manchester 2005). Diseases were identified based on changes in the normal texture of the bone (e.g., renewed bone formation, porosity [Roberts and Manchester 2005]). Among the dental pathologies we studied were attrition, caries, hypoplasia, calculus, antemortem tooth loss, and periodontal disease (Bass 1995; Molnar 1971). Finally, the skeletal remains were examined for rodent and carnivore damage, including pitting, scoring, and puncturing of the bone surface (White and Folkens 2005).

2 Qina and Ashalim Caves were mapped in the scale of 1:200 according to standard planar and vertical cave-mapping procedures (Dasher 1997); enlarged maps were done in the scale of 1:100 for specific chambers that were rich in anthropogenic remains (see Fig. 8). Measurements were taken using a Leica Disto D3 laser meter-inclinometer and Silva Ranger 3 prismatic compass with the error of map skeleton points estimated in 0.1 m or less (Mapping Grade 5C; Langford, Davidovich, and Frumkin 2015). The manual addition of cave walls and features was relative to ground level. Later, an accurate outline of the skeleton was produced using Limelight software, and field drawings were corrected in keeping with software outputs. Final computerized editing (using Adobe Illustrator) follows conventional cave-mapping graphics (see the legend in Frumkin 2015).
Fig. 8. Qina Cave’s five enlarged spaces (1–5) with survey basket locations (for spatial overview, see Fig. 3; for details, see App. A). (Drawings by M. Ullman, B. Langford, and S. Yaaran)
Late Chalcolithic Mortuary Remains in Qina and Ashalim Caves

Survey Results

The systematic survey of Qina and Ashalim Caves exposed a clear dichotomy in the spatial distribution of material culture remains. While the exterior sections of both caves, in proximity to the caves’ entrances, yielded diverse—albeit relatively meager—evidence for ephemeral use during multiple periods, the interior sections produced solely Late Chalcolithic Ghassulian artifacts, which were generally associated with human skeletal remains.

In Ashalim Cave, the entrance hall (A) and neighboring galleries (B, C) contained remains of Bedouin activity dated to the last centuries, including sherds of distinct Ottoman-period Gaza Ware vessels, as well as a cache of artifacts made of organic materials concealed in Chamber B. In addition, a single diagnostic Intermediate Bronze Age hole-mouth cooking pot fragment was found in Passage D, and a few body sherds of possibly similar date were found in Spaces C and D, corroborating Cohen’s initial identification of sherds from this period in the cave (see above). Flint implements and worn body sherds, which could not be dated with certainty, were found on top of the steep colluvial scree in Hall A; these clearly originated from the slope outside the cave and were washed down through the shaft and deposited together with the colluvial sediments. Unlike in the outer segments, only Late Chalcolithic artifacts were encountered in the small chamber at the southeastern end of Passage D (Area Dc) and in the southern, interior part of the cave. These were located in several chambers and passages surrounding Chamber Ec (see Figs. 5, 6), where scattered human bones belonging to a single individual (Ash-1 [see below]) were partly disturbed by recent visitors. A concentration of Late Chalcolithic artifacts, in immediate association with the skeletal remains of an infant (Ash-2), were found in Area Dc, below the difficult-to-negotiate shaft that connects to the exterior section of the cave (see Fig. 7c). It is highly likely that the Late Chalcolithic pottery assemblage recovered during Cohen’s survey originated in this area or somewhere above it in the southernmost segment of Gallery B (cf. Cohen 1971).

A similar and all the more discrete spatial distinction between interior and exterior segments was encountered in Qina Cave. Here, the southern exterior section studied by Govrin and Eshel (our Corridor X–Y) yielded a total of 74 sherds, of which only a few are chronologically diagnostic. These include, according to our observations, Late Chalcolithic/Early Bronze Age flat bases, an Early Bronze Age ledge handle, and a Roman-period cooking pot. Several other artifacts recovered from the corridor, including a copper-based awl and a few non-diagnostic flint items, probably belong to the Late Chalcolithic/Early Bronze Age as well, while other iron-based artifacts (including two rings, a needle, and an arrowhead) are seemingly Roman or later in date. In addition, several sub-modern metal artifacts, as well as pieces of cloth, cords, and worked leather, attest to some Bedouin activity in this part of the cave. Similarly, Hall A, the first chamber inside the northern (new) entrance to the cave, produced a few Early Bronze Age sherds (probably of Early Bronze Age II date) and several later pottery fragments (Roman?), two of which were reused as oil lamps based on distinct soot marks. This hall, however, also contained a relatively large assemblage of Late Chalcolithic Ghassulian pottery (Fig. 8:1; and see below). Proceeding from the exterior sections into the depth of the cave, the subsequent passages and chambers are almost entirely devoid of archaeological remains; and, as in Ashalim Cave, the innermost sections between Halls K and R (see Fig. 3) yielded solely Late Chalcolithic artifacts, again in spatial association with human skeletal remains.

Material Culture

Overall, the quantity of material remains in the interior sections of Qina and Ashalim Caves is fairly limited. Interestingly, not only do these sections contain solely Late Chalcolithic remains, but artifact selection patterns show much resemblance between them. This is evident by the material categories as well as specific artifact types present in the mortuary areas.

Pottery. The dominant material category in both caves is pottery. Only 16 vessels, however, were identified to type in the interior parts of the caves (11 in Ashalim, inclusive of Cohen’s survey results, and 5 in Qina), while the maximum number of vessels originally deposited in those sections was not much larger, to judge from the total quantity and spatial distribution of sherds. The Ashalim Cave assemblage includes two complete small, “V-shaped” bowls decorated with painted reddish bands along the rim (Fig. 9:1, 2); five multi-handled, small, neckless jars, including one intact specimen recovered by Cohen (1999: fig. 5:1), as well as another intact jar (Fig. 9:3) and three fragmented specimens (Fig. 9:5, 7, 8) from the renewed survey; one complete handle-less, small, necked jar collected by Cohen (1999: fig. 5:2); three larger closed vessels, of which two medium-sized necked jars are represented by rim fragments (Fig. 9:10, 11); and...
Fig. 9. Late Chalcolithic pottery from the mortuary areas in Qina and Ashalim Caves (nos. 4, 6, 9, 13 from Qina Cave): (1, 2) V-shaped bowls; (3–8) multi-handled jars; (9) small necked jar; (10, 11) necked jars; (12) churn (handle); and (13) hole-mouth jar. For detailed basket information, see Appendices A and B. (Scans and drawings produced by the Computerized Archaeology Lab at The Institute of Archaeology, The Hebrew University of Jerusalem)
one chURN, represented by a complete neck uncovered during Cohen’s survey (1999: fig. 5:6) as well as by a large handle (Fig. 9:12) and other fragments decorated with large, painted reddish bands collected during our survey. It is possible that additional base fragments (e.g., Cohen 1999: fig 5:3–5) and body sherds retrieved in both surveys belong to other specimens, particularly large closed vessels (to judge from their coarse fabric and thick walls); however, it is clear that the maximum number of vessels did not exceed 15–18 at most. The three complete vessels (an intact multi-handled jar and two restored bowls) and most churn fragments recovered during the renewed survey were collected in Area Dc together with the bones of an infant (Ash-2 [see below]), fragments of a tabular scraper, and a complete seashell. As already mentioned, it seems that the main bulk of Cohen’s survey collection derives from the same area. The rest of the pottery, all fragmented, was found in Areas E and H, with a single sherd observed in a small chamber branching off Passage F (see Figs. 5, 6 and App. B).

The inner segments of Qina Cave yielded even fewer vessels. Here, only five vessels are either complete or represented by diagnostic fragments. These include a small, V-shaped bowl from the northern entrance to Hall K, the largest hall of the cave; fragments of two multi-handled, small jars from Chambers M and N (Fig. 9:4, 6); one intact medium-sized hole-mouth jar placed upside down behind a rock “curtain” in Chamber N (see Figs. 8:4, 9:13); and one almost-intact small, handle-less necked jar positioned on top of a heap of human bones representing a secondary burial placed between boulders in the southern part of Hall R (Fig. 9:9). In addition, a peculiar phenomenon was encountered in the inner sections of Qina Cave—that is, isolated, large base fragments or body parts of large closed vessels placed in designated locations with no indication as to the whereabouts of the other parts of these vessels. Four large base portions were found (partially fragmented) in Areas E, K, L, and P, while two large body parts were noted in Areas C and L. Aside from these large fragments, scattered sherds were minimal, and the large pieces were clearly deposited as already-broken items; had their fragmentation been a result of post-depositional processes, the remaining portions of the vessels would have been found in their vicinity.

A major difference between Ashkelon and Qina Caves is the large pottery assemblage retrieved from Hall A, the first hall inside the northern (new) entrance to Qina Cave (see Fig. 8:1). Here, pottery fragments were scattered over most of the boulders comprising the suspended floor of the hall, significantly in its eastern part, but no discrete concentrations of restorable vessels were encountered. It should be noted that this chamber witnessed some activity in later periods as well as minor looting in modern times (but neither penetrated the inner segments of the cave), hindering a clear reconstruction of Late Chalcolithic primary depositional processes. A minimum number of 17 different vessels was calculated, divided among six small to medium-sized V-shaped bowls, one goblet, three simple-rim hole-mouth jars, one large hole-mouth jar with thumb-impressed rim, four medium-sized necked jars, and two churns (Fig. 10). This hall had no other Late Chalcolithic artifacts, and only one fragment of a human mandible was retrieved here (see below).

The ceramic assemblages from Qina and Ashkelon Caves clearly share common typological traits. While statistical analysis is hindered by the small number of vessels deposited, both caves contain similar vessel categories, including V-shaped bowls, small and medium-sized necked jars, multi-handled jars, and churns. All categories are typical of the Beersheba Valley cultural facies of the Ghassulian entity, considered a later component within the Late Chalcolithic (Gilead 2011), and are found in all major settlement sites in the valley, such as Arad (Amiran et al. 1978), Horvat Beter (Dothan 1959), Abu Matar (Commeng-Pellerin 1987), Bir Safadi (Commeng-Pellerin 1990), and Shiqmim (Levy and Menahem 1987). Nonetheless, the types encountered at Qina and Ashkelon Caves represent only a fraction of the entire typological spectrum present at the settlement sites. When examining only the inner sections of the two caves (i.e., the mortuary areas), one type clearly stands out—that is, the multi-handled jar, which comprises almost half of the vessels identified to type in those sections (7 of 16). Significantly, it is entirely absent from the exterior Hall A in Qina. This type has a relatively wide mouth, a short upright rim with no neck, a convex shoulder, a set of small lug handles alternating with vertical tubular handles in the upper part of the vessel, and a fairly limited volume. It has two main subtypes, differing in the shape of the lower part of the vessel: One is more elongated and has an overall “pear” shape, while the other is shorter and squat. Four of the vessels from Qina and Ashkelon clearly belong to the first subtype (Cohen 1999: fig. 5:1) (Fig. 9:3–5 here), all of which are made of a redish brown, relatively coarse fabric typical of most Late Chalcolithic closed vessels. The other three vessels (see Fig. 9:6–8) are represented only by upper portions and could belong to either subtype; they are set apart from the first group also by their fabric, a fine off-white clay with little temper, which associates them with the well-known “cream ware” family (e.g., Amiran 1955; Gilead and Goren 1989: 7–10). The multi-handled jar (all variants inclusive) is found in low frequencies at Ghassulian settlement sites (Commeng-Pellerin 1987: 53–55; 1990: 41–43), and its occurrence in Late Chalcolithic mortuary contexts seems rather sporadic (e.g., Nahal Qanah Cave [Gopher and Tsuk 1996b: 106, fig 4.10:1–3]; Kissufim
Fig. 10. Late Chalcolithic pottery from Qina Cave Hall A: (1–6) V-shaped bowls; (7) goblet; (8–10) hole-mouth jars; (11–14) necked jars; and (15–18) churns (rim and handles). For detailed basket information, see Appendix A. (Scans and drawings produced by the Computerized Archaeology Lab at The Institute of Archaeology, The Hebrew University of Jerusalem)
Road [Goren 2002: 27, figs. 4.4-4]; Peq’in Cave [Shalem, Gal, and Smithline 2013: 276, fig. 6.3.3, 4]). It therefore seems that the relative abundance of this type in the mortuary sections of Qina and Ashalim Caves is not fortuitous and expresses a conscious and careful selection, albeit difficult to interpret without in-depth research as to its function and distribution at other sites.

**Tabular Scrapers.** Four flint items were recovered from the inner segments of Ashalim and Qina Caves. Three of the items are tabular scrapers; one of these is partially restored from three fragments found together in Chamber Dc in Ashalim Cave, while the other two, collected in Hall K and Chamber N of Qina Cave, were found intact (Fig. 11:1-3). All three specimens belong to the well-executed version of this type, which, due to its transversal (side-struck) flaking, overall fan-like shape, and uniform retouch of the distal part, is usually referred to as a fan scraper (e.g., Neuville and Mallon 1931: 31; Rosen 1997: 71–80). They share similar dimensions, thin tentoid sections, total retention of cortex, complete removal of striking platform and bulb of percussion, ventral (reverse) retouch on the proximal end, and uniform retouch on the distal, fan-shaped end. Differences were noted with regard to the peculiar shape of the scraper from Qina Cave Chamber N, the result of a wide notch shaped in the middle of the proximal end using deep irregular ventral retouch, as opposed to the uniform semi-abrupt retouch on the quasi-straight proximal end of the other two specimens; and in the shaping of the fan-shaped end, between the fine abrupt retouch of the Qina Cave Chamber N specimen (which extends along its entire perimeter) and the Ashalim Cave specimen versus the semi-abrupt, deeper retouch of the Qina Cave Hall K specimen. The fourth item, also collected in Hall K in Qina Cave, is a cortical flake (Fig. 11:4), exhibiting retention of its cortex as well as platform removal and bulbar thinning, all typical treatments of Late Chalcolithic tabular flint industries (Rosen 1997: 74). However, this specimen is considerably thicker than the elaborate fan scrapers retrieved, and its rounded shape as well as its relatively small size probably rule out the possibility that it was brought in as a tabular scraper blank.

Highly crafted tabular scrapers were produced from flint nodules that abound in certain litho-stratigraphic units of the Eocene Age, exposed in specific subregions within the southern Levantine deserts. The largest blank production centers are located in eastern Jordan (e.g., Müller-Neuhof 2006; Quintero, Wilke, and Rollefson 2002), while small-scale quarries are known from central Sinai and the northwestern Negev Highlands (e.g., Har Qeren [Rosen 1983]), the latter located some 25 km west of Ashalim Cave. The final stages of production, such as bulbar thinning and retouch, were done either in the quarries or at the consumption sites (Fujii 2011). Tabular scrapers, an important component of Late Chalcolithic lithic assemblages, are found in small frequencies in most Ghassulian settlement sites, including those of the Beersheba Valley (cf., e.g., Levy and Rosen 1987: 287, fig. 10.6:1; Schick 1978: 58, pl. 81.1; and Yeivin 1959: 46). However, the occurrence of tabular scrapers—particularly, elaborate fan scrapers—in Late Chalcolithic mortuary contexts is fairly limited. Two tabular scrapers (one of which is a quasi–fan scraper) were found in two separate burial installations in the above-ground Cemetery 3 of Mezad Aluf/Shiqmim, the sole excavated Late Chalcolithic cemetery in the Beersheba Valley (Levy and Alon 1985: 132, figs. 11, 12); significantly, these were the only formal flint tools found in the cemetery and the only tools that could be interpreted as grave goods. Several tabular scrapers of various shapes were among the numerous (> 800) flint items recovered from Peq’in Cave in the Upper Galilee (Getzov 2013: fig. 7.6, 7).

**Shells/Shell Pendants.** A group of 26 shell pendants was cached in a fissure between boulders in Hall L (Fig. 8:2), the remotest hall in Qina Cave (Fig. 12). All pendants, while not identical, belong to a well-known Ghassulian pendant type, which, when made of shell, is composed of a small rectangular/trapezoidal portion of a mother-of-pearl valve with two holes drilled in its upper part (e.g., Bar-Yosef Mayer 1995; Bar-Yosef Mayer, Porat, and Davidovich 2014: 270–71). The Qina Cave group is the largest shell pendant collection found in a single Late Chalcolithic context. The pendants were shaped on valves of the Red Sea shell Pinctada margaritifera, commonly used for pendant manufacture during this period (along with the Nilotic shell Chambardia rubens arcuta, which was not used here [e.g., Lee 1973: 305–18], and measure 16–40 mm in length, 14–32 mm in width, and 1–2.5 mm in thickness, while the drilled holes have a diameter of 1.5–3.7 mm. Nine of the pendants exhibit delicate incisions of groups of diagonal lines in alternating directions, a typical Ghassulian motif observed, among other cases, on similar pendants from the mortuary sites of Kissufim Road (Bar-Yosef Mayer 2002) and Mezad Aluf/Shiqmim (Levy and Alon 1982: 46–52, fig. 10). At least eight pendants were repaired by drilling a new hole below an eroded or broken one; in four of these, both original holes were replaced, resulting in a new overall shape that somewhat resembles the lower part of the so-called violin-shaped figurines of the period (e.g., Commenge et al. 2006). A single pendant, the smallest specimen included in the Qina group, was initially crafted as an imitation of the violin shape (cf. a similar pendant found in Mezad Aluf/Shiqmim Cemetery 1 [Levy and Alon 1982: pl. 10:1]). The numerous repairs observed in the assemblage indicate that the pendants...
Fig. 11. Three fan scrapers and one flake from Ashalim (1) and Qina (2–4) Caves. For detailed basket information, see Appendices A and B. (Drawings by O. Dubovskaya)
were in prolonged use prior to their deposition, possibly as ornaments woven onto textiles or leather garments.

Two unworked valves were recovered in Ashalim Cave. Chamber E yielded four fragments of a single valve of the Nilotic nacre *Chambardia rubens arcuta*, while Chamber Dc produced an intact valve of the common Mediterranean shell *Glycymeris nummaria* (usually referred to as *G. insubrica*). Unmodified nacre valves and *Glycymeris* shells are known from numerous Late Chalcolithic sites, mortuary contexts included (e.g., Nahal Qanah Cave [Gopher and Tsuk 1996b: 128]; Peqiʿin Cave [Bar-Yosef Mayer 2013]).

**Ivory.** Not far from the pendant cache of Qina Cave Hall L, three fragments of an almost complete ivory cup, fabulously crafted from a hippopotamus tusk, were found (Fig. 13a). This “egg-shaped” cup is 52 mm long, and its mouth is slightly elliptic, measuring 34 × 38 mm. The thickness of the wall reaches 3.8 mm, while the recovered parts of the vessel weigh 15 grams. One side was adorned with two miniature “handles,” the upper one shaped like a pair of leaves, while the lower one is broken but probably had a similar shape. At the upper part of the opposite side, the stump of another handle or other decorative element can be seen above the rim of the vessel. Typologically, this vessel is unique in the southern Levantine sphere, although ivory artifacts feature prominently in the Beersheba Valley, and evidence for local production was attested at the site of Bir Safadi (Perrot 1959; 2006). Technological and artistic traits of the Ghassulian ivory

![Fig. 12. Shell pendants from Qina Cave Hall L. (Photos by T. Rogovski)](image-url)
assemblages find close parallels in the contemporaneous, pre-dynastic Badarian and Naqada I cultures in Egypt, and the Qina Cave cup could thus be of both local and foreign origins.5

**Wooden Shafts and Perforated Items.** Beyond the mortuary chambers of Ashalim Cave, on the surface of one of the innermost narrow passages (Gc), a single artifact was found, composed of a wooden shaft and a perforated lead object positioned ca. 4 cm from the upper end of the shaft (Fig. 14:1). The lead object is biconical and pierced along its longer axis. It is 37 mm long, with a maximal diameter of 36 mm, and weighs 155.8 grams; the perforation measures 16–18 mm in diameter. The wooden shaft is 22.4 cm long, with its lower end possibly broken; a 9 mm-wide depression was cut into the shaft near its upper smoothened end above the lead object. Abrasion marks are visible on the upper part of the lead object, possibly use wear. This object, the oldest lead artifact ever uncovered in the Levant, was tested for chemical and isotopic composition, and the results indicate a composition of almost pure metallic lead, probably originating in ores from the south-central Taurus Range of modern Turkey (Yahalom-Mack et al. 2015). A sample of the wooden shaft was radiometrically dated to 4325–4000 B.C.E. (2σ range; Langgut et al. 2016), according well with the relative dating of the pottery from the interior segments of the cave.

Four wooden shafts were collected from the mortuary segments of Qina Cave (Fig. 14:2–5). Three shafts were found in the difficult, boulder-strewn passage between Hall L and Chamber M, and a fourth shaft was collected in the northwestern corner of Hall K. Three of the shafts are intact, ranging between 40 and 56 cm in length, and one is broken on both ends. Taxonomic identification of the wood revealed that all shafts, including the Ashalim Cave shaft, were made of *Tamarix* (species unidentified), a common wood in all regions of the southern Levant and adjacent deserts. One shaft (B.127 [see Fig. 14:3]) has a shallow depression engraved near one end, resembling the depression of the Ashalim shaft, while another shaft exhibits intense polishing, possibly from use (B.157 [see Fig. 14:5]); both shafts were sharpened on their opposite ends.

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5 For ivory cups in pre-dynastic Egypt, see, e.g., Petrie Museum Catalogue nos. UC4296 and UC9054.
ends. Microscopic examination revealed plant fiber remains on all four shafts; five of the fibers were positively identified as bast fibers, most probably flax (Langgut et al. 2016). The radiocarbon date obtained from one of the shafts (B.128: 4040–3960 B.C.E. [2σ range]) is again in accordance with the typo-chronology of the artifacts found in the interior sections of Qina Cave and suggests a rather late date for the mortuary activities within the Ghassulian sequence (cf. Gilead 2011).

Three rounded basalt weights were found grouped together in the central part of Hall K in Qina Cave (B.152–154 [Fig. 14:6]). These weights, commonly identified in the literature as spindle whorls (e.g., Levy and Gilead 2012), share similar, albeit not identical, dimensions: They are discoidal in shape, measuring 42–49 mm in diameter, 14–17 mm in thickness, and 50–68 grams in weight. The inner diameter of the biconical perforations, drilled in the center of the whorls from both sides, ranges between 5.8 and 7.5 mm.

It has been suggested, based on the overall morphology of the wooden shafts, further specific attributes (carved depressions, polishing/filing, sharpened ends), and the associated plant fibers, that they should be identified as spinning-related implements—that is, spindles and distaffs, the earliest of their kind uncovered to date in the Levant (Langgut et al. 2016). While the Qina Cave shafts could have been used in more than one spinning method (Langgut et al. 2016), it is clear that they are not directly related to the basalt whorls found nearby, as the perforations of the latter are too narrow to enable attachment to the shafts. The unique, composite object from Ashalim Cave, other than resembling a spindle, may also be identified as a mace, as was initially hypothesized by our group (Yahalom-Mack et al. 2015) and later promoted by Erez Ben-Yosef and his colleagues (2016: 499) due to the relatively heavy weight and the rarity of the raw material (lead) of the perforated item. However, this possibility has its shortcomings in regard to the small size

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Fig. 14. Wooden shafts (1–5) as well as lead (1) and stone (6) weights from Qina and Ashalim Caves. For detailed basket information, see Appendices A and B. (Photos by P. Shargo; drawings by O. Dubovskaya)
and raw material selection of the presumed mace-head, as compared with the hundreds of Late Chalcolithic metal (copper-based) mace-heads known to date, mostly from the Nahal Mishmar Hoard (Bar-Adon 1980; see Sebbane 2016: 444–45). Thus, the primary function of the Ashalim Cave object and its particular significance within the associated mortuary context remain a matter of debate (see now Ben-Yosef, Shamir, and Levy 2017; and Langgut et al. 2017).

Handprint. In addition to the portable artifacts, a single imprint of the left palm of a human adult’s hand was observed on the whitish limestone wall of Chamber G in Qina Cave (Fig. 13b). As the inner segments of Qina Cave show no evidence of either modern or ancient post–Late Chalcolithic human intervention, it is suggested that the handprint dates to the Late Chalcolithic. No other handprints are known to date from the prehistoric southern Levant. Its location, with no apparent connection to other anthropogenic elements, may imply that it served as a symbolic orientation sign in a central junction for those navigating in the maze of the cave, possibly indicating that the main route toward its interior segments, associated with the mortuary activities, was stretched from the northern entrance through Hall A and Chamber G.

Human Skeletal Remains

Ashalim Cave. Ashalim Cave yielded the human skeletal remains of only two individuals, apart from a single, worn human tooth found in Passage Db, which does not relate to either burial (see Figs. 5, 6 and App. B). The skeletal remains of a young female, 18–22 years old (Ash-1), were collected from the southern part of Chamber Ec. Some of the bones had been previously removed (and trampled upon) by modern visitors, who piled a few long bones on top of a large boulder. However, a meticulous search between and below other boulders surrounding the latter revealed more bones of the same skeleton. The bone collection belonging to this individual includes teeth, clavicles, a few ribs and vertebrae, a humerus, most parts of the pelvis, and a fibula, although other bones (including the skull) could have been taken away by recent visitors. One of the ribs shows evidence of pseudarthrosis, the movement of a bone at a fracture that could not adequately heal due to the soft tissue, indicating that this individual experienced an injury long before death.

The second specimen (Ash-2), a 1.5–3-year-old infant, was recovered from a much clearer context. During the renewed survey, a find spot rich in pottery sherds belonging to two small V-shaped bowls and a few other vessels, which also included fragments of a fan scraper and a seashell (see above), was noticed on the suspended bouldered floor of Chamber Dc. Removal of a few small and medium-sized rocks revealed a fissure between two larger boulders (see Fig. 7c), where an intact multi-handled jar was placed in an upright position (see Fig. 9:3). Just below this vessel, a few skull bones of an infant were located. Further examination deeper in the fissure yielded additional bones from the same individual together with pottery sherds, which partly joined with the sherds collected above the fissure (see Fig. 9:1, 2). It thus appears that the remains in this location represent a burial accompanied by grave goods, slightly removed and broken due to post-burial gravitational sliding, possibly enhanced by tectonic movement. The bone collection of the infant includes most of the skull bones, left clavicle, ribs and vertebrae, the pelvis, and two of the left leg long bones (femur and tibia). Missing bones might have slipped deeper into the fissure and could not be accessed. Pathologies of the skull bones include porotic hyperostosis (Fig. 15a) and cribra orbitalia, indicating anemia or lack of vitamins due to malnutrition. It should be stressed that neither gnaw marks nor other biogenic damage was noted on the bones of the two individuals.

Qina Cave. Human skeletal remains were recovered in four distinct spaces within the interior section of Qina Cave (L, M, P, R). While Halls L and R yielded discrete bone heaps belonging to single individuals with relatively little effect from post-depositional processes, Chamber M presented a dense scatter of a minimum number of three individuals, and Chamber P contained only few scattered bones, mostly cranial (see Figs. 3, 8, and App. A). Overall, the minimum number of individuals in the cave is estimated at six, based on cranial material in combination with spatial observations.

In the central part of Hall R, a bone pile containing most of the skeleton of an adult female (Qn-1), aged 48–54, was carefully placed on top of and between several large boulders (Fig. 7d). The bones were clearly disarticulated and included tarsal and carpal bones rarely found in other cases (see below); an almost complete handle-less jar was placed atop the bone heap (see Fig. 9:9). The skeletal remains bear no pathologies aside from a healed proximal hand phalange fracture and squatting facet on the tibia bone, indicating the individual often remained in a prolonged squatting position. The majority of the bones are complete, and no biogenic damage was observed, implying that post-depositional effect was minimal, possibly limited to the slithering of a few bones between the boulders. The absence of the skull is thus of particular significance, especially as none of the skulls found in other parts of the cave could belong to this aged woman.

The remains of a two–three-year-old infant (Qn-2) were concentrated between small boulders on the north-
ern scree of Hall I (see Fig. 8:2). A relatively small portion of the skeleton was recovered, including parts of the skull, ilium, ribs, and femur. As no post-depositional damage was observed on the bones, and no other infant bones were found anywhere in this hall or in other parts of the cave, it may be suggested that this collection reflects a secondary burial of selected bones. Evidence of cribra orbitalia on the roof of the left orbital cavity implies malnutrition or anemia, as in the case of the Ashalim Cave infant (see above).

Skeletal remains in Chamber M are numerous and spread over most parts of the chamber, as a result of post-burial bioturbation (Fig. 8:3). Most bones, retrieved from between the boulders at the central part of the chamber, are complete and bear no biogenic damage; however, several isolated bones (mainly along the northern wall) exhibit noticeable post-depositional damage, such as ruptures and epiphyseal destruction, possibly caused by hyenas. The chamber contains the remains of at least three individuals. One individual (Qn-3) is a 35–40-year-old female, approximately 1.50 m tall, from which mainly the skull (see Fig. 7e), mandible, and several long bones were found. Pathological observations relating to this woman are diverse: (1) a high dental attrition rate, a prolonged periodontal infection and a large abscess on the maxilla; (2) a post-coronal depression on the skull, which probably indicates cargo-carrying on the head from a young age; and (3) large lesions and additional osteogenesis imperfecta on the lumbar vertebrae, which caused severe lower back pain. Another individual (Qn-4) is a 20–25-year-old male, ca. 1.67 m tall, represented by long limb bones, pelvis, vertebrae, and ribs, with squatting facets observed on both tibia bones. A calvaria fragment, which was found outside of the main concentration of bones, may be associated with this individual and bears evidence of cribra

Fig. 15. Pathologies and taphonomic markers on human skeletal remains from Ashalim (a) and Qina (b–d) Caves: (a) porotic hyperostosis on an infant skull (Ash-2); (b) gnaw marks on a radius bone from Qina Cave Chamber M (Qn-5); (c) cribra orbitalia on a calvaria fragment (Qn-4?); and (d) multiple Wormian bones on a young adult female skull from Qina Cave Chamber P. (Photos by J. Abramov)
orbitalia (Fig. 15c). The mandibles of both individuals exhibit minor gnaw marks, probably from rodents (porcupines?) The third individual (Qn-5) is a young female, aged 20–25 and ca. 1.64 m tall, represented by numerous body parts but excluding the head. The muscle markers on both femurs are particularly pronounced, suggesting that this woman performed manual labor sitting for long periods of time in a cross-legged position. In addition, the foot bones show evidence of consistent barefoot walking, and one pathological vertebra indicates meningeal inflammation. Some of the bones show marks of rodent gnawing (Fig. 15b).

The skeletal remains in Chamber P (Fig. 8:5) are the most difficult to interpret. One complete cranium and one calvaria fragment, both of young adults, as well as a mandible fragment of an adult were found on the surface of this quasi-flat chamber, which is covered with porcupine coprolites and bat guano (see Fig. 7f). Other scattered bones are restricted to two shafts of long bones and a complete tibia. The cranial parts cannot be clearly associated with skeletal remains from other spaces; however, it is possible that either one of the calvaria belongs to individual Qn-5 from Chamber M—more specifically, the complete cranium suggested to belong to a young female. The Lambda point of the latter is rendered with multiple Wormian bones (Fig. 15d), a relatively rare phenomenon in this geographic region, which may be an indication of several diseases, such as pycnodysostosis, rickets, osteogenesis imperfecta, and Down syndrome.

Apart from the skeletal remains from the interior sections of Qina Cave, a single mandible fragment of a young adult male was found in Hall A. As this hall was used in multiple periods, the date of the fragment could not be fixed with certainty, although a Late Chalcolithic date is the most probable to judge by the relative abundance of sherds from this period.

Discussion

Site Formation Processes and Identification of Mortuary Contexts

The Late Chalcolithic artifacts and skeletal remains from the interior sections of Ashalim and Qina Caves were found in two main spatial circumstances: (1) above and between boulders in spaces entirely covered with collapsed blocks; or (2) resting on top of and somewhat embedded within soft sediments of geological and biological origins in spaces where boulder cover is partial. These conditions differ significantly in terms of post-depositional effect on the remains, which clearly affects our ability to infer systemic (i.e., original) mortuary customs. As a rule, in spaces belonging to the second type, such as Chambers M, N, and P in Qina Cave, activity of relatively large mammals (hyenas, porcupines) is more evident through accumulation of dung and other traces (see Fig. 7e, f). It is therefore hypothesized that the observed scatters of artifacts and human bones are largely the result of bioturbation. However, even in these chambers, the frequency of broken and damaged human bones is relatively low and mostly related to rodent gnawing (see Fig. 15b) rather than to the consumption patterns of hyenas. This observation is particularly significant regarding Qina Cave, where the southern exterior section (Corridor X-Y) is known to have been used as a hyena den, and its large, dense bone scatter, composed of wild and domesticated animals (Kerbis-Peterhans and Horwitz 1992), includes numerous human bones which bear multiple taphonomic indications of hyena-induced damage (Horwitz and Smith 1988). The origin of the human bones found in Corridor X-Y is unknown, and they could have been scavenged either from a nearby Bedouin cemetery (Horwitz and Smith 1988: 473) or from ancient burials located within the corridor (the possibility that bones were hauled from the interior sections seems very unlikely). Even if we assume that the human skeletal remains found in the corridor were initially deposited there, the fact that the passage was in use during multiple periods (see above), coupled with the lack of direct dating of the human bones found there, makes it impossible to contemplate these human remains in relation to the Late Chalcolithic mortuary activities in the interior segments of the cave. In regard to the human bones from Chambers M and P, it may be suggested that they belong to several individuals whose bones were initially placed in designated spots within those spaces (or, in the case of the few scattered bones in Chamber P, even in neighboring spaces) and were later disturbed by trampling animals, which created the observed bone scatters. It is not impossible, however, that a few highly damaged bones found in these chambers, or even one or two of the calvaria found in Chamber P, were brought by hyenas into the interior sections from Corridor X-Y.

Fortunately, four burials (two in each cave) were placed in boulder-strewn spaces, where biogenic activities were less destructive. Excluding the remains of an individual from Chamber Ec in Ashalim (Ash-1), which were disturbed by recent visitors to the cave (see above), a detailed examination of these burials enables us to infer the extent and variability of post-depositional processes in those spaces and to gain insight into initial Late Chalcolithic burial practices. One of these burials (Qn-2), located in Qina Cave Hall L, presents a discrete concentration of select infant bones not immediately associated with other remains or artifacts. While it is possible that other bones related to this burial were trampled or cov-
erected by stones rolling on the scree, it is less probable that a whole skeleton was initially placed in this location. A second infant (Ash-2), found in Ashalim Cave Chamber Dc, although it apparently was subject to some post-depositional (gravitational) movement that may have caused some of its skeletal parts to disappear, was treated in a completely different manner. In this case, the bones were placed between two large boulders together with several artifacts (two bowls, one multi-handled jar, one fan scraper, and one seashell), at least some of which were placed above the bones. The medium-sized stones that covered this burial might have been either deliberately placed to protect the burial or collapsed after the mortuary activities ceased. Undoubtedly the best-preserved burial is, however, that of Qina Cave Hall R (Qn-1). Here, the bones of an almost complete skeleton of an adult female, excluding the skull, were carefully placed in a niche above and between several large boulders, and a single intact handle-less jar was set directly on top of the bone heap (see Fig. 7d). While it is possible that the few missing bones of the body have slipped between the boulders, the absence of the skull probably reflects differential treatment prior to the final burial stage.

The three burials from Qina Cave Halls R and L and Ashalim Cave Chamber Dc thus exhibit varied burial practices in terms of skeletal completeness, attention given to the actual burial locale, and number of accompanying grave goods. However, it seems highly probable that all three cases (as well as the other burials in the interior segments of both caves) are secondary burials, as not even a single case of articulated bones was observed, as is clearly demonstrated in the in situ bone heap of the elderly woman (Qn-1). Moreover, unlike most other Late Chalcolithic burial contexts, in which at least some of the interred were set within designated bone receptacles, it is clear that no such receptacles were brought to Qina and Ashalim Caves, where burials comprise solely simple bone heaps. The possibility that containers made of organic materials were used instead of the common ceramic and stone containers can be ruled out due to the excellent preservation conditions in both caves, as attested by the recovery of perishable artifacts (e.g., the wooden objects). Textiles or basketwork (mats?) might have been used to carry the bones into the interior segments of the caves; however, these were apparently taken away after the funeral activities were completed.

The interior segments of Ashalim and Qina Caves also yielded several artifacts from designated find spots where no human bones were encountered. As already claimed, it is reasonable to assume—at least regarding the boulder-strewn spaces—that these artifacts were found either in situ or in proximity to their original deposition locales. In addition, while in most cases ruptures caused by gravi-

tational movement and animal trampling were attested, it is less feasible that large parts of once-complete vessels would have been removed by means of post-depositional processes. Thus, we may argue that most artifacts represented only by fragments were deposited in this manner, most notably the large base and body sherds of closed ceramic vessels observed in several spots in Qina Cave.

Material Culture: Social Affiliation, Communal Identity, and Ritual Comportment

Deciphering the meaning of material remains in mortuary contexts is a common theme in the scholarly discourse of the Ghassulian, encompassing social, ritual, and ideological realms of interpretation while building upon a large body of anthropological and archaeological literature (e.g., Binford 1972; O’Shea 1984; Parker Pearson 1999; Saxe 1970). It is generally argued that artifacts found in burial environments should be interpreted as grave goods, although associating objects with specific individual burials is hindered by the multiplicity of the dead and the absence of discrete spatial relations in most Late Chalcolithic burial contexts due to systemic and/or post-depositional processes (Joffe 2003: 58; Nativ and Gopher 2011: 237; Rowan 2014: 110–11). The more mundane, utilitarian artifacts, mainly pottery vessels, are sometimes seen as the wherewithal for an afterlife journey (e.g., Epstein 2001: 92), while luxurious objects, such as metals, ivories, and large basalt vessels, reflect relative wealth and social status of related individuals or lineages, suggestive—according to some—of “non-egalitarian forms of [social] organization” (Rowan and Ilan 2012: 103; see also Gopher and Tsuk 1996a: 226–33; contra Joffe 2003: 58–59). Several scholars advocate for the existence of a “standardized mortuary toolkit”; however, its specific content and significance are not clearly articulated (Golden 2010: 66; Ilan and Rowan 2011: 102). The possibility that some of the material remains are not grave goods but rather remnants of funerary rites (e.g., feasting) or other ritual activities was also considered (Golden 2010: 68), more specifically in relation to the proposed regional burial center in Peqiʿin Cave (Shalem, Gal, and Smithline 2013: 437–47). It should be emphasized, however, that detailed (and quantitative) comparative analysis of artifact assemblages from Late Chalcolithic mortuary contexts is largely lacking (see van den Brink 2005: 180–84), and the secondary burial receptacles (ceramic ossuaries, burial jars, stone basins) still dominate the discourse regarding the social and ideological significance of Ghassulian burial customs as expressed in material remains, as these receptacles are associated exclusively with burial sites (Bar-Yosef and Ayalon 2001; Nativ 2008; Nativ and Gopher 2011; Shalem, Gal, and...
Caves. On the other hand, the high frequency of multi-
assemblages of settlement sites (e.g., Epstein 2001), is
ceramic vessels in most Ghassulian burial caves, typically
den Brink 2005: 180–84]). In addition, the profusion of
and clay figurines, beads, perforated flint disks [cf. van
lian burials (e.g., limestone vessels, stone palettes, stone
artifacts that appear, in changing frequencies, in Ghassu-
from Qina and Ashalim Caves, as are numerous other
Caves are quantitatively limited as compared with those
from Qina and Ashalim Caves is indeed one of the more
significant aspects distinguishing these caves from other
Late Chalcolithic mortuary sites, shifting the spotlight to
the offerings associated with the burials.

Before attempting an in-depth interpretation of the
specific artifact types present in Qina and Ashalim Caves,
it is important to underline the broad cultural milieu re-
lected in their material assemblages. Unlike most other
Ghassulian burial sites, these caves are found outside (and
in the case of Ashalim Cave, well beyond) the boundar-
ies of the settled provinces of the Ghassulian, the latter
stretching from the Beersheba Valley northward into
the moister Mediterranean climate zone. As already
mentioned, the northern Negev highlands, where both
caves are located, were intermittently occupied by desert,
hunter–herder groups broadly fitting within the Timnian
cultural sphere, attested at sites such as the Halutzia dunes
(Noy 1970), Nahal Nitzana 103 (Burian and Friedman
1987), and Nahal Tzaft (Rosen 2011) (see Fig. 1c). The
material remains from Qina and Ashalim Caves, however,
are deeply rooted in the typo-technological sphere of the
Ghassulian and, more precisely, within its Beersheba Val-
ley cultural component (Gilead 2011), while being fun-
damentally different from those found at Timnian sites.
Identifying the cultural background of the interfered indi-
viduals within the Beersheba Valley has, inevitably, sig-
nificant implications in regard to the selection of remote
desert caves for the final burial of certain individuals far
from their associated living communities (see below).

The artifactual assemblages of Qina and Ashalim
Caves are quantitatively limited as compared with those
from most Ghassulian mortuary sites. Moreover, while
Qina Cave has a slightly more diverse representation of
cultural media, artifact selection patterns show much re-
semblance between the two caves, expressed not only in the
artifact composition of their mortuary zones but also in
what is typically found in other Ghassulian burials but is
absent in these two caves. Objects such as elaborate
basalt bowls and fenestrated chalices or copper-based
articles made in the lost-wax technique, sometimes per-
ceived as essential parts of the Late Chalcolithic “mor-
tuary toolkit” (Golden 2010: 66), are entirely missing
from Qina and Ashalim Caves, as are numerous other
artifacts that appear, in changing frequencies, in Ghassu-
lian burials (e.g., limestone vessels, stone palettes, stone
and clay figurines, beads, perforated flint disks [cf. van
den Brink 2005: 180–84]). In addition, the profusion of
ceramic vessels in most Ghassulian burial caves, typically
comprising various types that feature prominently in the
assemblages of settlement sites (e.g., Epstein 2001), is
not attested in the inner segments of Qina and Ashalim
Caves. On the other hand, the high frequency of multi-
handled necklace jars in their ceramic repertoires and
the presence of highly crafted tabular fun scrapers as the
sole flint tools single out Qina and Ashalim Caves from
contemporaneous mortuary sites. These shared patterns
are accompanied by other peculiarities, including a cache
of the largest shell pendant collection in a single Late
Chalcolithic context, the multiplicity of wooden shafts
related also to preservation conditions), and the unique
occurrences of a lead object and a handprint—both with-
out parallels in other Ghassulian mortuary sites.

The shared material language of Qina and Ashalim
Caves is a clear manifestation of deliberate communal
choices, which unmistakably go beyond the general cul-
tural affiliation with the Beersheba Valley. At the same
time, the limited number of artifacts and the specific ma-
terial traits in both caves do not seem to represent a sig-
nificant accumulation of wealth and related social status
as suggested for other, richer Late Chalcolithic mortuary
sites (e.g., Nahal Qanah Cave [Gopher and Tsuk 1996a]).
Notwithstanding the fundamental interpretation of these
remote, complex cave burials (see below), it seems to us
that the highly selective artifactual assemblages are a
reflection of sub-cultural communal identity, possibly
related to a segment of the Beersheban society special-
izing in animal husbandry. Apart from the location of
the two caves in areas suitable mainly for seasonal graz-
ing and the thorough acquaintance with the respective
regions needed for the discovery of these fairly hidden
caves, which only herders (and hunters) may possess, it
appears that at least some of the material remains could
be linked with herding. In this regard, we refer mainly
to the fan scrapers, which are commonly interpreted in
the context of skinning, butchering, hair shearing, or
hide processing (e.g., Barket and Bell 2011; Henry 1995:
372–73; Zutovski et al. 2016), and to the proposed identi-
ification of spinning-related implements (see above), the
connection between herding and spinning being widely
acknowledged (e.g., Barber 1991: 4; Levy and Gilead
2012: 135). The significance of domesticated caprines in
the subsistence economy of the sedentary communities
of the Beersheba Valley is well attested in both faunal re-
 mains and the use of secondary products (Grigson 1995),
most notably milk, as demonstrated by the abundance of
ceramic churns at settlement sites, examples of which
are also found in the inner sections at Ashalim Cave and
in Hall A at Qina Cave. Within this framework, it is also
possible that these and other artifacts denote gender val-
ues, connecting herding and associated tasks primarily
with women (Levy and Gilead 2012: 135). However, the
rarity of clear spatial associations between artifacts and
specific adult individuals in both caves renders this line
of interpretation tentative, even if reasonable given the
profusion of adult females in the skeletal assemblages.

Two final notes regarding the material remains are
related to ritual behaviors, which may be inferred based
on evidence from Qina Cave. The first issue concerns the broken ceramic vessels, mostly base fragments, which were deposited in designated locations in the inner segments of the cave. The inclusion of broken artifacts within mortuary assemblages is well attested archaeologically and could be related to the practice of destroying the belongings of the interred dead (e.g., Adams 2008; Buonasera 2013; Grinsell 1961 and references therein). Such destructions, well documented among contemporary societies, are commonly explained by the need to prevent the spirits of the dead from returning to the living world and reclaim their former property, and several studied cases demonstrate that both complete and damaged objects are placed in graves, reflecting a “mixture of fear and tender regard” toward the spirits (Frazer 1934: 121). Interestingly, broken grave goods were noted in several other Late Chalcolithic mortuary contexts—for example, the large corpus of broken basalt vessels in Nahal Qanah Cave (Gopher and Tsuk 1996a: 237). It remains unclear why the incomplete objects in Qina Cave are mostly large, closed ceramic vessels related to cooking and/or storage of foodstuffs, especially if these should be viewed in the context of afterlife resources (Epstein 2001: 90).

The second aspect worth exploring is the role of Hall A in Qina Cave. This hall combines qualities of exterior and interior spaces, as it is proximate to one of the cave’s entrances but is also utterly dark, hidden, and difficult to penetrate. The hall yielded a large Late Chalcolithic pottery assemblage that differs markedly from that of the inner sections of the cave and lacks other material remains comparable to the grave goods from the latter sections. The Hall A ceramic corpus contains mostly utilitarian vessels encompassing functions such as cooking, storage, serving, and churning, all basically related to the consumption of food. Thus, it may be suggested that this space was used for conducting funerary rituals, such as feasting, while the bones of the dead and accompanying burial offerings were carried into the inner segments of the cave. Other possibilities to explain the Hall A assemblage, such as remains related to the primary burial and excarnation stages or to an activity not connected to the mortuary activities in the inner segments of the cave (e.g., refuge), seem less probable, although they cannot be ruled out at this stage of research.

**Distancing the Dead**

Extramural secondary burial cemeteries are characteristically located in relative proximity to contemporaneous settlements and demonstrate repetitive use over extended time periods, resulting in palimpsests of mortuary-related remains (Golden 2010: 48–70; Rowan 2014). While variations in cemetery structures are readily recognized, possibly embodying varied social structures and/or ideological manifestations (Nativ 2014: 120–29), it seems that they all reflect the continued concern of the living communities for their dead kin during the prolonged liminal stage stretching between the actual death and final interment. When combining the available environmental, spatial, skeletal, and material data from Qina and Ashalim Caves, it is clear that mortuary practices in these caves conform to the cultural norm of secondary burials, on the one hand, but exhibit an entirely new burial pattern, on the other. Both caves (1) are located in the northern Negev Highlands within barren desert landscapes at a considerable distance from contemporaneous settlement sites; (2) have small, barely visible entrances that give way to complex, maze-like subterranean systems posing various challenges for movement, orientation, and execution of burial-related activities; (3) yielded skeletal remains and related grave goods only in their respective inner segments, considerably remote from the caves’ entrances; (4) express distinct material similarities in the inclusion and exclusion of artifact categories; and (5) were used for the burial of several individuals only, with significant proportions of women and infants. While each of these traits alone fails to find broadly similar parallels in other Late Chalcolithic mortuary contexts, including the relatively large (and active) karst systems of the Mediterranean region, it is the combination of all of these traits that makes Ashalim and Qina Caves a truly new phenomenon within the Ghassulian death dominion. This may be summarized as the decision to bury a few, probably carefully selected individuals in threefold isolation: far from the settled areas of related living communities, located in the Beersheba Valley; outside the normative cemeteries used by these communities, reflected most clearly at the site of Mezad Aluf/Shiqmim; and deep within large maze caves.

The deliberate expulsion of the individuals buried in Qina and Ashalim Caves from the communal cemeteries and their final deposition deep within maze caves in the desert might thus be regarded as an eloquent deviancy from what was considered normative in Ghassulian society. Mortuary deviancy is a known social mechanism symbolizing the (volitional or non-volitional) breaching of social norms either during one’s life or at death (Murphy 2008; Saxe 1970). In ethnographically and anthropologically studied societies, mortuary deviancy may be occasioned by the deceased’s criminal activity, mental illness, disability, witchcraft, or immoral behavior, or by death in battle or in other violent acts—such as drowning, suicide, and while giving birth, among others (Frazer 1934; Hertz 1960: 85; Shay 1985: table 2). Such a
rupture of social order demands that a normative burial, or the right to join the world of dead ancestors, be precluded, resulting in differentiated (deviant) postmortem treatment (Saxe 1970: 10–11; Shay 1985). The latter may include exceptional mortuary procedures within the communal graveyard or, alternatively, burial in secluded localities (Leach 2008; Parker Pearson 1999: 15).

However, it should be stressed that by no means may the deviant individuals be buried improperly, as their spirits might continue to wander, restless and revengeful, thereby posing a greater threat to the living (Frazer 1934: 11; Hertz 1960: 51; Tsaliki 2008). A duality is thus created in which deviant individuals are denied normative communal burial at death, while, at the same time, great effort must be made to ensure their appropriate and complete transition to the world of the dead (Leach 2008).

The duality described above is well manifested in the Qina and Ashalim Cave burials. Not only were the deceased awarded customary secondary burials, but the intricate transport of the bones into the depth of the caves; the detailed selection of grave goods, which seem to reflect communal subsistence patterns and/or individual identities/professions; and the differentiated treatment given to each individual all point to the careful attention with which they were handled. On the other hand, the removal of these individuals from communal burial grounds, probably located within the Beersheba Valley, and their distant both above-ground (into the desert) and underground (deep within maze caves), suggest that they were perceived as socially unfit for burial among their ancestors as well as a potential threat to the living. Although some of the deceased reveal specific pathologies and, in one case, possibly mental disability, we lack sufficient evidence to ascertain the reasons behind their expulsion, which, in any event, may well have been due to personal misconduct (in the case of adults) or death circumstances that are not recorded osteologically. Whatever the case, the discrete, multifaceted discrimination of the Qina and Ashalim Cave dead is clearly not coincidental and probably reflects real concerns either for the safety and wellbeing of the living or for the social order of the community.

Conclusions

The decision of one or two of the Beersheba Valley communities to banish certain dead from the communal diurnal sphere to remote, barely visible desert maze caves presents yet another new facet of the multifarious “death culture” of the Late Chalcolithic southern Levant (Rowan and Ilan 2012). The mortuary process of these few individuals was prolonged and involved several distinct stages. A prerequisite was a direct and intimate knowledge of remote desert landscapes that would have enabled the discovery of small, hidden cave entrances, as well as a “cultural attraction” to the underground, which would have led to a thorough acquaintance with these complex subterranean mazes. Evidence for the latter can be seen in the profound use of caves by the Ghassulian culture-bearers, across most regional facies and through multiple types of use, which probably reflects the high spiritual qualities that they ascribed to the subterranean sphere (Ilan and Rowan 2011). The first stages of the funerary process—primary burial and excarnation—could have been executed in several ways, possibly in the vicinity of the home settlements. When the time was due for the secondary and final burial, the bones had to be collected, wrapped (in perishables?), and carried a considerable distance into the desert, perhaps in some form of a ritual procession. Upon arrival at the cave entrance, a few (selected) individuals had to convey the bone packages and grave goods into the interior segments of the caves, journeys that would have been stressful and vexing, rife with numerous physical obstacles to negotiate through as well as perilous for the bones and related spirits. Only then was it possible to unpack the bones and lay the dead to rest peacefully, in most cases without any form of entombment. Specifically selected artifacts, symbolizing communal (and personal?) identity, were placed within the mortuary areas, either directly with the deceased or in designated neighboring locales. The possibility that the secondary burials were also accompanied by communal funerary rituals (e.g., feasting) has been raised, in particular in regard to the finds from Hall A in Qina Cave, but remains an ambiguity.

The odyssey intimated above, and the communal decision-making embodied in it, clearly reflect a non-ordinary treatment of certain dead, deviating from common Ghassulian mortuary practices. We have suggested that the most likely interpretation for the available data is that of distancing specific individuals whose spirits presented potential threats to the living communities, threats so profound that they had to be carried into the ultimate netherworld—the remotest, utterly dark, and most hard-to-access segments of large maze caves located in barren desert landscapes beyond the settled territories. At the same time, the complexity of the funerary process and the great effort made to honor the deceased with courteous secondary burials attest to the supremacy of religious beliefs associated with common funerary practices. While by no means the only possible interpretation, the multifaceted deviancy of the presented burials holds the key for any attempt to decipher their meaning. Above all, the archaeological narrative of Qina and Ashalim Caves alludes to the spiritual qualities of large complex caves—qualities that may be best manipulated by societies that are structurally drawn to these mysterious, symbolically loaded underworlds.
Acknowledgments

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Appendix A: Qina Cave Survey Basket List

<table>
<thead>
<tr>
<th>Basket</th>
<th>Space</th>
<th>Location Details</th>
<th>Content</th>
<th>Details</th>
<th>Suggested Date (Artifacts)</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>M</td>
<td>South-central part of chamber</td>
<td>Pottery</td>
<td>n = 1: base of multi-handled jar, conjoins with B.102</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:4</td>
</tr>
<tr>
<td>102</td>
<td>M</td>
<td>Slightly north of B.101</td>
<td>Pottery</td>
<td>n = 2: body sherds of multi-handled jar, conjoins with B.101</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:4</td>
</tr>
<tr>
<td>103</td>
<td>L</td>
<td>Eastern part of hall in a fissure between boulders</td>
<td>Shell pendant</td>
<td>n = 26</td>
<td>Late Chalcolithic</td>
<td>Fig. 12</td>
</tr>
<tr>
<td>104</td>
<td>L</td>
<td>Same as B.103 (upper level of pendant pocket)</td>
<td>Sediment sample</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>L</td>
<td>Same as B.103 (lower level of pendant pocket)</td>
<td>Sediment sample</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>L</td>
<td>Southern part of hall in a fissure between boulders</td>
<td>Ivory</td>
<td>n = 1</td>
<td>Late Chalcolithic</td>
<td>Fig. 13a</td>
</tr>
<tr>
<td>107</td>
<td>L</td>
<td>Southeaster part of hall below a large pottery fragment (B.131)</td>
<td>Charcoal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108</td>
<td>M</td>
<td>Central part of chamber</td>
<td>Human bones</td>
<td>Qn-4?: skull fragments</td>
<td></td>
<td>Fig. 15c</td>
</tr>
<tr>
<td>109</td>
<td>M</td>
<td>Next to B.108</td>
<td>Wood</td>
<td>Natural?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>M</td>
<td>Western part of chamber on top of a flat boulder</td>
<td>Human bones</td>
<td>Qn-5?: humerus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>M</td>
<td>In a fissure between two large boulders below B.110</td>
<td>Human bones</td>
<td>Qn-4: pelvis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>112</td>
<td>M</td>
<td>In a fissure between two large boulders below B.110</td>
<td>Human bones</td>
<td>Qn-??: scapula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>M</td>
<td>In a fissure between two large boulders below B.110</td>
<td>Human bones</td>
<td>Qn-??: vertebrae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>M</td>
<td>In a fissure between two large boulders below B.110</td>
<td>Human bones</td>
<td>Qn-5: left clavicle, scapula fragment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>M</td>
<td>In a fissure between two large boulders below B.110</td>
<td>Human bones</td>
<td>Qn-??: vertebrae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>M</td>
<td>In a fissure between two large boulders below B.110</td>
<td>Human bones</td>
<td>Qn-??: vertebrae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>M</td>
<td>Below large boulder of B.110</td>
<td>Human bones</td>
<td>Qn-5: femurs, ribs, vertebrae, navicular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>M</td>
<td>Northern part of chamber below a medium-sized boulder</td>
<td>Human bones</td>
<td>Qn-3: skull, phalanget</td>
<td></td>
<td>Fig. 7e</td>
</tr>
<tr>
<td>119</td>
<td>M</td>
<td>Northern part of chamber next to B.118</td>
<td>Human bones</td>
<td>Qn-3: mandible, right femur, right tibia, vertebra, carpal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>M</td>
<td>North (ca. 1.5 m) of main bone fissure (B.111–116)</td>
<td>Human bones</td>
<td>Qn-4: tibia, humerus, ulna, pelvis, mandible, sacrum, vertebrae, ribs, scapula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>M</td>
<td>South (ca. 1 m) of B.118, southern edge of medium-sized boulder</td>
<td>Human bones</td>
<td>Qn-3: left tibia, right ulna, metatarsal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix A—continued

<table>
<thead>
<tr>
<th>Basket</th>
<th>Space</th>
<th>Location Details</th>
<th>Content</th>
<th>Details</th>
<th>Suggested Date (Artifacts)</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>M</td>
<td>South (ca. 0.5 m) of B.121</td>
<td>Human bones</td>
<td>Qn-??: fragment of a long bone (ulna?) Fig. 15b</td>
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<tr>
<td>123</td>
<td>M</td>
<td>Northern part of main bone fissure (B.111-116)</td>
<td>Human bones</td>
<td>Qn-5: clavicle, vertebra, ribs, radius, fibula</td>
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<tr>
<td>124</td>
<td>M</td>
<td>Northeastern part of chamber next to northern wall</td>
<td>Human bones</td>
<td>Qn-??: femur shaft, joins with B.133</td>
<td></td>
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<tr>
<td>125</td>
<td>M</td>
<td>Northwestern part of chamber next to northern wall</td>
<td>Human bones</td>
<td>Qn-??: humerus, radius fragment Fig. 14:2</td>
<td></td>
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</tr>
<tr>
<td>126</td>
<td>M</td>
<td>Southeastern end of chamber, leaning against a boulder</td>
<td>Worked wood</td>
<td>Suggested distaff Late Chalcolithic</td>
<td></td>
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<tr>
<td>127</td>
<td>M–L</td>
<td>Boulder-strewn passage connecting M and L, next to northern wall between boulders</td>
<td>Worked wood</td>
<td>Suggested spindle rod Late Chalcolithic Fig. 14:3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>M–L</td>
<td>Boulder-strewn passage connecting M and L, next to northern wall, between boulders</td>
<td>Worked wood</td>
<td>Suggested distaff Late Chalcolithic Fig. 14:4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>129</td>
<td>L</td>
<td>Northeastern scree of hall, next to northern hall, west of difficult passage to Hall K</td>
<td>Human bones</td>
<td>Qn-2: ilium, skull, maxilla, ribs, femur</td>
<td></td>
<td></td>
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<tr>
<td>130</td>
<td>L</td>
<td>Northern part of hall, ca. 1 m south of north wall</td>
<td>Pottery</td>
<td>n = 7: conjoined to 1 large fragment of base of a large closed vessel (except 1 sherd) Late Chalcolithic</td>
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<tr>
<td>131</td>
<td>L</td>
<td>Southeastern part of hall in a fissure between boulders</td>
<td>Pottery</td>
<td>n = 6: conjoined (together with B.132) to 1 large fragment of a lower part of a large closed vessel Late Chalcolithic</td>
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<tr>
<td>132</td>
<td>L</td>
<td>Southeastern part of hall in a fissure between boulders</td>
<td>Pottery</td>
<td>n = 2: conjoined (together with B.131) to 1 large fragment of a lower part of a large closed vessel Late Chalcolithic</td>
<td></td>
<td></td>
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<tr>
<td>133</td>
<td>M</td>
<td>Northeastern part of chamber next to northern wall near B.124</td>
<td>Human bones</td>
<td>Qn-??: femur shaft, joins with B.124</td>
<td></td>
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<tr>
<td>134</td>
<td>P</td>
<td>Western part of chamber near junction</td>
<td>Pottery</td>
<td>n = 1: body sherd of a large vessel Late Chalcolithic Fig. 15d</td>
<td></td>
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<tr>
<td>135</td>
<td>P</td>
<td>Eastern part of chamber (designated Q) south and below large boulders</td>
<td>Human bones</td>
<td>Qn-??: complete cranium Late Chalcolithic Fig. 15d</td>
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<tr>
<td>136</td>
<td>P</td>
<td>Central part of chamber south and below a medium-sized boulder</td>
<td>Pottery</td>
<td>n = 2: 1 body sherd, 1 base, conjoined Late Chalcolithic Fig. 7f</td>
<td></td>
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<tr>
<td>137</td>
<td>P</td>
<td>Central part of chamber ca. 2 m southeast of B.136</td>
<td>Pottery</td>
<td>n = 1: 1 body sherd (minimum number of vessels [MNV] = 1) Late Chalcolithic Fig. 7f</td>
<td></td>
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<tr>
<td>138</td>
<td>P</td>
<td>Central part of chamber next to B.136</td>
<td>Human bones</td>
<td>Qn-??: tibia and femur shafts Late Chalcolithic</td>
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<tr>
<td>139</td>
<td>P</td>
<td>Central part of chamber west of B.138</td>
<td>Human bones</td>
<td>Qn-??: mandible fragment Late Chalcolithic</td>
<td></td>
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<tr>
<td>140</td>
<td>P</td>
<td>Northern part of chamber close to north wall</td>
<td>Human bones</td>
<td>Qn-??: calvaria fragment Late Chalcolithic</td>
<td></td>
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<tr>
<td>141</td>
<td>P1</td>
<td>Southern part of passage next to medium-sized boulders</td>
<td>Pottery</td>
<td>n = 1: body sherd of a large vessel Late Chalcolithic</td>
<td></td>
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<tr>
<td>142</td>
<td>P</td>
<td>Eastern part of chamber (designated Q), between entrances to Passages Q1–Q2</td>
<td>Human bones</td>
<td>Qn-??: left tibia Late Chalcolithic</td>
<td></td>
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<tr>
<td>143</td>
<td>R</td>
<td>Western part of hall below large boulders near entrance to Passage N1</td>
<td>Textile</td>
<td>??</td>
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</tr>
</tbody>
</table>
| 144    | R     | Southern part of hall, in a fissure between large boulder and eastern wall | Wood | Natural?
<table>
<thead>
<tr>
<th>Site</th>
<th>Description</th>
<th>Artefacts</th>
<th>Notes</th>
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<tbody>
<tr>
<td>R.145</td>
<td>Central part of hall above large boulders between a few medium-sized boulders</td>
<td>Human bones</td>
<td>Qn-1: left femur, tibia, fibulae, humeri, radii, ulnae, pelvis, sacrum, vertebrae, clavicles, scapulae, carpal and tarsal bones, mandible</td>
</tr>
<tr>
<td>R.146</td>
<td>Central part of hall in a fissure between boulders below B.145</td>
<td>Human bones</td>
<td>Qn-1: right femur</td>
</tr>
<tr>
<td>J.147</td>
<td>Southern end of passage near entrance to Hall K</td>
<td>Pottery</td>
<td>n = 1: base of small V-shaped bowl</td>
</tr>
<tr>
<td>N.148</td>
<td>Eastern section of chamber below a medium-sized boulder</td>
<td>Flint</td>
<td>Intact fan scraper</td>
</tr>
<tr>
<td>N.149</td>
<td>Eastern end of chamber in entrance to Passage N1</td>
<td>Pottery</td>
<td>n = 1: upper part of multi-handled &quot;cream ware&quot; jar</td>
</tr>
<tr>
<td>N.150</td>
<td>Western part of chamber south of medium-sized boulders</td>
<td>Leather/plant material</td>
<td>??</td>
</tr>
<tr>
<td>N.151</td>
<td>Near southern wall of chamber, deliberately placed upside-down behind a bedrock &quot;curtain&quot;</td>
<td>Pottery</td>
<td>n = 1: intact hole-mouth jar</td>
</tr>
<tr>
<td>K.152</td>
<td>Central part of hall on quasi-flat ground between medium-sized boulders</td>
<td>Basalt spindle whorl</td>
<td></td>
</tr>
<tr>
<td>K.153</td>
<td>Central part of hall on quasi-flat ground between medium-sized boulders</td>
<td>Basalt spindle whorl</td>
<td></td>
</tr>
<tr>
<td>K.154</td>
<td>Central part of hall on quasi-flat ground between medium-sized boulders</td>
<td>Basalt spindle whorl</td>
<td></td>
</tr>
<tr>
<td>K.155</td>
<td>Central part of hall, ca. 6 m west of B.152–54</td>
<td>Flint</td>
<td>Intact fan scraper</td>
</tr>
<tr>
<td>K.156</td>
<td>South-central part of hall, ca. 6 m south of B.155</td>
<td>Flint</td>
<td>Cortical tabular flake</td>
</tr>
<tr>
<td>K.157</td>
<td>Northwestern corner of hall in a hidden fissure</td>
<td>Worked wood</td>
<td>Suggested spindle rod</td>
</tr>
<tr>
<td>K.158</td>
<td>Southeastern part of hall near south wall next to boulder-strewn passage leading to Chamber M</td>
<td>Pottery</td>
<td>n = 9: conjoined to 1 large fragment of a base of a large closed vessel</td>
</tr>
<tr>
<td>E.159</td>
<td>In junction of passages leading to Chambers B and C</td>
<td>Pottery</td>
<td>n = 1: large base fragment of a large closed vessel</td>
</tr>
<tr>
<td>A.160</td>
<td>Western part of hall between large boulders above shaft leading to interior parts of the cave</td>
<td>Pottery</td>
<td>n = 3: body sherds, conjoinable</td>
</tr>
<tr>
<td>A.161</td>
<td>Southwestern part of hall on a rock shelf above entrance to the passage</td>
<td>Pottery</td>
<td>n = 1: &quot;improvised&quot; lamp based on large fragment of closed vessel</td>
</tr>
<tr>
<td>A.162</td>
<td>Southern part of hall between boulders</td>
<td>Pottery</td>
<td>n = 3: 1 body sherd, 1 base, 1 handle</td>
</tr>
<tr>
<td>A.163</td>
<td>Central part of hall between boulders</td>
<td>Pottery</td>
<td>n = 16: 13 body sherds, 1 base, 1 handle, 1 rim</td>
</tr>
<tr>
<td>A.164</td>
<td>Southeastern part of chamber below shaft leading to passage</td>
<td>Pottery</td>
<td>n = 21: 17 body sherds, 2 bases, 2 rims</td>
</tr>
<tr>
<td>A.165</td>
<td>Northeastern part of hall above passage leading to the cave's northern entrance</td>
<td>Pottery</td>
<td>n = 12: 8 body sherds, 2 handles, 2 rims</td>
</tr>
<tr>
<td>A.166</td>
<td>Northeastern part of hall above passage leading to the cave's northern entrance below B.165</td>
<td>Human bones</td>
<td>Qn-??: mandible fragment</td>
</tr>
<tr>
<td>A.167</td>
<td>Northeastern part of hall above passage leading to the cave's northern entrance below B.166</td>
<td>Pottery</td>
<td>n = 39: 34 body sherds, 1 base, 4 rims</td>
</tr>
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</table>
Appendix A—continued

<table>
<thead>
<tr>
<th>Basket</th>
<th>Space</th>
<th>Location Details</th>
<th>Content</th>
<th>Details</th>
<th>Suggested Date (Artifacts)</th>
<th>Figure</th>
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<tbody>
<tr>
<td>168 A</td>
<td></td>
<td>Northeastern part of hall above passage leading to the cave's northern entrance</td>
<td>Leather</td>
<td>??</td>
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<tr>
<td>169 A</td>
<td></td>
<td>Western part of hall below B.160</td>
<td>Pottery n = 4: 3 body sherds, 1 rim</td>
<td>Late Chalcolithic</td>
<td>Fig. 10: 11, 14</td>
<td></td>
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<tr>
<td>170 A</td>
<td></td>
<td>Southwestern part of hall in entrance to passage</td>
<td>Pottery n = 1: body sherd</td>
<td>Late Chalcolithic</td>
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<tr>
<td>171 A</td>
<td></td>
<td>Northeastern part of hall above passage leading to the cave's northern entrance</td>
<td>Pottery n = 55: 45 body sherds, 6 bases, 4 rims</td>
<td>Late Chalcolithic (+ Early Bronze Age?)</td>
<td>Fig. 10: 1, 6, 10</td>
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<tr>
<td>172 A</td>
<td></td>
<td>Southeastern part of chamber below shaft leading to passage</td>
<td>Textile</td>
<td>??</td>
<td></td>
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<tr>
<td>173 –</td>
<td></td>
<td>Slope in front of new (northern) entrance to cave</td>
<td>Pottery + flint Pottery n = 10: worn body sherds</td>
<td>Late Chalcolithic/ Early Bronze Age</td>
<td></td>
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<tr>
<td>174 S</td>
<td></td>
<td>Northern part of passage</td>
<td>Leather</td>
<td>Bedouin</td>
<td></td>
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</tr>
<tr>
<td>175 S</td>
<td></td>
<td>Northern part of passage</td>
<td>Worked wood Bowl fragment</td>
<td>Bedouin</td>
<td></td>
<td></td>
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<tr>
<td>176 S</td>
<td></td>
<td>Northern part of passage</td>
<td>Human bones Complete cranium</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>177 A</td>
<td></td>
<td>Southeastern part of chamber below shaft leading to passage</td>
<td>Botanics</td>
<td></td>
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<tr>
<td>178 R</td>
<td></td>
<td>Central part of hall, placed atop bone heap B.145</td>
<td>Pottery n = 1: almost intact handle-less necked jar</td>
<td>Late Chalcolithic</td>
<td>Figs. 7d, 9-9</td>
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<tr>
<td>179 R</td>
<td></td>
<td>Sample from inside B.178</td>
<td>Sediment sample</td>
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<tr>
<td>180 C</td>
<td></td>
<td>Southern part of chamber in front of entrance to Passage E</td>
<td>Pottery Same as B.182</td>
<td>Late Chalcolithic</td>
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<tr>
<td>181 A</td>
<td></td>
<td>Northeastern part of hall above passage leading to the cave's northern entrance</td>
<td>Basalt Bowl fragment</td>
<td>Late Chalcolithic/ Early Bronze Age</td>
<td></td>
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<tr>
<td>182 C</td>
<td></td>
<td>Southern part of chamber in front of entrance to Passage E</td>
<td>Pottery n = 3: 3 body sherds, some curate (MNV = 1)</td>
<td>Late Chalcolithic</td>
<td></td>
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</table>

Appendix B: Ashalim Cave Survey Basket List

<table>
<thead>
<tr>
<th>Basket</th>
<th>Space</th>
<th>Location Details (If Relevant)</th>
<th>Content</th>
<th>Details</th>
<th>Suggested Date (Artifacts)</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001 A</td>
<td></td>
<td></td>
<td>Pottery n = 87: 78 body sherds, 1 base, 6 handles, 2 rims; all but 6 belong to the Gaza Ware family</td>
<td>Mostly Ottoman, 6 non-diagnostic</td>
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<tr>
<td>1002 A</td>
<td></td>
<td></td>
<td>Flint n = 43: 13 cortical flakes, 22 flakes, 2 core trimming elements, 1 blade, 5 ad hoc tools</td>
<td>Non-diagnostic</td>
<td></td>
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<tr>
<td>1003 A</td>
<td></td>
<td></td>
<td>Animal bones n = 19: donkey = 11, fox = 4, sheep/goat = 1, hare = 1, jird = 1, small bird = 1</td>
<td>Non-diagnostic</td>
<td></td>
<td></td>
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<tr>
<td>1004 A</td>
<td></td>
<td></td>
<td>Glass</td>
<td>Non-diagnostic</td>
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<tr>
<td>1005 Aa</td>
<td></td>
<td>Narrow passages in southeastern part of the hall</td>
<td>Animal bones n = 1 (vulture)</td>
<td>Non-diagnostic</td>
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<tr>
<td>1006 Aa</td>
<td></td>
<td>Narrow passages in southeastern part of the hall</td>
<td>Pottery n = 1: body sherd</td>
<td>Non-diagnostic</td>
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<tr>
<td>1007</td>
<td>A</td>
<td>Worked wood (?)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
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<tr>
<td>1008</td>
<td>B</td>
<td>Pottery n = 9: 7 body sherds, 1 handle, 1 rim; all but one belong to the Gaza Ware family</td>
<td>Ottoman (1 non-diagnostic)</td>
<td></td>
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<tr>
<td>1009</td>
<td>B</td>
<td>Flint n = 3: 1 cortical flake, 2 flakes</td>
<td>Non-diagnostic</td>
<td></td>
<td></td>
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<tr>
<td>1010</td>
<td>B</td>
<td>Glass bracelet Fragment</td>
<td>Ottoman</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1011</td>
<td>B</td>
<td>Animal bones n = 9: donkey = 5, sheep/goat = 1, cattle = 2, gazelle = 1</td>
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<td>1012</td>
<td>B</td>
<td>Rounded niche in western wall of the chamber Worked wood (?)</td>
<td>Ottoman</td>
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<tr>
<td>1013</td>
<td>B</td>
<td>Rounded niche in western wall of the chamber Worked wood + textile</td>
<td>Ottoman</td>
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<tr>
<td>1014</td>
<td>B</td>
<td>Rounded niche in western wall of the chamber Ropes</td>
<td>Ottoman</td>
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<tr>
<td>1015</td>
<td>B</td>
<td>Bottom of small space between boulders Worked wood + rope</td>
<td>Ottoman</td>
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<tr>
<td>1016</td>
<td>B</td>
<td>Bottom of small space between boulders Pottery n = 3: 2 body sherds, 1 base</td>
<td>Ottoman</td>
<td></td>
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<tr>
<td>1017</td>
<td>B</td>
<td>Bottom of small space between boulders Worked wood</td>
<td>Ottoman</td>
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<tr>
<td>1018</td>
<td>B</td>
<td>Bottom of small space between boulders Ropes</td>
<td>Ottoman</td>
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</tr>
<tr>
<td>1019</td>
<td>B</td>
<td>Bottom of small space between boulders Textiles</td>
<td>Ottoman</td>
<td></td>
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<tr>
<td>1020</td>
<td>B</td>
<td>Bottom of small space between boulders Flint</td>
<td>Non-diagnostic</td>
<td></td>
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<tr>
<td>1021</td>
<td>B</td>
<td>Bottom of small space between boulders Botanics Pomegranate fragment</td>
<td>Ottoman</td>
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<tr>
<td>1022</td>
<td>Ba</td>
<td>Northwestern corner of the chamber Metal Iron nail</td>
<td>Ottoman</td>
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<tr>
<td>1023</td>
<td>C</td>
<td>Textiles</td>
<td>Ottoman</td>
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<tr>
<td>1024</td>
<td>C</td>
<td>Pottery n = 3: 3 bases Intermediate Bronze Age?</td>
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<tr>
<td>1025</td>
<td>C</td>
<td>Worked wood</td>
<td>Ottoman</td>
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<tr>
<td>1026</td>
<td>C</td>
<td>Animal bones n = 2: cattle = 1, camel = 1</td>
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</tr>
<tr>
<td>1027</td>
<td>Ba</td>
<td>Pottery n = 2: body sherds</td>
<td>Ottoman</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1028</td>
<td>Ba</td>
<td>Animal bones n = 8: donkey = 3, fox = 3, sheep/goat = 2</td>
<td></td>
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<tr>
<td>1029</td>
<td>Ba</td>
<td>Narrow passage in higher level Animal bones n = 9: donkey = 1, fox = 1, cattle = 1, canid = 3, hare = 2, hyena = 1</td>
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<tr>
<td>1030</td>
<td>Ba</td>
<td>Near eastern wall of the chamber Worked wood</td>
<td>Ottoman</td>
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<tr>
<td>1031</td>
<td>Db</td>
<td>Pottery n = 13: 12 body sherds, 1 rim; all belong to the same vessel Intermediate Bronze Age</td>
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<tr>
<td>1032</td>
<td>Db</td>
<td>Animal bones n = 3: gazelle = 1, camel = 1, hyena = 1</td>
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<tr>
<td>1033</td>
<td>Db</td>
<td>Pottery n = 10: 9 body sherds, 1 handle; 1 sherd conjoins with B.1024 (Chamber C) Late Chalcolithic? Intermediate Bronze Age? Ottoman</td>
<td></td>
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<tr>
<td>1034</td>
<td>Db</td>
<td>Human bones n = 1 (worn premolar tooth)</td>
<td></td>
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<tr>
<td>1035</td>
<td>Db</td>
<td>Animal bones Complete fox, with soft tissue partly covering the skeleton</td>
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<tr>
<td>1036</td>
<td>Dc</td>
<td>Pottery n = 1: body sherd Late Chalcolithic</td>
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### Appendix B—continued

<table>
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<tr>
<th>Basket</th>
<th>Space</th>
<th>Location Details (If Relevant)</th>
<th>Content</th>
<th>Details</th>
<th>Suggested Date (Artifacts)</th>
<th>Figure</th>
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<tbody>
<tr>
<td>1037</td>
<td>Dc</td>
<td>1.5 × 1.5 m area north of passage leading to Chamber Ec before removal of medium-sized stones</td>
<td>Flint</td>
<td>3 conjoining fragments of 1 fan scraper</td>
<td>Late Chalcolithic</td>
<td>Fig. 11:1</td>
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<tr>
<td>1038</td>
<td>Dc</td>
<td>Animal bones</td>
<td>n = 3: donkey = 2, sheep/goat = 1</td>
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<tr>
<td>1039</td>
<td>Ec</td>
<td>Pottery</td>
<td>n = 9: 8 body sherds, 1 base</td>
<td>Late Chalcolithic</td>
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<tr>
<td>1040</td>
<td>Ec</td>
<td>Piled on large boulder in the central part of the chamber</td>
<td>Human bones</td>
<td>Ash-1: ribs, vertebrae, left humerus, right acetabulum, left ilium</td>
<td>Late Chalcolithic</td>
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<tr>
<td>1041</td>
<td>Ec</td>
<td>Animal bones</td>
<td>Complete dove skeleton</td>
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<tr>
<td>1042</td>
<td>Fc</td>
<td>Southeastern niche within narrow passage system in lower level</td>
<td>Pottery</td>
<td>n = 1: body sherd</td>
<td>Late Chalcolithic</td>
<td></td>
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<tr>
<td>1043</td>
<td>Ea</td>
<td>Animal bones</td>
<td>n = 1: sheep/goat</td>
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<tr>
<td>1044</td>
<td>Ea</td>
<td>Eastern part of the chamber</td>
<td>Pottery</td>
<td>n = 6: 3 body sherds, 2 bases, 1 rim; the last one conjoins with sherds from B.1045</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:8</td>
</tr>
<tr>
<td>1045</td>
<td>Ha</td>
<td>Pottery</td>
<td>n = 29: 19 body sherds, 4 bases, 4 handles, 2 rims (2 sherds conjoin with a B.1044 sherd)</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:5, 7, 11</td>
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<tr>
<td>1046</td>
<td>Ha</td>
<td>Animal bones</td>
<td>n = ?</td>
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<tr>
<td>1047</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Pottery</td>
<td>n = 1: intact multi-handled jar</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:3</td>
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<tr>
<td>1048</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Human bones</td>
<td>Ash-2: numerous parts of an infant skeleton</td>
<td>Late Chalcolithic</td>
<td>Fig. 15a</td>
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<tr>
<td>1049</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Pottery</td>
<td>Almost-complete V-shaped bowl curated from 11 sherds</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:1</td>
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<td>1050</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Pottery</td>
<td>n = 11: 5 body sherds, 3 bases, 3 rims; all but 2 curated to 1 V-shaped bowl</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:2, 10</td>
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<tr>
<td>1051</td>
<td>Dc</td>
<td>Cancelled number</td>
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<tr>
<td>1052</td>
<td>Dc</td>
<td>1.5 × 1.5 m area north of passage leading to Chamber Ec before removal of medium-sized stones</td>
<td>Pottery</td>
<td>n = 3: 2 body sherds, 1 base</td>
<td>Late Chalcolithic (+ Intermediate Bronze Age?)</td>
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<tr>
<td>1053</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Sediment sample</td>
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<tr>
<td>1054</td>
<td>Dc</td>
<td>1.5 × 1.5 m area north of passage leading to Chamber Ec before removal of medium-sized stones</td>
<td>Sediment sample</td>
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<td>1055</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Flint</td>
<td>n = 1: small flake</td>
<td>??</td>
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<tr>
<td>1056</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Sediment sample</td>
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<td>1057</td>
<td>Dc</td>
<td>0.6 × 0.3 m fissure below intact multi-handled jar (B.1047)</td>
<td>Human bones</td>
<td>Ash-2: left parietal</td>
<td>Late Chalcolithic</td>
<td>Fig. 9:12</td>
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<tr>
<td>1058</td>
<td>Dc</td>
<td>0.6 × 0.3 m fissure below intact multi-handled jar (B.1047)</td>
<td>Pottery</td>
<td>n = 2: 1 body sherd, 1 churn handle</td>
<td>Late Chalcolithic</td>
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<tr>
<td>Loc.</td>
<td>Desc.</td>
<td>Find</td>
<td>Notes</td>
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<tr>
<td>1059</td>
<td>Dc</td>
<td>0.6 × 0.3 m fissure below intact multi-handled jar (B.1047)</td>
<td>Worked wood (?)</td>
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<tr>
<td>1060</td>
<td>Ec</td>
<td>Base of shaft between boulders in southeastern corner of the chamber leading to Chamber Ha</td>
<td>Shell 4 fragments of 1 nilotic nacre shell (Chambardia rubens arcuta) Late Chalcolithic</td>
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<tr>
<td>1061</td>
<td>Ec</td>
<td>Base of shaft between boulders in southeastern corner of the chamber leading to Chamber Ha</td>
<td>Pottery n = 2: body sherds Late Chalcolithic</td>
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<tr>
<td>1062</td>
<td>Dc</td>
<td>1.5 × 1.5 m area north of passage leading to Chamber Ec before removal of medium-sized stones</td>
<td>Shell Complete Mediterranean Sea valve (Glycymeris nummaria) Late Chalcolithic</td>
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<tr>
<td>1063</td>
<td>Ec</td>
<td>Between boulders south of and below the large boulder near entrance to Passage F</td>
<td>Human bones Ash-1: ribs, teeth, right and left clavicles, right distal fibula, pelvic, left ischial, vertebrae Late Chalcolithic</td>
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<tr>
<td>1064</td>
<td>Ec</td>
<td>Between boulders south of and below the large boulder near entrance to Passage F</td>
<td>Pottery n = 1 : body sherd Late Chalcolithic</td>
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<tr>
<td>1065</td>
<td>Ec</td>
<td></td>
<td>Animal bones n = 1: small bird</td>
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<tr>
<td>1066</td>
<td>Ba</td>
<td>Near entrance to Passage Bb</td>
<td>Worked wood Ottoman</td>
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<tr>
<td>1067</td>
<td>Dc</td>
<td>1.0 × 0.4 m fissure between boulders following removal of medium-sized stones</td>
<td>Sediment sample</td>
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<tr>
<td>1068</td>
<td>Gc</td>
<td>Narrow space between boulders</td>
<td>Worked wood + lead object Intact wooden shaft and attached perforated lead object Late Chalcolithic Fig. 14:1</td>
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</table>

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