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It seems as if the world had been put on hold – not by a war, but by a virus that makes people angry and fearful, isolated and depressed. Online meetings should replace and compensate for physical absence, but when the screen is turned off a surreal emptiness remains, as if discussions have dissolved in the depth of the net. With dwindling amounts of money governments try to keep “ever-more” mentalities running, while the opportunities of the pause – understanding the lessons this virus might teach us – appear to be missed. In such a situation: What are our responsibilities as prehistorians in translating our knowledge and understanding of past crises for the sake of understanding current crises? Can’t we prepare crisis lessons from the past for the momentum of change for the better in the present and future? Or are we also trapped in this Neolithic mentality of an ever-productive acceleration and segregation, keeping us going as long and far as possible with what we are used to in research? Doing Crisis Archaeology would be an answer. Although such thinking and approaches appear to enter research agendas in these months: Would we be able to transfer the translation of past lessons to today’s global levels and contexts of crisis? Current global radical confinement strategies, like activating all sorts of borders, far-right national movements, or interventions in nature, need to receive a clear and engaged analysis and intervention by prehistoric expertise and perspectives. However, it seems that we are further from global perspectives and research responsibility than ever. Facing the terrible events in Syria in 2012 H.G.K Gebel and G.O. Rollefson placed a wake-up call in a Neo-Lithics editorial: “Are we historians immune against the historic events we are contemporary witnesses to? Is there a responsibility of us Near Eastern (pre-) historians to raise our voices....?”

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Highlighting the PPNB in the Southern Levant

Nigel Goring-Morris and Anna Belfer-Cohen

Introduction

The Pre-Pottery Neolithic B (PPNB) represents the ‘hard core’ of what has been conceived as the Neolithic transformation of Near Eastern human societies, *i.e.* the shift in the Mediterranean zone from primarily mobile foragers to largely sedentary village communities subsisting mostly by small-scale horticulture and herding. Accordingly, during the course of its almost two millennia span (Table 1 and Fig. 1A), the PPNB epitomizes:

The culmination of the lengthy (10,000+ yrs) shift to productive economies, *i.e.* the transition to habitual plant cultivation and animal husbandry.

- A pan-Levantine koiné, whereby the whole of the Levant, under different environmental conditions, shares distinctive material culture and technological traits, *e.g.* the bidirectional (‘naviform’) chipped stone technology and large-scale plaster production, amongst others.
- The emergence of large-scale villages (‘mega-sites’).
- The shift from circular to quadrilateral architecture (Fig. 2).
- Distinct ritual and symbolic systems, some pan-Levantine, others more regionally or temporally focused (Figs. 3-4)

Entity	calBCE
PPNA (Khiamien)	~9.750-9.500
PPNA (Sultanian)	9.500-8.500
Early PPNB	8.500-8.150
Middle PPNB	8.150-7.500
Late PPNB	7.500-7.000
Final PPNB (incl. Tuwailan)	7.000-6.400
Late Neolithic 1 (Yarmukian)	~6.400-5.750
Late Neolithic 2 (Jericho IX/ Lodian)	~5.800-5.500

Table 1 Chronological framework for the PPNB in the Southern Levant.

These characteristics are most obviously observed in the Middle/ Late PPNB, which represents the ‘classic’ stage of the ‘Neolithic [agricultural] revolution’ as envisioned by research in its early stages. Moreover, at the time, and in the absence of absolute dates, it was assumed that the duration of the Neolithic transformation was rather brief, happening quite rapidly, thus justifying the use of the term ‘Revolution’. Since then research has progressed exponentially, and today, we are more than aware that developments evolved over a prolonged period, so that the Neolithic

transformation may be envisioned as a rather long and not necessarily linear ‘(r)evolutionary’ process (see Bar-Yosef 2017; Ibáñez *et al.* 2018; and references therein). It has become apparent that within the PPNB koiné, *i.e.* southwestern Asia (the Fertile Crescent/ Near East), where such developments took place, they did not occur simultaneously throughout the area. Some processes took place in isolation within a specific region, but also sometimes in parallel and, other times, in tandem in different regions. Indeed, recent genetic evidence demonstrates the presence of three distinctive groups of ‘initial farmers’ within this very same area (Lazaridis *et al.* 2014, 2016).

Examining the archaeological record provides ample evidence for significant regional variability with regards the appearance and character of the Neolithic as a whole and, more specifically, of the PPNB. Obviously, changes occurred at different paces for different variables, without being part of a larger ‘plan’. Accordingly, we believe that, if one has to use a catch phrase to describe Neolithisation processes it should be “non-directed, mosaic developments”. In the following essay we attempt to illustrate selected aspects of some such processes as reflected in the material culture record of the Levant.

The PPNB in the Levant

During the initial stages of research the general chronological and geographical framework for the Early Neolithic in the Levant was, in the absence of evidence from more northerly parts, primarily based on data from the south (*e.g.* de Vaux 1966; Perrot 1968; Cauvin 1972; Mellaart 1975). It was only through subsequent studies, from the 1970’s onward, following research along the Euphrates and Tigris rivers, that temporal/ cultural differences between the southern and northern Levant became apparent (*e.g.* Bar-Yosef 1981, 1991; Cauvin 1989). Hence, it was believed that, while the southern Levant was the centre for Epipalaeolithic developments, a geographic shift occurred with the onset of the Neolithic when the focus of innovation moved northwards. Thus, it was assumed that during the PPN all innovations derived from the northern Levant, to disperse southwards, westwards and eastwards (*e.g.* Cauvin 1994; and references therein). The most obvious reason for such an assumption was the purported absence of Early PPNB occurrences in the southern Levant and the supposedly later ¹⁴C dates for the local PPNA (Kuijt 2003; Edwards *et al.* 2004).

However, more recently it has transpired that this division is not that simple, once again illustrating the complexity of the processes taking place throughout

the area (e.g. Gebel 2004; Belfer-Cohen and Goring-Morris 2014; Goring-Morris and Belfer-Cohen 2016). It appears that an Early PPNB phase is present in the southern Levant, as reflected by recent research at various sites in southern Syria, Israel and Transjordan (Fig. 1A), e.g. Aswad, Tell Qarassa, Ahihud, Kfar HaHoresh, Neshar Ramla, Motza, Wadi Mushash 163, Harrat Juhayra 202, amongst others (Yizhaq *et al.* 2005; Khalaily *et al.* 2007; Ibáñez *et al.* 2010, 2014; Stordeur *et al.* 2010; Tuross and Goring-Morris 2011; Caracuta *et al.* 2015; Lelek Tvetmarken and Bartl 2015; Toffolo *et al.* 2017; Borrell *et al.* 2019; Fujii *et al.* 2019; Rokitta-Krumnow 2019). It is a relatively brief phase (c. 350/400 years, see Table 1), thus ‘bridging’ the end of the PPNA and the emergence of the ‘classic’, fully-fledged Middle/ Late/ Final PPNB villages, e.g. ‘Ain Ghazal, Jericho and Yiftahel (Kenyon 1981; Kenyon and Holland 1983; Garfinkel *et al.* 2012; Rollefson and Kafafi 2013). Still, some researchers continue to adhere to the notion that the PPNB originated in the northern Levant (Edwards 2016); and there remains an ongoing debate as to where plant domestication first appeared, and whether it represents monocentric as opposed to polycentric phenomena (e.g. Abbo *et al.* 2012; Abbo and Gopher 2017; contra Asouti 2013; Willcox 2013; and see discussion in Bar-Yosef 2017).

Aspects of Continuity

While one needs to take into consideration the differences within the southern Levant between the west and the east, the south and the north, as well as between ‘the sown’ and ‘the desert’, various strands of evidence do indicate that some of the quintessential PPNB features originated in and continued from the local Epipalaeolithic (*i.e.* the Natufian) and PPNA. These are incorporated and reflected within various realms of existence, both mundane and ceremonial/ritual.

Subsistence

As noted above, the PPNB, especially in its later stages, portrays a fully-fledged agricultural existence. Nonetheless, recent research, especially from Cyprus, illustrates the complexity of subsistence shifts from ‘wild’ and ‘feral’, to ‘tamed’, ‘cultivated’ and fully ‘domesticated’ for both plants and animals; shifts that can be described as part of the “bumpy ride to village life” (Belfer-Cohen and Bar-Yosef 2000; Vigne *et al.* 2009, 2011, 2012, 2015; Zeder 2011; and see also Keeley 1995). Indeed, experimentation with cultivating locally available plant resources in the Levant dates back to at least the Early Epipalaeolithic at Ohalo II (Snir *et al.* 2015), some ten millennia prior to its widespread adoption during the PPNB¹. Furthermore, during the PPNA, cultivation included certain species that were domesticated only much later, for example oats – *Avena sterilis* – at Gilgal I (Weiss *et al.* 2006)².

Particularly illustrative is the recent evidence of local resource exploitation, namely the faba bean (*Vicia faba*) in the Carmel/ Galilee region during the Natufian and its subsequent domestication during the Early PPNB; it is of interest that, to date, no wild representatives of this or closely related species have been found (and see Caracuta *et al.* 2015, 2016).

The economic drive for domestication of faunal resources appears to have been primarily a northern phenomenon, although the local domestication of the dog (*Canis familiaris*) during the Natufian was most probably triggered by a combination of a hunting aid/ commensal/ symbiotic/ social causes associated with increasing sedentism, rather than by alimentary needs (Davis and Valla 1978; Tchernov and Valla 1997).

Architecture (Figs. 2-3)

Though it is during the PPNB that we observe a general shift to the use of quadrilinear structures, first noted in the Early PPNB, e.g. Motza (Khalaily *et al.* 2007), the building materials continued to be the same as those used locally during the PPNA, such as fieldstones, mudbrick, wattle and daub, *etc.* (Fig. 2).

Coevally, there is an intensification in the use of lime-plaster, a particularity of the southern Levantine Mediterranean zone³. First produced in small quantities by at least the Middle Epipalaeolithic in the southern Levant as an adhesive for hafting chipped stone microliths (Bar-Yosef and Goring-Morris 1977; Kingery *et al.* 1988), plaster was already being used in (usually ritual?) architectural contexts during the Natufian (and see Perrot 1966; Garfinkel 1988; Rollefson 1990; Malinowski and Garfinkel 1991; Goring-Morris *et al.* 1999; Goren and Goring-Morris 2008; Friesem *et al.* 2019). Asphalt (bitumen) from the Dead Sea was also employed as both an adhesive for flint tools, as well as for lining baskets as documented during the PPNA (e.g. Nadel 1997; Schick 1997, 2010; Wicks 2007; Dag *et al.* 2010).

There are also other architectural traditions that continue, such as the use of slab-lined floors for special structures, e.g. Beidha (Kirkbride 1967), a phenomenon first observed in the Natufian (Henry 1976; Belfer-Cohen 1988a; Goring-Morris and Belfer-Cohen 2003, 2010a, 2013a).

Ideology/ Ritual Lexicon and Practice

Skull removal, first observed during the Natufian, continued throughout the PPNA, unto the PPNB (and even later) when, in addition to the removal of the skull, in certain cases it was also modified and plastered in a variety of ways – a phenomenon known only from the southern Levant with but rare exceptions (e.g. Belfer-Cohen 1988b; Bonogofsky 2006; Kuijt 2008; Testart 2008; Goring-Morris and Belfer-Cohen 2014a).

So, too, it appears that what was considered by Cauvin (2000) as a ‘northern’ phenomenon characteristic of the PPNB, namely the ‘cult of the



Fig. 1A Early PPNB site distributions in the Southern Levant. (Map: authors)



Fig. 1B Middle PPNB site distributions in the Southern Levant. (Map: authors)



Fig. 1C Late PPNB site distributions in the Southern Levant. (Map: authors)



Fig. 1D Final PPNB (PPNC) site distributions in the Southern Levant. (Map: authors)

bull', seemingly has its roots in earlier practices in the southern Levant. Indeed, a focus on *Bos primigenius* in ritual feasting contexts was documented already in the Late Natufian at Hilazon Tachtit Cave, while a PPNA burial of a female with a bucrania was recovered in Hatoula (Munro and Grosman 2010; Goring-Morris and Belfer-Cohen 2011, 2013b).

Another example relates to the use of stelae/monoliths from the Natufian onwards (Kirkbride 1967; Henry 1976; Galili and Rosen 2011; Edwards 2013; Goring-Morris and Belfer-Cohen 2013a).

Long-Distance Connections

The PPNB is clearly the period with the most prolific evidence regarding long-distance interactions throughout the wider region of the Near East/ Fertile Crescent – the material culture basis for the term the 'PPNB koiné' (Bar-Yosef and Belfer-Cohen 1989). By the PPNB the range of desirable items exchanged ('exotics') increased markedly, yet many made their initial appearance during the course of the Natufian. These include obsidian, a wide range of (often colourful, including green/ blue-hued) minerals, as well as marine and freshwater molluscs, not to mention basalt as raw material (Weinstein-Evron *et al.* 2001; Bar-Yosef Mayer 2005; Delerue 2007; Bar-Yosef Mayer and Porat 2008; Bar-Yosef Mayer and Zohar 2010; Khalaily and Valla 2013; Alarashi 2014; Delage 2018).

Obsidian first appeared in the southern Levant in some numbers at the end of the Natufian (Khalaily and Valla 2013), and just as all through the Early Neolithic PPNA-PPNB sequence, it derived almost exclusively from Cappadocia (Delerue 2007). So, too, during the Late Epipalaeolithic molluscs from the Mediterranean, the Red Sea and even the Indian Ocean as well as Nilotic and other freshwater sources are documented (Bar-Yosef Mayer 2005, 2017). With regards at least the obsidian, the relative quantities recovered indicate that distribution mechanisms included the use of regional exchange nodes already during the Natufian, *i.e.* Eynan, and PPNA, *i.e.* Jericho (Ibáñez *et al.* 2015; Goring-Morris and Belfer-Cohen in press).

Crafts (Fig. 5)

It is difficult to identify clear-cut evidence for craft specialization during the Epipalaeolithic and PPNA, with the possible exception of limestone and basalt groundstone tools (Belfer-Cohen 1988b; Wright 1991; Weinstein-Evron *et al.* 2001; Belfer-Cohen and Hovers 2005; Rosenberg 2008).

The markers of Neolithic lithic assemblages – bifaces and arrowheads – first appear during the Late Epipalaeolithic Natufian and Harifian (Garrod 1957; Goring-Morris 1991). Axes and adzes with distinctive tranchet working ends only appeared during the PPNA, continuing into the Early/ Middle PPNB, to then be replaced by more sturdy polished working ends (Barkai 2005). Sickle blades/ reaping

knives first appear sporadically during the earlier Epipalaeolithic (Groman-Yaroslavski *et al.* 2016), but only become habitual during the Natufian, their relative frequencies increasing thereafter through the PPNB and later (Belfer-Cohen 1994; Yaroshevich *et al.* 2013a, b; Brailovsky-Rokser 2015; Brailovsky-Rokser and Goring-Morris 2019). Dating the timing for the invention of the bow and arrow is contentious⁴; but the symmetric aerodynamic arrowhead certainly appears during the Harifian (coeval with the Final Natufian) to become a distinctive feature of the PPN, each phase being characterized by a particular type (Gopher 1994). Amongst the groundstone tool repertoire, querns (involving grinding) replaced the previous emphasis on mortars (pounding with a pestle) (Wright 1991; Belfer-Cohen and Hovers 2005).

The earliest preserved evidence for basketry and weaving derives from sites in the lower Jordan Valley dating to the end of the Natufian and the PPNA, *i.e.* Wadi Murabba'at, Gilgal, Jericho and Netiv Hagdud (Kenyon and Holland 1983; Schick *et al.* 1995; Schick 2010). However, it is likely to date much earlier, certainly by the Early Epipalaeolithic, if not the Upper Palaeolithic, given the presence of twisted fibre fragments at Ohalo II (Nadel *et al.* 1994).

Uniquely PPNB Phenomena

Clearly, a defining characteristic of the MPPNB/ LPPNB in the southern Levant was a population explosion as illustrated by the founding of many new settlements and, in particular, the emergence of the 'mega-site' settlement phenomenon.

H.G.K. Gebel (2004) postulated in his working hypothesis of "the Jericho and mega-site phenomenon" that areas west of the Rift valley were depopulated and vacated with the onset of the 'classic' Middle PPNB (Table 1) and that communities shifted eastward to found new settlements in the Mediterranean zone east of the Rift valley, especially along what was later termed the 'Kings Highway'. These settlements rapidly expanded to become mega-site communities by the Late PPNB and Final PPNB (PPNC). Indeed, 'population pressure' and 'stressed habitats' in Cisjordan initially appeared to be logical and parsimonious explanations of the observed developments. However, more recent research has documented numerous sites also west of the Rift valley, and little evidence for 'degraded habitats' (Sapir-Hen *et al.* 2016). Actually, quite a number of Middle PPNB settlements were recorded in and west of the Rift valley⁵, though the numbers of sites do drop significantly in the region during the Late PPNB (Birkenfeld 2018; and pers. obs.). Also one should note that most villages west of the Rift valley were more modest in size and scope relative to the 'mega-site' phenomenon oriented north-south in and east of the Rift, though there is currently evidence from the new excavations at Motza near Jerusalem that it should be interpreted as a mega-site (Reshef *et al.* 2019; Khalaily and Vardi, pers. comms.).

This profound change in the size and density of settlements would have had major ramifications in terms of social, economic and ritual practices, whether at the level of inter-personal, community and inter-community relationships (a topic that merits a separate and detailed discussion; and see below).

Additionally, a clear dichotomy between the 'sown' and the 'desert' areas is observed, mostly due to the growing divergence in the respective subsistence systems, with fully fledged agricultural villages vs mobile hunter-gatherers, later replaced by nomadic herders. This dichotomy is archaeologically mostly observable through the differences in architectural features and lithic assemblages, as preservation of plants and faunal remains often leaves much to be desired. Following a virtual hiatus at the end of the Late Epipalaeolithic Harifian, the Negev and Sinai deserts appear to have been slowly re-populated only at the beginning of the PPNB. Subsequently, there is evidence for complex interactions between the sedentary farming communities in the Mediterranean zone, newly emergent early pastoralist groups in the eastern steppes, and mobile foragers in the Negev and Sinai.

The interactions between the different regions likely comprised extensive exchange networks, whether of marine molluscs from the Red Sea, desirable minerals from sources in the south and east, and/ or even meat, e.g. Nahal Issaron, Ain Abu Nukheila, and sites in southern Sinai (Bar-Yosef and Belfer-Cohen 1989; Bar-Yosef Mayer 2005; Bar-Yosef Mayer and Porat 2008; Bar-Yosef Mayer and Zohar 2010; Henry and Beaver 2014).

Subsistence

It is during the Middle/ Late PPNB that one can finally identify an agricultural 'package', *i.e.* domesticated species of cereals and legumes – some introduced from the north, *i.e.* wheat and barley (e.g. Colledge 2004; Zohary *et al.* 2012; Asouti and Fuller 2013; Abbo and Gopher 2017), others, e.g. faba beans, likely of local origin (Caracuta *et al.* 2015, 2016)⁶. These fully-fledged horticultural communities lived in small to mega-sized villages with foraging and hunting continuing to play a significant role (Kuijt and Goring-Morris 2002). Previous estimates of community sizes appear to have been significantly exaggerated, as indicated by more recent studies, though nevertheless they represent a quantum increase in comparison to the scale of Natufian and PPNA communities (e.g. Campbell 2010; Goring-Morris and Belfer-Cohen 2014b; Birch-Chapman *et al.* 2017). This would have necessitated innovations and realignments in the realms of social relations within and between communities.

As for faunal resources, by the Middle PPNB the previous focus on hunting gazelle and deer was mostly replaced by the introduction of goat, sheep, pig, and cattle herding; however, the degree that they were all introduced from the north remains open to

debate (Horwitz *et al.* 1999; Martin and Edwards 2013). Nevertheless, hunting still continued to play an important role, often related to ritual-communal events (Twiss 2008; Martin and Edwards 2013; Meier *et al.* 2016, 2017; and references therein; Munro *et al.* 2018).

Undoubtedly such simple husbandry dictated labor-intensive and arduous lifeways. Furthermore, the impact of such changes concerned not only the diet but also the well-being and health of communities (e.g. Horwitz and Smith 2000; Goring-Morris and Belfer-Cohen 2010b). The ecological impacts of such increases in settlement size and intensification would have begun to be significant (e.g. Rollefson and Köhler-Rollefson 1989). All-in-all, this major transformation from extractive to productive economies led to new social behaviours (e.g. privatization, and see below) and profound changes in the social fabric of communities.

Architecture (Fig. 2)

The shift in the Mediterranean zone from the oval/circular architectural templates of the Epipalaeolithic and the PPNA to quadrilateral concepts occurred during the course of the Early PPNB, accompanied by a peak in the use of lime-plaster. A wide range of architectural plans for domestic structures during the Middle, Late and Final PPNB, seemingly irrespective of specific phase, includes: simple enclosed rectangular houses, sometimes with partitions, e.g. Ain Ghazal, Jericho and Munhatta; and sometimes raised with a grid plan, e.g. Abu Sawwan; courtyard structures, e.g. Basta and es-Sifiya; two-storey pier-houses, e.g. Ain Ghazal and Beidha; and more agglutinate arrangements, e.g. Ba`ja. Houses sometimes include private storage facilities and workshops, e.g. Beidha (Banning and Byrd 1987; Byrd 1994, 2005; al-Nahar 2010; Finlayson and Makarewicz 2018; Gebel and Kinzel 2007; Goring-Morris and Belfer-Cohen 2013a; Kinzel 2019; Kinzel *et al.* 2011; and references therein). By contrast, in the semi-arid marginal zone west of the Rift valley, circular plans and 'beehive' arrangements reflect the continued 'Epipalaeolithic' nature of mobile foraging adaptations there.

Communal structures include massive, long walls, e.g. Abu Gosh and Atlit Yam, the functions of which remain enigmatic, as well as the appearance of wells, e.g. Atlit Yam and Ainit Nissanit (Goring-Morris and Belfer-Cohen 2013a; Tepper 2014; and references therein). In and around the Jafr Basin in Transjordan, water barrages, check-dams and cisterns are documented at several sites, e.g. Wadi Abu Tulayha (Fujii 2010, 2013).

Ritual and Symbolism

The other obvious domain where one can observe growing differences between the 'sown' and the 'desert' during the PPNB is the 'spiritual', *i.e.* all that can be assigned to the spheres of 'ritual and symbolism'. The profound changes in lifeways demanded equally



Fig. 2 Residential architectural styles. A Basta; B Yiftahel; C Abu-Sawwan; D es-Sifiya; E Beisamoun; F Ba`ja; G Shaqaret Msaied; H Eshta`ol; I `Ain Ghazal; J Ghwair. (Illustrations: courtesies of the various projects, compiled by authors)



Fig. 3 PPNB ritual localities and features: A Beidha cult area; B Ain Ghazal 'temple'; C Ain Ghazal 'sweathouse'(?); D Kfar HaHoresh L1604 podium; E Atlit Yam stelae; F Jericho stele; G Nahal Hemar Cave. (Illustrations: courtesies of the various projects, compiled by authors)

deep modifications in social concepts and regulations, monitored through codes of behavior as sanctified by ritual. At the time, people were naturally unaware of their being in the throes of the most profound change that occurred in human existence. Yet, it seems that they continued modifying their social protocols, retaining fewer and fewer of those components tied with their ancestral past as mobile hunter-gatherers, semi-sedentary complex hunter-gatherers, or initial cultivators.

Separate public/ communal/ ritual architectural features are present in many sites, whether as separate, dedicated sites, *e.g.* Kfar HaHoresh (Goring-Morris *et al.* 2008), Nahal Hemar (Bar-Yosef and Alon 1988), Neshar-Ramla (Toffolo *et al.* 2017; Ullman in press), Nahal Yarmuth 38 (Gopher *et al.* 2019); or at the edges of settlements, *e.g.* `Ain Ghazal, Atlit Yam and Beidha (Byrd 1994; Rollefson 2000; Galili and Rosen 2011). They include public ritual structures (sometimes monumental), *e.g.* Beidha, `Ain Ghazal and Kfar HaHoresh, as well as smaller circular buildings, perhaps akin to 'sweat lodges', *e.g.* `Ain Ghazal (Rollefson 2000; Goring-Morris 2008). These are sometimes accompanied by stelae/ masseboth, *e.g.* Atlit Yam, Beidha and Kfar HaHoresh, and massive groundstone receptacles, *e.g.* Atlit Yam and Beidha (Galili 2004; Byrd 2005; Goring-Morris 2008; and references therein).

The presence and abundance of ritual paraphernalia reaches a zenith during the Middle/ Late PPNB, exhibiting evidence for regional variability. They include: plaster statues and modelled skulls, *e.g.* Ramad, `Ain Ghazal, Jericho, Kfar HaHoresh and Nahal Hemar (Bonogofsky 2006; and references therein); stone masks from the southern Judean hills (Hershman 2014); stone, clay and bone figurines, *e.g.* Nahal Hemar and Tell Qarassa (Ibáñez *et al.* 2014); and even special purpose chipped stone tools, *i.e.* Nahal Hemar knives, spokeshave denticulates at Kharaysin (Borrell *et al.* 2019); not to mention basketry and woven items, *i.e.* Nahal Hemar (Bar-Yosef and Alon 1988; Bar-Yosef and Schick 1989; Goring-Morris and Belfer-Cohen 2001).

While the PPNB burials reflect continuity of traditions, there are quite a number of features that are distinctly characteristic of the PPNB. Indeed, the proclivity for sub-floor and intramural interments, as well as designated cemetery areas within settlements and separate cemetery sites illustrate the former. Whereas such a role as a cemetery-cum-ritual locality has long been proposed for the Galilean site of Kfar HaHoresh, Nahal Yarmuth 38 has also recently been interpreted as another dedicated PPNB mortuary site (Gopher *et al.* 2019). Many burials were covered by plaster surfaces or chalky material (Simmons *et al.* 2007). Post-mortem skull removal (never ubiquitous), continued to be practiced on certain chosen individuals, irrespective of gender or age. Yet the occasional embellishment of skulls by plastering is a PPNB innovation, *e.g.* Aswad, Beisamoun, Kfar HaHoresh, Yiftahel, Jericho and

`Ain Ghazal (Strouhal 1973; Rollefson 2000; Goren *et al.* 2001; Stordeur 2003; Fletcher 2016). Another unique treatment includes drilling a hole in the skull, perhaps for its suspension and display, as at Kfar HaHoresh (Simmons *et al.* 2007: 17), a practice more recently described also at Göbekli Tepe (Gresky *et al.* 2017: 17 and Fig. 13b). During the LPPNB (including FPPNB/ PPNC) multiple, secondary burials became more common, sometimes involving intentional re-arrangement of bones, and/ or accompanied by animal remains, *e.g.* `Ain Ghazal, Kfar HaHoresh and Motza (Reshef *et al.* 2019; Rollefson 2000; Simmons *et al.* 2007). Lately, at Ba`ja, evidence for ranking has been proposed based on accompanying grave goods of a FPPNB cist-burial (Benz *et al.* 2019).

Feasting, whether in funerary or other contexts, continued to play an important role in social cohesion, sometimes in clear funerary contexts (Horwitz and Goring-Morris 2004; Goring-Morris and Horwitz 2007; Twiss 2012; Meier *et al.* 2017).

Long-Distance Exchange

Long-distance exchange networks expanded in intensity and in the range of desirables to incorporate new items. Thus, besides exotic materials known already from the Natufian and PPNA (and see above), a wide range of minerals (*e.g.* obsidian, cinnabar, jet, serpentine) was added, deriving from the Taurus, Cappadocia, northern Syria and/ or Cyprus; while turquoise, malachite and amazonite originated in the Arava Region, Sinai and even from northwestern Saudi Arabia (Delerue 2007; Bar-Yosef Mayer and Porat 2008; Alarashi 2016). The origins of the high quality, colourful (purplish) flints, especially during the Early PPNB, remains obscure, though sources in northern Jordan remain likely. Further south abundant flint sources west of the Arava, at Har Geviim and Ramat Tamar (Schyle 2007; Gopher and Barkai 2011), were likely systematically exploited by mega-site communities in the Transjordanian Highlands.

Fig. 4 (following page) Ritual and symbolic PPNB paraphernalia. 1 dagger (Ba`ja); 2 bullroarer (Nahal Hemar); 3 Human figurine (`Ain Ghazal); 4-5 figurines (Nahal Hemar); 6 obsidian pendant (Kfar HaHoresh); 7 mask (Nahal Hemar); 8 composite bangle (Ba`ja); 9 'hat' (Nahal Hemar); 10 obsidian Helwan point (Motza); 11 composite figurine (Basta); 12 plaster statue (`Ain Ghazal); 13 plastered skull (Jericho); 14 Nahal Hemar knives (Nahal Hemar); 15 human statue (Hemmeh); 16 figurine (Ramad); 17 anthropomorphic figurine (Tel Qarassa); 18 human statue (Ramad); 19 asphalt coated cobble (Kfar HaHoresh); 20 phallus (Kfar HaHoresh); 21 figurine (Motza); 22 zoomorphic figurine with halter (Aswad); 23 tattooed human figurine (`Ain Ghazal); 24 bird figurine (Wadi Tulayah); 25 headless zoomorphic figurine (Kfar HaHoresh); 26 votive picrolite axe (Kfar HaHoresh); 27 stabbed zoomorphic figurine (`Ain Ghazal); 28 beads and pendants of bone, stone, wood, clay and plaster (Nahal Hemar). (Illustrations: courtesies of the various projects, compiled by authors)





Fig 5 Characteristic PPNB chipped stone tools. 1-2 Helwan points; 3-5 Jericho points; 6-8 Byblos points; 9 Amuq point; 10-15 denticulated sickle blades; 16-17 tranchet axes; 18 bifacial axe; 19 polished axe. (Illustrations: compiled by authors from various sources)

Crafts and Specialisation

With the emergence of the PPN there is clear evidence for craft specialization (e.g. Barzilai 2010; and see references above). This includes flint knapping, as well as basketry, weaving, plaster production, pottery, and basalt vessels, *etc.* (Kenyon and Holland 1983; Schick 1988; Goren and Goring-Morris 2008; Biton *et al.* 2014).

The appearance of the bidirectional naviform lithic technology during the Early PPNB in the southern Levant is one of the few unequivocal examples of an innovation definitely emanating towards the end of the PPNA from the northern Levant (Abbès 2003). It is notable that it employed distinctive raw materials, particularly exquisite in terms of the blanks so produced, e.g. Motza (Barzilai 2010), perhaps indicating that, at least initially, the distinctive technique and its products were disseminated by itinerant craft specialists, later to be ‘imitated’ by locals, during the Middle and Late PPNB, in areas adjacent to local sources, e.g. Yiftahel and Giv‘at Rabi (East) (Barzilai 2013; Barzilai and Milevski 2015; and see Birkenfeld 2018). Here, it is of interest to note the choice of special raw materials (usually colourful and/ or translucent, including obsidian) especially for the hallmark type of the Early PPNB, the Helwan point (pers. obs.).

Concluding Remarks

While all of the above indicate aspects of both continuity and innovation, undoubtedly the domain most affected by Neolithization processes as observed during the PPNB was the social one; whether with regards the relationships within and between groups, as well as those of the individual versus the group (Benz *et al.* 2017 and references therein). While much of that was referred to in the previous paragraphs, one can add yet other aspects not mentioned before. For example, the shift to farming was accompanied by growing privatization, based around the nuclear and extended family, the clan, *etc.* This is reflected by the sizes and shapes of residential structures (Byrd 1994) and the disappearance during the PPNB of the communal storage facilities present during the PPNA (Kuijt and Finlayson 2009). Yet, the previous presence of communal plant processing bedrock facilities during the Natufian, e.g. Eynan, Hayonim, el Wad and Rosh Horesha, already shifts to domestic ‘furniture’ by the PPNA and PPNB, e.g. Netiv Hagdud and Hatoula (Belfer-Cohen and Hovers 2005; Rosenberg and Nadel 2017). With the shift to quadrilateral architectural concepts and more regulated approaches to farming at the beginning of the PPNB, we can speculate about the entrenchment of this trend towards property rights including house/ home, land and husbandry ownership, as well as access to resources.

The long-distance exchange in commodities and knowledge brought local communities in touch with individuals, far and wide, introducing them to a steady(?)

stream of people arriving either with goods or with particular expertise. This might involve either single numbers or/ and perhaps small mobile groups peddling desirable goods and knowledge (from pyrotechnology to the naviform flint flaking) between communities, somewhat akin to the ‘tinkers’ of yesteryear (and see Belfer-Cohen and Hovers 2020). Archaeological data indicate that certain sites may have functioned as ‘points of exchange’ along central routes, heralding the future ‘market places’ of the Near East (Ibáñez *et al.* 2015; Goring-Morris and Belfer-Cohen in press; and references therein).

In conclusion, one can but state that space is short to enlarge upon each and every aspect raised in the present paper. Suffice it to illustrate this by mentioning relationships between the various PPNB communities. What dictated the nature of inter-group ties and how was that reflected (at least to a degree) in the archaeological record? Previously, the main factor monitoring such ties was the dictates of retaining a viable mating pool. Close and distant groups shared similar subsistence modes, and geographical proximity was crucial (even when mechanisms such as seasonal/ annual aggregation events were employed). Now, with the growing dichotomy between the ‘sown’ and the ‘desert’ – and with the emergence of new mega-sites, geographic proximity did not suffice. Similar subsistence modes and lifeways dictated as much of inter-group relationships, if not more, than simple geographic closeness. We believe that this aspect has not been emphasized sufficiently when describing those phenomena relating to a pan-Levantine PPNB koiné (e.g. Bar-Yosef and Belfer-Cohen 1989; Gopher 1994; Belfer-Cohen and Goring-Morris 2002; Schmidt 2005; Asouti 2006). This may explain many of the similarities observed between the southern and the northern regions of the Levant, with villagers sometimes having more in common with distant strangers rather than with nearby (in kilometres) ‘ex-cousins’.

All-in-all, and taking into consideration the central place of the Levantine PPNB in the human transition from mobile hunting-gathering to sedentary village life, we still require further archaeological data in order to construct a solid foundation for innovative and original discourse on how this transformation came about.

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Endnotes

¹ With multiple radiometric dates *c.* 23,000 calBP (Nadel *et al.* 2001).

² Oats were domesticated only during the Bronze Age in Anatolia (Zohary *et al.* 2012).

³ In contrast to an emphasis on gypsum plaster in the northern Levant (Kingery *et al.* 1988; Rehhoff *et al.* 1990; Moorey 1994; LeBreton 2003).

⁴ Upper Palaeolithic? (Bergman and Newcomer 1983; Bar-Yosef 1987; Valla 1987).

⁵ *e.g.* Nahal Betzet (Gopher 1989), Tel ‘Ali (Garfinkel 1994), Nahal Zippori 3 (Barzilai *et al.* 2013), Yiftahel (Garfinkel *et al.* 2012), Kfar HaHoresh (Goring-Morris 2008), Mishmar Ha’Emeq (Barzilai and Getsov 2008), Abu Gosh (Khalaily and Marder 2003), Motza Layer V (Khalaily *et al.* 2007), Nahal Yarmuth 38 (Gopher *et al.* 2019), Jericho (Kenyon and Holland 1983), Rabud (Gubenko *et al.* 2009).

⁶ The domestication of flax (*Linum* sp.) is especially interesting as, in addition to its potential use as edible oil, it was also used for producing textiles (and see Kvavadze *et al.* 2009 concerning its use during the Upper Palaeolithic).

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Snakes of Stone: A Unique Stone Artefact From the LPPNB Site of Nahal Roded 110

Estelle Orrelle, Uzi Avner, Liora Kolska Horwitz and Michal Birkenfeld

Introduction

Much has been written about the Levantine Pre-Pottery Neolithic as a period of innovation and change, particularly regarding the transition to food production and sedentism. But this period in general, and more specifically, the Middle Pre-Pottery Neolithic B (MPPNB; ~10150-9725 calBP), also witnessed a dramatic increase in symbolic imagery, both in diversity and number. Notably, Southern Levantine MPPNB sites have yielded a rich symbolic repertoire comprising stone mobiliary items such as vessels, plaques and grooved stones, also characteristic of the preceding Natufian and Pre-Pottery Neolithic A (e.g. Belfer-Cohen 1991; Noy 1991; Hershman and Belfer-Cohen 2010; Shaham and Belfer-Cohen 2013; Vered 2013; Orrelle 2014; Major 2018), but, in addition, anthropomorphic and zoomorphic figurines, human statuary, plastered human skulls, stone masks and decorative installations (e.g. Bar-Yosef and Alon 1988; Garfinkel 1995; Yizraeli-Noy 1999; Kuijt and Goring-Morris 2002; Orrelle 2014; Rollefson 2008; Schmandt-Besserat 2013; Hershman 2014; Kuijt 2017).

In this paper we present a unique carved and decorated stone object found at the site of Nahal Roded 110 (NR110), located c. 6km northwest of the town of Eilat, Israel (Fig. 1), and contextually dated to the Late Pre-Pottery Neolithic B (LPPNB; ~9400-8900 calBP; Birkenfeld *et al.* 2019, in press). The object is a broken 'donut-shaped' piece of limestone, carefully worked and smoothed to form an oval, with an elongated perforation at its center (Fig. 2). The preserved part was found in two fragments which were refitted and together weigh 3.9kg. The stone is 21cm wide and 18cm in preserved length, while the perforation is 3.0-3.5cm wide and 11cm in preserved length. On both sides it is incised with meanders.

NR110 is located in a small embayment just below the summit of Mt. Roded, c. 180m above the wadis of Nahal Roded and Nahal Netafim. It is ~200m² in area, comprising a suspected stone structure and a large ashy deposition (Fig. 3). Four radiocarbon dates on charcoal from this deposit yielded ages of 9300-9100 calBP. Abundant remains of several migrating raptor species were recovered at the site, which is interpreted as a hunting locale specialized in killing birds of prey as they migrated over the Eilat mountains (Birkenfeld *et*

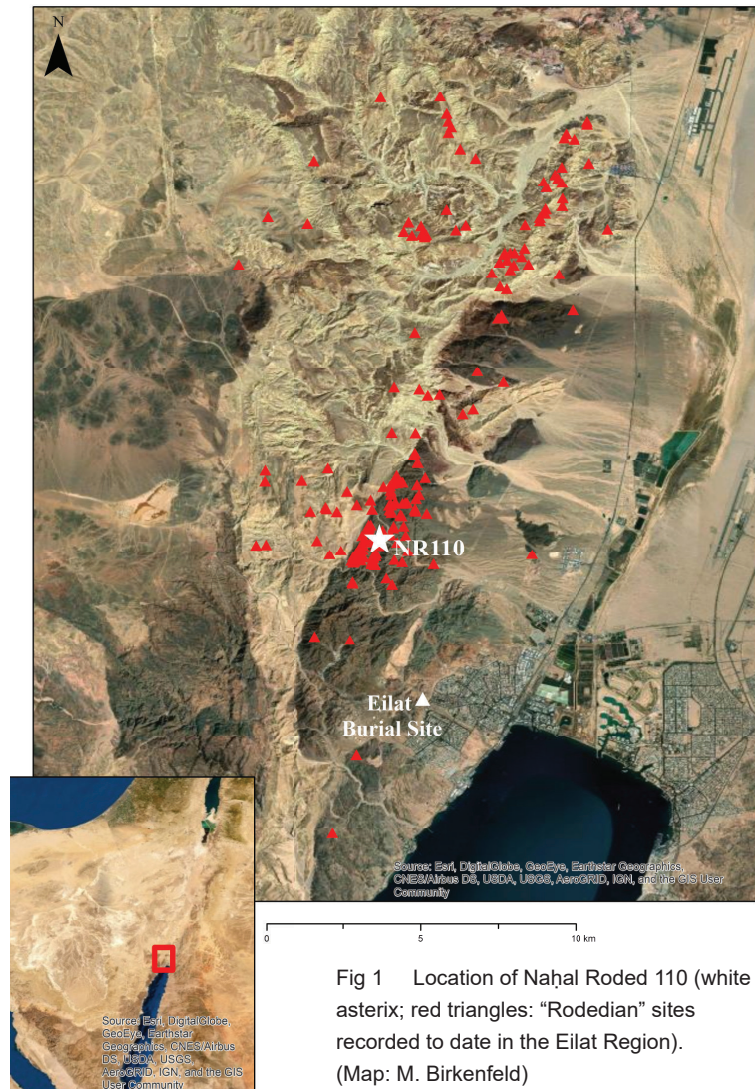


Fig 1 Location of Nahal Roded 110 (white asterisk; red triangles: "Rodedian" sites recorded to date in the Eilat Region). (Map: M. Birkenfeld)

et al. 2019, in press). Given the importance of raptors in Near Eastern Neolithic symbology (e.g. Goring-Morris and Belfer-Cohen 2002; Hodder and Meskell 2010; Marom, Garfinkel and Bar-Oz 2018 and references therein), it is likely that the hunt was connected to cultic activities.

The modified stone was found during the initial survey of NR110 (Avner *et al.* 2014) together with abundant flint artefacts and a small assemblage of limestone and sandstone objects. A further 102 small, mountain-top sites were recorded during the survey, all of which contained a similar repertoire of remains; low stone installations, standing stones, stone bowls amongst others (Fig 4; Avner 2018; Avner *et al.* 2014, 2019). It is of note that while most of these sites are located on igneous mountains, almost all the hundreds of modified stone objects, including the perforated stone addressed here, were made of limestone (fewer of sandstone) and

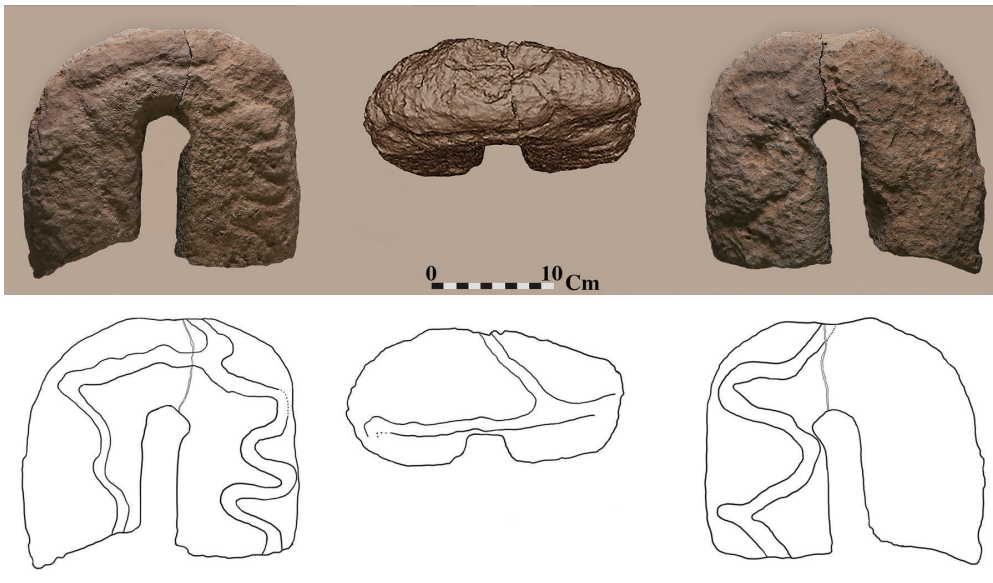


Fig 2a Vulva-shaped stone (Photo: C. Amit) with drawing of the meander. (Drawing: U. Avner)

Fig 2b 3D optical scan of vulva-shaped stone showing the meander engraving on both sides; scan-based reconstructed sections of the stone are shown by outlines with angled lines. (Scan: A. Levanon).



Fig. 3 Drone view of Nahal Roded 110 during excavation. The stone structure is on the left, ashy deposition on the right. The location of the vulva-shaped stone discussed here is marked on the bottom left by an X. (Photo: U. Avner)

so brought up to the sites from some distance. Since the greatest concentration of these types of sites is around Nahal Roded, they were termed ‘Rodedian’. The lack of pottery and the presence, at some sites, of indicative lithic artefacts (mainly bidirectional blades), have led to the suggestion that the sites should provisionally be attributed to the Pre-Pottery Neolithic (Avner *et al.* 2014, 2019), although NR110 is currently the only site dated by radiocarbon.

The stone was found on the site’s surface, next to the suspected structure (Fig. 3). Thirty such modified and perforated stones have been recorded to date from other ‘Rodedian’ sites in the region; eight stones are complete, bearing elongated perforations (Fig. 4), others are fragments (Avner *et al.* 2019: 21, Fig.15). The NR110 object is unique in its incised decoration. Using an optical scanner, a 3D digital model of the object

was created (Fig. 2b) which enabled a clearer view of the engraved meanders. Following examination of the model, we suggest that the incised meanders represent snakes, or a single snake, encircling the stone on both sides, since the meanders appear to be joined.

In the following sections – while emphasizing examples from the Near East – we discuss the symbology of the shape of the stone, the meander motif and their interconnectedness within the context of the site.

The Stone’s Shape

The shape of this limestone artefact, an oval transected by an elongated perforation, has generally been regarded as representing female genitalia – the vulva



Fig. 4 Stone objects from “Rodedian” sites around Nahal Roded: 1. trio of regular standing stones (Site 63); 2. perforated fallen standing stones (Site 162); 3. anthropomorphic stone image with a hammered neck (Site 360); 4. small stone bowl and fragments of a large bowl (Site 90); 5. vulva shaped stone (Site 109). (Photo: U. Avner)

(e.g. Stekelis 1972: Pl. 56-58; Gimbutas 1991: 223; Marshack 1991: 297; Avner 2002: 69, 2019: 29). It relates to other types of stone objects and architectural features from Near Eastern prehistoric sites, which have also been interpreted as ‘vulva’ images.

The first group comprises pebbles or groundstone artefacts termed ‘grooved stones’. They first appear in the Natufian (Belfer-Cohen 1991; Noy 1991; Bar-Yosef 1997) and continue into later periods. They are of different sizes, but all are oval-shaped and transected by a deep elongated groove. They have been described by several researchers as shaft-straighteners or sharpeners/whetstones (e.g. Cosner 1951: 147; Noy 1991; Wright 1992: 73). Gopher and Orrelle (1996) suggested that these items are both tools and vulva images. This meaning has been preserved in English etymology (Orrelle 2014: 82-83). The definition of whetstone in the Collins dictionary is “Whet (hwet, wet): to sharpen by rubbing against a whetstone – to stimulate, arouse, to whet one’s appetite”.

A number of synonyms (slang) for female genitals reflect the connection with arrows or sharpening such as ‘quiver’, ‘sharp-and-blunt’, ‘grindstone’ and ‘whettingcorn(e)’ (Ash and Highton 1987; Gopher and Orrelle 1996: Note 2). Notably, in the Levantine Early Pottery Neolithic (PN, Yarmukian Culture; ~8500-7900 calBP), vulvae are schematically de-



Fig. 6 “Vulva-shaped” tombs (I left and V right) in the Eilat cemetery (6th-5th millennia BC). (Photo: U. Avner)



Fig.5 Cowrie shell from Nahal Roded 110, both sides. (Photo: U. Avner)

picted as slits on abstract pebble figurines (Stekelis 1972; Garfinkel 1992; Yizraeli-Noy 1999). A plaster female figurine from the PPNB deposits at ‘Ain Ghazal has an oval-shaped object with a central incision in the anatomical location of the vulva (Schmandt-Besserat 2013: 320, Pl. 7.3.1b).

A second relevant object type found in Levantine sites from the Natufian period onwards, is the cowrie shell (Bar-Yosef 1987). Eliade (1991:125) and others (e.g. Murray 1939; Singer 1940; Biggs 1963; Kovacs 2008: 4, 14, 23) have suggested that the lengthwise opening of the shell resembles a vulva. One such shell was recovered from NR110 (Fig. 5).

Orrelle (2014) tracked changing eye form in Levantine Neolithic anthropomorphic images and found that they shifted from ‘female-type’ eyes, *i.e.* vulva-shaped bisected ovals, in the PPNB to unbisected round ‘male-type’ eyes, by the Late Pottery Neolithic / Early Chalcolithic (Wadi Rabah Culture; ~7600-6800 calBP; Gopher and Orrelle 1996: 257, Figs. 8.1-2; Orrelle 2014: 50, 74-75). Interestingly, cowrie shells were placed in the eye sockets of plastered PPNB skulls at Jericho (Kenyon and Holland 1981: Pl. 57) and, for example, a grave offering of a perforated cowrie was recovered from a female burial at PPNB Yiftahel (Khalaily *et al.* 2008). The use of cowrie shells



Fig 7 Har Assa (Eilat Mountains): Typical pair of low stone installations - an elongated cell pointing to a circle (scales: 0.5m). (Photo: U. Avner)

as an iconographic proxy for the vulva appears to cut across cultures and chronologies; a global catalogue of archaeological cowrie finds, beginning in the Upper Paleolithic, was published by Kovacs (2008: 152-446). Other examples are Koerper (2001), who discussed the sex-based symbolism of cowrie ornaments in the prehistoric cultures of southern California and Singer (1940) who described a Neolithic Jomon figurine of a person wearing a giant image of the cowrie shell suspended by a cord and hanging in the biological position of a pudenda.

Finally, several Neolithic Levantine architectural elements have been interpreted as vulva-shaped. For example, two out of nine preserved tombs in the Late Neolithic/ Early Chalcolithic cemetery of Eilat are built as intersected ovals (Fig. 6), while several roughly contemporaneous open-air sanctuaries in the Negev are also built in this shape (Avner 2002: Table 14:53, 56, 57). In 'Rodedian' sites, 128 pairs of low stone cells were recorded, in which an elongated cell (ca. 4x1m) points to a circle (1.5-2.5m across, Fig. 7). The circle is interpreted as a female symbol, while the elongated cell as the male one (Avner *et al.* 2019: 17). At Neolithic Tel Qaramel, northern Syria, large transected circular structures called 'tower bases', interpreted as assembly places and shrines (Mazurowski and Kanjou 2012), have a form that echoes the 'vulva' iconography.

The Meander Motif

Beginning in the Natufian period, the meander – a generic snake motif – is common in the iconography of the Levant. It is evident on groundstone artefacts, such as mortars, bowls and shaft-straighteners, among others. One such artefact, a pestle from the Natufian site of Upper Besor 6, is encircled with a double meander (Goring-Morris 1998). Carved zigzag motifs appear on shaft-straighteners at Natufian Nahal Oren (Noy 1991: Fig. 3: 1, 2) and on a stone fragment from Shuqbah

Cave (Garrod 1942; Noy 1991: Fig 4.1). At Eynan, the multiple meander appears on rims of stone bowls (Noy 1991: Fig. 4.2, 4.4; Perrot 1966). Highly schematic abstract shapes from Eynan that were thought to represent human heads (*e.g.* Perrot 1966: Fig 21:16; Yizraeli-Noy 1999: 24: 2-3), might instead represent loops of meanders arranged in radial form on semi-oval shapes. This abbreviated snake motif is also called 'nested cupules' (Major 2018:158), 'multiple arches' or 'low arched lines' (Shaham and Grosman 2019: 135) and is a common ophidian motif worldwide (*e.g.* Caldwell 2014-2015; Hampson 2016; Major 2018).

Artefacts bearing the meander/snake motif continue into the PPNA. A double curved meander is incised on a semi-oval limestone plaque from PPNA NetivHagdud (Bar-Yosef *et al.* 1991) as well as on limestone fragments from the PPNA site of WF16 (Mithen *et al.* 2011: 359), both in the Southern Levant. In the Northern Levant, from PPNA contexts at Jerfel Ahmar, incised stone plaques show variations of winding, arrow-headed or triangular-headed snakes (Cauvin 1994: 71, Fig. 19,1.2.3a.4a; Akkermans and Schwartz 2003: 89, Fig. 3.18; Helmer, Gourichon and Stordeur 2004: 155, Fig. 5B). This motif also occurs at Tell 'Abr (Yartah 2013) and Körtik Tepe (Benz and Bauer 2015), while at Tell Qaramel whetstones, also from a PPNA context, yielded both carved and scribbled snake designs (Zimmerman 2019).

This imagery continues into the Early PPNB in Anatolia, with an abundance of snake motifs – applied to a variety of materials, incised or in relief – depicted on objects from sites such as Nevalı Çori, Dja'de and Göbekli Tepe (Peters and Schmidt 2004; Schmidt 2010; Dietrich *et al.* 2012; Zimmerman 2019). Benz and Bauer (2015) and more recently, Henley and Lyman-Henley (2019), have discussed these images within the context of shamanistic symbolism.

Notably, the use of the snake image in the Levant and Anatolia dwindles from the MPPNB onwards (*e.g.* Helmer, Gourichon and Stordeur 2004; Schmandt-Besserat 2013), leaving the find from NR110 as an almost singular example. It does, however, reappear in the Pottery Neolithic, where it is incorporated into ceramics and stone vessels as for example at the Late Neolithic site of Riskeh in southern Jordan, where sandstone bowls and additional fragments are decorated with snakes in relief (Kirkbride 1969:192¹). In the Yarmukian, ceramic vessels in particular exhibit various forms of meander surround the orifice and walls of the vessels. Relief models of snake heads and tails are curled on the rim of Wadi Rabah vessels from Munhata (Garfinkel 1992: Fig 183:12,13) and from Tel Ali (Garfinkel 1992: Fig.195:1). Another kind of ophidian decoration on PN pottery may be found in the crenelations on rim and ledge handles *e.g.* the rim of a large pithos buried at Munhata (Garfinkel 1992: Fig. 51:1). Circular 'mat impressions' on the base of vessels are snake-like features, as well as some of the incised decorations on Wadi Rabah vessels, while the pebble dashed decorations on vessels from Tel Ali,

are suggestive of scales (Garfinkel 1992: Fig. 60:1-13 and Fig. 189:21). Kaplan (1969:14, Pls III:7, IV:2-3) reported fragments of plastic thumb-indented clay strips at Tell el-Jarba (Wadi Rabah culture), which he claimed represented snakes.

Over time, different symbolic interpretations have been assigned to the snake motif. The ouroboros – the snake swallowing its own tail, represents the cyclical nature of life – killing and consuming which leads to rebirth and transmutation *i.e.* rejuvenation and cyclicity (e.g. Mundkar 1978,1983). This, probably since snakes periodically shed their skin through sloughing (e.g. Stabler 1939; Brown 1956). In this connection too, the motif of the snake has also been linked to the cycle of menstrual flow (Knight 1991). Other associations with snakes are as symbols of protective power, and most commonly – an image of male power (e.g. Deane 1833; Oldfield-Howey 1955; Mundkar 1978, 1983).

A particularly striking aspect of the Naḥal Roded stone is the three-dimensionality of the engraved snake motif. The meanders on either side of the stone are connected by a single line which continues over the edge of the stone (Fig. 2). Given that this is a large and heavy object, it is interesting how this 3D decoration was planned, and how it was meant to be viewed and/or displayed.

Linking Shape and Image

When interpreting the decorated stone object from NR110, we suggest that the iconography may relate to ancient and global constructs in which both motifs relate to the concept of cyclicity and fecundity and that their bonding on the NR110 object is not accidental. As noted by Knight (1991:488), the vulva/snake construct endures as an underlying and unchanging syntax, enduring socio-political, economic and sexual politics changes. Indeed, the combination of the vulva and snake motifs is not unique to NR110 but occurs worldwide and in different periods.

This association is especially well-described in an Australian Aboriginal context where the Rainbow Snake motif is inseparably associated with the body of womankind and the origin of the world. The Rainbow snake lives in water and is a symbol of periodicity and cyclicity (Maddock 1978:15). It is depicted either as a zigzag or a curved meander and appears as a rock-art motif in northern Australia as early as 9,000-7,000 years BP (Knight 1991: 468 ff.). The snake also appears in the important aboriginal myth from Australia's north-central region, the Story of the Wawilak Sisters. In this myth, when the sisters were bleeding, the Rainbow Snake flowed out from its hole in the water and swallowed them. This is interpreted by Knight (1991:459) as menstruation having been the force which carried the women to the other world. Taking this idea further, it is possible that the snake depicted encircling the vulva-shaped stone from Naḥal Roded,

might be seen as swallowing the (menstruating) woman. Similar beliefs concerning a water-dwelling snake which consumes young girls and is associated with the onset of the menstrual cycle, are widespread in the Far East, Africa and the Americas (e.g. Knight 1991: 482-94 and references therein; Morris 2010). These traditional beliefs emphasize periodicity and cyclicity – menstruation, fecundity and rebirth – concepts which we suggest are bound together in the snake and the vulva motifs of the stone object from NR110.

This concept is echoed in the seasonal use of the site of NR110 coinciding with the migrating raptors whose abundant remains were found there. The timing of these migrations in spring and autumn is precise and occurs annually (Shirihai and Christie 1992). Furthermore, raptors have a symbolic association with death, fertility and rebirth that is well established in Neolithic iconography and zooarchaeology (e.g. Peters and Schmidt 2004; Marom, Garfinkel and Bar-Oz 2018 and references therein), as illustrated vividly by the 'totem-pole' from Neolithic Nevalı Çori (Anatolia) that is topped by a raptor, beneath which are two crouching figures with vulvae and swollen (pregnant) bellies (Hodder and Meskell 2010). Thus, it is highly likely that raptor hunting at NR110 was closely connected with cultic activities. The association of the snake-vulva motif with that of the migrating raptors emphasizes the role played by life-giving metaphors in the symbolic world of Levantine Neolithic communities. It has a universality, found in the linkages between daily, monthly and seasonal forms of periodicity that form a central unifying theme in the myths collected and analysed by Levi-Strauss (1964; see also Knight 1991: 494).

The raptors, however, are only one of the features which raise the possibility that the cult practiced at Naḥal Roded 110 was linked to seasonal rites. Material finds from the site's surface, such as the anthropomorphic stones, perforated stone objects and limestone vessels, all introduced into the site from the wadis below, as well as the site's unusual location on an exposed, hyper-arid mountain top (lacking water sources or plant and animal resources), further reflect its cultic association (Avner *et al.* 2014, 2018; Birkenfeld *et al.* 2019, in press). One interpretation is that the standing stones represent deities, whether individuals or "organic" groups of repeating numbers, while the stone anthropomorphic images represented ancestors. Commonly, fertility and the ancestral cult are linked together (for these interpretations and other finds see Avner *et al.* 2019, with references).

Much has been written on PPNB ritual, especially in the Mediterranean zones of the Levant, where extensive evidence has been found for the existence of ritual centers and ritual paraphernalia (e.g. Kuijt and Goring-Morris 2002; Gebel and Rollefson 2005; Rollefson 2008; Schmandt-Besserat 2013). Here we have presented a unique example from the desert zone, the site NR110 which further exemplifies the integrated nature of all facets of PPNB life; a world with perhaps

little dichotomy between the functional (hunting, food acquisition) and the symbolic (seasonality and cyclicity).

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Endnote

¹ Kirkbride dated the site of Risqeh close to the 1st century BC, but artefacts and one radiocarbon date are Late Neolithic. A fragment of identically decorated sandstone bowl from the Eilat cemetery (Avner 2002:155) confirms this date.

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Causes of Neolithic Settlement in the Highland Areas of Northern Oman, Insights from the Qumayrah Valley

Marcin Białowarczuk

Introduction

The process of Neolithisation of the Arabian Peninsula is currently one of the most interesting research problems of Near Eastern archaeology. Despite over 35 years of research in this field, the fundamental question concerning the genesis of the Neolithic transition in this part of the world remains open. Due to specific geographic and environmental conditions the transformation of hunter-gatherer communities into food producers happened here along different lines than it did in the Fertile Crescent. The over four thousand years long (7100-3100 BC) Late Stone Age in this region is characteristic for the peculiar (compared to the traditional definition of the Neolithic) economic system that developed here, which based predominantly upon pastoralism, intensively supplemented by specialized gathering, fishing and seasonal hunting. This, in turn, influenced human settlement preferences and resulted in a half-nomadic way of life. Permanent settlements were located mainly in the coastal zones along the shores of the Gulf of Oman and the Arabian Sea, as they offered sources of food available throughout the year. Inland regions were frequented during seasonal expeditions connected with herding, hunting, and gathering of raw materials (Cavulli and Scarufi 2013; Magee 2014). This kind of productive foraging management of natural resources which attests to surplus and pre-planning strategies characterizes the Arabian Neolithic socio-economy (Gebel 2019).

The Main Problem of Highland Neolithic in Arabian Peninsula, and the Role of Qumayrah Valley

The limited archaeological data available at this point show a growing interest of prehistoric populations in highland and mountain areas between 9000 and 4000 BCE, that is in the Early and Middle Holocene Period. This was brought about by climate changes that began in the Late Pleistocene period, pushing the range of summer monsoons from the Indian Ocean further to the north, bringing increased rainfall in much of the Arabian Peninsula (Sanlaville 1992; Fleitmann et al. 2003; Drechsler 2009: 71). According to many scholars, these climate changes increased the appeal of inland regions for hunter-gatherer groups, which resulted in the development of settlement in selected micro-regions (Cleuziou and Tosi 2007: 45-47). This process is, however, very poorly recognized as there is a big disproportion in the state of knowledge on the Neolithic transition in the Arabian Peninsula

between the better-explored coastal zones and the far less-researched interior, so many crucial questions regarding this process remain open. Therefore, new research on this subject is much anticipated by the scholarly community.

The Qumayrah Valley in the eastern part of the Hajar Mountain Range (Fig. 1) lies in one of the least archaeologically known regions of northern Oman, so research there provides new information about the Neolithic of highland areas within a context of environmental and social changes¹.

It was selected for study due to its specific location. It is a about 12 km long mountain valley, stretching between the modern villages of `Ayn Bani Saida and Bilt². What makes this area significant is its geographic position almost exactly in the middle of the Hajar Mountains, at the crossing of natural passes both from the Persian/ Arabian Gulf and the Gulf of Oman towards the interior and to the north-western part of the Arabian Peninsula. It is also the shortest available land route connecting the three abovementioned geographic regions, bypassing the peninsula that forms the Strait of Hormuz. These geomorphological factors since prehistory have made the Qumayrah Valley an important point in human migrations regardless of their reasons.



Fig. 1 Map of northern Oman showing the location of the Qumayrah Microregion. (Drawing: A. Szymczak, PCMA)

Prehistoric Investigations in the Qumayrah Valley

An archaeological reconnaissance of the micro-region conducted during three seasons of fieldwork in 2016,

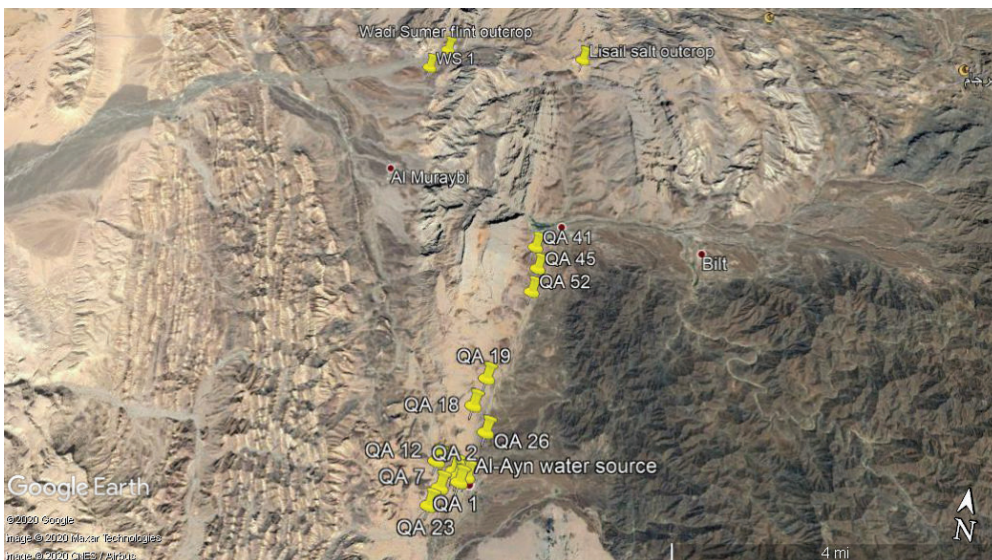


Fig. 2 Qumayrah Valley with location of main sites and resources. (M. Białowarczuk; based on Google Earth satellite image)

2017 and 2019 covered the wide southern entrance to the valley as well as the wadi bed up to the village of Qumayrah. Its main goal was to determine the character of settlement in the region and capture its subsequent phases. The systematic survey brought to light 21 archaeological sites (Fig. 2) and settlement traces related to the Late Stone Age, indicative of the nature of this settlement as well as some location pattern.

Only seven of the 21 registered points can be identified as settlements or camps in a common sense of these words. Each covers an area of over 100 m², with significant surface scatter of artifacts and occasional structural remains. The most persistent problem with excavating prehistoric sites in this part of the world is their poor state of preservation. Erosion and deflation usually lead to a complete loss of stratigraphic relations, so surface artefact scatters are in most cases the only source of knowledge on the prehistory of this region (*cf.* Usai 2000; Crassard 2008). However, two of the three archaeologically tested sites in the Qumayrah Valley preserved remains of the oldest layers, with the site of QA 2 turning out a well-preserved fireplace, stone platform and the outline of a shelter. Apart from numerous flint artefacts, the sites yielded also a few other objects made of stone and marine shells. All the mentioned data indicate seasonal occupation encompassing late and terminal phases of the Neolithic period (Białowarczuk 2017; Białowarczuk and Szymczak 2018, 2020).

All of these settlements and camps are located on the west side of the valley, on flat terraces with excellent exposure (*cf.* Fig. 2). The most preferable areas were those that were naturally flattened and slightly elevated above the wadi bed, providing a good vantage point over the valley. Only flat terraces at the entrance to the valley and a few areas along the main valley bed meet these criteria. All such places lay at an altitude between 560 and 660m a.s.l. and all recorded sites were located in these elevations, including settlements and camps as well as traces of settlement and stray finds, the latter being the most frequent part of the archaeological

record, probably related to activities of the residents of the nearby camps. The largest settlements, that are also located the lowest, concentrate in the area of the wide entrance to the valley, while those spread along the wadi bed go up to 650m a.s.l. This rule is closely related to the geomorphological shape of the valley. Areas below 560m a.s.l. are too close to the seasonal riverbed, which would cause them to be flooded while areas over 660m become too steep to set up camps. Another key factor affecting the concentration of settlements at the entrance to the valley is a water source (*cf.* Fig. 2) that provides water supply throughout the year.

The Subsequent Settlement Phases in the Area

Based on a techno-typological analysis of the discovered artefacts, it can be surmised that the valley was settled a few times, starting perhaps in the Early/ Middle Neolithic and certainly during the Late Neolithic I and II periods, dated here between 4500 BCE and 3100 BCE. Presence of older stages of the Neolithic period (Białowarczuk 2017; Białowarczuk and Szymczak 2018, 2019) is not fully proved and must remain speculative. However, the Late Neolithic stages are well indicated by the presence of characteristic diagnostic chipped flints as well as stone and shell beads, mostly from soundings at the tested sites of QA 2, QA 6 and QA 12.

The Late Neolithic I phase is indicated by the presence of bifacial foliated pieces, including fragments of small bifacial points (Fig. 3:6) related to this period (*cf.* Charpentier 2008: 66-75) and stone tubular beads (Fig. 4:2-3) of the Akab type (*cf.* Charpentier and Méry 2008) found at the neighboring sites of QA 2 and QA 1 (*cf. infra*).

The terminal phase of the Late Neolithic II period might be pointed to by materials from QA 6, dominated by side-scrapers, denticulated pieces and unipolar macrolithic flakes and blades (Fig. 5:2-5), and the absence of pressure technique – techno-typological

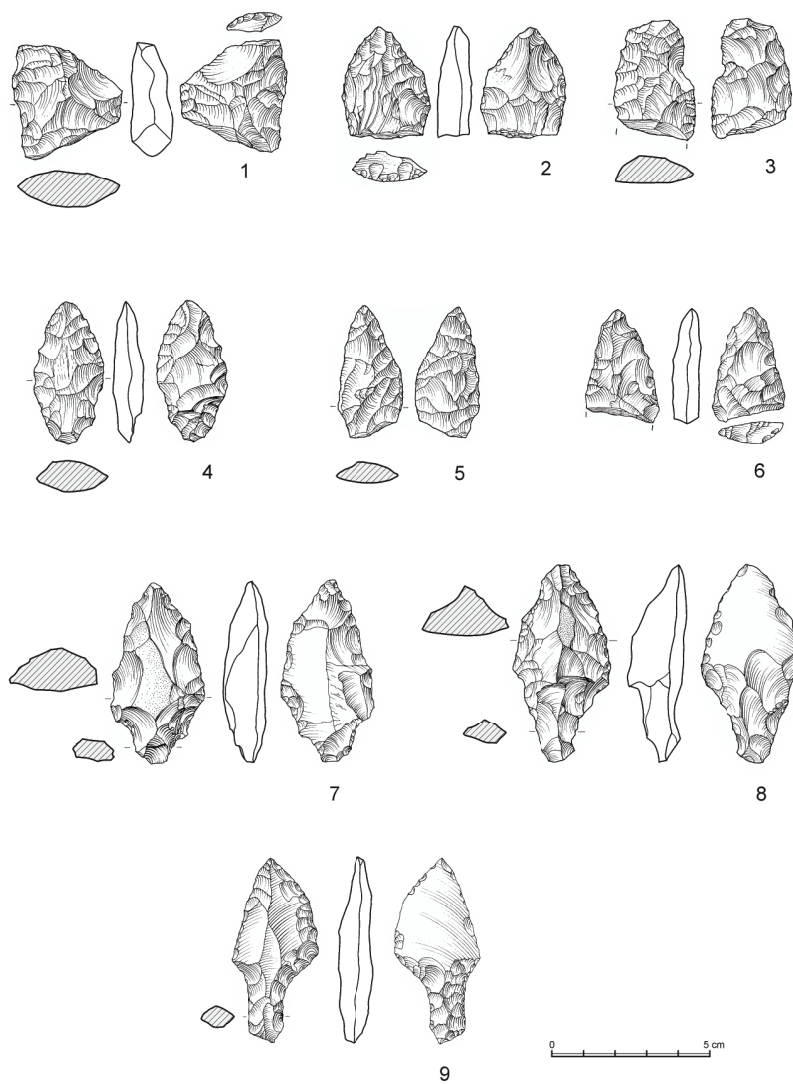


Fig. 3 Late Neolithic points of Qumayrah: QA 1 (1-5); QA 2 (6); QA 12 (7-9). (Drawings: M. Puzzkarski, PCMA)

be regarded as the Late Neolithic as well. Among them, QA 1, QA 41, QA 45 and QA 52 seem particularly promising (*cf.* Fig. 2).

The site of QA 1 was recorded as an Umm al-Nar cemetery located just beside QA 2 (Rutkowski 2017), however, a study of lithics from the site's surface identified some similar forms as those from QA 2, including bifacial points (*cf.* Fig. 3:1-5) as well as an Akab-type bead (*cf.* Fig. 4:2-3) (Białowarczuk and Szymczak 2020). Moreover, during excavations in 2017 a circular outline of a stone structure similar to the shelter discovered on QA 2 was traced on QA 1. Its chronology is still unclear and needs to be verified but it was built below the level of foundation of the Umm an-Nar graves. These data suggest the existence of a Late Neolithic settlement here prior the Umm an-Nar cemetery.

The other mentioned sites were discovered during the 2019 season. QA 41 is located south of the modern Qumayrah Village and consists of remains of a short-term campsite: two circular stone alignments (Fig. 6) close to each other with two side scrapers found nearby. It is also untypically located inside a small wadi, while QA

45 and QA 52 represent typical location on flat terrace tops. In their cases, thin lithic scatters were spread over quite a wide area of the terraces. Lithics collected

features characteristic for the time between *c.* 3700-3100 BC (Charpentier 2008: 75; Maiorano *et al.* 2018). Single examples have been found on QA 2 as well (Fig. 5:1). Another chronological indicator is a shell bead from the site surface of QA 6 (Fig. 4:4), which has parallels in materials from Neolithic cemeteries in Buhais 18 and FAY-NE 15 (de Beauclair *et al.* 2006: Fig. 5, 179-180; Kutterer and de Beauclair 2008: 141, Fig. 14).

Finally, the three tanged spear points (Fig. 3:7-9) found on QA 12 (Białowarczuk and Szymczak 2020) have close technological similarities to some points from SHA-2 and SHA-10b (Maiorano *et al.* 2018: 228-231) attributed to the Late Neolithic.

All the mentioned materials are broadly dated and cannot on their own serve as precise chronological indicators. However, they correspond to a radiocarbon date obtained from a marine shell found on the largest excavated site of QA 2, which relates their chronology to the second half of 5th millennium BC (Białowarczuk and Szymczak 2020).

The other sites recorded during the survey provided incomparably less materials. Nonetheless, many of them show techno-typological analogies that allow them to

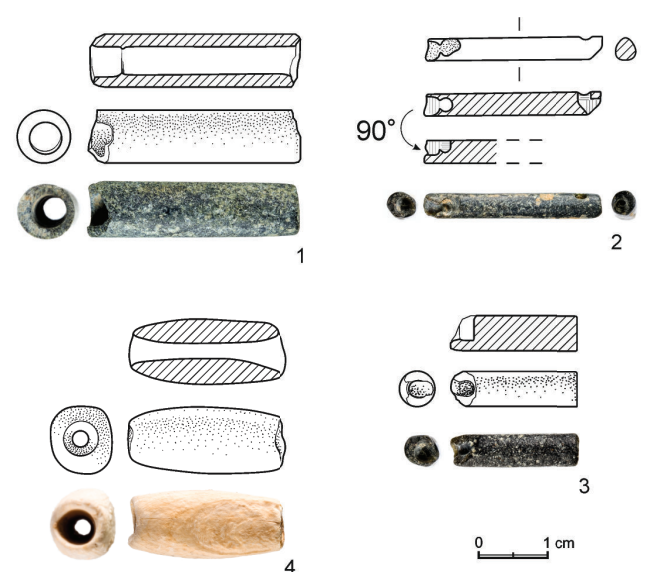


Fig. 4 Late Neolithic beads of Qumayrah: QA 1 (3); QA 2 (1-2); QA 6 (4). (Photos: A. Oleksiak/ PCMA; drawings: M. Puzzkarski and M. Momot, PCMA)

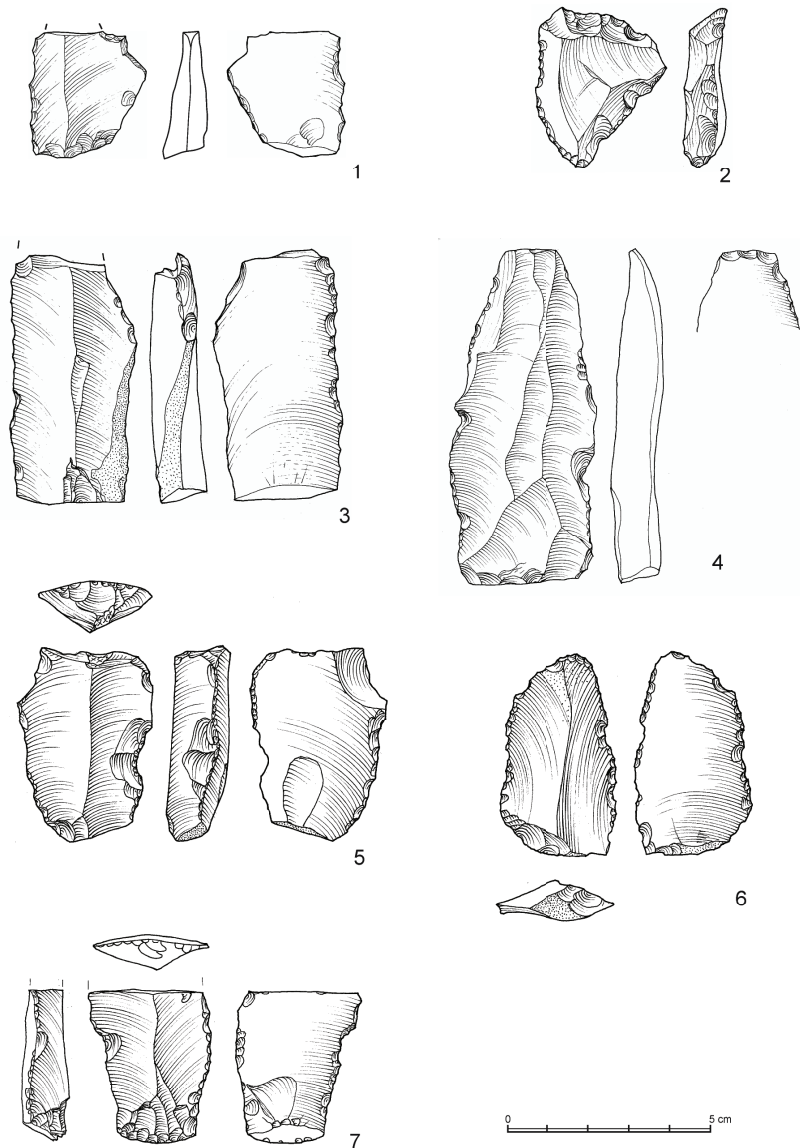
Fig. 5 Laminar macrolithic blades and flakes: QA 2 (1); QA 6 (2-5); QA 45 (6-7). (Drawings: M. Puzzkarski, PCMA)

from the described sites base, as in the other cases, on local raw materials easily available in the closest vicinity. Retouched tools represent the same simplicity of production as observed in the sites investigated previously, with most characteristic use of flat slabs of flints simply retouched by direct scaled retouch. Another technological feature relating these artifacts to the Late Neolithic is the appearance of macrolithic laminar flake and blade technology identified on QA 45 (*cf.* Fig. 5:6-7), which is reminiscent of that from QA 6.

Factors of the Neolithic Settlement in the Qumayrah Valley in Environmental Contexts

In all these phases the settlement seems to have been seasonal but there is still no data so that it can be linked directly with climate changes in the Early and Middle Holocene periods. Of note is the occurrence of marine shells (shell fragments and shell artifacts) at QA 2 and QA 6. In an area located about 100 km from the sea coast they bear witness to links with the coastal zone. This, in turn, might be indicative of the development of a specific, semi-nomadic subsistence model of prehistoric populations occupying individual micro-regions.

This paucity of data leads to marked differences of opinions among scholars on the importance of the described subsistence model for the inhabitants of various ecological zones of the south-eastern Arabian Peninsula during the beginnings of the Middle Holocene period, and on the model's functioning in relation to the annual cycle. Some researchers are of the opinion that nomadic migrations between the coastal and highland zones were very limited due to a strong preference for coastal and mangrove environments that offered access to food sources for most parts of the year. Therefore, expeditions to the mountains would have only been undertaken in the summer season (see Biagi and Nisbet 2006; Cleuziou and Tosi 2007). Results of archaeological investigations in the Ra's al-Hamra and Ja'lān regions point to the emergence of small human groups living far apart, but most probably sharing a common culture, controlling a certain territory and its resources by seasonal wanderings between campsites scattered from the coast, through the lagoons, to the highland and mountain zones (Cleuziou and Tosi 1998, 2007; Salvatori 1996, 2007).



A similar model of subsistence is favored by Margaret and Hans-Peter Uerpmann based on investigations in



Fig. 6 Remains of circular shelter on QA 41. (Photo: M. Białowarczuk)

al-Buhais and Jebel Faya. In order to take advantage of the various resources, groups of pastoralists and fishermen inhabiting this area seasonally changed their location. In winter, when fish are abundant, they could dwell on the coast, whereas summer heat occasioned migrations to the mountains where temperatures were more moderate. According to this model, in spring the migrating groups settled in water-rich highland plains, offering good pastures for their flocks (see Uerpmann M. and Uerpmann 1996, 2000; Uerpmann M. *et al.* 2000, 2012; Uerpmann M. 2003; Uerpmann and Uerpmann M. 2003). An alternative theory has been proposed by Mark Beech (2004). Based on analyses of fish bones from numerous sites from the Arabian Gulf coast coupled with ethnographic data he asserts that the best fishing season persists from late spring till early summer.

Most of the theories presented above are based on the study of sites located about 40 km inland, inhabited during the climate optimum and related to seasonal pastoralism and controlling resources in a certain territory. From the perspective of the discoveries in Qumayrah, the reasons for the development of settlement seem to be quite similar but some marked differences appear as well. First of all, the region is located on the southern side of the mountain range at a distance of almost 100 km from the nearest shoreline. Secondly, archaeological data indicate the intensification of settlement since the second half of the fifth millennium BC when, according to many scholars, the climate conditions of inland areas at this latitude are again deteriorating as a result of the monsoon belt shifting to the south (Drechsler 2009: 71; Magee 2014: 43). In addition, there are no traces of pastoralism. The above observations seem to exclude hunting or pastoral expeditions as the reasons for human presence in this region. A much more likely factor influencing the development of seasonal settlement in the Late Neolithic period, and its stabilization over subsequent periods, seems to be the wide range of resources available there. This factor has already been pre-signaled (Białowarczuk and Szymczak 2018, 2019, 2020), and the geological research carried out in the latest research season seems to confirm this theory.

The main raw materials that may have affected Qumayrah's settlement are flint, salt and perhaps various types of steatite rocks. A geological survey conducted by Dr. Hubert Kiersnowski from the Polish Geological Institute showed that the rocks surrounding the valley contain sources of flint, identical to that used for the production of tools at the tested sites. The chocolate variety is particularly abundant here, characterized by a uniform silica structure and excellent knapping quality. This kind of flint occurs throughout the area in small concretions hidden under a thick layer of cortex (Fig. 7). A large outcrop was located near the Wadi Sumer (Fig. 8), about 4 km north-west from Qumayrah (*cf.* Fig. 2).

Another natural resource is salt, a large outcrop of which is located in the Lisail Area, deep in the



Fig. 7 "Chocolate" flint nodule found on the site of Wadi Sumer 1. (Photos: M. Białowarczuk, A. Oleksiak)

mountains, on the extension of the Qumayrah Valley, just 3 km north of the modern village of Qumayrah (*cf.* Fig. 2). The outcrop has already been the subject of detailed geological surveys (Cooper *et al.* 2012) and is one of a few salt outcrops along the Hajar Mountains chain, and the only one in their western part.

The topic of the use of salt by prehistoric communities and its importance for their development has been raised on numerous occasions. The use of salt for the preservation of food and the curing of animal skins is one factor (Bloch 1971) and seems to be typical for hunters and shepherds. However, increased interest in this raw material is also characteristic of agricultural communities in both Europe (Clark 1952) and the Middle East (Mellaart 1975: 51; Kirkbride 1974). Although we have no direct evidence of the use of salt by the Qumayrah settlers, the dense settlement network around the Lisail outcrop does not seem to be accidental.

Stone raw materials, such as steatite, chlorite or the so-called soapstone could have been exploited here, especially with the advent of appropriate technologies during the Late Neolithic period and the Bronze Age (Magee 2014:16). The presence of the Akab type soft stone beads in a mountain region where sources of



Fig. 8 An outcrop of "chocolate" flint found near Wadi Sumer. (Photo: M. Białowarczuk)

this raw material are located (David 2002) is further evidence of connections with the coast, where such beads had almost exclusively been found on the UAE coast of the Arabian Gulf rather than at the coast less distant Gulf of Oman (Białowarczuk and Szymczak 2020). The geological survey has not yet confirmed the presence of this raw material in the Qumayrah Area, however, small cobbles of chlorite have been encountered. Some scholars argued that this kind of isolated softstone cobbles were used to craft small items, such as beads (David 2002). The appearance of chlorite beads in QA 1 and QA 2 indicates that this kind of raw material may have been a sought-after commodity. Further use of this resource is highly visible in the Umm an-Nar tomb excavated at QA 1 which contained decorated soapstone boxes (Rutkowski 2017). While small beads could be manufactured from small cobbles found in the vicinity of the sites, the bigger items, like boxes or vessels, require access to a good quality raw material. Some such outcrops may have been located in a place that was quite remote but easily accessible along the mountain valley trail. One of them has been identified in the area of Aqir al-Shamoos (Sivitskis et al. 2018), a few dozen kilometers east from Qumayrah Valley. Although the outcrop's exploitation has been associated with the Iron Age, the results of the prospection confirm the existence of chlorite outcrops in close vicinity of Qumayrah Valley.

Conclusions

After three seasons of research, I am deeply convinced that the Qumayrah Microregion is one of many Neolithic settlement clusters located along mountain valleys stretching from Yanqul to Buraimi. Archaeological investigation of the Neolithic settlement of the Qumayrah Valley seems to point to the development of productive foraging management of natural resources specific to the Arabian Neolithic socio-economy. This model is reflected in archaeological data which, however, are still scarce and insufficient for a detailed analysis of this process.

The question of the direction of migration also remains unresolved. The presence of typologically and chronologically similar materials recently discovered in the Rustaq Region (Bretzke et al. 2018) on the other side of the Hajar Mountain Range may point to the east – from the Gulf of Oman. The specificity of the location, however, also allows communication with the north and west – areas on the coast of the Persian/Arabian Gulf. There is no doubt that these issues require significant intensification of research in the highlands of northern Oman.

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Endnotes

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² Geographically, the Qumayrah Valley is part of a greater Wadi al-Fajj.

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Çemka Höyük: A Late Epipalaeolithic and Pre-Pottery Neolithic Site on the Upper Tigris, Southeast Anatolia

Ergül Kodaş, Bülent Genç, Yunus Çiftçi, Charlotte Labendan-Kodaş, and Çağdaş Erdem

Introduction

The settlement of Çemka Höyük (Su Kenarı Höyük; 37°31'22.27"N, 41°50'26.23"E) is located within the boundaries of the Ilisu village of Dargeçit in Mardin Province, approximately 1,100m southwest of the Ilisu Dam. Çemka Höyük is approximately 420m above sea level. It is located just west of the Tigris River and approximately 900m southeast of the settlement of Boncuklu Tarla (Pre-Pottery Neolithic site; Kodaş and Genç 2019, Fig. 1). The settlement, which measures approximately 65m x 135m, was unfortunately not identified during surveys in 2008 due to the flood layer on the mound and it has been severely damaged in many places by road works associated with the Ilisu Dam and HES Project.

Stratigraphy

Round planned houses built of small stones are dated to the PPNA period and floor and wall remains of simple shelter-type structures dated to the Late Epipalaeolithic Period were identified and recorded in 2018 after analyses of three different sections created by road works across the site. Excavations and cleaning activities were carried out in six different sectors and profiles located on the banks of the Tigris River in 2019. However, due to the destruction, the archaeological studies carried out in the settlement concentrated on two areas. In this context, the excavations were mostly concentrated in the area north of the road dividing the mound (Sector 2) and between this road and the road leading to the Tigris River (Sector 1, Fig. 2). Eight different building levels dating to the Late Epipalaeolithic and PPNA periods were identified and numerous architectural remains belonging to these building levels, as well as a large number of human skeletons (about 15 hocker burials), ground and chipped stone tools and a small number of ornaments were recovered at the site.

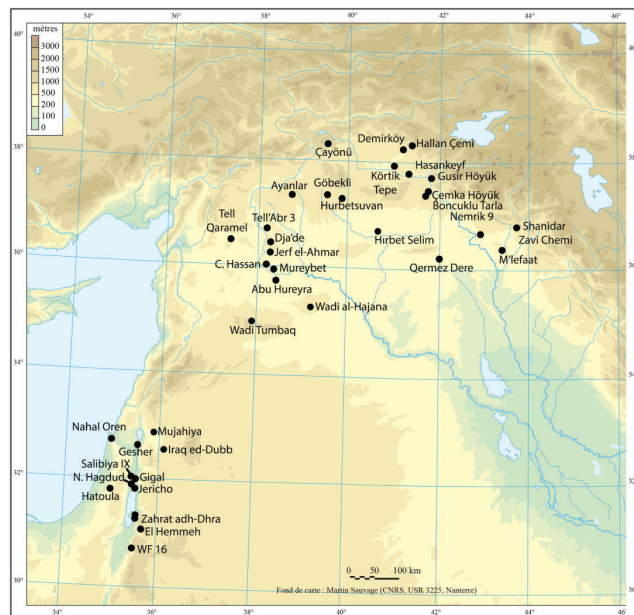
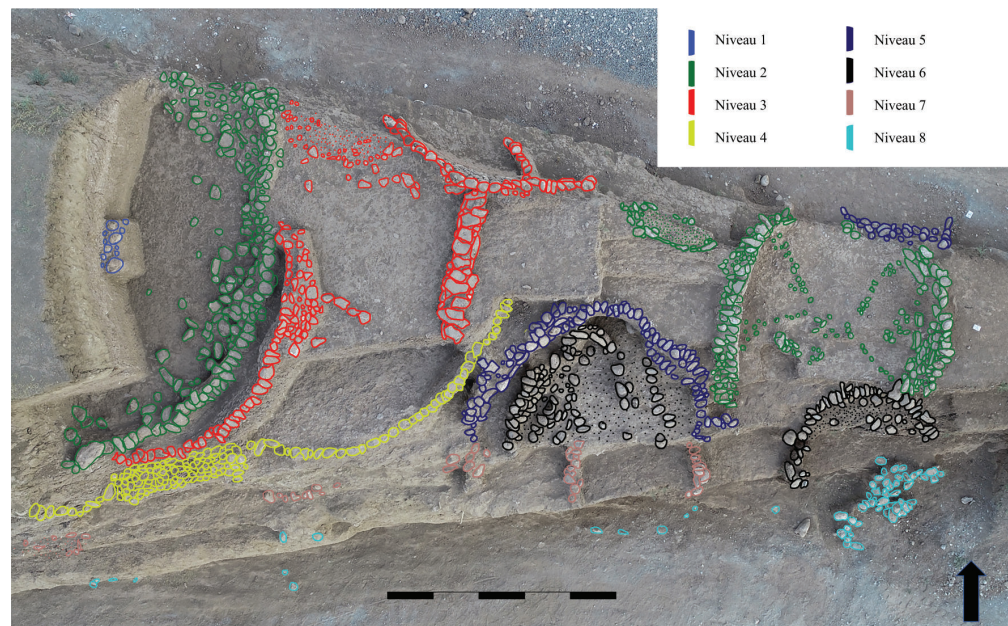


Fig. 1 Localization of Çemka Höyük. (Map: E. Kodaş)



Fig. 2 Drone photo of Çemka Höyük and the areas of excavations in 2019. (Photo: E. Kodaş)

Fig. 3 The architectural remains unearthed at Çemka Höyük Sector 1. (Photo: E. Kodaş)



ID	Context	Material	BP	$\delta^{13}\text{C}$	cal BCE
Tübitak 1156	Sector D17 Level 2	charcoal	9970±38	-27.6±03	9558-9313 (75.8%) 9661-9571 (19.6%)
Tübitak 1155	Sector D16 Level 5	charcoal	9970±38	-28.0±08	9672-9317 (94.4%) 9742-9729 (1.0%)

Table 1 Results of radiocarbon data from Çemka Höyük.

When the plans and construction types of architectural remains are examined chronologically, a change from simple huts to sub-terranean shelter-style buildings, and later, to large-scale stone constructions built on the surface can be observed. Particularly in building Levels 2, 3, and 4, the walls of the buildings are built more systematically and strongly and even plastered with clay or lime plaster. The structures of Levels 5 and 6 of Çemka Höyük comprise round planned buildings that were sub-terranean in a pit with diameters ranging from 4 to 5m (Fig. 3). We also uncovered two sub-terranean buildings with radial plans on Level 2 and 3. The structures of Levels 7-8 represent the oldest phases of the settlement. The remains of the buildings, which are simple shelter-type structures, were found mostly in the southern section on the banks of the Tigris River and were represented by stone groups, that do not form a clear plan. Levels 1 to 6 are dated to the PPNA, and Levels 7 and 8 are dated to the Late Epipalaeolithic Period (Table 1). Levels 2 and 5 have been radiocarbon dated, with the 2σ -ranges strongly overlapping because of the early Holocene plateau. Level 2 is dated between 9661-9313 cal BCE and Level 5 between 9742-9317 cal BCE (Table 1).

Chipped Stone Tools

Two different techno-typological groups (or assemblages) of stone tools have been identified depending on the occupation period at Çemka Höyük. The first

group of chipped stone tools is represented by scalene triangles, trapezes, half-moon shaped tools (lunates), and leaf-shaped small arrowheads (foliate microlith) and Nemrik-type arrowheads from the PPNA Period of the Nemrik industry (Fig. 4; Watkins 1987; Kozłowski 1990; Aurenche and Kozłowski 2011; Altınbilek-Algül 2013; Maeda 2018; Kartal *et al.* 2018). However, the

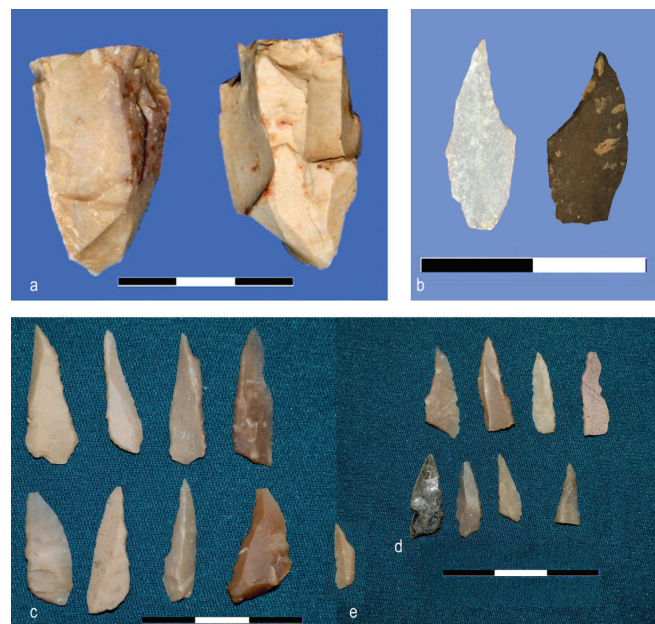


Fig. 4 PPNA chipped stone tool techno-typology of Çemka Höyük: a) core, b) Çemka Point, c-d) several scalene triangles, e) trapeze. (Photos: E. Kodaş)

production of arrowheads is not only limited to Nemrik and leaf-shaped arrowheads. In particular, it seems that the long-sized triangular trimmed micro-blades and others are the dominant type of arrowheads at Çemka Höyük (Kartal 2012; Maeda 2018). Moreover, it has been observed that some types of arrowheads, which are similar in form to the small arrow-shaped projectile points belonging to the PPNA Period, are narrowed only on one side to achieve more pointed arrowheads (Çemka Point).

The second typological group is represented by smaller-sized scalene triangles and backed micro-blades (lamelle à dos), half-moon-shaped segments (segment de cercles), and chisels (small burins); these are similar in form to chipped stone tools of the Zarzian culture which is dated to the Late Epipalaeolithic Period (Fig. 5). During this period, except for triangular pruned backed blades, arrowheads were not recovered. While double platform microblade cores were common during the PPNA Period, there were only single platform microblade cores in the Late Epipalaeolithic Period. Moreover, while there are few obsidian fragments in Levels 1 to 6 (dated to the PPNA), there are no obsidian fragments in Levels 7 and 8, which are dated to the Late Epipalaeolithic Period.

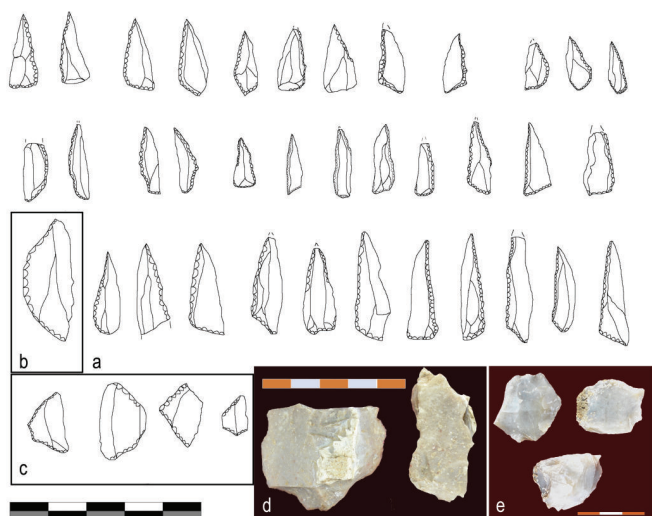


Fig. 5 Late Epipalaeolithic chipped stone tool techno-typology Çemka Höyük: a) several scalene triangles, b) crescent, c) trapeze, d-e) core. (Drawings and photos: E. Kodaş)

Grinding Stones and Mortar Pestles

Nearly 40 grinding stones, that were found scattered in different areas of the site due to the destruction of the mound, are dated to the PPNA Period. After the excavation in 2019, a large number of grinding stones were exposed *in situ* at the site (Fig. 6 a-b). Almost all of these grinding stones were made of basalt and andesite, except for a few examples of limestone. Except for one round shaped item, all of them are long and flat. Some of these grinding stones have a length of 30-50cm,

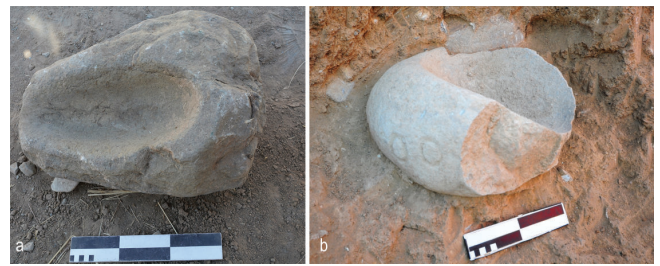


Fig. 6 Some grinding stones found at Çemka Höyük. (Photos: E. Kodaş)

while some are smaller (20-30cm) and also shallower. All the pestles found in the settlement were made of basalt. Their dimensions vary between 12 and 23cm in length with an average diameter of 5-11cm. All of them have a cylindrical form, except for a few cases. Grinding stones that were still resting on the floor were unearthed in almost all of the houses in the settlement.

Bone Tools

A large number of bone awls and spatula fragments uncovered in the PPNA levels indicate that such tools were used frequently. In addition, some bone ornaments with holes in their upper parts were found; these were probably used as pendants. Bone objects unearthed in the settlement are especially important in terms of revealing similarities with the finds recovered from other settlements in the region such as Körtik Tepe (Özkaya and Coşkun 2011), Hasankeyf Höyük (Miyake *et al.* 2012), Çayönü (Erim-Özdoğan 2011), Hallan Çemi (Rosenberg 2011a), and Gusir Höyük (Karul 2011). However, the decorated bone plaques that have been found at these sites have not been found at Çemka Höyük. No other bone tool was found in the Epipalaeolithic layer, except for a spatula fragment.

Other Findings

A large number of stone vessel fragments was uncovered during the excavations. They were primarily made of limestone, although a few are of chlorite. However, all stone vessels that are decorated with geometric motifs were made of chlorite. In addition, the figured stone plaques, grooved stone objects, and broken stone canes are all made of chlorite or sandstone (Fig. 7), and similar objects were found in other PPNA settlements such as Çayönü (Erim-Özdoğan 2011), Körtik Tepe (Özkaya and Coşkun 2011), Hasankeyf Höyük (Miyake *et al.* 2012), Hallan Çemi (Rosenberg 1994, 2011a), Gusir Höyük (Karul 2011) and Demirköy (Rosenberg 2011b) in the Upper Tigris Basin. In this context, it is important to mention the presence of a few scattered stone and bone beads, and a large number of bead ornaments made of freshwater shells that were discovered in the graves (Fig. 8 a-e). However, ornaments were not found in Levels 7 and 8, which are dated to the Late Epipalaeolithic Period.



Fig. 7 Grooved stone found at Çemka Höyük. (Photo: E. Kodaş)

Human Skeletal Remains

All of the human skeletal remains unearthed at Çemka Höyük are primary burials dated to the PPNA Period. They were found beneath the floor of the houses. Of the approximately 15 individuals, 12 are male and female adults, while three are subadults (infants?). While the subadults (infants?) were buried in flexed positions, the adults were placed in flexed and semi-flexed positions (Fig. 9). There are very few grave goods in the burials



Fig. 8 Some ornaments found at Çemka Höyük. (Photos: E. Kodaş)

with beads made of freshwater shells being the most common.

Conclusions: First Observations

At Çemka Höyük, that has been considerably destroyed and has an archaeological fill of about 7m in height, only two main occupation phases that are thought to be dated to PPNA and Late Epipalaeolithic Period were



Fig. 9 Some examples of tombs unearthed at Çemka Höyük. (Photos: E. Kodaş)

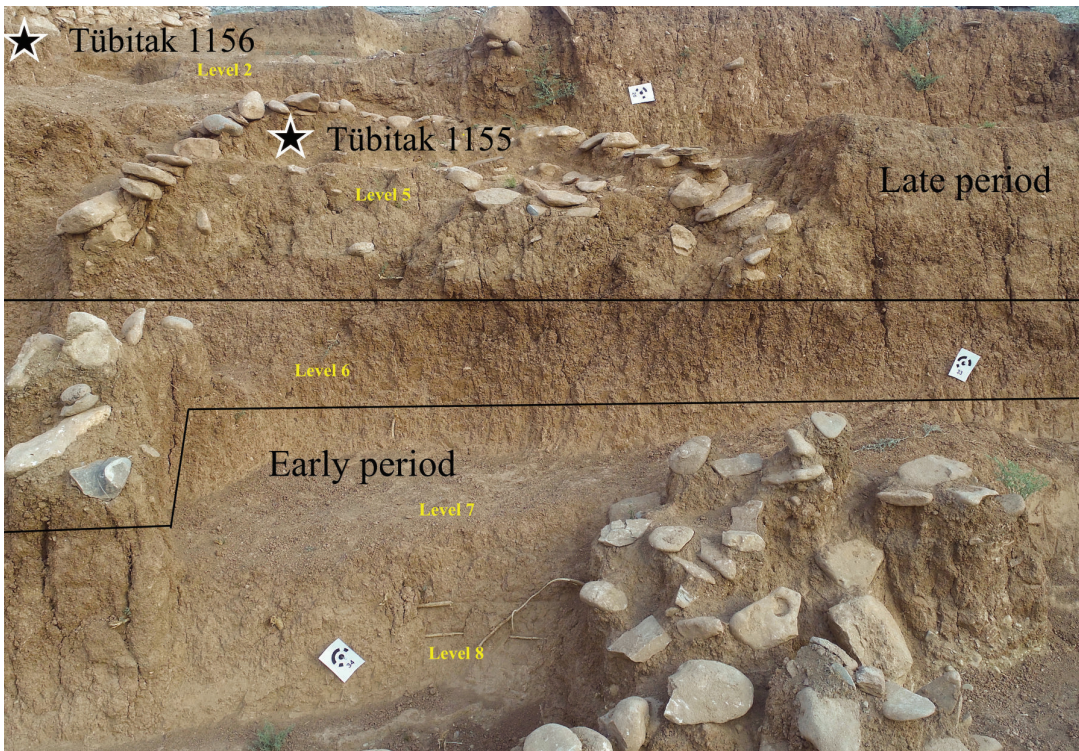


Fig. 10 Archaeological layers of the site with stars indicating the location of radiocarbon samples. (Photo: E. Kodaş)

identified (Fig. 10). The first phase is represented by six-building levels. The second phase is represented by only two building levels. The chipped stone technologies of these phases show some differences in themselves. In the Late Epipalaeolithic Period, there is a chipped stone tool culture belonging to the Zarzian culture of the Zagros, while in the PPNA Period there are chipped stone tools belonging to the Nemrik culture. Concerning the architectural developments, in general, the PPNA settlement changes from simple huts (Levels 5 and 6) to sub-terranean shelter buildings; in particular, the walls were built stronger in building Levels 2, 3, and 4 and plaster remains indicate that they have been plastered. In addition, it is observed that the houses of the upper levels were larger than those of the lower levels. However, in light of available data, it is observed that the houses have turned into simple tent-type cottages on the earliest building level. When looking at PPNA architectural remains in general, the architectural remains unearthed at Çemka Höyük share similar features with Gusir Höyük, Körtik Tepe, and Hasankeyf Höyük. In particular, the round planned buildings (with radial plan) dated to the Levels 2 and 3 are similar to buildings unearthed at Jerf el Ahmar, Tell ‘Abr 3, Mureybet, Wadi Tumbaq 1 and Wadi el-Hajana 1 in Syria (Cauvin 1980; Fujii and Adachi 2013; Yartah 2013; Abbès 2014; Stordeur 2014). However, the round planned buildings observed in northern Syria (e.g. Jerf el Ahmar, Tell ‘Abr 3, and Mureybet) on the one hand, exhibit some different features both in terms of size and construction style from the buildings unearthed at Çemka Höyük. On the other hand, radial plan buildings at Çemka Höyük, both in terms of size and plan, exhibit more similar features with buildings unearthed at

Wadi Tumbaq 1 and Wadi el-Hajana 1 (Fujii and Adachi 2013; Abbès 2014) and dated to the early phases of the PPNA. Since for the Late Epipalaeolithic Period, architectural remains are represented only by scattered wall and floor remains, it seems impossible to make a comparison for now. However, architectural remains belonging to this period are also known from Körtik Tepe (Benz *et al.* 2015) and Boncuklu Tarla (Kodaş 2019) in the Upper Tigris Basin.

Çemka Höyük, in the Upper Tigris Basin, has the potential to provide important information on PPNA and Late Epipalaeolithic Period cultures in this region. The excavations to be carried out in the following years will shed light not only on the Neolithization process of the region in question but also on broader interactions between regions. Çemka Höyük is a settlement that provides important information on many points such as the transition from the Late Epipalaeolithic to the PPNA (especially hunter-gatherer semi-nomadic life) and on the development of the Zarzian culture in the north, especially the Late Epipalaeolithic Period.

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Endnote

¹ Comparing the results of our new excavations to the
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dated to 10471-10109 cal BCE (Kodaş 2019).

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Investigating the Late Neolithic in the Lowlands of Southwestern Iran: Sounding at the Site of Remremeh, Mehran Plain

Hojjat Darabi, Saman Mostafapour, Ali Yari, Farhad Mohammadi, Someiyeh Zeinali, Mahtab Shahverdi, and Iraj Fadaeian

Introduction

Over the last decade, Neolithic archaeology of highland central Zagros and the nearby lowlands of southwestern Iran has mainly concentrated on the initial stages of farming and sedentary life (*cf.* Mathews *et al.* 2013; Riehl *et al.* 2013; Darabi 2015; Darabi *et al.* 2019). Therefore, early Neolithic sites have been given attention while the nature of cultural development and transformation of later Neolithic societies has often been overlooked. Previous investigations had placed the emergence of pottery in the above noted regions, as the hallmark of the two periods, within roughly the mid-6th millennium BCE (see Hole *et al.* 1969; Mortensen 1991, 2014). However, recent evidence showed that the earliest true ceramic vessels appeared around 7,000 BCE, synchronously with adjacent regions across the Near East (Darabi 2018). The time spanning from the early 7th to the early/ mid 6th millennium BCE merits its own attention as it saw some profound socio-economic developments that resulted from the manufacture of various ceramic styles, the appearance of domestic pig and cattle and an increase of inter-regional interactions. To date, the diachronical sequence of ceramic styles is not well-known in the region. Also, only a small amount of data on the mechanisms of domestication of pig and cattle is available. However, archaeological finds attest to an increasing level of inter-regional interactions of societies, especially between Mesopotamia and Iran. In this regard, late Neolithic sites should draw our attention. This paper thus briefly presents a preliminary report of a sounding at the late Neolithic site of Remremeh, Mehran Plain.

The Site

Remremeh (E 611893, N 3667097) is located on the Mehran Plain, southwestern Iran, *c.* 2km to the northeast of Mehran town, Ilam Province, at an elevation of 170m above sea level (Fig. 1). Due to the massive sedimentation of the plain, the site is presently not easily seen above the surrounding fields, though its central part is fairly raised, 1-2m (Fig. 2). Compared to its surrounding regions, such as Deh Luran or Iraqi Mandali, the Mehran Plain has seen much less archaeological research. The plain was first surveyed in the 1990s (Khalilian 1996; Nokandeh 2010). However, Remremeh was not identified until 2010 when a notable number of new sites were located on the plain (Darabi *et al.* 2012; Javanmardzadeh *et al.* 2013). The site is

situated on the bank of a perennial stream flowing down from hills to the north/northeast. Additionally, the area has fertile soil and is now intensively cultivated. In recent years, the site has been damaged by agricultural activities. As seen from surface finds, the formation and development of the site appears to have been spatially segregated in that each area contains remains of a separate period. In this regard, late Neolithic/early Chalcolithic finds are more concentrated in the central and eastern parts, while proto-historic remains are found in the south/southwestern areas. Remremeh is thus a large site that provides evidence of a long sequence of occupation on the plain.

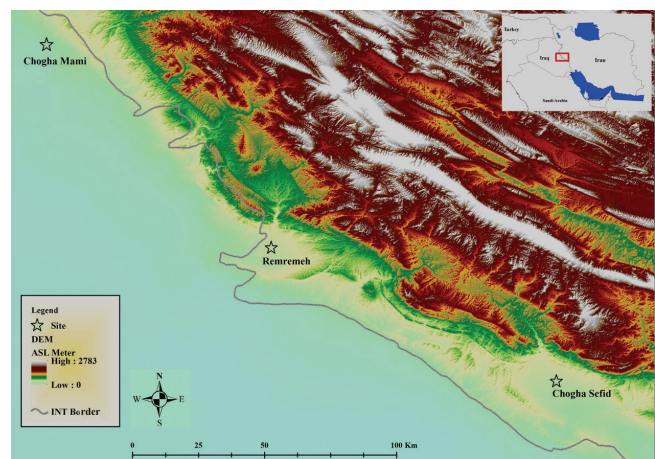
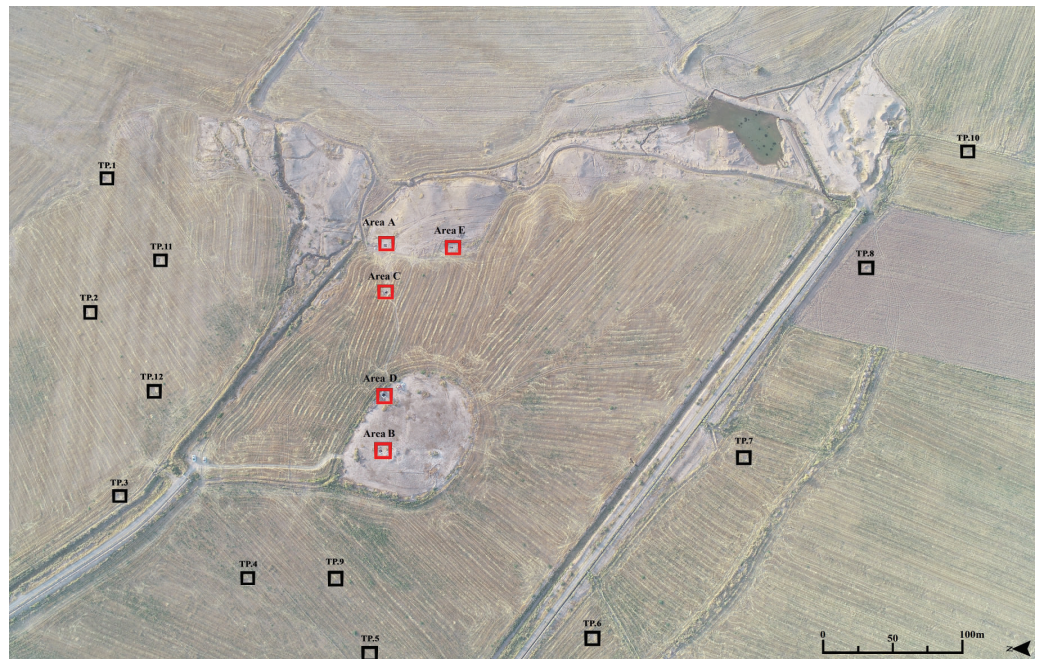


Fig. 1 Map showing location of the site of Remremeh on the Mehran Plain and the other two prominent sites of Chogha Mami and Chogha Sefid in Mandali and Deh Luran, respectively. (Map: S. Bahramiyan)

Sondages

As noted, the central and eastern areas of the site have a high concentration of Neolithic finds, in particular, sherds of soft-ware and flint tools on the surface. Interestingly, a notable amount of painted fine buff ware, known as late Samarra/ Chogha Mami Transitional (CMT), is also seen among the Neolithic assemblages. In order to gain data on the chronology of the site and the stratigraphic correlation of Neolithic soft-ware to the so-called CMT materials, to assess the nature of the introduction of the latter into the Iranian frontiers, and to delineate the site area, we opened sondages and test pits in and around Remremeh in May- June 2020 (*cf.* Fig. 2).

Fig. 2 Aerial view of Remremeh showing location of excavation areas in red and site delineation test pits in black. (Photo: H. Darabi)



Based on the concentration of surface materials, we first focused on the eastern edge of the site and then tested the nature of the archaeological deposits in the central part. The fact that the stratigraphic relationships of local Neolithic entities and the reportedly later Mesopotamian elements was our main aim, we opened a total of five sondages, labelled Areas A-E. All areas, except Area E, were initially sized 2 x 2m and then reduced in size during the excavation.

In Area A, where large amounts of Neolithic, and to a lesser degree CMT sherds, are visible on the surface, we dug approximately 2m of deposits overlying the virgin soil. Judging from intensified concentrations, an unusual amount of potsherds and the presence of sand, sometimes concreted over the sherds, as well as the process of deposition, it became apparent that the finds are water-lain and appear to have been redeposited by fluvial actions through time (Fig. 3).

Area B was opened at the top of central part of the site. After digging 215cm of mostly silty-clay to clayey deposits, the excavation was stopped. In addition, no results were obtained from Area C, where again 2m of silty-clay and clayey deposits, devoid of *in situ* archaeological finds, were dug. The majority of stratigraphic information thus comes from Area D. Unexpectedly, we excavated around 6m of archaeological deposits down to the virgin soil (Fig. 4). At a depth of 2m below the surface, the size of the excavation area was reduced to 1 x 1m and the layers became increasingly wet at lower levels. Thanks to architectural remains, plastered or beaten floors and concentrated horizontal distribution of finds at the same level, a total of 10 occupational phases were distinguished. As seen from the finds, especially ceramic types (*cf.* below), this area contained a long sequence of late Neolithic settlement; no CMT ceramics were found there.

Lastly, Area E was opened to recover and document some stone alignments that were visible on the surface

and associated with a mixture of both Neolithic and CMT sherds (Fig. 5). This area was initially 4 x 2m but then reduced in size. Excavation ceased at a depth of 124cm below the surface. Similar to Area A, a huge amount of potsherds resulting from fluvial activities was recovered.

In addition to the above mentioned areas, in order to delineate the site a total of 12 test pits, 1.5 x 1m in area, were dug around it (*cf.* Fig. 2). Although massive sediments played an important role in the formation of the site making its delineation difficult, the test pits suggest that the overall area was roughly 150,000m².

The Finds

As result of the soundings at Remremeh a large number of ceramic fragments (*c.* 14,000) was found, mostly from Areas A and E. Our preliminary observations indicate that they have close similarities to those previously reported from the Neolithic sites of Ali Kosh



Fig. 3 Concentration of redeposited ceramic sherds in Area A. (Photo: F. Mohammadi)

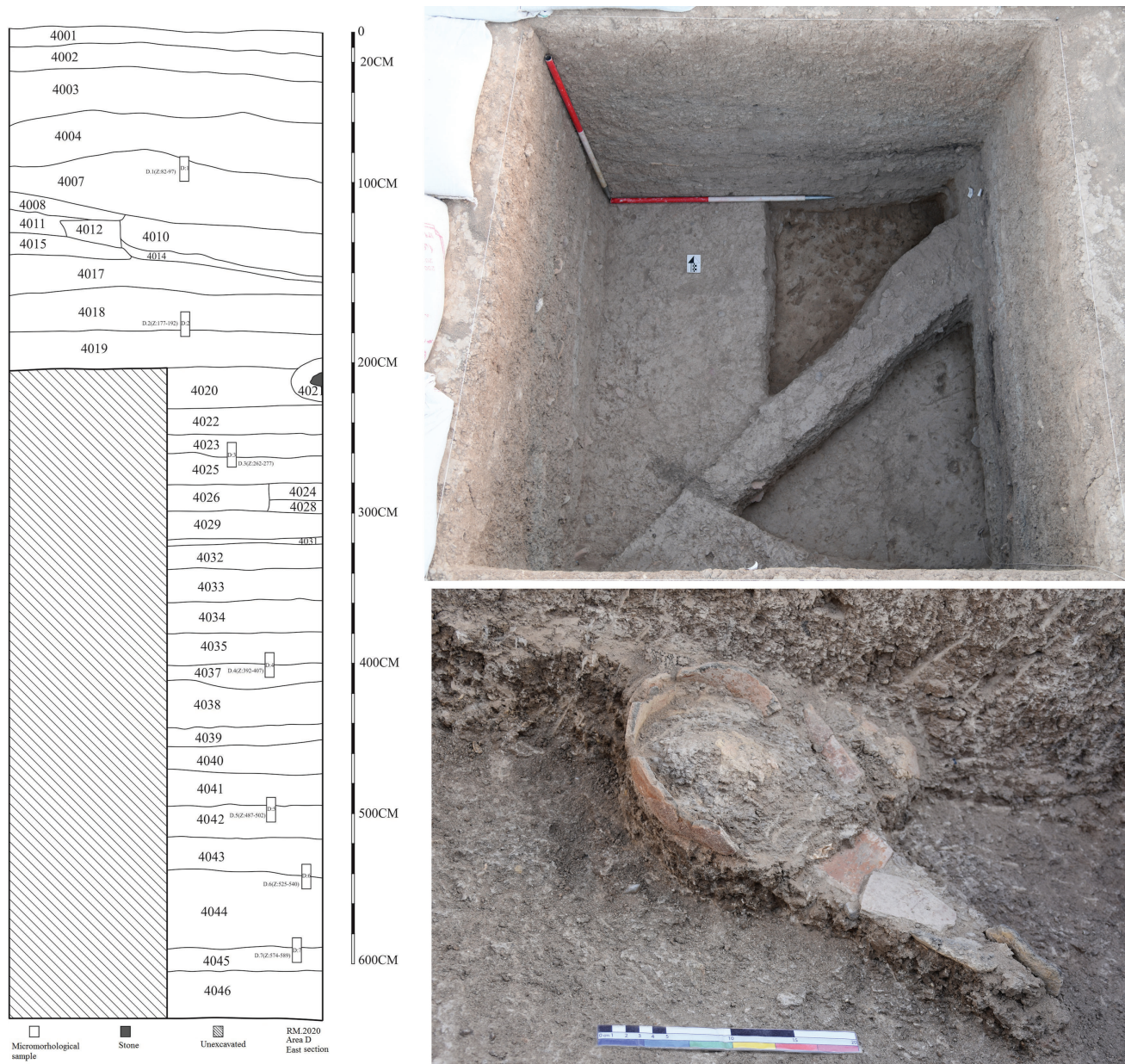


Fig. 4 East Section of Area D and recovery of clay wall and a broken ceramic vessel in the upper levels. (Drawing/ Photos: S. Mostafapour and S. Zeinali)

and Chogha Sefid on the Deh Luran Plain (*cf.* Hole *et al.* 1969; Hole 1977). Also, some samples suggest the presence of the Hassuna tradition (see Lloyd and Safar 1945; Braidwood *et al.* 1952; Mortensen 1970; Merpert and Munchaev 1978), while others are identical to the late Samarra/ CMT styles (*cf.* Braidwood *et al.* 1944; Oates 1968, 1969, 1987, 2013; Hole 1977; Blackham 1996; Nieuwenhuys 1999; Nieuwenhuys *et al.* 2001). Therefore, we have applied the terminology previously known from the region and classified samples into so-called types of “Ja’far Plain”, “Khazineh Red”, “Sefid Black-On-Red”, “Coarse Straw-Tempered, Chaff-Faced Buff Ware” (Hassuna style) and “CMT style” (Fig. 6). Straight-sided fragments and samples with carination and convex or concave walls are common among the Neolithic assemblage. While the first three types are well-known from the Deh Luran sequence, *i.e.*, Mohammad Ja’far through Surhk phases, others

indicate the influence of both Hassuna and Samarran cultural elements. In addition to a large amount of Hassuna Coarse Chaff-Faced Buff Ware and also a few examples with applied decoration, the presence of husking trays is of importance at the site. In Areas A and E, CMT samples were found along with both coarse buff or red Neolithic ceramics though their frequency is much lower. As noted before, however, these two areas show deposits affected by alluvial activities, indicating a temporally mixed context.

A total of *c.* 1200 pieces of chipped stone were found, mostly from Areas A and D. Regarding raw materials, finely-grained dark or medium grey flint, dark reddish brown or light olive grey chert, black or medium dark grey or dark greenish grey obsidian and brownish grey siliceous limestone were utilized (Fig. 7). Flint (totally 75%) is more common than other stone raw materials. Our observations show that all



Fig. 5 Stone alignments exposed in Area E. (Photo: F. Mohammadi)

materials, except for obsidian, were locally available. Various types of flake, blade(let) or mixed cores are present in the collection. Flake cores are predominant, while blade(let) cores are fewer. Only two typical bullet-shaped cores were found from the lower levels in Area D. In all, 363 lithics were recorded as tools: made on flake (41%), blades (34%), bladelets (21%) and unknown blanks. Tools are typologically dominated by denticulates, notches, retouched pieces, utilized blades/bladelets and scrapers, while a small number of small

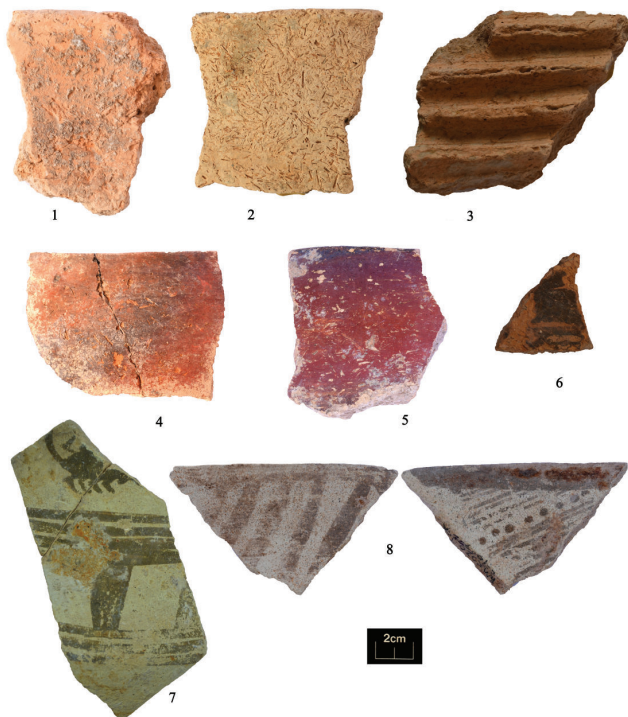


Fig. 6 Ceramic styles recovered from the site: 1 Ja'far Plain; 2 Hassuna Coarse; 3 husking tray; 4 Khazineh Red; 5 Sefid Black-on-Red; 6 Sefid Black-on-Cream; 7-8 Late Samarra/ CMT. (Photos: F. Mohammadi and H. Darabi)

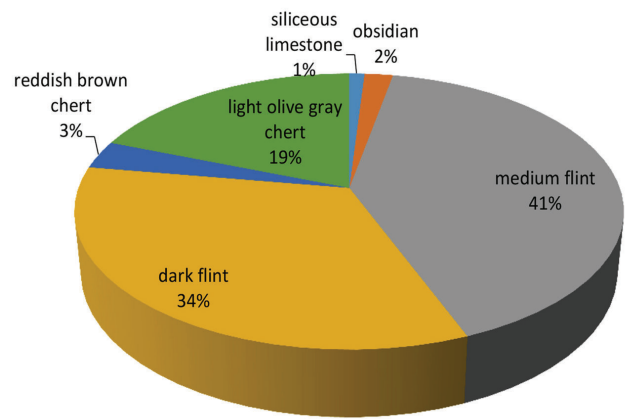


Fig. 7 Frequency of raw materials used to produce stone tools. (Graph: H. Darabi)

burins, sickle blades or geometrics were present (Fig. 8). The amount of chopping-tools is also considerable at the site (Fig. 8). Although all excavated sediment was screened, no debris was found suggesting that these may have been washed away over time. Preliminary analysis shows that though making flakes is seemingly prioritized, a considerable amount of the tools are made on blade(lets). Interestingly smaller tools were mostly produced from small pebbles that have a limestone cortex and are readily available in the nearby river beds. On the other hand, bigger tools were made of local cortical chert, a material that was in use since Paleolithic times on the plain (*cf.* Darabi *et al.* 2012).

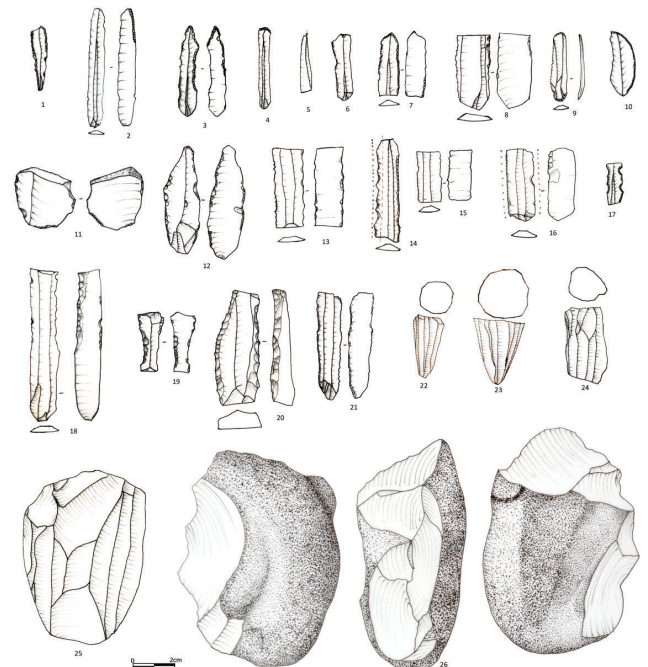


Fig. 8 A selection of chipped stone from the site: 1,3 drill; 2 partially-retouched bladelet; 4 convex-end scraper on bladelet; 5 small burin; 6,17 notched blade; 7 end-scraper on blade; 8,18-21 retouched blade; 9 convex-end scraper on blade; 10 side scraper; 11 round scraper; 12 double-side scraper; 13,15 denticulated blade; 14,16 sickle blade; 22-23 bladelet bullet-shaped core; 24 blade(let) core; 25 mixed core; 26 chopper. (Drawings: H. Darabi)

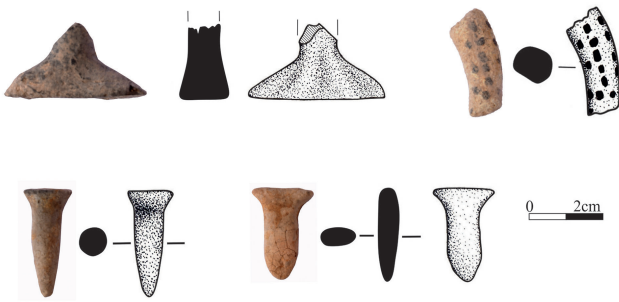


Fig. 9 Examples of broken clay figurines and nail-like objects. (Drawings: S. Zeinali)

However, the presence of tools such as wide blades and, in some cases, geometrics, places the entire chipped stone assemblage within the Late M'lefatian industry (cf. Kozłowski 1999).

In addition to pottery and chipped stone, our brief soundings yielded a total of 166 examples of various artifacts including ground stone, clay tokens, clay figurines, nail-like objects, beads, a stamp seal, and other objects of ceramic, bone or stone (Fig. 9). Of the figurines, both T-shaped and painted terracotta samples are of interest. These are well-known from local Neolithic and Samarran contexts, respectively (for example see Hole *et al.* 1969: 226, Fig. 98; Oates 1969: Pl. 38-39; 2013: 413, Fig. 37.9; Hole 1977: 229-230). Additionally, the presence of nail-like clay or stone objects is also considerable at the site (Fig. 9). Although their function in the past is not yet well-known, they have so far been labelled as “muller”, “labrets” (cf. Hole 1977: 368, Pl. 54) “toilet items” or “ornaments” (Oates 1969: 130). Although the role and spatial-temporal distribution of these artefacts merits a separate detailed investigation, they are usually recovered in Samarran contexts as previously documented from sites such as Chogha Sefid, Chogha Mami and YarimTepe I.

Concluding Remarks

Our information about the late Neolithic in western/southwestern Iran is mostly based on excavations conducted in the 1960-70s. Moreover, Neolithic investigations have mainly dealt with earlier stages, *i.e.*, Pre-pottery or Transitional Neolithic. This highlights the significance of new finds in these two regions. Our brief sounding at Remremeh thus should be taken as a foundation for larger question-oriented excavations in the future. Currently, we know that this site likely was occupied during the 7-6th millennia BCE, though it needs to be radio-carbon dated to substantiate this. Given the location of the Mehran Plain presence of combined archaeological assemblages, previously reported from the Deh Luran Plain and Mesopotamian lowlands, is not unusual. The occurrence of coarse straw-tempered ware and husking trays, however, indicates Hassuna elements at Remremeh. This indicates that Remremeh

has a complete, but complex, mixture of late Neolithic entities in the Eastern Fertile Crescent. A seemingly lack of interaction with the high central Zagros may be resolved with further excavations at the site.

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Late Neolithic in the Shahrizor Plain, Iraqi Kurdistan: New Excavations at Shakar Tepe, 2019

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Yoshihiro Nishiaki, Nawshirwan A. Mohammed, and Kamal Rasheed

New excavations at Shakar Tepe in the Shahrizor Plain, Iraqi Kurdistan, have revealed late 7th millennium BCE layers. Indigenous ceramic and lithic assemblages – chronologically fixed by radiocarbon dates – fill a part of a rather unknown hiatus in the Late Neolithic sequence of the Shahrizor Plain. In addition, they imply the complex patterns of regional relationships in the periods between Neolithisation and urbanisation.

The Shahrizor Plain is an intermontane valley along the Zagros flanks, located in the Sulaymaniyah Govern-

upper level, part of an oven (Str. 1) was recovered in the southeastern corner of the trench. The middle level contains a straight *tauf* wall (Str. 2). Below this wall, in the lower level, thick Late Neolithic deposits extend down to the virgin soil. Eight of the ten radiocarbon dates made on charcoal fall between 6400 and 6000 cal. BCE; two samples containing only small amounts of carbon (<400µg) date slightly older (Fig. 3).

The ceramics from the Late Neolithic deposit can be divided into at least two assemblages. The first as-

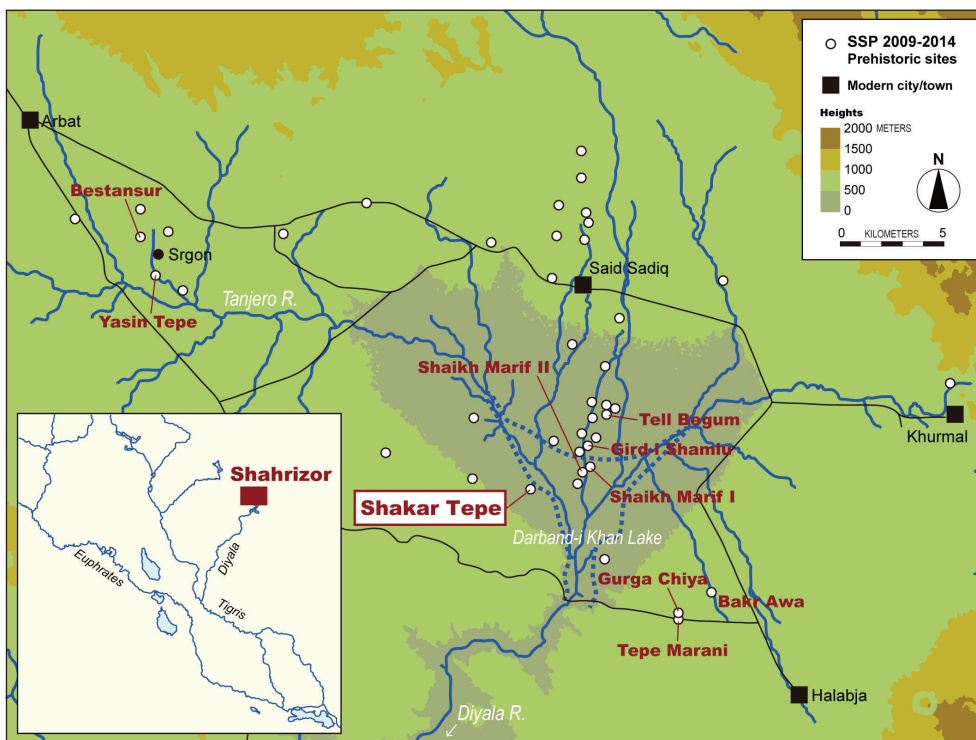


Fig. 1 Location of Shakar Tepe.
(Map: S. Mühl)

norate, Iraqi Kurdistan (Fig. 1). During the last decade, its local prehistory gradually gained attention (e.g. Nieuwenhuys *et al.* 2016; Wengrow *et al.* 2016; Matthews *et al.* 2019), and a hiatus existing in the local Late Neolithic between the late 7th and the mid 6th millennium cal. BCE became known (Odaka *et al.* 2019). Our new field project began at Shakar Tepe in September 2019 (Fig. 2), and aims to fill this chronological gap.

Excavations were conducted at the northern edge of the western mound (step trench Operation A: 9.5 x 2.0m), revealing prehistoric deposits of approximately 5m thickness. Most parts of the sequence belong to the Late Neolithic while Ubaid layers were also identified in the uppermost level. The Late Neolithic deposits seem to contain a few occupation levels; a detailed study of the stratigraphic sequence is under way. In the

semblage identified in the upper level contains some ware groups variants, such as “Hassuna-like” fine ware (Fig. 4: 1-9), fine plant-tempered ware (Fig. 4: 10-12) and coarse plant-tempered ware (Fig. 4: 13-17). The “Hassuna-like” fine ware has a compact fabric which includes sands. The surface is mostly buff-coloured, carefully smoothed, and decorated with geometric incisions; repeated short oblique lines (“slashes”) are the most remarkable motifs. This ware group is similar to the so-called Hassuna Standard Incised Ware: More precisely, it represents a local variant of the ware known from Matarrah and Shaikh Marif in the Iraqi Zagros foothills (Braidwood *et al.* 1952; Odaka 2019; Odaka *et al.* 2019). However, the sherds’ fabric (or firing) from Shakar Tepe is generally quite hard while those from Matarrah and Shaikh Marif appear to be “softer”.

Fig. 2 Topographic map of Shakar Tepe. (Map: Y.S. Hayakawa)

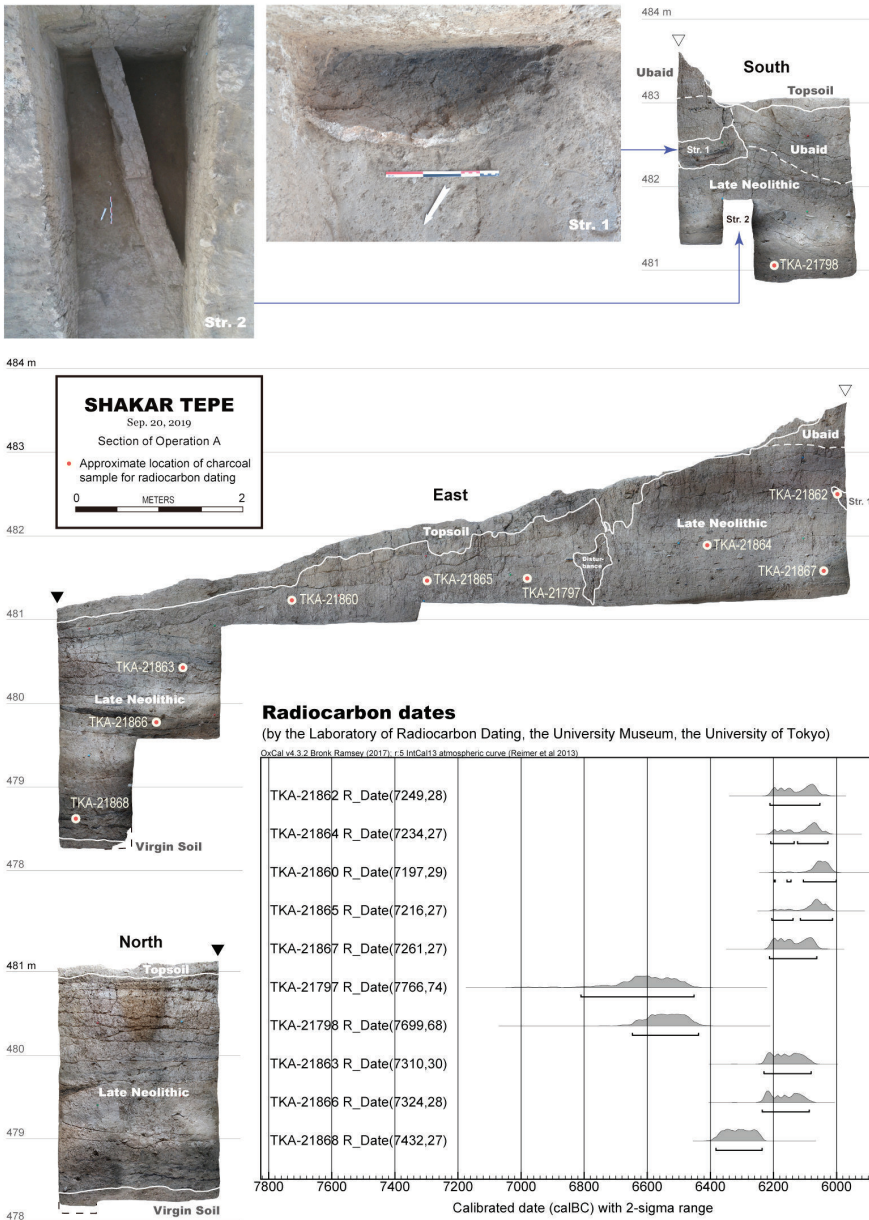
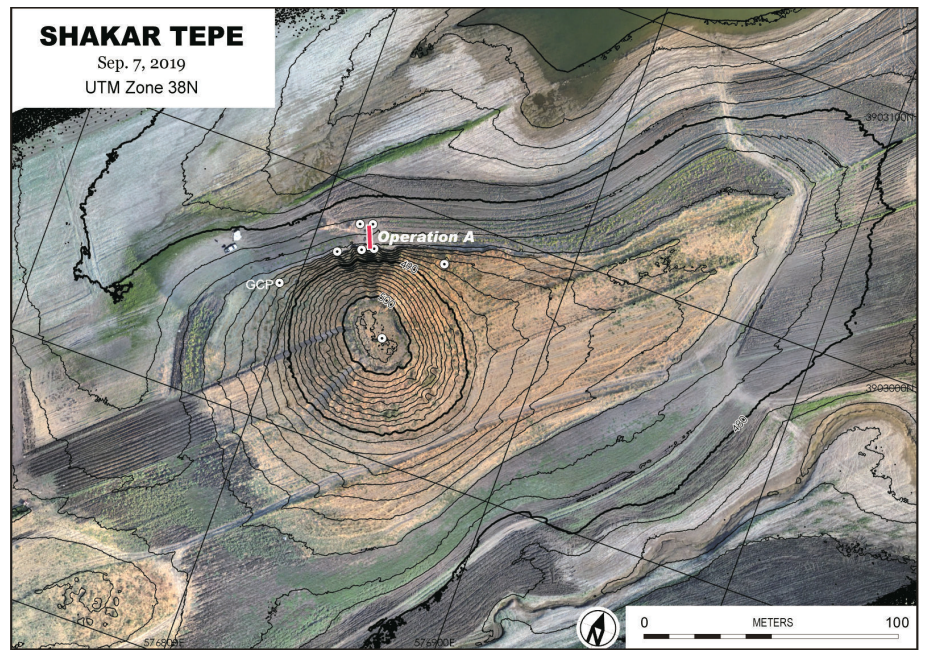


Fig. 3 Section, structures and radiocarbon dates of Operation A. (Plate: T. Odaka)

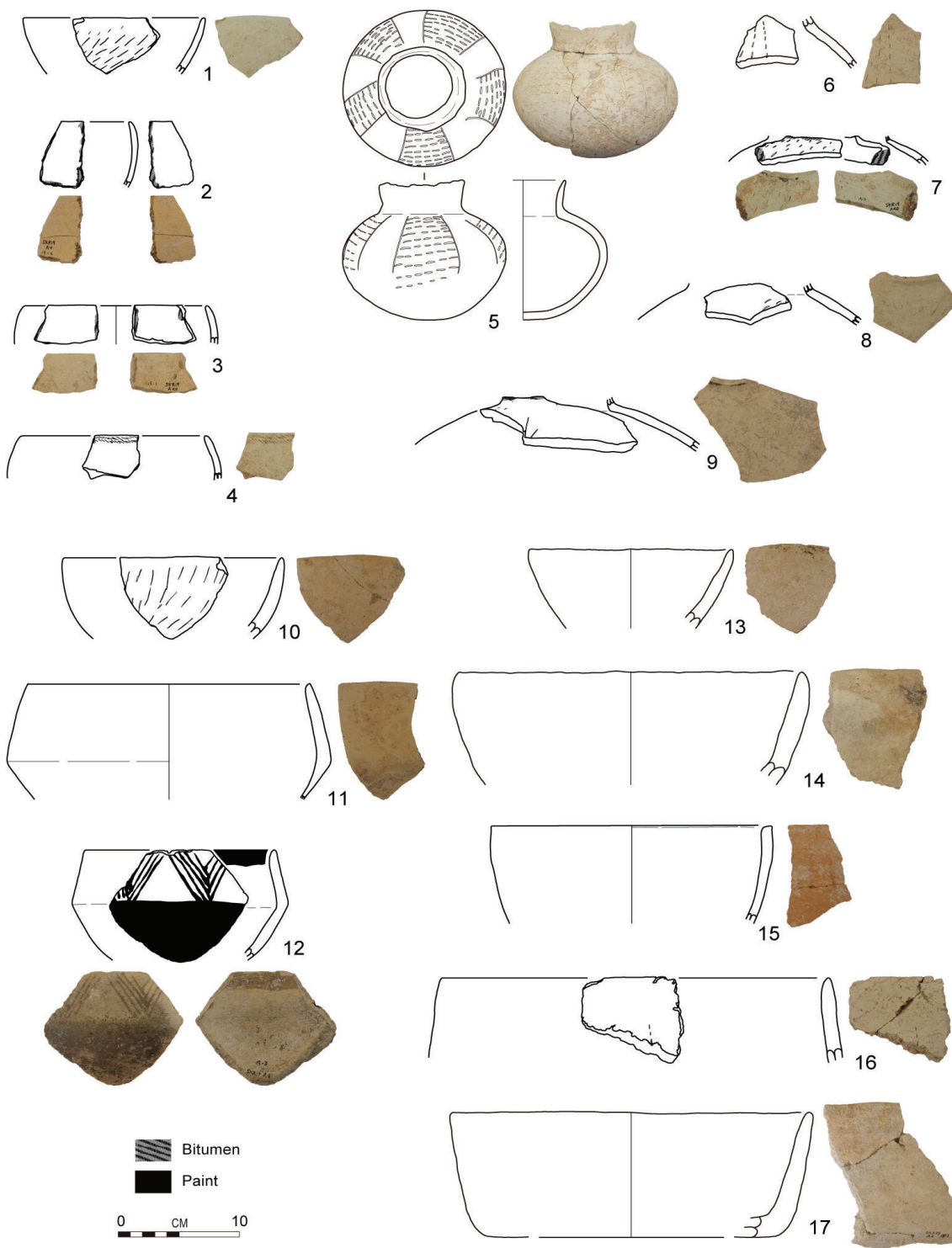


Fig. 4 Late Neolithic pottery from Operation A. (Photos, Drawings: T. Odaka)

The fine plant-tempered ware has also been collected at Shaikh Marif I (Odaka et al. 2019) and was, apparently, also recovered at Qalat Said Ahmadan (Tsuneki et al. 2015). This ware group is characterised by a fine fabric, including a small amount of plants and minerals. The surface is sometimes treated with red-to-dark-brown slip or burnishing, and is occasionally decorated with incisions or paints. Carinated bowls are common in vessel shapes. The coarse plant-tempered wares generally represent thick-walled, large-sized, heavy vessels, including the so-called “husking trays”. A substantial amount of chaff has been added to the fabric which also

contains mineral temper; a dark core is often observed with this ware. Decorations such as incisions, *appliqués* or paint are rarely attested for this ware. This assemblage is likely to be comparable with the early phase of Has-suna period at other key sites in Upper Mesopotamia.

Another ceramic assemblage – exclusively consisting of coarse plant-tempered ware – has been observed in the lower level of the Late Neolithic deposit. Its fabric is more brittle and fragile than that of the upper level, and its sections usually display a dark core. In general, the surface colour is more reddish. This simple assemblage may be comparable with that of the Proto-

Fig. 5 Late Neolithic lithic artefacts from Operation A.
(Photos: O. Maeda)



Hassuna period in Upper Mesopotamia, or that of the Pottery Neolithic phase at Jarmo (*e.g.* Lloyd and Safar 1945; Adams 1983).

The majority of lithic artefacts recovered from the Late Neolithic deposit are irregular flakes made of local chert. No bullet-shaped blade cores are present; only a few regular blades produced by pressure flaking (Fig. 5: 9-14) were recovered, probably imported from elsewhere. This indicates that the lithic industry at Shakar Tepe is not in line with the local tradition of the M'lefatian industry typical of the Zagros Foothills (*e.g.* Kozłowski 1999; Matthews *et al.* 2019). Instead, it seems likely to be another local lithic industry that developed in this period.

Some examples of very large and crude blades made of local chert (Fig. 5: 1, 3-7) are noteworthy. Two caches of five of these blades, as well as two large blade cores (Fig. 5: 2, 8), were uncovered. The size of the blades is very unusual: The largest one exceeds 16cm in length and 6cm in width. However, their shapes appear not standardised and platform edges are not well prepared before applying direct or indirect percussion. Similar blades, sometimes with sickle gloss along the edges, have been reported from Matarrah (Braidwood *et al.*

1952: Pl. X); no examples from Shakar Tepe bear gloss.

Only 38 obsidian artefacts were found; 16 side-blow blade-flakes (Fig. 5: 15-20) are the most interesting artefact type, since characteristic for Proto-Hassuna and Hassuna contexts of northern Mesopotamia; the examples from Shakar Tepe are those so far excavated from the southernmost site in the Fertile Crescent and suggest a certain connection to the north.

In addition to ceramics and lithics, a stone stamp seal (Fig. 6: 1), a stone pendant/ link (Fig. 6: 2), clay spindle whorls (Fig. 6: 3-6) and bone tools (Fig. 6: 7-8) are noteworthy. Faunal and botanical remains are limited in quantity.

The new evidence from Shakar Tepe fills a part of the chronological gap in the local archaeological records of the Shahrizor Plain and implies the existence of a discrete material culture in this region that has not been clarified until now.

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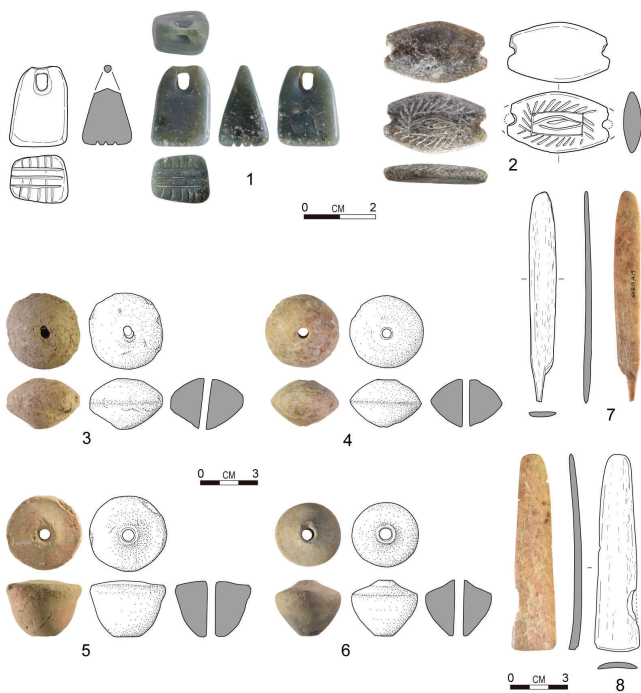


Fig. 6 Late Neolithic small finds from Operation A.
(Photos, Drawings: O. Maeda)

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Introducing the new Çatalhöyük Project

Çiler Çilingiroğlu

The year 2018 marks the beginning of a new project at Çatalhöyük. After 25 years Ian Hodder finished his long-term research at the site (Hodder 2017). The management of Çatalhöyük, an UNESCO-inscribed site, was then transferred to the local Konya Museum with Ege University Protohistory and Near Eastern Archaeology Department in Izmir taking responsibility of the scientific supervision. The transition of the project from Stanford to Ege University was an intense, laborious, yet a smooth process. I would like to acknowledge Ian Hodder and his team, especially Bilge Küçükdoğan and Dominik Lukas, for this achievement. Following the official handing over of the project, we began concentrating our efforts on three major issues: The future direction of research at the site, the protection and conservation of the old excavation areas and an improved presentation of Çatalhöyük to the public. Project co-director Arkadiusz Marciniak and his team from Adam Mickiewicz University in Poznań (Poland) were very supportive in training the new team members and excavators on the Çatalhöyük documentation procedures and protocols while at the same time digging a new excavation area on the East Mound. This ensured that the documentation at the site continued with the old protocols based on “single context recording”. The collected data will thus be compatible with the old data and the new members found the chance to work alongside experienced archaeologists and anthropologists. After two seasons of fieldwork, I am happy to report that our team has been making progress on all these fronts. I would like

to refer readers to the new website of the Çatalhöyük Project for the upcoming 2018-2019 Research Reports (www.catalhoyuk.ege.edu.tr).

This contribution tries to provide information on the future directions of the research at the site. Thanks to a generous support from the German Archaeological Institute’s Eurasian Section, the new team (Fig. 1) was able to assemble for a kick-off meeting, where future team leaders discussed ideas and prospects for the short and mid-term research at the site. During the meeting, the lab leaders and project directors agreed to focus on unsolved problems and inadequately researched areas or sequences on the mound as a common meta-goal. In this respect, the project will embrace a problem-oriented approach incorporating methods of archaeological science informed by the old and new data from the site. More specifically, the new project will concentrate on the following research aims and problems:

- To contextualize Çatalhöyük within its southwest Asian and Anatolian cultural landscape by implementing mobility and network studies,
- Embracing a diachronic and long-term perspective of Neolithization in Central Anatolia from the Epipalaeolithic to the Early Chalcolithic,
- Focussing on Early Çatalhöyük occupations to understand the idiosyncrasies of the daily life of the first inhabitants in terms of settlement and house organization, subsistence, technology and ideology,
- Continuous focus on Late Çatalhöyük East occupations to explore the cultural-economic changes and abandonment processes of the East Mound,
- Exploring the emergence and development of occupations on the West Mound and the possibility of co-existence of Çatalhöyük East and West communities,
- Researching post-Neolithic communities and activities at Çatalhöyük.

These are some of the broader questions our team would like to tackle, I now report briefly on the fieldwork that has already been completed at the site (Çilingiroğlu *et al.* in press).

The 2018–2019 fieldwork seasons during the summer months lasted for 14 weeks in total. The team comprised mostly Ege and Poznan students alongside students, interns and researchers from multiple countries and



Fig. 1 Group photo from the kick-off meeting “Çatalhöyük in Context: Current Perspectives in Eurasian Neolithic Research”, 6th–7th May 2019, Berlin. (Photo: Hannah Gilb)



Fig. 2 The East Area at the end of the 2019 excavation season. (Photo: E. Sözel)

institutions. As mentioned above, a new excavation area has been opened on the East Mound where our work already produced interesting and exciting new data (Fig. 2). This area, which we now officially call the “East Area” has never been subject to excavations before. Excavating in this part of the mound has several objectives. First of all, it allows us to understand the occupational history of the East Area and its temporal relation to the South and North Areas as well as to the West Mound. It provides evidence of the density of occupation in relation to recent discussions on the population size at Neolithic Çatalhöyük. It also gives us the chance to compare and to contrast socio-economic parameters of the East Area with other areas on the mound to infer co-existence of different communities at Çatalhöyük. Finally, the East Area excavations also offer insights into the regional contacts and influences as well as on exchange and transfer of raw materials, technologies and cultural trends.

After laying out a 50x10m trench with an East-West orientation on the East Eminence of the East Mound, team members began to remove the topsoil which included Neolithic and post-Neolithic materials in mixed deposits.

Already in our first season it became clear that the East Area contains burials of Late Antiquity. It turns out that this part of the mound was used as a cemetery long after Neolithic occupation ended. In both seasons, 21 burial features were excavated under the supervision of biological anthropologists. These burials contained single inhumations in flexed position, some with superstructures of stones and tiles. In all cases, the burial pits cut through the Late Neolithic deposits.

One of the achievements of the 2019 season was to fully excavate a Neolithic building. It is a rectilinear building with three rooms. As typical for Çatalhöyük,

the walls were made of mudbricks and both, walls and floors, were plastered. The rooms had crawl holes in between them to allow access. One of the more interesting features that we encountered were horns embedded into the opposite walls of the building (Fig. 3). Although these immediately remind one of the horn installations from the Classic Çatalhöyük buildings, which are found along the northern walls, we can emphasise that the East Area installation is less elaborate, less monumental and contains sheep horns instead of aurochs horns. Still, one can talk about a continuation of a long-term practice in a new form.

An initial assessment indicates that the settlement organization of the East Area repeats some of the well-known features of Late Neolithic Çatalhöyük houses and material culture. Radiocarbon dates from these deposits range between *c.* 6200/ 6100 and 6000/ 5900 cal BCE. The houses appear to be packed, adjacent to each other and do not share walls. They are surrounded



Fig. 3 One of the sheep horn cores protruding from the mudbrick wall in Building 175. (Photo: M. Dembowski)

by large open areas designated as “middens”. The plan, size and internal organization of buildings with separate rooms, crawl holes and horn installations also resemble in some respects Late Neolithic houses. Therefore, the East Area offers a potential to investigate the Late Neolithic occupation and culture history at Çatalhöyük. The bone industry, pottery and lithics indicate wider regional networks, emphasising Çatalhöyük’s involvement with contemporary communities in Cappadocia.

The new team looks forward to upcoming seasons of work at Çatalhöyük to keep producing new knowledge and insights on this unique Neolithic site of southwest Asia.

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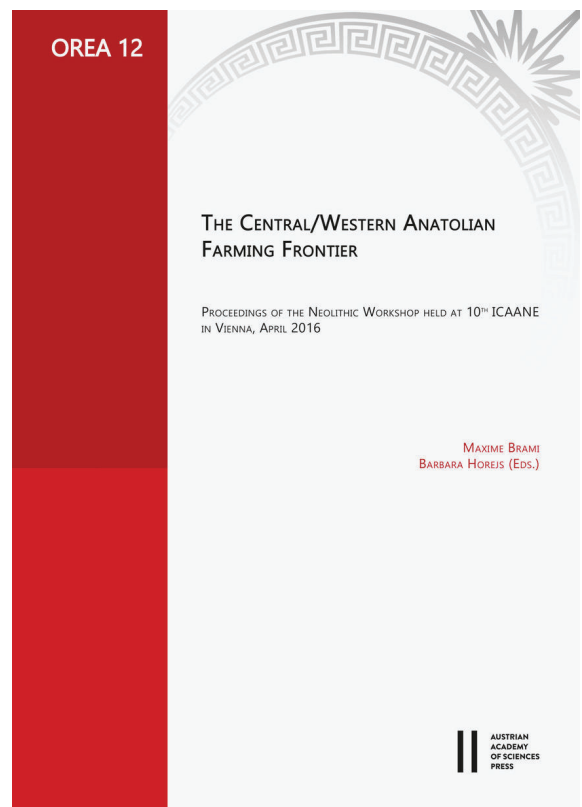
Review of Maxime Brami and Barbara Horejs (eds.), 2019. *The Central/ Western Anatolian farming frontier. Proceedings of the Neolithic Workshop held at the 10th ICAANE in Vienna, April 2016*. Oriental and European Archaeology 12. Vienna: Austrian Academy of Sciences Press. ISBN: 978-3-7001-8415-7. € 149,-.

The reviewed volume is dedicated to the spread of the Neolithic innovation-cluster. Modern research often refers to these innovations as Neolithic package(s), *i.e.* a bundle of components that may change during its spread. Among the novelties of the Neolithic are new technologies (*e.g.* house-building, weaving, ceramics, axes, ground stone, kiln building, copper working), economic strategies (*e.g.* agriculture, animal husbandry, craft specialisation), social habits/ ideologies (*e.g.* figurines, communal building) and lifestyles (*e.g.* sedentism or villages). Most of these elements have long traditions in hunter/ gatherer-societies, but their recombination has a dramatic effect: Wherever it is adopted the Neolithic results in a way of life that differs drastically from that of hunter/ gatherers and also leaves societies little choice of stepping back.

While the diffusion of the Neolithization from the Fertile Crescent to the neighbouring regions is among the most important shifts in human history and can barely be underestimated, the spread of the Neolithic is still poorly understood in many key areas. Due to the fragmentary record in the majority of regions, the basic question debated even today is the arrival of the Neolithic way of life and on a larger scale the reconstruction of the diffusion of the Neolithic technologies.

Major breaks within a relatively fast diffusion can still be seen in the North European Plain, the Carpathian Basin, the southern Levant and Western/ Central Anatolia. The volume reviewed here, edited by Maxime Baily and Barbara Horejs (in the following “editors”), presents new data from the last region. The papers presented were part of the International Conference of the Archaeology of the Ancient Near East (ICAANE) in Vienna in April 2016. As such its publication in 2019 in the series Oriental and European Archaeology published by the OREA (Institute for Oriental and European Archaeology, Vienna) is a welcome addition to future discussions. The book is a mixture of case-studies and super-regional perspectives. (The summary of one of the editors that “archaeological perspectives dominate with one exception (T. Carter)” (30) is rather surprisingly, since Tristan Carter’s paper is certainly also pure archaeology). Part of the papers were presented in Vienna, while others were added subsequently. All papers were anonymously peer-reviewed and in a second step accepted by the Publication Committee of the Austrian Academy of Sciences. This as well as the price raise the expectancy for a highly polished and elaborate volume.

The book begins with the foreword by the series editor, who is also one of the editors of the volume,



Barbara Horejs (“Preface by the Series Editor”, 9-10), who presents a short overview of the articles. Stephen Shennan presents another introduction, which is slightly longer, but offers the same information as the previous one (“Introduction”, 11-13), it ends with a large map presented on two pages on which a selection of sites is shown. The map ranges from the Aegean to Mesopotamia and includes all sites mentioned in the text as well as the “farming frontier” that is mentioned in the title. The sites themselves do not follow any system except for their naming in one of the articles in the book. A third and final introduction is finally given by Maxime N. Brami, the other editor of the book (“Anatolia: From the Origin of Agriculture ... to the Spread of Neolithic Economies”, 17-43). It tackles the classical work of Ammerman/ Cavalli-Sforza (1971) and presents the main topic of the book in more detail than the previous two introductions, namely then “when”, “how,” and “who” of the introduction of farming into Central/ Western Anatolia: When did it happen, how did it happen, and who was responsible. Part of the paper is spent by noting that similar or same names and phases may refer to different chronological periods and economic stages, which is true for most of Eurasia. The style is reminiscent of an oral presentation, and the broadly painted panorama of what is ahead can be, out of necessity, neither deep nor detailed. With reference to Trevor Watkins’ the Neolithic is designated as a ‘portable and artificial ecosystem’ (25), and the author wonders whether more than one Neolithic package moved from the core area. There are some points worth considering, such as the proposal of focussing on the settlement intensity or the emphasis of the existence of multiple packages. Yet the unpacking and re-packing of

the latter should be further considered with reference to the topic of the volume. The paper does present a thorough review of current research, but many of the problems referred to result from the consequent top-down approach and the lack of discussion of contexts and site-specific data. Brami considers, for instance, whether imports of Neolithic artefacts make a site Neolithic or not, as well as, the exact position of the titular farming frontier, and the question of whether sedentism preceded agriculture is also not new.

In the second part Brami lifts the discourse to a super-regional level, where models of Neolithization are discussed, among them the usual suspects, like climate change (8.2 ka event), but also new ideas from European prehistory as the necessity that some farming societies had to be on the move. The chapter ends with another short overview of the papers rather abruptly and concludes with an extensive bibliography. This leads to the main part of the book wherein different papers are presented.

Ofer Bar-Yosef makes the start and asks the question “When and Why Holocene Levantine Farmers moved Westwards?” (46-68). After a clarification of his study area, his narrative begins in the Upper Palaeolithic, 21,000 BC, (48) with the earliest evidence of crop domestication. Bar-Yosef’s approach classifies different periods of the Neolithization within neoevolutionary stages. For him, the PPNA is a “chiefdom” and thereby a crucial moment, “which was the start of the Neolithic Revolution” and the PPNB represents an additional evolutionary development (48). Bar-Yosef stresses the important impulses given to the Neolithization process from the southern Levant and elaborately discusses current climate deterministic models. The last parts of his paper are especially interesting as they finish with the arrival of farmers in Central Anatolia. Bar-Yosef stresses that a complete socio-economic system is transferred and evolves into Big Man societies.

Douglas Baird’s paper (“A Phantom Frontier and the Wild West? A View from the Neolithic of Central Anatolia”, 69-83) is partly a summary of several papers co-authored by D. Baird, one of them unpublished, which are repeatedly cited without specific pages. This part would have profited from better editing, as in its current form it is difficult to assert the author’s claims. This, in turn makes his thought-provoking key messages difficult to follow (74-76). The rest of the paper deals with other sites. Baird proposes local roots in the Central Anatolian Neolithic based on “solid evidence of a later Aceramic Neolithic” at Hacilar (77). Founded on this line of thought, it is no surprise that the “agricultural frontier” in the title of this book is in Baird’s own words a “phantom frontier” (77).

The next contribution is written by Tristan Carter (“The Significance of an Insular Aegean Mesolithic to Processes of Neolithisation”, 85-101). The highly interesting paper offers a well-illustrated overview of Mesolithic maritime networks and discusses their impact on the spread of information and the Neolithic way of life. While the paper was thoroughly enjoyed

by the reviewer, the connection to the topic of the reviewed volume as well as its place within a longer argument is not well defined. The paper presents evidence for an information substructure that preceded the Neolithization. Yet, it is not clear how this affected the neolithization process in general and especially in Western and Central Anatolia, even if other papers (e.g. Özbal/ Gerritsen and Çilingiroğlu in this volume) come to similar conclusions. Eva Rosenstock’s article (“Dot by Dot: Phase-mapping the Central/ Western Anatolian Farming Threshold”, 104-126) compares maps of the Neolithization and points out how the lack of detailed maps presenting exact sites and classifying the quality of information has led to misconceptions and misunderstandings. Rosenstock also presents a very useful table of sites in which she qualifies dates for known sites in Anatolia (118-121). The next paper (“Çatalhöyük and the Emergence of the Late Neolithic Network in the Western Part of the Anatolian Peninsula”, 127-142) is written by Arcadius Marciniak and focusses on the famous site in the title. After the presentation of excavation data, the author describes what he calls “economic and social foundations” of the Late Neolithic at Çatalhöyük (132f.): New breeding and herding strategies for cattle are named foremost among these, as well as over time a successively shrinking catchment area for wood extraction. On the social side of the arguments, Marciniak sees a shift from communal organisation to kin-based organisation, or, to be more precise, the emergence of the “self-sufficient household”. This is brought forward as the explanation for more intensive animal and plant exploitation, among them milking, which would have resulted in the “exploration of new ecological niches” and the alteration of the environment of the settlement. Craft specialisation would have finally emerged within this new world. This new socio-economic bundle would then spread to the west. Marciniak’s well-presented narrative of what he calls the “second Neolithic transition” (138) ends with Çatalhöyük, thereby stressing the importance of its imagery and its central role for the reinvention and further spread of the Neolithic.

Mehmet Özdoğan’s contribution follows next (“An Alternative Look at the Neolithisation Process of Western Anatolia: From an Old Periphery to a New Core”, 143-158). He points out the difficulty of finding and excavating Mesolithic sites that are essential for understanding many problems of the discourse (145). The paper’s main thesis is based on two arguments, namely the frequent establishment of Neolithic sites on virgin soil, and further the nonexistence of any technological relation with Mesolithic lithic assemblages (146). Özdoğan presents a model of large-scale expansion from the Fertile Crescent into southern central Anatolia and Cyprus before 7,200 BC and then in a second step to the west into Western Anatolia, the coastal parts of Greece and southern Thrace as well as Crete. Thereafter Özdoğan discusses the mode of this expansion and brings forward maritime travels,

going back to Childe's initial idea that the Anatolian highland with its cold winters would be unsuitable for the expansion of the Neolithic. In the case of the Eastern Mediterranean, such links can be traced via direct connections visible in contemporary Neolithic packages, but for the Anatolian plateau similar evidence is still missing (149). He concludes with a map highlighting ten zones (A1-3, B1-2, C1-2, D, E and F) and suggests that the move of two Neolithic packages, which during their spread created new cores for further diffusion, can help to explain the chronological differences between these zones. His conclusion is careful and proposes that future research should focus on the different pottery traditions (monochrome vs. painted) and their association with lithic traditions.

Barbara Horejs presents new data from Çukuriçi Höyük ("Migrating and Creating Social Memories: On the Arrival and Adaptation of the Neolithic in Aegean Anatolia", 159-180). It is contextualised within the Aegean and Western Anatolia. Horejs frequently draws attention to "longue durée connectivity" (e.g. 159, 161, 166, 169) culminating in a model in which five elements, namely "adapting innovations/ starting new traditions", "transferred and transformed narratives", "shaping local identities", "migrating people/ migrating memories" and "longue durée impact", are singled out to shape a "set of memories. Skills, ideas, beliefs, practices, world-views" (169, Fig. 7). The model suffers from the imprecise use of terminology often resulting in redundancies (e.g. "innovations and technologies" 171; "know-how, experience and knowledge", 169), and the lack of reflection upon the underlying theoretical background as it was devised by Maurice Halbwachs (1925, 1985), who is paradoxically not cited even though a whole paragraph and a long footnote is used to elaborate the concept of "Creating Social Memories" (170). It is, nevertheless, a somewhat original contribution to describe what Horejs calls the "contradictory accumulation of different skills, ideas, beliefs, practices, technologies and world-views" (171).

Rana Özbal and Fokke Gerritsen discuss a long-term Six-Stage Model for the spread of Neolithic culture into northwestern Anatolia ("Farmer-Forager Interactions in the Neolithisation of Northwest Anatolia: Reassessing the Evidence", 181-210). The idea is vividly conveyed by long-distance travels of Epipalaeolithic and Mesolithic groups, from which, according to the authors, it can be concluded that "networks of interaction between Central and Northwest Anatolia may have long predated the spread of agriculture" (184; Stage 1 "Epipalaeolithic and/ or Mesolithic Groups in Northwest Anatolia"). Based on plausible evidence, they can show that at the end of their Stage 2 ("Aceramic Neolithic sites in Northwest Anatolia"), residences of small groups precede the larger-scale migration that followed. This borderland scouting stopped at Thrace, but whether the reasons are ecological or cultural remains unclear for the moment. In Stage 3 ("Pioneering Pre-Fikirtepe Neolithic

Communities") they can segregate single elements that will be essential for the further spread of the Neolithic into the Balkans and Central Europe. Stage 4 is dedicated to the Fikirtepe culture ("Established Neolithic Communities in Northwest Anatolia: The Fikirtepe phase") and offers a detailed look at architecture, settlement organisation, subsistence and burials. Stages 5 ("Continuity and Change in the Early Chalcolithic Period") and 6 ("Middle Chalcolithic Period and Beyond") are relatively short and lead into a different discourse that is beyond the scope of this volume. The paper ends with a consideration of models of farmer-forager interaction mainly from the European discourse and rightly points out the need for more data in the Stages 1-2.

Çiler Çilingiroğlu gives an overview on house building plans in the late 7th/ early 6th millennia BC ("Circular, Oval and Rectilinear: A Note on Building Plan Variability at Neolithic Sites in Central-West Anatolia", 211-222). The paper is clearly structured, and a handy overview is given in Table 1. After a careful discussion Çilingiroğlu challenges the idea that round buildings are the result of Cypriote or Levantine impulses and instead manages to accentuate local origins going back to the Epipalaeolithic (218).

Kostas Kotsakis ("Neolithic goes West: Concepts and Models on the Neolithisation of the Aegean", 223-240) presents a criticism of what he calls "formal models" (225). This reviewer had issues following Kotsakis in his rampant argument; while Kotsakis rightly claims that formal models have difficulties of describing human culture, this criticism is mostly based on the implicit equation of human culture with archaeological culture and thus simplifying the discourse for the sake of criticism. Other parts of this paper result in astute remarks on the lack of agency and the general passive nature of recipients.

Jean Guilaine finishes the volume with a paper translated by one of the editors ("The Neolithisation of Europe: An Arrhythmic Process", 241-250). He presents a short, general overview of the spread of the Neolithic to the West. Lags within this diffusion are the result of eight factors: A. Demography: loss of momentum [...]; B. Procurement networks: decline in the exchange of materials maintaining [...] a cultural superstructure [...]; C. Native resistance: opposition of local Mesolithic cultures [...]; D. Environment: change in environment [...]; E. Climatic conditions: climatic crises or mini-crisis [...]; F. Identity: deliberate choice by the migrants to break with ancestral practices [...]; G. Ideology: gradual loss in historical 'memory' of migrant groups [...]; and H. Society: settlement dislocation linked to [...] crises [...]. Guilaine admits that this list is not exhaustive and continues to browse over the major 'halts' of the Neolithisation in Central/ Western Anatolia, the southern Levant/ Egypt, Western Greece/ the Western Mediterranean, the Middle Danube/ Central Europe and the North European Plain. Thereafter, the book finishes with a useful index (251-257).

The volume presents a good variety of papers, slightly overbalanced in the number of introductions. It would have profited from more editorial polish. The role of some papers within the book does not become clear and they feel disjointed. General overviews are prevalent in the volume, but do not reflect on each other; readers will have to decide for themselves how the models, arguments and counter-arguments presented by Brami, Bar-Yosef, Özdoğan, Kotsakis and Guilaine mirror the new data provided in the case studies (or conflict with them). There is well-founded criticism scattered in the volume and the data provided, for instance, by Rosenstock, Özbal and Gerritsen and Çilingiroğlu will necessitate rethinking the greater narratives. The same is true for the case studies from the sites of Barcın (Özbal/ Gerritsen), Boncuklu (Baird), Çatalhöyük (Marciniak) and Çukuriçi (Horejs), which provide good summaries of current research projects that would have benefitted from more intensive inclusion in the debates. These difficulties are, of course, inherent in all conference volumes, and there are also options to circumvent them, like summary chapters, cross-references between the papers or editorial interludes. Only the papers of the editors make use of a few cross-references to other papers.

The lack of contextualising information makes the volume hard to digest even for those archaeologists who have specialised in the topic and region. This might also have clarified some very strongly presented opinions and seemingly very clear positions in the volume. D. Baird's strong argument, for instance, would offer a great lever for one of the summaries. At least Kotsakis' severe criticism of one of the other contributors of this volume (namely Mehmet Özdoğan) would also have been an excellent opportunity for further discussion in this volume. Furthermore, it would be worthwhile to point out (and debate) the drastically different notions various authors have on Neolithic societies. Ofer Bar-Yosef's neo-evolutionary analogy of the PPNA with chiefdoms, for instance, conflicts with several papers that seem to assume less centralised and less stratified societies. This reviewer would also like to stress the parallels concerning subsistence (including plants used as food), technology, sedentism and even art with Upper Palaeolithic complex hunter-gatherers. Ethnographic stages have been criticized for arbitrarily selecting periods within histories of indigenous peoples and claiming them to be universal to human social evolution (*cf.* for instance also Jung's (2011) elaborate criticism of "Big Man societies", which have been constructed as a theoretical *Bindeglied*). Consequently, the dynamics and specifics of these people are ignored in favour of presenting them as surviving relics from a bygone age (*cf.* Wolf 2010). While the PPNA does feature a great number of spectacular finds, it is still a hunter-gatherer society as it is known from other places and other times, for instance in the Magdalenian and Gravettian. The main difference is that the following PPNB is unique to the Fertile Crescent.

Future contributors will have to discuss the data and come to further conclusions. The reviewed volume does offer good starting points for future work, for instance in the respective papers by both editors. It would be interesting to further elaborate on how the "contradictory" (as Horejs calls them) admixture of local elements and innovations affected the farming frontier and the further diffusion of Neolithic innovations. Is this what Özdoğan calls the formation of new centres? It would also be intriguing to have Brami reconsider his overview and contrast it with the different positions in this volume when considering the Neolithic as a "portable and artificial ecosystem" (25)?

The volume shines with a solid hard cover, very good (but few) colour pictures, and a DIN EN ISO 9706 certification for permanent archiving. This impression is slightly diminished by the sparse number of figures in several papers and minor formal shortcomings, including incomplete sentences (*e.g.* "...farming villages of the # basin such as Göbekli Tepe...", 49); spelling mistakes (161, Footnote 10 "...in the same plateau of the Calibration Curve"); a tendency in some papers to refer to specific information from longer papers without referencing the pages (*e.g.* 69-75, Footnotes 3-11, 13-14, 17-19, 23-37, 39-41 *etc.*); missing pages in literal quotations (*e.g.* 224, Footnote 7); putting important information that belongs into the main text into footnotes (*e.g.* 168, Footnotes 42-44); missing references on research by other people (*e.g.* "wave of advance model", 224, should refer to Ammermann and Cavalli-Sforza 1971, and "In this 'thick description' of Neolithic life...", 234, should at least refer to Geertz 1973); or incorrect cross-references ("Rana Özbal *et al.*" instead of Özbal and Gerritsen on pages 159; 159, Footnote 5; 160, Footnote 6). Errors in the respective bibliographies are pleasantly rare; to name a few that were met during random sample of the papers, references are in one paper put into the footnotes otherwise into a separate bibliography (12-13, Footnotes 2-4); there are online resources that were checked last time in 2016 (126); Özdoğan 2014 is not listed, but referred to within a bibliography (174); referenced literature is missing in the bibliographies (*e.g.* "Brandl in preparation", 163, Footnote 29); and there are a handful of spelling mistakes ("Sörensen" instead of Sørensen, 178) and formal errors ("Olsen, Bjørnar" instead of B. Olsen, 238).

Despite these points of criticism, the volume is an important step in the ongoing discussion on the spread of the Neolithic from its origins to the West and will doubtlessly stimulate further discussion. It will be a welcome addition for specialists and research libraries, and I would like to thank editors and contributors for their work.

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In Memory of Ofer Bar-Yosef: A Personal Reflection

Avi Gopher

In the middle of March 2020, Ofer Bar-Yosef had passed away at his home in Israel – a great man, my teacher and mentor, a highly accomplished archaeologist, a human being. I had parted from him as you would a person you love, with great pain.

I had been asked a few weeks back to write something in his memory for the journal of *Neo-Lithics*. Although I had consented, I found it very difficult to write – it was at the onset of the worldwide spread of the COVID crisis, which had affected us all. Facing fears, concerns, and uncertainty that had taken over our lives and despite the fact that we had been home bound with time seemingly available for pondering and contemplation, I struggled to put words to paper. Ofer was my mentor and teacher and had greatly inspired my disposition as an archaeologist, but beyond that, he had influenced my disposition as a human being.

What I lay down in writing here signifies a relationship lasting over 40 years, starting at the end of 1975 and ending only now. I found myself recalling my student years under his guidance, working at the field, or conducting discussions at the lab, during travel, sometimes even over the phone, and attempting to consider those issues from my perspective of here and now. Beyond the multitude of stories, some quite amusing, which I recalled, I found myself pondering over life in general and my personal history as well as my long, and good-standing relationship with Ofer, my formative years of schooling in Jerusalem, my scientific work, and the decisions I had come to take over the years. Little by little, I became ever more cognizant of the ways by which Ofer had influenced my own way, primarily during the earlier stages of my (professional) life, and the influence he exerted on me through his kindness, wisdom, and mostly – his acceptance of me for who I was (not an easy client) sometime during the second half of the 1970s and the first half of the 1980s. It seems to me that each of us, his students, and certainly his many collaborators and friends in Israel and abroad, carries with him a bundle of memories comprising both stories known to all as well as stories and episodes privy to no other, the content and significance of which depends on one's perspective, a word, and perhaps even a silence. I write here of both, with awe and reverence, delving at time into personal points, which, from my perspective, are occasionally perhaps too personal. In many ways, then, the first part of this text unfolds my stories, to the extent to which they were intertwined with Ofer. The goal, however, is for these selected short tales to help expose some of Ofer's multifaceted and captivating personality as I assume the role of the narrator.

Neo-Lithics is the journal that transpired from the first meeting, in Berlin, of the group known also



Fig. 1 Ofer at PPNA Netiv Hagdud, Locus 21 (c. 1984), in search for mudbricks. (Photo: Archives of the Prehistory Department, Hebrew University of Jerusalem)

by the name *Neo-Lithics* (following which also came the series of PPN conferences from PPN1 to PPN9 to date), in which I participated in 1993. As both Ofer and I had participated in many meetings of this group, and as this journal centers on the Neolithic period and its different aspects, emphasizing lithic assemblages, it is but natural to refer to this chapter of Ofer's scientific work – a long, intensive period of research – its essentials and outcomes. This narrative is not meant to be a learned synthesis of Ofer's work but rather a view through my own experience and understanding gained through my own perspective of observation and select memories.

I first met Ofer when I had arrived at the Hebrew University in Jerusalem at the end 1975. I was his student consecutively, never doubting or straying, until 1985. I had written my doctoral dissertation under his guidance, concentrating on the Neolithic period,

the period which had caught my attention throughout the course of my studies and ever since then. The relationship with Ofer was highly intensive, on a daily basis, in both the classroom, the laboratory, and the field. Ofer spent a sabbatical year at Ann-Arbor in the US while I was writing my dissertation in Israel, and at the era of ordinary postal services, I received his edifying comments over the pages of the text that had been shipped from the US in his handsome, decisive handwriting. The nature of the relationship changed as Ofer moved to teach steadily at Harvard University starting 1988. I had not frequently travelled to the US, and I had met him in his new university settings in Cambridge, MA only one time for just a couple of days during which I had also stayed at his home.

I had arrived a few days late at my first year at the Hebrew University of Jerusalem and following a few minutes of searching in the disarray of the construction site later to become the Har Hatsofim (Mt. Scopus) campus, I had found the back side of the old archaeology building (among the first buildings built between the two world wars, in the Mt. Scopus campus of the Hebrew University of Jerusalem). There, I encountered a short man wearing some thick glasses arranging equipment in a vehicle parked by the entrance (it was later established he was a professor at the Hebrew University). I asked where they were headed, and he said: Southern Sinai; I asked whether I could join (southern Sinai was an enchanted place in my eyes, where I had travelled for weeks on end). He replied with a question: Who are you? he asked, and I responded that I was a student of archaeology. When have you started? he asked, and I responded: Today, although I have not yet attended my first class. He said he was sorry as this survey-tour was designated for advanced students only, but he suggested that I could help load the equipment – and so I had.

Very simple, natural, with a smile and in high-spirits – I immediately felt good. I believe he did not join that excursion but I can no longer recall. A few days later, I had arrived at the prehistory introductory class that he had taught, and I noted a wise man, enthusiastic and enthusiastically stimulating, who was characterized by a broad view, sharp speech, and kindness as he discoursed with students following him at the end of class, asking their questions. I was immediately drawn to the subject, and the early review (the opening classes) of the course spanned from the earliest of early (Paleolithic) and up to the Agricultural Revolution that had won a place of honor (of which I had heard prior to my studies and which held a great interest within me). I was greatly impressed, and this introductory class turned out to be one of the most fabulous I had ever attended. The desire immediately sprung within me to become a partner. Back then, I did not understand what archaeological laboratory work entailed or what was transpiring in the prehistory lab that was located at the basement floor of the building. Neither did I know that the field work in northern Sinai had just concluded and the field work at southern Sinai had not yet begun.

During the rest of my school years, my second and third years of undergraduate studies and later during my graduate and post-graduate studies, my university life had sprouted in several concurrent avenues – all heavily intertwined with Ofer. I cannot tell much, and I am certain I had forgot some, but I recall stories attesting to Ofer's personality, his attitude towards students and people in general, his scientific work, and his perception of the university as well as the academic world at large.

Classes were formidable, although for two of my undergraduate years during which I was studying under the auspices of the prehistory section, I was its only student (there was one other student – Dodi Ben Ami – an elder man, well-known and highly familiar with the field, having possessed knowledge of flint tool knapping and well-experienced in surveying different parts of the country, a family man who showed up inconsistently). Some of my classes with Ofer took place while driving, mostly through the Jordan Valley, namely, the area of Jericho, Netiv Hagdud, Gilgal, Wadi Fazael, points of flint sources in these areas nearby Al Auja, and north of Wadi Fazael, on the eastern slopes of Israel's mountain backbone. The conversations that took place during these travels were inciting and instructive, clearly attesting to the broad range of knowledge Ofer had of prehistory worldwide and his full involvement in the profession in the deepest and broadest sense of the words. An amusing anecdote occurred during my third year as I was about to complete my seminar essay



Fig. 2 Ofer at the PPN1 Workshop (1993) in Berlin, talking with Leslie Quintero (in front of them: Klaus Schmidt). (Photo: H.G. Gebel)

on the Acheuleo-Yabrudian cultural complex (later dubbed AYCC). I had requested to present my work in class as did all my colleagues from other sections in the department, and he agreed and came with me to the classroom. While I was presenting on the stage full of awe and reverence, he had soon dozed off only to awaken as I ceased talking. We had then returned to the laboratory for a cup of coffee accompanied with

a discussion of the AYCC, which had continued after he had read my paper. This paper left a warm spot in my heart for the AYCC and later, many years later, I became fortunate to dig, starting in 2001, a well-preserved AYCC site – Qesem Cave – which Ofer had visited on a few occasions as well. The discussion that had transpired back then, had now found its way into my daily reality decades after its occurrence.

Laboratory work involving the analysis of flint tool assemblages began during my second year, and Ofer, who introduced me to the work, said: “Pop into my office whenever you have a question and bring with you the tray containing the item in question, I shall respond, and you would be able to continue.” I thus found myself harassing him at his office at the end of the hallway quite often with a tray full of flint items and a mouthful of questions. Sometimes, I would even barge in during meetings he had held at his office. He never expressed unease nor did he reject me, rather – he looked, responded patiently, and continued his affairs as soon as I had left the room. During that year, I had already started working under Ofer’s guidance (as well as Nigel Goring-Morris’s guidance, in whose room I was initially situated) on flint (and stone) tool assemblages originating in the Neolithic sites of southern Sinai. This learning adventure was fascinating to me as I had participated in the excavation at these sites, one of which eventually became the subject of my graduate (MA) thesis, submitted to Ofer in 1981: Wadi Tbeik. At the laboratory, I had met a well formulated group of smart, knowledgeable, and highly motivated colleagues: few were undergraduate students, and most were Ofer’s graduate and postgraduate students, some whom also taught certain parts of the program’s curriculum. Among them were Naama Goren-Inbar, Anna Belfer-Cohen, Nigel Goring-Morris, Esti Mintz, Uri Baruch, and shortly after, also Steve Rosen, Dani Nadel, Yossi Garfinkel, and others as well as short-lived visitors to the lab. I was fully engaged and had spent many hours in the laboratory studying, and studying, and studying in between discussions that had taken place during many coffee breaks by the laboratory desk with Ofer and whoever else was there that day. It was schooling at its very best – open, free, and broad ranged. Retrospectively, it had turned out to comprise a formative phase (for me, for all of us, and I think even for Ofer), a phase that had given birth to the prehistorians of the future who had spread throughout the country.

An event I recall from these days: I arrived one morning at the laboratory to find that someone had been working at my desk, opening bags, and removing materials from them – in this case, faunal remains. I went to Ofer and said that despite my meagre stature, it was unacceptable to me that someone would rummage through my desk unbeknownst to me and would leave such disarray. It turned out to have been Professor Eitan Tchernov and one of his students who had come to prepare something on which they had been working at the time. I turned cheeky, and demanded

an apology and that my desk would be tidied as well. Ofer responded without a shred of hesitation: You are right, we shall fix this. And so it was. Despite my discomfort and feelings of uneasiness as the source of potential friction between Ofer and Eitan, who was his best friend and partner – his response made me feel as if I were in the seventh heaven – suddenly, I was confident about my place there. Retrospectively, as I write this text, I realize that many of our conversations and the events we had jointly experienced were time-withstanding lessons well-assimilated within me.

Field Work

Frequent excavation seasons in southern Sinai, summer excavation seasons at Hayonim Cave, and other field projects in which I partook alongside Ofer were fabulous, clever, precise, and superior, while also bringing the greatest joy. It is such a pity that the Neolithic project of southern Sinai was never fully published despite numerous discussions Ofer, Nigel, and I had about the possibility of publication. We were all too busy, and yet I am still hopeful that such a publication would materialize despite Ofer’s absence or the absence of his ideas, knowledge, and experience.

The general idea of the Sinai project led by Ofer was to dig sites in various points of the cross-section of southern Sinai (from the Gulf of Eilat in the east to the Gulf of Suez in the west) in order to portray, from a broad perspective, the adaptation of PPNB societies to their barren, desert, environment and retrace their seasonal mobility. Indeed, PPNB sites were excavated at the climax of the southern Sinai mountains, nearby the famous Saint Catherine Monastery (the site of Ujrat el Mehed, aka Banana, due to the banana-shaped extension over which it is located); the site of Wadi Tbeik at Jabel Guna half way up the mountain to the north, and the sites of Wadi Jiba near the Gulf of Suez in the west. No site was found in the lower parts of the eastern side of the section. Following one of our discussions on the matter while at the field, Ofer said to me: “Go seek a site in the eastern slopes.” This was somewhat uncharacteristic as he was typically rather concerned, and it sounded out of line for him. Nevertheless, things were set in motion, the jeep had taken me to the area that we had marked on the map, and I set out on my solitary quest. I had repeated these adventures on several occasions but other than a few random flint artifacts scattered about, I was unable to identify a site. The feeling swept over me, yet again, that he trusted me, and perhaps even testing my experience through these solitary journeys. The southern Sinai Neolithic project was accompanied by a survey of Bedouin encampments in the area, a form of ethnoarchaeological study conducted by Naama Goren-Inbar and Israel Hershkovitz with the goal of promoting insights (*e.g.*, regarding seasonality) into the Neolithic period; this project added an interesting dimension to the work in the area. I can share that



Fig. 3 Ofer at the ppn6 Conference (2008) in Manchester, inspecting blade technologies). (Photo: H.G.K. Gebel)

the journey into the southern Sinai excavations, comprising some 15 excavation seasons of 2-3 weeks each, the drive down there, the adventures on the way, the amazing archaeology, the camps erected next to the sites and the friendships that had emerged there – all combined into a momentous, singular, fascinating experience, and it was my great fortune to have been a member in this journey alongside Ofer and many other wonderful persons that had partook in it. I believe that Ofer, too, was overjoyed with the project, and I had only ever seen him get upset once in all those years, when a troublesome student had caused damage to one of the stone walls at the site of Abu Madi I.

During one of these Sinai excavation seasons, I had witnessed the first steps of what would later become a firm life-long partnership, a family, between Ofer and Danny, his wife. During another, I had also met my own wife, Anat.

I remember my resolve to follow Ofer and observe as he wrote and sketched in his diary during the Sinai excavations. In my early days in the field, with hardly any experience whatsoever, I had requested this of him, he agreed, and said nothing. It was clear that he felt gratified in these moments of recording, observing, occasionally measuring a stone or an elevation using an unfolding wooden ruler, sketching, and writing, in his remarkable handwriting, in pencil. A few days later, I began asking questions, to which he responded unreservedly. Still a few days later, I began measuring

– at his request – and discussing with him the things he wrote and sketched. In a subsequent season, he suggested that I begin drawing stones – a wall. I started, and he helped me learn how to use a 1 x 1 m wooden frame with a string grid of 10 cm and respectively using millimeter pages to draw at a scale of 1:10. That summer at Hayonim Cave, it was my good fortune to sketch a great many stone piles and sections, and then later again during the southern Sinai excavations. I felt he was happy for me for having learned this basic recording method comprising accurate stone by stone and section drawing as well as diary sketches and schematic sections reflecting insights from the observations at the site. I had assumed the method, the graph diary, the pencil, and I felt really good about them. To this day, despite orderly, sophisticated recording methods, I still scribble in my graph diary in pencil.

Ofer had a rare talent for observation and the drawing of his observations, and he was additionally highly skilled in drawing tools of different matter (flint, stone, bone). I later found out he had additionally taken to water color painting and towards the end of his life had painted with color pencils – works at which we would occasionally sit and look at together at his home in Kfar Saba upon my visits there. The ease of movement as he worked, alongside his precision and the clear happiness emanating from him as he drew or painted, were one of the most wonderful things to watch throughout the excavations in which I participated. His sketches were beautifully, accurately, and swiftly executed, with characteristic pencil strokes – indeed, he was a talented man.

During the annual excavations at Hayonim Cave in the 1970s, we had lived in a school at the city of Carmiel, which was empty due to the summer break, we would eat a quick breakfast, and drive to work at the cave. I received some encouragement from Ofer when it turned out that I was a quick omelet flipper, which allowed for all team members to have an omelet for breakfast without it causing any delay in our departure to work. That was where I had first encountered disciplined work regarding the exposure of skeletons, conducted under the guidance of Professor Baruch Arensburg, Ofer's good old friend. I remember carrying up the slope the plastered block of the ornamented pelvis retrieved from Structure 5 of what we had considered to be a distinguished Natufian woman (although a debate ensued whether this was the remains of a woman or a man). I took it upon myself to carry the block as we had walked towards the cars, and Ofer walked by me. This was a simple portage job, but it was etched in my memory; Ofer was worried and said nothing until we had arrived safely, at which point he released a sigh of relief.

Another interesting, short field experience with Ofer took place in the Qafzeh Cave at an excavation that span over the course of two weeks or so. Ofer thought I should be exposed to the research potential of studying the Mousterian, while I preferred studying

Neolithic cultures. There I learned from Ofer about the need to follow weather forecasts and discuss the projected weather with colleagues – even when weather changes were inconsequential with the exception of the occasional hot, dry, and sandy Khamseein winds – because everyone likes talking about the weather, and discussing it leaves a good impression of politeness. There, Ofer had also taught me that according to accepted table mannerism, one should not leave the table until everyone had finished eating, unless two people facing each other were leaving the table together. He was concerned that I would not be able to upkeep the practice, so he suggested that we both sit facing each other as we were in the habit of eating at a much faster pace compared to our French colleagues. And so, we both left the dining table together during meal times. I found it amusing and had happily collaborated.

Following the peace treaty between Egypt and Israel and the transition of Israeli army forces to areas within the Green Line, particularly in the Negev area, a survey was conducted of areas that would potentially suffer damage during this transition. I was not a regular member of the surveying team, and chanced to visit on one occasion when Ofer was there, too, as he came to see some of the sites that had been found. One morning during that visit, we found our vehicle locked with its key inside, and Ofer was concerned that we would have to cause damage to it by forcing it open. I offered that I could open the car without incurring any damage to it provided that he and the others would step away. Following some short negotiations, he agreed and I had unlocked the car (using some “hardware” I had still carried with me back in the day). When everyone had returned to the vehicle, Ofer was busy seeking for any signs of damage, which he could not find. He never uttered a word about it. He had understood, and accepted it.

My first independent excavation of a Neolithic site occurred as a result of the relationship that had formed between us over the course of my undergraduate studies. One morning in the laboratory, during my third and final undergraduate year, Ofer asked me: Would you like to excavate a Neolithic site by yourself? I didn't need even a split of a second to respond: Of course! (despite not knowing to what site he was referring). Ofer explained that he would not be able to participate in the educational excavation of the Ben-Gurion University of the Negev in Be'er Sheva conducted by Isaac Gilead and is requesting that I excavate the Neolithic site of Qadesh Barne'a 3. Following some preparations, transfer of records from his earlier test excavation at the site, and plentiful good advice, I set off to the excavation on my own for the very first time. I had made nearly every mistake possible – made it, and corrected. Reporting and correcting meetings with Ofer ensued, and eventually, after numerous years, so did a publication. Again I had felt that Ofer trusted me, and that was very important to me. Ofer's trust in me had assumed another form, starting when I had just begun my graduate studies as he suggested that I read papers

he was writing and act as the devil's advocate prior to their submission for publication. These were papers on the Neolithic period, in which I was interested (such as the 1981 paper mentioned below). And this was another great lesson impressed upon me – not only with respect to the scientific conduct, but also and mainly regarding his approach, his way of thinking, trust, and respect embodied in his act – traits of Ofer that I had not encountered in many others.

Ofer was meticulous in his work both in the field and later in the laboratory. Even when he was in a hurry and was pushing for faster results, he never once deviated from the resolution and sifting guidelines determined for the site. He was uncompromising with regards to methodology and resolution. He was also meticulous in his investigation, focusing not only on his own work but seeking to understand what others were doing within their own frame of reference. This diligence of his was not entirely in line with the passion he expressed when discussing any archaeological issue, which did not always transfer to his writing. Yet, these were two facets of the very same person.

While his patience abounded with any student and excavator, it was occasionally shortened vis-à-vis persons outside the system, even visiting professionals. One time, he had called me to his office to explain that I should go and describe to some visiting experts what a burin was and help them analyze some findings which they had found in some survey because they were unfamiliar with these. I was surprised because I was just an undergraduate student and these were expert archaeologists ranking highly within the academia, and did as he beckoned. At the end of the day, he explained that he did not like so-called experts who came to work as professionals without preparing themselves and familiarizing themselves with knowledge that was pertinent to the task at hand – another of his valuable lessons assimilated deep within me.

As I concluded my undergraduate studies, Ofer had suggested a partnership excavating the PPNA site of Netiv Hagdud. This made me very happy, and following a few days of work that I had conducted with some labor men in the early 1980s, we had several blissful and successful excavation seasons climaxing in the publication of the book that had summed the project. Upon our initial agreement, we had also agreed to prepare a grant proposal for the procurement of excavation funds. We had indeed prepared it, and as in those days, we had to photocopy many copies and send them off by post. As I had not yet made a living from archaeology at that time, and had worked off campus throughout my undergraduate and graduate programs, I had to leave for my workplace. Ofer said he would prepare the copies and that the following day we would send them all out. The following day, however, when I arrived, no copies had been prepared and Ofer asked that I do it. For some reason, given my mood that morning and following a sleepless night, I had confronted him immediately, saying that if the partnership meant for me to be a bellboy who photocopies and goes to the

post office, then this was no real partnership. Ofer had looked at me, thought for a brief moment, smiled his familiar smile, and said: You are right, I shall photocopy and send, as I promised. I never asked, and I have no idea what had transpired the previous day and why things were amiss, but I do remember his face, his brief moment of thought, and then his response. This was another lesson, one that I am not certain I had learned well, but I had done my best to apply it since I began teaching and working with students.

Excavating seasons at Netiv Hagdud were interesting and informative, involving many partners and visitors studying the biology and genetics of cereals, once we had realized that botanical matter had been preserved in large quantities. We had additionally surveyed the area, including Jericho, while Ofer had conceived of and prepared the paper about the walls of Jericho. Other surveys included the area of Fazel, Gilgal, and the Salibiya Basin. Things progressed quite smoothly with a few eccentric exceptions involving volunteers (mostly girl volunteers) who had insisted to hitch rides to the kibbutz Yeitav in which we were staying, standing a crossroad in a small local settlement that had not regarded the practice favorably, gave reason for concern to Ofer and occasionally also resulted in some complex rescue acts. Additionally, one young volunteer from a country east of the Iron Curtain almost caused herself medical damage due a passion she developed towards bananas – a fruit that she had not encountered previously in her life. Some awkward yet amusing discussions took place between Ofer and myself on how we might help her accept the fact that the bananas, grown by the kibbutz, were a common commodity that would always be available in the dining hall so that there was no need to hoard them, or overconsume them.

During that time, as a graduate student, I had written my first research proposal on my own to facilitate work in the Neolithic site of Mujahiya in the Golan Heights. When I went to submit it to the University's Research Authority, I was asked to have Ofer sign it as my partner, as he had been my supervisor. I responded that Ofer had nothing to do with it, he was aware of my proposal, and was not interested in taking part in the project, and further erupted into severe criticism and other exclamations directed at the amazed professor to whom I was submitting the proposal. The proposal was thrown to the bin under his desk, not without my (nearly violent) response. A day or two later, Ofer had approached me and asked what had transpired at the Research Authority. Undoubtedly hearing the version of the professor, he had asked why I felt forced to slam his desk. So, I explained, and he said: You are right, I don't know what I would have done in your place – yet another lesson assimilated within me.

When I decided to pursue my doctoral studies, I had approached Ofer and come to an agreement with him regarding the subject of my study: Neolithic arrowheads, an exercise in relative chronology to be verified by absolute chronology available back then.

Ofer had not intervened with methodological issues concerning the computerized analysis I was conducting or with the software which I was using. Many interesting discussions nonetheless took place on other aspects of the work over the years. Despite his travels abroad, we had long, productive discussions regarding my work, and I feel that we had a reciprocal understanding that the study was well-conducted and within the spirit of what he considered fine scientific work. His input concerning the contents of my study was both fascinating and contributing. As I approached the end of my program, Ofer offered to help me find a place where I would be able to continue my work. Among others, he suggested that I work at the Israel's Authority of Antiquities thinking I might exert some influence there, that I teach at the Ben-Gurion University of the Negev in Be'er Sheva (where Dr. Isaac Gilad resided as a single prehistory staff member), or that I turn to Tel-Aviv University, where there was no active prehistory staff member at the time. I chose the latter and found a favorable audience following Ofer's conversations with the heads of the department. This remains my professional home to date.

I published only occasionally with Ofer, focusing on Netiv Hagdud, including our joint book on the site, and the Gilgal sites (with Nigel Goring-Morris). I went my own separate way, and our relationship never evolved in that direction, so that joint publications were never our common denominator. Notwithstanding, we had many encounters and held many discussions when we met or over the phone, as well as when he visited Israel; we met at conferences and we exchanged visits at excavation sites. I had always felt that Ofer was keeping me current with his new endeavors and the realms of scholarly prehistory from which I was distant. I never felt this was a reciprocal avenue of exchange. Even when I had shared with him the developments that had taken place during his years of absence, certainly others did so more elaborately. Ofer had visited every excavation I had ever conducted, often with Danny. He had visited the northern Israeli PN site I was excavating at Naḥal Zehora, my excavation at Naḥal Ḥadera V which he had tested in the early 1970s, Kumran Cave 24 in the Judean Desert, the Qesem Cave at different points of excavation, and finally the Neolithic site of Naḥal Yarmuth 38 in the year 2017-2018. When he had finally returned to Israel, we had met on several occasions in Tel Aviv University, in Jerusalem (to where I had travelled to meet him), and finally in his house in Kfar Saba where we had talked a little about archaeological concerns, daily matters, and family until he had stopped talking, after which remained the exchange of looks and his familiar smile. I feel the need and duty to mention the dedication, dignity, integrity, and great matter-of-factness of Danny throughout this struggle, who conducted herself without surrendering all that was possible for her and Ofer, including travels and visitations, and without feeling sorry for herself. I offer her my greatest appreciation for this.

Ofer's Scientific Work on the Neolithic

Ofer was exceptionally observant in the field. When I had first started working with him, it was challenging for me as a youngster, to settle this fact with his thick glasses – but I was greatly mistaken. Ofer had an outstanding propensity to see and understand the sites and their environment as well as a deep understanding of the overarching framework of archaeology, as one who lived it fully and meaningfully.

Ofer was a giant, a man of extensive knowledge and deep, astute familiarity with the entirety of prehistory – from the Lower Paleolithic, through the Middle Paleolithic, the Upper Paleolithic, the Epipaleolithic (which was the subject of his seminal dissertation, including widespread fieldwork throughout the country), the Natufian (which was his central soft spot, perhaps since his excavation of Naḥal Oren and certainly since his excavations of Hayonim Cave, and recently also of Naḥal Ein Gev II). He had some insights into the Chalcolithic world and even the Bronze Age concerning certain subjects and areas. Many central themes repeatedly emerged in his work regarding the studied period: fundamental issues of archaeological methodology (at all levels), relative and absolute dating, defining ancient archaeological entities (cultures), dynamics of transition between periods and cultures, environment, climate, spatial distribution and the spread of people and ideas, and many others. Particularly interesting, and in my view, illuminating with respect of not only his pure scientific work but also his personality, was his work about central persons pioneering the study of Levantine prehistory such as Dorothy Garrod and Francis Turville-Petre.

He was a tenacious reader with superb memory – at least that is how I perceived him to be. He was deeply acquainted with diverse subjects of interests and activities, and was always curious to hear more and stay current with professional literature to further expand his knowledge, in the event anything unfamiliar crossed his path. He was thus never a stranger to any novelty of archaeological thought or conceptualization, starting with the New Archaeology, which I had first encountered when I met him in the 1970s when it was still at its peak or perhaps slightly beyond. Indeed, following his recommendation, one of the first books I had read during my school years, almost as soon as it was published, was *The Early Mesoamerican Village* by Kent Flannery who was at leading edge of the New Archaeology. Undoubtedly it was a fascinating, amusing, and highly informative book.

Ofer had gained his experience with Neolithic sites as a student, and even earlier, as a volunteer (for example, his work at Naḥal Oren alongside his teacher, Moshe Stekelis) as early as the end of the 1950s, and later, during the 1970s, he had worked throughout the little Neolithic presence found in northern Sinai sites. He was fully dedicated to his work on the Palaeolithic periods and yet taught and engaged significantly in the subject of the Agricultural Revolution and the Neolithic

period. His class known as “The Origins of Civilization” is favourably remembered, as is its hidden-in-plain-sight premise that the origins of Western society and its central social institutions are in the Levant.

Ofer's interest in the emergence of agriculture was expressed during these years, the late 1970s, in both writings concerning the Natufian and many discussions in which he repeatedly noted that good Natufian sites representing its late phases must be found in order to clarify the events that transpired at the time (Naḥal Ein Gev II was one such site, and he had indeed returned to excavate it in his last years along with Leore Grosman and Anna Belfer-Cohen). This was also the reason for which he was interested in the Khiamian culture, which, in his view, had preceded only by a little the appearance of the PPNA as it was then known from famous sites such as Jericho, Naḥal Oren with which he was familiar, and the Middle Euphrates sites in Syria.

I remember clearly the publication of the first review paper on the Neolithic period in 1977, published in a Hebrew outlet aimed for both the professional and general communities. Despite its lax style, it was inclusive and current. It was the first orderly and comprehensive – and admirably so – portrayal of the period in which were already expressed the issues and perceptions that will later be echoed in his research

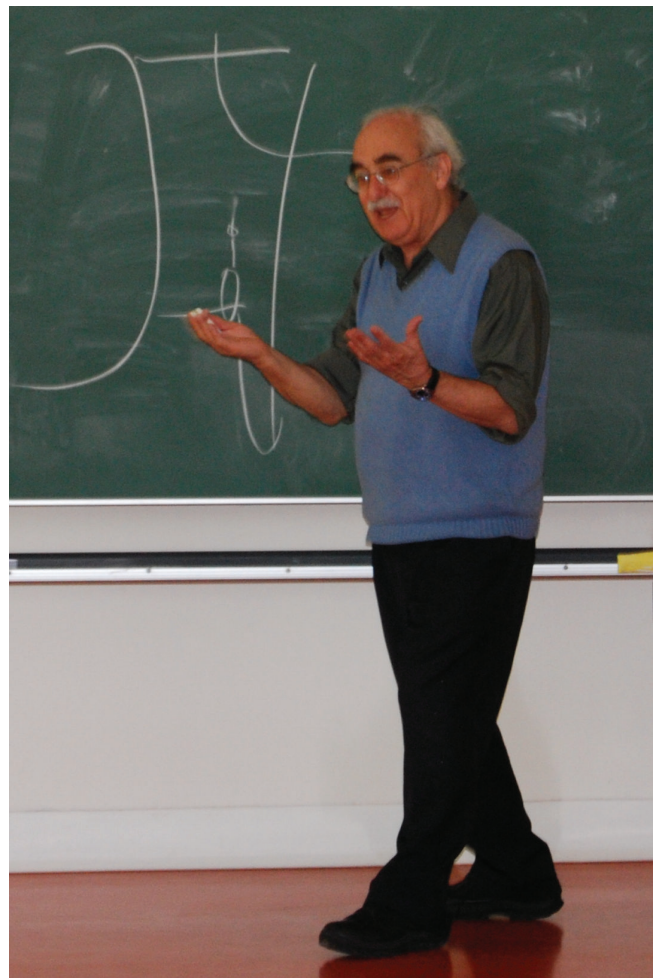


Fig. 4 Ofer at the Basta Final Symposium (2010) in Berlin, heading the final session. (Photo: H.G.K. Gebel)

into the Neolithic. In his introduction sections, he clarified methodological issues, distinguished between Paleolithic and Neolithic sites and the significance of the divide to the archaeologist, and generally stated – addressing both himself and to a new generation of archaeologists to follow – that a new frame of reference was required for the understanding of the Neolithic. Next in the article, he had reviewed chronology, the nature of sites, and settlement patterns; he had reviewed Neolithic archaeology and presented the basis for the new economy and society; he had not neglected a discussion on the environment, the climate, and their dynamics during that time; he included discussions of material cultural assemblages, namely flint and stone tools as well as architecture; and he had additionally discussed burials and rituals related to the dead, and finally – Neolithic art. His concluding section depicts Neolithic lifeways and their different components.

The paper was published while the PPNB excavation project in southern Sinai was underway and despite the clear Neolithic assignment of the excavated sites in Sinai based on their lithic assemblages (blade and arrowhead manufacturing alongside the absence of sickle blades and bifacial tools), they highlighted an aspect of Neolithic hunter-gatherer societies in the desert area rather than agricultural populations. Shortly after, the project of Netiv Hagdud had begun, a large and deep Neolithic tell site, and with it, Ofer's Neolithic research had transposed to one of the prominent residential centers in the Jordan Valley, nearby the site of Jericho that was excavated in the 1950s and the site of Gilgal that was excavated during those years by Tamar Noy from The Israel Museum.

Since then, Ofer had written many papers on the Neolithic period, both alone and with colleagues, in which the Agricultural Revolution in the Levant was placed into a broad context beginning with the Early Epipaleolithic, continuing through the Natufian, and unto its realization in the Neolithic. I shall note but a few of these publications to elucidate Ofer's contribution to the study of the Agricultural Revolution in our region. One paper I recall very clearly, was his 1981 paper that saw light in the *Préhistoire du Levant I*, in which was summarized the first conference by that name that had taken place at Lyon, France during 1980. In this paper Ofer had presented his view concerning the PPN period and its cultures. His methodological statement included notions regarding problematic slope-sites that generated many misunderstandings and errors, regarding a systematic definition of past cultures based on material evidence (alongside the presentation of quantitative data on the central tool types of the period), regarding relative and absolute and chronology, and regarding many other issues. He then presented the cultural bodies of the PPN (PPNA and PPNB). As early as this publication, his assessment was clear regarding the existence of the Khiamian entity (culture) that preceded the Sultanian culture and the presence of an Early PPNB phase at the southern Levant. This publication was sharp and direct, free of

naïveté, making it clear that Ofer believed chronology will emerge from carbon 14 dating and Neolithic material culture (flint tool typology for example), that he subscribed to the school of archaeological thought known as Culture History, and that in order to promote a deeper understanding of the findings, more field work was required including detailed reports of archaeozoological and archaeobotanical records.

In 1989, another summative paper was published, co-authored with Anna Belfer-Cohen, in the *Journal of World Prehistory*. This extensive summary reflected the growing significance Ofer had assigned to the discussion on climate and the environment in which the Agricultural Revolution took place, the evolutionary (pre-adaptive) basis for change and the systematic assessment of cultural change which was based on the ethnography of both hunters-gatherers and other pre-industrial societies as well as an anthropological theory of cultural change. Following a thorough review of the region and the environment, came reviews of Epipaleolithic cultures, including the Natufian culture, and a review of the PPN world. The part of the discussion involving the change that had transpired during the Neolithic period is, in fact, an anthropology of sorts of the past – a description of how the transition occurred from hunter-gatherer bands to larger, sedentary and industrious, settlements. The place of the Natufian culture became central to the understanding of this transition, in which the PPNA was the realization of pre-adaptations that had transpired during the Natufian. The emphasis placed on the influence of the environment and its resources as a central factor in the transition emerged in this paper and remained prominent later on as well. In that same year, a second paper coauthored by Ofer and Anna Belfer-Cohen was published, which had made me very happy. This was a paper discussing the interaction sphere of the Levant (Jacques Cauvin's *koiné*), which was well-aligned with my view and the results of my doctoral study and consequently my early publications in which I had referred to the Levant as a single plane of human interconnectivity. Nevertheless, I had not devoted time to write elaborately or systematically on this subject and I had not developed this idea to the breadth and depth that Ofer and Anna had. I shall not further detail the many publications by Ofer on his own or co-authored with Anna and others. The foundations of his perception in these regards and the ways by which he explained the Agricultural Revolution had not considerably changed over the years, although they benefitted from his growing knowledge and experience, which allowed for greater nuancing and distinction in certain aspects. Archaeology played a central role in them, alongside the vast archaeological knowledge he estimated was required to be amassed for this purpose, issues of field and laboratory methodology, the necessity of defining cultural bodies in a systematic, orderly manner (essentially following Gordon Childe's good old principles), and the necessity of backtracing their natural resources. The answer to the question Why this

transition had taken place was also present throughout these publications, although it assumed different facets reflecting changes that had occurred in Ofer's train of thought. As early as 1991 (in a publication with Anna Belfer-Cohen), he had adopted an evolutionary, slightly restricted yet clear, view of cultural change and offered a series of criteria that he thought should be investigated in order to better assess the Neolithic transition as it was reflected, first and foremost, in the archaeological record. He was and remained forever true to the archaeologist in him.

Answers to questions of When and Where had the Agricultural Revolution and plant and animal domestication occur ran deeper over the years, and were eventually synthesized in 1995 in a book edited by Thomas Levy. Here were expressed his notions regarding the crucial role of climate and the environment and the relationship between these factors and the emergence of agriculture (these ideas were reiterated in a paper he published in 2002 with Anna Belfer-Cohen titled "Facing environmental crisis: societal and cultural changes at the transition from the Younger Dryas to the Holocene in the Levant"). The paper also presented a discussion regarding the pace of domestication (that is, How the transition had occurred); however, despite keeping current with his time, he did not present a conclusive position, at least with respect to plant domestication. Here, too, the Natufian culture was allocated a central role on the way to the revolution, the PPNA also played a key role, and the suggestion was raised that the emergence of agriculture took place in the lower Jordan Valley. Other issues laid out in this paper that depict Ofer's interest in aspects beyond Culture History namely: shifting cultivation, anthropology-based socioeconomic change mechanisms, social organization, and specifically, the change in gender relationships and the status of women in the new emergent Neolithic society. Only a dozen years later, in a book co-authored with Yosef Garfinkel published in 2008 on the prehistory of Israel (Hebrew), had Ofer presented, very briefly, a well-formulated opinion regarding the emergence of agriculture. This time, it was clear that he perceived domestication processes to have been prolonged and that the change was interlaced with a demographic expansion, the movement of matter, animals and plants (seeds), ideas, and perhaps even people throughout the Levant, who were responsible for spreading the revolution. Over the years and ever since 1977, in all the papers in which he had discussed the Agricultural Revolution, an important chapter was dedicated to animals and their domestication (an interest that possibly related to and was influenced by his long-lasting friendship and collaboration with Professor Eitan Tchernov). This had eventually led to a discussion on the emergence of pastoralism as extensively expressed in the edited book with Anatoly Khazanov, published in 1992, focusing on the emergence of pastoralism in the Levant.

In 2011, a volume of *Current Anthropology* following a Wenner Gen workshop was published

focusing on the emergence of agriculture worldwide. Moving away from the historical particularism that had placed the Levant – the region that he was studying – at the center of change, Ofer coauthored with Douglas Price the opening paper of this volume, this time assessing the issue from a broad global perspective rather than the Levantine one (which he represented throughout the 1980s, 1990s and later in both conferences and book chapters). Both the historical review of the study as well as the conceptual and theoretical backgrounds are extensive in this short manuscript. Here, Ofer's thoughts conjoined the general discussion on evolutionary ecology as he emphasized the Darwinist foundation of the Optimal Foraging Theory and assessed whether change occurs in times of stress or times of plenty. Possibly, his work in China (that has started as early as the late 1990s) was a trigger in this expansion of his view. Extending the discussion to the global arena and accepting the notion that the Agricultural Revolution and plant domestication had emerged more or less universally worldwide further supported his view that climate played a central role as the trigger of change; this time, however, it was viewed as a central driver at a much greater scope, tying the world together. The 2011 publication reflected a "shifting of gears" related to ideas he had expressed all along, as he shifted his emphasis from the key role he had previously assigned to the Levant in these changes to assigning the central role to the influence of global climatic and environmental forces instead.

In the following years, Ofer had assumed the approach of the protracted autonomous model school of thought regarding the domestication of plants (and an equivalent approach on the domestication of animals). Accordingly, he had become a proponent of a slow, protracted domestication process, that transpired through necessary phases of experimentation and cultivation lasting thousands of years prior to domestication (e.g., a paper from 2017 that was published as a chapter in the book "On Human Nature"). My own understanding of this process developed as quite the opposite, namely, that domestication emerged in a quick, rapid event that transpired in a single core area in southeastern Turkey and northern Syria. This I had elaborately detailed in a coauthored book with Prof. Shahal Abbo published in Hebrew in 2016, a copy of which I presented to Ofer. We were in agreement regarding only few facets of the domestication model. In the few discussions that we had held on the issue, I felt I had won him over with respect to a few points of my argument while failing to do so with other points. Thus, Ofer and I never reached unity of mind in this regard, leaving us in a disagreement which I respected and valued. Interestingly, and relieving to me, in a very recent paper that has been published after his death in an edited volume on textile production, Ofer discussed the origins of fiber technology in which he mentioned a point we had not always agreed upon: the fact that the origins of agriculture in the Fertile Crescent took place in a core area in the Middle Euphrates Valley.

An important facet of Ofer's scientific work was his practical-applicative worldview on the responsibility of archaeologists. He often said that the most important facet of our work comprised the reports – full, detailed reports covering the long span of excavation projects and analysis work. He would say that the reports would last forever, while interpretations may come and go, return, or disappear as they may. Indeed, he worked hard to leave such a legacy, as he regarded it his duty and responsibility towards future generations of archaeologists, and his uncompromising approach regarding methodology and resolution that yielded massive amounts of findings made it a hard goal to achieve. Recent discussions emerging in the Neo-Lithics community attest to the importance of this key issue – how we ought to publish and present the results of our work and what kind of reaction it would stimulate among both the professional community and the general public. While Ofer truly thought he is obliged, as an archaeologist, to provide full, detailed, final reports on his field projects, it was nevertheless clear that he could not and would not have deprived himself of the joy of interpretation, speculation, and construction of the “big picture”. In my mind, as in his, I believe, these two spheres were never in conflict.

Ofer was, in essence, an advocate of historical particularism but first and foremost, he was an archaeologist of Cultural History: a man who believed in cultures and communities that lived and defined past histories – which he bore in great reverence. Central to the periods and cultures that he studied were stratigraphy, lithic techno-typology, and his deep understanding of the environment and its resources. This did not prevent him from holding a broad evolutionary point of view concerning human culture. Nor did it prevent him from being a “post-modernist” in day-to-day conversations as well as discussion of the historical (whether prehistoric or recent) past. It cannot be said that he had turned away from ideology or that he thought it had no effect on humans – although his approach towards this issue was not always explicitly reflected in his writing. To that effect, I would say that the statement made by the editors of a volume presented to Ofer as he turned 70, that he did not correspond with post-modernistic notions, is only partially true. While such a statement indeed characterized his daily, practical archaeological work that was based on field work and meticulous data recovery and analysis, in his discussions and thoughts, he had assigned great significance to the background, ideology, perception, and agenda of scholars studying prehistoric periods, thereby realizing at least one facet of post-modern (contextual) archaeology – the facet that relates to the context of present-day researchers in their work. Early on, he would often tell me that any “gossip” concerning the people involved is important for its contribution to a better understanding of those people and their work. This statement was well-aligned with his practical ways. He was always current and privy to many small and large deeds and stories involving different researchers, and from these he had derived

some of his regard towards their scientific approach. Whether this attitude extended towards Neolithic, or earlier prehistoric people and the possibility of elucidating their agendas that had led to the changes to which they had led – is difficult to say; such an attitude, much in the spirit of Gordon Childe's *Man Makes Himself* (which was ahead of its time when published) would not have surprised me although it was indeed not fully expressed in his writing.

Ofer was a modest man. While it was clear that he had acknowledged his own capabilities, he would often sarcastically declare “I am Levantine” in order to exempt himself of further justification (yet as if responding a concealed argument). As my relationship with Ofer deepened, I considered this statement to be an ironic self-attesting paraphrase. Whether it was indeed so, and whether or not there was any intentional deliberation on his part in this, I never knew but I could make an educated guess.

Ofer was a superb listener. I first began noticing this skill of his after spending some time in both the laboratory and the field (I myself am not generally that patient), and it required several incidents, some of which I shared above, until I had fully realized this. Once I did, his esteem in my eyes was increased. He was also highly studious, always concentrated, always writing notes in his little notepads – everywhere he was, at conferences, in classes, in lectures, and at any meeting – as if there was something urgently important in the discourses to which he was listening that must not be lost or forgotten. Yet at the same time, he could listen and doze off – but he had the ability to stay focused and practical once awoken, as if he had heard everything and missed nothing.

Kindness and passion were his hallmarks and two traits required in order to establish the laboratory in which he worked in Jerusalem during the 1970s and 1980s. I was and am happy to have been a part of it, and it is still testimony to date to his investment in his students and the influence he had exerted over them. It was Ofer who had left a deep mark on prehistoric research in our region and had fostered a whole generation of scholars and teachers who had spread to all corners of the country. It was Ofer who had left a deep mark on me as a new emergent scholar and teacher, as well as a human being.

Rarely do we meet in our lifetime people who are fascinating, interesting, kind, and highly influential – and Ofer was one of these. I am fortunate to have met him and to have him share some of his life with me. I was always proud for having been his student, and I still take pride in this fact. I always found it a source of joy to visit with him and be one of his colleagues and friends. I am greatly saddened by his departure as there was always, always a very personal element in all of it – simple love.

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An Obituary: Geneviève Dollfus from Iran to Jordan and *Paléorient*

Rémy Boucharlat, Eric Coqueugniot, and Zeidan Kafafi

Emeritus Director of Research at the French CNRS, CNRS silver medal and former director of the international journal *Paléorient*, Geneviève Dollfus passed away on 29 August 2020 in her eighty-second year after a very long illness. Our good friend Geneviève was a specialist in late prehistory of the Near East, and she has always shown a great intellectual openness, being interested in all forms of art and culture, from all periods.

All those who knew her, prehistorians and orientalists, will remember her generosity and her commitment to collective responsibilities, archaeology, heritage, and the training of young people, especially in Iran and in Jordan. In addition to her exceptional human qualities, she was also always a very faithful friend and colleague.

At the beginning of her career as an archaeologist, she took part in the excavations of Henri de Contenson in the Damascus Area (1967-1968) in Syria before joining Jean Perrot's team in Israel (1967 to 1974) where, with Monique Lechevallier, she worked in particular at Abou Gosh, but most of her career as an archaeologist was linked to Iran and Jordan.

Geneviève and Iran

In 1968 Jean Perrot took over the responsibility of the Susa excavations project from Roman Ghirshman, thus he selected a few of his crew of the Israel fieldworks team, and Geneviève was one of them, to take part in the digging operations. Very quickly, in Susa, she became the second of the team of around thirty members. During the following seasons of excavations, and due to the increase of the number of the members of the team, which exceeded 40 individuals, her role and responsibilities became more evident and important.

The austerity of the raw brick walls of the castle of Susa and the more than intensive rhythm of the work were in harmony with Geneviève's seriousness, her sense of responsibility, her somewhat gruff character, but also her constant availability and her great generosity. Far from isolating herself from others, she liked to organize and facilitate the life of visitors to Susa, colleagues working in the region, especially Americans and a few Iranians, but also more "important" figures, French ambassadors or of other countries, curious to live in the "French castle". With everyone, she was genuinely welcoming, warm and curious about what everyone could bring, for she was in isolation in the castle for more than five months a year (Fig. 1).

From 1973 onwards, Geneviève headed the URA 19 team of the CNRS Archaeological Research Centre, called *Iran-Sud*, to intensively publish, especially



Fig. 1 Geneviève in Susa. (Photo: Archives J. Perrot, Nanterre)

after the interruption of excavations in Iran in 1979, interim reports on the results of the excavations of Susa Plain in the *Cahiers de la Délégation archéologique française en Iran (DAFI)*, a collection she edited. She herself published three of the fifteen volumes on her excavations in the collection.

Geneviève led an extremely coherent programme of ten excavation campaigns within the general framework of the ambitious scientific programme launched by Jean Perrot "Setting of the Susa Stratigraphic Sequence" over 5500 years of Susa's existence. This objective that had been of little concern for the first excavators of the 20th century and hardly more so for Perrot's predecessor, Roman Ghirshman (1946-1968). On three small *tepes* (tells) located less than 10km north of Susa, which had only been tested in the 1930s for their painted ceramics, Geneviève explored the periods between the end of the 6th and the beginning of the 4th millennium. In Djaffarabad (1969-1974), she brought to light the beginnings of the occupation around Susa in the very first centuries of the 5th millennium, and after a period that was very poorly represented, another period at the end of the 5th and the beginning of the 4th millennium, contemporary with the foundation of Susa. To better document the intermediate phase, she conducted a campaign on the Tepe Djowi near Djaffarabad in 1975 where she obtained the hoped-for documentation on this period. Finally, in order to achieve a better chronological link between the periods of each of the two sites, she conducted two campaigns at Tepe Bendebal, close to the other two, which corresponded to the end of Djaffarabad and the birth of Susa.

This work was carried out in a very stimulating research environment for Geneviève, since several American missions were working in the region over previous, contemporary and subsequent periods. It suffices to mention sites like Ali Kosh or Choga Mish and names familiar to archaeologists from the Near East, including Frank Hole, Helen Kantor, Henry Wright and Gregory Johnson. In this scientific ferment, Geneviève made an important contribution on the history of the settlement and the reconstruction of the way of life of the first sedentary inhabitants of Susiana.



Fig. 2 Field photo at Abu Hamid: In the afternoon, after the excavation, in the field, Geneviève (in the centre) fills in the daily graphic diary while some of the diggers finish some meticulous clearing. (Photo: Archives G. Dollfus, Nanterre)

Geneviève and Jordan

As a result of the Iranian Revolution in 1979, the Susa excavation project stopped, and Geneviève found herself obliged to return back to the Levant where she began her first steps as an archaeologist and excavator. Her main target became the investigation and study of the transitional period between the Neolithic and Chalcolithic periods in the south of the Levant in general, and in the Jordan Valley in particular; this would follow up her studies in the same period she previously studied in Iran. To do this, she launched a major Franco-Jordanian cooperative operation to excavate, with Professor Zeidan Kafafi of the Institute of Archaeology and Anthropology of Yarmouk University (Irbid), the site of Abu Hamid. This operation was an opportunity to forge

very strong links with Jordanian colleagues, Abu Hamid becoming a pilot school project for both Jordanian and French students. Fieldwork was carried out from 1986 to 1992 and continued from 1992 to 2007 by numerous study missions at the Institute of Archaeology at Yarmouk University (Figs. 2 and 3). The Abu Hamid archaeological sequence provided a better understanding of the “Chalcolithic” phase (a term that Geneviève rejected), going from the end of the 6th millennium to the beginning of the 4th millennium, falling between the sequences of Munhatta on the Palestinian bank of the Jordan River and Teleilat Ghassoul near the Dead Sea.

At Abu Hamid, Geneviève was given a nickname by the workers from the start of the first excavation campaign. Everything went very smoothly except the weather: due to heavy rainfall, work had to be stopped for several days. With no chance to excavate regularly and continuously. Geneviève became very unhappy, but the farmers from the Jordan Valley (some of whom worked for the dig) were very happy however. Due to this Geneviève received the affectionate nickname of *Umm Shitta* (Mother of rain).

The quality of the relations established reinforced her conviction, acquired in Iran, of the importance of working for the knowledge and promotion of heritage, with an almost meticulous respect for local culture and mentalities, insisting that the members of the mission neither make mistakes, nor offend sensitivities through ignorance of local morals, customs and beliefs. The first point was very clearly expressed through the various exhibitions that she piloted or in which she actively participated, whether in Jordan at Amman and Irbid (Fig. 4 and 5 left), or in Paris at the *Musée du Luxembourg* in 1986 (*La Voie Royale: 9000 ans d'art au Royaume de Jordanie*) and at the *Institut du Monde Arabe* in 1997 (*Jordanie dans les pas des archéologues*). Refusing to



Fig. 3 The excavation team at Abu Hamid in 1992. In the 2nd row, Geneviève is 4th from the left, Zeidan Kafafi is 6th, and Eric Coqueugnot is 12th. (Photo: Archives G. Dollfus, Nanterre)

address only the small circle of specialist colleagues, she always made sure to make herself clear and understandable to her audience. She thus gave numerous lectures on the progress of the work and regularly welcomed classes from the French school in Amman or from Jordanian schools, showing limitless patience in bringing to life the reconstruction of life in Abu Hamid. In 1990, in collaboration with Louise Desrochers, the mission's Canadian draughtswoman, she published a very didactic and bilingual cartoon book for children (Fig. 5 right) explaining the work of archaeologists in the field and in the laboratory. She also regularly organised visits to the site for both French (successive ambassadors) and Jordanian



Fig. 4 Inauguration of the exhibition "Abu Hamid, a 4th millennium village in the Jordan Valley" at the Department of Antiquities of Jordan in Amman (October 1988). Geneviève explains the photographic panels to Queen Noor of Jordan. (Photo: Archives G. Dollfus, Nanterre)

officials, who were always present to view the excavation and the material brought to light.

Very sensitive to the need to contribute to the training of young Jordanian and European researchers, she set up internships for French teachers and researchers at Yarmouk University (Jordan) and for Jordanian

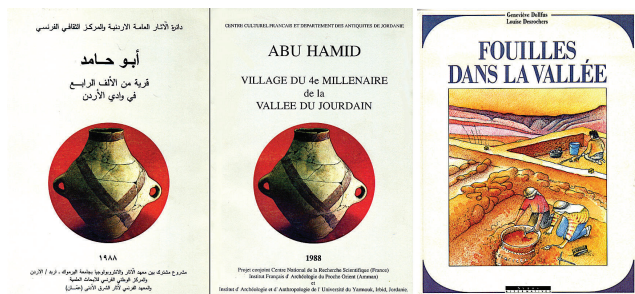


Fig. 5 Left, cover photo of the bilingual French-Arabic catalog of the exhibition organized in 1998 in Amman. Right cover photo of "Fouilles dans la vallée" (1990): Geneviève's personal interest in both popularisation with children and in drawing is at the origin of this children's book, illustrated with drawings by L. Desrochers, the Canadian draftsperson from the Abu Hamid mission. The book was quickly translated into Arabic and distributed to all schools in Jordan for educational purposes.

researchers in France, obtaining from the Ministry of Foreign Affairs doctoral scholarships for Jordanian students. In Jordan, as in France, Geneviève showed unfailing patience to help students, always remaining available to open her personal library or her Paris office. Demanding of others as well as of herself, Geneviève instilled in many young people habits of scientific rigor and she enabled them to give back the best of themselves (Fig. 6).

Geneviève and Scientific Publishing

A tireless worker, alongside her own research, Geneviève devoted a significant part of her activity to scientific publishing. She was in charge of the publication of the *Cahiers de la DAFI* (15 volumes published), the *Mémoires et travaux du centre de recherche français de Jérusalem* (volumes 1 to 5) and the *Cahiers du centre de recherche français de Jérusalem* (two volumes).

Geneviève was above all the soul of the journal *Paléorient*, founded in 1972 at the initiative of Jean Perrot and Bernard Vandermeersch within the framework of the *Association Paléorient*, but which became from its third issue a CNRS journal in its own right. Together with Monique Lechevallier, Geneviève was from the outset its editorial secretary, and then took over its management from 1994 to 2004, bringing *Paléorient* to the status of an international reference journal on the prehistory and environment of the Near East, a "multidisciplinary journal on the prehistory and protohistory of South-West Asia and Central Asia", as its subtitle emphasizes. For a long time, *Paléorient* was the only periodical in this field of research to bring together, despite the geopolitical problems of the region, Westerners, Arab, Israeli, Russian and Central Asian colleagues, allowing the exchange of ideas not only between archaeologists and prehistorians, but above



Fig. 6 Geneviève, Zeidan Kafafi and Susanne Kerner organised a workshop on the Chalcolithic in Jordan at the Institute of Archaeology (Yarmouk University). Among others, first row, Geneviève, Zeidan Kafafi, Jean Perrot, Susanne Kerner and Fuad Hourani; second row, Eric Coqueugniot behind Geneviève. (Photo: Hussein Dibajeh, Yarmouk University)



Fig. 7 Geneviève in her garden in Normandy (c. 1996).
(Photo: Geneviève Dollfus' family).

all between them and biological anthropologists, biologists, geologists, geophysicists, chemists. Open to spe-

cialists from all over the world, but also to young researchers, under the impetus of Geneviève, the journal *Paléorient* has always aimed at scientific excellence. It is an understatement to say that Geneviève devoted a very large part of her energy and passion to *Paléorient*, which became, if we can say, her emanation, her child.

Besides her own research, Geneviève was also fascinated by the itineraries of our predecessors; Geneviève was very interested in Jacques de Morgan, one of the pioneers of the exploration of Susa, whose versatility was astonishing. Before devoting himself to Susa, Jacques de Morgan had worked in Malaysia and in the Caucasus before heading the Antiquities Department of Egypt, where he contributed to laying the foundations of Egyptian prehistory. In this context, Geneviève made a major contribution to the publication by Éditions du CNRS in 2003 of Jacques de Morgan's travel journal in Malaysia, a journal illustrated with unpublished original watercolours and drawings by the author (*Exploration dans la presqu'île malaise par Jacques de Morgan – 1884*).

Finally, we cannot forget Geneviève's more personal interests for the arts in general and her hobbies of drawing and of her garden in Normandy, be it the vegetable garden or the flowers she loved so much (Fig. 7).

All those who have worked with Geneviève or who have simply rubbed elbows with her should remember her scientific rigour, her great human qualities and the strength of her friendship.

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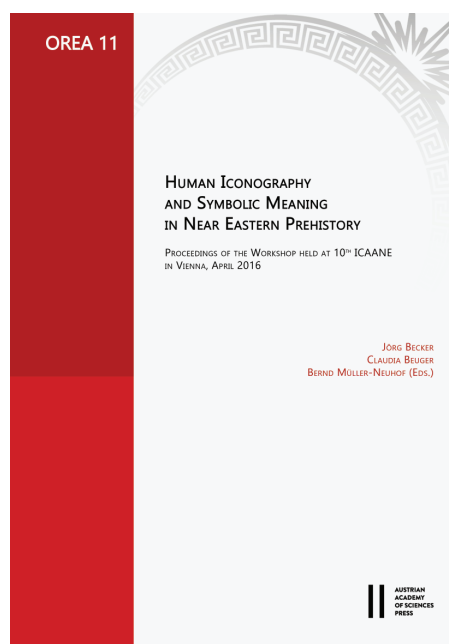
Review of Jörg Becker, Claudia Beuger and Bernd Müller-Neuhof (eds.), 2019. *Human iconography and symbolic meaning in Near Eastern Prehistory. Proceedings of the Neolithic Workshop held at 10th ICAANE in Vienna, April 2016*. Oriental and European Archaeology 11. Vienna: Austrian Academy of Sciences Press. ISBN: 978-3-7001-8205-4. € 149.-

The representation of humans is one of the most intriguing and fascinating subjects of prehistoric research. Humans are the only species that are not only able to create pictures of themselves, but that are also able to animate these depictions and to turn absence into presence by the creation of such representations. When looking at a face, we are conditioned by our phylogenetic heritage to instantly assess the mood of a person and try to catch a glimpse of their character. Eye tracking tests of museum visitors show that what people are looking at most are other people, especially their faces. Our genuine interest in prehistoric representations of humans, and to recognize faces in incised pebbles, is therefore probably due to our hope of gaining a deeper understanding of people in the past.

Having said this, it is evident that the Conference Proceedings of the 10th ICAANE workshop on “Human Iconography and Symbolic Meaning in Near Eastern Prehistory” have been anticipated impatiently (Fig. 1). Expectations were even enhanced by the editors’, Jörg Becker, Claudia Beuger and Bernd Müller-Neuhof’s, announcements in their preface that “the enormous increase in iconographic representations of the human being and the variety of anthropomorphic representations related to monumental structures [...] demanded a review of the type of human representation in the prehistoric art of the Near East. Such a re-examination must go beyond [...] aspects of fertility and divine representations by applying several well-thought-out strategies” (12-13).

The book assembles 13 contributions from very different fields of research: starting with disease patterns of entire populations to burial practices and from rather classical studies of human figurines to innovative ethological interpretations of depicted gestures. These diverse perspectives on human imagery had been chosen deliberately right from the beginning of the workshop. Regrettably, most of the communications on burial customs held at the conference did not find their way into the book. Yet, those who did, cover many aspects of the topic.

The papers can be grouped in three main clusters: The body, treatment of bodies – dead and alive –, and representations of humans, although the boundaries of these clusters are not clear cut. Michael Schultz and Tyede Schmidt-Schultz open up the book by using a broad brush and *longue durée* perspective and produce a bonanza of ideas on the health status of ancient populations. Their contribution synthesizes the results of a life-long project: Data from 21 different populations are compared, covering a vast ground encompassing



Neolithic Basta in Southern Jordan to Middle Kingdom communities of Elephantine Island in southern Egypt, Byzantine groups, European communities from all periods, and Pre-Columbian Grasshopper Pueblo communities of North-America (1300-1360 AD). Although one may wish for more examples from the Prehistoric Near East (e.g. Eshed *et al.* 2010), this methodological paper gives an idea of the potential of meta-comparisons in physical anthropology. The “disease-profiles” the authors show have far reaching consequences for the interpretation of social and environmental conditions among the investigated populations.

The two reports on burial practices at Dja`de el-Mughara and Tell Halula offer inspiring insights. They demonstrate the great inter-site variability, whereas internal coherence (at least within groups) seems to have been an important aspect of rituals. Remarkable differences emerge between both sites: On the one hand, at Dja`de el-Mughara the house of the dead (*Maison des Morts*) segregates certain individuals from the rest of the burial community, far too small to host all deceased inhabitants of the site. On the other hand, burial rituals at Halula were canonized, with subfloor burials in seated position in the southern parts of domestic houses. Differing numbers and types of grave goods and jewelry in – above all – child burials, seem to be veiled by standardization in burial rituals. The same holds true for the floor paintings, where individuals are represented in groups of almost identical persons.

The following contribution by Karina Croucher transgresses the border between burial and representation: With the plastered skulls of the Near Eastern Neolithic, the deceased definitely became a canvas for perceptions and concepts (Knüsel *et al.* 2010). The dead person was not present anymore, but was literally represented, at least for a while. In the frame of this short review, it is impossible to convey a profound consideration of Croucher’s stimulating approach. Her idea



Fig. 1 Group photo of the ICAANE workshop with [most of the] participants and organizers at Vienna, April 2016. (Photo: É. Coqueugniot)

of considering grief and bereavement in archaeological investigations of burial rituals can be traced back to the seminal publication by Sarah Tarlow (1999). Croucher was among the first to adopt Tarlow's idea and has vigorously pursued it for many years. She argues for the necessity to consider personal feelings and attachment to the dead person in order to understand the plastering of skulls. People wanted to keep alive a relationship that had been disrupted by death. As appealing as Croucher's perspective is, it still remains an open question why some individuals were selected for skull plastering and others were not.

Her contribution leads over to the most extensive part of the volume on representation of humans in art: from dressing the body (Beuger, Drabsch) to various forms of representations, like figurines of stone, clay or applications on ceramic vessels (Becker, Dietrich *et al.*, Müller-Neuhof, Nieuwenhuys, and Naumov and Biehl). Much has already been written on this topic (to mention just a few classics: Voigt 2000; Hansen 2007; Rollefson 2008; Schmandt-Besserat 2013) and speculations about the function of figurines seem to be endless: from toys to magic devices and goddesses (see Schmandt-Besserat 2013: 317-334). Irrespective of (careful) critiques (Stordeur 2010; see also Chamel and Coqueugniot, Becker, and Watkins this volume), Cauvin's original ideas of bulls as male and women as female goddesses still dominate popular reception. Rear-projection of historic or even modern concepts of the meaning of these ancient objects have hampered rather than advanced our understanding of prehistoric communities: attributing corresponding meaning based on corresponding shape precludes *à priori* any changes in meaning (e.g. Schmandt-Besserat 2013: 64; cf. Becker *et al.* 2012: 33). Despite this burdensome heritage, the authors try to overcome these hurdles with new data and interpretations.

Oliver and Laura Dietrich and Jens Notroff, presenting human representations from Göbekli Tepe, underline the practice of deliberate removal of skulls (of

sculptures) from the torso and depositing these skulls in prominent positions near the large stone pillars. Their contribution condenses a longer version, published in German by Becker *et al.* 2012. The map of the distribution of isolated sculptured heads included in the former publication would have been a useful item in the present chapter, too. Irritating is their remark that "more proof is needed to exclude a severe modern distortion of the archaeological record" (156). Their additional focus on death rituals at Göbekli Tepe promotes ideas of Klaus Schmidt (2006). However, their view appears biased. In light of the general deposition of human dead in domestic houses at contemporaneous sites in the Upper Tigris Region, it is obvious that the positioning of the dead in special buildings is – at least – uncommon.

Their designation of isolated heads (of humans or sculptures) placed next to the Göbekli Tepe pillars as offerings may be supported by isolated skulls discovered in two of the "communal buildings" at Jerf el Ahmar. However, it should be mentioned that there is only *one* (vs. Dietrich *et al.* 158) individual without a head at Jerf el Ahmar (in Building EA30 II/W). Far from being a regular interment, this young woman was thrown into the building, which was burnt down, and her skull removed only long afterwards (Stordeur 2015: 344-349).

The deliberate placement of sculptured skulls at Göbekli Tepe is also in good accordance with observations made by other researchers, e.g. Becker (181), who considers many of the Halaf figurines as deliberately destroyed, possibly during small-scale rituals. To conclude that the idea of a deliberate breaking of figurines started at Göbekli Tepe (Dietrich *et al.* 155) should, however, be discussed against a wider background of similar phenomena (see e.g. Vandiver *et al.* 1989).

Most interesting is the shift in figurine style, which is described by Naumov and Biehl for the Chalcolithic West Mound of Çatalhöyük. Although the inhabitants of the West Mound depicted humans on pottery and sculptured sophisticated bull figurines of marble, anthropomorphic representations were reduced to

almost unidentifiable lumps of clay. This shift in style highlights its intentionality and draws attention to the question of what let the creators of prehistoric art decide how to present the human body. Obviously, the well-known obese female bodies from Neolithic Çatalhöyük East were no longer *en vogue*. Comparing human skeletons with representations of bodies – the ideal how people wanted to see bodies – would be an interesting transdisciplinary research subject. To quote the central remark by Naumov and Biehl concerning human representation at Çatalhöyük West: “[...] the abstractness of anthropomorphic miniatures does not indicate lack of consideration for the human body. It could be regarded as a different sphere of embodiment which does not concern individuality and specific body features” (220).

With this focus on the dialectic relationship between artists and the community, we turn to further important contributions on the relationship of reality and imagery. What can be taken as granted in analyzing an image from the past? How can we decipher “the visual messages” (Naumov and Biehl 218)? These crucial questions are only touched upon in the rather positivistic, but nonetheless notable contribution by Claudia Beuger.

Beuger tackles one of the most difficult questions: how people were actually dressed. “[The] scarcity of such evidence within iconographical records and burials lead [Beuger] ... to assume that veiling clothes played a minor role in daily life” (103) during Neolithic periods and that only within the stratified societies of the late 4th and 3rd millennium onwards dressing-up became an important aspect of social status. She surmises that during earlier periods “clothes were of personal value” (103). However, Beuger’s arguments remain speculative since the absence of evidence is turned into evidence of absence. This is all the more problematic because other contributions show that figurines were made for specific purposes, above all for being broken during some ritual. Their nudity – if it was nudity – may have been related to this special function. Moreover, it might at least be worth discussing whether painted figurines were not considered being “dressed” (e.g. Becker *et al.* 2012; Schmandt-Besserat 2013; cf. Müller-Neuhof 140). Many motifs drawn on or applied to the figurines’ bodies are recurrent, e.g. cross-shaped lines across the torso, a motif that is retained from the PPN to the Halaf culture. Jörg Becker’s comprehensive presentation of Halaf figurines shows many painted. Becker stands out in his approach because he carefully evaluates the function of figurines within the context of the Halaf culture, without claiming to identify a general meaning for other temporal and spatial contexts. On the contrary, he explicitly distinguishes the probably household-based rituals from the supra-regional focus of some PPN communities.

The intentionality of specific styles is also demonstrated for the Chalcolithic wall paintings at Teleilat Ghassul. The reconstruction of these wall paintings by Bernadette Drabsch is one of the most

meticulously interpretations in the volume. Her ideas about the nudity and absence of clear gender markers on the bodies address a much-neglected topic. The western male-female dichotomy has long obstructed an emic view on bi-sexual or not clearly gendered figurines which are a common theme from the PPN onwards (see Hermansen 1997). Drabsch offers two possible interpretations for the a-sexual nude figures: that they either represented children during initiation rituals or that, due to their specific roles in societies, some individuals were considered neither male nor female. Her investigations do not stop here, and she goes on to speculate about possible experiences of the persons taking part in the procession depicted at Teleilat Ghassul. This phenomenological approach goes far beyond traditional searches of meaning of human representation. She comes to the inspiring conclusion that these wall paintings were “creating a unique *habitus* that was both outcome and stimulus”.

In a similar vein, the two innovative chapters by Olivier Nieuwenhuys and Bernd Müller-Neuhof advance research in the phenomenological and ethopsychological spheres, respectively, and contribute illuminating aspects to former interpretations. Müller-Neuhof presents a comprehensive analysis of gestures of figurines from Pre-Pottery to the Late Neolithic. He thereby distinguishes between “Gesten” and “Gebärden”. The former is considered “a sign that has a fixed, quasi-lexical significance, which the sender assumes is known to the addressee”. Unfortunately, the English language does not make this same distinction and Müller-Neuhof goes on to use “gesture” in the above sense. His definition masks the difficulties of his approach. Gestures are not fixed interculturally, but can be interpreted in different ways, with these differences often being the cause of deep misunderstandings in communication. Müller-Neuhof elegantly avoids this trap by presenting a range of meanings for each identified gesture. This methodology of accepting a range of interpretations is quite promising. Taking this approach a step further would need, as he himself concludes: “more detailed information about the find context” (145). However, as amply outlined by Jörg Becker and others from the volume, figurines are rarely found in their primary contexts. So, it may possibly be more promising to compare figurines with other depictions of humans in the same cultural contexts.

The emphasis on context and on tactile experiences when studying the humanoid applications on ceramic containers, constitutes the strength of Olivier Nieuwenhuys’s text. His original perspective is not only refreshing, it also reminds us that the outer appearance did not have to be precise, as long as the meaning of a symbol was deeply embodied in a community. A photo-realistic representation did not necessarily have a stronger impact than a quick sign, of which everybody knew the meaning and strength.

Each contribution thus brings in a different, stimulating perspective. However, the expected synergies are largely missing. The expectation that the

closing chapter by Trevor Watkins would fill this gap is sadly disappointed. Nonetheless, it is still a pleasure to read his impressive essayistic synthesis of his many years of interdisciplinary research. His contribution is among the profuse harvest of the Templeton Foundation Project, initiated by him and Klaus Schmidt. Working with neuroscientists, cultural anthropologists and psychologists promoted his grand view on the Neolithic Evolution. When he elegantly comes to the conclusion that the megaliths of Göbekli Tepe were super-human *beings* but no super-human *agents*, it may sound somewhat undecided, but this reflects the “liminal” situation that he claims for the people of the late 10th millennium (Benz and Bauer 2013). They were hunter-and-gatherers, but forged a wide-ranging network; their symbols make us think of a canonized system, but can we speak of an emerging “doctrinal mode of religion”? Who created these symbols? Were these the acephalous large-scale communities Watkins thinks of? It seems that there is a long way to go until we can reach an understanding of these communities on a general scale but granting to each their own paths and paces without trying to fit them into a single “Neolithic” evolutionary track.

One gains the impression that the whole subject deserved more in-depth investigations. For example, the different styles of figurines from the contemporaneous sites of Çatalhöyük West with their deliberate neglect of gender and individuality and the female Halaf figurines of Upper Mesopotamia would have been worth a short comparison. Bi- and a-sexuality of many figurines is mentioned but is not the main focus of any of the contributions. The pressure to “publish or perish”, often causing unrealistically short deadlines, hamper in depth discussions between authors and their working together for a profound understanding.

Despite its attractive layout, and irrespective of negligible editing mistakes, some minor inconsistencies need brief mention: Dating Neolithic Basta to c. 6000-4000 BCE is incorrect (49), even if the BC range should indicate uncalibrated data. In their excellent report on burials from Dja`de el-Mughara, Chamel and Coqueugniot mention a figurine which was found in the sealing of a grave next to the *Maison des Morts* (63). However, in several instances in the book, it is repeated that no figurines were found in grave contexts (67, see also 15).

The volume proves impressively that the cataloging has been done. It will be the task of future *transdisciplinary* research to pull all the data and different approaches together to profit from advances in theory and field work. The *iconic turn* has opened the door for an anthropological approach to imagery and has convincingly shown the reciprocal relationship between images and human agents. The editors are to be credited to have brought this important book together. To cite their conclusion: “This volume serves to highlight the beginning of a new perspective on the growing corpus of image which needs to be extended in several directions” (19).

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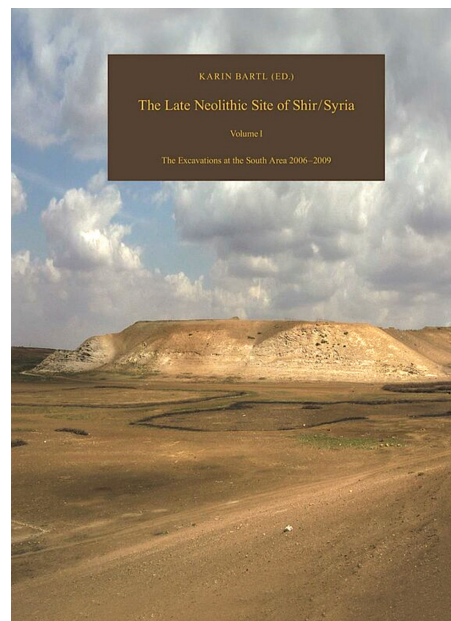
Rosenstock, Eva

Review of Karin Bartl (ed.), 2018. *The Late Neolithic site of Shir/ Syria I. The excavations at the South Area 2006 - 2009*. Damaszener Forschungen 18. Darmstadt: Wissenschaftliche Buchgesellschaft/ Zabern. ISBN: 978-3-8053-5190-4. € 92.50.

With this volume presenting the results of the South Area excavations between 2006 and 2009, Karin Bartl starts the publication of her fieldwork at the Late Neolithic (c. 7000-5000 BCE) Syrian site of Shir under the auspices of the German Archaeological Institute's Orient Department (Deutsches Archäologisches Institut, Orientabteilung) between 2003 and 2010. The volume, comprising almost 760 pages, is substantial in both content and weight. Its layout makes it comfortable to read, but the sizes of figures are, in many cases, slightly too small, such as the detailed maps in the first chapters. Unfortunately, the affiliations and contact addresses of the 23 contributors to the 19 total chapters (including a summary chapter) are not disclosed in an author list or after their respective chapters.

The initial research schedule and how it ended abruptly in early 2011 with the start (1) of what led to a still ongoing war is outlined along with a short research history in Karin Bartl's first subchapter. This subchapter, together with Karin Bartl's and Thomas Urban's subchapter on the methods applied (7-12), serves as an introduction to the volume. While a detailed map gives orientation in space, a chronological table to provide orientation in time and connection to neighbouring regions (such as Upper Mesopotamia, Anatolia and the eastern Mediterranean) would have been welcome in order to better contextualize the relevance of the site. Recording and excavation methods employed at Shir included state of the art techniques at the time of excavation, such as drawings based on tracing georeferenced photographs, subsequent import of vectorized pictures into CAD and an accompanying database for excavation units and finds data. The following section on the site and setting comprises a short overview of selected anthropogeographic features of the region by Bartl (13-16), detailed accounts of the recent *terra rossa*, a similar paleosol buried under the site and PPN mudbricks made thereof with the addition of dung by Stephan Vitzethum and Bernhard Lucke (17-24) and the results of a geophysical prospection by Sirri Seren, Erol Bayırlı and Alois Eder-Hinterleitner (25-34). Here, the combination of geomagnetometry and ground-penetrating radar allowed for a differentiation of the signals in the South Area into four depth levels. However, neither this nor the next chapter try to link these four levels to those identified by excavation.

The chapter on stratigraphy and architecture written by Kristina Pfeiffer (35-180) is one of the main parts of the book and key to understanding the following chapters on samples and finds. The visualization of the entire sequence of the South Area in one diagram (Fig. 4 of the book) is too large to be printed in full and in a readable size. The solution of a fully digital open ac-



cess version under a hyperlink¹ instead of the cumbersome loose foldout attachment sheet of olden days is much appreciated. However, inconsistencies between the published version and the digital one would require cross-checking by the authors. The graph was created using yEd² (37), a freeware originally designed for very different graph types such as flowcharts, but certainly able to also visualize stratigraphic relationships, albeit with more effort. Comprehensively distinguishing between symbols for different feature types such as walls, deposits and pits and showing the vertical and horizontal relationships between them and assigning them to layers, Fig. 4 is a very useful tool for rough orientation in the descriptive text and the plans. However, in contrast to the claim made in the text (37), it is not a Harris Matrix. As still widely practiced in German archaeology (Novák 2008), no distinctions are made between interfaces (e.g. the cuts for pits or foundation trenches) and deposits (e.g. pit fills or buildings collapse) as the basic stratigraphic categories according to Edward Harris. Instead, multi-unit features such as burials are collapsed into one unit. Moreover, Fig. 4 does not show all units (e.g. 104 is missing), shows some units twice (such as Floors 8, 59 and 171) and has no symbology for stratigraphic relationships between features or units – it only shows the schematic vertical and horizontal spatial situation. The unit list in the appendix (165-180), while being very comprehensive to link samples and finds from the other chapters to feature/ unit types and layers, also lacks any stratigraphic information or description beyond the layer attribution.

Consequently, readers interested in detail must establish their own stratigraphical models based on the published plans and text. Fig. 4, text and plans are, however, hard to interpret due to the lack of cross-referencing numbers throughout in the plans and occasionally in the photos and text³ in addition to inconsistencies; for instance, Vessel Unit 111 is assigned to Room 1 according to the captions of Figs. 135 and 137, but to Room

4 according to the text (114) and Fig. 128b, and while the text says its position is east of Wall 108 (114), Figs. 128b, 135 and 137 show that it is north-west of that wall; Unit 4 is a wall according to the text and the unit list (121), but is drawn as a floor in Fig. 4. Hours of browsing, thinking and scribbling unit and wall numbers onto the plans of my reviewer's copy were necessary to extract the information that a real Harris Matrix (cf. Fig. 1) would have provided in an instant. Especially, stratigraphic relationships across layer limits were often omitted in the text, likely because the text is structured along the layer sequence rather than unit sequences.

This is only a small clipping, but it illustrates how much the stratigraphy chapter would have benefited from a real Harris Matrix, augmented by either a somewhat repetitive yet precise list of stratigraphic relationships in tabular form or standardized language (Kind 1989: 141) or a more vivid narrative like a building biography (Rogasch 2014). A building biography approach would have, in addition, had the advantage of a better integration of building alterations (150-151) into the stratigraphic narrative; building alterations are difficult to grasp since text information on remodelled buildings is dispersed across several paragraphs on layers and building/ room labels. Moreover, a more biographical approach would have provided the opportunity to scrutinize depositional histories and formation processes that led to poor preservation of “*in situ*” (133), *i.e.* primary, contexts more closely. They are in parts addressed by the ceramic chapter (277-280), but this void in the stratigraphy chapter leaves the outliers in the subsequent ^{14}C chapter and the detailed find distribution plans in the following find sections somewhat orphaned. However, the sheer number of pits (cf. Fig. 4 of the book) and the apparently “severe depositional regime” (278) on the site may also explain some of the shortcomings of the chapter – Shir is certainly a tricky place to dig.

In her interpretation of the individually arranged and presumably one-storeyed rectangular buildings (132-163), Kristina Pfeiffer distinguishes between one- or two-room mudbrick buildings set on stone foundations without foundation trenches interpreted as dwellings (135) and smaller wooden sheds in the earlier layers IV to V, while from layer VI onwards, the buildings become multi-roomed, with a parallel trend of increasing food processing and storage installations inside buildings dated to *c.* 6800 cal BCE by ^{14}C . Overall, while following certain shared traits of the entire 7th millennium Near East, the settlement's layout and architecture have their closest parallels with sites in the Southern Levant such as Ramad or Yiftah'el (163).

The following chapter by Bernhard Weninger, Lee Clare and Karin Bartl (181-196) describes ^{14}C samples taken and the results of their modelling using CalPal. The 40 total samples were measured at four different laboratories and were, with a few exceptions, taken from presumably short-lived plant remains such as cereal grains. This is a different approach than practised

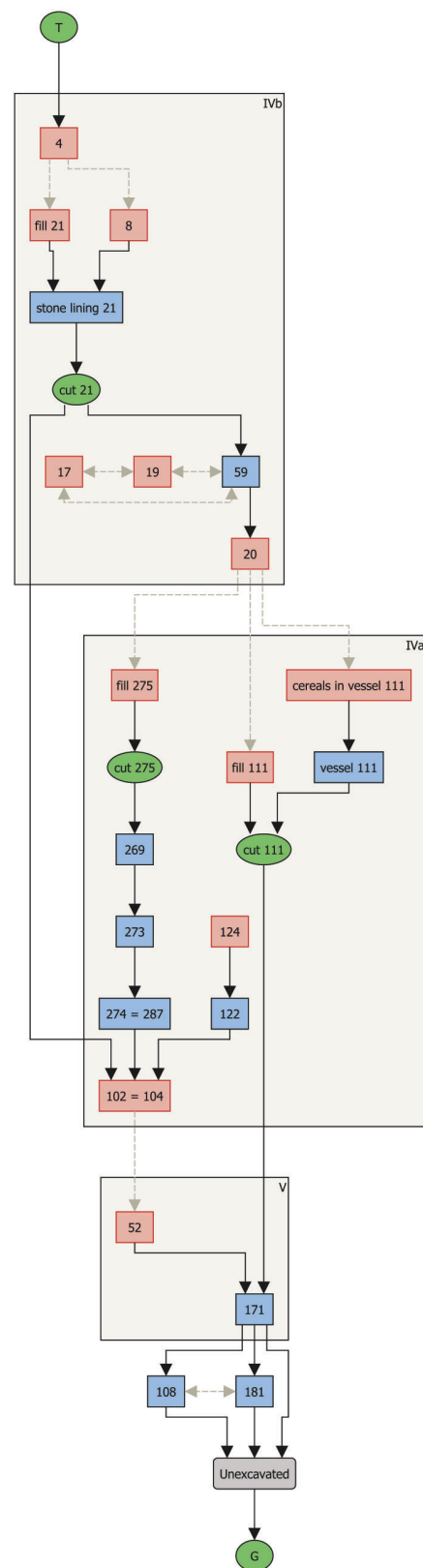


Fig. 1 Selected units forming the stratigraphic context of Vessel Unit 111 according to the reviewer's attempt at reconstructing the stratigraphy of Levels IVb to V in the southern part of L7 at Shir from the publication. Blue: units where stratigraphic relations are addressed in the text (solid lines); red: units where stratigraphic relationships had to be guesstimated from figures and additional assumptions (dotted lines). Created using Harris Matrix Composer (<https://harrismatrixcomposer.com>). (Graph: E. Rosenstock)

elsewhere⁴, and it is debatable given that cereal and pulse grains can potentially be stored for decades. This would make articulated bone – articulation ensuring close temporal association between deposit and dated sample – a good alternative; however, it is not even discussed despite apparent problems with stratigraphic outliers and frequent burials found in layers IV to VI (see below). Phrases such as “truly in-situ samples” or “stratigraphically reworked samples” (189) justify the exclusion of *c.* half of the samples from the analysis and give the impression that there are stratigraphic or taphonomic problems with the association between sampled material and dated deposit that are, however, not addressed in the stratigraphy chapter. While the end of layer IVb can be determined at *c.* 6500 cal BCE, the start of layer I can only be determined somewhere between the middle of the 71st and the 69th century BCE due to the known plateau in the Intcal13 curve between *c.* 7000 and 6800 cal BCE.

Major find classes are treated in separate chapters, starting with the one on lithics by Dörte Rokitta-Krumnow (197-263). While most tools were made from the exceptionally good local flint, provenance analyses of the few obsidian tools by Ernst Pernicka (259-262) make an origin in the Nenezi and Göllü Dağ Region of Central Anatolia likely, possibly imported as raw blades. Pressure flaking is mentioned (207) and is interesting since it is one of the key traits in the discussion about the origins of the Aegean Neolithic at the beginning of the 7th millennium and is thought to derive from Upper Mesopotamia or the Northern Levant (Carter and Milić 2013). Oliver Nieuwenhuys’s introduction and concluding remarks to his chapter on the pottery (263-423) make up for many questions left open by the too short introduction and conclusions to the overall volume. Along with these passages, the humorous tone that makes even the dullest parts on Dark Faced Burnished Ware (DFBW) entertaining to read, once more shows what a great colleague we all have lost. In contrast to the initial 7th millennium BCE DFBW, which was imported according to the archaeoscience chapter by Malgorzata Daszkiewicz and Gerwulf Schneider (432-444), the widened array of coarse pottery shapes from the mid-7th millennium onwards was produced locally. The accompanying chapter on cordage, basketry and textile impressions on pottery (424-431) by Koen Berghuijs sheds light on a widely neglected class of evidence and gives guidelines on how to routinely study such impressions in future projects.

Rokitta-Krumnow’s and Susanna Wittmann-Gering’s (445-462) chapter on vessels made from White Ware, includes photos and drawings of this often neglected class of finds, which I did not even know that it had persisted so long into the Pottery Neolithic until the day I read the chapter. The small finds chapter by Laura Dietrich (463-602) describes a wide array of finds ranging from ground stone, bone and non-pottery clay objects to two female figurines. Slingstones may have been better discussed together with certain lithic objects



Fig. 2 The presentation of the anthropological results is one of 19 chapters in the impressive final publication of the Neolithic site of Shir in Syria. Example: Burial 362 of Shir SH08-2 L8 (Photo: German Archaeological Institute, Orient Department, T. Urban).

interpreted as “bolas” by Rokitta-Krumnow (215-216), whereas stone vessels could better be understood in conjunction with pottery and White Ware.

The burials (Fig. 2) – mostly of infants – are presented by Denise Resch and Julia Gresky (603-632). The anthropology and pathology section by Gresky, Juliane Haelm, Resch and Bartl (633-687) reveals morphological hints at a possible consanguinity between three adult individuals buried together in House F of Layer Va. However, this could not be ascertained by aDNA due to insufficient collagen preservation. Here, I would like to know the target bone, now that the petrous bone has proven the best archive of aDNA (Pinhasi *et al.* 2015). Interestingly, the authors speculate about a possible influence of chaste tree (*Vitex agnus-castus*) on children’s health during their mother’s gestation and lactation period (653). According to the archaeobotany chapter by Reinder Neef (688-694), chaste tree was consumed widely at the site along with the usual cereals and pulses, which, however, excluded peas (*Pisum sativum*) and included grass peas (*Lathyrus sativus*). Despite the data input by Ammar Haidar from the Syrian *Direction Générale des Antiquités et des Musées (DGAM)*, the preliminary and illustrated note on zooarchaeology (695-697) is only authored by Norbert Benecke. Certainly, the bone finds would have been another valuable clue to the difficult site taphonomy.

Overall, the volume suffers from insufficient cross-connections between the evidence treated by different authors in their chapters. Also Bartl’s conclusions (698-704) are mostly a summary of the preceding chapters, leaving it to the reader and to future research to fully acknowledge the potential of Shir, one of only two Neolithic sites in western Syria that have been dug recently and at a larger scale. With the full publication of Tell el-Kerkh still pending, the book presented here is currently the main source of information about a potential key region for understanding not only the wider socioeconomic developments during what has been termed the “Second Neolithic Revolution” but

also the contemporary onset of the Neolithic expansion into the Aegean around 6800 cal BCE from possibly the Northern Levant (Horejs *et al.* 2015). Hence, it is a must-have for Near Eastern and Prehistoric Archaeology libraries alike.

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Endnotes

¹ <https://arachne.dainst.org/entity/6525347>

² <https://www.yworks.com/products/yed>

³ For example, “the storage facility lowered down from layer IVb”. Likely, Unit 21 is meant here (112).

⁴ For example, at contemporary early Pottery Neolithic Çatalhöyük (Bayliss *et al.* 2015).

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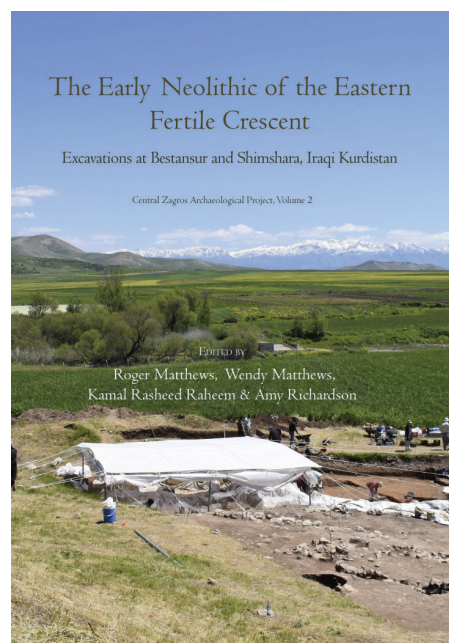
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Darabi, Hojjat

Review of Roger Matthews, Wendy Matthews, Kamal Rasheed Raheem and Amy Richardson (eds.), 2020. *The Early Neolithic of the Eastern Fertile Crescent: Excavations at Bestansur and Shimshara, Iraqi Kurdistan*. Central Zagros Archaeological Project 2. Oxford: Oxbow Books. ISBN: 9781789255263 (hardcover). € 89.-

The emergence of early domestication and sedentism is usually understood as the most important development in human life as it paved the way for all following developments. The so-called Fertile Crescent in south-west Asia has yielded the earliest evidence for these fundamental changes. Though the eastern Fertile Crescent, particularly the Zagros, was host to pioneering fieldwork in the mid-twentieth century, much of which was guided by Robert J. Braidwood who established interdisciplinary research on early domestication and sedentary life in the region, later research concentrated in the Levant. Braidwood undertook excavations at different sites, e.g. Jarmo (correctly: Charmo), Karim Shahr, Asiab and Sarab. Although he never fully published his expedition to the Iranian Zagros, his work paved the ground for the subsequent excavations at a number of Neolithic sites (Guran, Ganj Dareh, Ali Kosh, Chogh Sefid and Abdul Hussein) in the 1960-70s. On the Iraqi side of the Zagros, however, no early Neolithic/PPN site has been excavated since his work in the 1950s. After a long hiatus, investigations have recently been resumed under the co-direction of Roger and Wendy Matthews, whose fieldwork, the *Central Zagros Archaeological Project* (CZAP), started in 2008 with the excavation of Sheikh-e Abad and Jani in Kermanshah. Although research on these two sites has not been completed yet, they published the results of the first phase of their long-term project in 2013. While maintaining the project's title, in its second phase the project moved to Iraqi Kurdistan (western Zagros). Here not only was the previously unexcavated site of Bestansur on the Shahrizor Plain, Sulaimaniya Province, extensively excavated but also some rescue excavation was undertaken in the lower levels of Shimshara on the Rania Plain. In addition, a brief intensive survey was directed at an area surrounding the Zarzi Rockshelter; this fieldwork was undertaken jointly with the Sulaimaniya Directorate of Antiquities and Heritage. The final report on this fieldwork and accompanying analyses has now been published in a large volume which is the subject of this review.

Apart from being a field report, this volume integrates multidisciplinary results on the finds recovered during the second project phase from 2011-2017. In addition, archive reports on all field seasons have been made available online at: <https://www.czap.org/>. Compared to the first volume, which was based on a single season of excavation, this second volume benefits from longer and succeeding seasons of excavations in a larger area and more data. This has permitted the contributors to present sufficient information, specifically when their chapters are based on interdisciplinary methods such as



micromorphology or bio-archaeological approaches. However, due to bioturbation or poor preservation at the sites insufficient data – especially from charred plant remains – may have hampered research, but this may also relate to a delay in the spread of woodlands across the Zagros. In some cases, bioturbation or anthropogenic activity allowed later material to penetrate into the early Neolithic levels. As indicated by their late dates, supposed Neolithic plant remains turned out to be intrusive from Neo-Assyrian or later layers. If such samples had not been dated, they would have been considered as representing early Neolithic plant subsistence. This issue highlights much of the complexity of, and fallacies relating to, excavations at stratified mounds in the eastern Fertile Crescent.

A large amount of human burials (c. 78 individuals) was found within a large building at Bestansur (Building 5) allowing adequate information on the demography, diet and health at the site to be obtained. Along with on-site excavations and test pits, boreholes were carried out around the higher part of the site in order to study its geomorphology, geoarchaeology and to delineate its original extent. Although the *in situ* Neolithic deposits suggest that the site should have been <1ha in size, the surface Neolithic finds are scattered over an area of c. 4ha. Other off-site investigations included an ethnoarchaeological survey in the nearby modern village, with an emphasis on land use and herding strategies, and paleo-climatology research.

The volume covers many subjects, from reports on field work to the various scientific analyses, and the interpretive discussion of results as associated with the project objectives (see below). The introduction begins with a brief note on the role of archaeology in investigating long-term human-environment interaction. This discussion is related to dimensions of better understanding modern issues such as, for example, ecological education and policy making in (also global)

environmental concerns such as climate change, sustainability in food resource management, transformation of societies and their health, and how these issues relate to foundations laid in the early Neolithic. After a short history of research in the Zagros and the Iranian southwestern lowlands (seen as part of the southern Zagros), the key themes of the project are discussed: human-environment interaction, early sedentarisation, society, rituality, resource management, diet, health, material engagement, networks.

The next two chapters present methods of excavation, sampling and documentation and an overview of geography and paleo-environment of the Zagros; investigations of new paleoclimatic proxies of the project are still on-going and cannot yet be used for the reconstruction of palaeoclimatic conditions of the region. As noted above, an intensive survey was carried out along with excavations to identify late Epipaleolithic and early Neolithic occupations in the vicinity of the Zarzi Rockshelter, which led to the recovery of a handful of new open-air sites and a symmetrical Acheulian hand axe. These finds of the survey are discussed in Chapter 4 which, unfortunately, lacks any drawings of the stone tools. However, one of the sites (labelled ZS3) appears to be promising, and is planned to be the subject of future investigations.

Prior to, and during, excavations at Bestansur a geophysical survey was undertaken at the site to detect subsurface structures. During seven excavation seasons 13 trenches were opened; in eleven of them early Neolithic traces were uncovered with Trench 10 yielding the most substantial architectural remains. The volume lacks any aerial image of the site and of the excavations; instead, some satellite images are shown. Readers also do not find any general view of Shimshara. The chronology of the two sites is based on a limited number of AMS dates from Bestansur (c. 7700-7100 BCE) and a single one from lower Shimshara (c. 7300-7200 BCE).

The results gained by a wide range of scientific and interdisciplinary methods in micromorphology, micro-archaeology, geochemistry, biomolecular analyses, archaeozoology, archaeobotany and palaeoanthropology (Chapters 11-19) constitute the major part of the volume; apart from the introductory and concluding chapters, one may see these chapters, particularly those associated with micromorphology, as the “cornerstones” of the volume. Daily activities, pest control, diseases and health, construction management, diet and resource management and living conditions are among the main topics that are targeted and discussed using the micromorphological evidence. A thorough understanding of this discussion requires a deeper knowledge of the associated scientific methods.

Regarding early domestication at Bestansur, a limited amount of evidence is available. Similarly to other sites in the Zagros, cereals, wild or domestic, are rare while pulses are well attested. This is in agreement with the “diversity” explanation for early Neolithic subsistence in southwest Asia. However, domestic emmer and

einkorn and possibly lentil were retrieved from the site. No morphologically domestic animal species have been identified yet, and though micromorphological analysis suggests the use of dung as fuel, excavation so far did not testify to animal pens. Wild goats and sheep and later wild boar are predominant in the assemblages. As Bestansur is located outside the natural habitats of wild goats, it is suggested that the site’s inhabitants herded this animal. Due to the presence of a coprolite sample of wild boar/ pig, the possible management of this species is considered for the end of the site’s occupation.

The analysis of molluscs is interesting, showing that they might have been cooked and consumed. The analysis of knapped flint goes beyond the usual techno-typological classification in the discussion of their life history, from the quarrying of raw materials, to detaching techniques and their possible daily usage and final discard. In this regard, issues such as the nature of occupation, food procurement, craft activities and exchange networks are considered. The presence of heavily retouched blades, known as Çayönü tools, is striking. These tools were made of obsidian and seem to have been used for manufacturing marble objects. The small finds such as clay figurines, and particularly beads of stone and shell, are analysed to consider the early Neolithic exchange networks. Some of the tiny disc beads documented as stone items, however, appear to have been made of *Spondylus*. Ground stone implements at Bestansur show little wear, suggesting that food grinding was limited at the site.

It is noteworthy that the important results from Bestansur triggered their presentation to the public and local authorities. Moreover, a great achievement is the site’s accession to the UNESCO World Heritage Tentative List in 2017.

The concluding chapter of the volume, on the application of integrated interdisciplinary approaches, sheds light on the early Neolithic’s main archaeological issues, specifically on early sedentism and food resource management. Obviously, the CZAP has widely benefited from such approaches, providing new clues on the causes of the transition from hunting-gathering to farming and sedentary life in the Eastern Fertile Crescent. However, Bestansur and lower Shimshara date to the 8th millennium BCE and do not provide earlier evidence of the transition to the Neolithic period (c. 9700-8000 BCE) in the western and central Zagros. This highlights the need for more evidence from this stage, to be researched at earlier sites such as Sheikh-e Abad. The third phase of the project (2018-2023), entitled *Middle East Neolithic Transition: Integrated Community Approaches* (MENTICA), opens opportunities for the directors to follow such goals.

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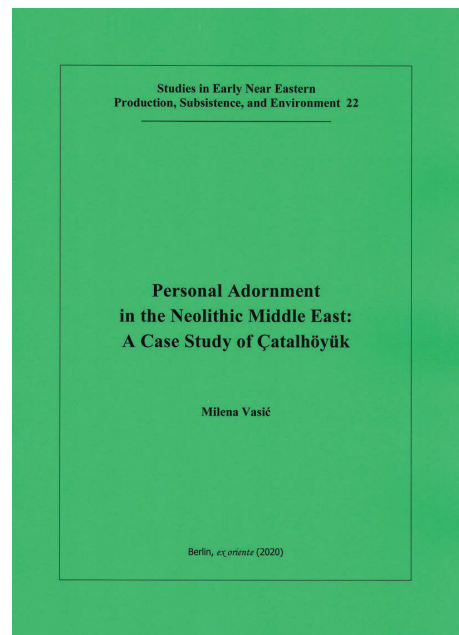
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The Neo-Lithics 2020 issue unites many voices of research from almost all areas of the Near East, and thus is a signal of supra-national unity in research. We are grateful to all the authors. Their efforts let us hope that Near Eastern Neolithic research will be as manifold and splendid as ever. Since 2020, the cover of Neo-Lithics has received a „facelifting“ designed by M. Renger, based on the traditional background once mounted in 1994 by H.G.K. Gebel and A. Gopher. With this issue we would also like to announce a new special issue format of Neo-Lithics, allowing the publication of extensive “interim reports”.

The first example will be the special issue on ex oriente’s 13th excavation season at Ba`ja published in parallel with the Neo-Lithics 20 issue, also explaining the good reasons for doing interim reports. We are looking forward to your contributions either for Neo-Lithics or for a Special Issue in 2021!

Marion Benz and Hans Georg K. Gebel

Masthead

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