

From the Epipalaeolithic into the earliest Neolithic (PPNA) in the South Levant

Anna Belfer-Cohen, Nigel Goring-Morris

Institute of Archaeology, The Hebrew University of Jerusalem, Jerusalem, IL
anna.belfer-cohen@mail.huji.ac.il; nigel.goring-morris@mail.huji.ac.il

ABSTRACT – *This paper examines the nature of initial neolithisation indications during the terminal Pleistocene and earliest Holocene in the Southern Levant. This interval corresponds to a period of significant and geographically variable environmental changes in the region. Various lines of evidence are provided to demonstrate the long durée (~15 000 years) character of interactions during the Early, Middle and Late Epipalaeolithic that were instrumental to the emergence of the fully-fledged agricultural life ways in the later phases of the Early Neolithic (PPNB).*

KEY WORDS – *Southern Levant; Epipalaeolithic; Natufian; Early Neolithic; cultural continuity*

Od epipaleolitika do najzgodnejšega neolitika (PPNA) v južni Levanti

IZVLEČEK – *V članku raziskujemo naravo kazalcev začetne neolitizacije v času končnega pleistocena in najzgodnejšega holocena na območju južne Levante. V tem času je prišlo do pomembnih, vendar geografsko različnih okoljskih sprememb v regiji. Ponujamo različne dokaze o dolgoročni (ok. 15 000 let) naravi interakcij v času zgodnjega, srednjega in poznega epipaleolitika, ki so bili ključni pri oblikovanju razvitih načinov poljedelstva v kasnejših obdobjih zgodnjega neolitika (PPNB).*

KLJUČNE BESEDE – *južna Levanta; epipaleolitik; Natufijska kultura; zgodnji neolitik; kulturna kontinuiteta*

Introduction

Since the inception of research in Southwest Asia, the unique 'bridging' role of the Natufian culture¹, between the 'Palaeolithic' and the 'Neolithic' (with all that such a role implies) has been widely acknowledged (Garrod 1932; Neuville 1934). The 'intermediate' nature of this entity – representing the shift from the preceding groups of mobile hunter-gatherers towards the following settled farming societies, especially in the Mediterranean zone – is reflected in many aspects of its material culture and lifeways (Fig. 1). There is, for the first time, evidence of long-term, semi-sedentary basecamp sites with substantial, durable structures accompanied by a largely microlithic knapped industry (Palaeolithic in

nature), together with a heavy-duty component and sickle blades (heralding the chipped stone traditions of the Neolithic). Other distinctive features include cemeteries exhibiting complex burial rites, extensive groundstone and bone tool assemblages, and the appearance of artistic and symbolic manifestations as constant components of the material culture repertoire (see Bar-Yosef, Valla 1991; 2013; Cauvin 2000; Goring-Morris, Belfer-Cohen 2013a; Grosman, Munro 2017; Nishiaki et al. 2017; Shaham 2014; Yeshurun et al. 2014).

Yet, after many years of systematic research the terminology and processes involved in the transforma-

1 Originally considered as 'Mesolithic', nowadays it is attributed to the 'Late Epipalaeolithic' period, see Table 1.

tion from the latest Natufian to the first Neolithic entities, namely the Pre-Pottery Neolithic A (PPNA; incorporating at least two cultural entities, the 'Khiamian' and the 'Sultanian') has been contentious and hotly debated (e.g., Abbès 2014; Bar-Yosef et al. 2010; Belfer-Cohen, Goring-Morris 1996; Crowfoot-Payne 1976; Garfinkel 1996; Gopher, Barkai 1997; Kuijt 1996, 1997; Nadel 1990; Ronen, Lechevallier 1999). Additionally, there has been increasing awareness that, at least in the Southern Levant, the criteria that justified the use of the term 'Neolithic Revolution' actually became apparent only with the shift from PPNA to PPNB (Goring-Morris, Belfer-Cohen 2011a; 2016; and see below).

Initially, as is often the case in archaeology, it was assumed that the Neolithic 'package' was 'exotic' (i.e. allochthonous), having arrived from somewhere outside the region, as it was assumed that major changes as a rule occurred through external 'stimuli' (e.g., Kenyon 1957). Later, it was believed that during the latest Natufian phase there was a reversion to more mobile life-ways, brought about mostly due to the 'forcing' conditions of the supposedly harsh climatic Younger Dryas event (e.g., Grosman, Belfer-Cohen 2002; Moore et al. 2020). Still, it was assumed that the local Neolithic rose from the 'ashes' of the declining Natufian, without going into the specifics of how this came about, or the relation of the local southern Neolithic to the emergence of early Neolithic phenomena in the northern Levant (Belfer-Cohen, Goring-Morris 2014; Cauvin 2000; Mellaart 1975). That the local Neolithic represents Natufian survival, 'by-the-skin-of-their-teeth', is strengthened also by the presence of only a few sites with a unbroken Natufian – Neolithic sequence and the fact that most PPNA occurrences are found in different locations from the preceding major Natufian base camps (see Belfer-Cohen, Goring-Morris 2010; Goring-Morris, Belfer-Cohen 2016 for details and references).

Current research has clearly demonstrated that there is solid evidence for local, *in situ* continuity between the two cultural manifestations. This is reflected by recent investigations of several 'Epi-Natufian' and 'Khiamian' settlements in the Mediterranean zone.² Sites are mostly located at low elevations at the edge of the lower Jordan valley, i.e. Salibiya IX, Gilgal II, Huruk Musa and Nahal Ein Gev II (Dag, Goring-Morris 2010; Eitam et al. 2015; Enoch-Shilo, Bar-Yosef 1997; Grosman et al. 2016; Rosenberg et al. 2010) and in the low-lying areas west of the central hill range, i.e. Nahal Oren, Tel Bareqet, Tzur Nathan, Kaizer, Qula and Hatoula (Grosman, Goren-Inbar 2007; Herzlinger et al. 2013; Khalaily, Marder 2010; Lechevallier, Ronen 1994; Marder et al. 2007; Paz et al. 2009; Ronen, Lechevallier 1991; Stekelis, Yisraeli 1963; Zbenovich 2006), all dating to the interval of c. 12 500–11 600 cal BP. The archaeology of those sites provides solid evidence of

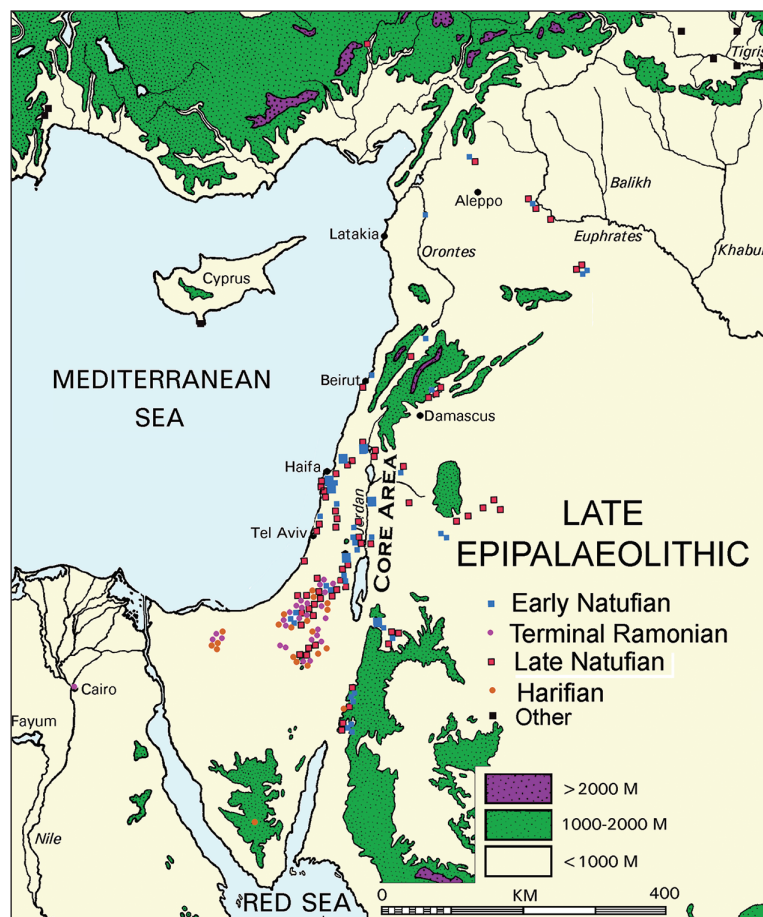


Fig. 1. Distribution of Late Epipalaeolithic (c. 15 000–11 600 cal BP) sites in the Levant: Early Natufian, Terminal Ramonian, Late Natufian, Harifian and 'Other'.

² In the southern desert margins there appears to have been a virtual hiatus between the end of the Epipalaeolithic Harifian entity (= local variant of the Late/Final Natufian) and the initial PPNB (Goring-Morris 1991). Though see also the 'Epi-Harifian' of Abu Madi I in southern Sinai (Pomerantz-Greenblat 2014).

local, endemic developments ‘bridging’ the end of the Natufian complex foragers’ existence and the emergence of larger, clearly sedentary PPNA (Sultanian) settlements.

In attempting to understand the dynamics that operated to enable the appearance of what is *considered* to represent the initial Neolithic, it is necessary to refer to the Early and Middle Epipalaeolithic. Indeed, quite a number of ‘Natufian-cum-Neolithic’ characteristics appear much earlier, already by the Early Epipalaeolithic, with the onset of the Last Glacial Maximum (LGM; and see Table 1). This said, we shall present rather briefly the processes believed to be instrumental in shaping the Natufian entity, and which apparently continued into the Neolithic. Clearly, some of what will be presented is rather speculative, but we do rely on evidence to that effect in the archaeological record. We should clarify that we adhere to and point out the separation between *long-term* and *short-term* trends taking place throughout the entire Epipalaeolithic sequence.

The Early and Middle Epipalaeolithic (Figs. 2, 4)

The effects of the LGM appear to have differed between the Mediterranean zone (cold and wet) and areas further to the south (cold and dry) due to changes in the configuration, tracks and intensities of the winter storms (‘Cyprus lows’) over the eastern Mediterranean (Bar-Matthews et al. 1999; Enzel et al. 2008; though see Miebach et al. 2016). With the onset of the Early Epipalaeolithic, c. 25 000 cal BP, a long-term trend of steady demographic growth is notable in the Southern Levant, continuing thereafter (Goring-Morris, Belfer-Cohen 2011a.Fig. 2; Grosman 2005; Stutz et al. 2009). Concurrent with the increase in population there was shrinkage in the scale and scope of the ranges/territories of specific Epipalaeolithic groups, when a variety of different entities can be identified based upon the stylistic proclivities of the chipped stone assemblages (Belfer-Cohen, Goring-Morris 2011; Goring-Morris 1995; Leplongeon, Goring-Morris 2018; Marder, Goring-

Morris *in press*). These processes were not linearly accumulative, since they were also affected by changing environmental circumstances, including the global rise of sea levels and the drop in Lake Lisan levels reflecting significant changes in the ratio of precipitation *vs.* evaporation (Lisker et al. 2010; Torfstein et al. 2013).

With the beginning of an amelioration following the LGM, c. 20/19 000 cal BP, the formerly arid south ‘opened up’, and the Middle Epipalaeolithic entities emerged, expanding throughout the Levant (Goring-Morris, Belfer-Cohen 2019). It was against this background of *long durée* processes that short-term trends were observed amongst the more specific and immediate interactions of the various mobile foraging groups inhabiting the region.

It is in the context of the early Epipalaeolithic Masraquan entity (Tab. 1) that there is already direct evidence for the extensive use of small-grained seeds and the cultivation and harvesting of cereals in the Southern Levant (Arranz-Otaegui et al. 2016; Grosman-Yaroslavski et al. 2016; Piperno et al. 2004; Snir et al. 2015a; 2015b). Although this evidence derives from only one site, Ohalo II, it can be reasonably assumed that these practices occurred on a small-scale in other (Early and Middle) Epipalaeolithic communities, at least in the Mediterranean region. This is also the period when quantities of pounding and grinding stones are first documented (Belfer-Cohen, Hovers 2005; Rosenberg 2008).

The sizes of mobile bands of Palaeolithic foragers are commonly thought to comprise ~25 individuals. In order to sustain genetically viable populations, the minimum mating pool should have included ~250 individuals, necessitating contacts with ~10 other groups, at least on a periodic basis (Birdsell 1968; Wiessner 1974; Wobst 1975). The presence of massive aggregation sites, *i.e.* Kharaneh IV and Jilat 6 (Garrard, Byrd 2013; Maher, Conkey 2019; Maher et al. 2011; 2016), spanning the later Early and the beginning of the Middle Epipalaeolithic (c. 19 500–

Period	Cultural Entities	cal BP	Duration Years
Early Epipalaeolithic	Masraquan, Nebekian, Kebaran, Nizzanan	~25 000–19 000	~6000
Middle Epipalaeolithic	Geometric Kebaran, Mushabian, Ramonian	~18 500–15 000	~3500
Late Epipalaeolithic	Natufian, Terminal Ramonian, Harifian	~15 000–11 650	~3350
PPNA	Khiamian, Sultanian	~11 650–10 600	~1050
PPNB	Early, Middle, Late, Final PPNB	~10 600–8350	~2250

Tab. 1. Chronological scheme of terminal Pleistocene and early Holocene cultural entities in the Southern Levant.

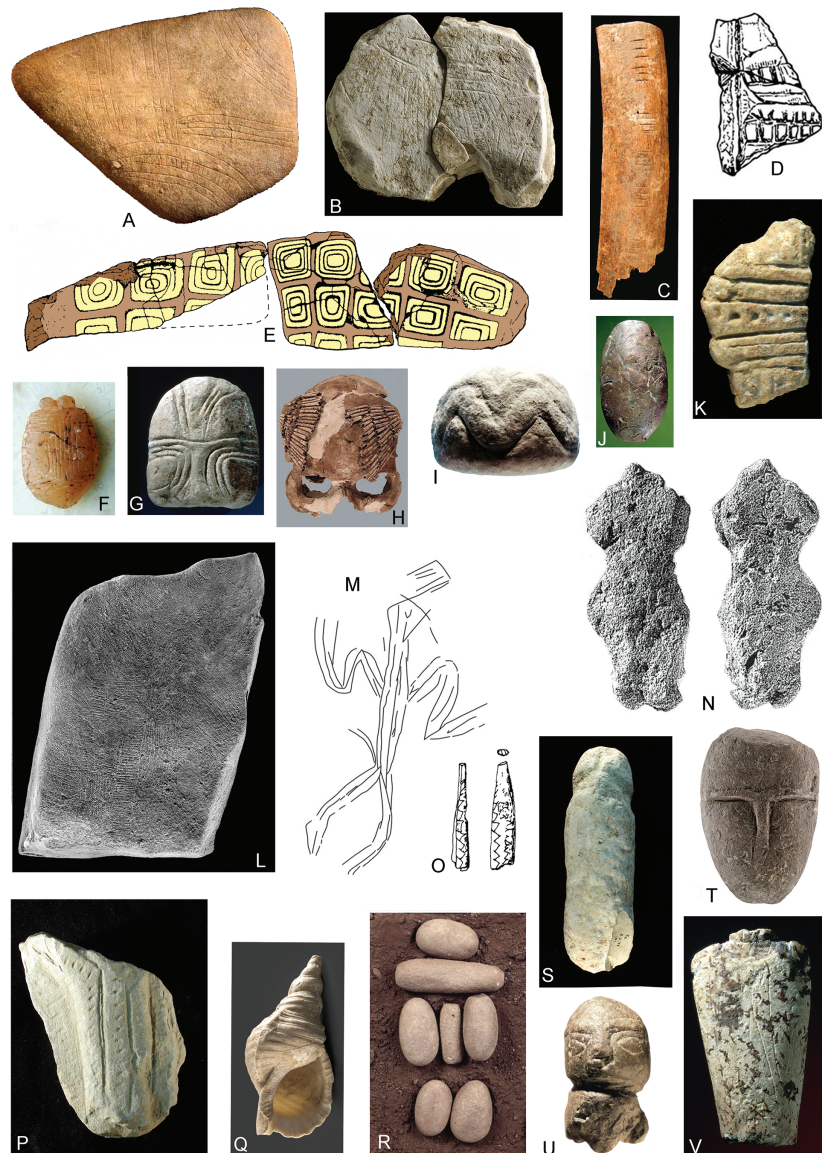
18 500 cal BP), encompassing several sociocultural entities in eastern Transjordan, are clearly important in this regard. They by far exceed the sizes of earlier or indeed contemporary occupations elsewhere in the Southern Levant. This novel means of social interaction would have fostered groups' ties at a larger scale than previously (Belfer-Cohen, Goring-Morris 2017).

Formerly thought to be strategically located for the interception of migratory herds of gazelle, recent preliminary isotopic evidence indicates that the prey were non-migratory, and instead thrived in large herds within the local steppic environment (Henton et al. 2017; 2018). Nevertheless, the size and scope of the occupations do indicate the (seasonal?) aggregation of bands from throughout much of the region, as reflected in the large quantities of marine molluscs recovered, which derive from both the Red and Mediterranean Seas (Richter et al. 2011; and see Byrd et al. 2016 for modelling of the ranges of such groups).

The various archaeological entities (identified on the basis of stylistic techno-typological criteria) of the Early and Middle Epipalaeolithic are generally de-

marked both chronologically and geographically; the latter is especially observable when comparing the Mediterranean and the arid areas of the Southern Levant. Thus one can follow through the archaeological record the spatial movements of groups pertaining to one entity or the other (e.g., Belfer-Cohen, Goring-Morris 2011). With the shift to the Middle Epipalaeolithic, as environmental conditions improved, the Geometric Kebaran techno-complex was initially dispersed throughout the northern and Southern Levant (Bar-Yosef, Belfer-Cohen 1989; Bar-Yosef, Meadow 1995; Goring-Morris 1987; 1995). Coevally, the earlier phase of the Mushabian techno-complex was restricted only to the Negev and Sinai. Later, the Geometric Kebarans seemingly disappeared from the south, in our opinion 'evicted' by the Mushabians and their descendants, the Ramonians, albeit while continuing to thrive in the north within the Mediterranean zone (Goring-Morris 1987; 1995).

Fig. 2. Artistic and symbolic items from the Levantine Epipalaeolithic. Early Epipalaeolithic: A Urkan-e-Rubb II; B Qashish; C–D Kharaneh IV; O Jitita. **Late Epipalaeolithic (Early & Late Natufian):** E Wadi Hammeh 27; F, G, R, V Eynan (Ain Mallaha); H, U el-Wad; I Upper Besor 6; J, L Hayonim Cave; K, P, S Fazael VI; M Raqefet Cave; N Hayonim Terrace; T Nahal Ein Gev II; (Harifian) Q Ramat Harif. **After:** Copeland, Hours 1977; Edwards et al. 2013; Garrod 1936–1937; Garrod, Bate 1937; Hovers 1990; Maher et al. 2012a; 2012b; Noy 1986; Perrot 1960; 1966; Rosenberg et al. 2020; Valla 2019; Valla et al. 2012; Yaroshevich et al. 2016. **Photos:** Nigel Goring-Morris, Gabi Laron, Alexander Marshack – Archives of Institute of Archaeology, The Hebrew University of Jerusalem. **Note different scales.**



Matters changed, however, with the emergence of the Late Epipalaeolithic Natufian, which apparently spread throughout the Southern and Northern Levant, with observable adjustments to the particularities of each phytogeographic zone (as reflected in the different phases and facies of the entity) (Ashkenazy 2014; Belfer-Cohen, Goring-Morris 2013).

Though most of the material culture remains from the Early and Middle Epipalaeolithic are the lithic assemblages, the retrieved material also comprises bone tools, a groundstone industry, ochre and shells as well as artistic-cum-symbolic manifestations, which though rare, are more frequent than in the preceding Upper Palaeolithic entities (e.g., Gregg et al. 2011; Hovers 1990; Kaufman 1999; Muheisen 1988; Rabinovich, Nadel 1995; Richter et al. 2011; Yaroshevich et al. 2016; and see Belfer-Cohen, Goring-Morris in press).

The Late Epipalaeolithic (Figs. 1–4)

It seems that the encounters during the later Middle Epipalaeolithic between the Geometric Kebarans and the Mushabians/Ramonians were instrumental in the emergence of the Natufian techno-complex (dated to the Late Epipalaeolithic, from c. 15 000 cal BP onwards), with its distinctive features, to be found throughout the Southern Levant and beyond. How did this come about?

We hypothesize that the Geometric Kebarans were ‘pushed out’ of the Negev and Sinai in the south, where they are seemingly documented for only a short duration, retreating northwards into the Mediterranean zone, back to their ‘ancestral’ territories that they traditionally shared with those Geometric Kebaran bands which had continued to exploit the lush regions of the Southern Levant, perhaps ‘bearing with them gifts’ from the south (also see below).

Under such circumstances (Mediterranean Geometric Kebaran communities facing the presence of Geometric Kebaran ‘refugees’ from the south), there would have been two options:

- ❶ Either the ‘newcomers’ were rejected and left to their ‘gruesome’ fate; or,

- ❷ They were accepted by the local communities, with whom they most probably continued to have shared a mating pool.

We believe that the available *prima facie* archaeological evidence tends to favour the latter scenario. Accordingly, individual Geometric Kebaran group sizes increased, requiring re-alignments in the spatial configurations of their territories, reflecting higher population densities and contraction into smaller territories than previously (Belfer-Cohen, Goring-Morris 2013; Goring-Morris, Belfer-Cohen 2013a). While there is no evidence in the Mediterranean zone for aggregation sites on the scale seen previously during the earlier Epipalaeolithic (see above)³, it seems that still other social mechanisms would have had to be initiated in order to ensure inter-community contacts and thus retain a sufficiently large mating pool.

Indeed one can observe certain characteristics that clearly derived from the south and were incorporated into the Natufian cultural repertoire, being introduced (rather than ‘imposed’), individually or within single groups. An obvious example of this is the use of the microburin technique (mbt) in some Natufian sites, while absent from others (Bar-Yosef, Valla 1979; Henry 1974). Indeed, we believe that the mbt – used systematically during the Nebekian, Nizzanan and Mushabian (and including in the Negev/Sinai and eastern Transjordan) to shape microliths, but unknown in the Mediterranean Kebaran and Geometric Kebaran, was now introduced to some Mediterranean Natufian communities.⁴

It seems that there was a need to deal both with the ‘external’ changes in groups’ subsistence resources (necessitated by changes in territory sizes and population densities), as well as with the ‘inner’ social alterations affected by increased numbers of group members, some of whom were the ‘newcomers’ from the south. Even though the changes affected some groups more than others, overall one can observe a ‘domino’ effect that ultimately impacted the entity as a whole. Signalling and symbolising increased significantly, as is apparent in the rich assemblages of artistic manifestations in many Natufian sites (e.g., Major 2018; Nadel, Langyel 2009; Orrel-

³ In the semi-arid Negev highlands, the Rosh Horesha/Saflulim site complex may represent a Late Natufian aggregation site (Goring-Morris et al. 1999) that likely reflects the more mobile adaptation of this local facies due to environmental factors as opposed to coeval Natufian communities in the Mediterranean zone.

⁴ While, as a rule the Geometric Kebarans did not use the mbt technique habitually, there are sporadic instances in the Negev of unusual assemblages with Geometric Kebaran-like typological forms, i.e. trapeze/rectangle variants, fabricated using the mbt at Shluhat Qeren II, amongst other sites (Goring-Morris 1987.170).

le 2014; and references therein). All of these may contribute to explaining the appearance of those novel elements distinguishing the Natufian from its predecessors, making it unique among the Epipalaeolithic entities; still, some of these elements continued to be shared with the immediately ensuing Neolithic (PPNA - c. 11 600 cal BP).

At the same time, the Natufians retained features and characteristics of their preceding ancestors. Moreover, detailed studies have revealed that, in fact, quite a few of the 'Neolithic hallmarks' are deeply rooted in the cultural realms of the Epipalaeolithic entities, even the earlier ones (*Goring-Morris, Belfer-Cohen 2016; Belfer-Cohen, Goring-Morris in press*).

It seems that by following the distinct and specific trajectory of the evolution of Natufian 'existence', we can start to unwrap the beginnings of the PPNA. Thus one can observe in the Natufian that:

- ① As communities became increasingly sedentary there were opportunities to accumulate more 'stuff' (*i.e.* material belongings).
- ② As communities increased in size there was a necessity to develop novel social mechanisms to regulate the increasingly complex nature of inter-personal, intra-community and inter-community interactions.
- ③ The growing intra- and inter-group densities dictated more marked distinctions among the various communities comprising the Natufian entity as a whole.

Most immediately, many of these phenomena were expressed in the archaeological record, including a desire for 'exotics', and investments in the decorative and symbolic aspects of both non-utilitarian and mundane artefacts. The latter was expressed, among other ways, by the distinct stylistic 'signatures' of specific communities (*Belfer-Cohen 1991; Belfer-Cohen, Goring-Morris 2013; Noy, Brimer 1980; Ro-*

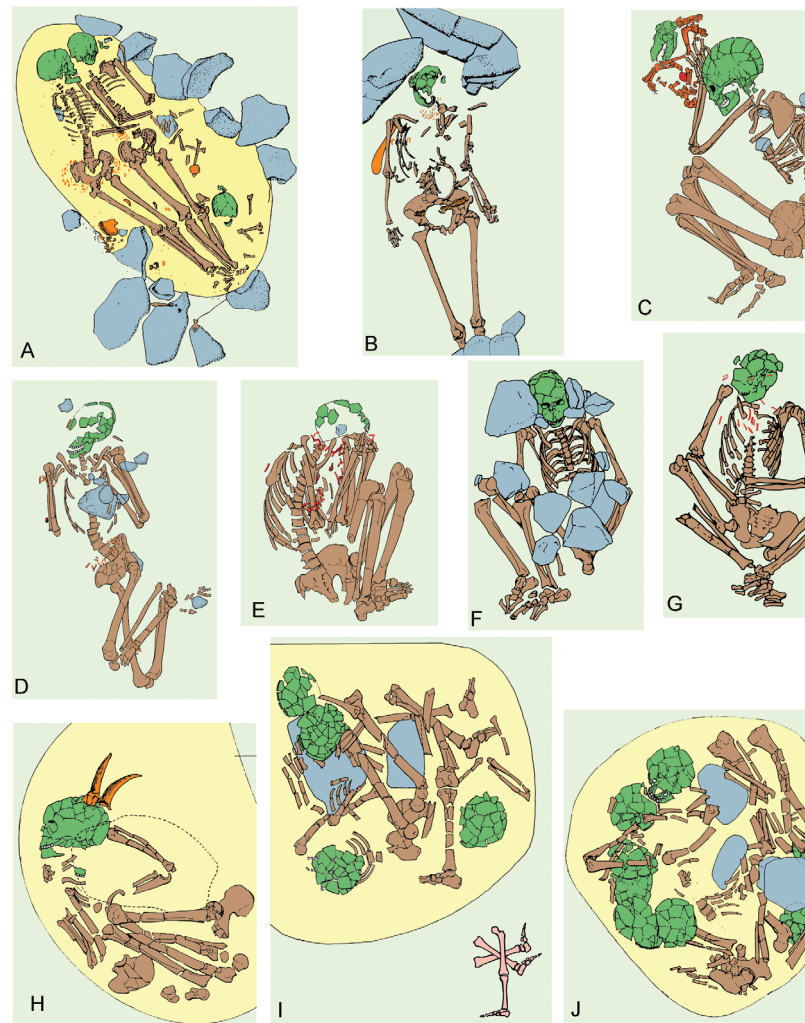


Fig. 3. Early (A-G) and Late Natufian (H-J) burials. A-B Hayonim Cave; C-G, H-J Eynan (Ain Mallaha - note arrangement of three legs in I. All decorations and grave goods are in orange. (Modified after Belfer-Cohen 1988; Perrot, Ladiray 1988). Note different scales.

senberg et al. 2020; Shaham 2014; Shaham, Belfer-Cohen 2013; Shaham, Grosman 2019; Torres et al. 2020).

The processes enumerated above continued into the PPNA, evolving and changing through time (as had already occurred during the course of the 4000 year sequence of the Natufian), accompanied by increased interactions with entities further afield (*e.g., Khalaily, Valla 2013*).

Indeed, similarities and continuities are manifested in a wide range of material culture realms. Thus with regard to the constructed environment a number of architectural concepts continued, with the ongoing use of semi-subterranean circular structures. Indeed, it was only with the transition to the Pre-Pottery Neolithic B (PPNB) that the shift to quadrilateral concepts in the Mediterranean zone is observ-

ed, culminating in the Middle PPNB (e.g., *Banning 1998; Goring-Morris, Belfer-Cohen 2013b*). We believe that the appearance of obvious communal structures in the PPNA is, in a way, the culmination of mostly social processes evolving during the course of the Natufian.

A unique Natufian phenomenon observed in the Mediterranean region is the 'return to the caves' (*Bar-Yosef, Martin 1981; Belfer-Cohen, Goring-Morris 2009; Goring-Morris, Belfer-Cohen 2010*), namely the intensive use of caves for special activities, e.g., burial grounds, ceremonies, feasting, etc., as illustrated by the Hilazon Tachtit cave (*Grosman, Munro 2007, 2016; Grosman et al. 2008; Munro, Grosman 2010*), Hayonim cave (*Belfer-Cohen, Bar-Yosef 2012*) and Raqefet cave (*Nadel et al. 2013*). Perhaps this restricted use of caves by members of particular Natufian groups reflects communal activities that would later take place during the Neolithic in communal, 'public' buildings (see *Hayden 2012*). Indeed it is of interest to note that during the Natufian, large-scale structures are first observed in its early stages; yet they disappear from

the later architectural repertoire, perhaps replaced by the activities in the caves, as the examples above all pertain to the Late/Final Natufian. It is of interest to note that the *kiva*-type structure, 075, at PPNA Wadi Faynan 16 (WF16) provides similarities with the large-scale structures at (early) Natufian Eynan (L131) and Wadi Hammeh 27 (*Edwards 2013; Finlayson et al. 2011; Haklay, Gopher 2015; Mithen et al. 2018; Valla 1988*). Clearly, continuity is also observed in the artistic manifestations (*Shaham, Grosman 2019*).

The funerary practices provide an apt example of such a clear continuity between the Natufian and PPNA. Mostly because of the detailed data available, but also because these practices reflect processes and beliefs that are not impacted directly by the physical surroundings (as opposed to the more mundane as-

Fig. 4. Epipalaeolithic exchange items. A-B, G-H, J-L Natufian; C, F Harifian; D, E Kebaran and Geometric Kebaran. A Kebara Cave (flint 'lunates'); **B** Hayonim Cave, Eynan and el-Wad (jewelry – bone, shells and exotic minerals); **C** Shluhat Harif (green metamorphic handstone); **D, E** Karaneh IV (marine – Red and Mediterranean Seas – molluscs); **F** Ramat Harif (turquoise pendant); **G** Hayonim Cave (Mediterranean scaphopod beads); **H-I** Eynan (obsidian blade/bladelets and exotic green stone ornaments); **J** Hayonim Cave; **K** Eynan; **L** Kebara Cave (non-local basalt groundstone items). Photos after: Bar-Yosef Mayer, Zohar 2010; Khalaily, Valla 2013; Maher et al. 2012a; Richter et al. 2011; Archives of Institute of Archaeology, The Hebrew University of Jerusalem. Note different scales.



pects of daily existence, such as the availability of food resources). Clearly there were various processes already developing during the course of the Natufian (suffice it to note the disappearance of decorated burials in the Late, as opposed to the Early Natufian, and the rise in the practice of skull removal). Cemeteries emerged in designated areas within Natufian habitation sites, a phenomenon already apparent in its initial stages in the Geometric Kebaran (Maher et al. 2011). By the Natufian, the funerary practices included dedicated architecture, as exemplified by the funerary structure of 'Habitation' 1 at Eynan (Ain Mallaha), which is quite different from domestic structures with its plastered bench and upright monoliths (Perrot, Ladiray 1988). It is during the later Natufian that dedicated burial sites emerged, e.g., Hilazon Tachtit, Raqefet and Nahal Oren (Grosman, Munro 2016; Nadel et al. 2013; Noy 1993).

In terms of actual burial practices, PPNA burials follow patterns already documented during the Natufian – namely a variety of burial positions: single and multiple, primary (sometimes disturbed) and secondary burials; sometimes with grave markers; selective skull removal; few, if any personal decorations; re-arrangements of human bones; and unique burials (Croucher 2012; Goring-Morris, Belfer-Cohen 2013c; and references therein; and see Fig. 3).

Additionally, certain Natufian and PPNA funerary practices appear to herald subsequent developments during the PPNB, i.e. the likely appearance of foundation burials, as exemplified at Natufian Hilazon Tachtit (Grosman, Munro 2016) and PPNA Burial F8(298) at WF16 (Mithen et al. 2015). There are also other practices heralding the PPN, namely the use of 'pasty', plaster-type material to encase and/or cover burials, e.g., Natufian Nahal Ein Gev II (Friesem et al. 2019; Grosman et al. 2016) and PPNA WF16 (Mithen et al. 2015).

Continuity of practices is observed through cases of 'basket' and 'bundle' burials, the use of stone 'pillows' in graves, the decorative pigmentation of skulls, joint human/animal burials, as well as evidence for funerary feasting. Natufian examples of the above derive from Eynan (Perrot, Ladiray 1988), Nahal

Ein Gev II (Grosman et al. 2016), Azraq 18 (Bocquentin, Garrard 2016), Shubayka 1 (Richter et al. 2019), Hayonim Terrace (Valla 2012), and Hilazon Tachtit (Munro, Grosman 2010); the PPNA examples derive mainly from the site of WF16 (Mithen et al. 2015). In addition, the 'sitting' graves in the cemetery area at PPNA Hammeh are somewhat reminiscent of both those at the Early Epipalaeolithic Ain Qasiyah, Natufian Hayonim cave and the later PPNB burials at Tell Hallula on the Euphrates (Belfer-Cohen 1988; Guerrero et al. 2009; Makarewicz, Rose 2011; Richter et al. 2010).

Practices observed even earlier, in the Early Epipalaeolithic levels of Kharaneh IV (Maher et al. 2011; 2012a) are the introduction of animal horn cores as head adornments, found also in Natufian Eynan (Perrot, Ladiray 1988; and see Figure 3.H), and at PPNA Hatoula (Le Mort 1994; Goring-Morris, Belfer-Cohen 2011b)⁵. Another feature, quite enigmatic, relates to intentionally holed/pierced skulls, whether with a sizeable or narrow bored hole, observed as isolated cases all through the Natufian-PPNA-PPNB sequence. One parsimonious hypothesis claims that the holes were intentionally bored post-mortem for suspending the skulls, based on observations made on a PPNB plastered skull from Jericho (Fletcher 2016). Intentional drilling of skulls (rather than excavation accidents) was also observed on Early Natufian (H25 at el-W, see Weinstein-Evron 2009) and Late Natufian individuals (H23 at Nahal Oren, see Dupouy-Madre, Crognier 1973), and has been reported in a number of personal observations⁶.

The rich symbolic/artistic repertoire of the Natufian (e.g., Major 2018 and references therein) can be described, for our purposes, as reflecting three components:

- ❶ general 'Natufian' features through time (phases);
- ❷ local, site specific and regional particularities (facies); and
- ❸ *long durée* features evolving through time that continued into the Neolithic.

Illustrations of the latter include the appearance of artistic manifestations observed in Late Natufian sites in the Jordan Valley incorporating the use of

5 The accompaniment of horn cores with burials is documented both, earlier in the Late Upper Palaeolithic, at Nahal Ein Gev I (Arensburg 1977) and later in the PPNB (Locus 1304) at Kfar HaHoresh associated with a skull cache (pers. obs.).

6 A human cranium with a drilled hole in the parietal (for suspension?) was described from a LPPNB multiple grave (Loc. 1155) at Kfar HaHoresh (Simmons et al. 2007:17, Fig. 13b). This skull formed part of a deliberate spatial arrangement, perhaps in the form of a depiction. It also demonstrated evidence for perimortal trauma indicating that the individual may have been a victim of homicide. More recently, a similar phenomenon of a drilled skull was published from PPN Göbekli Tepe, supposedly as an innovation (Gresky et al. 2017).

soft limestone/chalk as raw material, or incised patterns on bone and stone (e.g., *Grosman et al. 2016; Hershman, Belfer-Cohen 2010; Shaham, Grosman 2019*; and references therein), bead-spacers (*Bar-Yosef Mayer 2010*) and the appearance of green beads (*Bar-Yosef Mayer, Porat 2008*). Accordingly, it seems likely that both the material culture of the Natufian and PPNA designate continuity and change pertaining to signalling and symbolism of a *long durée* nature, most probably indicating the lengthy process of the transformation before, and in parallel to, the economic 'turn-over' to fully agricultural practices.

Additionally, while there is already evidence during the earlier Epipalaeolithic for long distance exchange, e.g., marine molluscs (*Bar-Yosef Mayer, Zohar 2010; Richter et al. 2011*), during the course of the Natufian the range of items and sources involved in long-distance exchange increased significantly; this includes basalt for groundstone tools (*Weinstein-Evron et al. 2001*), flint (*Delage 2013, 2018*) and obsidian (*Khalaily, Valla 2013*), as well as green stone (*Bar-Yosef-Mayer, Porat 2008*). Source areas include the Nile Valley, Transjordan, the Mediterranean and Red Seas, western Sinai, northwestern Saudi Arabia, Cappadocia, as well as sources closer to home (*Belfer-Cohen, Goring-Morris in press; Goring-Morris, Belfer-Cohen in press*).

Concluding remarks

In exploring the shift in the Southern Levant from the Epipalaeolithic to the Neolithic we have suggested an apparent continuity, illustrating it with a few examples. Clearly, however, when checking the accumulating archaeological data, it becomes obvious that the processes of change were incremental and of *long durée*, the initial roots of which can be traced right back to at least the Early Epipalaeolithic, almost ten millennia prior to the emergence of the Natufian. Still, during the long and winding course of the Natufian and after, during the PPNA, cultural processes demonstrate major changes in life-ways in comparison to the preceding Palaeolithic. This is reflected at the level of the individual community, as well as within the region as a whole, and beyond. Ultimately, the available evidence indicates that the 'archaic' villages of the PPNA 'Sultanian' should be viewed as the culmination of developments beginning with the emergence of the Natufian, c. 15 000 cal BP ago, setting the backdrop against which the fully fledged agricultural villages of the subsequent PPNB emerged.

We have focused on data pertaining to Natufian – PPNA continuity, primarily within the Mediterranean 'core area' (i.e. a 'linear', to some degree, process), ignoring other contemporaneous developments taking place farther afield in neighbouring areas, such as the appearance of the Harifian entity (c. 12 650–11 650 cal BP), with its particular adaptations to the arid Negev and Sinai (*Goring-Morris 1991; Goring-Morris, Belfer-Cohen 2013a*).

While geographically marginal, environmental changes in this area (i.e. the Younger Dryas event at 12 900–11 600 cal BP) may have triggered processes the impact of which reverberated throughout the broader region. Even if the Mediterranean zone itself was not involved (i.e. did not suffer from worsening conditions except to a limited degree, if at all), the phenomena taking place in the neighbouring, more arid, regions may also have indirectly impacted the Mediterranean zone. Indeed, we believe that the dynamics of such phenomena played a significant role in developments portraying the neolithisation processes (e.g., *Watkins 2013*), including *actual movements* of populations, such as the Late Epipalaeolithic/Early Neolithic colonization of Cyprus (*Clarke 2014; Simmons 2014*). These processes introduced new lifeways, new spiritual paradigms, and, when moving into territories already settled by indigenous populations, invoking what may be viewed as the cultural parallel of the biological force of 'hybridization vigour'.

Summing up all of the above, based on both the archaeological record and the way we currently understand cultural evolution (*Henrich 2016* and references therein), one can conclude by stating that the Southern Levantine Neolithic phenomenon can be said to have arisen from the 'ashes' of the Natufian. It was triggered by processes, such as the tightening of previously established social networks, with distant 'cousins' from the periphery of the Natufian domain joining their kin in the Mediterranean region, in much the same manner as had occurred earlier with the transition from the Middle to the Late Epipalaeolithic (see above), emphasizing the notion that one must indeed be aware that not every change comes about through external triggers, and we have to take into consideration the impact of local dynamics and the effects of their accumulation.

We believe that this is a recurrent phenomenon, noted in diverse, far-flung regions, with different chronologies. Two recent publications come to mind to illustrate this statement, one being concerned

with explaining the emergence of the Neolithic in Britain (Ray, Thomas 2018), while the other explores the much debated later appearance of the Hyksos in the Nile delta (Stantis et al. 2020).

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