

The Neolithic Periods' Finds from the Karstic Cave of Nahal Rephaim, Southwest Jerusalem

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An intact karstic cave with active speleothems was found during drainage works at Nahal Rephaim (Arabic: *Wadi el-Ward*) in Jerusalem (Fig. 1). The cave's ground is oval in outline, c. 40 x 25m and has a talus caused by a large stone in the centre (c. 5m in height). The entrance to the cave was probably possible through a shaft c. 6m above the top of the cave's talus. Three excavation areas were opened in the east, the southeast and the southwest (Figs. 2-3). Trial excavations revealed circular and rectilinear structures with few fireplaces, pits, and a primary burial with poorly preserved skeletal remains. Other human remains and animal bones were found in the cave's sediments. The finds comprise pottery sherds, flint and other stone artefacts dated mainly to the Early Pottery Neolithic (EPN; 6,500-5,800 BCE) and the Late Pottery Neolithic/ Early Chalcolithic (LPN/ECh; c. 5,800-4,500 BCE) periods; few may hint to Late Chalcolithic (4,500-3,700 BCE) occupations. A fascinating female figurine made of a stalagmite flow fragment was found near the burial. While the study of the cave's stratigraphy is still in progress, this report aims to preliminarily present the findings, with a detailed description of the chipped stone material retrieved during the salvage excavation conducted in December 2020 on behalf of the Israel Antiquities Authority (IAA).

The Cave

The Nahal Rephaim Cave is an active karstic cave situated along of Nahal Rephaim seasonal stream in the southern part of Jerusalem (Fig. 1). The cave's main hall is about 700m² (Figs. 2-3). About half of its interior is covered by a large stone talus. The talus rises to a height of 5m relative to the elevations along the cave's walls, and above it, a natural shaft vertically extended to a height of 6m more.

This shaft, which is the current entrance to the cave, was probably used as the original access too. The cave is rich with stalagmites formed over tens of thousands of years. Some of them are 1m in diameter and 2.5m high (Fig. 2.2). Formation of stalactites on the walls of the cave suggests that in the distant past, the interior surface reached a considerably higher elevation and that the sediment was probably washed down to additional spaces not yet discovered. In a preliminary survey, architectural remains, pottery concentrations, ground stone tools and human skeletal remains (including a skull fragment of a child) were noted on the surface along the cave's walls.

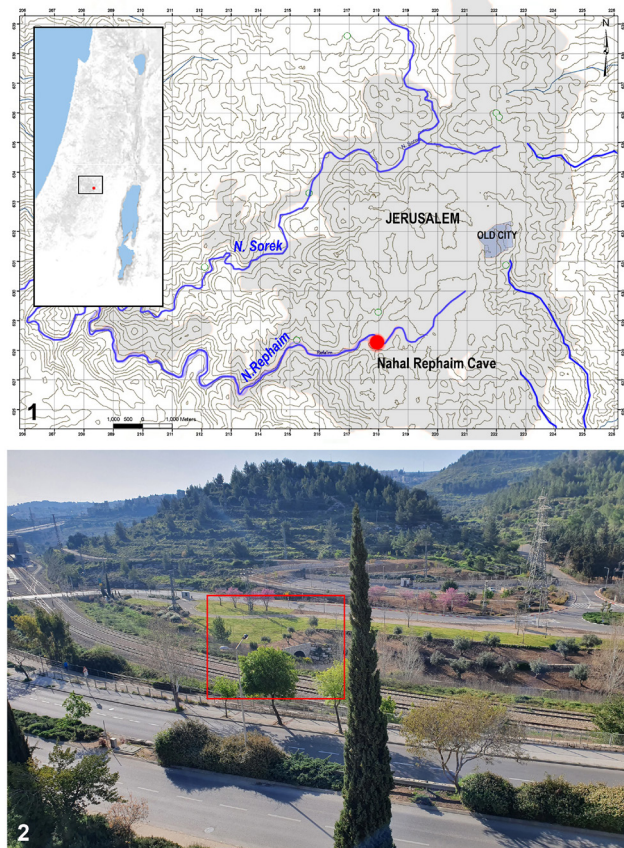


Fig. 1 1 Location of Nahal Rephaim Cave near Jerusalem;
2 General view of the cave's location within the Rephaim Valley, looking southeast. (Map: A. Fadida based on ArcGIS, Esri; Photo: I. Milevski)

The Excavation

The trial excavation was carried out in 2 x 2m squares in three areas: eastern, southeastern and southwestern, exposing a total surface of 48m² (Fig. 3). In the southwestern area, a single square was opened, revealing the remains of a wall and two pits that contained stones and pottery sherds, including a single sherd with decoration typical to the Wadi Rabah Culture. The eastern area comprised two squares that yielded pottery dating to both EPN and LPN/ECh periods (Fig. 4).

The excavation focused on the southeastern area in which ten squares were opened in the space between the edge of the talus and the eastern cave wall. In this area, the remains of walls and installations were partially visible on the surface. Along the cave wall, the stone features were associated with a living floor that comprised hearths and a pottery concentration (dated to



Fig. 2 1 General view of the Nahal Rephaim Cave, looking south; 2 hall of the stalagmites, looking north; 3 southeastern area of excavations, Square F13, looking west. (Photos: G. Haklay, S. Halevi, A. Peretz)

the LPN/ECh).¹ The living floor was levelled above a 10cm thick sediment layer resting on top of flowstone layers. This layer contained only a few finds; among them were two exceptional flint tools that were carefully shaped by flat-pressure retouch (*cf.* Fig. 5). At the westernmost square of this area, an accumulation of small stones was covering the living floor. This accumulation yielded many pottery sherds dated to both phases of the Pottery Neolithic period and a retouched obsidian blade.

At the foot of the talus, about 3m away from the cave wall, the flowstone layers were cut by human activities, including digging pits and possibly a burial. In a partial and crumbling condition, human bones were discovered at a depth of about 0.5m below the surface in Square F13 of the southeastern area. Despite the poor state of preservation in this case, it was possible to determine that the bones were in articulation. Therefore, it is possible that these were the remains of a primary burial of an adult in a flexed position. The bones were associated with a concentration of stones and finds, including a flint sickle blade and pottery dated to the EPN period. Just north of where the flowstone layers ripple and form a hill, the top flowstone layers appear to have been cut around the remains of a destroyed stalagmite. A figurine was found on top of the rubbles in Square F13 (*cf.* Fig. 6.2).

The Pottery Assemblages

The pottery assemblages (Fig. 4) consist of 237 diagnostic pottery sherds; no complete or restorable vessels were found. The most prominent types of the EPN assemblage are bowls. The bowls are of two types: deep or hemispherical. Deep bowls have flared, straight, or curved walls and a small, flat, or rounded base. The bowls are coarsely constructed with a rough surface, sometimes smoothed with grass. Some bowls have horizontal small lug handles, in a few cases pierced. Hemispherical or globular bowls resemble a small open hole-mouth. Additional vessel types in the Nahal Rephaim assemblage were open hole-mouth jars and large necked jars with sloping shoulders.

The EPN pottery of Nahal Rephaim doesn't bear any decoration. Since the differences in pottery between the main EPN entities, the Yarmukian and Jericho IX (Lodian), are mainly based on the decorative style, it is therefore hard to establish the cultural affiliation (*cf. e.g.*, Garfinkel 1992, 1999: 16-103); but few features found at Nahal Rephaim pottery seemingly exist only in the Jericho IX repertoire: jars with relatively closer neck and relatively sloping shoulder, flat lug handles, and large lug handles rising above the rim (*e.g.*, Garfinkel 1999: Figs. 50, 58, 60).

The LPN/ECh pottery assemblage from the Nahal Rephaim Cave included jars, bowls, hole-mouth jars,

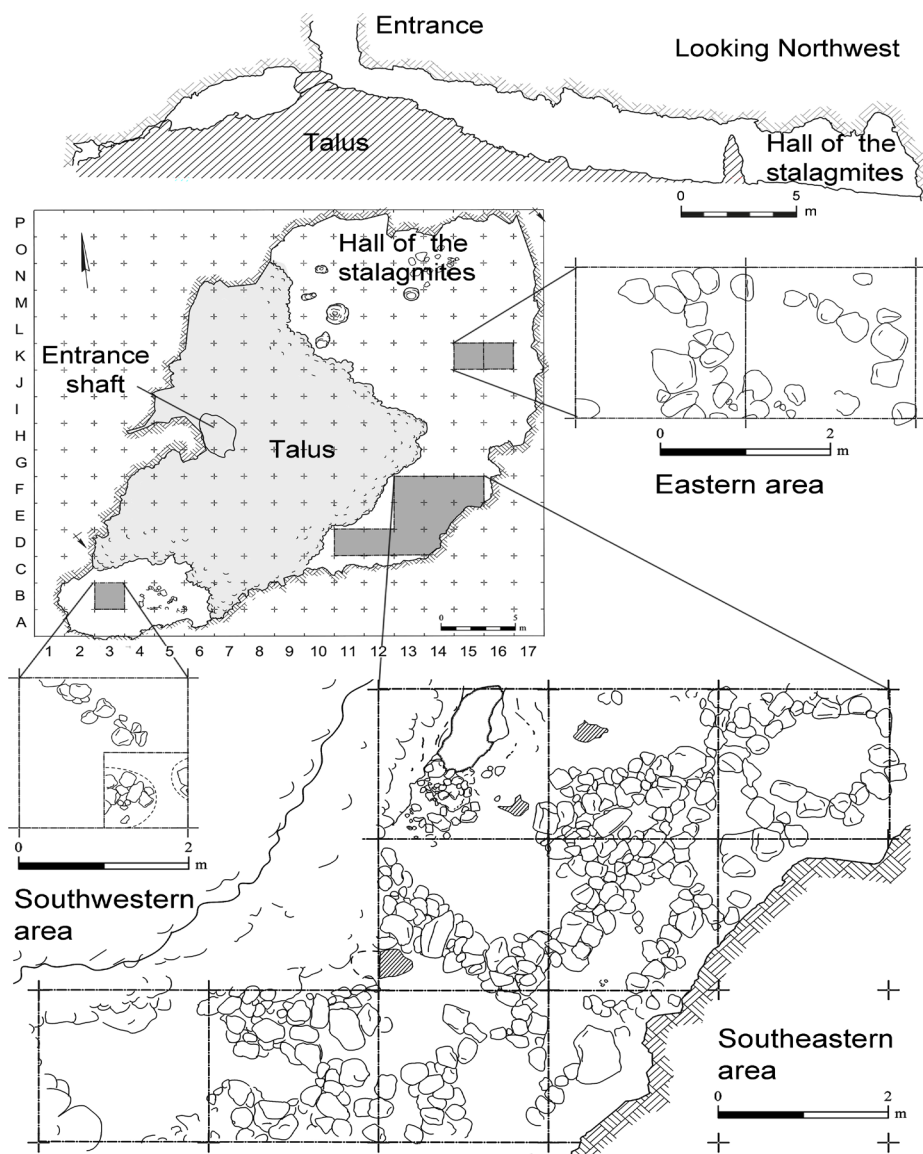


Fig. 3 Plan and section of Nahal Rephaim Cave with the excavated areas. (Drawing: O. Rose and G. Haklay)

handles and bases. Some of the main ceramic indicators of this time span are represented in this assemblage: the bow-rim jar is the main marker. This type of vessels begins already with the Wadi Rabbah Culture, nevertheless, in this period the angle between the neck and the body is more moderate (Milevski *et al.* 2020: 252). Only one sherd (Fig. 4.20) exhibits the classic decoration of the Wadi Rabah Culture, of the early phase of the LPN/ECh.

Another *fossile directeur* is the strap handles broadening at the point of joining the vessel. This type of handle was defined at Tell Tzaf as the marker of Beth Shean XVIII culture (termed Middle Chalcolithic by Garfinkel 1999: 181). Bowls with straight walls, usually of small size, are a known marker of the Late Chalcolithic period, but their roots can be seen in this period. Other bowls, medium-sized, sometimes have fairly flaring walls. A spouted vessel with an applied rope decoration (Fig. 4.21) is a prevalent vessel in the Late Chalcolithic period (*e.g.*, Commenge-Pellerin 1987: Fig. 26.1-6; Garfinkel 1999: Figs. 137, 145). Spouted vessels also appear infrequently in the earlier LPN/ECh (*e.g.*, Garfinkel 1999: Fig. 100.1).

The Lithic Assemblages

The chipped stone assemblage retrieved during the excavation at Nahal Rephaim Cave is small; it includes 33 chipped flint items, two chipped obsidian bladelets and one chipped stone tool.

The flint assemblage includes nine primary elements, eight flakes and four core trimming elements, ten tools and two cores. The debitage items originate from a non-diagnostic *ad hoc* knapping reduction sequence for flake production. They were knapped of non-homogenous brecciated Meshash Flint, of beige color with brown or grey stripes and limestone inclusions, typical to the region (Barzilai *et al.* 2020).

The two cores were also knapped from local Meshash Flint nodules of beige color with coarse-grained brown inclusions. Both cores were knapped for flake production; one is a large single platform core, and the other is a large single central surface core. Both cores were abandoned probably due to the poor quality of the raw material with imperfections such as limestone inclusions and cracks, and do not exhibit exhaustion of the entire volume potential.

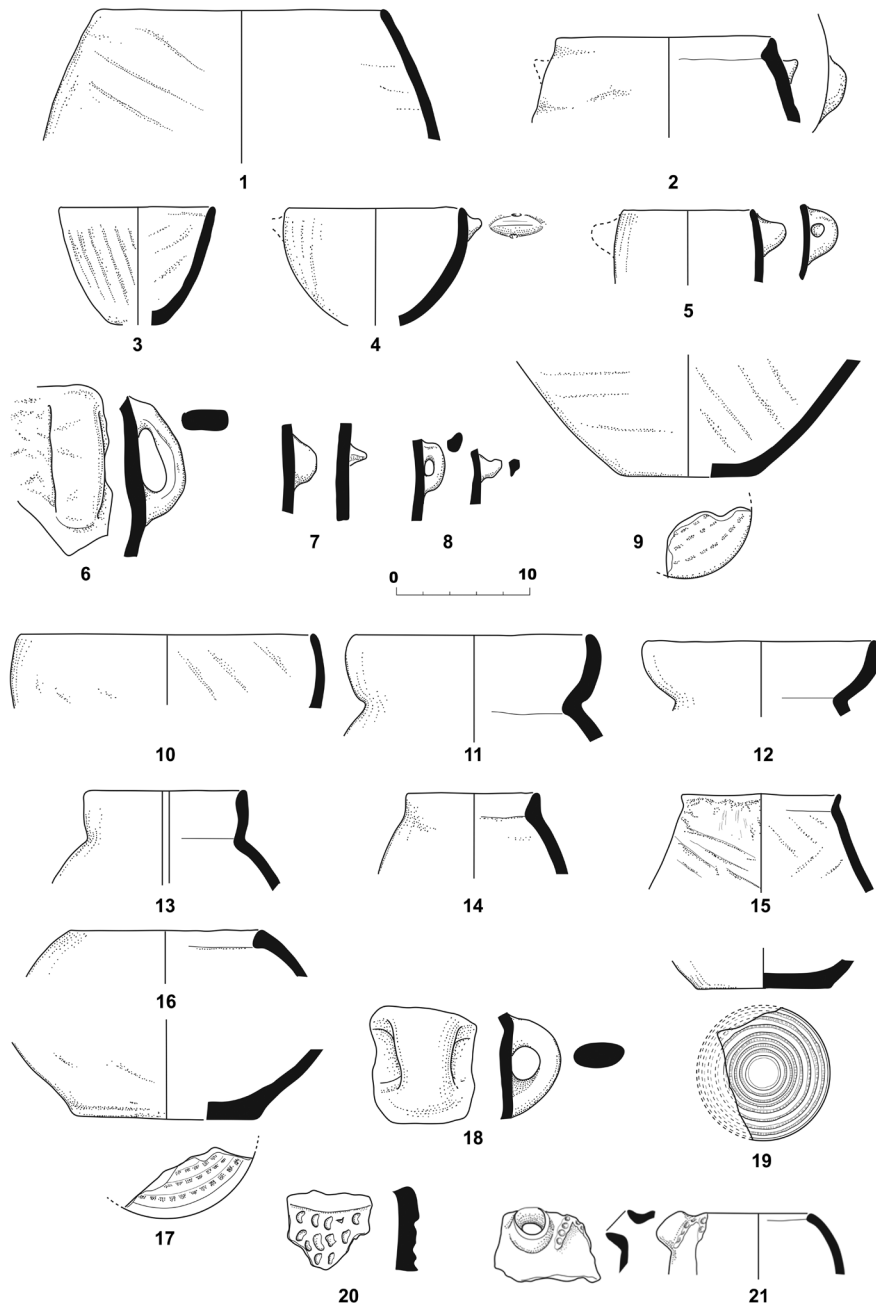


Fig. 4 Pottery from Nahal Rephaim Cave: 1-9 Early Pottery Neolithic: 1-2 holemouth jars, 3-5 bowls, 6 loop handle, 7 lug handle, 8 horizontal loop handle, 9 jar base; 10-20 Late Pottery Neolithic (Early Chalcolithic): 10-13 bow rim jars, 14-15 storage jars, 16 holemouth jar, 17, 19 jar bases (mat impressed), 18 loop handle, 20 Wadi Rabah decorated sherd; 21 Late Chalcolithic vessel with plastic decoration. (Drawings: C. Hersch)

Tools

The tool assemblage includes ten items. Contrasting the unremarkable nature of the debitage components, some of the tools are of great interest being extraordinary in the Southern Levantine record. Others are chronologically sensitive tools while the rest are non-diagnostic *ad hoc* tools.

The first among the exceptional items was classified as a ‘fan-shaped’ (Fig. 5.1). It was shaped on a large transversal and flat flake with little cortex remaining on the left edge of the dorsal face. It was fashioned of beige flint with slightly darker centripetal stripes; the item’s silhouette almost echoes the flint’s natural wavelet pattern. The tool was shaped all around: intensive flat-pressure retouch was applied all along the distal-dorsal end; abrupt to semi-abrupt pressure retouch is present along the ventral-proximal end,

removing along the way any evidence of the bulb of percussion and continuing to the right-ventral edge; fine retouch was observed on the left-dorsal side next to cortex remains, blunting the edge slightly. Also, a blackish smear of stripe configuration was observed on the right lateral-dorsal edge.

This item is morphologically resembling the fanscrapers typical of the Late Chalcolithic period (Manclossi and Rosen 2022, and references therein), yet the incorporation of ‘flat-pressure’ retouch is extremely uncommon in southern Levantine Chalcolithic and more typical of the late phases of the Pre-Pottery Neolithic (PPN hereafter) B and PN (Abu-Gosh retouch). It is also atypical as a technique incorporated in fan-scrapers fashioning and more commonly applied while shaping projectile points and knives. Perhaps this item can be considered as a knife, very similar to the item retrieved from the PN stratum V at Hagoshrim and published as a ‘leaf-shaped

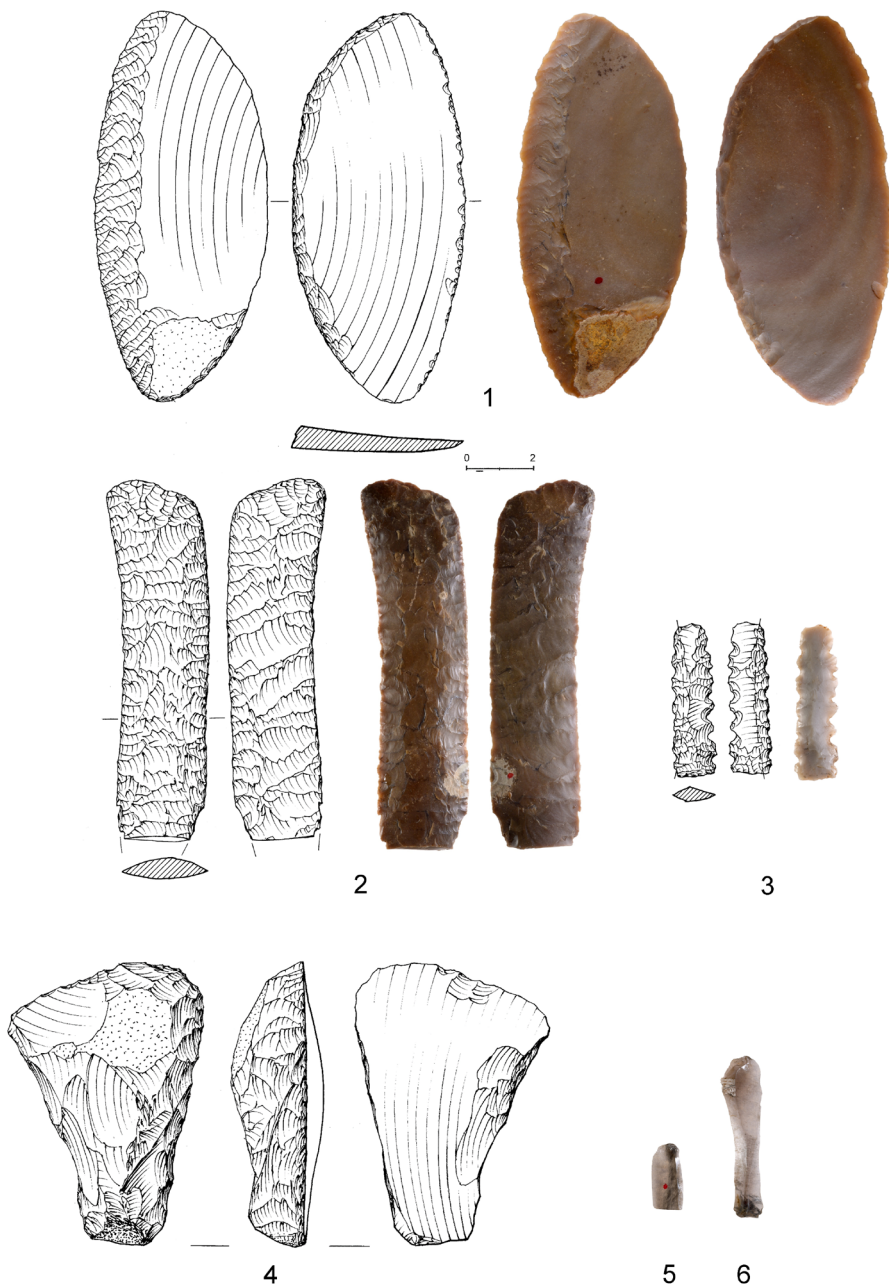


Fig. 5 Chipped stones from Nahal Rephaim Cave: 1 scraper, 2 bifacial knife, 3 sickle blade, 4 side scraper, 5-6 obsidian bladelets. (Drawings: M. Smeliansky; photos: D. Gazit)

knife' (Khalaily 1999: 42, Fig. 28.1). Crowfoot-Payne in her publication of the flint assemblage of Jericho, defines similarly fashioned items as 'flake-scrapers', being characteristic of the PN layers at the site (1983: 710-711, Fig. 339.5-6). Following this definition, Matskevich recognised similar items at Sha'ar Hagolan (Matskevich 2005: 56, Plate 25). Although the items from Jericho and Sha'ar Hagolan are fashioned on simple flakes or blades, the fashioning manner resembles that of the item from Nahal Rephaim Cave.

The second extraordinary item is a bifacially shaped knife (Fig. 5.2). It was knapped of fine-grained light brown flint with darker brown 'stains' at the extremities and a limestone inclusion on one of the edges. The blank is undetermined due to the extensive retouch coverage, shaping both faces and edges (including the distal part) by extremely extensive flat-pressure retouch. The item is missing its proximal part, yet it is clearly of an elongated proportion, with straight lateral edges, lens section, and slight distal inclination to one side.

Another bifacially shaped knife fragment is present in the assemblage. It was shaped on a large flake or blade (with maximal width of 30mm and thickness 9mm) with little cortex left on the dorsal-central part. It was heavily burnt and fragmented from both ends. Unlike the first knife, less effort was invested in manufacturing the second item: its left edge was shaped by coarse scaly bifacial retouch, and its right edge was formed by dorsally applied scaly semi-abrupt retouch; the cortical part in the centre was slightly polished.

Bifacial knives are present in the southern Levant assemblages from the very end of the PPNB, and along the Pottery Neolithic period (Olami *et al.* 1977; Crowfoot-Payne 1978, 1983; Yeivin and Olami 1979; Galili *et al.* 1993; Goring-Morris *et al.* 1994; Garfinkel 1994; Rollefson *et al.* 1994; Khalaily 1999; Garfinkel and Dag 2001; Garfinkel *et al.* 2002; Dag 2008a, 2008b). The Neolithic bifacial knives are usually symmetrical and leaf-shaped with ogival or rounded tips, unlike the Nahal Rephaim knife, which has a straight,

narrow silhouette and slightly curved rounded end. Its fashioning by extreme flat-pressure retouch echoes the Abu Gosh pressure retouch of the Late-Final PPNB and the PN, yet it is also resembling the “ripple” pressure retouch typical of the somewhat later – Bronze Age – Pre-Dynastic Egyptian trademark (Chlodnicki and Ciałowicz 2004; Kabaciński 2012; Kobusiewicz 2015; Skłucki 2018; Lajs 2019). Few examples of such knives were found in southern Levantine EB contexts (Rosen 1988; Kempinski and Gilead 1991; Gophna and Friedmann 1995; Marder *et al.* 1995), yet none of them exhibits such an investment in their shaping as the knife from Nahal Rephaim Cave. The Egyptian predynastic bifacial knives seem to have evolved from their local Pottery Neolithic predecessors. Elegant, almost entirely covered by invasive and flat pressure retouch, knives were found all over the Egyptian deserts (Kindermann 2010: 108; Lucarini 2014: 268-272; Shirai 2022). Some display inclination of the distal part similar to that of Nahal Rephaim (Lucarini 2014: Ch. 11/4, Figs. 3.3-4,6; Kindermann 2010: 108, Fig 49.5).

Stylistically, the Nahal Rephaim Cave knife resembles the Pottery Neolithic Egyptian knives. There is no evidence of Egyptian presence or any evidence of Early Bronze Age occupation in the cave or nearby. Therefore, this knife and the other bifacially shaped knife found at Nahal Rephaim Cave should be attributed to the local southern Levantine Pottery Neolithic traditions present at the site. Until more information regarding the Egyptian Pottery Neolithic come to light, the relations and the influences between the southern Levant and Egypt will remain unclear.

Another chronologically sensitive tool is a double-edged, wide denticulate, bifacially shaped sickle blade segment (Fig. 5.3). The segment is rectangular and truncated bifacially from both ends. It was fashioned of an undefined blank of fine-grained pale grey flint. The denticulation was achieved by bifacial pressure retouch, creating crenellated working edges with rounded teeth. The left working edge displays greater wear and blunting than the right. Both edges display traces of visible lustre; the right edge lustre covers only the teeth area on both faces. This sickle type is typical of the Pottery Neolithic, Yarmukian Culture (Stekelis 1951, 1972; Crowfoot-Payne 1983).

A single microlith was also found during the excavation; this is a small (30 x 9 x 3mm), slightly twisted, pointed bladelet, knapped of fine-grained beige flint, with semi-abrupt inverse retouch along the right edge. Such tools are typical of the Chalcolithic microlithic industry and present both in Early and Late Chalcolithic assemblages (Gilead *et al.* 1995; Rosen 1997: 65-67; Barkai and Gopher 2012).

A convergent borer was also retrieved during the excavation. It was fashioned of a thick blade or flake, made of coarse-grained yet homogeneous flint of beige colour with reddish ‘veins’. It was fashioned by coarse abrupt retouch applied mostly dorsally, with a small portion on the right edge applied ventrally. Such tools are present in assemblages from varied periods.

Further non-diagnostic tools within the assemblage are a massive scraper (Fig. 5.4) and three *ad hoc* tools. The scraper was fashioned on a large and thick cortical CTE of flake proportions of coarse-grained non-homogeneous Meshash Flint of grey-beige colour. Several blows proximally truncated it. The distal part was retouched by coarse scaly scraper retouch, creating a straight working edge and a rounded left side.

Two obsidian bladelets were also found. One is distally truncated (Fig. 5.5) by abrupt retouching, and the other (Fig. 5.6) is distally broken. Both bladelets are of grey transparent colour with a smoky translucency.

The diagnostic tools described above, unlike the flake items and the *ad-hoc* tools, were fashioned of non-local raw materials of good quality. All of these seem to have been brought to the cave from elsewhere as finished items, some probably from a great distance (like in the case of the obsidian objects). Much energy was involved in fashioning the almost complete bifacial knife, the fanscraper, and the sickle segment – indicating their importance.

These diagnostic items can be dated to the Pottery Neolithic and the Chalcolithic periods. A somewhat similar yet larger flint assemblage was retrieved from Nahal Qanah Cave, exhibiting parallels in composition and chronology (Gopher and Tsuk 1996) and being interpreted as a special activity site.

Other Finds

Last but not least, two finds are worth noting. One is a shaft-hole axe, or “sledgehammer”, found on the topsoil of the cave (Fig. 6.1). It is made of hard limestone; it was found broken, but the sharp working edge and the hafting shaft were preserved. The second is a figurine made from a flowstone slab bearing two small stalagmites resembling female breasts (Fig. 6.2); it was found near the burial in the southeastern area. The stone was cut and worked along the perimeter. Flowstone layers were peeled from the pair of stalagmites, which are usually less pointed, and have a depression at the drip point, thus creating the breast shape. The overall form recalls the iconography of the well-known flat violin-shaped figurines, which are not only a hallmark of the Late Chalcolithic but also known from the last phases of the LPN/ECh ((Milevski 1998: Fig. 5.15:1; Milevski *et al.* 2018; Freikman *et al.* 2021). These figurines were associated with fertility cults in the southern Levant (*e.g.*, Commenge *et al.* 2006; Milevski *et al.* 2018, 2023).

Discussion

The excavations in the Nahal Rephaim Cave have revealed an early phase of occupation in the southwestern part of Jerusalem, around 6,500-4,500 BCE, and perhaps a little bit after – a period until recently unknown in this area. The results of the excavations of the Nahal Rephaim Cave and other sites in the Judean Hills

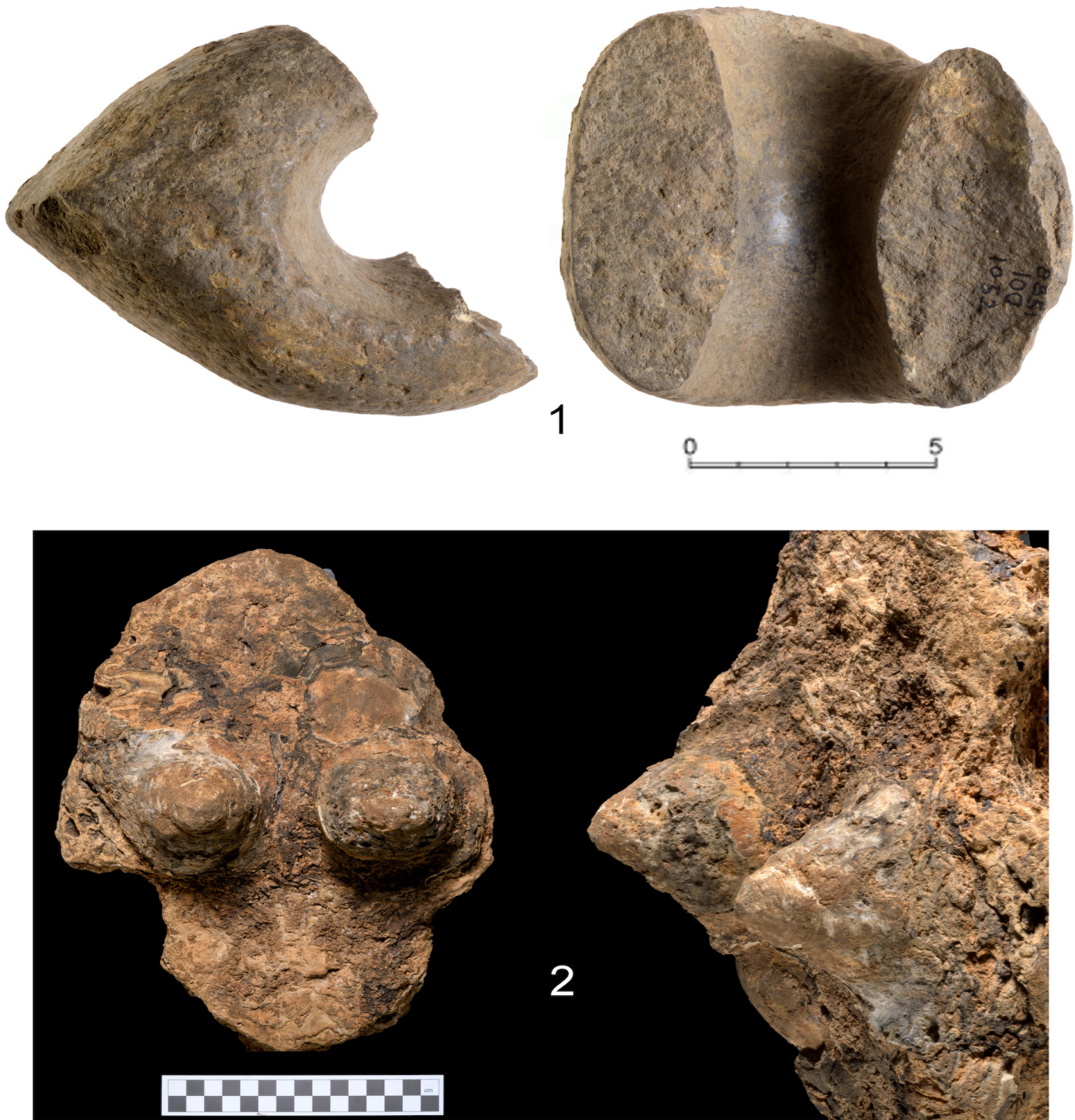


Fig. 6 Stone items from Nahal Rephaim Cave: 1 sledgehammer, 2 figurine made of stalagmite. (Photos: D. Gazit).

(Khalaily and Vardi 2020: 7-9; Milevski *et al.* 2020) have shown that the EPN and LPN/ECh entities are significant facies of the late prehistory in this region.

The function of the cave can only be suggested, but the ritual component of it, including the human remains, the unique collection of flint artefacts, the female figurine and the 'dramatic scenography' of stalagmites cannot be denied. No human occupations within active karstic caves were reported from the preceding Pre-Pottery Neolithic period in the southern Levant, but it seems that the use of such caves, probably for cultic and burial purposes, was practised throughout the PN period (e.g., Gopher and Tsuk 1996). Caves

with stalactites and stalagmites are known to attract people in all areas of the world, and several of them were conceived as cultic localities (e.g., Moyes *et al.* 2009; Whitehouse 2014-15).

Once available, the radiocarbon dates and a comparative analysis of pottery and lithics will enable us to equate the cultural material of the Judean Hills with that of the EPN and LPN/ECh in the southern areas of the coastal plain, entities defined by Gilead (1990, 2009) in the transition from the Late Pottery Neolithic to the Ghassulian Chalcolithic. During the LPN/ECh period in the southern Levant (c. 5,800-4,500 cal BCE), ceramic regionalism was clearly

evident, as stressed some time ago (Sadeh 1994), but all these various ceramic repertoires seem to culminate in the Ghassulian Culture in uneven and combined ways.

Based on the results of the recent excavations in the Jerusalem area (Milevski *et al.* 2010, 2020; Milevski and Lupu 2022) and the recently excavated northern sites (*e.g.*, Milevski and Getzov 2014; Elad *et al.* 2018, 2019, 2020), it seems that the LPN/ECh was not a dark age in which small sites characterised the southern Levant, but an era of large settlements, with extensive construction, agriculture, craftsmanship exemplified by fine lithic production, and wide-scale trade (*cf.* Gibbs and Banning 2013).

In the past, it was suggested that the exchange networks were interestingly more ‘international’ in the LPN/ECh than in the preceding prehistoric periods (Milevski and Barzilai 2017). Among the items indicative of exchange networks with Anatolia and the north Levant are the obsidian pieces found in the southern Levant, and in this respect, Nahal Rephaim, Motza and Abu Ghosh were evidently part of these networks. Such a phenomenon could not have been possible if only “weak” settlements existed at that time in the southern Levant.²

The iconography of these the 6th-5th millennia BCE has already been discussed in the framework of the entire Near East, and hints at a large interaction sphere connecting the Judean Hills with regions extending from the Caucasus to the Balkans and from Anatolia to Mesopotamia (*e.g.*, Milevski *et al.* 2016a, 2016b).

The almost-continuous occupation of the Judean Hills, from the Epipalaeolithic (Eisenberg and Sklar-Parnes 2005) to the Ghassulian Chalcolithic with possible gaps during some prehistoric phases such as the Pre-Pottery Neolithic A and the “classic” Wadi Rabah Culture (the first phase of the LPN/ECh sequence), demonstrates that the inhabitants of the area extending from Abu Ghosh to Jerusalem exploited the nearby springs and soils relatively continuously for several millennia during the late prehistoric periods.

Although most excavations in the Jerusalem Hills are small exposures, they illustrate the importance of small assemblages in defining specific cultural horizons or archaeological facies. Ten years ago, it was suggested (Milevski *et al.* 2010) that the number of Ghassulian sites apparently outnumber the LPN/ECh sites, suggesting an increase in the population of Jerusalem and its surroundings. Today this assumption is under review (*cf.* Milevski *et al.* 2020). This, of course, includes the results of the excavations at the Nahal Rephaim Cave.

The exposure of the 7th-5th millennia BCE horizons in the Jerusalem Hills is one of the most outstanding contributions of several excavations, including the Nahal Rephaim Cave, for the knowledge of prehistoric pottery-bearing cultures in this region.

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Endnotes

¹ Organic material from these layers were taken for ¹⁴C and archaeobotanical analysis.

² The presence of obsidian in the region of Jerusalem (which probably originated in central or eastern Anatolia) has been analysed for other regions of the southern Levant (*e.g.*, Schechter *et al.* 2013, 2016) during the Pottery Neolithic period.

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