# NEO-LITHICS 1/12

## The Newsletter of Southwest Asian Neolithic Research

## Contents



## Editorial

When we look in journals and other publications during the years of war and regional troubles in the past century, we find it strange that there is little to no mention of these impacts. Possibly volumes became thinner or several years were bound in one volume, editors changed, manuscript quality altered, etc., but academic fixation seems to have developed untouched by cataclysmic events. Many years later, we may identify thoughts in publications that possibly are related to, or must be the outcome of, recent historic learning, at the least. Today, in our research areas monstrous and outrageous developments and crimes against humanity take place while our prehistoric business goes on, in one way or another. Why this is? 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, as was done by European cultural scientists in confronting nuclear armament in the later 1980s, which resulted for some colleagues in changing research perspectives and modified teaching attitudes?

This Neo-Lithics is delayed because a thematic issue on the Neolithization of NE-Africa was converted to be a SENEPSE volume of ex oriente.

Hans Georg K. Gebel & Gary O. Rollefson

*Enclosure: Leaflet on Klaus Schmidt's book on Göbekli Tepe. A Stone Age Sanctuary in South-Eastern Anatolia, to be published by ex oriente in Dec. 2012.*

# New Excavations at Hasankeyf Höyük: A 10th Millennium cal. BC Site on the Upper Tigris, Southeast Anatolia

**Yutaka Miyake, Osamu Maeda, Kenichi Tanno, Hitomi Hongo and Can Y. Gündem**

## Introduction

The 2011 excavation at Hasankeyf Höyük has provided new evidence of a sedentary settlement dated to the 10th millennium cal. BC (or the PPNA in Levantine terms) in the upper Tigris valley.

The site is located on the left bank of the Tigris, about 2 km east of the well-known medieval site of Hasankeyf, in Batman province, Turkey (Fig. 1). The excavations of this site, which will be submerged by the construction of the Ilısu Dam, were carried out within the framework of the Hasankeyf rescue projects under the auspices of Prof. Dr. Abdüsselam Uluçam, Batman University. It was first excavated by a Turkish team in 2009 and, since 2011, its investigation has been taken over by a Japanese team from University of Tsukuba. We are very grateful to Prof. Uluçam for providing us with the opportunity to work at such a significant prehistoric site.

The site forms a roughly circular mound about 150 min diameter and 8 m high above the surrounding plain. In 2011 five 10 x10 m squares were excavated at the centre of the mound. Except for ephemeral occupational evidence from the Iron Age and the Hellenistic periods in the form of pits dug into the prehistoric layers, all the archaeological deposits are from the 10th millennium cal. BC. To date only the top layers of the mound have been excavated and the 15 radiocarbon dates all fall in this time range, with most of them concentrating in the second half of the 10th millennium (Fig. 2). These dates suggest that the prehistoric occupation of Hasankeyf Höyük is mostly contemporary with that of Hallan Çemi, Demirköy Höyük, Körtik Tepe and Gusir Höyük in the upper Tigris valley (Rosenberg and Davis 1992; Rosenberg 1994a; Rosenberg *et al.* 1995; Higham *et al.* 2007; Benz *et al.* 2011; Karul 2011).

## Structures

Structures recovered at the highest level of the mound (Squares G12 and H12) are stone walls from a subterranean building (Str. 3), which probably has a semi-rectangular plan (Fig. 3). Several pits which had been dug into the fill of Str. 3 were excavated as well. Stratigraphically, these structures belong to the latest phase of the prehistoric occupation of this site. Some of these pits contained large stone blocks including ground stone and large stone slabs, one of which has an eye-shaped-like relief decoration (Fig. 4).

Within and around Str. 3, 12 human burials were discovered. Particularly of note is a multiple burial of three individuals near the east wall of Str. 3. One of them, buried in a tightly flexed position, shows clear signs of black-coloured lines on its limb bones (Fig. 5). Interestingly, the whole skeleton is in a correct anatomical position, suggesting that it is a primary burial. How these lines were painted (or left) on the surface

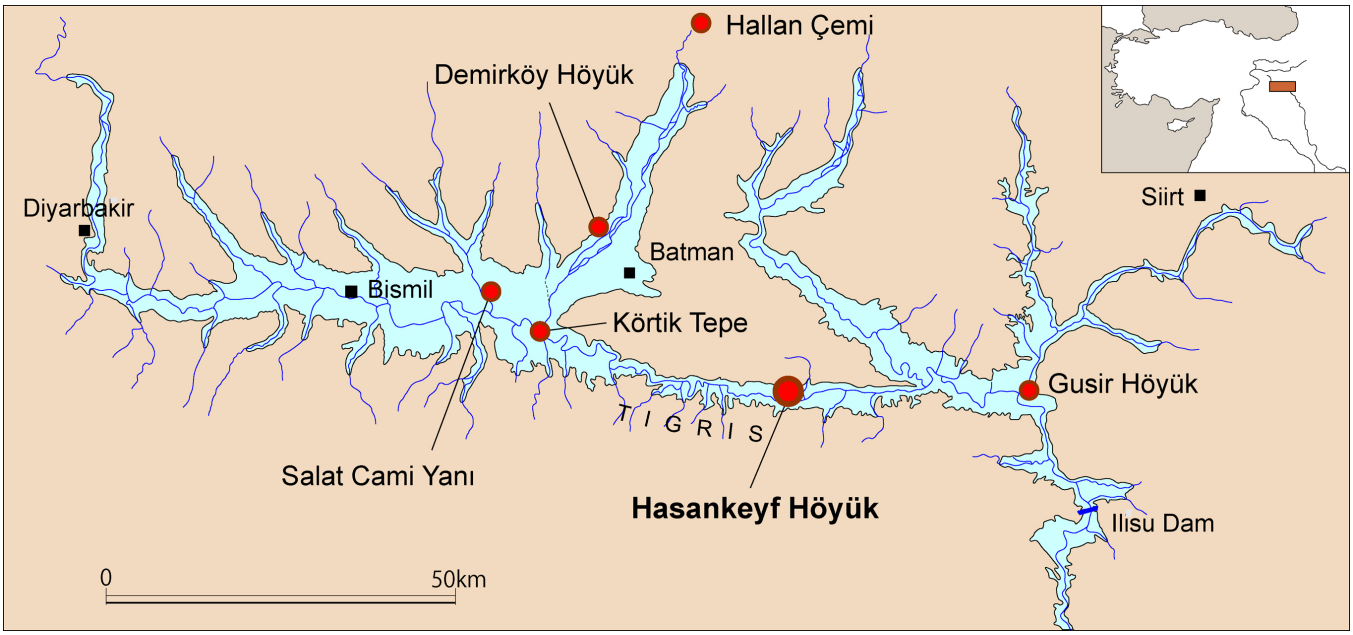


Fig. 1 Location of Hasankeyf Höyük.

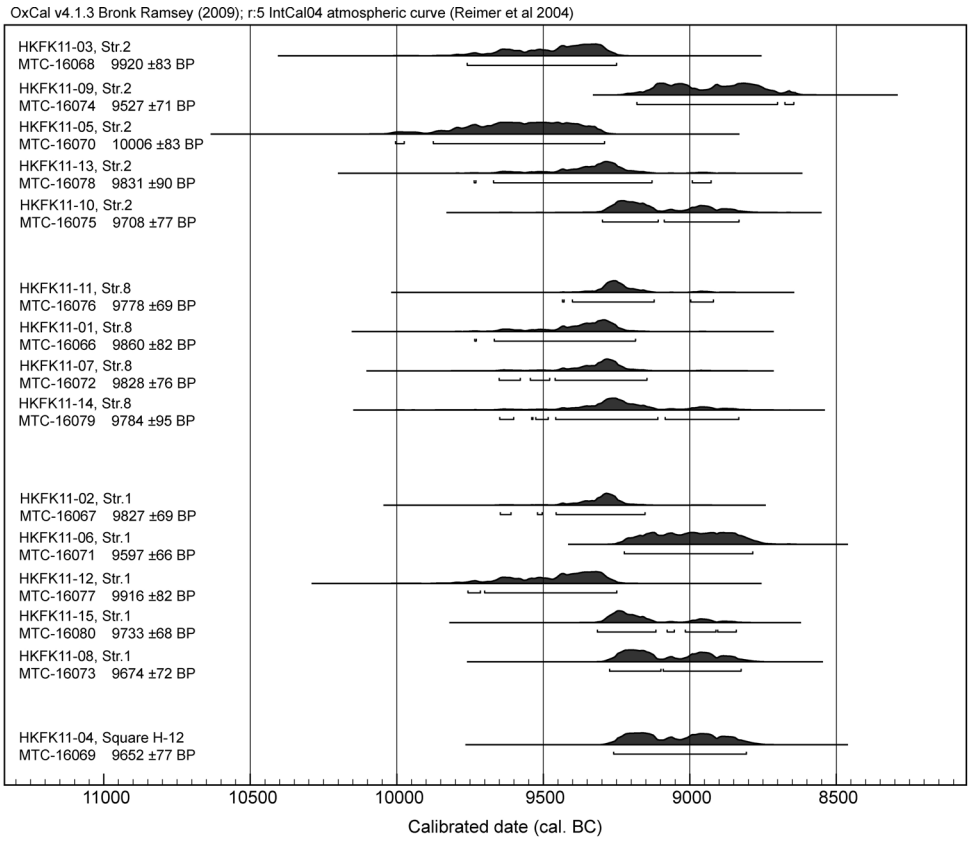


Fig. 2 Radiocarbon dates.

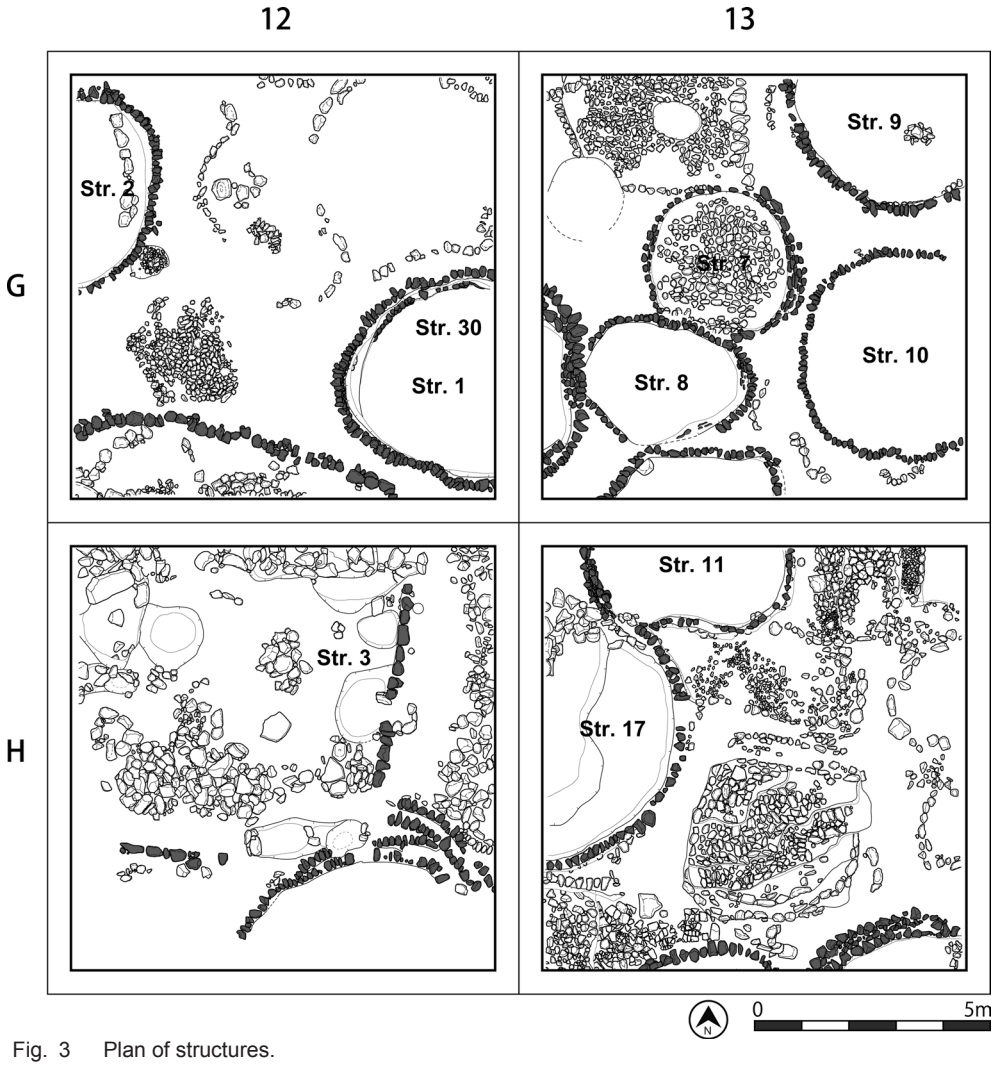


Fig. 3 Plan of structures.

Fig. 4 Stone slab with relief decoration.

Fig. 5 Human burial with black lines on the limb bone.

Fig. 6 Inner wall of subterranean round building (Str. 2).

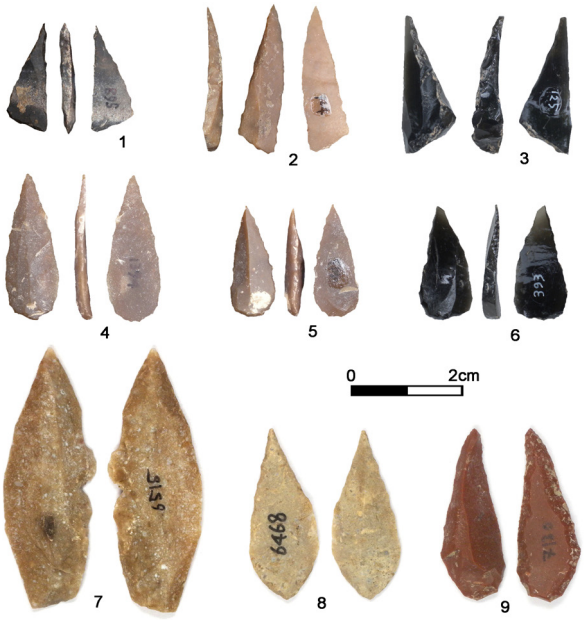


Fig. 7 Lithics from various layers (1, 2, 3, 5, 7-9: flint; 3, 6: obsidian.

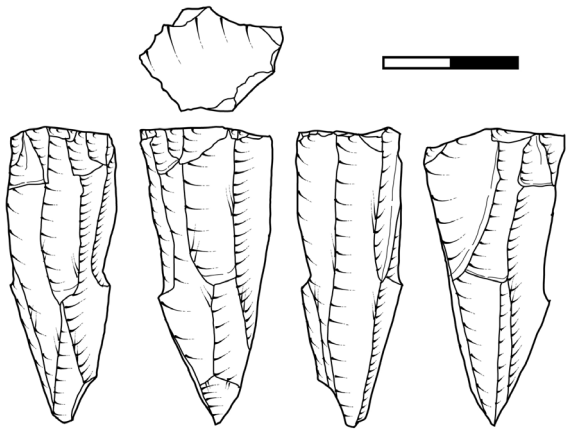

Fig. 8 Single platform conical core (flint, Str. 1).

of the bones is not clear, but similar examples are also known from Körtik Tepe and Demirköy Höyük (Özkaya *et al*. 2010; Rosenberg 2011).

In Squares G12, G13 and H13, a series of distinctive, subterranean round buildings was recovered, at a level lower than the structures and burials in Square H12 (Fig. 3). Although the uppermost part of these buildings has in most cases been eroded, some of them still stand more than 1 m high (Fig. 6). The construction technique of each is basically the same. First, a round dwelling pit was dug, then its inner wall was reinforced with courses of stones up to the mouth of the pit. Usually, larger stones are used for the foundation, on which several courses of smaller stones are placed using yellow-brownish clay mortar, and the upper part of the wall is often built of flat river cobbles. Finally, the stone wall is mud-plastered using the same clay as the one used for the mortar. No distinctive floors were identified except for one in Str. 7, where the floor is paved with stones about 20 cm. The diameter of these buildings is usually 3.5 m to 4.5m but the largest one is about 6 m. Although it is likely that not all of these buildings were in use at the same time because their base levels vary to a large extent, they are densely laid out and often adjacent to each other, sometimes superimposing on earlier structures. A large number of animal bones, chipped stones and unworked stones was recovered from the fill of these buildings, except for Str. 7, which was probably deliberately infilled and includes virtually no objects.

## Lithics

Chipped stone artefacts, generally characterised by microliths, including scalene triangles and of foliate shaped ones (Fig. 7), demonstrate in typological terms close similarity to the four other contemporary sites mentioned above.

Flint is the main raw material with obsidian accounting for only a few percent of all the chipped stone. Almost all of the obsidian has a greenish tinge. Both flint blades and flakes were produced on site by direct percussion sometimes using single-platform conical cores (Fig. 8). The general character of the core reduction processes is similar throughout the assemblage so far recovered. However, of note is that there are chronological changes in the typological features and the relative frequencies of each type of tool between the assemblage from Str. 1/Str. 8 and that from Square H12. The assemblage from Square H12 includes Nemrik points (Fig. 7: 7-9) and end- and round scrapers made on large flint blades that often show signs of heat treatment. Geometric microliths, particularly scalene triangles, are very rare. On the other hand, the assemblage from Str. 1/Str. 8, which is dated slightly earlier than that of Square H12, has no Nemrik points but more geometric microliths, made of both flint and obsidian (Fig. 7: 1-3). The size of flint blades and scrapers made on flint blades is smaller than that in Square H12.

Ground stone artefacts are also common. A lot of fragments and some complete pieces of querns and pestles/handstones have been recovered, often from pits filled with large stone blocks. The extensive use of these grinding tools at this site, where evidence for cereal exploitation is scarce, is intriguing.

## Plant and Animal Remains

A preliminary analysis of the botanical remains demonstrates rare use of cereals at this site. Virtually no wheat or barley has been identified in the water-flotation samples so far analysed. The scarcity of cereals is also known from Hallan Çemi, Demirköy Höyük and Körtik Tepe (Savard *et al.* 2006; Riehl *et al.* 2012). The species so far found at Hasankeyf Höyük include almonds, pistachio, hackberry, lentil and indeterminate nut species (these need to be confirmed by further study).

A large number of animal bones was recovered, mostly from the fill of subterranean round buildings. Among the medium-sized mammals, sheep is dominant, comprising about 50% of the identified specimens. Wild goats, wild boar and red deer are also common. Gazelles are also included but wild cattle have not been found in the assemblage. Dogs are the only domestic animal at the site; there is no evident sign of domestication among the ungulates. Foxes and hares are common among small-sized animals as well as tortoises.

The large quantity of fish and bird bones recovered by 4 mm-mesh screening is also noteworthy (Fig. 9). At Körtik Tepe several fishing hooks have been found and a high frequency of auditory exostosis has been observed among the skeletons recovered (Coşkun *et al.* 2010). These may suggest that fishing or exploitation of aquatic resources played an important role in the subsistence of these early sedentary villages along the upper Tigris valley.

Fig. 9 Fish bones.

## Concluding Remarks

Hasankeyf Höyük, dated to the 10$^{th}$millennium cal. BC, is one of the earliest sedentary settlements in southeast Anatolia. It is interesting that there is little evidence for use of cereals, whether wild or domestic, when continuous construction of a series of solid round buildings suggests the establishment of sustainable sedentary life at this site. This picture is very different from that in the Middle Euphrates, where large seeded grasses were extensively exploited as early as in the PPNA so that "pre-domestication cultivation" has been discussed (*cf.* Willcox *et al.* 2008). Together with the evidence from other contemporary sites in the upper Tigris Valley, further investigation of Hasankeyf Höyük would contribute to our understanding of the origin of sedentism in this area, for which a quite different scenario from the Levant can be drawn.

Interestingly, five aceramic sites so far discovered in the upper Tigris region are all dated to almost the same period: the second half of the 10$^{th}$ millennium cal. BC, or the beginning of the Holocene. On the other hand, no later aceramic settlement (equivalent to the PPNB in the Levant) has yet been found in this region, despite intensive surface surveys carried out in the future Ilısu Dam reservoir area. Based on currently available evidence it seems likely that the upper Tigris region was abandoned or at least less populated after the 10$^{th}$ millennium cal. BC and re-occupied with the onset of the Pottery Neolithic, when the full repertoire of domestic plants and animals was introduced, as indicated by the evidence from Salat Cami Yanı (Miyake 2011).

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# Note on Three New Neolithic Sites in Pish-e Kuh Region, Central Zagros

**Mohammed Bahrami, Mousa Sabzi Doabi and Meisam Nikzad**

## Introduction

The Pish-e Kuh region of Lorestan, Central Zagros, Iran, is a most interesting area for Neolithic studies since its ecological diversity may have played an important role during in the sustainable establishment of Neolithic life modes. So far, prehistoric studies in the area have focused on more recent prehistoric periods, especially Bronze and Iron Ages, and information about the Neolithic period was limited more or less to Tepe Abdul Hosein (Pullar 1990) and a few other Neolithic sites that were identified in Lorestan. This state of knowledge appears to be related to a lack of systematic surveys and geomorphologic factors (post-occupational deposition on Neolithic sediments); the small size of Neolithic sites, and their location off present-day routes may be additional factors. In general, the limited number of surveys aiming to identify Neolithic sites in Iran and the missing approach to qualify a region‘s potentials to participate in the domestication processes of plants and animals have resulted in a marginalization of such studies.

Therefore, the newly identified sites presented here are important: Chiatorkena, Roahol, and Merijhelo are three relatively small tapehs that reflect Neolithic occupations by the surface finds.


Fig. 1 Location of the new sites in Lorestan Province, Central Zagros.

## The Sites

Parts of the city of Khorramabad and its surroundings were the subject of selective surveying by the authors during winter of 2011-2012, looking to identify Neolithic settlements in their environmental settings. Three Neolithic sites were located: Chiatorkena is located in the northwestern part of Lorestan Province in Nourabad County (Delfan), Roahol Tapeh is situated in the southern edge of the Khorramabad Plain, and Merijhelo Tapeh is in the west of Khorramabad in Chegini County (Fig. 1).

## Roahol Tapeh

Roahol Tapeh is situated at 48°21’49’’ N and 33°22’57’’ E at an altitude of 1258 meters. It is located around the southern rim of Khorramabad Plain within 800 meters southwest of the Dinarvand Bala village, or 700 meters west of Sorkhedeh Paein village next to the north side of the Khorramabad Cement Company, or 500 meters southwest of Malek Ashtar Garrison (Fig. 2). Its original shape is in the form of a circular ridge with an approximate diameter of 90 meters and a height of 5 meters above surrounding ground. Unfortunately, a gas pipeline and drainage canals have recently caused great damage to this site. It was surveyed and identified in 2006 by M. Garavand who related it to Chalcolithic period (Garavand 2006).

The non-systematic survey of the site provided 90 bullet-shaped, disc-shaped, and other cores; micro and other tools; chips; obsidian artifacts; and 12 pottery sherds. The flint raw materials are in brown, purple, cream and gray colors, most likely collected as gravels of the nearby river bed (Figs. 5-6). Especially characteristic are about 90 artifacts we might term “flakelets” and small blades. The handmade pottery is burnished on both sides and fired at low temperatures. The central parts of some sections are blackened, and the outer surfaces generally bear buff-orange, orange, and red coatings. Most of the pottery is undecorated (Fig. 8, plans 1-4 and 6), and resembles specimens known from Central Zagros Neolithic sites, such as Sarab (Meldgaard et al. 1964; Levine and Young 1986) and from Umm Dabaqhiyah (Kirkbride 1971). Some of the pottery was imprinted with simple curves or zigzag lines or painted with red on the outer surface (Fig. 8, Designs 5, 7 and 9). One body sherd does not yet appear to be reported appears from Neolithic sites in Iran: its outer surface has a decoration known from Umm Dabaqhiyah as part of a human face and with a snake-like decoration (Kirkbride 1971: Figs. 7-8). The pottery of the site indicates regional and trans-

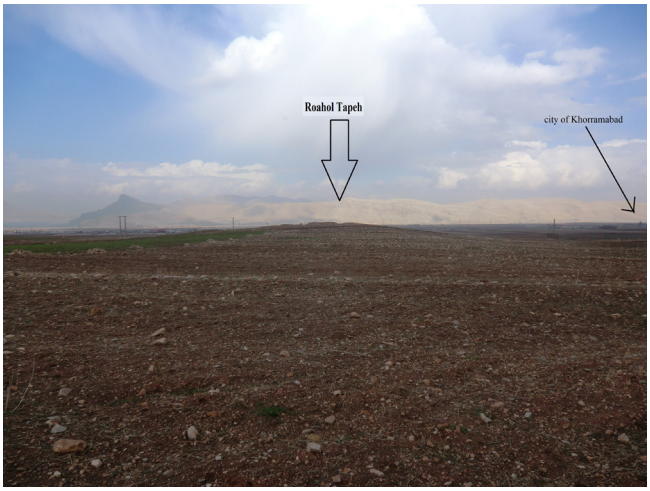


Fig. 2 Roahol Tapeh, with Khorramabad City in the distance from Southeast.

Fig. 3 Merijhelo and Sarab Dureh River from South.

Fig. 4 Chiatorkenah from the West.

regional communication in Middle and Late Neolithic periods with regions in western Iran and northern Mesopotamia.

## Tapeh Merijhelo

This site is situated at 53°00'48'' N and 37°33'33'' E at an altitude of 1063 meters. It is located on the southern edge of a road connecting Sarab Dureh, the center of Chegini County, with Rykhan in the northern margins of Sarab Dureh River, a branch of Kashkan River 500 meters west of Varkamre Spring (Fig. 3). Merijhelo Tapeh is situated about 10 kilometers south of the famous mountains of Kooh-e Sefid, occupied by dense oak forests providing rich and protected habitats for various wild animals. It is difficult to estimate the tapeh's dimensions due to its location on the agriculturally used top of a ridge and the slope leading to the Dureh River. However, part of the top of the natural mound has a brighter khaki color than the rest of site with approximate 80×60 dimensions.

The non-systematic survey of the site provided a number of stone and bone artifacts, mostly scattered around the pits of looters. The chipped stone artifacts (109) included bullet-shaped, disc-shaped, and other cores; micro and other tools; and micro blades and flakelets/ flakes. In addition, eight small pieces of obsidian were collected. Chipped stones were probably made from river gravels of brown, purple, creamy and greyish colors (Fig. 10 and Fig. 9).

## Chiatorkenah

Tapeh Chiatorkenah is located at 47°53'31'' N and 33°59'35'' E at an altitude of 1749 m to the north of Mir-Bag Village in Nourabad County, Lorestan Province. The site dimensions are 72 ×78 m with a height of 8 meters. Hassan Gavyar River passes the site about 200 m to the south (Fig. 4). This site has been previously reported by Garazhian under the name of Golbaghy Tapeh (Garazhian et al. 2005).

Chiatorkenah chipped stone artifacts include seven pieces of bullet-shaped/ cone-shaped cores, a blade, a micro blade with inverse retouching, and a flakelet. The cores appear to have been reduced using direct pressure technique that produced fine stone blades. None of the artifacts have cortex and are of relatively average quality; some of them are broken and incomplete (Figs. 11-12).

## Discussion

Bullet cores are the most diagnostic items from our sites, as they are for other Neolithic sites in Zagros (Hole 1994) and Khuzestan (e.g. Chogha Bonut, Alizadeh 2003). They are reported from Tepe Abdul Hosein (Pullar 1990), Tepe Asiab (Braidwood et al. 1961), Northern Lorestan (Mortensen 1974), and the Bakhtiari region (Zagarell 1982). The pottery described above supports the assignment of these sites to the Neolithic period.

Fig. 5 A selection of Roahol Tapeh chipped stone artifacts.

Other important findings (from Merijhelo and Roahol tapehs) include small pieces of obsidian, the resources of which have been identified in a few locations like Lake Van region in Turkey and a little farther to the southwest around the crater of dormant volcanoes (Bernbeck 2004). Of course, the obsidian of the sites presented here awaits analysis, and other sources in Anatolia or the Caucasus or Iran (Abdi 2004) may be candidates of origin, all indicating long-distance exchange in these Neolithic periods (Bernbeck 2004).

Materials belonging to the early Neolithic period in western Iran have been found in Asiab, Ganjdareh, Abdul Hosein, Guran and some other sites in surveys by P. Mortensen and P.E.L. Smith (Levine and Young 1986). Most of the known Neolithic sites in Iran are located in regions where rain-fed agriculture is possible. The settlements are usually situated near water sources,

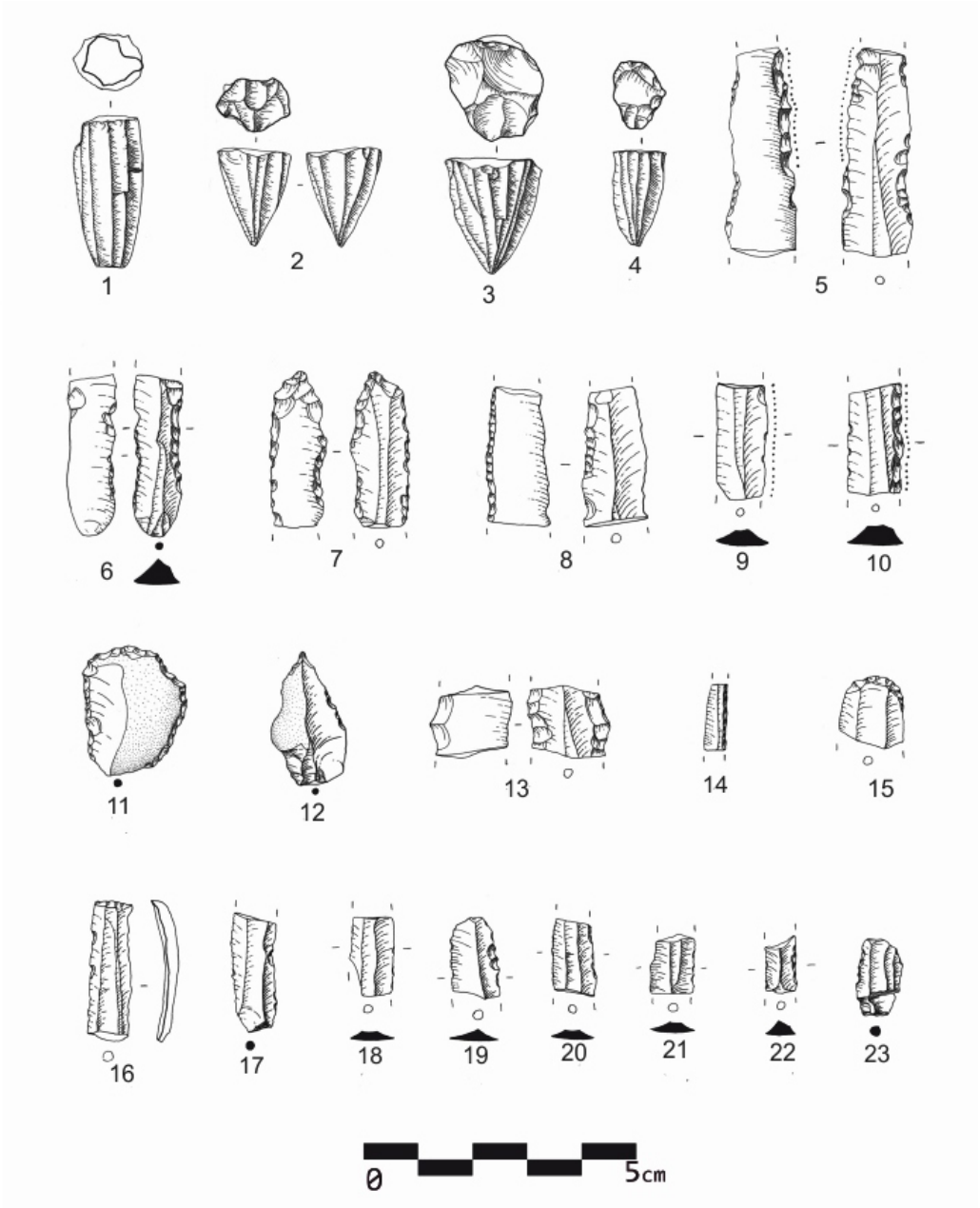


Fig. 6 Roahol Tapeh chipped stone artifacts.

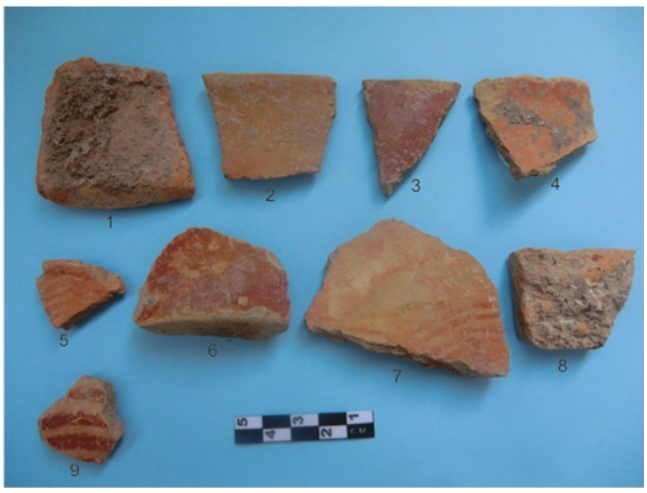

Fig. 7 Roahol Tapeh pottery.

Fig. 9 Merijhelo chipped stone artifacts.

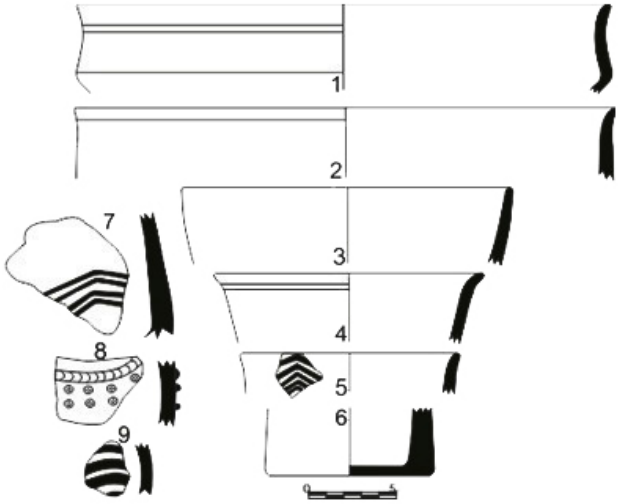

Fig. 8 Roahol Tapeh pottery.

arable land, fuel and plant and animal resources, and habitats that still allow hunting and gathering (Hole 1987a, 1987b; Bernbeck 2001) According to Brookes and his colleagues, the Pre-Pottery Neolithic sites were abundant in the Zagros valleys and lowlands including Lorestan, but they have disappeared under sediment deposits or geomorphological processes (Brookes et al. 1982). More systematic surveys employing geomorphological expertise are needed to identify the expected rich Neolithic occupation in the small valleys and river banks in Zagros region.

## Conclusions

Our sites' locations represent settings with a rich and diversified range of habitats, most likely chosen to sustain communities by basing their subsistence on a broad range of resources. It appears that their communities needed to ensure existence by multiple activities to maximize subsistence security. Bagh-e-No (Early Chalcolithic) was thought to be the oldest settlement in Khorramabad Valley after the Epipalaeolithic occupation, but Roahol Tapeh in Khorramabad Valley now fills the gap. Finding such sites in small and marginal valleys indicates that such valleys may play a determinant role in understanding the Neolithic settlement history in the Central Zagros. As Smith and Mortensen already stated, the primary steps for food production were probably taken in small valleys that provided ecological diversity. Then, after the seventh millennium BCE, or even later, this form of economic success expanded onto adjacent plains (Smith and Mortensen 1980). Future research should focus on understanding the factors involved in this probable development of adaptations.

This small note is important for three reasons: 1) Since only a few Neolithic sites from Central Zagros are known, each report on new sites and their environmental setting is most important to re-approach the questions raised above. 2) Given the morphological and technological similarities of the bullet-core

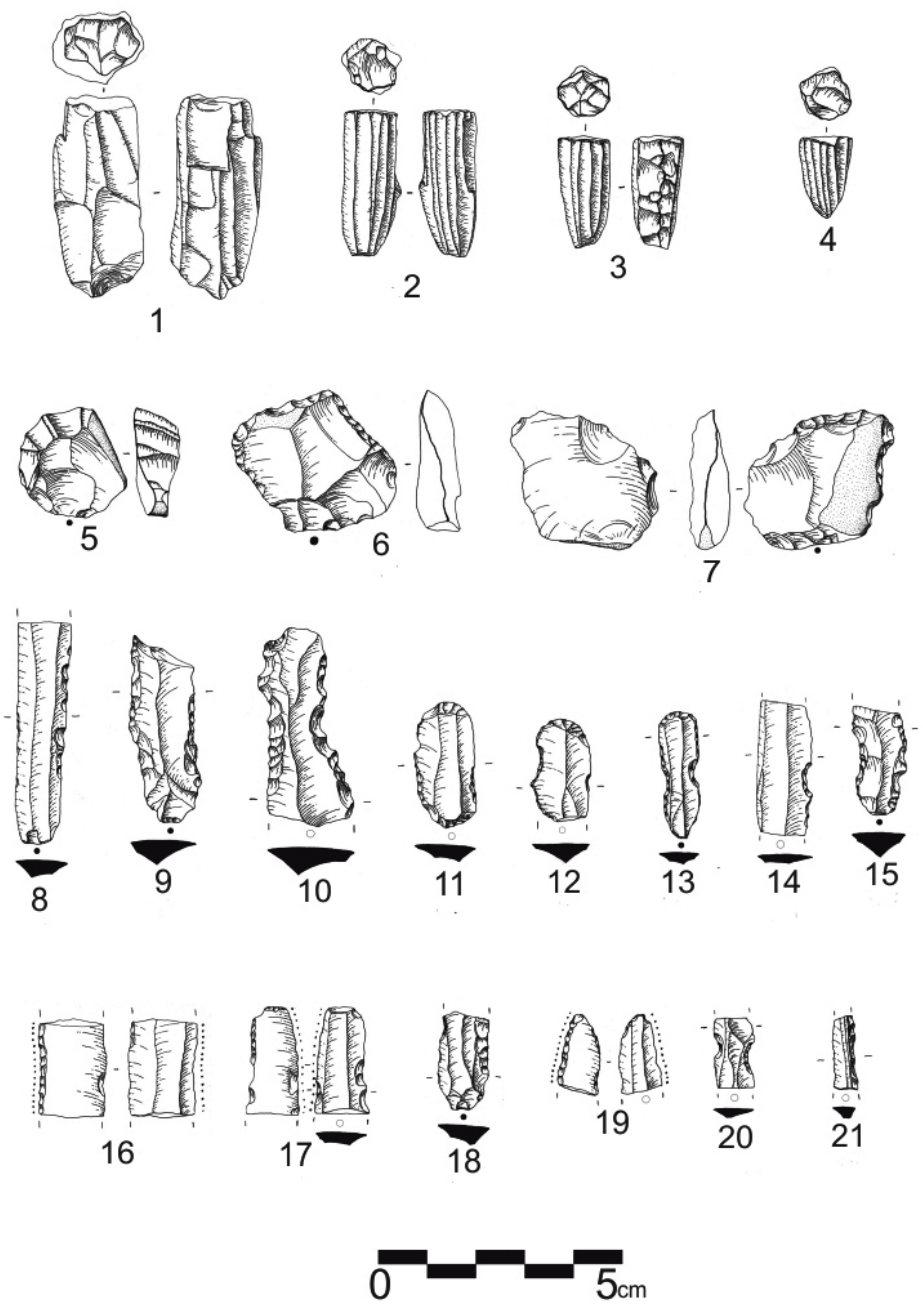


Fig. 10 Merijhelo chipped stone artefacts.

technology with well-dated sites such as Tapeh Abdul Hosein, a late 7th millennium/ early 6th millennium BCE date for the new settlements might be proposed. 3) Finally, the study of these new sites would help to understand and fill two chronological gaps we have for the Khorramabad Valley and surrounding areas: the one between the Epipalaeolithic and the Neolithic and the one between the Neolithic and the Early Chalcolithic.

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Fig. 11 Chiatorkenah chipped stone artefacts.

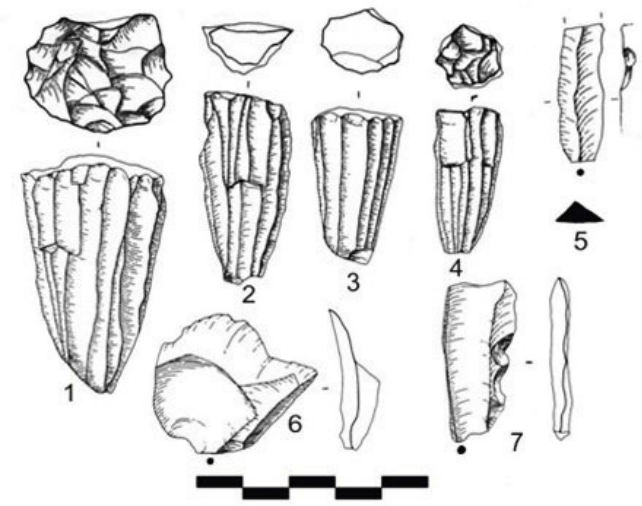


Fig. 12 Chiatorkenah chipped stone artfacts.

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# A 7th Millennium BC Late Neolithic Village at Mesa 4 in Wadi al-Qattafi, Eastern Jordan

**Alexander Wasse, Yorke Rowan, and Gary O. Rollefson**

## Introduction

In 1927 Flight Lieutenant Percy Maitland photographed the summit of one of the mesas he flew over frequently as a pilot on the airmail route between Cairo and Baghdad. Noticing what appeared to him to be a crenellated parapet along the southern edge, Maitland compared the mesa with Tre'r Ceiri, an Iron Age fort in Wales (Maitland 1927: 203), and the basalt-covered prominence became known as Maitland's Hillfort.

This particular mesa is just one of approximately 30 mesas located on both sides of Wadi al-Qattafi about 60 km east of North Azraq in Jordan's Black Desert (Figs. 1 and 2). Another chain of around 20 mesas lies some 5 km to the south, on the eastern side of Wadi Umm Nukhayla. The mesas are remnants of broken and eroded Miocene flood basalts (Rabba' 2005). Wadi al-Qattafi evidently derives its name from the dense distribution of *Atriplex* sp. brush (known as *qattaf* in local Arabic) in the wadi bottom (Musil 1927: 608, where Musil spells the Arabic word "Ḳaṭaf").

Fieldwork around Mesa 4 (hereafter M-4) began in


Fig. 1 Location of the Wadi al-Qattafi mesas in the eastern badia of Jordan. (Map by Y. Rowan).

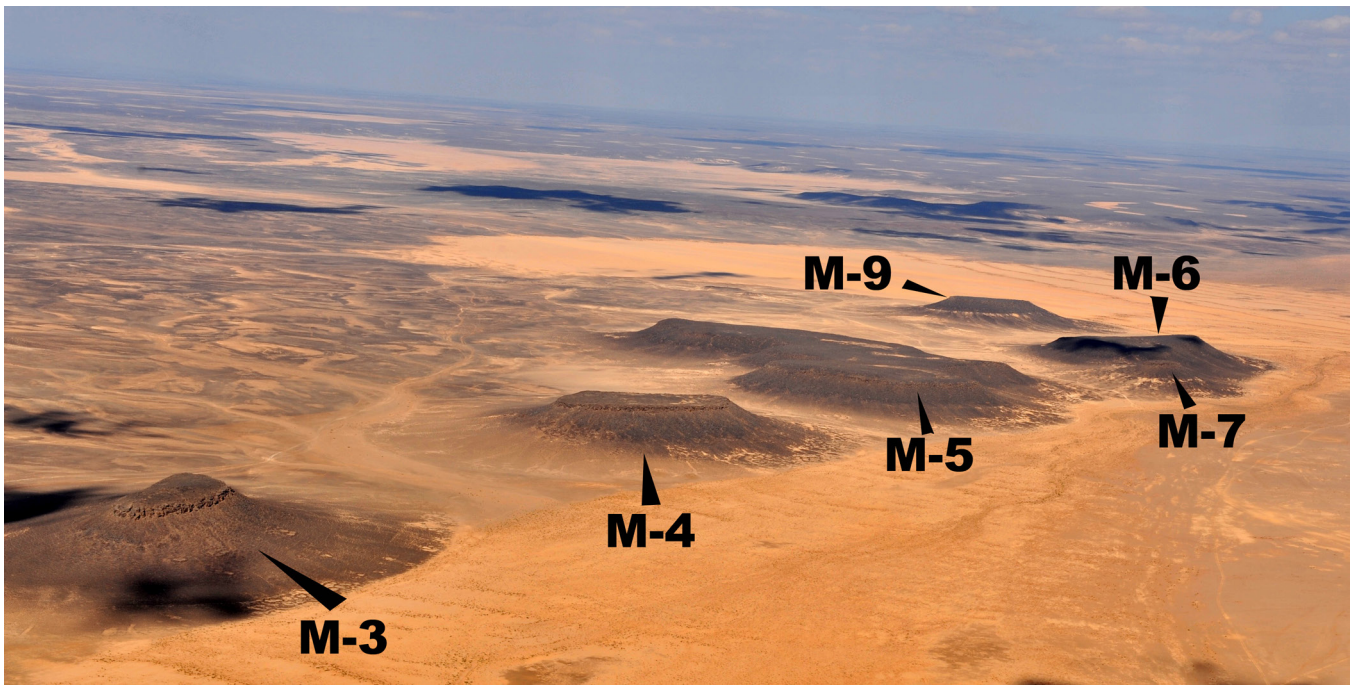


Fig. 2 Aerial view to the north showing several of the mesas along Wadi al-Qattafi in the eastern badia of Jordan. (Photo by David Kennedy, © APAAME, with permission).

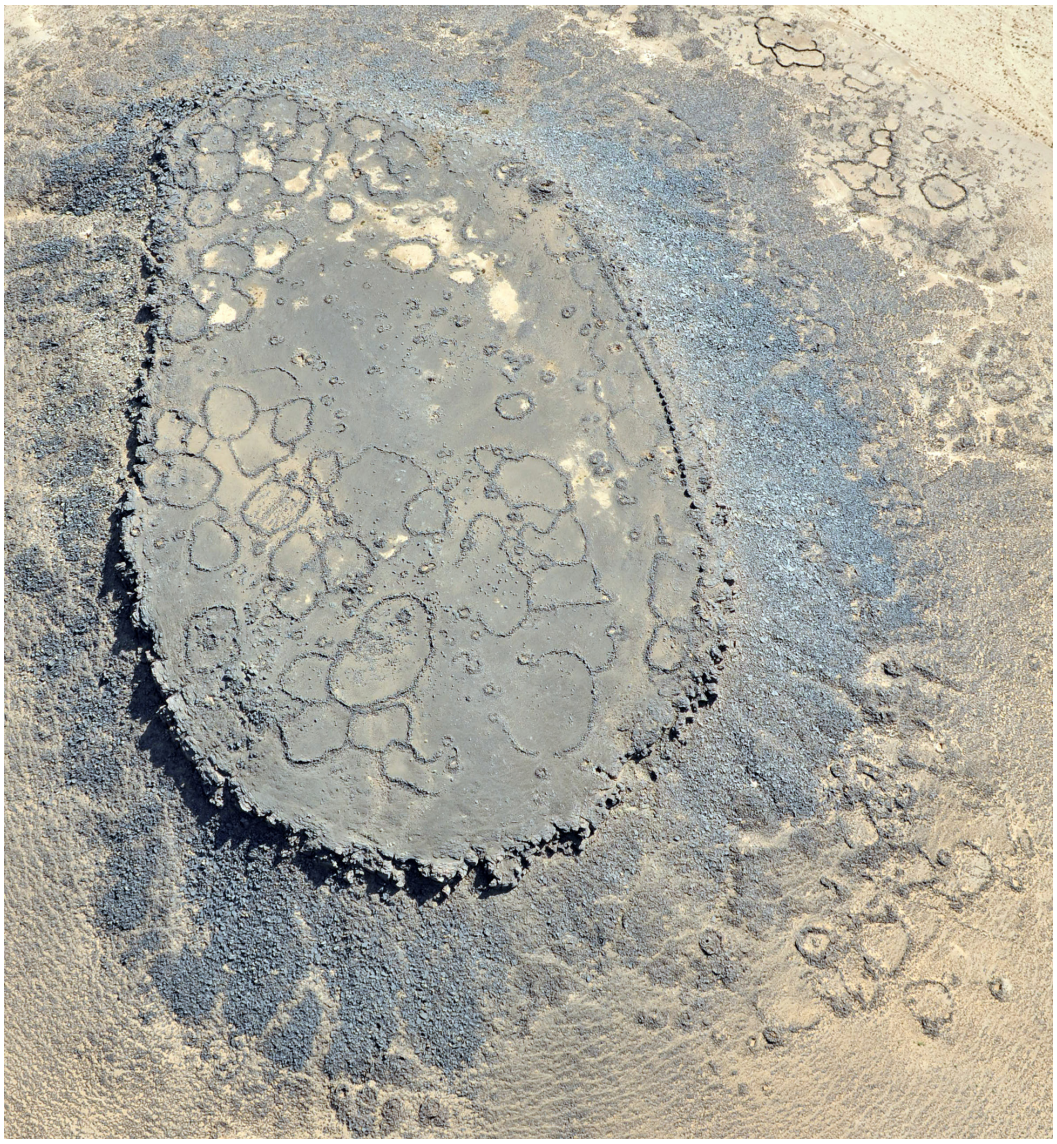

Fig. 3 Aerial view to the east showing structures on the summit of Mesa 4. (Photo by David Kennedy, © APAAME, with permission).

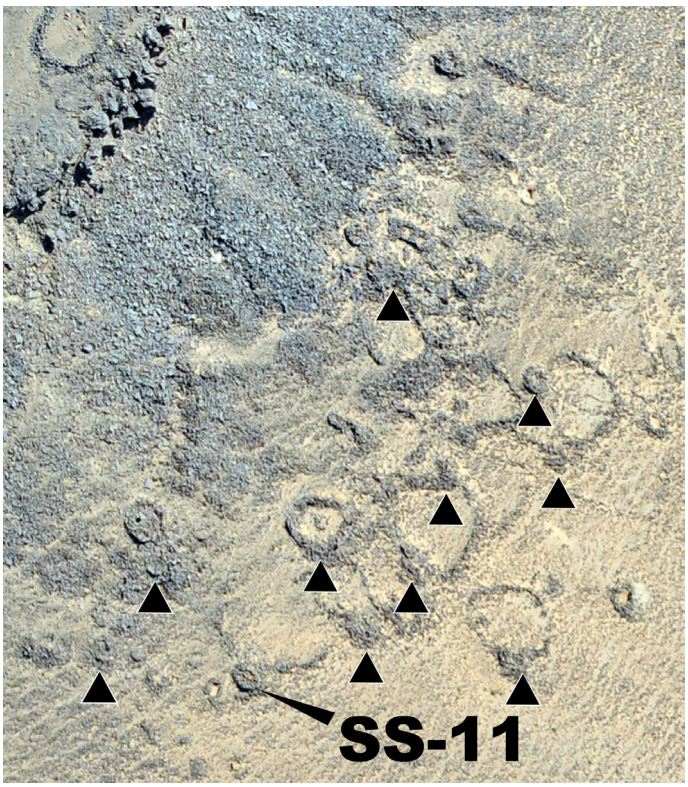


Fig. 4 Aerial view of structures at the south-western foot of Mesa 4 (at lower right in Fig. 3). Black triangles: Location of other corbelled houses, identified during the 2012 season at M-4. (Photo by David Kennedy, © APAAME, with permission).

2008 with an initial season of surveying structures on top and around the base of the mesa, followed by another survey and mapping season in 2010 (Fig. 3; *cf.* Rowan *et al*. 2011). To date, including the results of continued survey in 2012, 478 structures and features have been identified, in addition to ten chipping stations that date from the Early Epipaleolithic, Middle and Late PPNB, and Late Neolithic. For the 2012 fieldwork season, we decided to excavate several structures to investigate their function and determine their age. The following report describes the results of the excavation of one of these buildings.

**Structure SS-11**

Although we investigated two structures on the summit of M-4[1], our main focus was on buildings on the south-west slopes of the mesa (Fig. 4). Many of the buildings here were circular or oval, although the



Fig. 5 Pre-excavation photos of structure SS-11 at M-4: (a) WSW-facing doorway (scale is 35 cm long), (b) View to the south-east showing how the roofing slabs had collapsed inward, indicating a corbelled structure. (Photos: G. Rollefson).

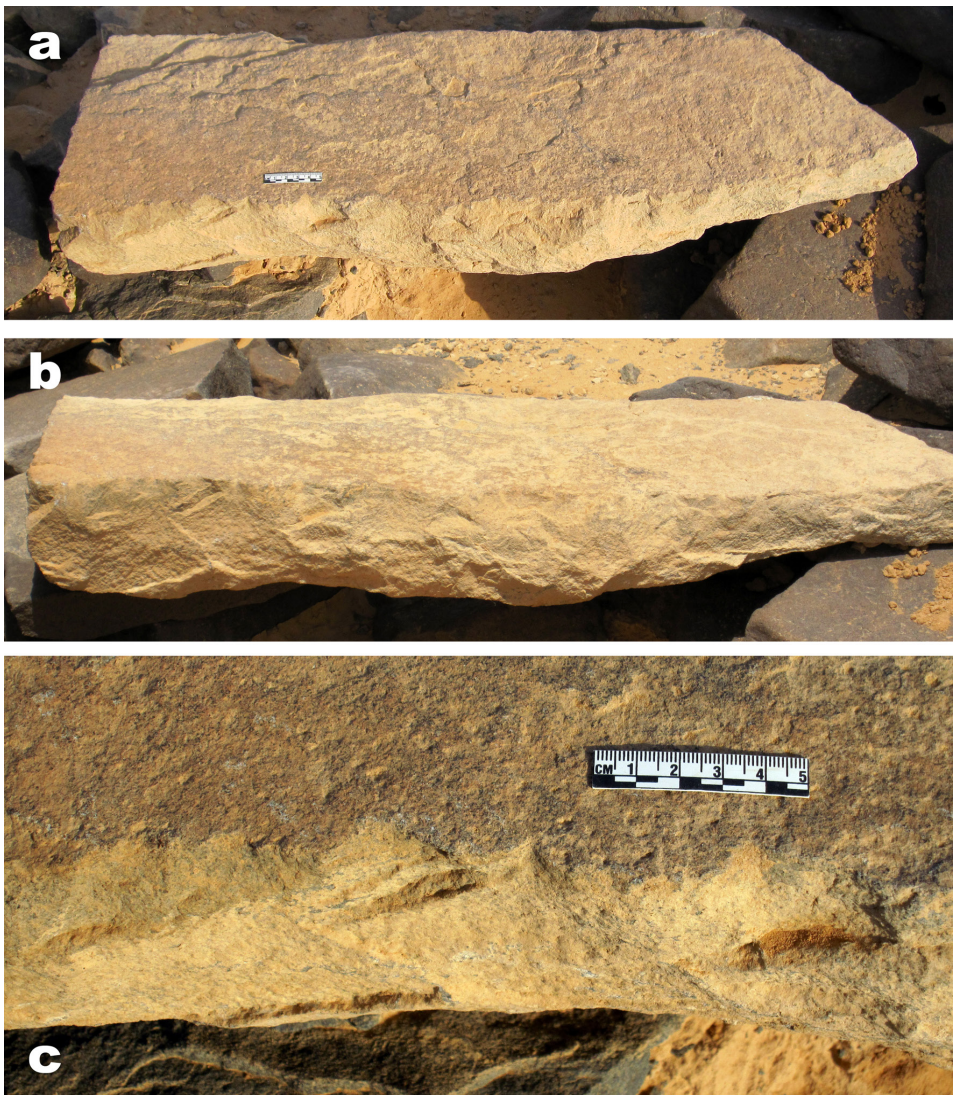


Fig. 6 Possible pillar to support the corbelled roof: (a) Oblique view, (b) Horizontal view clearly showing edge shaping, (c) Detail of chipping. (Photo: G. Rollefson).

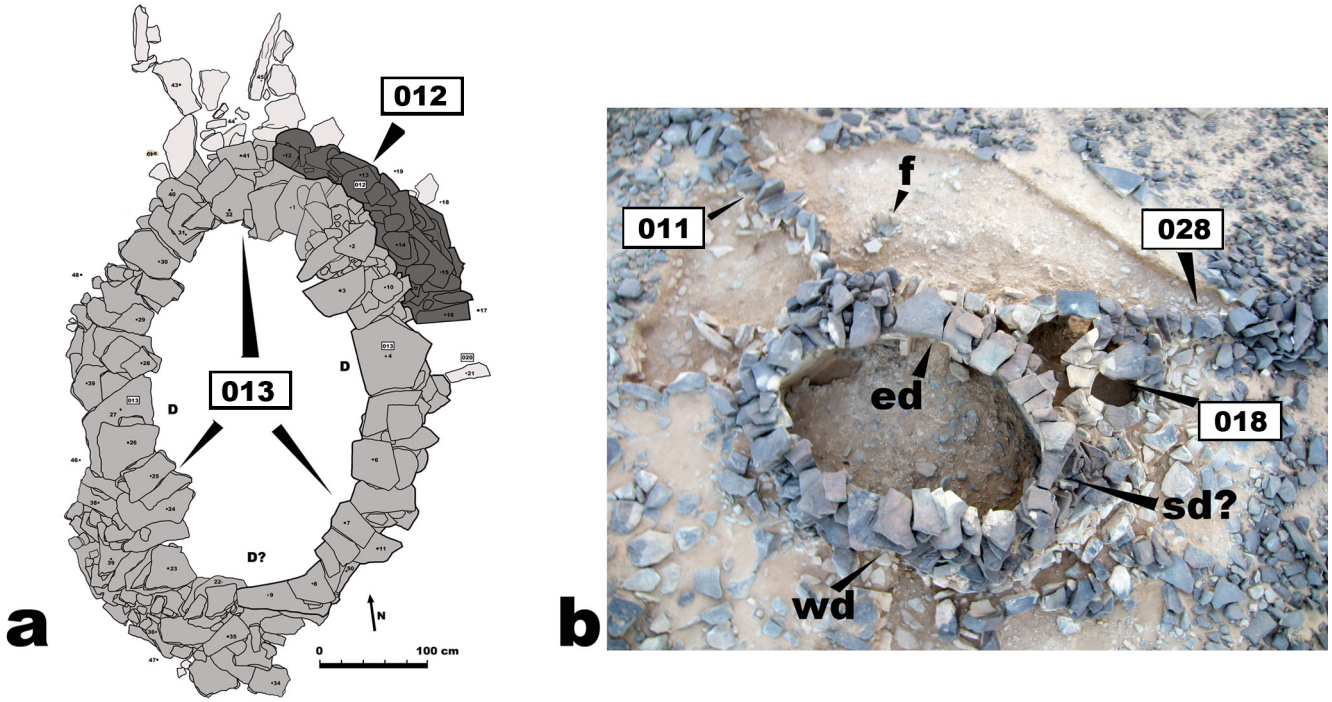


Fig. 7 (a) Plan of initial phase of occupation of the dwelling (Drawing: A. Wasse and G. Rollefson); 012 refers to Locus 012, a reinforcing wall added to the original Locus 013 wall of the structure, (b) Aerial view of the initial phase of occupation of SS-11; wd = western door, ed = eastern door, sd? = possible southern door, f = fireplace, 011 = courtyard wall, 018 = corbelled storage facility, 028= later enclosure wall. (Photo: Y. Rowan).

Fig. 8 Opening in the southern wall of SS-11 (scale is 35 cm long); base of the large block at the left has fire damage to its base. (Photo: G. Rollefson).

collapsed nature of the structural stones made it difficult to determine their shape in many cases; earlier we had posited that they resembled *nawamis* excavated in the Sinai and Yemen (*e.g.* Rowan *et al*. 2011). One building - South Slope 11, or SS-11 - was particularly intriguing since in its collapsed state it preserved a doorway facing west-south-west, a feature similar to *nawamis* (*e.g*. Bar-Yosef *et al*. 1977; Braemer *et al*. 2001). The placement of the roofing slabs indicated a corbelled construction technique, again invoking Sinai tombs of the Chalcolithic / EB period (Fig. 5).

Because much of the fill inside the structure consisted of relatively large basalt slabs[2], initial clearance of SS-11 proceeded rapidly. It rapidly became apparent that the structure was oval, not circular as was common for *nawamis*. Another aspect that argued against its identification as a *namus*[3] was noted soon after we began to clear the interior fill: a second doorway was exposed on the eastern side of the structure, a feature that opened onto a walled courtyard with characteristic domestic features including a small hearth.

### *Phase 1: Construction and Occupation*

Clearance of the interior fill of the building demonstrated that it was originally erected on a consolidated 'bedrock' surface of indurated silt / basalt gravel sloping gently down to the south and south-west. An intentional fill layer (Locus 017) leveled the surface inside the house, and there were several indications of sequential, expedient fire-places in the accumulated sediments above the lowest level of the building; abundant radiocarbon samples were collected from these hearth features. A curious feature of the construction was that the northern, eastern, and south-eastern walls consisted of relatively large slabs placed on edge, elevating the roof in large sections[4]. In many cases these upright slabs were stabilized by small basalt wedges at their bases, a construction technique previously noted in Late Neolithic structures at Burqu' (Betts *et al*. 1990: 11). The western wall, on the other hand, was different in detail, with walls elevated by stacking slabs horizontally rather than on edge, a difference in technique that is neither easy to explain nor understand. We suspect that the western wall may have been a later modification of the original, but there were no certain indications of any such transformation during the life of the structure.

The original dwelling was small (*ca.* 2 x 3 m) and probably very low in terms of the height of the roof over the floor; although pillars are not necessary to support a roof in a corbelled structure, they do provide added stability. A relatively long, slender potential pillar, measuring 79 x 20 x 6 cm, was found in the fill; the intentional shaping of the edges of this slab suggests it may have served as a support for the roof (Fig. 6)[5]. The low roof would have necessitated crouching to gain access to the structure, which at first sight seems counterintuitive for a semi-permanent dwelling. However, as the inhabitants would most likely have used it during the winter rainy season, when temperatures would routinely have hovered at or below freezing, the smaller volume of the dwelling would have been more comfortable in terms of night-time heat retention.

A secondary wall was added to the north-eastern section of the structure as an 'outer skin' (Locus 012 in Fig. 7a). This appears to have been erected to protect the building from surface wash or rock-fall from the slope above it to the north and east.

A curious aspect of the building is the presence of at least two doorways: one trapezoidal (85 cm high, 46 cm wide at the top, 78 cm wide at the base) and facing downslope to the west-south-west, the other rectangular (89 cm high, 61 cm wide) and opening onto a courtyard to the east-north-east (Fig. 7). Both doorways incorporated vertical door-jamb slabs topped with a lintel. A third opening (*ca.* 75 cm high, 60 cm

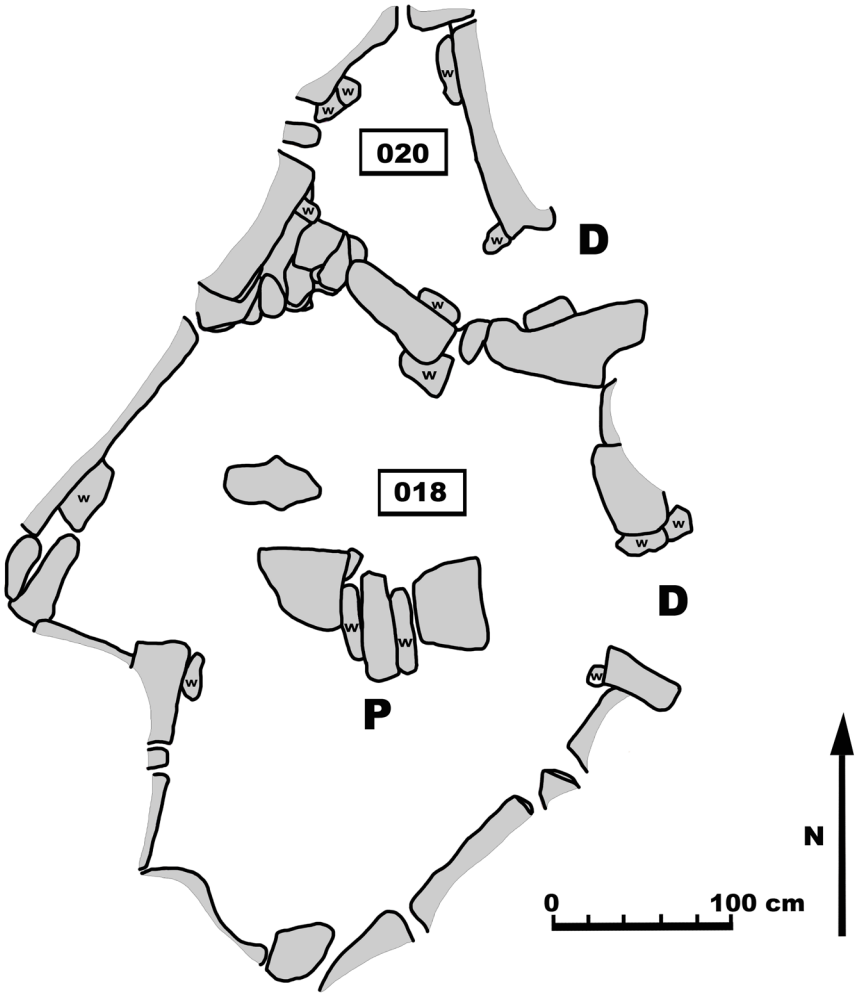


Fig. 9 Floor plan of Locus 018 and Locus 020; P = central pillar supporting the corbelled roof, D = doorways, w = small wedging stones under stones set on edge. (Drawing: M. Perry and G. Rollefson).


Fig. 10 View to the west towards the eastern side of SS-11, showing the doorways into the various parts of the structures. (Photo: G. Rollefson).

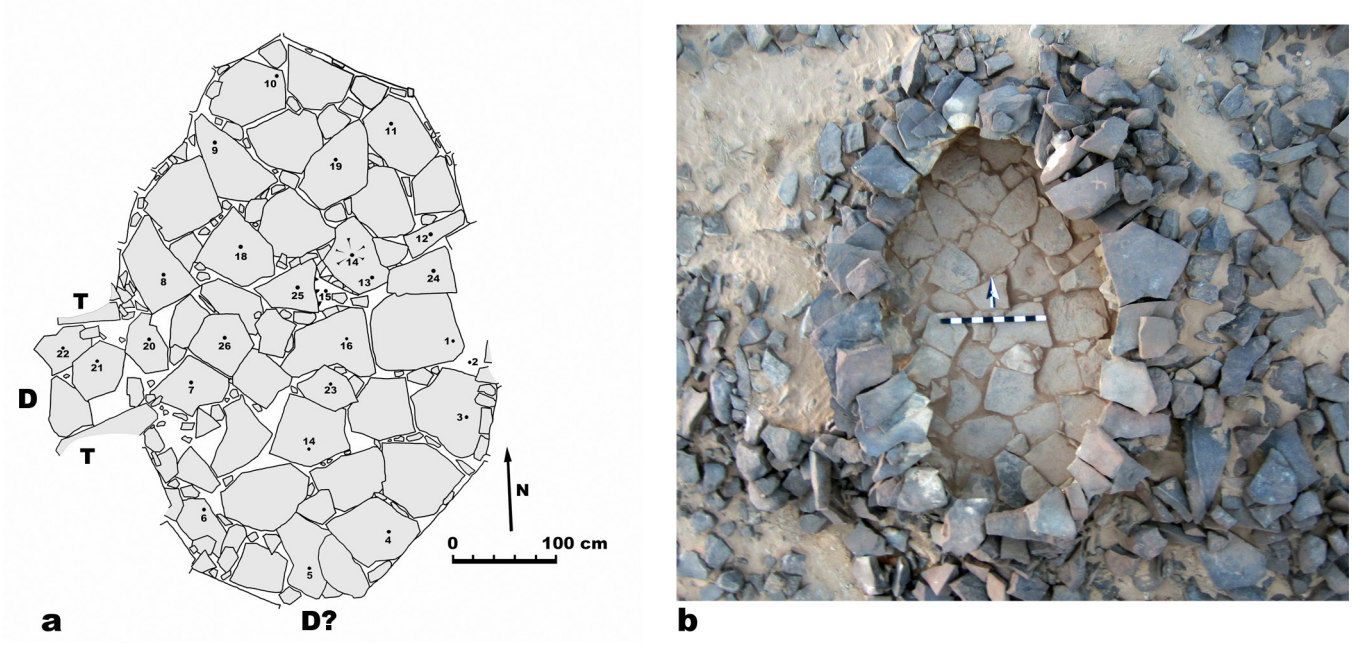


Fig. 11 Phase 2 occupation of SS-11: (a) Floor plan of pavement 003; D = door; D? = possible door; T = threshold under the doorway (Drawing: A. Wasse and G. Rollefson); (b) Aerial view of Phase 2 occupation in SS-11 (Photo: A.C. Hill).

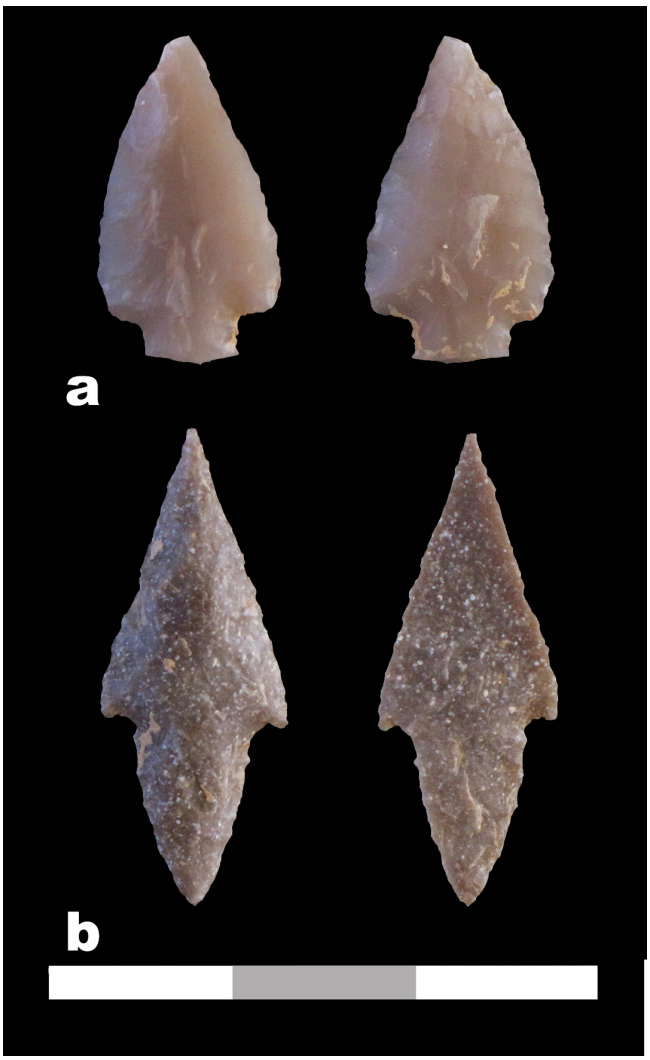


Fig. 12 Late Neolithic points from SS-11: (a) Yarmouk point; (b) Haparsa point. (Photo: G. Rollefson).

wide) was located in the southern wall. It had a partial jamb on the western side, but none on the east; however, the large basalt block on the east would have served such a purpose very well (Fig. 8). Even so, the demonstrable existence of two doorways in so small a structure seems excessive; a third would be highly eccentric, suggesting that this opening was more likely to have been a crude window.

Excavation of the courtyard to the east of SS-11 exposed a small stone-lined fireplace (Locus 007) with abundant ash and minute pieces of charcoal. The pit was 14 cm deep and 35 cm wide at the base, flaring to almost 50 cm at the top of the stones lining the hearth ("f" in Fig. 7b). As noted above, several indications of sequential, expedient fire-places were also found within SS-11, as were some concentrations of ash. Locus 026 is a substantial ash dump to the south-east of the eastern doorway. It underlies later enclosure wall 028; radiocarbon dates from Locus 026 will establish a *terminus post quem* for the wall and the beginning of Phase 2 at SS-11.

An unexpected feature emerged outside the apparent south-eastern edge of SS-11, namely a corbelled storage room (Locus 018) measuring 1.88 m north-east - south-west x 1.45 m south-east - north-west, with a roof supported by a single pillar about 45 cm high. Adjacent to the north and under the same roof there was also a smaller triangular storage bin (Locus 020), measuring 90 cm north -south by 24 cm east -west (Fig. 9). Loci 018 and 020 each had a small 'doorway' leading eastwards into the courtyard (Fig. 10), and it is likely another door led into Locus 018 from the south.

### *Phase 2: Renovation and Occupation*

Later in the history of SS-11, the eastern doorway was blocked and walls 011 and 018 added to the courtyard, ostensibly to create an enclosure roughly 15 m in diameter. Wall 011, abutting reinforcing wall 012 on

the north-eastern edge of SS-11, was excavated over 3.5 m of its length (not yet determined) in a north-easterly direction; it was constructed of a single row of basalt slabs set on edge, with a maximum preserved height of around 40 cm. At the same time a second wall (Locus 028, see also above) was erected towards the south-east. It was constructed of horizontally placed basalt blocks and was excavated for a length (total not yet determined) of 2.17 m; it had a width of around 50 cm and a preserved height of approximately 50 cm, consisting of four of five courses. Another reinforcing wall (Locus 025) was built at the north-west end of Wall 028, seemingly to protect the 018 storage facility. Since this wall blocked the eastern, courtyard 'doorways' of Loci 018 and 020, it might have been at this time that the southern opening to Locus 018 was made.

The most stunning development occurred inside the main structure. The interior was leveled with fill, then paved completely using basalt blocks averaging around 30 - 40 cm x 50 cm in size (Fig. 11). Interstices between the pavers were often filled with small basalt 'chinking stones' set on edge. At Point 15 in the center of Fig. 11, there is a triangular opening that may have been a socket for the shaped pillar described above. Nearby is a paver with a small depression (Point 14 in Fig. 11) and evidence for burning, suggesting it may have served as a small hearth.

**Artifacts and Dating**

Before excavation began, we anticipated the recovery of Chalcolithic or Early Bronze artifacts in and around SS-11 on the basis of our assumption that the structure was a collapsed *namus*. Instead, we recovered diagnostic material of the Late Neolithic period, including burin spalls (rare in post-Late Neolithic periods), a drill bit on a burin spall, a Haparsa point and a Yarmouk point (Fig. 12); the tang of a broken (Haparsa?) point was also found. Other tools included two tabular knives, two bifacial knives, two unifacial knives, a concave truncation burin, a broken burin of unknown type, nine scrapers, eight denticulates and three notches. Conspicuously rare were grinding stones: only a basalt hand-stone and a grinding slab fragment were unearthed. This stands in stark contrast to the wealth of ground stone recovered from structure W-66 at Wisad Pools (Rollefson *et al*. 2011). Similarly, unlike the abundant faunal remains at W-66, animal bones were scarce at SS-11; it is however not unlikely that rubbish was discarded down the slope to the south of the structure.

The presence of Yarmouk and Haparsa points indicates a Late Neolithic date somewhere between *c.* 6,500 - 6,000 calBC, making SS-11 broadly contemporary with structure W-66 at Wisad Pools. A more accurate comparison will be possible once assays of the abundant ash and charcoal samples from both sites have been completed.

**Discussion**

For the second time in as many years, the Eastern Badia Archaeological Project has been stunned by the presence of substantial, stone-built dwellings of Late Neolithic date that indicate semi-permanent occupation of areas which are now arid. Hitherto, we had surmised that camps of this period would most likely have consisted of flimsy, temporary huts or tents. Even more startling has been the realization that a significant proportion of the abundant substantial, stone structures on the slopes of the mesas of Wadi al-Qattafi and around the pools at Wisad are not burial features, but dwellings.

The results of the 2012 season at M-4 have led us to reassess the nature of the buildings on the southern slopes of M-4. It is now clear that SS-11 is not unique among the numerous structures here, but that it is only one of what must have been a settlement of at least 10 - 15 housing units, many directly associated with animal pens. The black triangles in Fig. 4 point to other corbelled structures, often connected to animal pens, and others may well be identified here in due course. Whether all are strictly contemporaneous is not possible to determine at this time, but it appears we may be looking at a model whereby a group of co-operative family units exploited this environment during the rainy season, rather than a situation in which a few individuals or a restricted number of nuclear families operated essentially in isolation.

Such a scenario becomes all the more likely when one examines other concentrations of structures in the near vicinity of M-4. The concentration of structures in the drainage between M-5 and M-7 - just a kilometer or two north of M-4 - includes corbelled structures (Fig. 13) far more numerous than those at the settlement at M-4. At this point, we have not investigated these northern clusters at all; it is therefore not clear what temporal relationship they may have with M-4. Nevertheless, even if they are earlier or later than each other or, indeed, M-4, it seems clear that circumstances once existed in the eastern *badia* which permitted significant population clusters to agglomerate in village-like settlements for some months at a time, perhaps for most of the rainy season.

The substantial nature of the dwellings at M-4 and Wisad Pools suggests that, at very least, the labor invested in their construction[6] was justified by the expectation of recurrent visits to the same locations, season after season, rainfall permitting. Braemer has noted that the EB settlement at Khirbet al-Umbashi in the Black Desert of eastern Syria could not have supported its resident population under current climatic and soil conditions (Braemer and Échallier 2004). He describes how current soil conditions are most unlikely to reflect the situation 5,000 years ago. Rather than the silt and stone of today, which together ensure that precipitation either drains immediately into deep aquifers or ends up on mud-pans as surface-wash, prehistoric sediments are likely to have included a pervious topsoil. This


Fig. 13 Structure clusters between mesa M-7 (upper left) and M-5 (lower right); see FIG. 2; Wadi al-Qattafi at top of photo. (Photo by David Kennedy, © APAAME, with permission).

would have soaked up water like a sponge during the rainy season, retaining it in the matrix for relatively long periods of time.

With such topsoil buffers, local vegetation may have resembled the dry grasslands of East Africa rather more than the bleak aspects that characterize the eastern *badia* today. With greater topsoil cover, local landscapes are likely to have been more luxuriantly vegetated, varying - of course - with annual fluctuations in rainfall. Late Neolithic exploitation of the eastern *badia* may therefore have been characterized by periodically relocating village-based pastoral units, perhaps practicing some opportunistic agriculture, which would have been well placed to take advantage of the environmental conditions alluded to above. Kennedy's archive of aerial photographs of archaeological features in the *badia* (*e.g.* http://www.flickr.com/photos/36925516@N05/ and http://www.apaame.org/) contains many examples of structure clusters, some of which could easily be Late Neolithic in age.

Another aspect of arid land exploitation to consider is the Early Neolithic capacity for water management that has been so convincingly demonstrated by Fujii's work at PPNB Wadi Abu Tulayha at the north-western edge of the Jafr Basin (*e.g.* Fujii 2010; see also Gebel 2010). Mention has previously been made of a water management system at the PPNB camp at Ibn al-Ghazzi, located approximately 25 km north-east of M-4. This included "rock-lined underground cisterns with roughly corbelled roofs" (Betts 1986: 147; *cf.* 1987: 225) with stone-lined canals leading into them (Helms 1984: 49). Such systems have not been noted yet in the mesas area, but future work here must focus more attention on this aspect.

## Endnotes

[1] These were small, single- and double-cell curvilinear stone alignments with 'walls' only one to two stones high. The deposits were shallow and produced very few artifacts, none of which were diagnostic. It is likely that they are Chalcolithic or Early Bronze Age based on scattered (albeit rare) fragments of cortical scrapers, but we cannot demonstrate that they are even as old as 'Late Prehistoric' on the basis of the excavations.

[2] The basalt capping of the mesas has spalled naturally into rectangular blocks that provide abundant building material. These blocks vary in size, but there are abundant slabs of suitable size for construction.

[3] *namus* is the singular of the plural form *nawamis*.

[4] One of the basalt blocks of the southeastern wall was huge, measuring 117 cm wide, 74 cm high, and 19 cm thick, weighing around 165 kg.

[5] In light of the relative shortness of this stone compared to the door openings, this "pillar" may be associated with the renovated second phase of occupation; see below).

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# New Results on the Younger Dryas Occupation at Körtik Tepe

**Aytaç Coşkun, Marion Benz, Corinna Rössner, Katleen Deckers,**
**Simone Riehl, Kurt W. Alt, and Vecihi Özkaya**

*"It is now clear that the eastern part of southwest Asia was an independent center of development. This region constitutes a unique cultural entity rooted in the local late Upper Paleolithic/ Epipaleolithic cultures […]"*
Peasnall 2000: viii

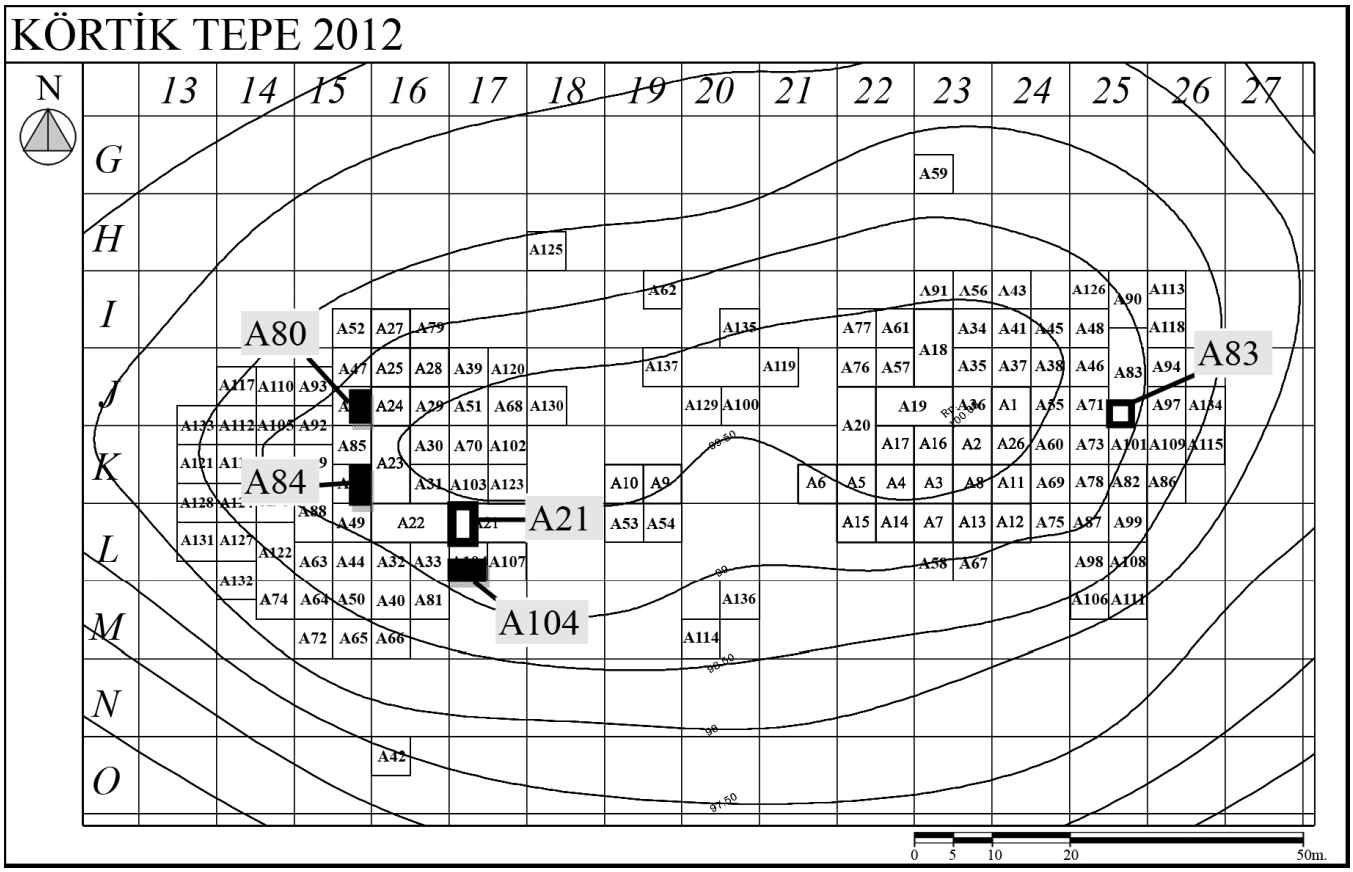
## Introduction

Although Peasnall and Zettler wrote the above fundamental conclusion more than ten years ago, research about "Epipalaeolithic" settlements in southeastern Turkey is only at its beginnings. It is indeed premature to speak about *the* "Epipalaeolithic" in this region, because a clear definition is still lacking. Most findings come from surveys or small test excavations dated by typology. Well stratified sites with unmixed layers – such as Öküzini or Karain Cave in the southwestern Taurus Mountains – are missing (Algaze *et al.* 1991, 1994; Rosenberg and Togul 1991; Kartal 2003; Garrard *et al.* 2004; Hauptmann 2011). Therefore, remains of at least two multi-layered constructions and several pits excavated beneath the early Holocene settlement at Körtik Tepe in 2011 and 2012 are of major importance.[1] A sequence of four radiocarbon samples and three dates from other locations of the site firmly date this early occupation to the second half of the 11th and the first half of the 10th millennia calBC.[2]

## The Epipalaeolithic Occupation in Trenches A104 and A80

Trenches A80 and A104 are located in the southwestern and western part of the tell (Fig. 1). In both trenches, remains of pre-Holocene constructions were documented (Benz *et al.* 2012; n.d).

In A80, at -490 cm, the most ancient construction was cut down about 40 cm into the natural soil. Three postholes belonging to this oldest construction were




■ Trenches with radiocarbon dated evidence for settlement activities in the Younger Dryas.
□ Trenches with undated remains of YD occupation.

Fig. 1 Trenches with documented/radiocarbon-dated settlement activities during the Younger Dryas.

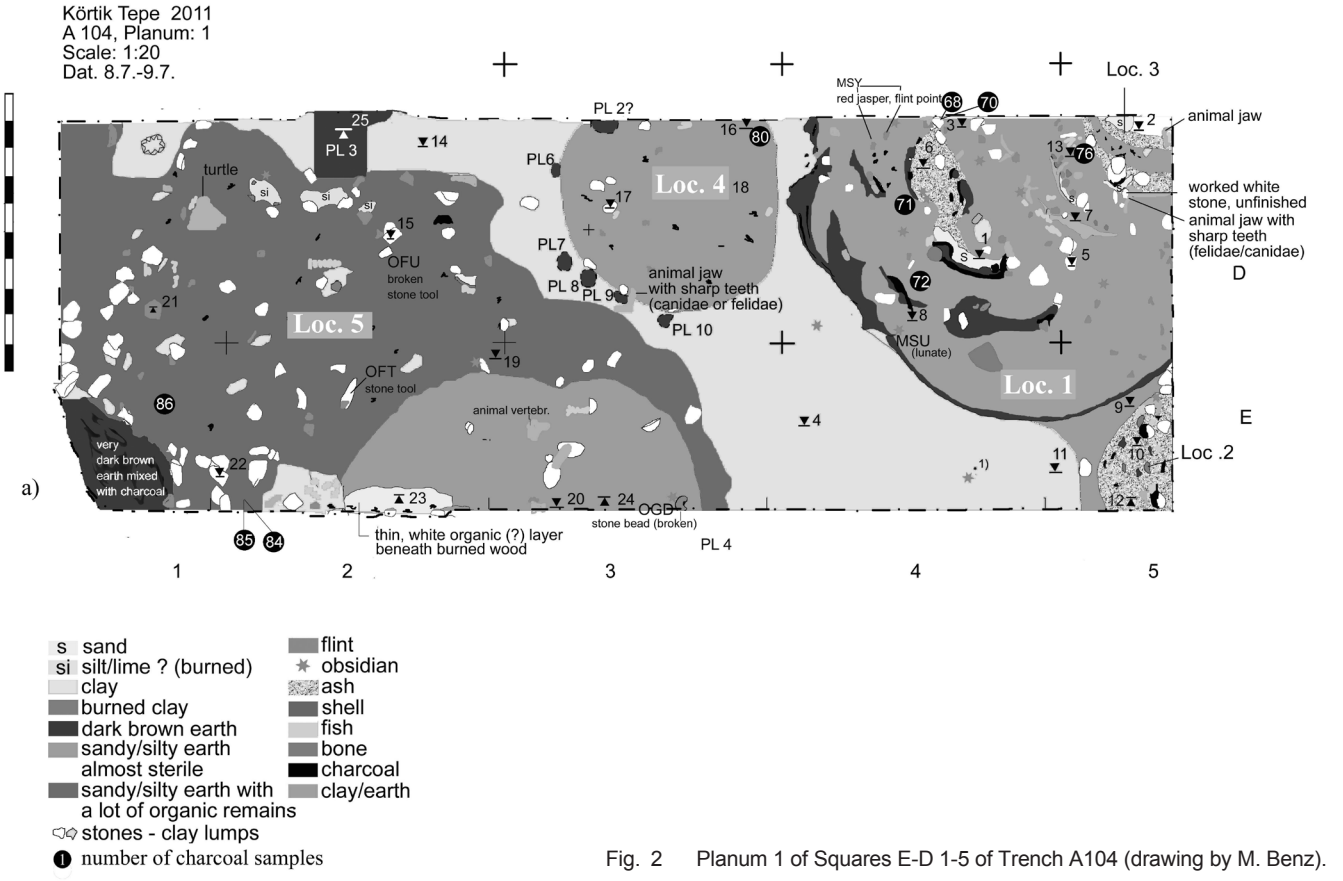



Fig. 2 Planum 1 of Squares E-D 1-5 of Trench A104 (drawing by M. Benz).

observed. The course of the later sediments and the position of the postholes suggest that this building had a diameter of about 3 m. Above this first building, several more destruction and filling layers, a hearth, as well as traces of thin layers of anthropogenic origin appear. In contrast to the compact clay and stone constructions of the upper layers (Özkaya and Coşkun 2011), the more flimsy remains of the lower layers indicate rather ephemeral occupations or an outside space.

The occupational remains in A104 (Fig. 2) have been described in detail elsewhere, that it suffices to summarize the results (Benz *et al.* n.d.). Locus 1 is a large pit, of which the southwestern quadrant was excavated. If it is circular, its full diameter is about 180-200 cm. It probably was originally about 1 m deep. In shape it resembles an inverted bell. A similar bell-shaped structure was observed at Demirköy[3] (Algaze *et al.* 1991:181).

The pit was filled with many flints and obsidian artifacts, including an obsidian lunate and a very large complete obsidian nodule. The flints were mostly medium to large flakes and only a few microliths. The ashy remains contained some animal bones, mostly of smaller species, a shell, and many fish bones. Only three items of jewelry, two ring-beads, and a teardrop-shaped black stone pendant, were found. Mixed in with the fill were some scattered stones, most of which showed traces of heavy burning or which had been fractured by heat.

The lowest part of Loc. 1 (-5.35/ -5.51 m) was lined with large river stones.

Because the walls were not straight and narrowed towards the bottom, it is unlikely that Loc. 1 was a habitation. More likely it was used for storage, though its extraordinary diameter makes it a rather large structure for such a function. West of this pit another round structure with a diameter of about 80 cm was discovered (Loc. 4). It had been dug into the natural soil down to -4.76 m, but because of later (Neolithic) destruction it is not possible to determine its original height. To its west and southwest it is lined by some small postholes (PL 6-10). A large posthole (PL2) could be observed in the northern profile. Loc. 4 was mostly devoid of finds.

The most impressive structure of that trench was a multi-layered pit (Locus 5). At the bottom of that construction was a pit (Loc. 5_2) (Fig. 3). A fire must have destroyed the organic superstructure, which fell into the pit from the east. Two charcoal samples (CH 96= ETH-45335; CH97= ETH-45336) of this earliest occupation have been dated. After the fire, the pit had been completely filled in by sediment hardly distinguishable from the natural soil. The structure was then expanded to the west and clearly used as a habitation (Locus 5).

Locus 5 (Fig. 2) is a large round or oval structure, which extends for 2.40 m from the western profile to the east and about 1.40 m from the southern profile to the north. If it was oval it should continue N-S for at least another 1.40 m, or 3 m if it was a round structure with a diameter of 4.40 m. It had been dug 40-50 cm into the soil. A possible entrance lay on the northern border. To the east and west of this entrance curving depressions were bending to the southeast and west, res-

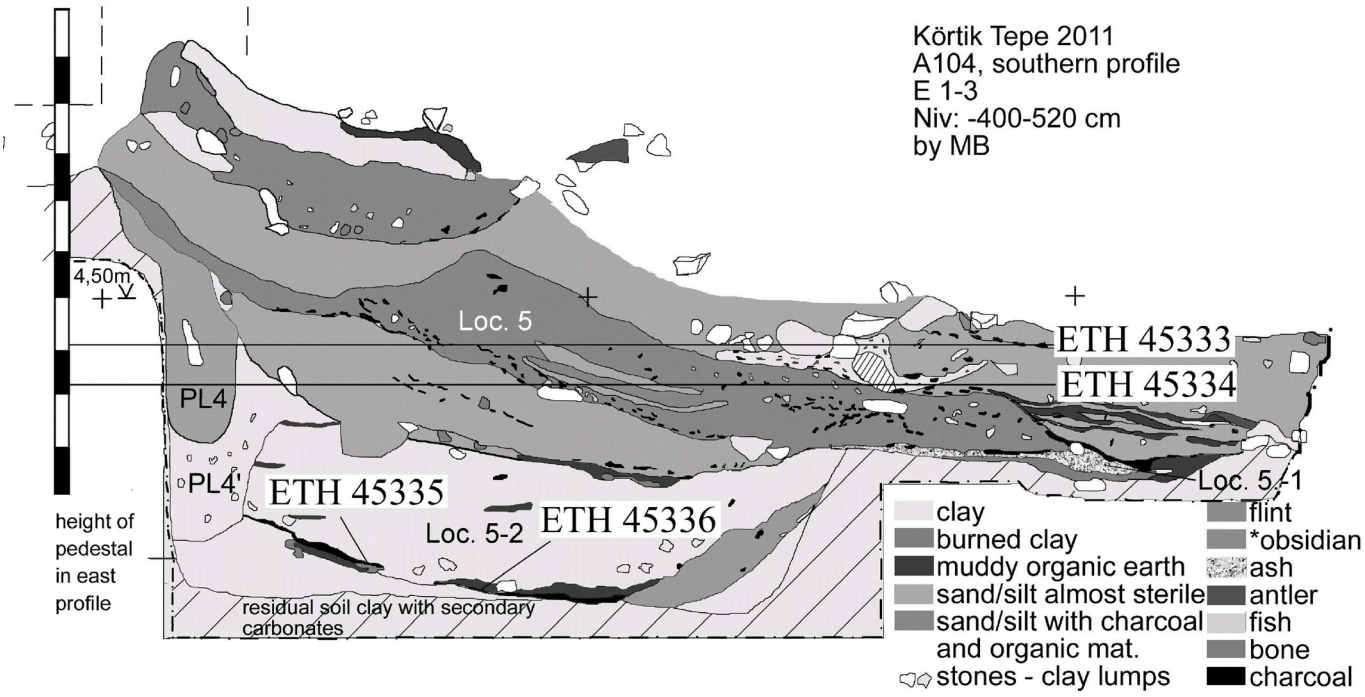



Fig. 3 Southern profile of Squares E1-3, Trench A104, indicating the location of radiocarbon samples.

pectively, possibly the remains of a wooden wall which continued along the postholes, PL 6-10. On the eastern border of Locus 5 there was another large posthole, PL 4. Inside this construction - about 1.50 m to the west of the posthole -, a hearth (Locus 5_1) had been dug into the natural soil. It was 30 cm wide and extended 20 cm from the southern profile. The bottom and walls of this hearth were covered with flat river pebbles blackened from fire. Above this cultural layer is the first quite sterile fill. Separated from it by a rather thick layer of charcoal, there is another cultural layer with heavy traces of burning. Except at its southeast part, this cultural layer was thickly strewn with flint flakes, cores, some obsidian, and animal bones. In the western part the surface was covered with stones. A charcoal sample for dating (CH 92=ETH 45334) was taken from the upper part of that layer, just above Locus 5_1.

Above this cultural layer an almost sterile layer slopes in the same direction, covered by another cultural layer that contained stone tools and flints, animal bones, many fish, and the remains of a turtle shell. A charcoal sample from this layer (CH 85=ETH 45333) has been dated, too. An accumulation of stones in that younger layer was observed on the same spot as in the older layer. This implies a prolonged tradition in how space inside this habitation was used.

In conclusion, Locus 5 was used for living purposes, either for an extended period or repeatedly. Though there must have been a strong fire that destroyed the first structure, it was restored and continued in use for at least two more phases. Flint napping activities and cooking/heating are attested within the structure. The construction of Locus 5 confirms the changes in building traditions that had been observed in Trench A80 (Özkaya *et al.* 2011). For further interpretations we must await the analysis of the animal bones, fish, and other botanical remains as well as the study of the large number of flints.

**Trenches A21 and A83**

In 2012 remains of a round structure with a diameter of about 3 m were documented in Trench A21. This construction was strongly eroded. However, the course of the habitation was visible by the differences in fills: within the building there were several anthropogenic levels alternating with fill layers (Fig. 4). They delineate clearly the inner space. In contrast, outside the building the fill was unstructured. The construction consisted of an accumulation of stones that were mixed with and covered by a thin layer of clay forming a slightly elevated border. The round shape of that structure was interrupted in the northwestern part possibly marking an entrance. East of this entrance, remains of a decaying wall were observed: Several, nearly fist-sized stones had fallen inside the structure, mixed with clay and covering a cultural layer with many flints and obsidian artifacts. The cultural layers inside this structure consist of alternating layers of sand, clay, carbonates and organic dark brown earth with charcoal (Fig. 4). During the second occupational phase a perinatal individual was buried in a pit below the floor. The corpse was completely covered by red ocher. After the filling of the burial pit, the same area was still occupied.

Although the analyses of the finds are only at their beginnings, they confirm a continued and repeated use of the same space and thus support the observations of Trench A104, just 3 m to the south. Beneath the round construction, below – 440 cm, another cultural

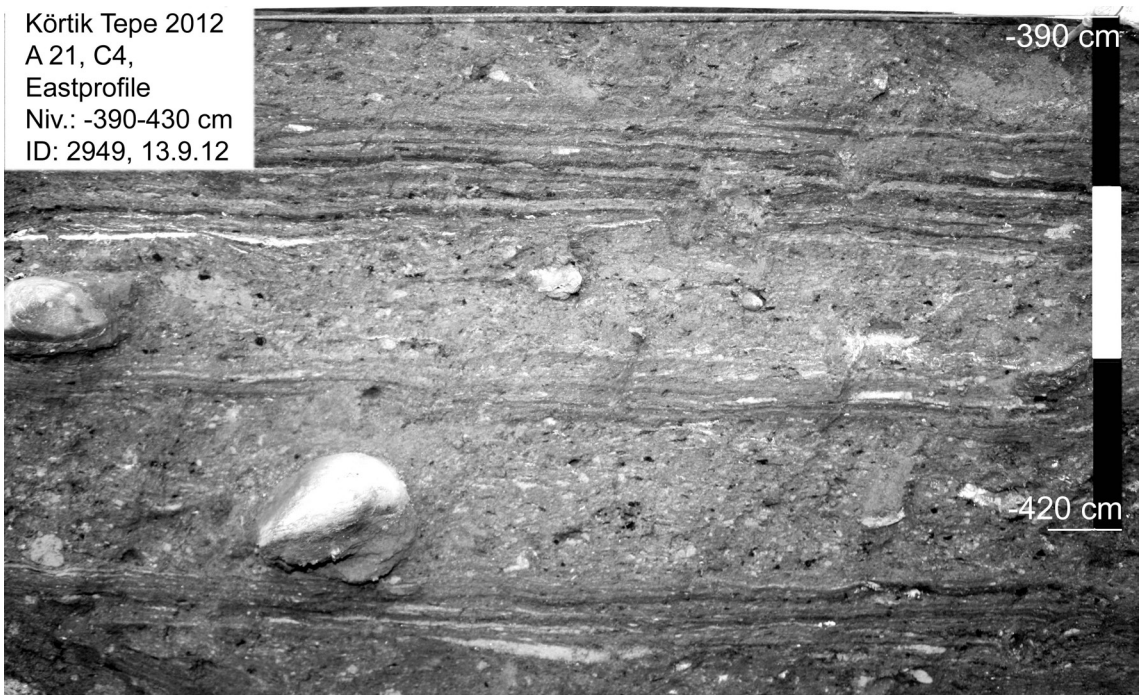



Fig. 4 Three alternating occupation layers with filling layers inside the habitation of Trench A21. East profile (Photo: M. Benz).

layer was encountered in the eastern part of the trench. Though the excavation continued down to -455 cm, the bottom of this layer could not be reached. It contained a huge amount of stones, animal bones, and several lenses of sterile clay. In contrast, in the northwestern part, outside the construction, natural soil was encountered at +/- 442 cm, suggesting that the living spaces were dug partly into the residual soil.

In the eastern part of the tell, remains of the earliest occupation were discovered in a limited test cut (1.20 x 2 m), in Trench A83. The earliest remains consist of two pits that were spaced from each other by about 20 cm (Loci 2 and 6). The upper fill layer of Loc. 2 includes many river pebbles, very few animal bones without any sign of burning, and a few flints. Below that fill, at -537 cm, there is a light brown sterile layer 2-3 cm thick. From that layer down to the bottom of the pit, at about -545 cm, is a very ashy layer with hardly any piece of charcoal and a few stones at the bottom. The shape of the pit was round to oval, with a width of about 35-40 cm[4] and a length of 32 cm. Loc. 6 was filled with dark brown earth, almost devoid of finds. Its shape was round with a diameter of ~22 cm.

Both pits had a similar depth of about 30 cm. The loamy sediment into which they were dug did not show any traces of burning, making the function as fire pits improbable. The filling of the northern pit might hint at a possible function as a cooking pit into which an organic container was placed and filled with heated stones.

The two pits were covered by a dark brown layer very rich in flints, obsidian, bone tools, and animal bones. Above that, was a thin clay floor, sloping slightly to the west. Construction details such as post-holes were not discovered, but this is likely due to the limited space that was excavated. Nevertheless, it can be concluded that these remains definitely contrast with the more massive stone buildings of the Holocene occupation and support the observations in the other deep cuts.

| Lab-Code | Trench/ Location ID | Material | Depth cm | BP | Δ $^{13}$C | cal BC (68.2%/ 95.4%) | cal BC modeled (68.2%/95.4%) |
|---|---|---|---|---|---|---|---|
| ETH-45340 | A80; C5 CH51 | indet. dicotyl. | -521 | 10030±40 | -25.1±1.1 | 9740-9440/ 9810-9370 | [+5] |
| ETH-45344 | A80; C4 CH52 | Fragm. of bark | -525 | 10090±40 | -26.4±1.1 | 9870-9460/ 10050-9450 | |
| ETH-45333 | A104;Loc.5 CH85 | Indet. ch. | -459 | 10155±50 | -23.7±1.1 | 10030-9770/ 10100-9650 | 10026-9818/ 10079-9693 |
| ETH-45334 | A104;Loc.5 CH92 | *Populus/ Salix* | -468 | 10205±40 | -27.2±1.1 | 10080-9870/ 10120-9800 | 10089-9892/ 10118-9861 |
| ETH45335 | A104;Loc.5_2 CH96 | *Populus/ Salix* | -507 | 10330±70 | -34.1±1.1 | 10430-10090/ 10600-9850 | 10190-10025/ 10425-9885 |
| ETH-45336 | A104;Loc.5_2 CH97 | Indet. ch. | -512 | 10270±95 | -26.1±1.1 | 10450-9850/ 10500-9650 | |
| KIA-44648 | A 84, BP 191-2, B/C 5 | *Secale* sp. seed | -374 | 10250±60 | 24.4±1.1 | 10156-9877/ 10427–9804 | |

Table 1 Radiocarbon data of the deep cuts in Trenches A80 and A104. ETH 45336 and ETH 45335 (Trench A104) date the same cultural layer. The same holds true for ETH 45340 and ETH 45344. ch=charcoal.

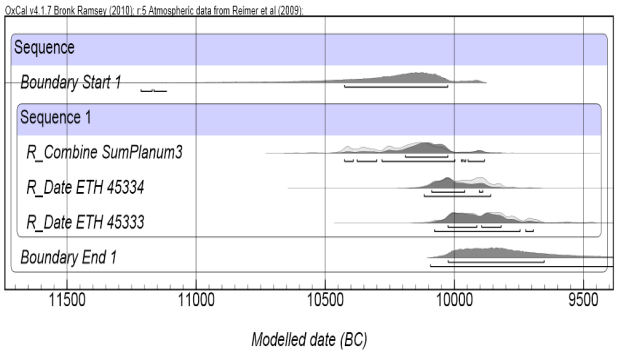



Fig. 5 Sequence of radiocarbon data of the earliest occupation in Trench A104. ETH 45335 and 45336 were combined because they come from the same cultural layer. Graphs in dark gray indicate the modeled range.

| Family | Taxa | n |
|---|---|---|
| Poaceae | Rye (*cf. Secale*) | 17 |
| | Einkorn, wild type (*cf. Triticum boeoticum*) | 20 |
| | Rye/Wheat (*Secale*/*Triticum*) | 11 |
| | Barley (*cf. Hordeum*) | 12 |
| Polygonaceae | Buckwheat (*Fagopyrum esculentum*) | 14 |
| | Dock (*Rumex*) | 36 |
| Chenopodiaceae | Goosefoot (*Chenopodium album*) | 53 |
| Papaveraceae | Opium poppy (*Papaver somniferum*) | 12 |
| **Sum** | **Sum of all identified remains: n= 855** | **175** |

Table 2 Distribution of potentially cultivated plant remains of the Younger Dryas occupation in Trench A104.

## Radiocarbon Data from Trenches A104, A80, and A84

New radiocarbon data of Phase VIII in Trench A80, Phase VI in A84 and of Trench A 104 confirm our earlier suggestion of the site's occupation during the Younger Dryas (Tab. 1; Benz *et al.* 2012). If the results of radiocarbon data in Trench A104 were sequenced, they would range between 10190 calBC to 9800 calBC (68.2%) (Fig. 5). Without sequencing, the date for the earliest occupation would be extended back to 10400 calBC. The date of a rye seed from Trench A84 is in good accordance with a Younger Dryas beginning (Özkaya and Coşkun 2011). Although radiocarbon data for Trench A21 and the eastern part of the tell are still missing, the character of the discoveries is in support of a pre-Holocene occupation there, too.

## Preliminary Results of the Archaeobotanical Analyses

The results of studies on the ecology and subsistence are preliminary since the analysis is still on-going. All studied samples of the Younger Dryas occupation derive from the pit (Loc.1) and the two fireplaces (Loc. 2 and 3) in Trench A104 (Fig. 2).

Thirteen different plant families were identified among twenty samples (from 140 liters of sediment) with 855 plant remains. 16 charcoal samples (n=454 fragments) from these floated samples have been investigated so far. From early Holocene layers 10 charcoal samples have been examined (n=1859 fragments). Cruciferous plants (Brassicaceae) constitute more than a third of all the seeds (Fig. 6), and grasses (Poaceae) represent nearly 30% of the seeds. Goosefoot (Chenopodiaceae) and knotweed (Polygonaceae) families as well as poppy (*Papaver* sp.) seeds are also relatively frequent. A few grains of rye, einkorn, and barley were also identified (Tab. 2), but compared to the seed finds in the early Holocene levels (Riehl *et al.* 2012), *Triticum*-type species are much less frequent.

In general, the seed assemblage of the Younger Dryas indicates a vegetation of predominantly steppe and riverine woodland. Grasses (Poaceae) and goosefoot (Chenopodiaceae) favor open and dry areas (Hillman 1996). This spectrum of seeds corroborates the results of the charcoal analysis (Fig. 7). Deciduous oak (*Quercus*) is absent from the samples of the deep cut, but present in the layers of the early Holocene. Similarly, pistachio (*Pistacia* sp.), hackberry (*Celtis* sp.), buckthorn (*Rhamnus* sp.), fig (*Ficus* sp.), and alder (*Alnus* sp.) only appear within the Holocene levels, and charcoals of almond (*Amygdalus* sp.), ash (*Fraxinus* sp.)

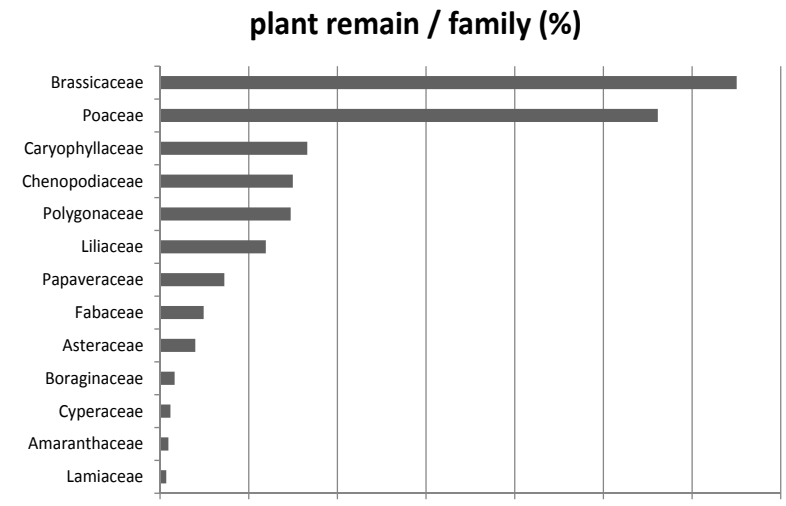



Fig. 6 Distribution of Younger Dryas plant remains (Trench A104) per plant family in %; crucifer and grasses are the most prominent (graph by C. Rössner).

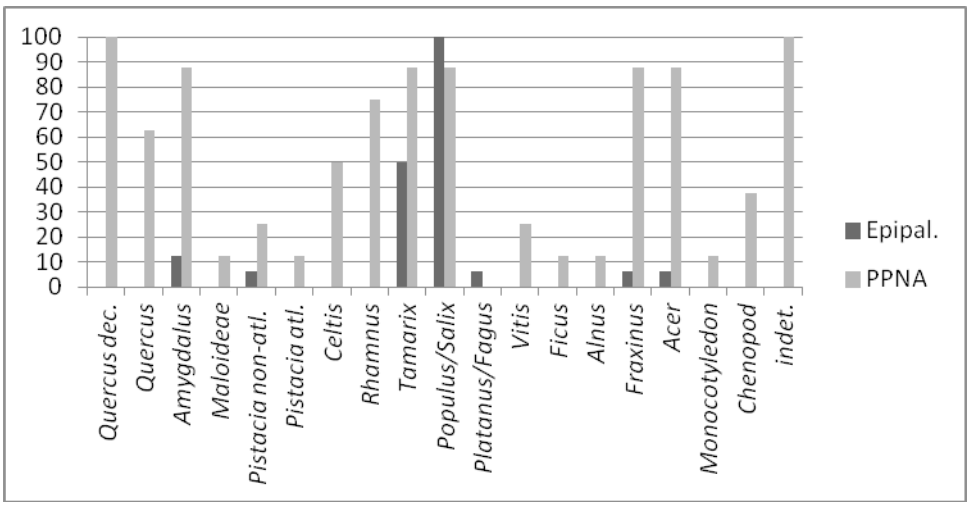



Fig. 7 Percentages of charcoal taxa from Younger Dryas (Epipal.) and early Holocene samples (PPNA) (graph by K. Deckers).

and maple (*Acer* sp.) then also clearly increase. In contrast, riverine trees or shrubs such as tamarisk (*Tamarix* sp.) and poplar/willow (*Populus*/*Salix* sp.) were present in both the Younger Dryas and the early Holocene. The impact of the Younger Dryas thus seems likely: while the grasses and (open) oak park woodland species were relatively rare during the Younger Dryas, Körtik Tepe may have belonged to the open oak park woodland zone during the early Holocene, with a higher density of Poaceae species as has been suggested by Hillman (1996). The current state of our archaeobotanical research, however, does not allow any conclusion about whether or not some of the wild plants had already been cultivated or not.

## Discussion

Reoccupation of the same space and continuity in the activity zones at Körtik Tepe suggest a repeated, perhaps permanent, use of the same locations already during the Younger Dryas. The burial of a perinatal individual beneath a floor and the continued occupation of that area underline the close commitment to the site.

The steppe and riverine environments of the Younger Dryas had a diversified spectrum of use by the hunter-fisher-gatherer community. First results of isotope analyses from human remains of the early Holocene layers hint at a mixed diet with meat and predominantly C-3 plants and to a local origin of most inhabitants (Siebert n.d.). These results correspond well with the broad spectrum of animals used at Körtik Tepe (Özkaya *et al.* 2011) and with data from other permanent sites of hunter-gatherer communities (*e.g.*, Savard *et al.* 2006). First results of our archaeobotanical studies show a clear impact of the climatic change from the drier and colder conditions of the Younger Dryas to the warmer and probably moister conditions during the early Holocene (*cf.* Peasnall 2000:70). A similar impact of the Younger Dryas was observed in the Van Sea Pollen Core, though reforestation started only later there (Litt *et al.* 2009). However, further analyses of samples of the deep cuts are necessary to confirm these preliminary observations.

## Conclusions

In light of the "Epipalaeolithic" occupation at Körtik Tepe it is likely that results of earlier surveys in the Batman region concerning the "Epipalaeolithic" should be revised. Flints from surveys of the ridges overlooking the Upper Tigris and the Batman Çayı, which were previously classified as Paleolithic, may in fact be Epipalaeolithic.

Because the analyses of flint and obsidian tools are still in progress, it is premature to decide whether the development of the early Holocene communities was based on external influences or local origins. However, the Epipalaeolithic occupation at Körtik Tepe supports a repeated and possibly continuous commitment to the site from the Younger Dryas to the early Holocene and suggests a permanent living on the site if not for all, then at least for a substantial part of the community. Despite the pronounced changes in ecology at the transition from the Younger Dryas to the early Holocene, the inhabitants of Körtik Tepe stayed at that location and their settlement flourished during the early Holocene before they abandoned it forever.

## Endnotes

[1] The German team is grateful to Vecihi Özkaya and his team for their cooperation and to Nevin Soyukaya for her valuable help. Analysis of seed remains, isotopes and the chronological analysis were financed by the German Research Foundation (BE 4218/2-2; AL 287/9-2), to whom we offer our thanks. Katleen Decker's research was possible thanks to a Margarethe-von-Wrangell habilitation fellowship funded by the European Social Fund in Baden-Württemberg.

[2] All samples from Körtik Tepe were analysed by Irka Hajdas, ETH Laboratory of Ion Beam Physics, Zürich. The site of Hallan Çemi, about 60 km farther northeast on the western border of the Sason Çayı, was first dated to the Younger Dryas, but new AMS data from that site are almost exclusively of the earliest Holocene (Rosenberg 2011). Radiocarbon data from Hallan Çemi

and Körtik Tepe are given in the open access data base PPND (Coşkun *et al.* 2010).

[3] In that publication the site is referred to as "Demirci Höyük".

[4] Because the pit was cut through by the test cut, its northern extension cannot be determined precisely.

[5] Sequencing in Trench A80 does not enhance the accuracy of the data for Phase VIII because Phase VII could not be dated. The data of Phase VIII would thus be biased to a more recent age (see Benz *et al.* 2012).

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# Flint Bowlets: Three Additional Materials from Wadi Ghuwayr 17 and Wadi Nadiya 2, al-Jafr Basin

**Sumio Fujii**

## Introduction

The flint bowlet is a palm-sized, pallet-like stone vessel peculiar to M-LPPNB settlements in southern Jordan. This unique artifact is produced taking full advantage of a thermally pitted shallow concavity on the upper surface of a tabular flint nodule, and anthropogenic modification is usually limited to the trimming of the lateral surface. Since Hans Gebel (1999) gave the name and promoted awareness to several examples from Basta (Nissen *et al.* 1991: pl. III-1) and Ba'ja (Gebel 1999: Fig. 1), parallel examples have been reported from el-Hammeh (Makarewicz and Goodale 2004: Fig. 6), 'Ayn Jammam (Rollefson

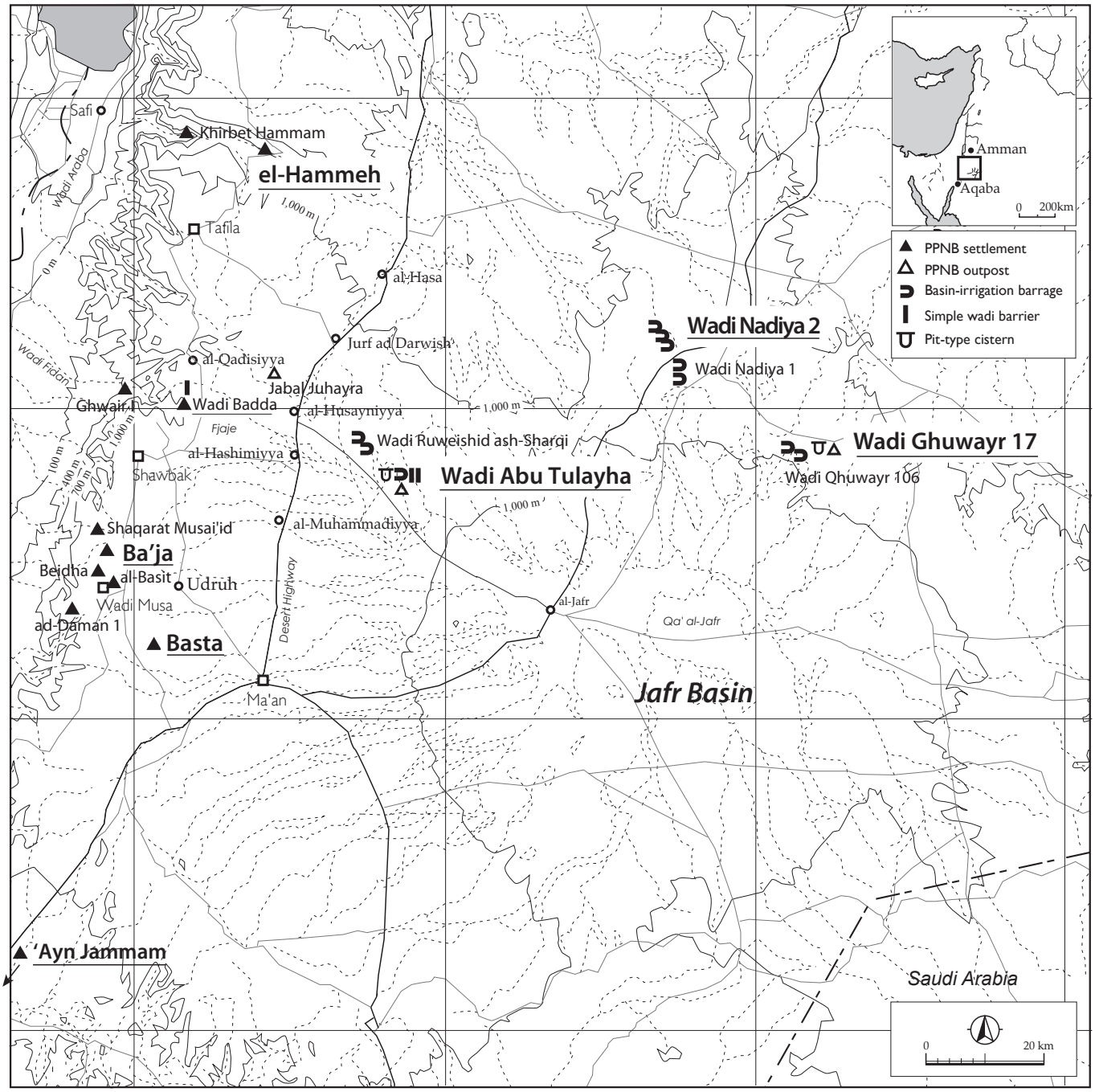


Fig. 1 PPNB Sites in and around the Jafr Basin. (The underlined sites yielded a flint bowlet(s).

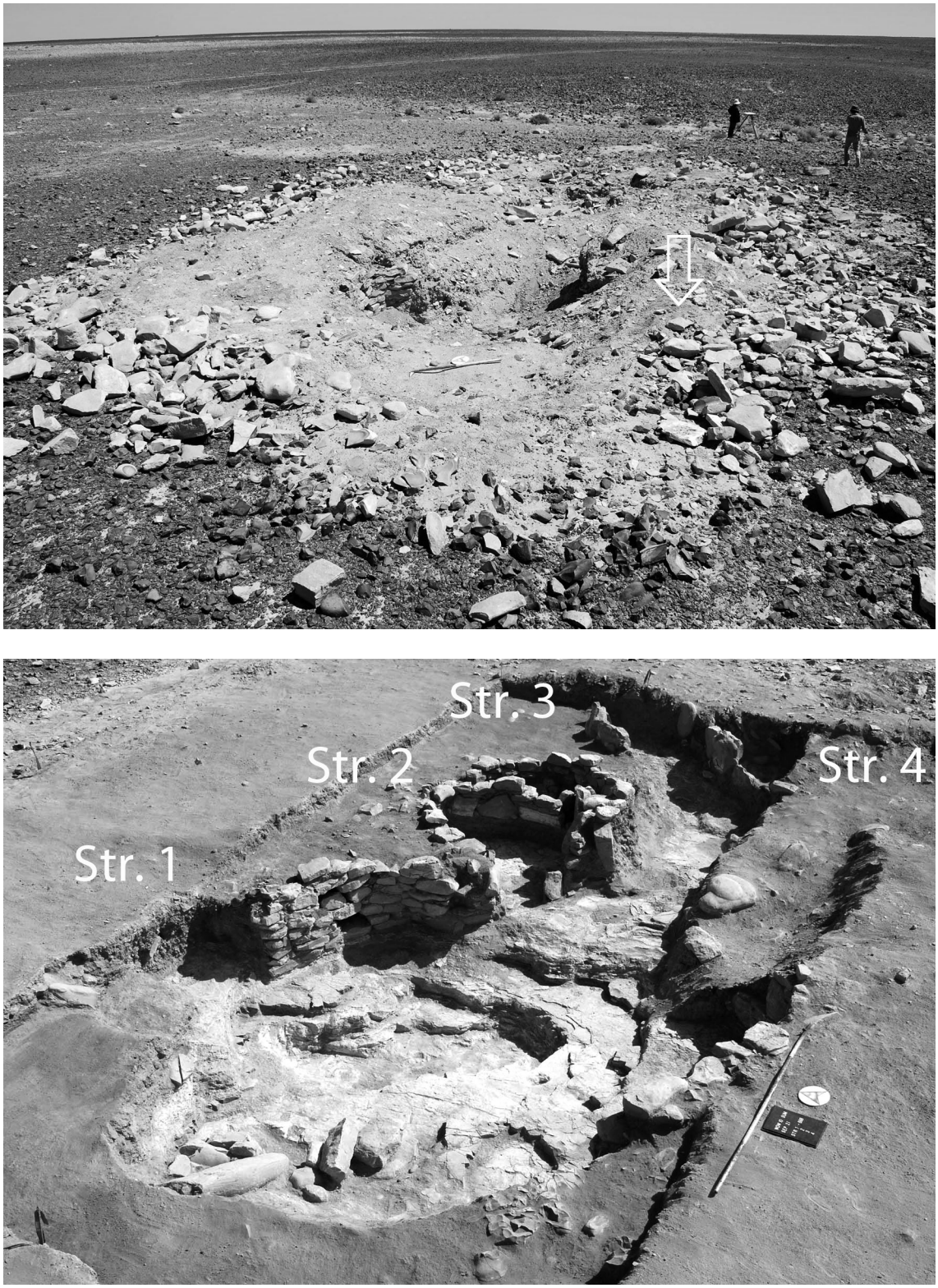


Fig. 2 Wadi Ghuwayr 17: general views before excavation (above) and after excavation (below).

2005: Fig. 5) and Wadi Abu Tulayha (Fujii 2006: Fig. 14, 2009b: Fig. 17). One of our earlier papers reviewed these materials and discussed several major issues including their function and techno-typological sequence (Fujii 2009a). This paper introduces three new examples found at Wadi Ghuwayr 17 and Wadi Nadiya 2, and tests a few tentative perspectives suggested in the previous review.

## Wadi Ghuwayr 17

### *The site*

Wadi Ghuwayr 17 is located in the northern part of the al-Jafr Basin, a large-scale inland closed drainage system in southern Jordan (Fig. 1). In terms of topography, it occupies the upper edge of the escarpment

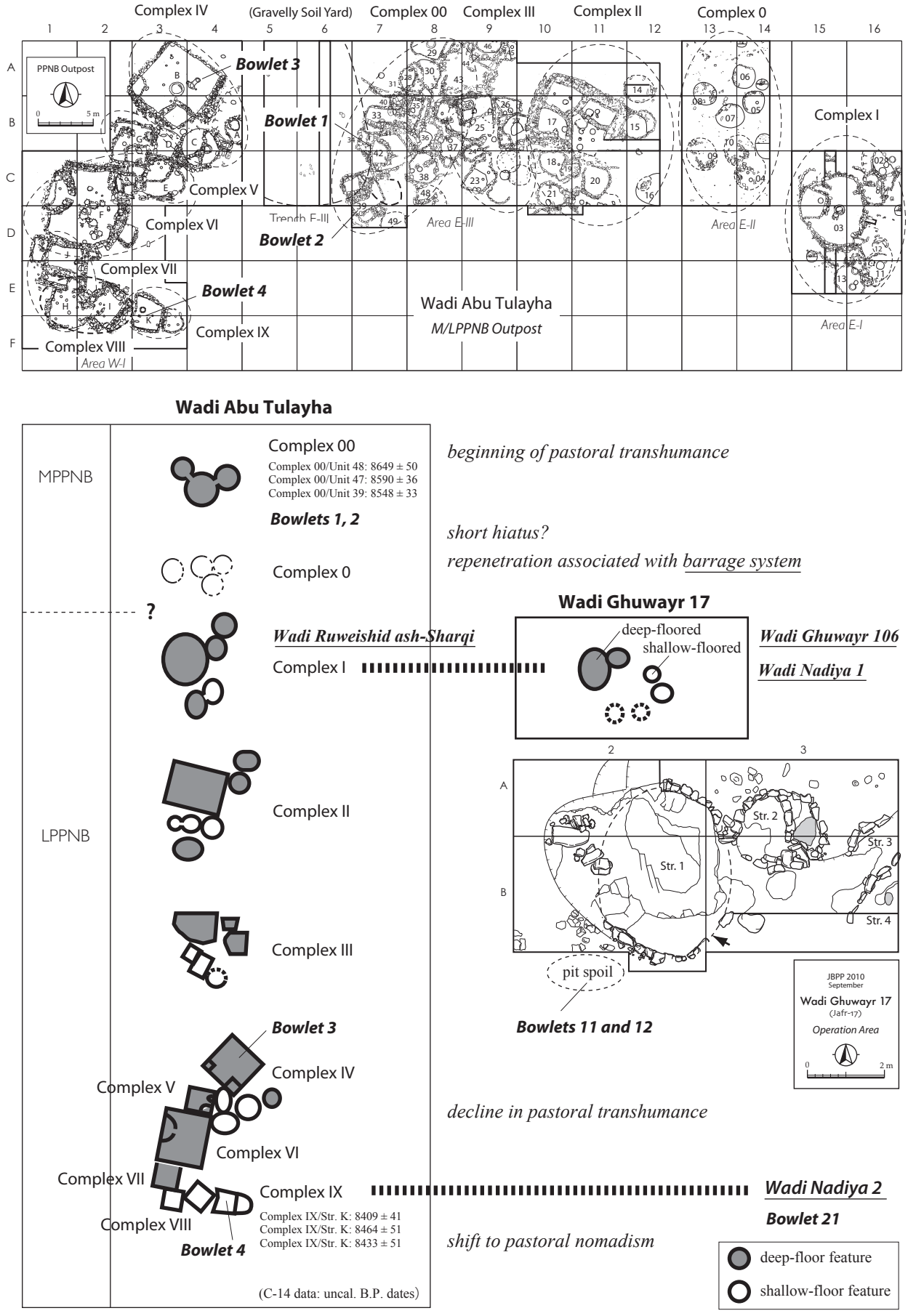


Fig. 3 Comparative chronology of Wadi Abu Tulayha and Wadi Ghuwayr 17.


Fig. 4 Bowlets 11 and 12 from Wadi Ghuwayr 17 and Bowlet 21 from Wadi Nadiya 2.

that fringes the northern edge of the basin, commanding the upper reaches of the wadi of the same name. The surrounding landscape is characterized by a flint-strewn desert (or *hamad* in Arabic) dotted with playas (*qa'at*) of various sizes. Understandably, the climate is very arid and no perennial natural water source is available around the site. The site was found for the first time by Leslie Quintero and Philip Wilke in 1997 (Quintero and Wilke 1998a: 3, 1998b: 120; Wilke and Quintero 1998: 3; Quintero *et al.* 2004: 205-206), and rescue-investigated by us in the summer of 2010. The limited excavation barely confirmed the remnants of several semi-subterranean masonry structures seriously damaged by heavy machinery (Fig. 2). Since the research outcome has been reported elsewhere (Fujii *et al.* 2011), we will only give an outline below.

The operation area revealed an oval structure and three minor features. Both of them were combined to form a bimodal structural complex common to the Jafr Pastoral Neolithic. Surface finds also focused on the same range, corroborating that the site represents a small outpost consisting of a single complex. The excavated chipped flint assemblage included Byblos and Amuq type points as well as naviform core-and-blade components. Other small finds included diagonally truncated stone bars, notched and grooved stone weights, large pillar bases, game boards, and petroglyphs. No remarkable contaminants were recognized with the exception of a limited number of Middle Paleolithic and Chalco/EB flint artifacts. Although neither C-14 dates nor faunal/floral data are available yet, there is little doubt that the site represents the second example of the Jafr PPNB agro-pastoral outpost following Wadi Abu Tulayha. The combination of a large oval key structure and several minor components falls into the stage of Complex I at the type-site, suggesting that the site dates back to the end of the MPPNB or the very beginning of the LPPNB (Fig. 3).

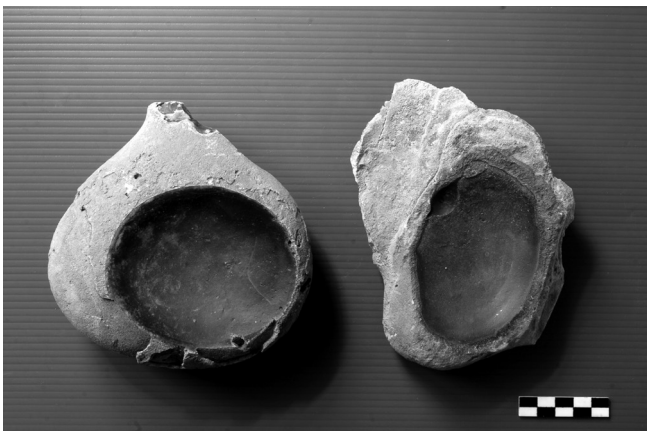

Fig. 5 Raw materials collected around Wadi Ghuwayr 17.

Since the site was seriously disturbed, only a small number of artifacts were found in situ. The two bowlets described below are no exception to this, and they were recovered, together with a few diagonally truncated stone bars and petroglyphs, in robbers'-pit spoil covering the southern half of Square B2. This situation strongly suggests that the bowlets derived from the neighboring Structure 1, the core of the complex. In order to avoid confusion with the four similar bowlets (*i.e.* Bowlets 1 to 4) from Wadi Abu Tulayha (Fujii 2009a: Fig. 3), we designated them Bowlets 11 and 12, respectively (Figs. 4, 6).

***Bowlet 11***

This large bowlet is made of a cortical flint nodule, having a weight of 1903 g, a maximum diameter of 17.0 cm, and a height of 6.8 cm. The thermally-flaked concavity on the upper surface, though partly trimmed, measures 14.9 cm in diameter and 2.2 cm deep, producing a maximum capacity of *ca*. 130 cc. This material is the largest of the bowlets known to date, being twice or more their standard dimensions (Fig. 7; Fujii 2009a: Tables 1, 2).

In terms of techno-typology, this bowlet is marked by a natural beveled rim *ca*. 1-1.5 cm wide and hinge-fractured coarse retouch applied to the lateral surface. Interestingly, for both bowlets, the focus was only on one half of the large bowlet; the other half is devoid of the beveled rim, being roughly trimmed by several bold strokes of direct percussion. (The same applies to Bowlets 1-3 from Wadi Abu Tulayha.) This contrast is probably because the natural concavity on the raw material was slightly off-centered in position and, for this

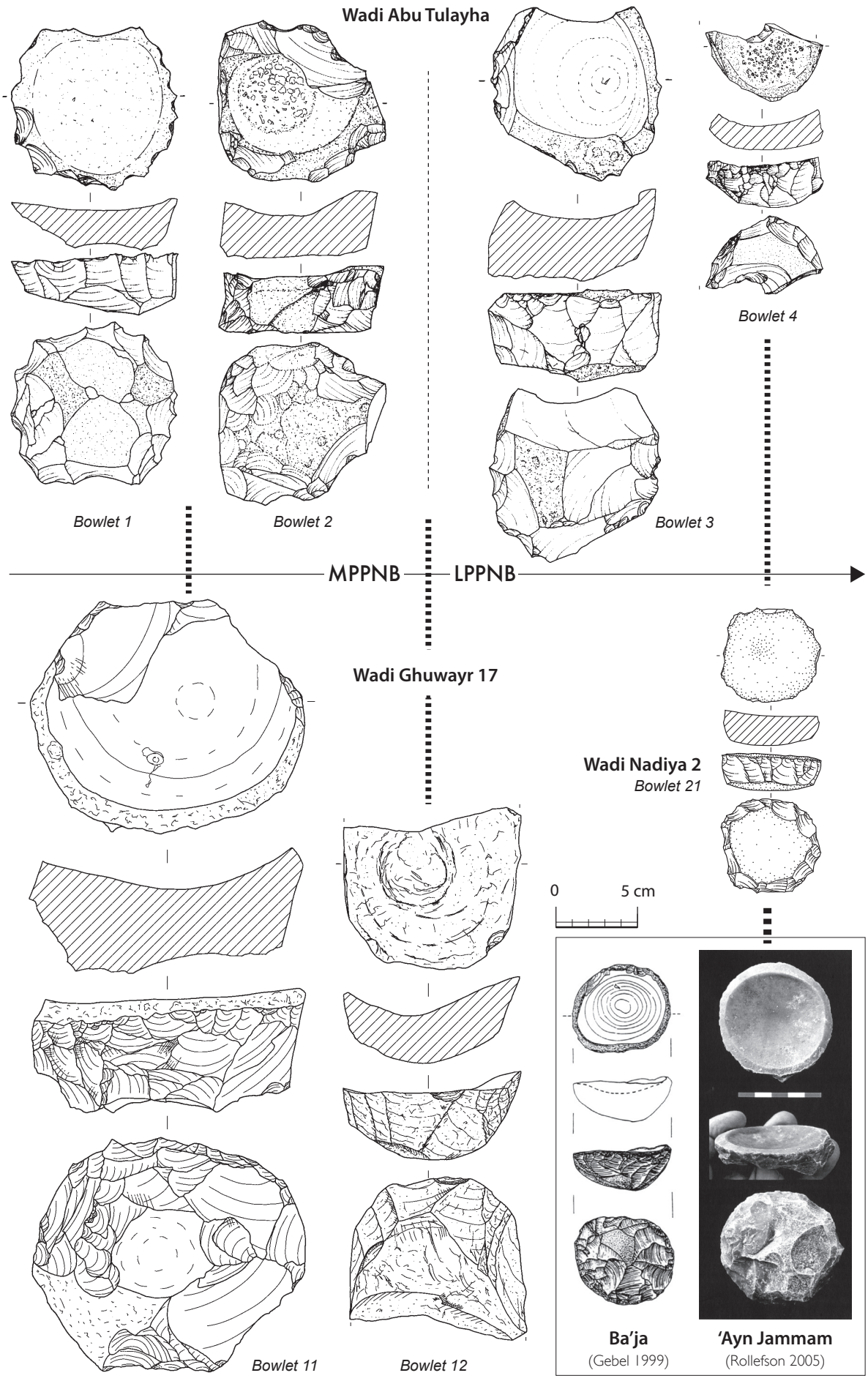


Fig. 6 Techno-typological sequence of the bowlet.

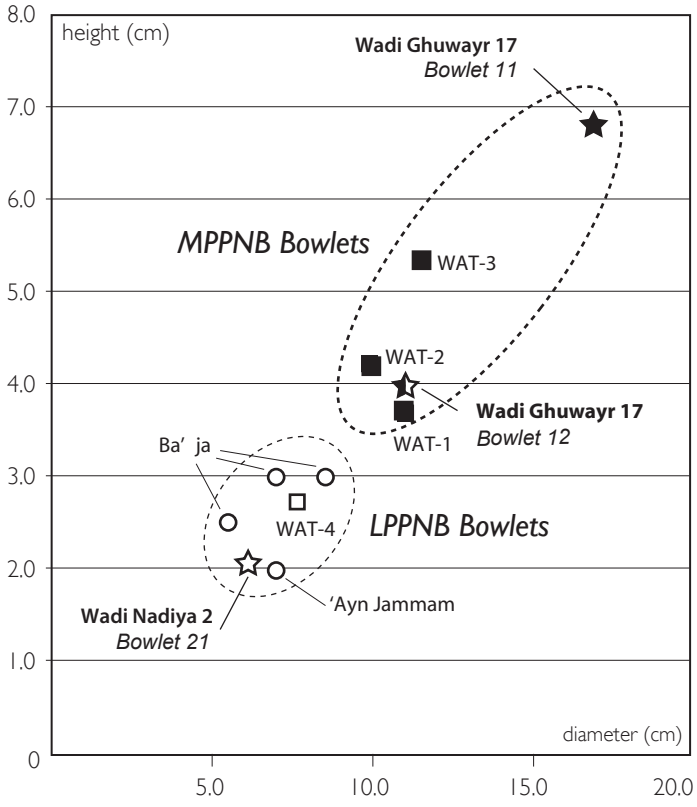


Fig. 7 Size comparisons of bowlets. (see also Fujii 2010:Tables 1 and 2.)

reason, necessitated different treatment for both halves of the round concavity. As a matter of fact, many of cortical flint slabs scattered around the site share such a unique trait, corroborating the assumption suggested above (Fig. 5; see also Fujii 2009a: Fig. 6). Assuming that Bowlet 11 was produced under such technological restrictions, it is no wonder that while the proximal half is more or less carefully retouched along the natural beveled rim, the distal half is left being roughly shaped to remove the unnecessary material. Neither noticeable macroscopic use wear nor ochre-stained spots were recognized in and around the concavity.

### *Bowlet 12*

This halved bowlet is smaller in dimensions than the other example, measuring 484 g in weight, 10.9 cm in longer axis, and 3.9 cm in height. Understandably, the maximum capacity is also much smaller (*ca*. 55 cc in present state or *ca*. 80-100 cc when complete). It is noteworthy, however, that the material is still considerably larger than the bowlets found at the LPPNB farming communities to the west (Fig. 7; Fujii 2009: Tables 1, 2). This bowlet is produced of a relatively coarse-textured limestone slab, but we shall be allowed to treat it as a limestone version of the flint bowlet in the sense that it is produced taking full advantage of the natural concavity.

This limestone bowlet differs from Bowlet 11 in terms of techno-typology as well. To begin with, it is devoid of a beveled rim and, instead, the natural concavity covers the whole range of its upper surface. (The same is true of Bowlet 4 from Wadi Abu Tulayha.) Second, it is modified by fewer strokes of flat retouch and, for this reason, takes on a more or less regular profile, although this contrast might be partly due to the difference in the nature of the raw material. It is interesting to note that despite the probable co-occurrence in the same structure, the two bowlets differ from each other in many aspects including dimensions, raw material, and techno-typology. The only common feature between the two is the absence of use wear.

## Wadi Nadiya 2

### *The Site*

Wadi Nadiya 2 is an extramural barrage site again in the northern part of the al-Jafr Basin (Fig. 1). It is located in a flint pavement desert *ca*. 20 km NW of Wadi Ghuwayr 17 mentioned above. The site contains four barrages, forming a water-use system (consisting of a total of six barrages) in combination with the upper barrage complex of Wadi Nadiya 1 (Fujii *et al.* n.d.a). The site was found for the first time in 2010 by us and excavated in the summer field season of 2012 (Fujii *et al.* n.d.b). As with the other Neolithic barrages known to date in the Jafr Basin (*e.g.* Fujii 2010: Figs. 32-34), three of the six barrages incorporated a grooved and notched stone weight or a large pillar base, both chronological indicators of the Jafr Pastoral PPNB, into their central walls. Although no C-14 dates are available yet, there is little doubt that the barrage system can be dated to the PPNB.

The flint bowlet (Bowlet 21) occurred as a stray find from an upper fill layer of Barrage 2 (Fig. 4). It might have been swept away from a nearby contemporary outpost yet to be located - a likely assumption when we consider the combination of a barrage and an outpost as its operation body (Fujii 2010). It seems that the absence of edge abrasion due to long-distance fluvial transportation also supports the supposition.

### *Bowlet 21*

This bowlet is made of a thin flint pebble associated with a very shallow natural concavity, being characterized by the small size (125 g in weight, 6.5 cm in diameter, 2.1 cm high, and *ca*. 2-3 cc in maximum capacity), the elaborate lateral retouch, and its consequent sophisticated profile. All of these traits fall within the LPPNB bowlet assemblage, suggesting the date of the material (Fig. 7). This bowlet has also no visible use wear.

## Discussion

The occurrence of the three additional examples provides us with an excellent opportunity to review the tentative perspectives suggested in the previous paper.

Since the procurement strategy of raw material was referred to above, the following discussion focuses on the distribution, chronology and technological sequence, and function of the flint bowlet.

In view of the dense distribution of suitable raw materials around the sites, there is no doubt that the three bowlets were produced in the Jafr Basin. Thus the total number of the Jafr bowlet amounts to seven including the four specimens from Wadi Abu Tulayha. This is a substantial number, considering that the four farming communities to the west (*i.e.* Basta, Ba'ja, el-Hammeh, and 'Ayn Jammam) have yielded in total nine bowlets only. It is noteworthy that the Jafr outposts, much smaller in site size and much more temporary in site nature, held their own against the large-scale sedentary settlements under the Mediterranean climatic regime in terms of the production volume of the unique artifact. This fact, coupled with the availability of suitable raw materials, attests anew to the importance of the Jafr Basin as a production base of the flint bowlet.

As for the chronology and techno-typological sequence, our previous review suggested that the flint bowlet developed from a large, coarsely trimmed form (dated to the MPPNB) to a smaller, finely retouched one (newly appeared in the LPPNB) (Fujii 2009a: 24-25). Assuming that Wadi Ghuwayr 17 can be dated to the end of the MPPNB or the very beginning of the LPPNB, it would follow that the bowlet assemblage of the site represents an intermediate stage of the sequence. As a matter of fact, the assemblage contains both a typical example of the MPPNB bowlet (*i.e.* Bowlet 11) and a forerunner or prototype of the LPPNB one (*i.e.* Bowlet 12), corroborating the perspective (Fig. 7). The same is also true with Bowlet 21 from Wadi Nadiya 2. Given the tentative dating of the barrage site (Fujii *et al.* n.d.b), it makes sense that the site yielded a prime example of the LPPNB bowlet. It would follow that the three new instances – one typical MPPNB bowlet, one intermediate form, and one standard LPPNB product – happen to be seriated following the technological sequence suggested in the previous review.

Two things should be noted, however. To begin with, while the MPPNB Jafr Basin actively produced the coarse bowlets, the contemporary farming communities appear to have not been involved in their production. Second, while the Jafr outposts disappeared in the course of the LPPNB, the contemporary west formed mega-sites (Gebel 2004) and suddenly began to produce the high-quality bowlets. The first item suggests that the MPPNB Jafr Basin was the origin of the bowlet production - a likely assumption when we consider the easy access to suitable raw material. The second, on the other hand, possibly means that with the demise of the Jafr pastoral transhumance and the transition to pastoral nomadism (Fujii n.d.), the production center of the bowlet shifted westward to the LPPNB mega-sites. The techno-typological sequence noted above may be understood within this framework. A good example of this perspective is the grinding technique of a beveled rim that was newly introduced to the LPPNB bowlet (Rollefson 2005: Fig. 5). It is evident that it developed from the natural beveled rim common to the Jafr MPPNB bowlets. We may argue that the shift in production center to the large-scale sedentary communities brought about such technological sophistication.

Another question is the specific use of the bowlet, but the three materials bring no substantial progress in the issue beyond Gebel's suggestion that at least a part of the bowlets were used for processing red pigment (Gebel 1999: 13). We should recall, however, that the bowlet is characterized by a small, very shallow concavity, and that more than half of the bowlets known to date retain neither traces of pigment nor remarkable use wear (Fujii 2009: tables 1 and 2). Taking these into consideration, it may be more correct to argue that the flint bowlet was used as a special vessel for pouring (rather than processing) only a limited quantity of some precious liquid or water/oil soluble powder such as ochre and some stimulant. The occurrence of limestone pallets specializing in processing red pigment from Wadi Abu Tulayha is highly suggestive in this regard (Fujii 2009: fig. 5). However, all of these are arguments based on indirect evidence and require further verification. Seeing that the bowlet was very rare (usually no more than several pieces) at every site and can be regarded as an article of value rather than commodities, all we can say is that the history of the bowlet began with as an intra-group ritual object at the M-LPPNB remote outposts and ended with a sort of a prestige goods or at least a symbolic object within the LPPNB large communities. Given this, it would make sense that the rise and fall of the M/LPPNB settlement in southern Jordan corresponds exactly with the appearance and disappearance of the flint bowlet. Anyhow, the specific use of the bowlet still remains obscure and necessitates further discussion.

Finally, returning to the issue of the distribution, we should note again that all of the seven bowlet sites known to date focused on the Ma'an Plateau and its periphery. To date, no similar products have been reported from surrounding sites such as 'Ayn Abu Nukhayleh and Ghwair I, to say nothing of 'Ain Ghazal, Wadi Shu'eib, Tell Abu Suwwan and contemporary Cisjordan settlements. This contrast suggests that despite the remarkable difference in both topography and environmental conditions, the intermountain plateau in southern Jordan and its neighboring Jafr Basin constituted a unified, independent cultural sphere with the flint bowlet being a sort of mental bond. We can argue that the most significant archaeological implication of the bowlet resides in this aspect rather than its enigmatic use. It is precisely for this reason that our research attaches great importance to the small stone vessel.

## Concluding Remarks

The occurrence of the three additional materials has enabled us to confirm anew that: 1) the Jafr Basin was a production center of the flint bowlet; 2) the production

center shifted westward from the MPPNB Jafr Basin to the LPPNB farming communities, and 3) with this shift, the techno-typology of the bowlet also changed from a large, coarsely trimmed form to a small, carefully re-touched variant. It was also suggested that the bowlet was a symbolic or intra-settlement prestige goods of the Ma'an Plateau Neolithic. Though still enigmatic in terms of the specific use, the flint bowlet no doubt provides valuable insights into the M/LPPNB cultural entity in southern Jordan. Further discovery is expected to shed new light on the archaeological potential of the unique artifact.

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# Message from the Far Eastern Neolithic: The Session 'Pottery and Neolithisation in East Asia' of the Society for East Asian Archaeology Conference in Fukuoka, Japan (June 6th-10th, 2012)

**Joshua Wright**

Discussions in scholarly forums on the nature and definition of the Neolithic have occurred several times over the past months, for example at the 'Neolithic Stereotypes' session at this spring's Society for American Archaeology meetings in Memphis, Tennessee. At the recent Society for East Asian Archaeology conference in Fukuoka, Japan (June 6th-10th, 2012)[1] a session was offered entitled 'Pottery and Neolithisation in East Asia'. The papers in the session focused mainly on the Japanese archipelago with its huge volume of high quality research carried out over the past half-century and active community of scholars addressing the issues of the local and the the global Neolithic.

To the scholars of the West Asian Neolithic the issues discussed at this conference offer several homologies and contrasts. Sedentary agriculture and state level societies developed in both eastern and western Asia, but the Neolithic of Peninsular East Asia has a different prehistoric context from that of the Eastern Mediterranean. The papers in this session emphasized alternative processes, models and definitions cross pollinated from the Near East, but adapted to deal with the different environmental, material culture and scholarly traditions of East Asia that may, in their turn, suggest new views of the Near East.

The importance of pottery as the fulcrum of the Neolithic of East Asia is clear from the title of the session. Untangling of ceramics from the social and spatial context and chronology of Epipaleolithic and Neolithic society is beyond the scope of this brief report (see Chard 1974; Kuzmin and Orlova 2000; Wu *et al.* 2012). The choice of the organizers and presenters in this session to make pottery central meant that the Neolithic of Peninsular East Asia discussed here encompassed the long, complex, sometimes sedentary, typically ceramic using hunter-gatherers of the long and variable Jomon and Jeulmun periods of the Japanese Archipelago and the Korean Peninsula. The advent of farming, once presented as a result of migration and clear diffusion, is seen as a stage in a developing subsistence system where the dominant motive forces are local and internal (Lee 2011; Bleed and Matsui 2010). Both the long Epipaleolithic-Neolithic and the multi-generational adaptation of agriculture against the background of peer-polity interaction argue against a 'Neolithic Revolution' in the region. The chronological range discussed has its roots before the Holocene because the first ceramics of Northeast Asia are found in the Older Dryas and shortly after the last glacial maximum. That being said, the time range focused upon by these papers was mainly the mid-Holocene and later (the Early Jomon and Juelmun periods begin *ca*. 8 kbp). Farming clearly appears at *ca*. 3.4 kbp in the Korean Peninsula and, currently controversially, at *ca*. 2.7-2.9 kbp in the southern Japanese Archipelago.

With pottery as the central focus of the session, most presenters chose to discuss the shifting roll of pottery in the definition of food traditions. In this several presenters were particularly influenced by Hayden's recent article (2009) and highlighted ceramics as central to special foods such as oil and alcohol, and the potential for special events, specialist activities, and decoration that those present. Dr. Leo Aoi Hosoya focused her paper on social value of food as important factor in the development of different forms of particular foods. This multiplication of possible dietary outcomes includes different processing regimes, and as a result diverse tools, and also differing management of domesticated crops and non-domesticated plant resources. This could have contributed to the development of complex culinary processing methods that may have been simply efficacious but also expressive of social difference. Similar themes were also brought up in the paper by Dr. Shinji Ito, in which residues in vessels in use on the Ryukyu Islands suggest shifts in the use of the vessels through time without major changes in their forms. Hosoya's paper was the first of several to bring up the theme of replication as a tool for building arguments and hypotheses, a position rooted in the comfortable sense of cultural continuity frequently found in models of the East Asian Neolithic.

Two of the papers in the session focused on issues of landscape formation. Professor Shuzo Koyama's study of the management of wood resources through fire used pottery to suggest a sophisticated control of pyrotechnology and expand from that to argue for the use of fire as an arboricultural tool in productive forest landscapes (see also Matsui and Kanehara 2006). Professor Junzo Uchiyama's paper offered a rich diachronic view of settlement development across the Jomon and early Yayoi periods. Central to his thesis was the active boundary between domesticated and non-cultural spaces. He positioned ceramics as a mediator of this boundary and moved quickly to discuss the active nature of the boundary itself. Echoing Professor Koji Mizoguchi's opening remarks for the conference on the emergence of the Yayoi culture he spoke of both the agency of people planning their social and

economic spaces and the unintended consequences of their choices for spatial organization. Uchiyama's thesis positioned the adoption of rice farming in the southern Japanese archipelago as a step in the ongoing formation and active management of a complex cultural landscape.

The interpretations and models of the Neolithic in the Japanese archipelago presented in this session are clearly affected by the data that is readily available there, many sites are completely excavated and have clearly demarcated boundaries and detailed intra-site relative chronologies; the elaborate, information laden ceramics of the Jomon are justifiably world famous; and also the transition to agriculture throughout the region took place practically in historical times. The papers presented here are clearly rooted in the categories of the West Asian Neolithic, however these scholars are finding the 'species and spaces' approach that works so well in the west to be less enlivening then a 'place and practice' centered approach to the Neolithic, in which there is an almost indivisible link between material culture and the biotic world and the traditional Neolithic categories become unbraided as people appear to have been 'thinking Neolithic' only long after they were 'doing Neolithic'.

## Endnote

[1] http://www.seaa-web.org/conf12-fa.htm

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# *Our Place: Our Place in the World*: Workshop in Urfa Initiates a Three-Year Research Project on Göbekli Tepe and Contemporary Settlements in the Region

**Trevor Watkins and Klaus Schmidt**

Profs. Klaus Schmidt (DAI) and Trevor Watkins (University of Edinburgh) have been awarded a three-year grant by the John Templeton Foundation to undertake a multi-disciplinary research project focused on the early aceramic Neolithic sites of Göbekli Tepe and the cluster of contemporary settlements in southeast Turkey and north Syria. The purpose of the research is to find new ways to investigate how the first large, permanently co-resident communities functioned, and how and why they networked with each other. At the centre of the research, of course, will be the role of Göbekli Tepe itself, and the formation of interdisciplinary partnerships that can investigate the symbolism of the architecture, sculptures, and smaller objects that Göbekli Tepe shares with the settlements of the region.

The fact that these communities created powerful and impressive architecture and striking visual symbolism gives us a potential means of discovering how they framed their ideas of who they were, how they related to one another, and how they stood in relation to their idea of their world. So the project will experiment with developing partnerships between prehistoric archaeologists and researchers in several other disciplines. This is exactly what Robert Braidwood did more than half a century ago, when he began his research into the origins of agriculture. He built his research on collaboration between archaeologists, environmental scientists, botanists and zoologists. Kathleen Kenyon used her position at the Institute of Archaeology in London to draw some of her colleagues into research on the materials recovered in her excavations at Tell es-Sultan, ancient Jericho. These multidisciplinary initiatives lead ultimately to the development of new sub-disciplines, such as archaeobotany and archaeo-zoology. The materials that are now emerging from recent excavations in north Syria and southeast Turkey, we believe, challenge us to form new interdisciplinary partnerships, leading again to new sub-disciplines.

## Initial Workshop

As the beginning of the research programme, a workshop took place at Urfa in southeast Turkey between October 1st and 5th. The workshop brought together three groups of specialists from different disciplines, all of whom had agreed to contribute to the research project. The workshop allowed them to encounter the spectacular and impressive architecture and imagery of Göbekli Tepe face to face. In the original plan, we intended to spend one or two days in north Syria, so that the participants in the research could also see something of the settlement sites that are under investigation there. Obviously, that part of the programme had to be dropped. In the event, even a one-day excursion to visit sites nearby in southeast Turkey was abandoned in view of the uncertainty of the security situation when cross-border artillery shelling occurred very close to Urfa.

Trevor Watkins and Jens Notroff, one of Klaus Schmidt's research assistants, met the workshop participants as they arrived in Istanbul. The first day of the workshop took place in an airport hotel, before the group flew on together to Urfa. Before we reached Urfa and Göbekli Tepe, the workshop saw aspects of the architecture, imagery and ritual performance from early Neolithic settlement sites in north Syria. **Danielle Stordeur** was unable to be present, but sent a Powerpoint presentation about Jerf el Ahmar. We also heard from **Eric Coqueugniot** (Dja'de), **Thaer Yartah** (Tell 'Abr 3), **Walter Cruells** (standing in for Miquel Molist, on Tell Halula), and **Ryszard Mazurowski** (Tell Qaramel). Most of the first day in Urfa was devoted to Göbekli Tepe. Having spent half the day at the site with Klaus Schmidt, we were also able to see some of the smaller sculptures on exhibition in the Urfa Museum. Later, there were more archaeological presentations and comments (**Mihriban Özbaşaran**, **Mehmet Özdoğan**, **Marion Benz**, **Nigel Goring-Morris**, **Bill Finlayson** and **Hans Georg K. Gebel**) from different perspectives on the early Neolithic.

The following two days were given to intense discussion, in which the non-archaeologists took the lead, introducing their own research interests and expertise, and explaining their interest in applying their disciplines to our multi-disciplinary research project. (A list of the participants in the workshop and the research project appears at the end of this note.) In the last session, the workshop focused on mapping the outline of the interdisciplinary research programme, seeking to articulate the essential questions in the right way. At the time of writing, Trevor Watkins and Klaus Schmidt (who is still engaged on the excavations at Göbekli Tepe) are preparing a paper for circulation and refinement that summarises those concluding discussions and condenses them into several research trajectories.

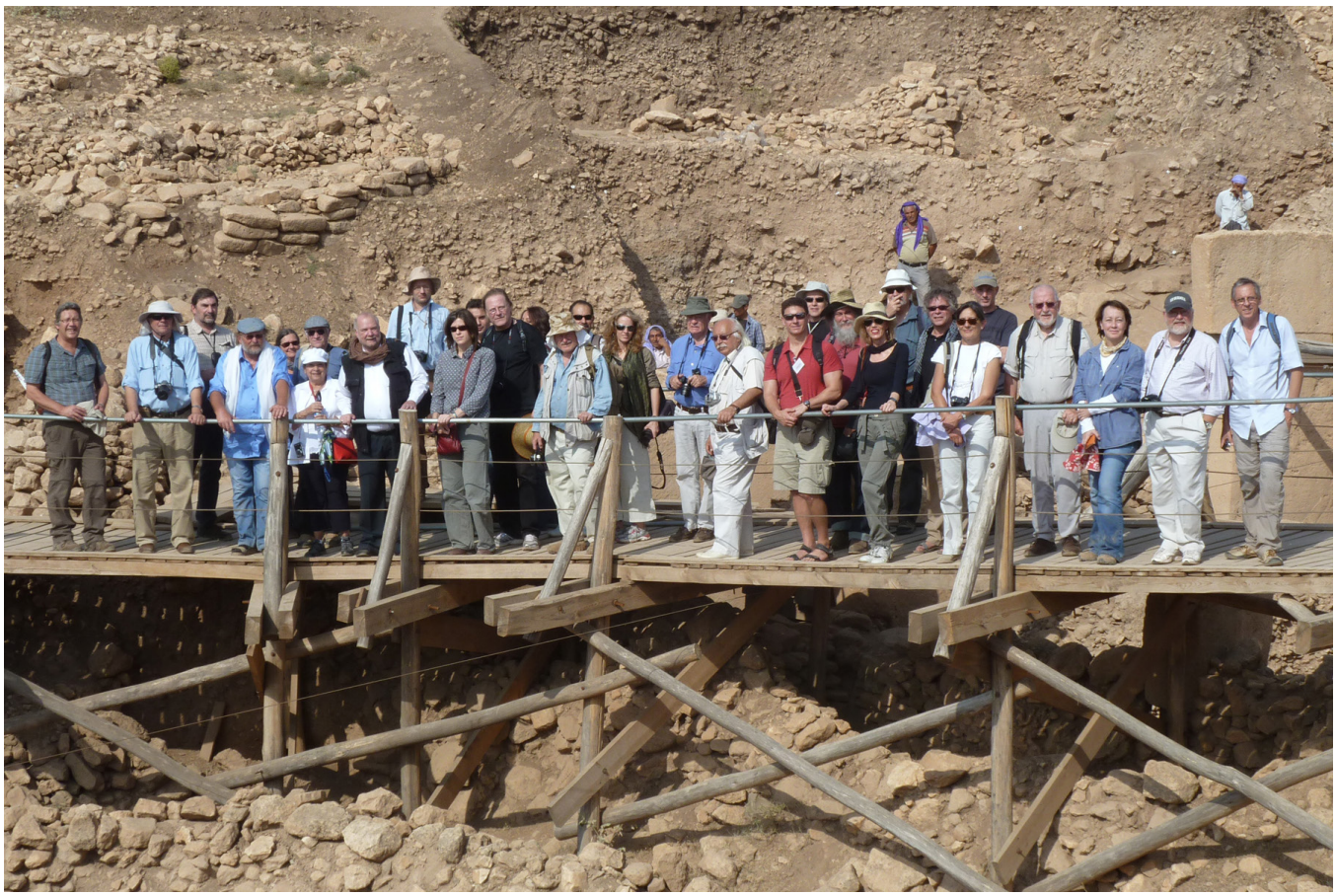

Fig. 1 Workshop participants at Göbekli Tepe on Oct. 2nd, 2012 (photo: J. Notroff).

## What Follows From the Workshop

The John Templeton Foundation funding provides for two post-doctoral researchers (currently in the process of being appointed) to work at the core of the research. Each will be given a remit drafted from the research questions document mentioned above. They will be the dynamos of the research, engaging the other participants in the research project. We already know that two of the members of our group themselves lead major international and multi-disciplinary projects whose interests intersect with ours. And we also know from their publications and their enthusiastic contributions to the workshop that the other participants have a great deal to offer.

We anticipate that the project will generate a number of co-authored, inter-disciplinary articles that will be published in a variety of disciplinary journals and major science journals. We hope to be able to hold a conference at the end of the research project to which a wider spectrum of specialists in the Epi-palaeolithic and early Neolithic of southwest Asia will be invited to join the participants in the project. That conference is not within the funding remit of the present John Templeton Foundation award, and depends on finding other funding support. As well as showcasing some of the early results of our research project, the conference will allow us to put together and publish a view of where we stand in our understanding of the complex web of processes at work through the Epi-palaeolithic and early Neolithic periods.

## Participants in the Research Project

In addition to the archaeologists who have excavated early Neolithic settlement sites in southeast Turkey and north Syria, there is a second group of archaeologists. Some of them (**Mihriban Özbaşaran, Mehmet Özdoğan, Nigel Goring-Morris, Bill Finlayson and Hans Georg K. Gebel**) offer expertise from the perspective of their own work in the southern Levant and Anatolia.

**Anna Belfer-Cohen**, Hebrew University Jerusalem (who was unable to be present at the workshop). Anna offers a perspective on our research from her base in south Levantine prehistory, and a perspective that draws on her expertise in the Middle, Upper and Epi-Palaeolithic periods.

**Marion Benz**, University of Freiburg, has participated in the salvage excavations at the early aceramic Neolithic site of Körtik Tepe, near Batman, in southeast Turkey. She has led the very relevant international research project SIGN (Social Identities of early neolithic Groups in the Near East).

**Clive Gamble**, University of Southampton. Clive is best known for his work on the Palaeolithic of Europe (1999, *The palaeolithic societies of Europe.* 2003 *Timewalkers : the prehistory of global colonization)*. His recent book (2007, *Origins and revolutions : human identity in earliest prehistory*) is full of original thinking. He has been one of the co-directors of a major multi-disciplinary research project, From

Fig. 2 Klaus Schmidt explains dressed bedrock floor of a lost enclosure outside the mound at Göbekli Tepe (photo: H.G.K. Gebel).

Lucy to Language: The Archaeology of the Social Brain (http://www.liv.ac.uk/lucy2003/).

**Jürgen Richter**, University of Köln, was not able to be present, but wishes to participate in the project. He is a Palaeolithic specialist. One of the questions that our project must address is how the earliest Neolithic differs from the Upper Palaeolithic; is the art and symbolism simply the same, but more, or is it qualitatively different?

**Marc Verhoeven**, independent researcher. When Marc was at Leiden University, he was a member of the team investigating and researching on Tell Sabi Abyad. He has worked for a number of years both on prehistoric ritual and religion, and the theory of explanation in archaeology.

**Paul Wason**, Director of Life Sciences, John Templeton Foundation, was able to join the workshop. In a former life, he published his research in the emergence of social complexity (1994, *The archaeology of rank*). He has recently contributed to the publication arising from the John Templeton Foundation-funded project at Çatalhöyük.

A third group consists of specialists in a variety of other disciplines:

**Joachim Bauer**, psychologist, Freiburg University, also interested in the neuroscience underpinning shared experience, rituals, and art, as well as the psychology of cooperation.

**Amy Bogaard**, Institute of Archaeology, Oxford University, participated in the workshop as a collaborator with Harvey Whitehouse in his current research project. Amy is an archaeologist and archaeo-botanist who has worked on the nature of early farming in southeast and central Europe. She is also working on economic integration and cultural survival at Çatalhöyük.

**Pascal Boyer**, Henry Luce Professor of Individual and Collective Memory at Washington University in St. Louis, USA, was not able to be present, but is interested in collaborating with our project. His work as a cognitive anthropologist working on religious representations resulted in two books (1994, *The naturalness of religious ideas: a cognitive theory of religion*; 2001. *Religion explained: the human instincts that fashion gods, spirits and ancestors.* His current research interests cover evolution and culture, the cognitive framework of religious concepts and norms, and individual and collective memory (with J. W. Wertsch, 2009, *Memory in Mind and Culture*).

**Merlin Donald**, psychologist, emeritus professor, Queen's University, Kingston, Canada. His two major books (1991, *Origins of the modern mind: three stages in the evolution of culture and cognition*, 2001. *A mind so rare: the evolution of human consciousness*) have been of interest to a number of archaeologists because of his ideas about the power of 'external symbolic storage' to change the way minds work (see, for example, Renfrew, C. & C. Scarre, 1998. *Cognition and material culture: the archaeology of symbolic storage*).

**Robin Dunbar**, psychologist, Oxford University, was not able to be present, but wishes to participate in the project. He is best known for his 'social brain hypothesis' (that the evolution of the human brain and mind has been driven, as with other primates, by the heavy computational demands of living in large and cohesive social groups). He was one of the co-directors of the recent major research project 'From Lucy to Language: The Archaeology of the Social Brain' (see Dunbar, R. I. M., C. Gamble & J. A. J. Gowlett, 2010, *Social Brain, Distributed Mind*).

Fig. 3 Concentrated discussion following a presentation by Clive Gamble (at right). From the right, next to Clive, Trevor Watkins, Ludwig Morenz, Mehmet Özdoğan, Marc Verhoeven, and Amy Bogaard. In the background, graduate students from Harran University, Urfa, and Jens Notroff, Klaus Schmidt's research assistant, half hidden behind Ludwig Morenz (photo: N. Becker).

**Joseph Henrich**, Canada Research Professor in Culture, Cognition and Coevolution, University of British Columbia, Vancouver. Joe Henrich directs a major international, multi-disciplinary programme of research on coevolution, development, cognition and cultural learning, two of whose areas of interest – the coevolutionary origins of human cultural learning capacities, cognition, and sociality; the evolution of religious beliefs, rituals, and institutions – intersect with our research project.

**Steven Mithen**, archaeologist, University of Reading. Steve has a long-standing interest in the Mesolithic hunter-gatherers of the western isles of Scotland, but became interested in evolutionary psychology. His books (1996. *The prehistory of the mind: a search for the origins of art, religion and science*; 2003, *After the ice: a global human history, 20,000-5000 BC*; 2005, *The singing Neanderthals: the origins of music, language, mind and body*) have been widely read and enthusiastically acclaimed. With Bill Finlayson, he is co-director of the excavations and research at the site of WF16, in southern Jordan.

**Ludwig Morenz**, Egyptologist, now at Bonn University, formerly at Leipzig University. Ludwig is interested in the emergence of written language and the use of images in ancient Egypt, and therefore in semiotics. He has co-authored with Klaus a study of the symbolism and signs from Göbekli Tepe and other sites in the region.

**Kim Sterelny**, philosopher, Australian National University, Canberra, Australia. Kim's work on the evolution of human cognition (2003, *Thought in a hostile world: the evolution of human cognition*) has been developing in the direction of the application of niche construction theory to recent human cognition and culture, and the emergence of complex societies. His recent book (2011, *The Evolved Apprentice: How Evolution Made Humans Unique*) is based on the Jean Nicod lectures that he gave in Paris in 2009.

**Harvey Whitehouse**, Institute of Social and Cultural Anthropology, Oxford University. Harvey's anthropological fieldwork resulted in his book theorising modes of religiosity (2004, *Modes of religiosity: a cognitive theory of religious transmission*). He has worked with Ian Hodder and others on a project that examined the role of ritual and religion in the later Neolithic site of Çatalhöyük, in central Anatolia (Whitehouse, H. & I. Hodder 2010, Modes of religiosity at Çatalhöyük, in *Religion in the Emergence of Civilization: Çatalhöyük as a Case Study*, ed. I. Hodder). He directs an international, multi-disciplinary project, Ritual, Community, and Conflict, which examines the causes and consequences of rituals in human societies.

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**MARION BENZ (ed.), 2010. The Principle of Sharing: Segregation and Construction of Social Identities at the Transition from Foraging to Farming. Proceedings of a Symposium held on 29th-31st January 2009 at the Albert-Ludwigs-University of Freiburg. Berlin: ex oriente. By Maria-Theresia Starzmann**

Publishing an archaeological book on the principle of sharing rather than the emergence of hierarchies, political stratification, or complex societies so-called, is a pertinent endeavor. Given many archaeologists' substantial fascination with phenomena of social differentiation and the emergence of ranked social groupings, the book's focus on communal practices such as sharing certainly draws attention.

Yet, "The Principle of Sharing: Segregation and Construction of Social Identities at the Transition from Foraging to Farming," edited by Marion Benz, does not entirely fall out of more traditional types of narrativizations of an archaeological past. As the subtitle suggests, practices of sharing are explored against the backdrop of a historical development from foraging to farming societies. To a large extent though, the individual contributions are able to undo the intrinsic logic of those foundational archaeological narratives that rest not only on evolutionary models but rely on notions of 'simple' (foraging) versus more 'complex' (farming) social formations.

The persistence of archaeology to center analyses on segregated societies places our discipline in some contrast to socio-cultural anthropology or ethnology. The latter two fields have more often exhibited interest in exploring the culture and life-ways of societies that are minimally stratified – or to be more precise, societies in which power is organized in non-coercive ways. Why is it that in archaeology practices of sharing and the principles behind such practices – consensus, participation, togetherness, and community, for example – are significantly understudied? This question is not merely one of methodology, but has an epistemological dimension as well. We should therefore ask to what extent the archaeological knowledge we produce actually corresponds to the object of our knowledge, that is, to past social life.

While "The Principle of Sharing" nowhere aspires to treat these epistemological questions, it unfortunately effaces issues of archaeological knowledge production almost entirely in the otherwise rigorous theoretical discussion in the first part of the volume (with contributions by Bill Finlayson, Hans Georg K. Gebel, and Lisbeth Bredholt Christensen). Still, Benz's book is a welcome intellectual intervention in archaeological discourses tending to reify past social groups as inevitably organized around competition. At the same time, it also demonstrates that sharing is certainly not always motivated by altruistic feelings. The ethnographic perspectives, making up the second part of the book (with excellent anthropological and interdisciplinary contributions by Thomas Widlok, Mathias Guenther, Chrischona Schmidt, Janina Duerr, and Renate Ebersbach) together with the archaeological case studies in the third part, provide at times dense empirical data from original fieldwork that are used to illustrate the dynamic and variable nature of practices of sharing as well as their relationship to different forms of reciprocity (*e.g.*, confined or generalized reciprocity). Centering on the issue of how social reproduction is practiced in the context of societies where decisions are *not* taken by the most politically or economically powerful sectors, the book makes clear that sharing is much more complicated and messy than we may expect when we base our understanding merely in ethico-moral terms of altruism.

Indeed, as almost every author in the book observes, sharing may contain elements that are quite contradictory to an act completely devoid of self-interest. As Mathias Guenther puts it in his study among the San in southern Africa, "Sharing, for all its elements of generosity, altruism and communalism, contains contradictory ingredients also of calculation, self-interest and invidiousness, providing the 'mind-set' for accumulation" (p. 127). These ingredients and their intensity vary, of course, across different historical and cultural contexts, but it remains that sharing is often done for a purpose or with a goal in mind. Yet, sharing should not be looked at as a matter of risk/benefit assessments alone, as both Marion Benz and Hans Georg Gebel point out in their articles, since this would imply that sharing could only be done when resources are relatively abundant. Several examples from contemporary contexts contradict this risk/benefit reading, demonstrating instead that sharing is a practice embedded in complex social expectations.

A haunting account worth highlighting in this context is Chrischona Schmidt's contribution that is at once a critique of settler colonialism and a story of survival. The author describes how indigenous people in Australia, under the stress created by intense social problems characteristic for post-colonial states (high incarceration rates, alcoholism, low life expectancy, *etc*.), use sharing – that is, "the distribution, not exchange or trade, between related Indigenous persons" (p. 138) – as a way to give renewed meaning to their lives. This stands in stark contrast to contexts in which the exchange of objects for money structures—or rather: objectifies – the social relationships between people (what Marx termed 'commodity fetishism'). While aboriginal society is, of course, long since immersed in capitalist market logics, Schmidt illustrates how in the case of demand sharing a relationship can continuously be reactivated through making and responding to demands for certain commodities.

The somber part of this story is also what holds most analytical value for the analysis of the principle of sharing in archaeology. As Schmidt describes, among the things shared by indigenous peoples in Australia is their welfare money, which gets redistributed in such potentially self-destructive activities as binge drinking or gambling (pp. 141-142). What is key here is, in my

view, not so much what is shared, but *how* it is shared, allowing us to focus our research on the analysis of specific forms of practice. The central role of practices in Schmidt's study is also apparent from the fact that many of the commodities handled in the Aboriginal society only acquire meaning through sharing – that is, through concrete decisions to share as well as decisions to not refuse to share.

This practice-centered view is what we find at the core of Arjun Appadurai's eminent study on *The Social Life of Things* (1986), which is referenced by several authors in Benz's book. On the most general level, Appadurai argues that things, by being invested with meaning as they travel through different regimes of value, have social lives or biographies. Throughout their lives, objects may acquire commodity status ('commoditization'), but even then the value assigned to a commodity is not inherent in the materiality of the object. Rather, value gets created through human interactions, transactions, attributions – that is, through practices of sharing and exchange. Both drawing on and disputing Appadurai's terminology, Gebel offers his own take on processes in which things turn into commodities – what he calls "commodification" (p. 46). Whether one agrees with the author on the need for this semantic change or not, the reading of the stone rings from the sites of Ba'ja and Basta as "commodity coupons" (p. 71) with symbolic rather than material value is compelling. Here, too the principle argument is based on the idea that objects acquire meaning only through specific practices of making, distributing, using, or even intentionally destroying objects.

The recognition of the central role of practice for the principle of sharing – that is, *how* and *with whom* people share – is expressed most eloquently by those authors focusing their attention on shared practices. The context for this concern with shared practices is a growing literature in archaeology and anthropology committed to studying communal practices that are part of a daily routine, such as cooking or feasting. The theory of commensality (originally developed by Robertson Smith in the late 19th century), for example, describes how the practice of eating together creates social and emotional attachments between people, establishing collectivity. The article by Amy Bogaard and her colleagues is interesting in this respect. Evidence for feasting-related deposits from archaeological contexts in Turkey is here read as indication for practices of "'public' consumption" (p. 315) on a supra-household level. The authors suggest that communal feasting may also have functioned as the commemoration of past consumption events, thus establishing social cohesion through shared memories. Certainly, and as several of the authors in the volume point out, such bonds are particularly strong not because sharing takes place among an unlimited number of people, but because the people who share constitute a 'we'-group with restricted access.

This is a noteworthy observation that would require sustained discussions on the links between practices of sharing and power not offered in the book. If sharing is indeed "a joint cultural effort of limiting one's choices" (p. 92) in order to allow more people within a group access to available resources, and if power is based on controlling access to resources, then sharing is a powerful cultural practice. The things being shared are, of course, similarly powerful, as archae-ologists and anthropologists alike have pointed out: they write about 'kingly things' or 'sacred things' – paraphernalia of power circulated between different spheres of life.

A few concluding remarks are due regarding the archaeological perspectives offered in the book, which consist of contributions by Gary O. Rollefson, Esther John, Avraham Ronen, Nabil Ali, Marion Benz, Karina Croucher, and Zeidan A. Kafafi; as well as an article on Çatalhöyük written by Amy Bogaard together with Michael Charles and Katheryn C. Twiss, which I have already mentioned. It is significant that the archaeological case studies take a rather different analytical approach to the principle of sharing from the one offered in the first and second parts of the book, entering the discussion from problematizations of social change and interaction. Indeed, especially in light of the nuanced readings of the concept of sharing in the ethnographic chapters, the archaeological texts sometimes appear strained in their attempts to identify practices of sharing in the past. This is, however, owed to the fragmentary material record all archaeologists deal with rather than the scholarly expertise of the authors, each of whom offers a methodologically innovative approach to understanding past practices.

Here I would like to point out the very eloquent study of mortuary practices in the Prehistoric Near East by Karina Croucher, who comes as close to offering the reader a thick description of past practices as the archaeological record allows. With great care not to make unfounded evaluations of the experiences of the subjects of our studies – that is, the people whose "dry, sterile bones" (p. 279) we study today – she reads the material remains of archaeology as embodied, sensual traces. Practices related to burial, including processing the dead (plastering of skulls, defleshing of the body, handling bones), suggests Croucher, are not merely intense sensory experiences, but also "mnemonic activities" (p. 281). Again, the focus is on collective practice and communal consumption, with the explicit understanding that such activities get repeated over time, thus establishing "genealogies of practice" (p. 289). This brings us back, at last, to Appadurai. When he advocated a methodological fetishism, he proposed that – precisely because things have genealogies – the social scientist should follow the thing in motion, through life cycles and biographic journeys of sharing, reciprocity, and exchange.

While the principle of sharing, as Benz's book formidably illustrates, is not without traces of self-interest and competition, even contested practices can be fundamentally about togetherness and community. Absolute egalitarianism has long been recognized as an illusion, but it is certainly worthwhile searching for

non-coercive principles of social life in archaeological contexts, of which sharing can be one. Rather than falling prey to the ruthless competition promoted in capitalism, the archaeological stories about sharing may actually inspire our lives today. As the popular saying goes, "Sharing is caring."

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# *New Website*

## The Obsidian Use Project

invites to visit its new website www.obsidianuseproject.org. While parts of the site are still under construction, data are already presented for different geographical zones (for instance, Mesopotamia, Near-East, Anatolia, Cyprus, Caucasus). Cooperations concentrate on methodological and archaeological approaches. Two new categories are planned: one for short news to highlight new published results, PhD in process, new publications, summer school; the other for bibliographical references and authorized PDFs downloads.
L. Astruc and I. Gilles

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***The Pre-Pottery Neolithic B Village of Yiftahel. The 1980s and 1990s Excavations*,**
**by Yosef Garfinkel, Doron Dag, Hamoudi Khalaily, Ofer Marder, Ianir Milevski and Avraham Ronen, with contributions by F. Alhaique, B. Arensburg, D.E. Bar-Yosef Mayer, A. Davidson, M. Davis, V. Eshed, N. Getzov, I. Hershkovitz, J. Heller, L.K. Horwitz, M.L. Kislev, M. Lamdan, N. Liphschitz, R. Malinowski, A. Miller-Rosen, N. Porat, J. Yellin, & D. Zohary.**

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