

*Editorial*

*Contributions*

**Wasse et al.**

*Architectural Complexity at Wisad Pools*

**Kodas**

*Contexte Architectural des Crânes Surmodelés*

**Fujii**

*Rescue Excavations at Jabal Juhayra*

**Lelek Tvetmarken and Bartl**

*Excavations at the Early Neolithic Site of Mushash 163*

*Conference Report*

*Book Review*

*Upcoming Conference*

*New Theses*

**Alarashi**, *The Epipalaeolithic and Neolithic Personal Adornments from Syria: Techniques and Uses, Exchanges and Identities*

**Khawam**, *L'Homme et la Mort au Néolithique Précéramique B: l'Exemple de Tell Aswad*

*Call for a Peer Supported Database*

*New Publications*

*Masthead*

# NEO-LITHICS 1/15

**The Newsletter of  
Southwest Asian Neolithic Research**

|   |    |
|---|----|
| <b>Editorial</b>  | 2  |
| <b>Contributions</b>  |    |
| <b>Yorke Rowan, Alexander Wasse, Gary Rollefson, Morag Kersel, Matthew Jones, and Brita Lorentzen</b><br><i>Late Neolithic Architectural Complexity at Wisad Pools, Black Desert</i>                            | 3  |
| <b>Ergul Kodas</b><br><i>Contexte Architectural des Crânes Surmodelés : Diversité Contextuelle et Funéraire</i>   | 11 |
| <b>Sumio Fujii</b><br><i>Rescue Excavations at Jabal Juhayra, a Stratified Neolithic Settlement in the al-Jafr Basin</i>  | 24 |
| <b>Cecilie Lelek Tvetmarken and Karin Bartl with contributions from Dörte Rokitta-Krumnow</b><br><i>Excavations at the Early Neolithic site of Mushash 163: Preliminary Report on the 2014 and 2015 Seasons</i> | 34 |
| <b>Conference Report</b>  |    |
| <i>From the Caucasus to the Arabian Peninsula, Paris, October 2015, by Tobias Richter</i>   | 42 |
| <b>Book Review</b>  |    |
| <i>Review of Peder Mortensen, Excavations at Tepe Guran: The Neolithic Period. With contributions by Kent V. Flannery and Pernille Bangsgaard, by Hans Georg K. Gebel</i>                                       | 43 |
| <b>Upcoming Gathering</b>   |    |
| <b>New Theses</b>   |    |
| <b>Alarashi, Hala:</b> <i>The Epipalaeolithic and Neolithic personal Adornments from Syria: Techniques and Uses, Exchanges and Identities</i>   |    |
| <b>Khawam, Rima:</b> <i>L'Homme et la Mort au Néolithique Précéramique B: l'Exemple de Tell Aswad</i>   | 46 |
| <i>Call for a Peer-Supported Data Base by Barbora Kubikova</i>  | 49 |
| <b>New Publications</b>   | 50 |
| <b>Masthead</b>   | 52 |

Editorial



Gary Rollefson, founding co-editor of Neo-Lithics, with Blair Heidkamp at Wisad Pools in 2014.

While the Near and Middle Eastern bloodshed is spilling, the complexity of hatred and confrontation is increasing, and traumatized humans seek shelter under unacceptable conditions, we continue business with helplessness and sadness, as if our Neolithic subjects are important and field research has a future. Is there anything else we could do?

This editorial announces that one of the founding co-editors of Neo-Lithics, Gary Rollefson, is leaving the active editorial board of Neo-Lithics to facilitate a gradual rejuvenation of Neo-Lithics. We elderly of the Neolithic family should care in time to give way for the younger generation, expecting that they will do things in different and better ways. While Gary remains with us as the founding co-editor, we happily welcome Marion Benz, Freiburg, to succeed Gary. We thank Marion for her readiness and engagement which already started with this issue.

We also continue the rejuvenation of the advisory board by welcoming Tobias Richter, Copenhagen University, replacing Peder Mortensen upon Peder's proposal. We warmly thank Peder for his moral and sympathetic support for Neo-Lithics for more than 20 years. It is planned that the members of the future advisory board will be involved more actively, e.g. by reviews and guest editorships.

Hans Georg K. Gebel sincerely expresses his deep and heartfelt gratitude to Gary Rollefson for the amicable, respectful and straightforward cooperation since 1993 when we founded Neo-Lithics for the Neolithic research family, following the first PPN Chipped Lithics Conference. Without Gary, Neo-Lithics would not have established and gained momentum: It is a wonderful example that parenting a successful project needs more than a colleagues' cooperation; it is the result of a long friendship for which I even thank more (Gary and I met first in 1981 in Amman). I found it appropriate to attach two photos to this editorial: one of Gary, and one of Marion Benz our new co-editor, whom we warmly welcome.

Hans Georg K. Gebel & Gary O. Rollefson



Marion Benz, the new co-editor of Neo-Lithics in 2015.

# Late Neolithic Architectural Complexity at Wisad Pools, Black Desert

Yorke M. Rowan, Alexander M.R. Wasse, Gary O. Rollefson, Morag M. Kersel, Matthew D. Jones, and Brita Lorentzen

## Introduction

In June of 2013 our small field crew began the excavation of structure W-80 at Wisad Pools in the Black Desert of eastern Jordan (Fig. 1). W-80 consisted of a circular tomb built atop a collapsed Late Neolithic dwelling (Rollefson *et al.* 2013), but the volume of sediments and the weight of basalt blocks made it impossible to clear more than about the southern half of the complex during the four-week season. The crew returned for another four week season (June 5-July 4) in 2014 to continue the excavation.

## The Tomb

In 2014 the crew completed the excavation of the tomb (Fig. 2), which measured approximately 5.0 m in diameter, with a wall of four courses that remained to a height of approximately 80 cm (Rollefson *et al.* 2013: Fig 3). More human bones were recovered, but the state of preservation of the skeleton was poor due to burrowing animals; furthermore, the bioturbation also appears to have disturbed the stratigraphic integrity of the tomb in the sense that some artifacts appear to have migrated into sediment layers of the house mound be-

neath the tomb, particularly small biconical carnelian beads. Within the burial layer other small finds provide the possibility of assigning the tomb to a particular period, although at the moment this assignment remains tentative.

A copper finger ring (dimensions 19 mm diameter, height 6-9 mm, thickness 1 mm), a silver (?) earring<sup>1</sup> (19 x 16 x 3 mm, interior diameter 10 mm), a bronze arrowhead<sup>2</sup> (60 x 15 x 5 mm), and a small sculpted Dabba marble bead (5 mm long, 5 mm thick) identical to one from 2013 were recovered (Figs. 3-4). The bronze arrowhead and silver earring have close LB IIA parallels at 'Ara (Yahalom-Mack 2014: 213 and Fig. 10.4; 222 and Fig. 10.11:12). Two of the beads from Wisad appear to be glass/frit (Fig. 4:a, b), similar to examples from 'Ara (Paz 2014: Fig. 11.1: 15), and the sculpted beads from Wisad (Fig. 4:c and Rollefson *et al.* 2013: Fig. 21) resemble the "melon beads" from LBIIA 'Ara (Paz 2014: Figs. 11.1:22-25), albeit in Dabba marble and not faience. In view of the probable burrowing activity in the tomb, it is possible that the copper bead found in 2013 (Rollefson *et al.* 2013: Fig. 22) belongs in this tomb group even though it was found in a locus beneath the tomb.

## The Underlying Architecture

As was the case at Wisad structure W-66 (Rollefson *et al.* 2012) and structure SS-11 at M-4 (Maitland's Mesa) in the Wadi al-Qattafi (Wasse *et al.* 2012), structure W-80 beneath the tomb was a corbeled building whose roof had collapsed, clearly evidenced by vertical or nearly vertical corbel slabs inside the wall (Fig. 5). And as was the case at W-66, the post-collapse shell of

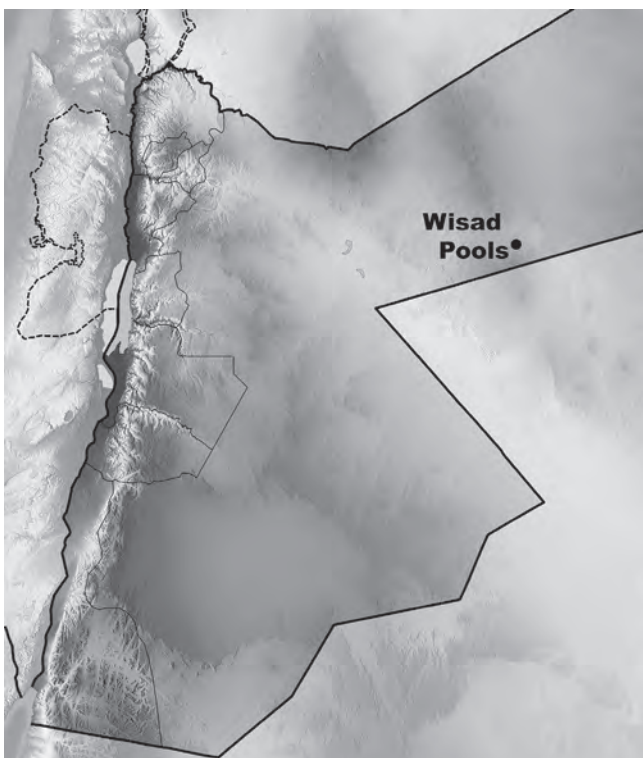


Fig. 1 Map of Jordan showing the location of Wisad Pools.



Fig. 2 Aerial view from 2013 to NE of the tomb atop W-80. (Photo: A.C. Hill)





Fig. 3 Objects recovered from inside the tomb at W-80 in 2014. a: bronze arrowhead; b: copper finger ring; c: silver earring. (Photo: G. Rollefson)



Fig. 4 Beads ascribable to the W-80 tomb. a: Glass/frit bead; b: glass/frit bead; c: Dabba marble "melon" bead. (Photo: G. Rollefson)

W-80 continued in use as a windbreak with numerous renovations for a variety of tasks, including butchering, grinding stone activity, lithic production, and bead manufacture. But when the 2014 excavation season closed, W-80 was clearly a building entailing considerably more architectural complexity than either W-66 or SS-11.

Fig. 6 shows the arrangement of the architectural elements of W-80 at the end of the 2014 excavation season. The interior dimensions of the large room are 6.5 m NW-SE (from "GA" to "M") and 5.5 m SW-NE (from "D2" to "D1"). D1 is the northeastern doorway, approximately 60 cm wide, that leads into the main room (M). CP is the central pillar, and it is probable that additional pillars may have originally supported the roofing slabs; the interior of the room appears to have undergone considerable reorganization over the use-life of the building. GA refers to the area where many large grinding stones were found, and A is an alcove in the southwestern area of the main room. D2 is then south-western doorway leading into P, a semicircular "fenced porch" where one large grinding stone was located, and beyond is the fenced Western Forecourt (WF). A 1 x 1 m probe (pr) sampled sediments beneath the original occupation floor. The preliminary report on the 2013 season (Rollefson *et al.* 2013) summarized the western forecourt, porch, southwestern doorway, and the alcove, but some new details became noticeable after the close of that season.

### The Western Forecourt (WF)

A small standing stone "shrine" (Locus 031) was mapped on the exterior of the Western Forecourt wall 032 in 2013 (Rollefson *et al.* 2013: 12 and Fig. 8). In 2014 another U-shaped alignment of stones (Locus 079)

was identified a couple of meters to the north of Locus 031, oriented with the opening towards the northwest ( $323^\circ$ ). The northeast arm of the U-shape measured 125 cm long, as did the southwest arm; the back was a 162 cm part of the arc of Wall 032. A central standing stone near the back of the construction measured 80 cm in height, although it had been toppled towards the south-west (Fig. 7).

### The Southwestern Doorway (D2)

Excavations inside the doorway and in the "vestibule" (Rollefson *et al.* 2013: Fig. 6) in 2014 revealed that D2 is a later feature after the original construction of W-80, and therefore so is the Porch (P) and probably the vestibule itself. This, in turn, suggests the northern wall of the alcove/southern wall of the vestibule is also relatively late. All of these later changes to W-80 might be contemporaneous with the use of the windbreak during the principal use of the Grinding Area (GA).

### The Alcove

The alcove may have had some association with the summer solstice. In Fig. 8a, taken on 26 June 2014, five days after the summer solstice, there is a clear parallel (slightly off-angle towards the west) between the shadow of the photographer and the axis of the northeastern doorway (D1 in Fig. 6) and the center of the curvilinear alcove A; the error in the alignment would have been reduced had the photo in Fig. 8a have been taken five days earlier. Fig. 8b is a detail of the alcove, showing that a former opening in the rear wall of the alcove at one time had a frame that later was blocked with stones.





Fig. 5 Excavation along eastern edge of W-80 showing Wall 019 (right) and collapsed, nearly vertical corbel slabs (left). (Photo: Y. Rowan)

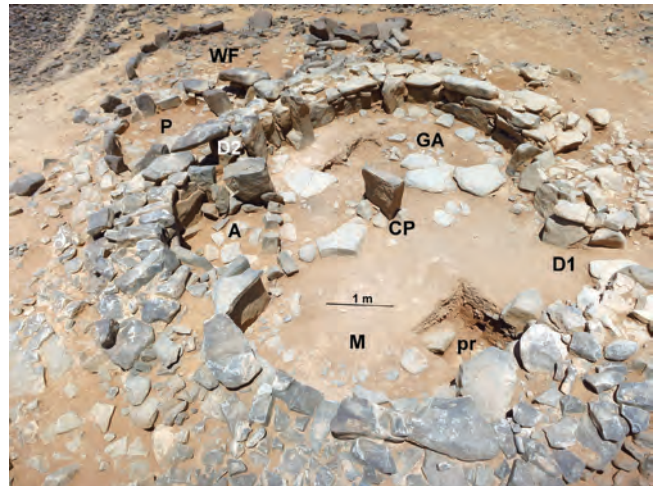


Fig. 6 Overhead view of W-80 at the end of the 2014 season; see text for abbreviations. North is at upper right. (Photo: Y. Rowan)

### The Grinding Area (GA)

The grinding area dominates the northern half of the building. Altogether 67 milling stones came from the area, including 46 handstones and 21 grinding slabs. These numbers contrast with the total of only 13 grinding slabs, 30 handstones, and four pestles recovered in 2013, including those from outside the main room (Rollefson *et al.* 2013: 18). Of the 2014 grinding slabs, four included central mortars ranging between 7-11 cm in diameter (Fig. 9). The largest of the slab/mortars had

dimensions of 89 x 76 x 11 cm (140 kg) and the smallest 38 x 29 x 13 cm (54 kg). It is perhaps important that four hearths were found in the northern half of W-80 in 2014 in close proximity to the grinding stones (Fig. 9),

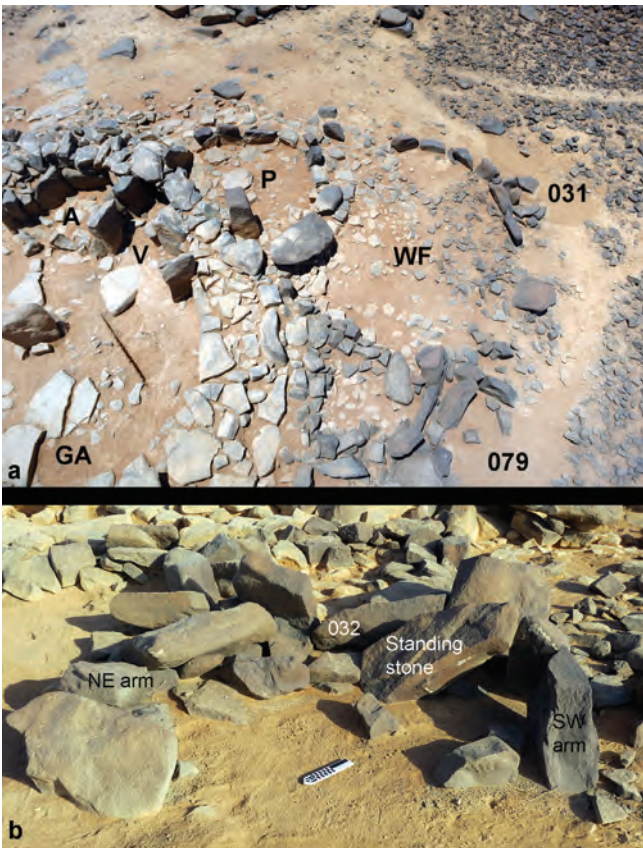


Fig. 7 View towards the southeast of the U-shaped feature ("shrine") with a collapsed standing stone at the northwestern edge of Western Forecourt wall 032. (Photo: G. Rollefson)

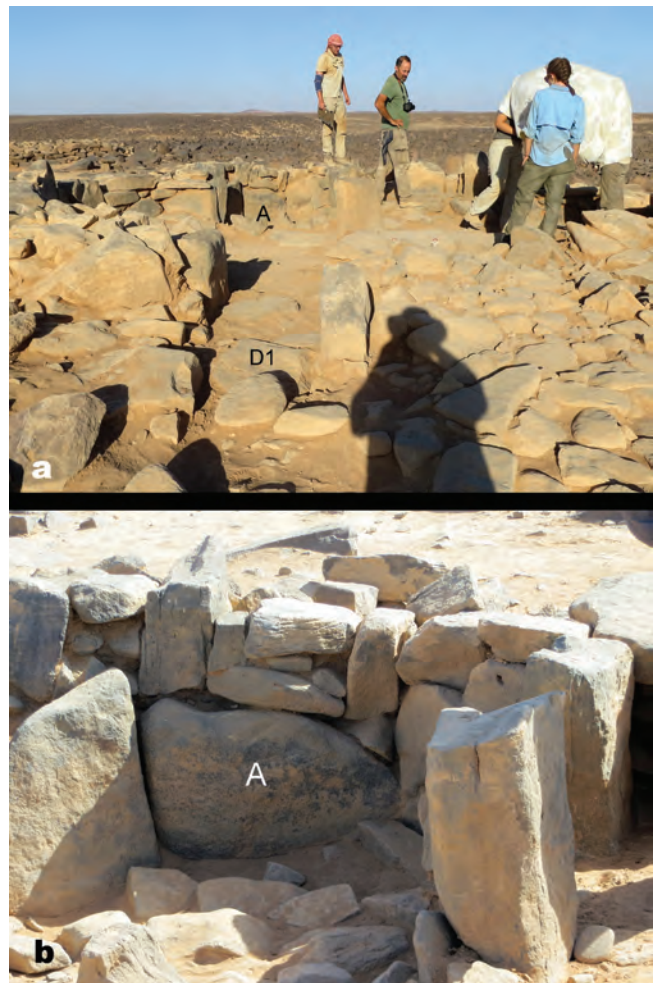


Fig. 8 a: View towards the southwest on 26 June 2014; note that the photographer's shadow parallels the axis of the northeastern doorway (D1) and the alcove (A). b: Detail of the alcove A. Note that an opening above the basal stone has been framed and filled in. (Photos G. Rollefson)





Fig. 9 Hearths 058, 055, and 061 among grinding slab/mortars; door D1 is at upper right. (Photo: Y. Rowan)

whereas only one diffuse area of burning was found in the southern half in 2013.

A feature that might be related to the use of the Grinding Area is a rectangular “bin” (Locus 068) along the western wall 070, approximately 60 cm west of the grinding slab/mortar complex in Fig. 9. The bin



Fig. 10 The rectangular bin along the western wall of W-80. (Photo: Y. Rowan)

measures 170 cm N-S and 69 cm E-W, outlined by stones of basalt, including one long block on edge and another on end (Fig. 10). Elsewhere in the Grinding Area two caches of gazelle and caprine astragali were found just inside and to the west of the northeastern doorway D1 and next to the eastern face of the central pillar CP (Fig. 11).

A clear example of the renovations that structure W-80 underwent is shown in the north wall of the building (Fig. 12). At some time an opening measuring 2.3 m had been created in wall 070 that extended eastward to wall 019, which was an original part of W-80. Sometime later the opening was closed with blocking stones 071, creating at the same time doorway D1. The timing of the blockage may have coincided with the construction of the alcove, the southwestern doorway D2, and the vestibule. A platform of rocks (Locus 062) accumulated to the north of the blocking.



Fig. 11 a: Cache of gazelle/caprine astragali 064 inside doorway D1. b: cache of gazelle/caprine astragali adjacent to east edge of central pillar CP. (Photos: Y. Rowan)





Fig. 12 Renovations in the north wall of W-80. An opening was made in wall 070, then blocked sometime later using basalt slabs placed on edge (071), creating doorway 069 at the same time. Platform 062 was built to the north of 070. The original eastern wall 019 of W-80 is just off the photo to the right. (Photo: G. Rollefson)

### The Probe (pr)

A 1 x 1 m probe was excavated adjacent to the eastern wall 019 down to bedrock (Fig. 13a). It was clear that the structure was not built on bedrock, but on a culturally sterile, gritty and porous reddish-brown sandy silt 37 cm thick that could represent an Early/Middle Holocene topsoil protected from deflation by the presence of W-80. A similar sediment was found beneath the walls of structure W-66 (Fig. 13b), excavated in 2011 (Rollefson *et al.* 2012), and sediment cores drilled in a *qa* (mudflat) into which the small Wadi Wisad flows a kilometer to the southeast of W-80 show a layer of similar sediment.

### Botanical Analysis

If the basal sediment layer under the walls of W-80 was able to absorb and retain winter rainfall better than the silts in the region today, this might explain why some of the charcoal recovered from the hearths in W-80 has been identified as *Tamarix* sp. and deciduous *Quercus* sp., components of a forest-steppe vegetation (*cf.* Willcox 1999). Samples have been sent to determine if pollen and phytoliths are present in the reddish-brown sediment, and OSL samples have been taken from the soils under W-80 and W-66 as well as the *qa* south of Wisad Pools.

### Faunal Remains

Animal bones were once again numerous and well-preserved. Based on a sample of more than 250 NISP bones from three loci in the 2013 season, gazelle dominate at around 50%, hare about 25%, with caprines around 10% of the mammals. Fox is present, while large and small felids occur rarely, as does domestic dog. Bird bones are numerous, but none have been identified yet. Based on a cursory examination of the material from 2014, there is reason to conclude the ratios of taxa will

not vary in any great degree, maintaining a possible picture of parsimonious herders relying on the hunting of wild animals and perhaps caprine dairy products (Rollefson 2014). Alternatively, Wisad may have been the temporary home of hunter-gatherers who had acquired a small holding of domestic sheep and goats. Among the abundant faunal remains, three bone awls were identified, but more bone tools will undoubtedly come to light as faunal analysis continues.

### Chipped Stone Tools

A total of 1437 chipped stone tools came from the W-80 excavations in 2014. Among the other tools, 46 bead drills and 108 borers have been identified, as well as eight cortical knives and 20 tabular scrapers.

Table 1 lists the arrowheads recovered in the 2014 season as well as from 2013. The distributions for both seasons are similar: more than 85% are transverse arrowheads, and in view of the small size as well as the ease and rapidity of their manufacture, it is likely that the ratio of transverse arrowheads to other types might reflect the ratio of smaller mammals and birds to larger mammals in the faunal remains.



Fig. 13 a: The southern face of the probe to bedrock. The darker sediment just below "019" (the eastern wall of W-80) is reddish-brown and a possible topsoil protected by the construction of W-80. b: A similar porous reddish-brown sediment was also found beneath the walls of Late Neolithic structure W-66, excavated in 2011. (Photos: G. Rollefson)

| Season                | 2014       |            | 2013       |             | Total      |             |
|-----------------------|------------|------------|------------|-------------|------------|-------------|
|                       | n          | %          | n          | %           | n          | %           |
| Stemmed transverse    | 107        | 35.7       | 98         | 30.6        | 205        | 33.1        |
| Triangular transverse | 65         | 21.7       | 95         | 29.7        | 160        | 25.8        |
| Trapeze transverse    | 82         | 27.3       | 59         | 18.4        | 141        | 22.7        |
| Indet. transverse     | 13         | 4.3        | 12         | 3.8         | 25         | 4.0         |
| Haparsa               | 13         | 4.3        | 15         | 4.7         | 28         | 4.5         |
| Nizzanim              | 1          | 0.3        | 11         | 3.4         | 12         | 1.9         |
| Herzliya              | 5          | 1.7        | 8          | 2.5         | 13         | 2.1         |
| Amuq                  | 5          | 1.7        | 0          | 0.0         | 5          | 0.8         |
| Byblos                | 3          | 1.0        | 2          | 0.6         | 5          | 0.8         |
| Other                 | 2          | 0.7        | 0          | 0.0         | 2          | 0.3         |
| Indeterminate         | 4          | 1.3        | 20         | 6.2         | 24         | 3.9         |
| <b>Total</b>          | <b>300</b> | <b>100</b> | <b>320</b> | <b>99.9</b> | <b>620</b> | <b>99.9</b> |

Table 1 Arrowhead types from the interior of structure W-80.

The total of 620 arrowheads is astonishing, although it should be recalled that since the recurrent occupation of W-80 spanned a time period of around a thousand years (cf. Rollefson *et al.* 2014: 291), the rate is low on an absolute scale. Of course, the use of W-80 may have been a series of only a few intensive palimpsests, so the actual rate of deposition may have been periodically high. The amount of lithic debris inside W-80 is very high (905 cores were recovered in 2013 and 2014, and microflakes were densely represented), indicating that stone tool manufacture was a major activity inside the structure, including the production of arrowheads. But the presence of so many arrowheads in the building might also have been partly due to their presence in the carcasses that were butchered inside the building.

One factor concerning arrowheads that has been puzzling until now is the source of arrow shafts for the hunters. The find of tamarisk and oak among the charcoal samples points to a moister landscape, fostered by a more absorbent topsoil on the one hand and the possibility that Late Prehistoric rainfall may at times have been much higher than at present (Rollefson n.d.). If that were the case, *Phragmites* reeds may have been available in refugia in the eastern desert, even in the Wadi Wisad itself. In this regard it is notable that two more shaft straighteners were recovered from the interior of W-80 in addition to the two excavated in 2013 (Rollefson *et al.* 2013: 17 and Fig. 17).

## Small Finds

The small finds from the 2014 season are presented in Table 2. Items that were probably associated with the tomb are marked with an asterisk, and many small finds from the 2013 season probably also belong to this assemblage, including several biconical carnelian beads, a tiny carnelian tubular bead, a copper bead, two cowrie shell beads, and a sculpted “melon” bead made of Dabba marble (Rollefson *et al.* 2013: Figs. 21 and 22). The 11 stone “bracelet” fragments complement the

| Item                        | n  |
|-----------------------------|----|
| Copper finger ring*         | 1  |
| Silver earring*             | 1  |
| Bronze arrowhead*           | 2  |
| Biconical carnelian beads*  | 11 |
| Carnelian disc bead*        | 1  |
| Dabba marble 'melon' bead*  | 1  |
| Glass/frit beads*           | 2  |
| Dabba marble disc beads     | 6  |
| Dabba marble pendants       | 3  |
| Mother-of-pearl pendant     | 1  |
| Shell beads                 | 4  |
| Ostrich eggshell beads      | 2  |
| Other beads                 | 14 |
| 'Mace head' fragments       | 6  |
| Stone 'bracelet' fragments  | 11 |
| Sandstone palette fragments | 3  |
| Sandstone disk              | 1  |
| Grooved stone               | 1  |
| Potsherds                   | 9  |
| Red ochre pieces            | 2  |
| Worked stone                | 7  |
| Gizzard stones              | 6  |

Table 2 List of small finds from the 2014 excavation of W-80, Wisad Pools, 2014. An asterisk indicates material associated with the burial.

13 found in 2013, although it's not certain if some of the fragments go together.

The same is true for the “mace head” fragments: six from 2014 and three from 2013; the highly polished, gleaming white marble pieces have contours suggesting an original shape of a perforated oblate sphere or piriform object. Mace heads are well-documented from the Late Neolithic (Rosenberg 2010), even as far back as the Late PPNB and PPNC (Rollefson and Kafafi 1996; Rollefson, Kafafi and Simmons 1990; Rollefson, Simmons and Kafafi 1990).

The burned “grooved stone” appears to be a piece of chalky limestone roughly formed by direct percussion to a subrectangular shape (see left-side of image in Fig. 14) measuring 80 mm in length and 63 mm in width. One surface was smoothed, then incised with a minimum of eight parallel grooves. Similar objects



Fig. 14 Burned grooved stone of uncertain function. (Photo: G. Rollefson)



are known from Neolithic Cyprus and elsewhere in the Levant (Eirikh-Rose 2004; Tyrrell Steward and Rupp 2004), including ‘Ain Ghazal, and it is possible they were used for sharpening bone needles and awls.

## Closing Comments

Less than 10 years ago, the perception of the eastern badia of Jordan was one where the forbidding landscape restrained the Late Prehistoric exploitation of the area in view of current climatic and edaphic conditions. Intensified interdisciplinary field research over the past six years is beginning to reveal a different appreciation of the opportunities available for hunter-herder groups during the early to mid-Holocene periods. The presence of arboreal charcoal paints a very different Late Pre-historic landscape, and sediments preserved under the Late Neolithic buildings at Wisad Pools hold promise for detailing what the conditions were like in the 7<sup>th</sup> millennium and later. Excavations at other structures at Wisad Pools might well disclose the time when that reddish porous topsoil had disappeared, providing clear insights into the process of desertification and its consequences on human presence in the eastern badia.

*Acknowledgements:* The Eastern Badia Archaeological Project received substantial financial support from the Oriental Institute of the University of Chicago as well as continued commitment from the Louis B. Perry Scholarship fund at Whitman College and the Jennifer C. Groot fellowship from the American Schools of Oriental Research; additional funding was contributed by the co-directors of the project. Our thanks are extended to the Department of Antiquities of Jordan and to our departmental representative Wesam as-Said for their considerable help, as well as to ACOR director Dr. Barbara Porter for logistical assistance and research facilities. Student volunteers Madeline Duppenthaler, Emma McCullough-Stearns, Blair Heidkamp, Tariq Judeh, and Rose Smith worked devotedly under harsh desert conditions, for which we are grateful. The Badia Police are also thanked for their assistance in obtaining water for the project.

## Endnotes

<sup>1</sup> The small finds from the W-80 tomb are currently being treated at the American Center of Oriental Research (ACOR) by Naif Zaban under the auspices of the ACOR Conservation Cooperative. We express our gratitude to Mr. Zaban and to ACOR Director Dr. Barbara Porter.

<sup>2</sup> A second bronze arrowhead of the same type was found in the roadway leading to our camp at Wisad Pools, having suffered from truck traffic for some unknown amount of time.

**Yorke Rowan**  
University of Chicago,  
ymrowan@uchicago.edu

**Alexander Wasse**  
University of East Anglia,  
alexander.wasse@uea.ac.uk

**Gary O. Rollefson**  
Whitman College, Walla Walla  
rollefgo@whitman.edu

**Morag M. Kersel**  
DePaul University College, Chicago  
mkersel@depaul.edu

**Matthew D. Jones**  
University of Nottingham  
Matthew.Jones@nottingham

**Brita Lorentzen**  
Cornell University  
bel9@cornell.edu

## References

- Eirikh-Rose A.  
2004 Geometric Patterns on Pebbles: Early Identity Symbols? In: E. Peltenburg and A. Wasse (eds.), *Neolithic Revolution. New Perspectives on Southwest Asia in Light of Recent Discoveries on Cyprus*: 145-162. Levant Supplementary Series 1. Oxford: Oxbow.
- Paz S.  
2014 Chapter 11. The Beads. In: Y. Gadot, D. Ilan, Y. Tepper, and E. Yannai (eds.), *The Bronze Age Cemetery at ‘Ara: Salvage Excavation Reports No. 8: 227-235*. Tel Aviv: Tel Aviv University Publications in Archaeology.
- Rollefson G.  
2014 The Fat of the Land: Neolithic Origins of „Wealth“ in the Southern Levant. In: I.M. Swinnen and E. Gubel (eds.), *From Gilead to Edom. Studies in the Archaeology and History of Jordan in Honor of Denyse Homès-Fredericq on the Occasion of her Eightieth Birthday*. Akkadica Supplementum 3: 1-8. Wetteren: Cultura.
- n.d. Greener Pastures: 7th and 6th Millennia Pastoral Potentials in Jordan’s Eastern Badia. In: K. Bartl, K. Schmidt, M. Reindel, and F. Lüth (eds.), *The Development of Early Settlement in Arid Regions*. Berlin: D.A.I (in press).
- Rollefson G. and Kafafi Z.  
1996 The 1995 Season at ‘Ayn Ghazal: Preliminary Report. *Annual of the Department of Antiquities of Jordan* 40: 11-28.

- Rollefson G., Kafafi Z., and Simmons A.  
1990 The Neolithic Village of 'Ain Ghazal, Jordan: Preliminary Report on the 1998 Season. *Bulletin of the American Schools of Oriental Research Supplement 27*: 95-116.
- Rollefson G., Rowan Y., Perry M., and Abu-Azizeh W.  
2012 The 2011 Season at Wisad Pools, Black Desert: Preliminary Report. *Annual of the Department of Antiquities of Jordan 56*: 29-44.
- Rollefson G., Rowan Y., and Wasse A.  
2013 Neolithic Settlement at Wisad Pools, Black Desert. *Neo-Lithics 1/13*: 11-23.
- Rollefson G., Simmons A., and Kafafi Z.  
1990 The Neolithic Village of 'Ain Ghazal, Jordan: Preliminary Report on the 1989 Season. *Annual of the American Schools of Oriental Research 51*: 107-126.
- Rosenberg D.  
2010 Early Maceheads in the Southern Levant: A "Chalcolithic" Hallmark in Neolithic Context. *Journal of Field Archaeology 35*(2): 204-216.
- Tyrrell Steward S. and Rupp D.  
2004 Tools and Toys or traces of Trade: the problem of the enigmatic Incised Objects from Cyprus and the Levant. In: E. Peltenburg and A. Wasse (eds.), *Neolithic Revolution. New Perspectives on Southwest Asia in Light of Recent Discoveries on Cyprus*. Levant Supplementary Series 1: 163-174. Oxford: Oxbow.
- Wasse A., Rowan Y., and Rollefson G.  
2012 A 7th Millennium BC Late Neolithic Village at Mesa 4 in Wadi al-Qattafi, Eastern Jordan. *Neo-Lithics 1/12*: 15-25.
- Willcox G.  
1999 Charcoal Analysis and Holocene Vegetation History in Southern Syria. *Quaternary Science Reviews 18*: 711-716.
- Yahalom-Mack N.  
2014 Chapter 10. The Metal Objects. In: Y. Gadot, D. Ilan, Y. Tepper, and E. Yannai (eds.), *The Bronze Age Cemetery at 'Ara*. Salvage Excavation Reports No. 8: 213-226. Tel Aviv: Tel Aviv University Publications in Archaeology.



## Contexte Architectural des Crânes Surmodelés : Diversité Contextuelle et Funéraire

Ergul Kodas

*Résumé : Au Proche-Orient, les crânes surmodelés, appartenant à des hommes, des femmes et des enfants, ont été retrouvés dans des ensembles archéologiques très variés, seul ou en groupe constitué de 2 à 15 individus, au Levant Sud (à 'Ain Ghazal, Beisamoun, Jericho, Kfar HaHoresh et Yiftah'el), en Syrie (à Tell Aswad et Tell Ramad), et en Anatolie Centrale (à Çatal Höyük et Köşk Höyük). Les crânes reçoivent un traitement qui consiste à remodeler la partie faciale du crâne avec du plâtre ou sur la calotte crânienne avec du collagène composé de bitume et de collagène obtenu à partir d'os d'animaux, de manière naturaliste. Les études sur leur contexte architectural et sur leur association funéraire sont des principaux clefs pour leurs interprétations.*

*Mots Clés : Archéologie, Anthropologie, Culte du crâne, Crâne surmodelé, Surmodelage, Anatolie Centrale, levant Sud, Proche-Orient*

*Abstract: In the Neolithic Near East, the plastered skulls of men, women and children's were found in different archaeological contexts or in similar once, singles or in groups, containing between 2 and 15 individuals, in the southern Levantine sites ('Ain Ghazal, Beisamoun, Jericho, Kfar Hahoresch et Yiftah'el), Syrian sites (Tell Aswad, Tell Ramad) and Central Anatolian sites (Çatal Höyük et Köşk Höyük). Treated skulls were reformed by the plaster on the facial part or by collagen that was obtained from the bones of animals that resembles natural skulls; the studies of the architectural contexts and funerary contexts are the main keys of the interpretations.*

*Keywords: Archaeology, Anthropology, Skull Cult, Plastered Skull, Plastering, Central Anatolia, South Levant, Middle East*

### Introduction

Au Proche-Orient, des crânes surmodelés ont été retrouvés à Ain Ghazal, Beisamoun, Jericho, Kfar HaHoresh, Nahal Hemar, Yiftahel, Tell Aswad, Tell Ramad, Çatal Höyük et à Köşk Höyük (Carte 1) (Bonogofsky 2005 ; Goring-Morris 2000 ; Özbek 2009 ; Schmandt-Besserat 2002, 2013 ; Stordeur 2003, 2007 ; Stordeur et Khawam 2007, 2008 ; Marchand 2012 ; Rollefson 1998 ; Rollefson *et al.* 1999 ; Bocquentin 2008, 2013 ; Milevski *et al.* 2008 ; Croucher 2012 ; Grissom et Griffin 2013 ; Benz 2012 ; Kodas 2014, *etc.*). La datation de ces crânes surmodelés présente d'importantes variations. Cette pratique se manifeste en effet au PPNB moyen et récent puis disparaît au Levant vers la fin du PPNB. Nous la trouvons en outre au PN en Anatolie centrale (Ann. 1)<sup>1</sup>. Le contexte de découverte des crânes constitue un élément important quant à leurs « significations ». C'est pourquoi nous pensons qu'en combinant les données contextuelles et les informations intrinsèques aux crânes, nous pourrions mieux en saisir le sens. En effet, les crânes surmodelés ont dû (ou pu) tenir une place particulière au sein de la communauté villageoise, mais un problème se pose concernant leurs données chronologiques, architecturales et visuelles qui s'avèrent diversifiées. Nous insistons par ailleurs ici sur la nécessité de préciser leur association funéraire avec d'autres restes humains ou animaux ainsi que la modalité et le type des dépôts en fonction des sites.

### Définition des Crânes Surmodelés et la Diversité dans les Surmodelages

En termes archéologiques, il existe, tout d'abord, deux types de surmodelage selon la matière première utilisée,

le surmodelage à base de plâtre et le surmodelage à base de collagène (Carte 1) (Aurenche et Kozłowski 2000). Le premier se réalise sur la partie faciale du crâne pour reconstituer le visage (Fig. 1), et peut être désigné comme surmodelage du visage. Le deuxième se réalise sur l'occipitale et les pariétaux (Fig. 2) (Kodas 2014 ; Benz 2012).

**1 : Surmodelage à base de plâtre :** Le surmodelage à base de plâtre est la technique la plus utilisée, avec un total de 77 crânes sur 80, durant le Néolithique précéramique et céramique au Proche-Orient, avec la répartition suivante : au PPNB moyen (entre 8200-7500 ans av. B.-C.), à Beisamoun, Kfar HaHoresh, Tell Aswad et Yiftahel ; au PPNB récent (entre 7500-7000 ans av. B.-C.), à 'Ain Ghazal, Jericho, Tell Aswad et Tell Ramad ; au PN (entre 7000-6500/6200 ans av. J.C.) ancien, à Çatal Höyük ; au PN (entre 6500/6200-5500/5200 ans av. B.-C.) moyen et récent, à Köşk Höyük.

**2 : Le surmodelage à base de collagène :** Le surmodelage à base de collagène est une technique complètement différente de celle du surmodelage à base de plâtre. Elle a été spécifiquement identifiée à Nahal Hemar.

### Critique des Contextes Architecturaux

Au total, quatre-vingt crânes surmodelés ont été retrouvés dans 26 dépôts mis au jour sur dix sites. Sur ces vingt-six dépôts onze datent du PPNB moyen, huit du PPNB récent, un du PN ancien, quatre du PN moyen et deux du PN récent. Leur contexte architectural et le comportement que l'on induit des dépôts font preuve d'une grande diversité, de plus, nous trouvons une certaine hétérogénéité dans les associations funéraires (Ann. 2). La localisation des dépôts nous permet de distinguer ceux qui sont associés à un bâtiment, ceux



Carte 1 Répartition régionale des crânes surmodelés (E. Kodas).

situés à l'extérieur des bâtiments et, enfin, ceux qui se trouvent en marge des villages, à l'extérieur des zones habitées (Fig. 3). La localisation des deux dépôts mis au jour dans les niveaux du PN moyen à Köşk Höyük (KSK 1989/1-2 et KSK 1990/1-2) est, en revanche, indéfinie suite au décès d'U. Silistrelı (Özbek 2009). Conformément à ces données, nous définissons trois types de contextes architecturaux : les dépôts associés, les dépôts non associés et les dépôts en marge du village (isolés). Il convient également de prendre en compte l'existence de dépôts réalisés pour exposer les crânes surmodelés, que nous considérons ici comme une quatrième catégorie.

**1 : Dépôts associés :** Treize des vingt-six dépôts sont associés à un bâtiment, mis au jour sur les sites suivants : 'Ain Ghazal (AG 1988 et AG C-D) (Schmandt-Besserat 2012) ; Beisamoun (B/1-2) (Bocquentin 2009,

2013) ; Jericho (D110-116 et D117-118) (Kenyon 1981) ; Kfar HaHoresh (HOMO 2 et HOMO 3) (Goring-Morris 2000) ; Tell Ramad (M4 NE et H10) (Anfruns et Oms 2006) ; Çatal Höyük (ÇH 2004) (Boz et Hager 2004) ; Köşk Höyük (KSK 1987, KSK 2000 et KSK 2006) (Özbek 2009 ; Silistrelı 1989).

Cinq de ces dépôts (AG 1988, AG C-D, B/1-2, HOMO 2 et HOMO 3), sont associés à un bâtiment datant du PPNB moyen, quatre à un bâtiment du PPNB récent (D110-116 et D117-118 de Jericho, et M4 NE et H10 de Tell Ramad). Pour le PN ancien, seul un dépôt, mis au jour à Çatal Höyük, est associé à un bâtiment (Boz et Hager 2004) ; précisons en outre qu'il s'agit de l'unique crâne surmodelé de ce site et de cette période au Proche-Orient. Au PN moyen et récent, seuls trois dépôts, tous de Köşk Höyük, sont associés à un bâtiment (KSK 1987, KSK 2000 et KSK 2006).

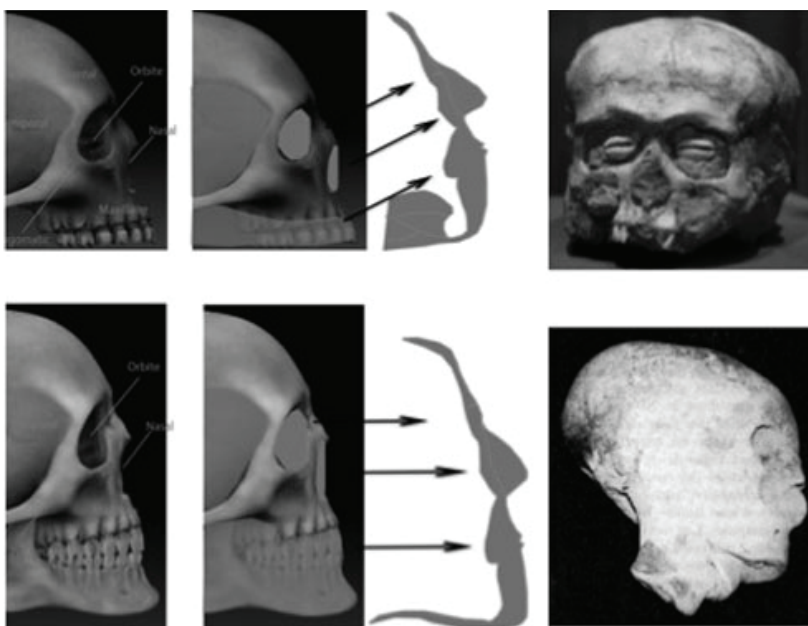


Fig. 1 Surmodelage sans et avec mandibule (auteur), Jericho, D112 (Kenyon 1981, Pl. 50/b) et Tell Ramad, celui du R.67.2 (Contenson 2002, Pl. XXIII/2).



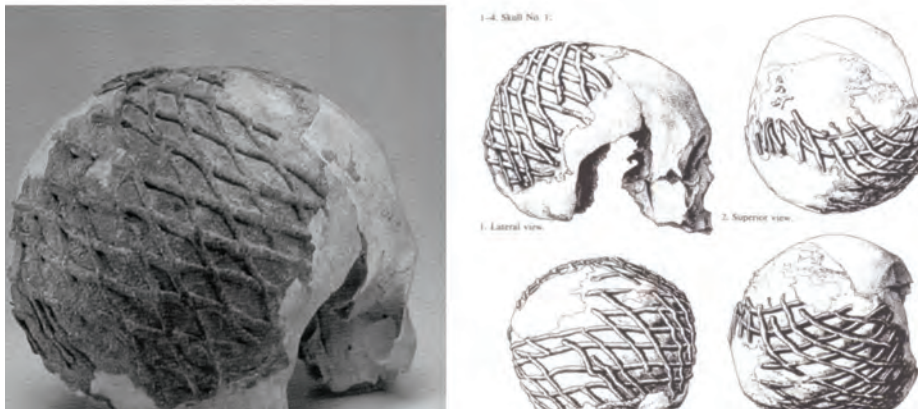


Fig. 2 La photo et la reconstitution du crâne décoré 1 de Nahal Hemar (The Israel Museum, Yakar et Hershkovitz 1988, PL XIV ; 1-4).

**2 : Dépôts non associés** : Neuf des vingt-six dépôts ont été mis au jour à l'extérieur de bâtiments sur les sites suivants : 'Ain Ghazal (AG F/1-3, AG C-D) (Goring-Morris 2000), Jericho (E20-21 et E22) (Kenyon 1981), Kfar HaHoresh (HOMO 4-6) (Goring-Morris 2000), Tell Aswad (ST. 671) (Stordeur 2003; Stordeur et Khawam 2007), Tell Ramad (M4 SO) (Anfruns et Oms 2006), Yiftahel (Y/1-3) (Milevski *et al.* 2008) et Köşk Höyük (KSK 1985) (Silistrelu 1989). Trois d'entre ces dépôts datent du PPNB moyen (AG C-D, HOMO 4-6 et Y/1-3), cinq datent du PPNB récent (E20-21, E22, ST. 741 et M4 SO), un seul dépôt date du PN moyen (KSK 1985).

**3 : En marge du village (isolés)** : Seuls deux dépôts occupent une position isolée : à Kfar HaHoresh (HOMO 1) (Goring-Morris 2000) au PPNB moyen et à Tell Aswad (ST. 741) (Stordeur et Khawam 2007) au PPNB récent. Le premier a également livré un crâne isolé associé aux ossements d'une gazelle et des ossements humains tandis que le deuxième dépôt a livré cinq crânes surmodelés associés indirectement à un sujet immature.

**4 : Dépôt d'exposition** : Seuls trois dépôts se rattachent à cette catégorie : le dépôt de Beisamoun, PPNB moyen (Bocquentin 2009), et les dépôts 2000 et 2006 de Köşk Höyük, au PN récent. Ils sont tous associés aux édifices. Les crânes surmodelés ont été disposés en vue d'une exposition, visiblement sur leur base plate et/ou sur leur cou (uniquement à Köşk Höyük) (Özbek 2009 ; Kodas 2014), dans des bâtiments. À Beisamoun, deux crânes, exposés dans une fosse simple, se trouvent au niveau le plus bas du sol du bâtiment. De manière différente, les deux dépôts d'exposition de Köşk Höyük ont été maçonnés, il s'agit de cavités successives édifiées sur un même endroit, à l'intérieur des bâtiments (Fig. 4).

Par ailleurs, il me semble que cette phase d'exposition/d'utilisation ne peut être exclue pour les autres crânes surmodelés mis au jour dans des contextes d'abandon. Par exemple, l'alignement des crânes ou leur juxtaposition les uns sur les autres suggère la présence de dépôts progressifs se faisant au fil du temps. Certains crânes sont donc postérieurs par rapport aux autres. Cette évolution est claire dans la chronologie du dépôt même. Nous pouvons ici mentionner le dépôt ST 741

de Tell Aswad comme exemple type : en son centre, en bas, se trouve un crâne isolé, autour duquel cinq crânes surmodelés ont été déposés ; plus tard, un immature y a été inhumé, dont les restes ont dégradé l'un des crânes surmodelés (ST 741/5, Fig. 5). En ce qui concerne le dépôt des crânes surmodelés, nous envisageons les faits suivants. Le crâne surmodelé ST 741/3, peint en jaune, y a été placé soit lors de la création du dépôt en même temps que le crâne isolé soit après l'inhumation de celui-ci. Nous supposons en outre que les crânes surmodelés ST 741/1 et 4, tous deux peints en blanc, ont été disposés en même temps de part et d'autre du crâne isolé. Un quatrième crâne surmodelé (ST 741/2), également peint en blanc, a dû être inhumé juste derrière du ST 741/3 qui se trouve derrière le crâne ST 741/3 et devant le crâne ST 741. Puisque la partie temporale du crâne ST 741/2 touche la calotte crânienne du crâne ST 741, il a été visiblement déposé après celui-ci. Le crâne ST 741/5 a dû être placé après tous les autres crânes surmodelés. Il se trouve entre les crânes surmodelés ST 741/1 et 4, derrière la calotte crânienne du crâne isolé ; c'est, comme nous l'avons dit, ce crâne surmodelé qui a été abîmé lors de l'inhumation de l'immature, qui est par conséquent sans doute postérieure.

Nous supposons que ces crânes n'ont pas été déposés ensemble, mais au fil du temps. Les dépôts ont été traités à plusieurs reprises, à l'usage d'une famille ou d'un groupe comme D. Stordeur l'a proposé (Stordeur Khawam 2007, 2008) ; des ajustements postérieurs ont été faits, ce que nous interprétons comme un indice d'une réorganisation intergénérationnelle destinée à créer un lien entre les lignées passée, présente et future. C'est le nombre des crânes surmodelés mis au jour dans les dépôts qui permet de définir un nouveau type d'inhumation selon la quantité et le positionnement des crânes.

### Modalité d'Inhumation et Comportements des Dépôts

La quantité des crânes surmodelés est très variée, puisqu'ils peuvent être seuls, en groupe constitué de 2 à 7 exemplaires, ou encore dans un ensemble comprenant

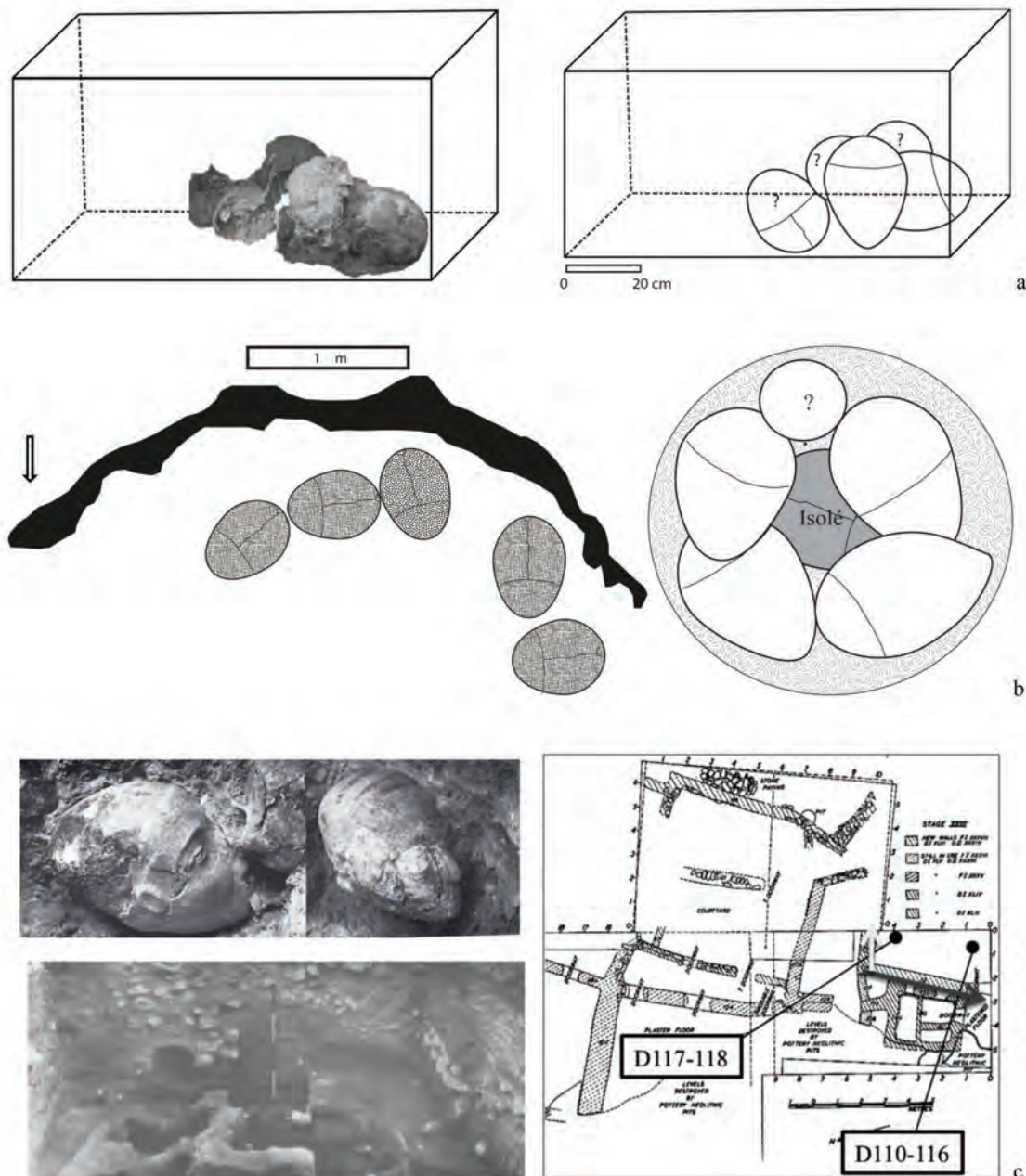


Fig. 3 a : Le dépôt 2006, du PN récent, de Köşk Höyük (modifié d'après Özbek 2009), b : le dépôt st 671 et st 741 de Tell Aswad (dessin de l'auteur), c : le dépôt D100-116 de Jericho et le plan du secteur DI et le relevé du bâtiment du niveau (Kenyon 1981, PL. 51, et 223).

jusqu'à 14 autres crânes. Cette disposition permet de mieux comprendre les ressorts de cette pratique. Ainsi avons-nous distingué quatre catégories différentes selon la quantité (un seul crâne, groupes de deux, trois et plus de trois crânes surmodelés).

**1 : Crâne surmodelé inhumé seul :** Huit dépôts ont livré des crânes surmodelés inhumés seuls. L'un de ces dépôts comportait un crâne surmodelé déposé sur une banquette, dans le niveau du PN moyen à Köşk Höyük (KSK 1987) (Silistrelı 1989) ; il semble avoir été exposé dans une maison. Un crâne surmodelé à 'Ain Ghazal (AG 1988, PPNB moyen) (Schmandt-Besserat 2012) et un autre à Kfar HaHoresh (HOMO 3, PPNB moyen) (Goring-Morris 2000) ont été inhumés dans

des fosses placées dans des maisons. Un dépôt (KSK 1985, PN moyen) situé à l'extérieur des bâtiments, mais dans la zone habitée, a été mis au jour à Köşk Höyük (Özbek 2009). Un autre crâne surmodelé a été inhumé en marge du village (isolé), au PPNB moyen, à Kfar HaHoresh (HOMO 1) (Goring-Morris 2000). Trois dépôts ont livré un seul crâne surmodelé mais accompagné par des crânes non surmodelés au PPNB moyen à Kfar HaHoresh (HOMO 2) (Goring-Morris 2000) et au PPNB récent à Jericho (E22) (Kenyon 1981) et au PN ancien à Çatal Höyük (ÇH 2004). Les dépôts se trouvent dans la zone d'habitat sans être associés à des bâtiments. Une autre modalité unique a été identifiée à Çatal Höyük (ÇH 2004) (Boz et Hager 2004): un crâne



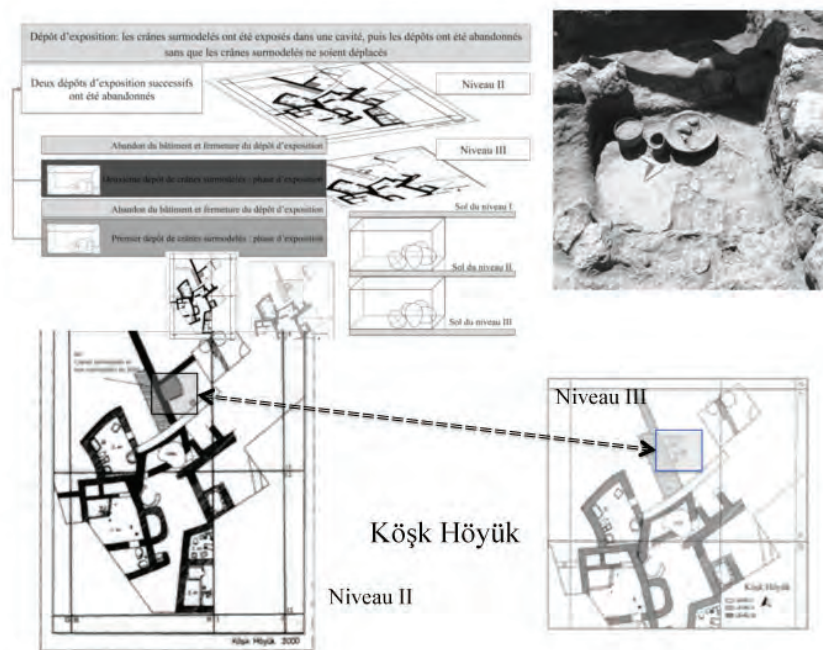


Fig. 4 Köşk Höyük, les deux niveaux d'occupation et la photo du dépôt 2005 (Özkan *et al.* 2001, plan 1, Özkan 2007: fig. 3; Özbek 2009 : fig. 1), Figure 5: Beisamoun, la coup stratigraphique et le dépôt de crâne surmodelé à l'exposition. (Lechevallier 1978 : fig. 46-47)

surmodelé a été déposé sur la poitrine d'un individu dans une sépulture à fosse installée sous le sol d'un bâtiment.

### 2 : Deux crânes surmodelés inhumés ensembles:

Trois dépôts du PPNB ont livré deux crânes surmodelés inhumés ensemble à Beisamoun (B/1-2, PPNB moyen) (Bocquentin 2009) et à Jericho (D117-118 et E20-21, PPNB récent) (Benz 2010). Les dépôts B/1-2 de Beisamoun et D117-118 de Jericho sont associés à une maison tandis que le dépôt E22 de Jericho est installé à l'extérieur des bâtiments (Kenyon 1981). La localisation des deux dépôts du PN moyen à Köşk Höyük (KSK 1989/1-2-71, Fig. 1) qui ont fourni un crâne surmodelé est indéfinie (Bonogofsky 2005 ; Özbek 2009).

### 3 : Trois crânes surmodelés inhumés ensembles :

Quatre dépôts ont chacun livré trois crânes surmodelés inhumés ensemble au PPNB moyen à 'Ain Ghazal (AG F/1-3) (Schmandt-Besserat 2002), à Kfar HaHoresh (HOMO 4-6) (Goring-Morris 2000) et à Yiftahel (Y/1-3) (Milevski *et al.* 2008). Le dépôt M4 NE de Tell Ramad se situe dans une maison, les autres dépôts se trouvent dans l'habitation mais ils ne sont associés à aucun bâtiment, ni à aucun reste humain et/ou animal.

Les trois «faces», provenant d'Ain Ghazal, ont été détachées et « jetées » dans une fosse (Schmandt-Besserat 2002). Elles se trouvent donc dans un contexte secondaire. En outre, le dépôt mis au jour dans la grotte de Nahal Hemar (Arensburg et Hershkovitz 1988) a livré trois crânes surmodelés avec trois crânes isolés dans une fosse simple.

### 4 : Plus de trois crânes surmodelés inhumés ensembles :

Six dépôts ont livré au moins quatre crânes surmodelés inhumés ensemble : au PPNB moyen et récent à Tell Aswad (ST. 671 et ST. 741, Fig. 2) (Stordeur et Khawam 2007) ; au PPNB récent à Tell Ramad (M4 SO et H10) et à Jericho (D110-116, Fig. 3) (Kenyon 1981, Benz 2010, Croucher 2012) ; enfin, au PN récent à Köşk Höyük (KSK 2000) (Özbek 2009). Nous notons que seuls les dépôts D110-116, KSK 2000, M4 et H10 sont associés à un bâtiment. Le dépôt ST 741 se trouve en marge du village (isolé) et les dépôts ST. 671 de Tell Aswad et M4 SO de Tell Ramad sont installés à l'extérieur des bâtiments (Fig. 4). Le dépôt M4 SO de Tell Ramad (Anfruns et Oms 2006) comporte des crânes isolés, les dépôts ST. 671 et ST. 741 de Tell Aswad (Stordeur et Khawam 2007, 2008) incluent des crânes

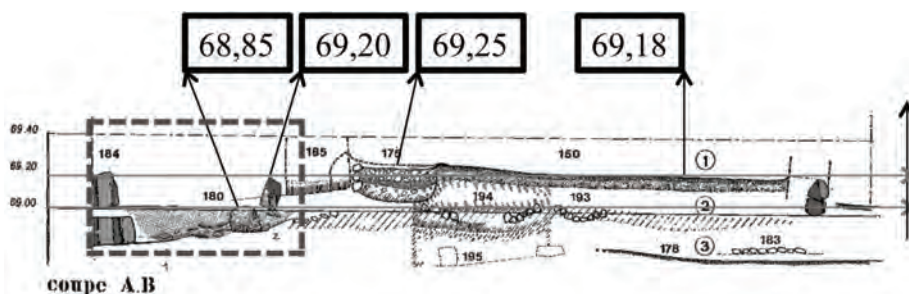


Fig. 5 Beisamoun, la coup stratigraphique et le dépôt de crâne surmodelé à l'exposition. (Lechevallier 1978 : fig. 46-47)

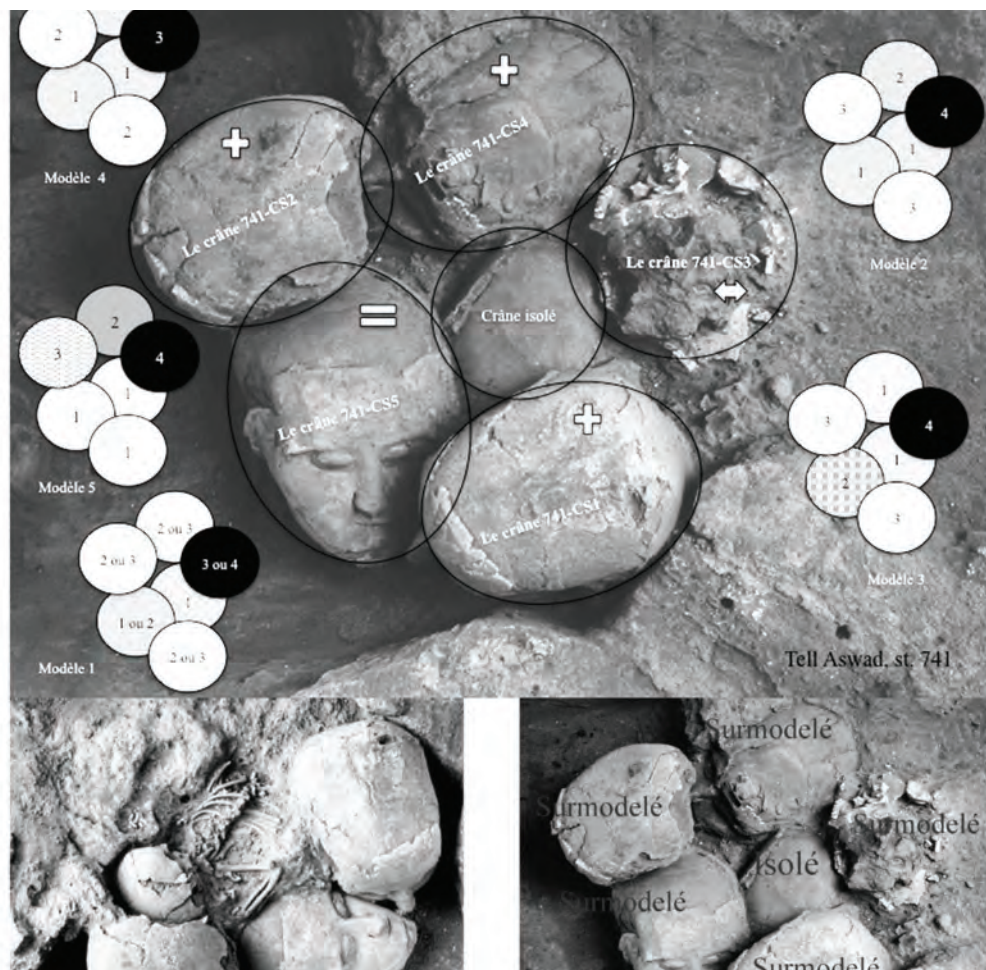


Fig. 6 Tell Aswad, le dépôt CP 118 et son évolution au fil du temps (modifié d'après Stordeur et Khawam 2007).

isolés et des squelettes complets, dont un nouveau-né (ST. 741). Notons par ailleurs que deux crânes surmodelés ont été inhumés avec deux crânes non surmodelés dans les niveaux PPNB moyen à 'Ain Ghazal (AG C-D) (Schmandt-Besserat 2002). Ce dépôt a été mis en place dans une fosse située dans la cour d'une maison. De même, deux crânes surmodelés ont été déposés dans une cavité avec trois crânes non surmodelés au PN récent à Köşk Höyük (Özbek 2009). Bien que le mode d'inhumation et les contextes archéologiques soient ici distincts, ces deux derniers dépôts ont pour point commun l'association entre les crânes surmodelés et les crânes non surmodelés.

En ce qui concerne les lieux d'inhumation/d'abandon et/ou d'exposition des crânes surmodelés, on observe tout d'abord que les dépôts de crânes surmodelés se caractérisent par des modalités différentes dans le choix de les laisser seuls ou de les disposer en groupes. On note la répartition suivante : à 'Ain Ghazal, deux dépôts collectifs et un dépôt individuel ; à Beisamoun, un dépôt collectif ; à Çatal Höyük, un dépôt collectif ; à Jericho, quatre dépôts collectifs ; à Kfar HaHoresh, deux dépôts individuels et deux dépôts collectifs ; à Köşk Höyük, quatre dépôts collectifs et deux dépôts individuels ; à Nahal Hemar, un dépôt collectif ; à Tell Aswad, deux dépôts collectifs ; à Tell Ramad, trois dépôts collectifs ; à Yiftahel, un dépôt collectif. Il y a donc cinq dépôts in-

dividuels et vingt-et-un dépôts collectifs sur un total de vingt-six dépôts de crânes surmodelés. Cette diversité architecturale et observable dans la modalité d'inhumation ne correspond pas à des variations chronologiques et régionales.

### Association Funéraire et autres Types d'Objets

Les crânes surmodelés sont associés à d'autres types de restes humains ou d'objets (Ann. 3), cet aspect a été mis en avant par I. Kuijt (2002, 2008), F. Marchand (2012), G.O. Rollefson (2000) et D. Stordeur et R. Khawam (2007). Par conséquent, nous avons essayé de préciser l'association funéraire de chaque dépôt et avons proposé de distinguer cinq types d'associations : les crânes non surmodelés, les nouveau-nés, les restes humains appartenant à des adultes, les restes fauniques et le mobilier funéraire.

**1 : Crânes non surmodelés :** Au total, neuf dépôts ont livré des crânes non surmodelés inhumés avec des crânes surmodelés : AG C-D à 'Ain Ghazal (Schmandt-Besserat 2002), E22 à Jericho (Kenyon 1981), HOMO 2 à Kfar HaHoresh (Goring-Morris 2000), KSK 2006 à Köşk Höyük (Özbek 2009), NH 1-3 à Nahal Hemar (Arensburg et Hershkovitz 1988), ST. 671 et ST. 741 à Tell Aswad, M4 SO à Tell Ramad. Il faut ajouter que



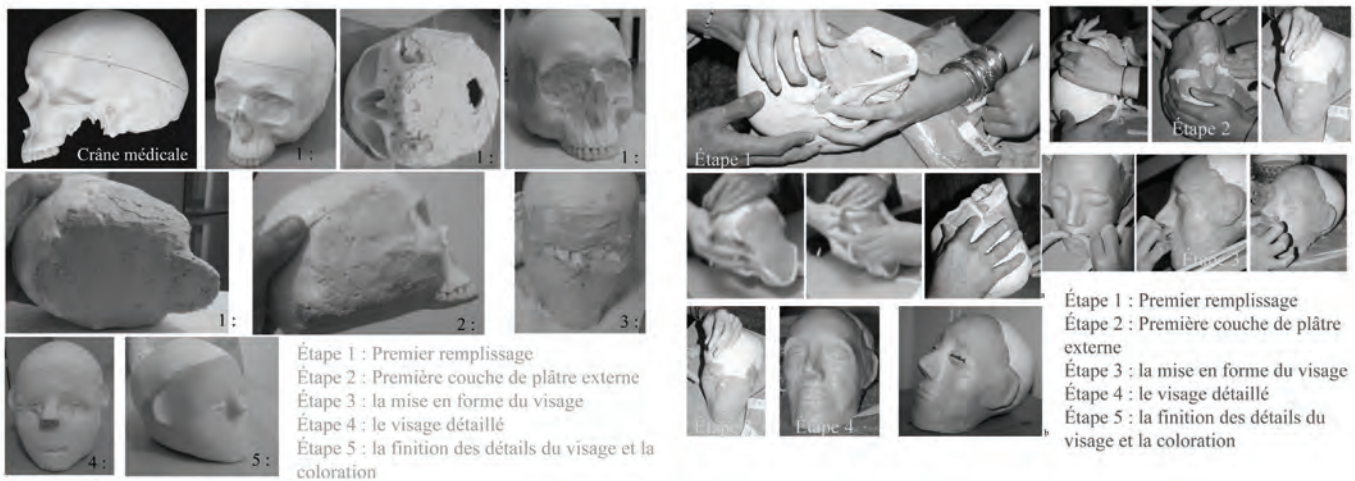


Fig. 7 L'expérimentation de surmodelage sur un crâne médicale, surmodelage avec la mandibule : a : étape 1, b : étape 2, c : étape 3, d : étape 4, e : étape 5 (d'après l'expérimentation que nous avons réalisé en collaboration avec Liora Bouzaglou et Chloé Fraillon).

les dépôts AG C-D d' 'Ain Ghazal (Schmandt-Besserat 2002), ST. 741 de Tell Aswad sont également associés à un nouveau-né tandis que le dépôt ST. 671 est associé à des restes humains appartenant à des adultes (Stordeur et Khawam 2007).

**2 : Nouveau-nés :** L'association des nouveau-nés ou des nourrissons aux crânes surmodelés est très nette dans les dépôts AG C-D à 'Ain Ghazal (Schmandt-Besserat 2002), B/1-2 à Beisamoun (Lechevallier 1978, Bocquentin 2009), HOMO 1 à Kfar HaHoresh (Goring-Morris 2000), ST. 741 à Tell Aswad (Stordeur 2007) et ÇH 2004 à Çatal Höyük (Boz et Hager 2004). Le ST. 741 de Tell Aswad et ÇT 2004 de Çatal Höyük sont également associés directement ou indirectement aux adultes.

**3 : Restes humains appartenant à des adultes :** Les dépôts HOMO 3 à Kfar HaHoresh (Goring-Morris 2000), ST. 671 et ST. 741 à Tell Aswad (Stordeur 2003, 2007), M4 NE et H10 à Tell Ramad (Anfruns et Oms 2006) sont associés indirectement aux sujets adultes. En revanche, ÇH 2004 à Çatal Höyük (Boz et Hager 2004) est associé directement à un adulte et à un nouveau-né.

**4 : Restes d'animaux :** l'association de restes d'animaux avec des crânes surmodelés reste relativement rare, nous la trouvons dans les dépôts HOMO 3 à Kfar HaHoresh (Goring-Morris 2000) et M4 NE à Tell Ramad (Anfruns et Oms 2006).

**5 : Mobiliers funéraires :** Au PPN, la présence d'outils (hachette, lames) et d'autres restes (statuettes, etc.) correspond à des cas spécifiques du Levant Sud et Levant Central. Nous les retrouvons dans le dépôt B/1-2 à Beisamoun (Bocquentin 2009, 2013) et le dépôt H10 à Tell Ramad (Anfruns et Oms 2006). Néanmoins, ces associations sont vraisemblablement indirectes. Par ailleurs, au PN, la présence de céramiques, d'objets en malachite et d'une figurine dans un dépôt mis au jour à Köşk Höyük suggère une nouveauté quant à l'association avec du mobilier funéraire en Anatolie centrale. Cette fois, nous trouvons des offrandes dans les dépôts de crânes surmodelés,

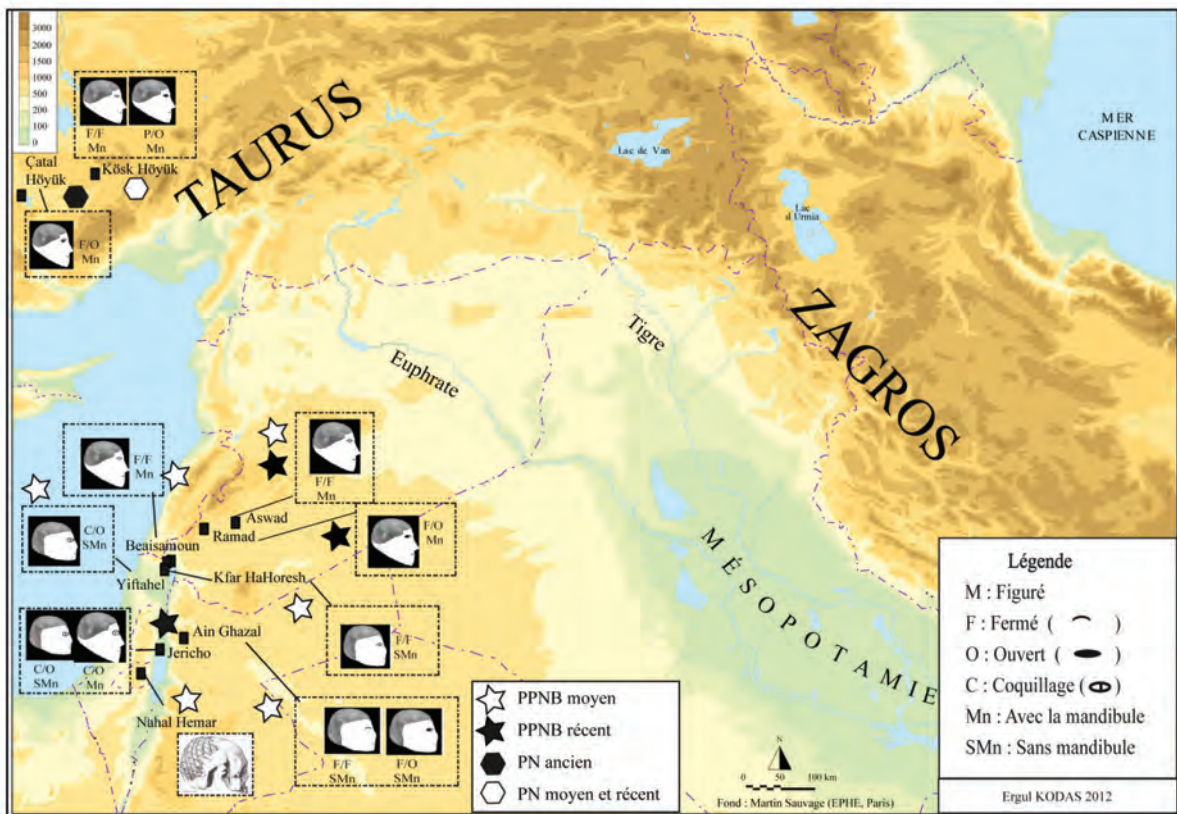
plus spécifiquement, dans les dépôts KSK 1985, KSK 1987, KSK 1989/1-2 et KSK 2000 à Köşk Höyük (Bonogofsky 2005; Özbek 2009).

## Orientation

L'orientation des crânes connaît de fortes variations ; sur neuf dépôts, on observe la répartition suivante : quatre crânes surmodelés ont été orientés vers le sud, six vers le nord, sept vers l'est, quatre vers l'ouest et deux vers le sud-ouest. Il est en outre important de signaler qu'aucun crâne surmodelé n'a été orienté vers le sud-est, nord-est et nord-ouest. Aucune information n'est disponible pour l'orientation des cinquante sept crânes surmodelés retrouvés sur dix sept dépôts. Nous avons donc un certain nombre de questions en suspens pour l'orientation des crânes, notamment parce qu'il est difficile de comprendre les motivations de cette diversité. S'agit-il d'un marqueur significatif ou un simple hasard lors de leur réinhumation?

## Syntheses : Phase d'Abandon et/ou d'Utilisation

Il apparaît que les crânes sont traités avec le plus grand soin mais aussi que l'ajout de détails précis est utilisé pour leur rendre une apparence proche de celle des vivants ou des morts de manière réaliste et individualisée. La réalisation d'un visage pose un certain nombre de problèmes en raison de la diversité observable dans l'apparence des crânes. Il nous semble probable que cette réalisation soit liée à la diversité physique de l'homme-même. Il ne s'agit pas simplement d'une pratique funéraire secondaire car nous pensons que ce sont des objets symboliques destinés à la représentation de l'Homme par l'Homme (Stordeur et Khawam 2007). Il s'agit donc d'un aspect symboliquement représentatif. Le contexte de découverte des crânes surmodelés est un des principaux axes qui peut nous permettre de mieux comprendre cette pratique. Il faut également signaler



Carte 2 Répartition chrono-régionale de la représentation visuelle des crânes surmodelés. (E. Kodas)

que les techniques de surmodelages employés lors de leur réalisation font partie des aspects principaux qu'il n'est pas lieu de discuter ici. Nous pensons que les crânes surmodelés ont été retrouvés (ou mis en cache) dans la phase finale de cette pratique. Ils ont dû (ou pu) être inhumés dans des endroits différents comme d'autres restes humains. Une des questions essentielles qui se pose cependant concerne la nature des comportements pour les dépôts de crânes surmodelés, notamment pour interpréter les pratiques d'inhumation et d'exposition. Il est en effet possible d'identifier une phase d'emploi (le premier temps de rituel) et une phase terminale (phase d'inhumation) des crânes surmodelés. Il est donc indispensable de préciser leur contexte de découverte et leur position au moment de leur abandon ou de l'exposition. Ainsi, la présence d'un seul crâne surmodelé sur une banquette (KSK 1987) indique une exposition du crâne au PN moyen à Köşk Höyük. Le site a également livré sept crânes surmodelés déposés dans une cavité sur deux niveaux successifs (KSK 2000 et KSK 2006). Il ressort donc que ces crânes n'ont pas été inhumés. Le dépôt KSK 2000 a été abimé par des niveaux plus récents et il est difficile de détailler la description de la cavité. En revanche, le dépôt KSK 2006 est bien conservé et nous permet de mieux comprendre ce genre de dépôts. Le sol de la cavité en argile et ses murets ont été aménagés avec des pierres et des murs de calcaire de vingt centimètres d'épaisseur. Il s'agit d'un dépôt maçonné de forme rectangulaire. Les crânes surmodelés ont été placés aux extrémités de l'alignement. Trois céramiques accompagnent les crânes ainsi que la tête d'une figurine féminine. Ce dépôt se trouve vraisemblablement dans

un bâtiment domestique. Nous pensons que, dans ce cas, il s'agit d'un dépôt ouvert à l'usage de l'exposition des crânes surmodelés. La pratique d'une telle exposition est donc spécifiquement avérée aux PN moyen et récent à Köşk Höyük. Il s'agit ici d'une nouveauté dans le traitement des crânes aux PN moyen et récent dans la mesure où aucun crâne surmodelé exposé au PPNB au Levant n'a été retrouvé, à l'exception des dépôts D117-118 de Jericho et HOMO 2 de Kfar HaHoresh qui posent un problème stratigraphique.

Par ailleurs, le fait que le crâne ait été inhumé ne peut pas être entièrement dissocié de la pratique de l'exposition puisque le crâne a pu être exposé avant sa mise en fosse. Si l'exposition est évidente et bien documentée dans le cas de Köşk Höyük, nous ne devons pas exclure ce genre de pratique pour les autres sites. Il convient, dans cette perspective, de revenir sur la présence de socles/cous ou de bases de forme plate destinés à supporter les crânes surmodelés. Ces socles/cous suggèrent un souhait de les positionner et de les exposer d'une certaine manière, a priori avant leur phase d'abandon. Nous estimons que ces artefacts, socles/cous et base plate des crânes, n'ont pas été conçus juste pour la seule inhumation. La présence des socles/cous sur certains crânes surmodelés, spécifiquement à Tell Aswad, Tell Ramad et Köşk Höyük ainsi que la base plate d'un certain nombre de crânes surmodelés, notamment à Kfar HaHoresh, à Beisamoun, à Jericho ou à Yiftahel, suggèrent qu'ils ont été posés même sur le sol de la fosse, d'un bâtiment ou d'une cavité. Cela nous permet de préciser leur signification dans le cadre de l'exposition et de l'inhumation. À partir de là, deux axes sont envi-



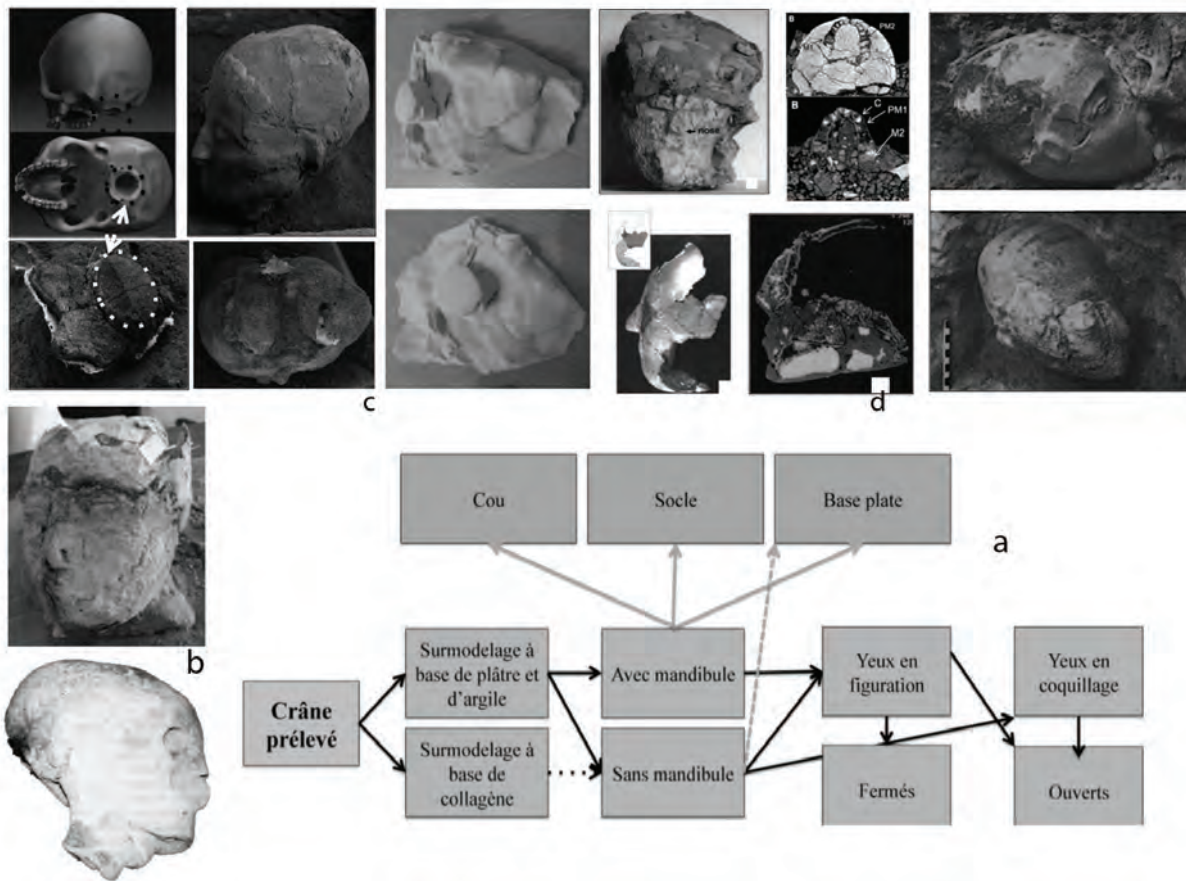


Fig. 8 a : Processus de surmodelage du crâne au Néolithique proche-oriental (Auteur), b : Köşk Höyük, le cou du crâne 2005/1 (Özbek 2009 : fig. 1), Tell Ramad, celui du R.67.2 (Contenson 2002, Pl. XXIII/2), c : Les bases plates de crânes surmodelés : a : Köşk Höyük (Bonogofsky 2005 : fig. 7), b (Yiftah'el (Slon *et al.*, 2014 : fig. 7), c-d; Jericho (Kenyon 1981 : Pl. 51), e : 'Ain Ghazal (Grissom et Griffin 2013 : p. 210, fig. 6.1.6), f Kfar HaHoresh (Hershkovitz *et al.*, 1995 : fig. 2), et d : Le socle du crâne St. 741/1 et celui du St. 741/5, qui a été abimé (Stordeur et Khawam 2007, fig. 5/3, et fig. 8/7) et à droite, la partie basilaire du surmodelage d'après une étude expérimentale que nous avons réalisée. Le remplissage du trou occipital est très visible comme le cas du crâne St. 741/5 de Tell Aswad. (E. Kodas)

sageables : premièrement, les crânes ont dû être fixés debout comme « un buste » lors de rites ou dans certains endroits de manière permanente, comme c'est le cas pour les banquettes, niches ou sols simplement, en vue de leur « exposition ». ; deuxièmement, les crânes ont dû être placés en position naturelle sur leur base (cou/socle ou une base plate) lors de leur inhumation aussi. Ils ont été majoritairement posés sur leur socle/cou ou leur base plate, sauf pour quelques cas exceptionnels comme le dépôt de Çatal Höyük. Il est quasiment impossible d'identifier si les crânes surmodelés inhumés ont été exposés ou non avant cette « phase terminale ». Un socle (cou) ou une base plate fait partie du surmodelage. Cela démontre que ce genre d'application soit réalisé lors du surmodelage. Ces objets et socles étaient par conséquent certainement conçus en vue d'une utilisation des crânes et se réalisent lors du surmodelage (Fig. 6).

Cette position est identique sur les crânes surmodelés mis au jour dans des cavités (KSK 2000 et KSK 2006 de Köşk Höyük), sur le sol d'un bâtiment (D117-118 de Jericho), dans des fosses (D110-116 de Jericho, ST 741 de Tell Aswad et B/1-2 de Beisamoun, Y/1-3/1-3 de Yiftahel) ou encore sur une banquette (KSK 1987 de Köşk Höyük). La présence d'un socle/cou ou d'une

base plate doit être en corrélation avec la fixation des crânes. Ce genre d'élément doit être corrélié avec leur phase d'utilisation qui est liée, dans un premier temps, au moment du surmodelage et, dans un deuxième temps, au lieu d'inhumation. Il s'agit d'un processus présentant une hétérogénéité dans la représentation visuelle (Fig. 7).

## Conclusion

Les dépôts individuels ou collectifs des crânes surmodelés peuvent être constitués par une ou plusieurs familles, soit dans une société hiérarchisée, soit dans une société égalitaire. Il nous semble donc difficile de privilégier une de ces deux hypothèses pour les crânes surmodelés. Il faut préciser d'autre part que la question chronologique suscite plusieurs difficultés pour reconstituer leur contexte chronoculturel. Il est donc difficile de les attribuer au même acte culturel. À partir de ces informations, il nous semble plus réaliste de procéder à une approche sur les crânes surmodelés en interprétant leur présence sur les sites néolithiques. En effet, il apparaît que les crânes surmodelés devaient tenir une place importante au sein de la communauté.

Ils étaient vraisemblablement placés dans l'habitat afin de préserver un lien entre la communauté et ses morts, sauf pour les deux cas qui ont été retrouvés en marge du village (isolés) et qui posent plusieurs problèmes stratigraphiques. Dans ce cas, il est concevable que le lieu d'inhumation puisse être indépendant de la place tenue par le crâne au sein de la société néolithique. Il semble aussi que les crânes surmodelés soient intergénérationnelles et circulent comme des objets portatifs, ce qui implique qu'ils peuvent être transmis d'une génération à une autre ou encore d'un groupe à un autre. La présence des surmodelages détachés à 'Ain Ghazal et de plusieurs couches d'enduit sur le crâne provenant de Çatal Höyük est un des marqueurs justifiant la réutilisation ou la rénovation des surmodelages. Ils évoquent un lien entre la vie et la mort, sûrement pendant les différentes étapes (prélèvement de crâne, modification et ré-inhumation) d'un rituel. Ils font partie d'une construction de la mémoire collective qui est associée à une période précise et à un lieu spécifique alors que la communauté cherche à rester en contact avec ses défunts. Ceux-ci font partie des objets nécessaires pour recréer l'identité d'un groupe et construire une mémoire collective dans le cadre d'un système social. Les crânes surmodelés devaient avoir une fonction capitale pour le passé, le présent et le futur d'une communauté, surtout dans la construction de son identité sociale. Il s'agit donc du reflet d'une régénération de la vie pour la communauté villageoise qui est liée à un culte symboliquement ancestral et référentiel (Kuijt 2008 : 13-15). Conformément à ces remarques, on peut revenir sur le choix du crâne à prélever. Selon I. Kuijt (2008), le crâne retenu pour être prélevé est purement symbolique. Il n'a aucun lien avec la compétence et l'importance sociale de l'individu avant son décès. Il nous semble aussi que ces crânes sont, à l'origine, individualisés et référentiels dans un sens global au sein de la communauté. Ils revêtent simplement un aspect symbolique, plus que personnel, lié à une collectivité qui continue d'une génération à une autre.

Par ailleurs, le crâne devient, suite à son surmodelage, un objet commémoratif et représentant l'identité sociale de la communauté, qui se reconnaît dans un crâne « référentiel ». On peut envisager que ces crânes avaient une position fixe, ou au contraire circulaient durant des cérémonies, qu'ils étaient en outre exposés ou encore réutilisés à plusieurs reprises et probablement à travers différentes générations. Ils ont été abandonnés dans des fosses ou dans des cavités, seuls, en groupe ou associés avec d'autres restes humains. Ils font partie intégrante d'une pratique funéraire, y compris lorsqu'ils sont abandonnés, avec d'autres restes humains, dans des contextes soit primaires, soit secondaires, incluant les crânes isolés. Autrement dit, retrouvés durant des phases d'abandon des restes funéraires, ces crânes étaient inhumés ou exposés dans des contextes très variés et avec des modalités nettement distinctes comme avec d'autres restes humains. Le contexte de découverte doit nous apporter de réponses pour saisir leur signification, mais elles ne sont pas totalement définitives car les dépôts signifient également une phase d'abandon. Ces

crânes se trouvent dans divers contextes archéologiques et sont attestés depuis le PPNB moyen jusqu'au PN récent (entre la fin du 9<sup>e</sup> millénaire et la deuxième moitié du 6<sup>e</sup> millénaire). L'inhumation des crânes surmodelés ne serait cependant pas nécessairement indépendante d'une phase correspondant à leur utilisation puisque ce type de crânes pourrait avoir rempli une fonction (surmodelé et exposé lors d'un rite ?) avant leur mise en fosse, et/ou l'abandon du dépôt. Ils auraient alors connu une phase d'emploi, bien qu'il aient été découverts dans leur phase d'abandon. Suite à ces observations, nous proposons que les crânes surmodelés fassent partie des objets médiateurs pour la création d'une identité sociale. Ils ont été réalisés afin de remplir une fonction et d'être utilisés à un moment donné, après quoi ils ont été recyclés et/ou abandonnés.

### Endnotes

<sup>1</sup> Dans nos tableaux, nous donnerons les abréviations suivantes pour les différents sites : AG = 'Ain Ghazal ; B = Beisamoun ; ÇH = Çatalhöyük ; J = Jericho ; KHH = Kfar HaHoresh ; KH = Köşk Höyük ; NH = Nahal Hemar ; TA = Tell Aswad ; TR = Tell Ramad ; Y = Yiftahel.

### Ergul Kodas

Paris I Panthéon-Sorbonne,  
Arscan-VEPMO  
ergulkodas@gmail.com

### References

- Anfruns J. et Oms J.  
2006 Un nouveau regard sur les restes anthropologiques du site néolithique de Tell Ramad (Syrie). *Syria* 83: 115-124.
- Arensburg B. et Hershkovitz I.  
1988 Nahal Hemar Cave. Neolithic Human Remains, In: O. Bar-Yosef and D. Alon (eds.), *Nahal Hemar Cave*. 'Atiqot English Series 18: 50-58. Jerusalem: Israel Department of Antiquities.
- Aurenche O. et Kozłowski S.-K.  
2000 *La Naissance du Néolithique ou le Paradis Perdu au Proche Orient*. Paris: Éditions Errance.
- Benz M.  
2010 Beyond death – the construction of social identities at the transition from foraging to farming. In: M. Benz (ed.), *The Principle of Sharing. Segregation and Construction of Social Identities at the Transition from Foraging to Farming*. Studies in Early Near Eastern Production, Subsistence, and Environment 14: 249-276. Berlin: Ex oriente.
- 2012 Little poor babies: Creation of history through death at the transition from foraging to farming. In: T.L. Kienlin and A. Zimmermann (eds.), *Beyond Elites*. Universitätsforschungen zur Prähistorischen Archäologie 215. 169-182. Bonn: Habelt.



- Bienert H.-D.  
1991 Skull Cult in the Prehistoric Near East. *Journal of Prehistoric Religion* 5: 9-23.
- Bocquentin F.  
2009 Les crânes surmodelés de Beisamoun (Néolithique précéramique, Israël). *Cahier IX - 2007/2008, Table ronde - Traitements ostensatoires des crânes humains : gestes funéraires ou introduction à l'univers du sacré : thème 6. ArScAn* 9: 161-169. Nanterre.  
2013 Organisation et gestion de l'espace funéraire en contexte de sédentarisation. In: F. Bocquentin et F. Valentin (éds), *Caractéristiques et fluctuations de l'espace funéraire. Cahier des Thèmes transversaux ArScAn* 11: 91-95. Nanterre.
- Bonogofsky M.  
2005 A Bioarchaeological Study of Plastered Skulls from Anatolia: New Discoveries and Interpretations. *International Journal of Osteoarchaeology* 15: 124-135.
- Boz B. et Hager L.D.  
2004 Çatalhöyük Archive Reports, Human Remains. www.catalhoyuk.com
- Croucher K.  
2012 *Death and Dying in the Neolithic Near East*. Oxford: University Press.
- Ferembach D.  
1969 Etude anthropologique des ossements humains Néolithiques de Tell Ramad (Syrie). *Annales Archaeologiques Arabes Syriennes* 19: 49-70.
- Goren Y., Goring-Morris A.N. et Segal I.  
2001 The Technology of Skull Modeling in the Pre-Pottery Neolithic B (PPNB): Regional Variability, the Relation of Technology and Iconography and their Archaeological Implications. *Journal of Archaeological Science* 28: 671-690.
- Goring-Morris A.N.  
2000 The Quick and the Dead, The Social Context of Aceramic Neolithic Funerary Practices as Seen from Kfar HaHoresh. In: I. Kuijt (ed.), *Life in Neolithic Farming Communities*. London: Kluwer.
- Grissom C.A. et Griffin P.S.  
2013 Three Plaster Faces. In: D. Schmandt-Besserat (ed.), *Symbols at 'Ain Ghazal. 'Ain Ghazal Excavation Reports* 3: 181-212. bibliotheca neolithica Asiae meridionalis et occidentalis and Yarmouk University, Monographs of the Faculty of Archaeology and Anthropology. Berlin: Ex oriente.
- Kenyon K.  
1981 Excavations at Jericho III, The Architecture and Stratigraphy of the Tell, In: T.A. Holland (ed.), *Excavations at Jéricho* 3(1):1-393. London: British School of Archaeology in Jerusalem.
- Kodas E.  
2014 La technique du surmodelage au Néolithique au Proche-Orient : une nouvelle réflexion sur les crânes surmodelés. In : S. Ferjani, M. Onfray et C. Trémeaud (éds), *Archéo.Doct. 7, actes de la 7e journée doctorale d'archéologie de l'école doctorale d'archéologie de l'Université Paris 1 Panthéon-Sorbonne*, tenue le 23 mai 2012, à l'INHA. Paris : 217-231.
- Kujit I.  
2002 Reflections on Ritual and The Transmission of Authority in the Pre-Pottery Neolithic of the Southern Levant. In: H.G.K. Gebel, B.D. Hermansen and C.H. Jensen (eds.), *Magic, Practices, and Ritual in the Near Eastern Neolithic. Studies in Early Near Eastern Production Subsistence, and Environment* 8: 81-90. Berlin: Ex Oriente.  
2008 The regeneration of life, Neolithic structures of symbolic remembering and forgetting. *Current Anthropology* 49(2): 171-197.
- Lechevallier M.  
1978 *Abou Gosh et Beisamoun: 2 gisements du 7e millénaire avant l'ère chrétienne en Israël*. Paris, Association Paléorient.
- Marchand F.  
2012 The Modelling Skulls in the Ancient Near East. *Tiempo y sociedad* 6: 5-41.
- Mellaart J.  
1967 *Çatal Höyük. A Neolithic Town in Anatolia*. New York: Mc Graw-Hill.
- Milevski I., Khalaily H., Getzov N. et Hershkovitz I.  
2008 The Plastered Skulls and Other PPNB Finds from Yiftahel, Lower Galilee (Israel). *Paléorient* 34(2): 37-46.
- Özbek M.  
2009 Köşk Höyük (Niğde) Neolitik Köyünde Kil Sıvalı İnsan Başları. (Remodeled Human Skulls in Köşk Höyük (Niğde) Neolithic Village). *Journal of Faculty of Letters* 26(1): 145-162.
- Öztan A.  
2007 2006 Yılı Köşk Höyük kazıları raporu. *Kazı sonuçları toplantısı* 29(2) : 117-136.
- Özkan S., Faydali E. et Öztan A.  
2001 Köşk Höyük 2001 Yılı Kazıları. *Kazı Sonuçları Toplantısı* 24(1) : 335-342.
- Rollefson G.O.  
1998 'Ain Ghazal (Jordan): Ritual and Ceremony III'. *Paléorient* 24(1): 43-58.
- Rollefson G.O., Schmandt-Besserat D., et Rose J.C.  
1999 A Decorated Skull from MPPNB 'Ain Ghazal. *Paléorient* 24(2): 99-104.

- Schmandt-Besserat D.  
 2002 From behind the mask: plastered skulls from 'Ain Ghazal. *Origini* 24: 95-140.  
 2013 The Plastered Skulls, In: D. Schmandt-Besserat (ed.), *Symbols at 'Ain Ghazal*. 'Ain Ghazal Excavation Reports 3: 213-243. bibliotheca neolithica Asiae meridionalis et occidentalis and Yarmouk University, Monographs of the Faculty of Archaeology and Anthropology. Berlin: Ex oriente.
- Silistreli U.  
 1989 1989 Köşk Höyük Kazısı. In: K. Emre, B. Hrouda, M.J. Mellink et N. Özgüç (eds.), *Anatolia and The Ancient Near East. Studies in Honor of Tahsin Özgüç*: 461-463. Ankara: Türk Tarih Kurumu Basimevi.
- Slon V., Sarig R., Hershkovitz I., Khalaily H. et Milevski I.  
 2014 The Plastered Skulls from the Pre-Pottery Neolithic B Site of Yiftahel (Israel). A Computed Tomography-Based Analysis. *PLoS ONE* 9(2).
- Stordeur D.  
 2003 Des crânes surmodelés à Tell Aswad de Damascène. (PPNB - Syrie). *Paléorient* 29(2): 109-115.
- Stordeur D., Jammous B., Khawam R. et Morero E.  
 2006 L'aire funéraire de Tell Aswad (PPNB). In : J.-L. Huot et Stordeur D. (eds.) *Hommage à H. de Contenson*. Syria 83: 5-28.
- Stordeur D. et Khawam R.  
 2007 Les crânes surmodelés de Tell Aswad (PPNB, Syrie). Premier regard sur l'ensemble, premières réflexions. *Syria* 84: 5-32.  
 2008 Une place pour les morts dans les maisons de Tell Aswad (Syrie). (Horizon PPNB ancien et PPNB moyen). In: J.M. Cordoba, M. Molist, M.C. Perez, I. Rubio, and S. Martinez (eds.), *Proceedings of the 5th International Congress on the Archaeology of the Ancient Near East (3-8 april 2006), (Workshop Houses for the living and a place for the dead, Hommage à J. Cauvin)*, Vol. III: 561-589. Madrid: UAM.
- Strouhal E.  
 1973 Five plastered skulls from pre-pottery Neolithic B Jericho. *Anthropological Study. Paléorient* 1: 231-247.
- Yakar R. et Hershkovitz I.  
 1988 Nahal Hemar Cave, The Modelled Skulls. *Atiqot*. English Series XVIII: 59-63.

| Site          | Total     | 8200-7500  | 7500-7000   | 7000-6500                | 6500-6300 | 6300-6000 | 6000-5200 (Halaf) |
|---------------|-----------|------------|-------------|--------------------------|-----------|-----------|-------------------|
| 'Ain Ghazal   | 3         |            |             |                          |           |           |                   |
| Beisamoun     | 1         |            |             |                          |           |           |                   |
| Jericho       | 4         |            |             |                          |           |           |                   |
| Kfar HaHoresh | 4         |            |             |                          |           |           |                   |
| Tell Aswad    | 2         |            |             |                          |           |           |                   |
| Tell Ramad    | 3         |            |             |                          |           |           |                   |
| Yiftahel      | 1         |            |             |                          |           |           |                   |
| Çatal Höyük   | 1         |            |             |                          |           |           |                   |
| Köşk Höyük    | 6         |            |             |                          |           |           |                   |
| Nahal Hemar   | 1         |            |             |                          |           |           |                   |
| Total         | 26 dépôts |            |             |                          |           |           |                   |
|               |           | PPNB moyen | PPNB récent | PPNB final<br>PPNC ou PT | PN ancien | PN moyen  | PN récent         |

Annexe 1 : La périodisation des sites ayant fournis des crânes surmodelés (en gris).



| Site          | Dépôt associé | Dépôt non associé | Dépôt installé à la marge du village | Localisation indéfinie ou indéterminée | Total     | Période              |
|---------------|---------------|-------------------|--------------------------------------|--|-----------|----------------------|
| 'Ain Ghazal   | 2             | 1                 | Aucun                                | Aucun                                  | 3         | PPNB moyen           |
| Beisamoun     | 1             | Aucun             | Aucun                                | Aucun                                  | 1         | PPNB moyen           |
| Jericho       | 2             | 2                 | Aucun                                | Aucun                                  | 4         | PPNB récent          |
| Kfar HaHoresh | 2             | 1                 | 1                                    | Aucun                                  | 4         | PPNB moyen           |
| Nahal Hemar   | Aucun         | 1                 | Aucun                                | Aucun                                  | 1         | PPNB moyen           |
| Yiftahel      | Aucun         | 1                 | Aucun                                | Aucun                                  | 1         | PPNB moyen           |
| Tell Aswad    | Aucun         | 1 (PPNB moyen)    | 1 (PPNB récent)                      | Aucun                                  | 2         | PPNB moyen et récent |
| Tell Ramad    | 2             | 1                 | Aucun                                | Aucun                                  | 3         | PPNB récent          |
| Çatal Höyük   | 1             | Aucun             | Aucun                                | Aucun                                  | 1         | PN ancien            |
| Köşk Höyük    | 1             | 1                 | Aucun                                | 2                                      | 4         | PN moyen             |
| Köşk Höyük    | 2             | Aucun             | Aucun                                | Aucun                                  | 2         | PN récent            |
| <b>Total</b>  | <b>13</b>     | <b>8</b>          | <b>2</b>                             | <b>2</b>                               | <b>26</b> |                      |

Annexe 2 : La localisation architecturale des crânes surmodelés.

| Site          | Quantité  | Association funéraire                               | Dépôt total |
|---------------|-----------|---|-------------|
| 'Ain Ghazal   | 1         | Aucun   | 3           |
|               | 3         | Aucun   |             |
|               | 2         | Deux crânes isolés                                  |             |
| Beisamoun     | 2         | Un tibia  | 1           |
| Çatal Höyük   | 1         | Deux sujets complets                                | 1           |
| Jericho       | 7         | Aucun   | 4           |
|               | 2         | Aucun   |             |
|               | 2         | Aucun   |             |
|               | 1         | Deux crânes isolés                                  |             |
| Kfar HaHoresh | 1         | 1 gazelle et os humains                             | 4           |
|               | 1         | 2 crânes isolés                                     |             |
|               | 1         | os humains et gazelles                              |             |
|               | 3         | os humains et gazelles                              |             |
| Köşk Höyük    | 1         | Aucun   | 6           |
|               | 1         | Aucun   |             |
|               | 2         | Aucun   |             |
|               | 2         | Aucun   |             |
|               | 5         | Aucun   |             |
|               | 2         | 3 crânes isolés                                     |             |
| Nahal Hemar   | 3         | 3 crânes isolés                                     | 1           |
| Tell Aswad    | 4         | 1 crâne isolé et des restes humains                 | 2           |
|               | 5         | Un immature   |             |
| Tell Ramad    | 8         | 4 crânes isolés                                     | 3           |
|               | 3         | Aucun   |             |
|               | 14        | Aucun   |             |
| Yiftahel      | 3         | Aucun   | 1           |
| <b>Total</b>  | <b>80</b> | <b>12 dépôts associés et 14 dépôts non associés</b> | <b>26</b>   |

Annexe 3 : L'association funéraire des crânes surmodelés.

# Rescue Excavations at Jabal Juhayra, a Stratified Neolithic Settlement in the al-Jafr Basin

Sumio Fujii

## Introduction

Since the first field season in 1997, the Jafr Basin Prehistoric Project has dealt with a few dozen archaeological sites varying in date and character from Pre-Pottery Neolithic B (hereafter PPNB) outposts and barrage systems to Early Bronze Age (EBA) burial fields. The series of research outcomes has recently been synthesized in the form of *the Jafr chronology*, which has enabled us to roughly sketch the process of pastoral nomadization in southern Jordan (Fujii 2013). However, available datasets are still patchy, and many issues still remain outstanding. One of them, probably the most important, is a chronological and modal gap between the two key sites: the Middle to Late PPNB (M/LPPNB) pastoral transhumants' outpost at Wadi Abu Tulayha (e.g. Fujii 2009a) and the Late Neolithic (LN) pastoral nomads' open sanctuary at Qa' Abu Tulayha West (e.g. Fujii 2003). The twofold gap corresponds precisely to the initial process of pastoral nomadization in the basin and needs to be bridged immediately.

Our recent rescue excavations at Jabal Juhayra have offered a breakthrough to the top-priority issue. The excavation results of the first two seasons have already been described elsewhere in some detail (Fujii *et al.* n.d.). This prompt report incorporates the research outcome of the just completing third season and, then, presents a few new perspectives toward the refinement of the first half of the Jafr chronology.

## The Site and Excavation

Jabal Juhayra is located in the hilly terrain that fringes the northwestern edge of the al-Jafr Basin, southern Jordan (Fig. 1). In terms of topography, the site lies on the southeastern flank of an isolated volcanic hill of the same name, extending in the NW-SE direction along a north-facing steep slope that commands a small gully (Fig. 2). What differentiates it from other Neolithic sites in and around the basin is its location on a scoria bedrock layer, which holds a key to understanding the unique character of the site.

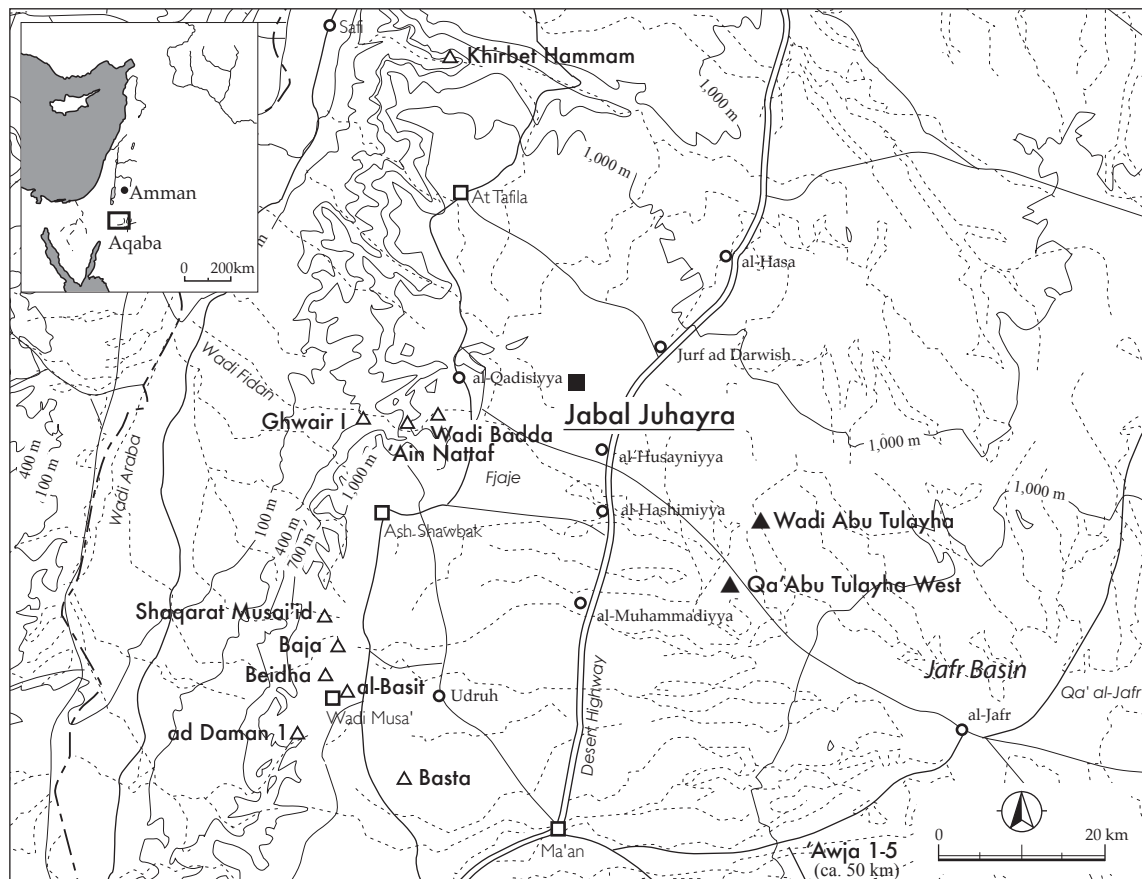


Fig. 1 Jabal Juhayra and its surrounding Neolithic sites.



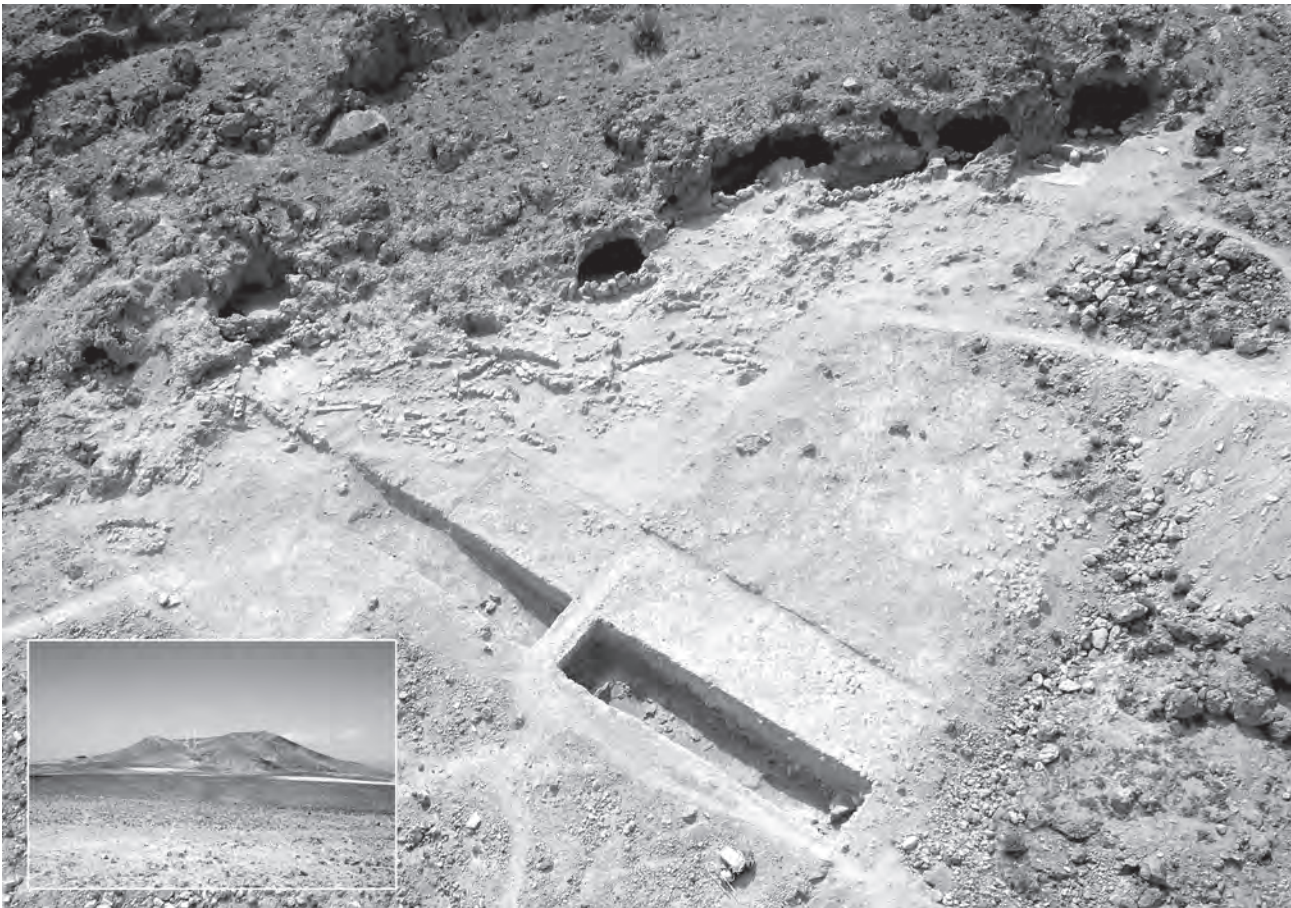


Fig. 2 Jabal Juhayra: distant and general views of the site (both looking WSW).

The site was discovered in December 2001 during our general survey and briefly reported together with other located sites (Fujii 2002a: 41; Fujii and Abe 2008: 70). However, we have left it intact for more than ten years since then. This is because we spent unexpectedly much time for the comprehensive investigation at Wadi Abu Tulayha and its surrounding barrage systems (e.g. Fujii 2007b, 2010a, 2010b, 2014b; Fujii, Adachi, Endo *et al.* 2012; Fujii, Adachi, Quintero *et al.* 2011; Fujii, Adachi, Yamafuji *et al.* n.d. b). We have recently noticed that the site faces a crisis of disappearance due to industry-level scoria mining. It is for this reason that we have embarked on the rescue excavation.

To date, the excavation has taken place three times: September 2014, March 2015, and June the same year. We set up four operation areas (Areas 1-4) to cover the major distribution range of surface finds and exposed wall alignments (Fig. 3). Area 1 was devoted to the excavation of the core part of the settlement, and Area 2 was opened to define its southeastern limit. Meanwhile, Areas 3-4 aimed to trace the extension of a barrage-like masonry wall that was slightly exposed on the northern slope of the gully. The excavations have proved that the site contains two cultural layers: Layer 2 dated to the LN/early Chalcolithic transitional phase and Layer 3 dated to the LPPNB. The first two seasons focused on the excavation of the Layer 2 settlement in Area 1, and the third season scrutinized the

barrage-like wall in Area 3 that belongs to the Layer 3 settlement. What follows is a brief summary of the series of operations.

### Layer 2 Settlement

The Layer 2 settlement included two distinct types of structural remains: rockshelter dwellings and miscellaneous open-air features (Fig. 4). Both of them were aligned along the scoria terrace, forming an elongated settlement with a total area of *c.* 0.05 ha (= *c.* 40-50 m by *c.* 5-10 m) or less. There is little doubt that the composite settlement was used by a small-scale, high-mobility population group.

### Rockshelter Dwellings

A total of six semi-circular or amorphous rockshelters have been confirmed. They have a frontage of *c.* 2-4.5 m, a depth of *c.* 0.5-2 m, and a preserved ceiling height of up to *c.* 1.5 m, being aligned along the terrace at an interval of *c.* 1-10 m. Although the rockshelters themselves leave any remarkable trace of anthropogenic modification, the occurrence of hundreds of flint artifacts and animal bones and the existence of masonry front walls clearly demonstrate that they were used for some practical purpose. All the front walls (and the

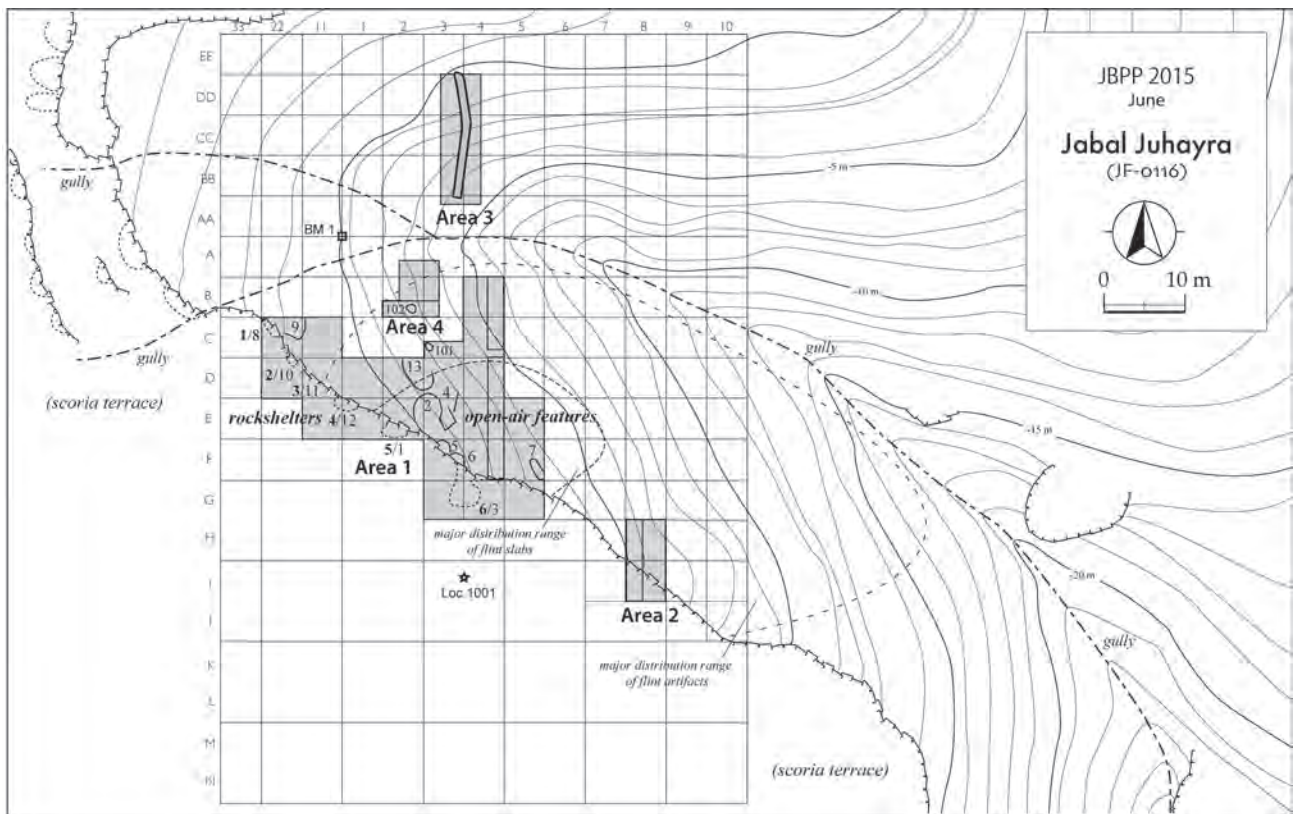


Fig. 3 Jabal Juhayra: site plan.

floors inside them) are based on the lower surface of Layer 2, sharing the same site stratigraphy with the open-air features in front of them.

Aside from a few questionable stone alignments, no small features were found inside the front walls, but thin ashy deposits including charcoal remains were dotted on a few floors. This means that the users of the rockshelters occasionally made a fire for cooking and/or heating. Thus it is conceivable that the natural features were used as *ad hoc* dwellings of the Layer 2 population group rather than their animal pens. The occurrence of numerous flint artifacts and faunal remains cannot be understood until we assume the use. The front walls were probably added to protect the indoor space from wild animals and the predominant northwesterly wind peculiar to the region (Fujii 2014a: 107-112). Similar features have been reported from Tell al-Hibr, a late Chalcolithic/EBI encampment in the eastern Jordanian Badia (Betts 1992, Betts *et al.* 2013: fig. 5.2), suggesting that rockshelter dwellings were among major options for prehistoric pastoral nomads in the Jordanian Badia.

Small finds from the rockshelters are limited to flint artifacts and animal bones only. Overall, the flint assemblage is flake-oriented and includes small projectile points (Fig. 5: 1-3), cortical knives (Fig. 5: 4-6), and retouched flakes (Fig. 5: 7) as major tool classes, although the first group might possibly represent contamination from the underlying LPPNB layer. In addition, scrapers, burins (Fig. 5: 8), denticulates, and drills also occurred in a limited number. The flake-oriented assemblage centering on cortical knives and

irregular retouched flakes is suggestive of a post-PPNB (more precisely, the LN and/or Chalcolithic) date for the Layer 2 settlement including the rockshelters. Incidentally, neither Haparsa/Herzliya/Nizzanim points nor transverse arrowheads were found. This, coupled with the scarcity of burins and drills, differentiates the Juhayra assemblage from standard LN assemblages at Jordanian desert sites (*e.g.* Betts *et al.* 2013; Cropper 2011; Rollefson 2013; Rollefson *et al.* 2014). The reason for the remarkable differences is still unknown, but the minor chronological gap between the two might be responsible for it.

### Open-air Features

A dozen open-air features were found in Area 1. Of interest is their location. Most of them avoided a wide space in front of Rockshelters 1-4 and, instead, concentrated on a narrow block diagonally in front of Rockshelters 5 and 6 (Fig. 4). This probably means that they chose the only lot not disturbing the access to any rockshelter. Such careful location choice is suggestive of functional compartmentalization between the two contemporary structural entities.

Aside from several intermittent wall alignments, the open-air features fall into the following two types: rectangular to oblong features *c.* 3-5 m wide and *c.* 1-2 m deep (*e.g.* Features 2, and 4-7), and round to oval small features *c.* 0.5-1 m in diameter or major axis (Features 101-105). The former were poorly preserved and entirely collapsed leaving their foundation course only.



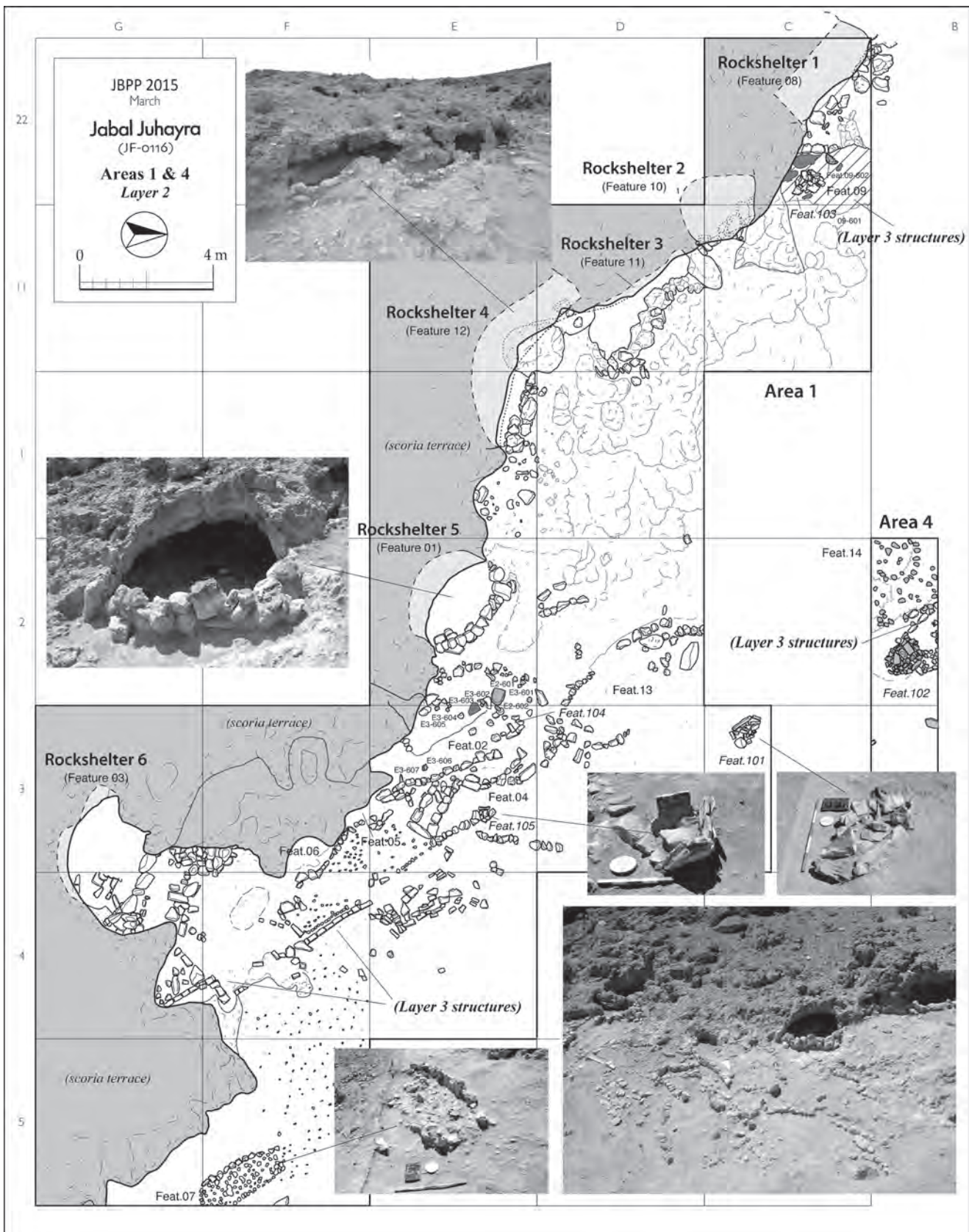


Fig. 4 Jabal Juhayra: structural remains in Areas 1 and 4.

However, in view of their inferior construction quality and the scarcity of fallen stones, it is possible that they were neither walled nor roofed from the beginning. Given this, it would follow that the features were of symbolic or at least impractical character. Neither entrance

nor hearths were incorporated, but a few of them (e.g. Features 04 and 07) were paved with scoria pebbles. Hundreds of flint artifacts were found in and around the features, but many of them occurred in secondary context and, therefore, can probably be taken as stray finds

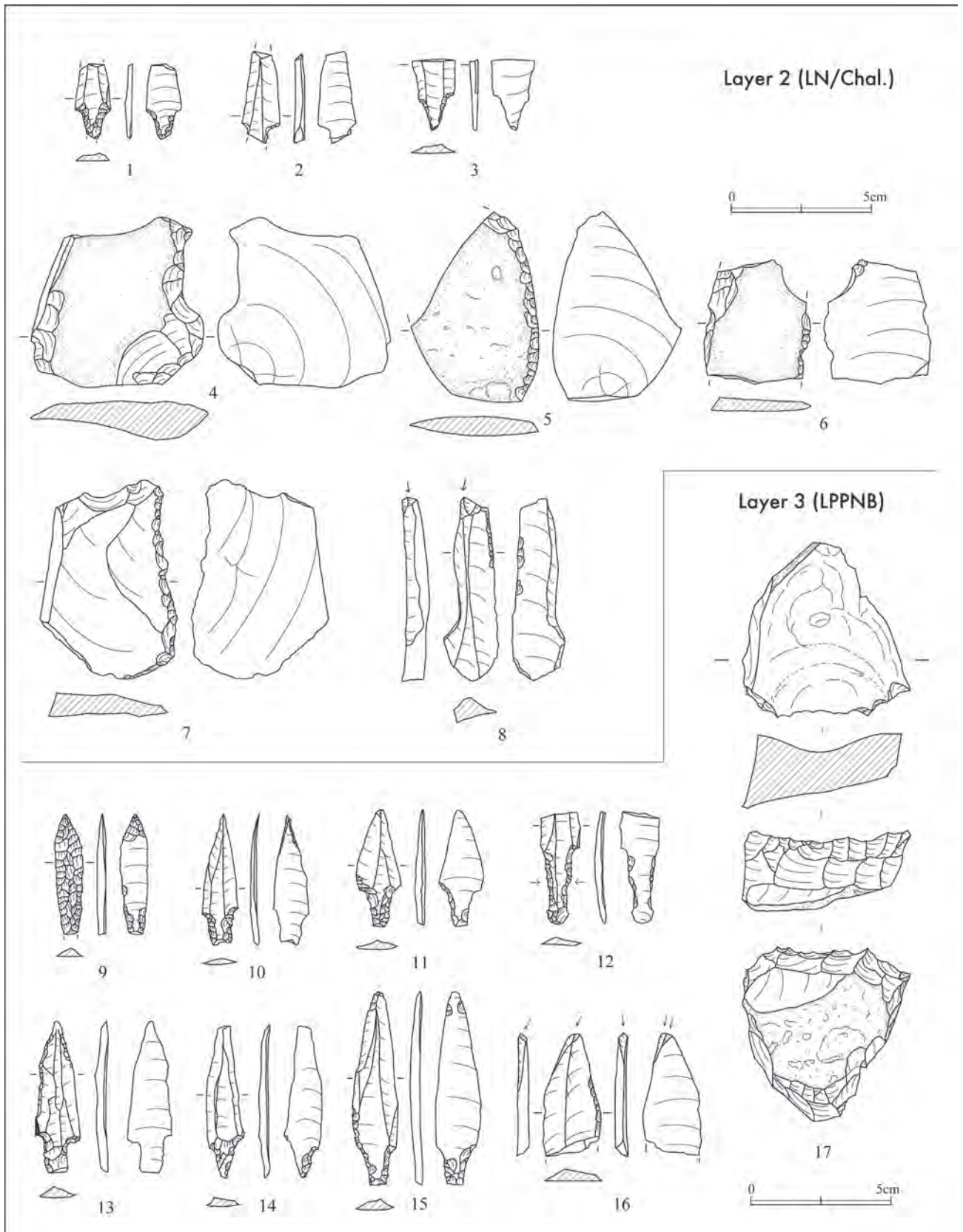


Fig. 5 Jabal Juhayra: chipped flint artifacts from Layers 2 and 3.

drifted from the adjacent rockshelters. Several grinding implements also occurred, but most of them were used, together with surrounding scoria pebbles, as floor-pavement materials. The scarcity in traces of practical life is characteristic of the rectangular/oblong features.

This is even more so with the minor features, and nothing was included inside their slab-lined wall. What attracted our attention instead was the fact that they were often combined with a rectangular/oblong feature to form a composite unit. Features 104 and 105, for example,



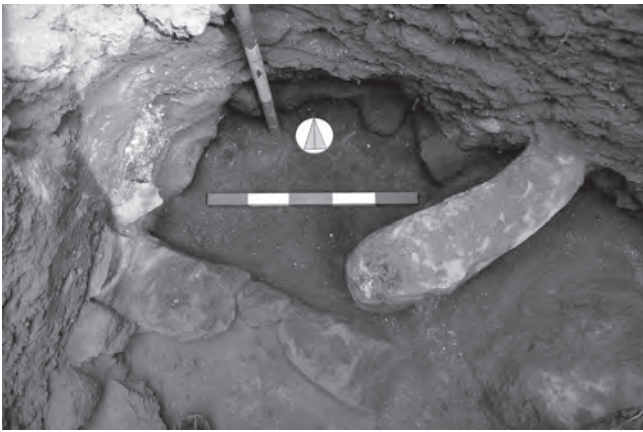


Fig. 6 Jabal Juhayra: hearth and quern in the test-trench (Layer 3) of Rockshelter 6.

were incorporated into the observer's right front corner of Features 02 and 04, respectively (Fig. 4). Though a few meters apart from each other, a similar combination was recognized between Features 101 and 13 as well. In addition, two small features in Area 4 also appeared to constitute an analogous unit. Another point of great significance is the fact that these units were laterally connected or arranged in parallel with each other. These unique traits remind us of post-PPNB open sanctuary at Harrat al-Juhayra (Fujii 2005), Qa' Abu Tulayha (Fujii 2000, 2002b), and the 'Awja sites (Fujii, Adachi, Endo *et al.* n.d.; Fujii, Yamafuji *et al.* 2012). In view of typological affinities, it appears that the Juhayra units represent a subsequent form of the 'Awja 4 units belonging to the latter half of the LN (Fujii, Adachi, Endo *et al.* n.d.: fig. 34; Fujii 2014a: fig. 13; Fujii n.d.: fig. 6).

The Layer 2 settlement is very unique in contents. There is little doubt that it represents a seasonal encampment rather than a sedentary settlement. It is our present interpretation that the inhabitants, probably pastoral nomads, encamped in the rockshelter dwellings and performed, on a seasonal basis, some communal ritual at the open sanctuary in front of them.

### Layer 3 Settlement

A part of the Layer 3 settlement was exposed in association with the excavation of the overlying layer. Area 1 included a rockshelter dwelling, a few intermittent masonry wall alignments, and a cistern-like feature, whereas Area 3 contained a barrage wall. Since their excavation is halfway, we would like to point out in advance that the following descriptions are subject to minor revision in subsequent research.

#### *Rockshelter Dwelling*

A stone-lined hearth incorporating a large quern was found on the base of a test-trench in Rockshelter 6, at a level of *c.* 0.5 m below the Layer 2 floor (Fig. 6). This means that at least one of the six rockshelters was



Fig. 7 Jabal Juhayra: masonry structure of Layers 3.

used as an *ad hoc* dwelling by the Layer 3 population group as well. (To put it the other way around, it follows that the Layer 2 rockshelter dwellers inherited it from their ancestors a few millennia ago.) This discovery is suggestive of the diversity in settlement pattern of the PPNB culture in southern Jordan and deserves continued attention.

In contrast to the Layer 2 settlement, small finds from the Layer 3 settlement (including the following three kinds of structures/features as well) are large in both variety and density, consisting of thousands of chipped flint/calcite artifacts, a dozen grinding implements, several stone vessels, a few animal bone tools and snail ornaments, and hundreds of faunal remains. The chipped stone assemblage is characterized by the presence of semi-translucent calcite products, the predominance of naviform core-and-blade components, the frequency of projectile points (Fig. 5: 9-16), and the absence of cortical knives. It should also be added that the stone vessels included a few small *flint/scoria bowlets* (Fig. 5: 17), a chronological indicator of the south Levantine PPNB (Fujii 2009b, 2012; Gebel 1999; Gubenko and Ronen 2014: 155; Wilke *et al.* 2014). All of these warrant the dating of the Layer 3 settlement to the PPNB.

#### *Masonry Wall Alignments*

A few intermittent masonry wall alignments were found on the slope in front of Rockshelter 6. All of them were straight in plan, being constructed with standardized cortical flint slabs *c.* 20-30 cm long and *c.* 5-10 cm thick (Fig. 7). There is little doubt that such a full-fledged structure dates back to the PPNB period. What puzzles us is that they do not form a unified rectangular structure but appear to consist only of two sides connected at a right angle. Even stranger is the fact that the two sides are connected with an exposed scoria bedrock layer cut again at a right angle and appear to form a small square feature. The enigmatic combination of rock-cut surfaces and masonry walls is suggestive of the existence of a unique structure yet to be known in Neolithic Jordan, but the details are left to subsequent excavations.



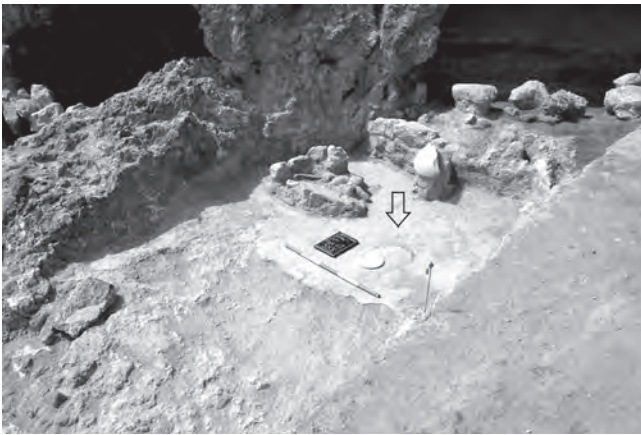


Fig. 8 Jabal Juhayra: cistern-like feature of Layers 3.

### Cistern-like Features

A few cistern-like features were found in and around Area 1. Most typical is the example in front of Rockshelter 1, the floor of which was confirmed *c.* 20 cm below Feature 103 belonging to Layer 2 (Fig. 8). This unique feature, *c.* 2 m on a side (at the present stage) and *c.* 0.5 m deep, was dug into a scoria bedrock layer. Not only that, it was partly fringed with a clay-mortared masonry wall and, at the same time, carefully paved with scoria cement (i.e. broad-sense portland cement including minute scoria grains as major admixture). Thus, it was probably used as a small-scale water storage facility of the Layer 3 settlement. Another rock-cut cistern was identified near the northern edge of the barrage wall in Area 3, again in the Layer 3 deposits. It is likely that such small cisterns were ubiquitous in the Layer 3 settlement. Incidentally, a similar cement-coated floor has been reported from Aşıklı Höyük, a contemporary settlement in central Anatolia (Hauptmann and Yalcin 2000). These examples suggest that PPNB settlements in volcanic areas accepted the lime plaster technology proper to the culture, partly modifying its composition so as to fit local geology. Mineralogical analysis now in progress is expected to shed new light on the technological innovation.

### Barrage Wall

A barrage-like masonry wall was partly exposed on the northern slope of the small gully that flows eastward below the Layer 3 settlement. The excavation in Area 3 has shown that the wall is constructed by a rubble core dry walling technique using undressed basalt/scoria cobbles and boulders as major building materials. This elongated masonry wall - *c.* 16 m in preserved total length, *c.* 1-1.2 m in width, and *c.* 0.8 m in maximum preserved height - began with the middle of the steep slope and was interrupted, probably due to past washout, *c.* 5 m short of the present gully bed (Fig. 9). Of significance is the technological difference between the upper and lower halves of the wall. The upper half



Fig. 9 Jabal Juhayra: barrage wall of Layer 3 (looking NW).

used smaller cobbles, being inferior in construction quality and slightly incurving toward the upstream. Thus it is thought to have functioned as a training wall for guiding runoff surface water to the barrage. Meanwhile, the lower half, or the main body of the barrage, was more elaborately and robustly constructed using larger stones. Unlike all other wall alignments including those in Layers 2, only this robust wall was located immediately beside the gully (more precisely, a point slightly downstream of the confluence of two tributaries) and stretched orthogonally across the converged gully (Fig. 3). Thus, its use is evident. Although its southern extension is yet to be confirmed in Area 4, there is no doubt that the wall was used as a small-scale barrage to collect seasonal runoff water flowing down on the scoria slope.

Though different in topographical condition, a similar barrage has been confirmed at Wadi Badda *c.* 15 km west of Jabal Juhayra (Fujii 2007a: figs. 4, 5; Fujii 2010a: figs. 13, 14). Such small-scale wadi/gully barriers might have been the standard of PPNB settlements in the hilly terrain to the west. Meanwhile, our previous investigations have shown that large-scale basin-irrigation barrages were common to contemporary remote outposts (e.g. Fujii 2010a). This unexpected contrast represents an important issue in future investigation.

### Discussion

The excavations have proved that: 1) Jabal Juhayra is a stratified settlement site containing two distinct cultural layers; 2) the Layer 2 settlement is characterized by the unique combination of rockshelter dwellings and open-air features in terms of structural remains, and a limited variety of artifacts centering on cortical knives and irregular retouched flakes in terms of small finds; and 3) in contrast, the Layer 3 settlement is marked by the rockshelter dwelling and the well organized water-exploitation facilities, on one hand, and a wide variety of artifacts including naviform core-and-blade components, on the other hand. The former can probably be dated to the post-PPNB, and the latter to the PPNB.

| Sample No.                | Material | Area | Structure/Feature        | Locus | Context          | uncal. B.P. | cal. B. P. (2σ) | Probability |
|---------------------------|----------|------|--------------------------|-------|------------------|-------------|-----------------|-------------|
| <b>Layer 2 settlement</b> |          |      |                          |       |                  |             |                 |             |
| IAAA-150202               | chacoal  | 1    | Rockshelter 5 (Feat. 01) | 507_5 | floor deposits   | 5703 ± 28   | 6564 - 6407     | 95,4        |
| IAAA-143894               | chacoal  | 1    | Rockshelter 6 (Feat. 03) | 505_2 | floor deposits   | 5763 ± 29   | 6650 - 6489     | 95,4        |
| IAAA-143895               | chacoal  | 1    | Rockshelter 6 (Feat. 03) | 506_3 | lower fill layer | 5751 ± 29   | 6639 - 6471     | 95,4        |
| <b>Layer 3 settlement</b> |          |      |                          |       |                  |             |                 |             |
| IAAA-143896               | chacoal  | 1    | Rockshelter 6 (Feat. 03) | 507_2 | hearth fill      | 8351 ± 33   | 9465 - 9292     | 95,4        |
| IAAA-143897               | chacoal  | 1    | Rockshelter 6 (Feat. 03) | 508_1 | hearth fill      | 8371 ± 33   | 9473 - 9302     | 95,4        |
| IAAA-143898               | chacoal  | 4    | Trench                   | 502_1 | lower fill layer | 8225 ± 32   | 9299 - 9076     | 92,4        |
|                           |          |      |                          |       |                  |             | 9055 - 9032     | 3,0         |
| IAAA-143899               | chacoal  | 4    | Trench                   | 104_2 | lower fill layer | 8534 ± 32   | 9545 - 9485     | 95,4        |

Fig. 10 C-14 data from Layers 2 and 3.

Several C-14 data provide specific date for the two settlements (Table 1). To begin with, three data from the Layer 2 deposits converge on a limited time range around *c.* 6650-6400 cal. B.P. Thus, the upper settlement can be dated to the final stage of the LN, the LN/normative-Chalcolithic transitional phase, or the beginning of the extended-Chalcolithic, depending on the periodization of the threshold centuries between the two periods (*e.g.* Garfinkel 2009; Gilead 2009; Lovell and Rowan 2011; Rowan and Golden 2009). Meanwhile, the remaining four data fall equally within a time range around *c.* 9500-9100 cal. B.P., suggesting a LPPNB, especially its first half, date for the Layers 3 settlement.

Table 2 shows the assumed chronological position of the two settlements within the framework of the Jafr chronology. As for the settlement/outpost/encampment chronology, the Juhayra Layer 3 settlement is roughly coeval with, or slightly postdates, the second half of Wadi Abu Tulayha, the type-site of the Jafr PPNB. Thus, the settlement might partly bridge the chrono-

logical gap between Wadi Abu Tulayha and Qa' Abu Tulayha. Meanwhile, the Layer 2 settlement comes after Hashm al-'Arfa, the final LPPNB to initial LN encampment recently excavated in the eastern Jafr (Fujii, Adachi, Yamafuji *et al.* n.d.a). It follows that Jabal Juhayra enlarges the settlement sequence down to the LN/Chalcolithic rockshelter dwellings. In these two meanings, the stratified settlement of Jabal Juhayra contributes to a refinement of the settlement chronology in the prehistoric Jafr Basin.

In addition, the Layer 3 settlement provides valuable insights into the water-use history in the basin as well. Our previous investigations suggested that the Jafr PPNB was based on the triple set consisting of an outpost, a barrage, and a cistern. The same is probably true with the Juhayra Layer 3 settlement. The two distinct types of water-catchment facilities are not only constructed in the Layer 3 but also covered with the Layer 2 features or deposits and, therefore, undoubtedly date back to the LPPNB. Thus, the settlement would be the third example of the PPNB triple set after Wadi Abu

|                     | Outpost/Encampment   | Barrage/Cistern  | Open Sanctuary   |
|---------------------|--|--|--|
| <b>MPPNB</b>        | WAT: Complex 00 - III? -----<br>Wadi Ghuwayr 17 -----                                      | WAT: Barrages 1-3/ Str. M<br>Wadi Ghuwayr 17: St. 101<br>Wadi Ghuwayr 106<br>Wadi Nadiya 1: Barrages 1-2 |  |
| <b>LPPNB</b>        | WAT: Complex IV? - IX -----<br>WAT: disused cistern<br><b>Jabal Juhayra: Layer 3</b> ----- | WAT: Barrages 1-3<br><b>Jabal Juhayra: Barrage 1/ Feat. 09</b><br>Wadi Nadiya 2: Barrages 1-3            |  |
| (PPNC)<br><b>LN</b> | Hashm al-'Arfa -----<br><b>Jabal Juhayra: Layer 2</b>                                      | Eastern Jafr cistern-type barrages   | 'Awja 1-4<br>Harrat al-Juhayra<br>QATW: NE Complex                       |
| <b>Chal.</b>        | (Rockshelters)   |  | <b>Jabal Juhayra: Layer 2</b><br>(Open-air features)<br>QATW: SW Complex |

WAT: Wadi Abu Tulayha; QATW: Qa' Abu Tulayha

----- : Jafr PPNB triple set.

Fig. 11 Tentative chronology of the Jafr Neolithic.

Tulayha and Wadi Ghuwayr 17 (Fujii, Adachi, Endo *et al.* n.d.; Fujii, Quintero *et al.* 2011). Subsequent excavations are expected to clarify the overall picture of the unique settlement equipped with the well organized water-use system.

Meanwhile, the Layer 2 settlement has the potential to enlarge the sequence of the pseudo-settlement type open sanctuary toward a later period by another millennia (Fujii 2014a: fig. 13). What is important here is that the supposed open sanctuary is combined with the rockshelter dwellings. All the open sanctuaries known to date in and around the Jafr Basin are isolated from contemporary settlements or encampments, which makes it difficult to approach their social background. The Juhayra upper settlement might be a very exceptional case where a difficult-to-locate real-life setting of prehistoric pastoral nomads and their again hard-to-identify ritual scene are combined to form a unified settlement.

To summarize, Jabal Juhayra revalidates our previous perspective that the initial stage of pastoral nomadization in southern Jordan is traceable through the replacement process of the PPNB triple set with the LN encampment or open-air sanctuary (Fujii 2013: 99-105). Unlike other Neolithic sites, the stratified settlement at Jabal Juhayra contains all the three components and, for this reason, enables us to trace the key episode in more sequentially. The same applies to the small finds. The excavations highlight the decrease in artifact variety in the course of the transition, which probably mirrors both the reduction in group size and the increase in group mobility.

### Concluding Remarks

The rescue excavations at Jabal Juhayra have suggested that the site contributes to the refinement of the first half of the Jafr chronology, namely, a better understanding of the formation process of the nomadic society in southern Jordan. Nevertheless, the excavation is still halfway. Subsequent field seasons are expected to provide further insights into the whole picture of the stratified Neolithic settlement exceptionally rare in the arid periphery.

**Acknowledgements:** Our long-term research project has financially been supported by the Japan Society for the Promotion of Science (the Grant-in-Aid for Scientific Research (S), No. 25220402). We would also like to express our sincere gratitude to Dr. Munther Dahash Jamhawi, director general of the Department of Antiquities of Jordan, for his academic understanding of our research project.

### Sumio Fujii

Kanazawa University

fujii@staff.kanazawa-u.ac.jp

### References

- Betts A.V.G.  
1992 Tell el-Hibr: a rock shelter occupation of the fourth millennium BCE in the Jordanian Badiya. *Bulletin of American Schools of Oriental Research* 287: 5-23.
- Betts A.V.G., Cropper D., Martin L., and McCartney C.  
2013 *The Late Prehistory of the Badiya: Excavations and Surveys in Eastern Jordan, vol. 2*. Oxford: Oxbow Books.
- Cropper D.N.  
2011 *Lithic Technology and Regional Variation in Late Neolithic Jordan*. Oxford: BAR.
- Fujii S.  
2000 Qa' Abu Tulayha West: An interim report of the 1999 season. *ADAJ (Annual of the Department of Antiquities of Jordan)* 44: 149-171.  
2002a A brief note on the 2001-2002 winter season survey of the al-Jafr Basin in southern Jordan. *ADAJ* 46: 41-49.  
2002b Pseudo-settlement hypothesis: Evidence from Qa' Abu Tulayha West, southern Jordan. *Archaeozoology of the Near East* 5: 181-194.  
2003 Qa' Abu Tulayha West, 2002: An interim report of the sixth and final season. *ADAJ* 47: 195-223.  
2005 Harrat al-Juhayra pseudo-settlement: A preliminary report of the Jafr Basin Prehistoric Project, 2004. *ADAJ* 49: 57-70.  
2007a Wadi Badda: A PPNB settlement below the Fjayj escarpment near Shawbak. *Neo-Lithics* 1/07: 19-23.  
2007b Wadi Abu Tulayha and Wadi Ruweishid ash-Sharqi: An Investigation of PPNB barrage systems in the Jafr Basin. *Neo-Lithics* 2/07: 6-16.  
2009a Wadi Abu Tulayha: A preliminary report of the 2008 summer final field season of the Jafr Basin Prehistoric Project, phase 2. *ADAJ* 53: 173-209.  
2009b Flint bowlets: A comprehensive review from Wadi Abu Tulayha, Ma'an Region. *Neo-Lithics* 2/09: 20-28.  
2010a A comprehensive review of Neolithic water catchment facilities in the Jafr Basin, southern Jordan: A preliminary report of the Jafr Basin Prehistoric Project (Phase 3), 2009. *ADAJ* 54: 371-386.  
2010b Domestication of runoff water: Current evidence and new perspectives from the Jafr Pastoral Neolithic. *Neo-Lithics* 2/10: 14-32.  
2012 Flint Bowlets: Three additional materials from Wadi Ghuwayr 17 and Wadi Nadiya 2, al-Jafr Basin. *Neo-Lithics* 1/12: 33-40.  
2013 Chronology of the Jafr prehistory and protohistory: A key to the process of pastoral nomadization in the southern Levant. *Syria* 90: 49-125.  
2014a Make-believe playhouses at Wadi Burma East: A cognitive approach to the Neolithic unilinear settlement in the Jafr Basin, southern Jordan. In: B. Finlayson and C. Makarewicz, C. (eds.), *Settlement, Survey and Stone. Essays on Near Eastern Prehistory in Honour of Gary Rollefson*, 101-116. Berlin: Ex Oriente.



- 2014b A half-buried cistern at Wadi Abu Tulayha: A key to tracing the pastoral nomadization in the Jafr Basin, southern Jordan. In: G.O. Rollefson and B. Finlayson (eds.), *Jordan's Prehistory: Past and Future Research*, 159-168. Amman: Department of Antiquities of Jordan.
- n.d. Slab-line feline representations: New finding at 'Awja 1, a late Neolithic open-air sanctuary in southern most Jordan. *Proceedings of ICAANE-9*. Wiesbaden: Harassowitz.
- Fujii S. and Abe M.  
2008 PPNB frontier in southern Jordan: A preliminary report on the archaeological surveys and soundings in the Jafr Basin, 1995-2005. *Al-Rafidan* 29: 63-94.
- Fujii S., Adachi T., Endo H., and Yamafuji M.  
n.d. 'Awja sites: Supplementary investigations of Neolithic open sanctuaries in southernmost Jordan. *ADAJ* 57 (forthcoming).
- Fujii S., Adachi T., Endo H., Yamafuji M., Arimatsu Y., and Nagaya K.  
2012 Wadi an-Nu'aydiyyah 1: Another Neolithic barrage system in the northern al-Jafr Basin, southern Jordan. *ADAJ* 56: 131-156.
- n.d. Excavations at Wadi an-Nu'aydiyyah 2 and complementary research of the Jafr Neolithic barrage system. *ADAJ* 57 (forthcoming).
- Fujii S., Adachi T., and Nagaya Y.  
n.d. Jabal Juhayra, 2014-2015: Excavations of the post-PPNB Layer. *ADAJ* 59 (in print).
- Fujii S., Adachi T., Quintero L.A., and Wilke P.J.  
2011 Wadi Ghuwayr 106: A Neolithic barrage system in the northeastern al-Jafr Basin. *ADAJ* 55: 189-212.
- Fujii S., Adachi T., Yamafuji M., and Nagaya K.  
n.d.a Hashm al-'Arfa: An early Neolithic encampment in the eastern Jafr Basin, southern Jordan. *ADAJ* 57 (forthcoming).
- n.d.b A Preliminary report on the Neolithic barrage surveys in eastern Jafr, 2013-2014. *ADAJ* 57 (forthcoming).
- Fujii S., Quintero L.A., and Wilke P. J.  
2011 Wadi Ghuwayr 17: A Neolithic outpost in the northeastern al-Jafr Basin. *ADAJ* 55: 159-188.
- Fujii S., Yamafuji M., and Nagaya K.  
2012 'Awja 1-3: Neolithic and Chalcolithic open sanctuaries in southernmost Jordan. *ADAJ* 56: 171-185.
- Garfinkel Y.  
2009 The transition from Neolithic to Chalcolithic in the southern Levant: The material culture sequence. In: J. Shea and D.E. Lieberman (eds.): *Transitions in Prehistory*, 325-333. Oxford and Oakville: Oxbow Books.
- Gebel H.G.K.  
1999 Flint "bowlets" from the LPPNB of southern Jordan. *Neo-Lithics* 2/99: 12-13.
- Gilead I.  
2009 The Neolithic-Chalcolithic transition in the southern Levant: Late sixth-fifth millennium culture history. In: J. Shea and D.E. Lieberman (eds.): *Transitions in Prehistory*, 335-355. Oxford and Oakville: Oxbow Books.
- Gubenko N. and Ronen A.  
2014 More from Yiftahel (PPNB), Israel. *Paléorient* 40(1): 149-158.
- Hauptmann A. and Yalcin Ü.  
2000 Lime plaster, cement and the first puzzolanic reaction. *Paléorient* 26(2): 61-68.
- Lovell J. L. and Rowan Y.M.  
2011 *Culture, Chronology and the Chalcolithic: Theory and Transition*. Oxford and Oakville: Oxbow Books.
- Rollefson G.O.  
2013 Late Neolithic aggregation patterns in Jordan's eastern Badia. *Syria* 90: 211-230.
- Rollefson G.O., Rowan Y.M., and Wasse A.  
2014 The Late Neolithic colonization of the eastern Badia of Jordan. *Levant* 46(2): 285-301.
- Rowan Y.M. and Golden J.  
2009 The Chalcolithic period of the southern Levant: A synthetic review. *Journal of World Prehistory* 22: 1-92.
- Wilke P.J., Quintero L.A., and Gebel H.G.K.  
2014 Flint 'bowlets': and the issue of artificial lighting in Neolithic Jordan. In: B. Finlayson and C. Makarewicz (eds.): *Settlement, Survey and Stone. Essays on Near Eastern Prehistory in Honour of Gary Rollefson*, 219-226. Berlin: Ex Oriente.

# Excavations at the Early Neolithic site of Mushash 163: Preliminary Report on the 2014 and 2015 Seasons

Cecilie Lelek Tvetmarken and Karin Bartl  
with contributions from Dörte Rokitta-Krumnow

## Introduction

Mushash 163 is a late PPNA/EPPNB site located in the semi-arid desert steppe on the western edge of the badia region in north-eastern Jordan, about 40 km east of Amman and 50 km west of Azraq (Fig. 1) (Lelek Tvetmarken 2015). It was identified during survey work in 2012 as part of the ongoing Qasr Mushash survey project carried out by the Orient Department of the German Archaeological Institute (DAI) in cooperation with the Department of Antiquities of Jordan (Bartl *et al.* 2014, in press). The survey project centres on a 10 km area around the Early Islamic Qasr Mushash, one of the so-called ‘desert castles’ in eastern Jordan. Mushash 163 is situated about 200 m south-west of the *Qasr*, on the opposite side of Wadi Mushash, a branch of one of the main drainage systems in the central-western part of the Azraq Basin (Ababsa 2013: Fig. I.16). There are at present no permanent springs in the area around the site, though the winter rains cause the wadis and smaller streams to flood and water to collect for shorter periods in slower-draining small depressions. The site lies in a part of the badia that currently receives an annual rainfall of around 100 mm, which is outside the area of viable rain-fed agriculture, although opportunistic cultivation occurs along many of the seasonally flooding wadis.

Mushash 163 lies at an elevation of about 721 m in a mostly flat expanse, occasionally intersected by wadis, which rises into low hills north of Wadi Mushash. The site is only visible on the surface as a dense lithic scatter measuring about 60 m E-W x 45 m N-S. Preliminary studies of the chipped stone material collected from the surface pointed to an early PPN date for the site, though there may also have been a Late Neolithic (LN) phase.<sup>1</sup> To date, research on the Neolithic in north-eastern Jordan has focused on areas further east and south in the Azraq Basin and adjacent regions. Fieldwork has indicated that human activities in this region were fairly small-scale during the early PPN with the number of settlements only increasing during the LPPNB and subsequent LN (*e.g.* Akkermans *et al.* 2014; Baird *et al.* 1992; Betts *et al.* 1989, 2013; Garrard *et al.* 1994, 1986; Quintero *et al.* 2004; Rollefson *et al.* 2014). Thus far little evidence for the PPNA and EPPNB has been found; a possible PPNA date has been suggested for Shubayqa 6 in the northern badia (Richter *et al.* 2012: 12-13), and an EPPNB date for the earliest phase at Wadi Jilat 7 (Garrard *et al.* 1994, 1986).

Subsequent to its discovery, a geophysical survey was undertaken at Mushash 163 in 2013. The result of this survey indicated the presence of around thirty circular features (Bartl *et al.* 2014: Abb. 11), which suggested that there were potentially quite substantial archaeological features below the surface. In combination with the proposed early PPN date, this indicated that the site presented an opportunity to gain information on a hitherto little known period in this area. It was therefore decided that two short exploratory excavation seasons should be undertaken at the site, with the first scheduled for the autumn of 2014 and the second for spring of 2015. The immediate objectives of the excavations were to investigate the nature of the circular sub-surface features detected during the geophysical survey and to collect stratified material in order to obtain a more accurate date for the site. Altogether it was hoped that this would provide us with some initial information concerning the nature and timing of the settlement, and how it fits into the wider chronology of human occupation in the region.

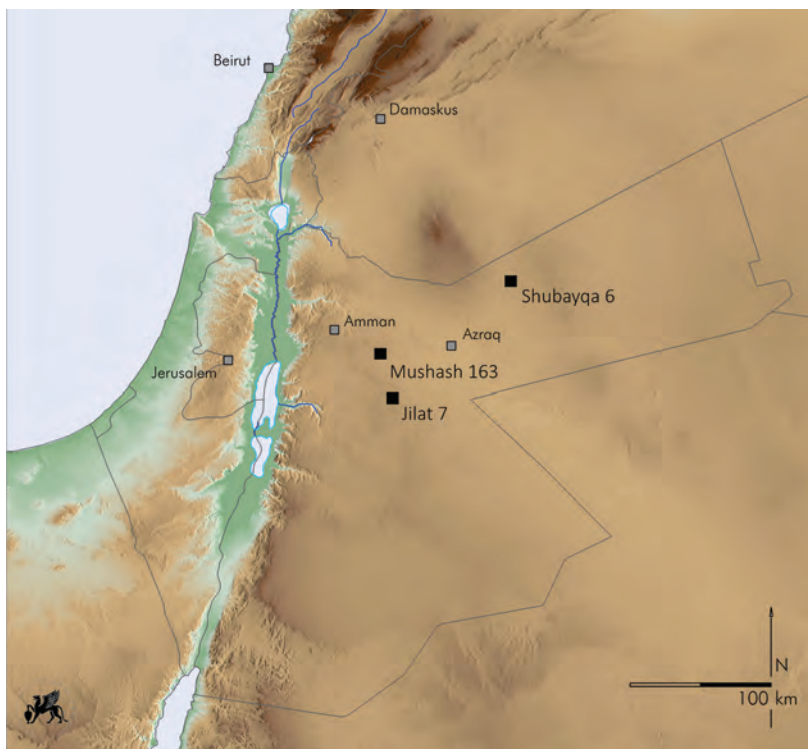


Fig. 1 Map showing the location of Mushash 163 and sites mentioned in the text. (Map: K. Bartl and Th. Urban, DAI)

## The Excavations

During the 2014 and 2015 seasons, excavations focused on two areas in the northern part of the site, labelled trenches A and B (Fig. 2). Trench A was located at the northern edge of the site (as defined by the lithic scatter) and targeted the northern half of one of the circular features detected during the geophysical survey. It initially measured 9 m E-W x 4.50 m N-S, but was later reduced in size, due to the depth of the deposits, with efforts focused on the eastern 6.50 m E-W x 3.50 m N-S of the trench. Trench B, which was located 5 m south of Trench A, was opened during the second half of the 2014 season as a small 2.50 x 2.50 m sounding targeting the north-western corner of a second circular feature. During the 2014 excavations we were able to confirm that both of the targeted sub-surface features were semi-subterranean structures; Structure 1 in Trench A and Structure 2 in Trench B (Lelek Tvetmarken 2015). The top of the two structures were located at a depth of 0.50-0.60 m below the current ground surface. Both of them were overlain by a series of yellowish brown through light greyish brown sandy deposits that differed from the fills within the structures. The latter included various darker yellowish brown through dark greyish brown deposits with higher silt content and less sand than the former, and which contained larger quantities of stones, ashy lenses and cultural material.

At the start of the 2015 excavations, the area of Trench B was extended to 4.50 m E-W x 6 m N-S

in order for us to investigate the eastern half of Structure 2. Another 4 m E-W x 5.50 m N-S westward extension was later added to the southern part of the trench following the discovery of a third structure (Structure 3), which, for some reason, had not been detected during the geophysical survey. We decided to concentrate our efforts on Structure 3 as it was located much closer to the current ground surface (the top of the walls were only 0.15-0.20 m below the surface) than both of the other structures, and thus not only afforded a better chance of gaining information on the layout of the structure, but also on a potentially later phase of occupation at the site.

### Structure 1

The north-western part of Structure 1 was first exposed in 2014, with the complete northern half excavated down to floor level during the 2015 season (Fig. 3). It is a circular semi-subterranean structure measuring approximately 4.80 m in diameter which had been built into a pit that was at least 0.60 m deep. The construction pit had been dug into a very distinctive compacted reddish sandy soil containing white lime flecks and smaller stones and pebbles, which seems to be the natural deposit in the area. Along its north-eastern edge, the pit also cut into a thin layer of a compacted yellowish clayey sediment that overlay the natural deposit. It is at this point, however, not clear whether it had been deposited through human activities prior to the construction of Structure 1 or by fluvial action.

The north-western part of the cut had first been lined with a packing deposit consisting of small and medium sized stones set into a silty deposit. Following this, larger limestones had been set vertically against the packing deposit; three were found still *in situ*, whereas one had fallen over at some point before the structure was filled in after its abandonment. One of the *in situ* uprights had a smaller stone placed on top of it, indicating that the stone construction may originally have been built higher than what had been preserved. It is possible that some of the larger limestones found lying on the floor in front of the wall may originally have formed part of it. This type of wall construction did not continue in the eastern half



Fig. 2 Aerial view of trenches A (top) and B (bottom) at the end of the 2015 excavation. (Photo: Th. Urban, DAI)





Fig. 3 Overview photo of Structure 1 at the end of the 2015 excavations. (Photo: Th. Urban, DAI)

of Structure 1, although it is unclear whether it was intentional or due to the stones being removed at some point for re-use elsewhere. There were no upright stones nor packing deposit found along the central-northern part of the pit cut. Additionally, the soil excavated from this part of the structure was indistinguishable from the rest of the fill, which indicates that there had been no stones and/or packing deposit there at the time when the post-abandonment infilling of the structure occurred. Further east, along the north-eastern part of the wall, was a number of medium sized stones (which were smaller than the uprights in the north-eastern part) that appear to have been set directly against the pit cut. This suggests that there was some variation in the wall construction within the structure.

At the very end of the 2015 excavations we exposed an occupational floor surface within Structure 1. It consisted of a compacted greyish silty deposit and appeared to slope gently down from the east towards the centre. Located in the central part of the structure (immediately in front and continuing into the southern trench section) was what may potentially be the remains of a hearth set into the floor. It was a semi-circular concentration of smaller sized stones set within a crumbly silty clay deposit that was bordered along its western and northern edge by whitish grey ash. Additionally, part of the floor surface along its western edge appears to have been discoloured through burning. Unfortunately, as it was the last day of our excavations, we did not have time to investigate this feature further. In the north-eastern part of the structure was a sub-rectangular or oval installation that had been built against the wall. The wall formed the northern and eastern edges of the feature, whereas the southern edge was demarcated by a line of medium sized stones

and the western edge by a 0.10 m high ridge made of a compacted clayey deposit, on top of which was a line of stones.

After its abandonment, Structure 1 appears to have been filled in over time through a series of refuse deposits which were difficult to differentiate during the excavations. At some point two pits had been cut into the south-eastern part of the trench, which together had more or less completely removed the southernmost 1.20 m section of the eastern wall that was located within the trench. The smaller of the two, measuring *c* 1.30 m in diameter at its widest (SW-NE), had been dug at some point shortly after the infilling of the structure had reached the top of the construction cut. It had mostly been dug into the natural deposit, apart from a very small area where it truncated the cut for Structure 1. Following the build-up of an additional 0.25 m of deposits in this part of the site, a larger pit, measuring 1.82 m E-W, had caused further damage to the structure by removing most of the eastern part of the wall.

### *Structure 2*

During the 2014 excavations we exposed the north-western part of Structure 2, although only a small section of the wall of the structure was located within the trench. It measured about 0.70 m in length and consisted of a large, possibly re-used, cup-hole stone set on its end with two slightly smaller stones placed next to each other on top of it (Fig. 4). Immediately south of the cup-hole stone was a concentration of medium and smaller sized stones, at least some of which were part of the wall construction. The deposit immediately behind the wall

seemed to be the same reddish sandy soil containing white lime flecks as that into which the construction pit for Structure 1 had been cut. This indicates that it was also a semi-subterranean structure that had been built within a pit dug into the natural deposit.

We excavated about 0.70 m of the fill within the structure, which, as was the case with Structure 1, consisted of a series of refuse deposits containing abundant stones and cultural material that had accumulated over time. At the end of the 2014 season we had exposed a greyish, silty deposit that contained frequent charcoal flecks but had otherwise very few inclusions. This deposit was visually very different from the fill excavated above it. The latter was generally browner in colour and contained large quantities of stones, lithics, and dumps of ash and other burnt materials. It is possible that this change in deposit may indicate that we were approaching the floor level within the structure.

### Structure 3

One of our initial aims for the 2015 excavation season was to expand Trench B in order to continue the investigation of Structure 2. However, this was put on hold following the discovery and decision to focus on Structure 3 as it offered an opportunity to investigate a potentially later phase of the settlement.

Structure 3 is a sub-oval, possibly one-roomed, semi-subterranean structure that had been built within a construction pit cut into earlier occupational deposits, as well as the underlying natural deposit (Fig. 5). The entire

eastern, south-eastern, and about 1.77 m of the western portions of the wall had been preserved up to a height of between 0.36 and 0.54 m. It mainly consisted of a lower course of large upright stones, on top of which were between one and four courses of medium sized stones. One of the uprights in the eastern part of the wall was a large sub-rectangular limestone with three cup-holes located in the middle of a shallow depression (Fig. 6). The northern portion of the eastern wall section, north of the cup-hole stone, consisted of three to four courses of medium and large sized stones set into a compacted greyish yellow deposit. It first curved towards the west for about 0.70 m before turning northwards for another 0.75 m. Even though the northern section of the wall had not been preserved, apart from two stones in the central-northern part, we were able to trace the construction cut. It appears that there had been a small, semi-circular niche at the northern end of the structure; it was 0.75 m wide and about 0.5 m deep, and had a floor that sloped down towards the centre of the structure.

In the south-eastern corner of the structure there was another small niche, which measured *c* 0.50 x 0.50 m. The southern wall appeared to run in a westerly direction from the niche and consisted of a mix of larger uprights and smaller stones, though it is unclear at present which of the exposed stones were part of the wall and which ones were collapse. Unfortunately, we were not able to fully excavate the southern end of Structure 3 during the 2015 season. In the remaining part of the structure, we reached the floor level at the very end of the excavation. As was the case in Structure 1, the floor consisted of a compacted greyish silty deposit with few visible inclusions apart from some charcoal flecking.

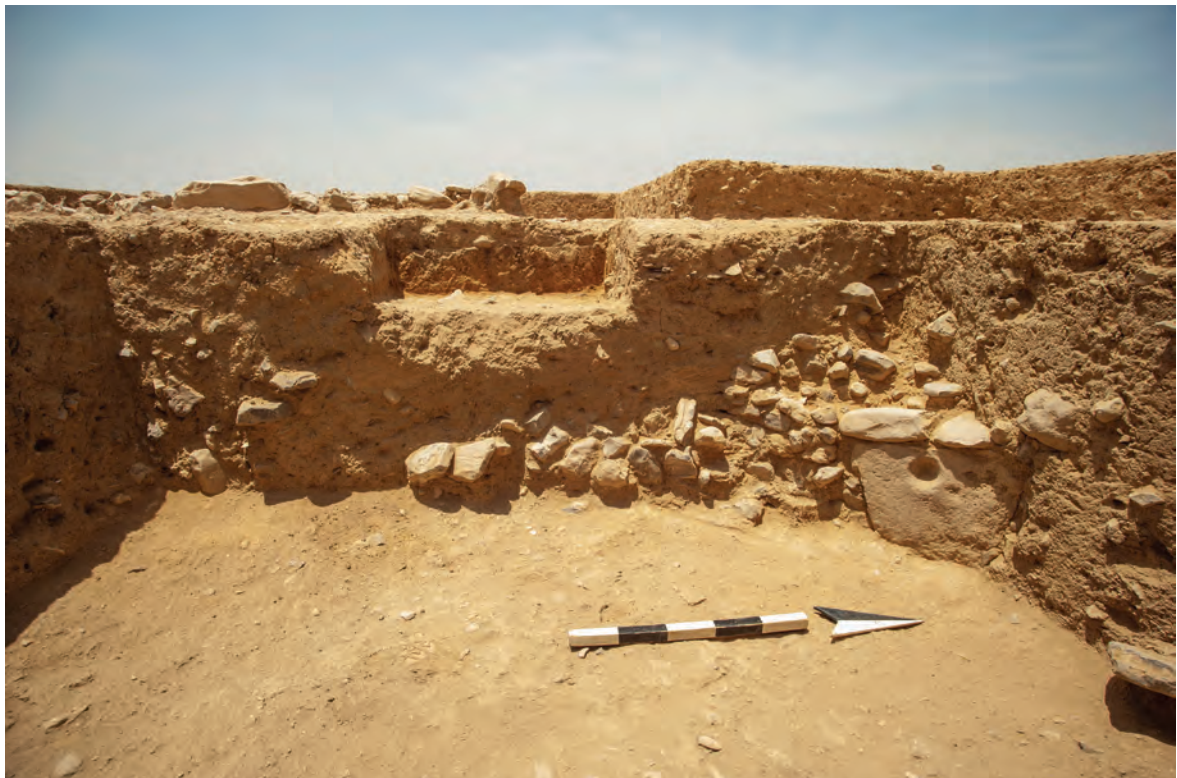


Fig. 4 Part of the wall of Structure 2 located within the 2014 sounding in Trench B. (Photo: Th. Urban, DAI)





Fig. 5 Overview photo of Structure 3 at the end of the 2015 excavations. (Photo: Th. Urban, DAI)



Fig. 6 Photo of the eastern part of Structure 3 showing the eastern wall section with the cup-hole stone, the south-eastern niche, and the two stones set into the floor in front of the wall. (Photo: Th. Urban, DAI)

Two stones, which were perhaps some sorts of small ‘pillars’, had been set into the floor in the eastern part of the structure (Fig. 6). In the western part of the structure, set into the floor immediately in front of the wall, was a stone that had been intentionally shaped and resembled an arrow pointing upwards, or it could possibly represent a crude anthropomorphic form (Fig. 7a-7b).

The large number of collapsed stones excavated

from within Structure 3, especially the eastern part, indicated that following its abandonment the structure had either been allowed to collapse on its own or had been intentionally collapsed. Additionally, although the fill excavated from within the structure contained many lithics and smaller amounts of animal bones, no other artefact categories were recovered from these deposits in contrast to the other two structures. This may suggest





Fig. 7 Structure 3: (a) the western wall with the 'arrow'-shaped stone set into the floor immediately in front of the wall; (b) the 'arrow'-shaped stone. (Photos: K. Bartl and Th. Urban, DAJ)

that most of the fill within Structure 3 resulted from collapse rather than purely refuse disposal as appears to have been the case with Structure 1.

### The Finds

Even though the material collected during the excavations has yet to be studied in detail, it is possible to make a few preliminary observations. Most of the artefacts were recovered from the fills within the three structures, except for those that had been incorporated into the architecture (*i.e.* the two cup-hole stones set into the walls and the 'arrow'-shaped stone). Chipped stone is by far the most numerous group of material collected during the excavations. The assemblage consists mostly of chips and flakes, though bladelets, blades and long blades are also common.<sup>2</sup> However, naviform cores (Fig. 8a) have thus far only been found on the surface while flake cores occur frequently in the assemblage. A range of projectile points has been recovered (Fig. 8g-j), many of which are el-Khiam and Helwan types. Many of the el-Khiam points have a knob fashioned on the base that divides it into two concave parts. Pieces that have two pairs of notches, which represent an intermediate type between the el-Khiam and Helwan types (*cf.* Gopher 1994: 161), have also been found. In addition, the assemblage includes a few leaf-shaped points made on flakes, as well as half-finished 'Amuq points with regular steep parallel retouch. Perforators (Fig. 8d-f) are also common among the tools, of which a number have fine and long tips. A few bifaces have also been recovered, including what is known as a 'tranchet axe' (Fig. 8b). This transversal blow technique was commonly used during the PPNA and PPNB in the southern Levant (Barkai 2005: 12).

Also of interest are the so-called 'can openers' (Fig. 8c), which M. Kay has investigated at the site of 'Ain Abu Nukhayla (Kay 2014: 220). These items, which got their name due to their resemblance to metal can openers, are thought to have been "used in a slotting fashion, or what would constitute a knife slotting motion, or motions" (Kay 2014: 221).

Other finds include a number of complete and fragmented ground stone items, two worked bone objects, two beads made of bird bones, and an object made from unfired orange clay. Most of the ground stone items were made of basalt, including three so-called shaft straighteners, a large oval plate, a broken cup, a broken grinding slab, and a number of variously sized fragments of handstones. A notable exception is an almost complete pestle made of whitish limestone recovered from the fill within Structure 2 (Fig. 9).

### Summary

The 2014 and 2015 excavations at Mushash 163 have provided some very interesting new data concerning the early PPN in the Azraq Basin, a hitherto little known period in the region. We have been able to confirm that the circular features detected during the 2013 geophysical survey were semi-subterranean structures. As the excavated walls of Structure 1 and Structure 2 align in layout and size with the sub-surface features detected in the geophysical survey, it appears likely that they were originally circular in plan. Furthermore, the presence of a prepared floor surface and a possible hearth in Structure 1 suggest that it may – at some point – have served as a shelter for human activities. The discovery of Structure 3 during the 2015 excavations, as well as the depth of





Fig. 8 Lithic finds: a) naviform core, b) 'tranchet axe', c) 'can-opener', d-f) perforators, g-j) projectiles. (Photos: K. Bartl, DAI)



Fig. 9 Limestone pestle recovered from the fill within Structure 2. (Photo: K. Bartl, DAI)

the cultural deposits, suggests to us that there may be different occupational phases at the site, although the precise stratigraphic relationship between the two structures in Trench B will have to be clarified in future excavations. Initial assessment of the lithic assemblage points towards a possible late PPNA/EPPNB date for the occupation of the site. Four radiocarbon dates have recently become available which appear to support this suggestion (Fig. 10). All four samples come from the lowermost 5 cm fills within the structures; two from Structure 1 (Mushash 163 15 S1 U20, Mushash 163 15 S1 U48), one from Structure 2 (Mushash 163 15 S1 U21), and one from Structure 3 (Mushash 163 15 S1-S U53). It is hoped that we will be able to resolve some of the current uncertainties regarding the stratigraphic and chronological sequence at the site during future excavations, including collecting more stratified samples for dating.

The transition from the PPNA to the PPNB in the southern Levant remains somewhat problematic, with some arguing against there being an EPPNB phase in the southern Levant at all (e.g. Kuijt 1997: 2003). This is in large part due to the fact that there is limited evidence available and a lack of good radiocarbon dates

in comparison with the northern Levant. Based on our findings thus far, the site of Mushash 163 may provide us with further insights into this transitional period in one of the semi-arid regions in the southern Levant. The detailed studies of the chipped stone, animal bones, botanical remains and other material culture recovered during the excavations are planned to start next year. The results of these analyses will provide us with more information concerning the economic and social practices of the human groups inhabiting the western badia during the early PPN.

*Acknowledgements:* The excavations at Mushash 163 were conducted as part of the Qasr Mushash Survey Project which is directed by PD Dr. Karin Bartl (Orient Department, German Archaeological Institute) and Dr. Gazi Bisheh (Department of Antiquities of Jordan). We are grateful for the excellent co-operation and continuous support of the Department of Antiquities of Jordan, and especially Dr. Eng. Monther Jamhawi, Director-General of the Department of Antiquities of Jordan. We are also very grateful for all the contributions and kind support from our department representative, Hussein Saleh M.A. Thanks must also

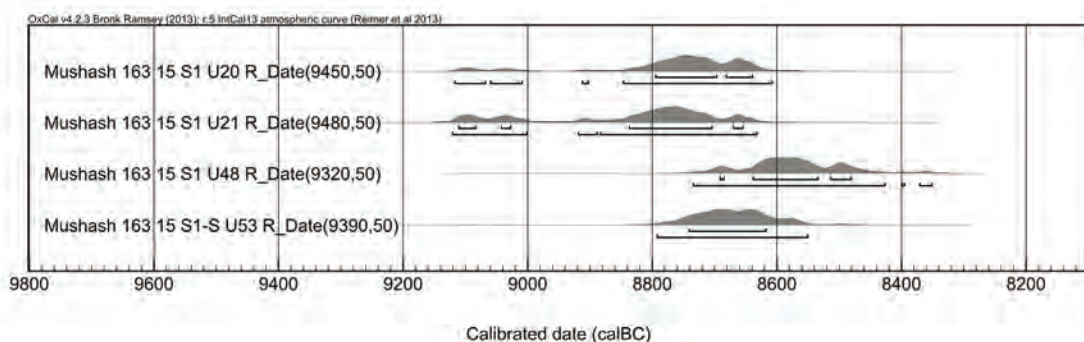


Fig. 10 Calibrated radiocarbon dates from Mushash 163.

go to the 2014 and 2015 field teams for all their hard work, and especially to Khairieh al-Kukhun M.A., Denise Resch M.A., and Dr. Thomas Urban.

## Endnotes

<sup>1</sup> We are grateful for the preliminary examination of the surface material by Dr. Tobias Richter, who discovered the site during the 2012 survey, Dr. Bernd Müller-Neuhof, and Prof. Gary O. Rollefson.

<sup>2</sup> These preliminary observations about the chipped stone assemblage are provided by Dr. Dörte Rokitta-Krumnow, who will undertake the study of the material from the site.

## Cecilie Lelek Tvetmarken

German Archaeological Institute, Orient-Department  
Cecilie.Lelek-Tvetmarken@dainst.de

## Karin Bartl

German Archaeological Institute, Orient-Department  
Karin.Bartl@dainst.de

## References

- Ababsa M.  
2013 Over Exploited Water Resources. In: M. Ababsa (ed.), *Atlas of Jordan. History, Territory and Society*: 68-71. Beirut: Institut Français du Proche-Orient.
- Baird D., Garrard A., Martin L., and Wright K.  
1992 Prehistoric Environment and Settlement in the Azraq Basin. An Interim Report on the 1989 Excavation Season. *Levant* 24: 1-31.
- Barkai R.  
2005 *Flint and Stone Axes as Cultural Markers: Socio-Economic Changes as Reflected in Holocene Flint Tool Industries of the Southern Levant*. Studies in Early Near Eastern Production, Subsistence, and Environment. Volume 11. Berlin: Ex Oriente.
- Bartl K., Bisheh G., Bloch F., Bührig C., Saleh H., and Urban T.  
2014 Qasr Mushash: „Wüstenschloss“ oder Karawanenhalt? *Zeitschrift für Orient-Archäologie* 7: 222-245.
- Bartl K., Bisheh G., Bloch F., and Richter T.  
in press Qasr Mushash Survey: Preliminary Results on Archaeological Fieldwork in 2011 and 2012. *Annual of the Department of Antiquities of Jordan* 57, 2013.
- Betts A.V. G., Colledge S., Martin L., McCartney C., Wright K., and Yagodin V.  
1989 *The Harra and the Hamad. Excavations and Explorations in Eastern Jordan: Volume 1*. Sheffield: Sheffield Academic Press.
- Betts A.V. G., McCartney C., Cropper D., and Martin L.  
2013 *The Later Prehistory of the Badia. Excavations and Survey in Eastern Jordan: Volume 2*. Oxford: Oxbow Books.
- Garrard A., Baird D., Colledge S., Martin L., and Wright K.  
1994 Prehistoric Environment and Settlement in the Azraq Basin: An Interim Report on the 1987 and 1988 Excavation Seasons. *Levant* 26: 73-109.
- Garrard A., Byrd B., and Betts A.  
1986 Prehistoric Environment and Settlement in the Azraq Basin: An Interim Report on the 1984 Excavation Season. *Levant* 18: 5-24.
- Gopher A.  
1994 *Arrowheads of the Neolithic Levant - A Seriation Analysis*. Winona Lake: ASOR Dissertation Series 10.
- Kay M.  
2014 A Closer Look: High-Power Use-Wear Analysis of Prismatic Blades. In: D.O. Henry and J.E. Beaver (eds.), *The Sands of Time. The Desert Neolithic Settlement at Ayn Abū Nukhayla: 205-234*. Bibliotheca neolithica Asiae meridionalis et occidentalis. Berlin: Ex Oriente.
- Kuijt I.  
1997 Trying to fit round houses into square holes: Re-examining the Timing of the South-Central Levantine Pre-Pottery Neolithic A and Pre-Pottery Neolithic B Cultural Transition. In: H.G.K. Gebel, Z. Kafafi, and G.O. Rollefson (eds.), *The Prehistory of Jordan II. Perspectives from 1997*: 193-202. Berlin: Ex Oriente.
- 2003 Between Foraging and Farming: Critically Evaluating the Archaeological Evidence for the Southern Levantine Early Pre-Pottery Neolithic Period. *Turkish Academy of Sciences Journal of Archaeology* 6: 7-25.
- Lelek Tvetmarken C.  
2015 Mushash 163, Jordanien. *e-Forschungsberichte des Deutschen Archäologischen Instituts*, Faszikel 2, 46-49, www.dainst.org.
- Quintero L., Rollefson G., and Wilke P.  
2004 Highland Towns and Desert Settlements: Origins of Nomadic Pastoralism in the Jordanian Neolithic. In: H. Bienert, H. Gebel, and R. Neef (eds.), *Central Settlements in Neolithic Jordan*: 201-213. Berlin: Ex Oriente.
- Richter T., Bode L., House M., Iversen R., Arranz Otaegui A., Saehle I., Thaarup G., Tvede M.-L., and Yeomans L.  
2012 Excavations at the Late Epipalaeolithic Site of Shubayqa 1: Preliminary Report on the First Season. *Neo-Lithics* 2/2012: 3-14.
- Rollefson G.O., Rowan Y., and Wasse A.  
2014 The Late Neolithic Colonization of the Eastern Badia of Jordan. *Levant* 46 (2): 285-301.



## Conference Report From the Caucasus to the Arabian Peninsula: Studying Domestic Spaces in the Neolithic Paris, 16-17 October 2015, Collège de France

Tobias Richter

Ah...Paris. Is there a better city to hold conferences in? The food, architecture and so many museums to choose from. And, last but not least, a vibrant and energetic scene of archaeologists with an interest in all things Neolithic. *From the Caucasus to the Arabian Peninsula: Studying Domestic Spaces in the Neolithic* was organised by Caroline Douché and Fiona Pichon two PhD students from the University Paris 1-Panthéon-Sorbonne and Paris 4-Sorbonne University. Both deserve praise and thanks for professionally organising a two day conference filled with stimulating presentations and discussions. They were supported by an organizing committee of MA and PhD students and the inter-university association Routes de l'Orient, a student run group that organises lectures and conferences, publishes an online journal and conducts outreach activities in schools (<http://www.routesdelorient.org/>).

Twenty three papers and eleven posters were presented in four sessions: Mobility and its Consequences, From Space to Place, Getting Food and Cooking It, and Tools and Craft Production. Geographically the majority of the papers focused on case studies from Turkey, Syria and the Caucasus, while papers and posters discussing case studies from Jordan, Iran, Cyprus and Oman were less well represented. However, roughly 1/5 of all the papers presented dealt with theoretical or comparative perspectives. Given the number of papers it is impossible to give due credit to every paper presented and I will therefore just highlight some key papers and discussions (the detailed program can be found here <https://drive.google.com/file/d/0B-4b5XbnN1IZMSnIUVGZWekhmVnc/view>).

In the first session, Azizi-Kharanaghi et al presented important new evidence for the appearance of the aceramic Neolithic in the Fars province of Iran during the mid 8<sup>th</sup> millennium BC at the site of Toll-e Rahmatabad and suggested a new chronological scheme of development from the aceramic to the ceramic Neolithic in this region. Oussama Baker discussed fascinating new evidence for tuberculosis in the human skeletal remains from Dja'de and Tell Aswad, both of which predate the advent of cattle domestication at these sites.

In the From Space to Place session, Baranski et al re-examined some of James Mellaart's old excavation areas at Çatalhöyük, which were left open and abandoned since Mellaart's last work at the site. Baranski and his co-authors highlighted the difficulties in dealing with old excavation plans and records and showed that discrepancies of up to 2 m exist between plans and the architecture on the ground. This cautionary tale

emphasises the importance of accurate and timely publication of such large scale excavations projects. Kinzel and Baranski presented a thoughtful critique of how archaeologists working in the Neolithic have generally interpreted and dealt with architecture. They argued that 2-dimensional ground plans of architecture can be highly misleading and present a fossilised and partial view of prehistoric architecture. Instead, they made a strong case for considering the dynamics of Neolithic architecture and the need for in-depth architectural study. Focusing on Aşıklı Höyük, Uzundurum and Kalkan presented a highly detailed, one might say forensic, analysis of a small number of the exterior and interior spaces at the site. Their very detailed approach allowed them to differentiate various activities inside and outside houses, suggesting changing patterns over the course of the site's occupation.

In the next session on Getting Food and Cooking it, Amaia Arranz-Otaegui presented her analysis of the macrobotanical materials from Tell Qarassa North, showing that combined study of both wood charcoal and the seed assemblage can yield not just a very nuanced understanding of how plants were used for food, but also their use as fuel, building materials and for medicinal purposes. In a similarly stimulating contribution Douché *et al.* presented a combined study of botanical remains and use-wear analysis of sickle blades to reconstruct plant food procurement strategies at Dja'de in great detail. It is these kinds of studies which combine multiple techniques and methodologies that can yield fascinating new insights into Neolithic subsistence and other practices.

In the fourth and final session on Tools and Craft Production, Metin Kartal presented the fascinating Epipalaeolithic and early Neolithic chipped stone industry from Körtik Tepe, one of the most outstanding early Neolithic sites recently excavated. His preliminary work suggests that there was little change in lithic technology and typology from the final Pleistocene into the early Holocene at the site, suggesting a great degree of continuity in lithic tradition. Bastien Varoutsikos, on the other hand, took lithic analysis to new theoretical heights in his detailed analysis of the Neolithic chipped stone industries of the southern Caucasus to address questions concerning migration, acculturation or local development during the Neolithic.

Many papers in this conference were stimulating and highly interesting and give credit to the work of a new generation of graduate students working on Neolithic topics in southwest Asia. Sadly, it is not possible in the space provided here to give due credit to all the

presenters, but virtually all the papers provided much food for thought, even if they weren't mentioned explicitly here.

During the discussion after the papers and between sessions, the participants discussed a number of areas of mutual concern and debate. Some highlighted problems with interpreting outside spaces as 'public' areas and inside areas as 'private'. Others suggested that the use of terms such as 'household', 'ritual' and 'domestic' are difficult to define in the context of the Neolithic, since all appear to be historically and culturally contingent and are difficult to fix in societies that were evidently very different in practices and beliefs from present day ones. As a point of critique it has to be said that a more focused discussion on these topics,

bringing in the issues of space, place, consumption and production, would have been welcome. While some of these issues were raised, the discussion also showed that there was much disagreement over how these terms should or can be used, and there seemed little agreement about these issues towards the end of the meeting. These are clearly topics where further debate is warranted and this conference made a welcome start to relaunch this discussion amongst the next generation of Near Eastern Neolithic archaeologists.

#### **Tobias Richter**

Department of Cross-Cultural and Regional Studies  
University of Copenhagen  
richter@hum.ku.dk

**Review of Peder Mortensen, *Excavations at Tepe Guran: The Neolithic Period*.** With contributions by Kent V. Flannery and Pernille Bangsgaard. Acta Iranica 55, 2014. (Leuven/ Paris/ Walpole, MA, Peeters. ISBN 978-9042930476) (VII + 145 pages, 108 figs., 1 plate, 8 tables; hardcover 1.3 x 24.8 x 32.4 cm; \$123.05), by **Hans Georg K. Gebel**

This volume is the outcome of a Neolithic sounding carried out by Peder Mortensen in 1963 at Tepe Guran as part of a project of the Danish National Museum, devoted to investigate the "Luristan Bronze cultures" of Western Iran (published as H. Thrane *et al.*, Excavations at Tepe Guran in Luristan: The Bronze Age and Iron Age. 2001. Aarhus, Aarhus University Press) in the early 1960s. The Neolithic sounding revealed an extraordinary long sequence of camp? and village layers and pottery wares, indicating economies based on dry-farming, herding, and hunting between c. 6700-5500 BC using the catchments of the surrounding rivers and mountains. Considering the general orientation of the book, the empirical results on the sounding's finds and findings are embedded in Peder Mortensen's general framework on the Neolithic settlement and subsistence patterns for the Central Zagros, once discussed also with P.E.L. Smith and K.V. Flannery.

The publication of the Late Pre-Pottery to Early Pottery Neolithic site has the classical structure of a final excavation report, starting with a chapter on the site's prehistoric environment (by K.V. Flannery, written in 1965/67); on the 4 x 4 m Neolithic sounding (chapter on the stratigraphy, chronology and architecture); on the finds (chapters on the chipped stone/obsidian industries, pottery, ground and polished stones, bone artifacts, ornaments, figurines and various small objects of clay and stone); and on the faunal remains with a discussion on hunting and early animal domestication at Tepe Guran by K.V. Flannery. Upon request by Peder Mortensen, P. Bangsgaard added an updated note on

K.V. Flannery's early evaluation of the faunal remains. The volume concludes with chapters on the *Neolithic Period in the Hulailan Valley* and *Neolithic Settlement Patterns in Hulailan and Central Zagros*. The volume is very well illustrated and presents excellent artifact drawings.

The chapters of the publication certainly are a document of the research period they represent. Since most of the Neolithic material reached Copenhagen through a division of the finds with the Iranian authority in the 1960s, the question might be asked if Peder Mortensen should not have been supported to organize more material analysis (*e.g.* radiocarbon samples, obsidian provenience, physical anthropology, if available at all in Copenhagen). The final publication on Tepe Guran also does not include sedimentological analysis. Sedimentary environments and site formation research were not among the foci of the 1960s, and their sense might be questioned for a limited site area (the Neolithic sounding represents 0.5% of the site's total area). No general picture about plant use in Tepe Guran was possible (*cf.* the evidence documented stratigraphically by P. Mortensen in H.G. Gebel, *Das Akeramische Neolithikum Vorderasiens*. Beihefte TAVO B52, 1984: 162-164). However, options on additional research are not lost, and it was wise to go pragmatically ahead and publish the long available information.

The chapter on the architecture and stratigraphy documents the evidence of non-solid architecture for Guran Layers V-Q, and of rectangular solid architecture from Guran P-D; pottery occurs from Guran S onwards. Certainly it is difficult to say whether this represents an occupational gap at the site or in a site's area. The chipped flint/obsidian industry (89% flint, 11% obsidian) of Guran V-D is represented by some 1317 pieces, with the flint obtained from the nearby Saimarreh river bed. The description of the primary production should have received a bit more attention, at least for the information available by the many blades and flakes. The share of the bullet cores among the 25



blade cores would have been interesting, including blade length distributions (70% were classified as microblades). The figures for the secondary chipped stone production are presented according to tool classes (altogether 112 flint tools). A seriation diagram documents the distribution of the five pottery wares attested from Guran S-D, showing significant shifts in the sequence from the Greyish-Brown Ware (Guran S) to the Guran Buff and Guran Standard-Painted Wares (Guran R-F) to the Red-Slipped Ware that occurs in Guran G-E. A total of 149 ground stone artefacts (vessels, grinding tools, mortars, pestles, circular disks, polishers) are described, and their presence is shown throughout the levels. The bone and ornament industries are documented as well as the clay animal and female figurines and token-like objects, in addition to a stone phallus.

It was very right to preserve the integrity of K.V. Flannery's 1965/67 manuscript on the faunal remains by publishing it as submitted decades ago, and to ask a respectful comment by a present-day archaeozoologist (P. Bangsgaard); her comments stress the changed criteria of differentiating sheep and goat, add measurements for the Guran sheep, goats and gazelles, *etc.* Melinda Zeder had also published comments on the domestication evidence in the faunal remains of Tepe Guran in 1999, 2002 and 2006. The final chapters on the Hulailan Neolithic and the Hulailan Neolithic settlement patterns reproduce Peder Mortensen's famous diagram about the development of settlement patterns in the Central Zagros between 12,000 BCE and 5,500 BCE (Fig. 108).

The Neolithic research family – especially its Iranian part – is most grateful to Peder Mortensen, now already in his eighties, for finally publishing the excavation after “half a century”. In his preface, Peder Mortensen emphasizes that his exchange with the younger generation of Iranian prehistorians encouraged him to do so. One can understand the sequence of intangible and tangible circumstances that for decades hindered Peder Mortensen from presenting this publication earlier: in the early sixties and the seven-

ties the limited information from a small sounding's stratigraphy (with an unknown representativeness of its samples) might have made Guran a key yardstick of local and regional developments, while a larger research scale could show more gaps in the Guran Neolithic sequence. Actually, by time and research circumstances Guran became a chronological backbone. We should remember that the seventies were the “climax of sounding prehistory” in Iran. Then, with the revolution of the Islamic Republic of Iran, working conditions became difficult for those working there during the *shah* period to test their early results in the field. New regions began to occupy the shifting researchers' attentions and priorities. In addition, the Danish academic system already in these times was controlled by strong administrations that suffocated researchers and their research time. Peder and Inge Mortensen's paths of life then led them to Hama and Damascus, again leaving little time for Tepe Guran. During retirement in Copenhagen, Peder Mortensen consequently followed publication duties, including those from Iran, and great publications are the outcome of this period, such as the one on Bayt al-‘Aqqad or his support for the *Nomads of Luristan* by Inge Mortensen. *Excavations at Tepe Guran* is the latest publication of this devoted spirit, and certainly it is a good example for what we all have to achieve: to bring final results between a book's cover. There we save the (pre-) history which otherwise is lost forever even though it was excavated.

However, information on Neolithic Guran was available for decades in several preliminary reports (page 4, footnote 10 of the publication), but also rather detailed stratigraphic information on hundreds of parameters was provided by Peder Mortensen to H.G. Gebel's *Das Akeramische Neolithikum Vorderasiens* (1984). The publication of Tepe Guran comes right in time for the renaissance of Neolithic research in Iran, also documented by the new home it has received these months: the second storey of the Iran Bastani Museum in Tehran.

# IMMERSED IN LITHICS

**Manchester 25<sup>th</sup> and 26<sup>th</sup> February 2016**

**A conference on innovative approaches to chipped and ground stone artefacts organised by postgraduates from the University of Manchester**

## **First circular and call for expressions of interest**

The conference, organised by a team of enthusiastic postgraduate and other researchers from the University of Manchester, will focus on innovative approaches to the study of raw materials, tool use and technology.

The conference will open on Thursday evening, 25<sup>th</sup> February 2016, with a round-table discussion led by Dr Chantal Conneller with keynote speakers, followed by an informal reception.

Friday (26<sup>th</sup> February) will be devoted to 20 minute papers and posters on innovative approaches to our main topics - raw materials, tool use and technology.

The Manchester Museum is organising a Stone Age Saturday for the following day and conference participants are invited to stay on and partake in this by demonstrating to the public some of the things we can find out about lithics.

We would like to invite expressions of interest and proposals as soon as possible; please email us at [immersed.in.lithics@gmail.com](mailto:immersed.in.lithics@gmail.com).

**The deadline for abstracts will be 6<sup>th</sup> November 2015.**

A (small) conference fee will be payable by all delegates (including speakers); registration will open 15<sup>th</sup> December 2015.

For further information please contact the organisers at: [immersed.in.lithics@gmail.com](mailto:immersed.in.lithics@gmail.com)  
We are grateful for the support of the Lithic Studies Society, Manchester Museum and the University of Manchester.



The University of Manchester



LITHIC STUDIES SOCIETY



The University of Manchester  
Manchester Museum



**Alarashi, Hala**

2014 *The Epipalaeolithic and Neolithic Personal Adornments from Syria (12<sup>th</sup>-7<sup>th</sup> Millennium BC): Techniques and Uses, Exchanges and Identities*, PhD thesis, University Lumière-Lyon 2. Supervisor: Danielle Stordeur

**Abstract**

In this thesis, I explored the place of the personal adornments in the prehistoric societies of the Levant and I discussed their economic and socio-cultural dimensions during the Neolithisation process. Concretely, this study has contributed to a better understanding of the long-distance circulation networks in southwestern Asia, to trace the evolution of the stylistic and technological traditions, to draw the boundaries of certain cultural identities and finally to identify several unknown symbolic functions related to this category of objects.

The results of this research were based on the analysis of 2650 items recovered from six Syrian sites: Tell Mureybet, Jerf el-Ahmar, Dja'de el-Mughara, Tell Aswad, Tell Halula and Tell Abu Hureyra, dating between 10,200 and 7,000 calBC. These dates correspond, in chronological terms, to the Late Natufian, Khiamian, PPNA and PPNB periods.

The Epipalaeolithic and Neolithic personal adornments are characterized by a large diversity of raw materials, types and sizes that have involved multitudes of technological processes. They were discovered in various archaeological contexts: burials, habitats, hiding places, "collective buildings", walls, hearths, rubbish areas, etc. To take into consideration this great diversity of the intrinsic and extrinsic characteristics of the items, I developed an integrative methodology combining four approaches based on the main phases of the "*Chaîne opératoire*": conception, acquisition, transformation and consumption.

I-Conception: this approach refers to the artistic and esthetical "project" which is revealed by the final morphology of the item. To explore this issue, I established a hierarchical typology taking into consideration the general shape and the dimensions of the items on the one hand, and the number, location and length of the perforations on the other hand. Applying this approach, it was possible to identify 19 anatomic, 48 geometric and two particular types;

II-Acquisition: This approach deals with the chemical and physical proprieties of the raw materials used and with their geographical distribution. All the mineral and animal hard tissue materials were identified and classified according to their origin (autochthonous or allochthonous). The taxonomical identification of shells, bones and teeth evidenced the exploitation of more than 35 animal species for bead and pendant making. Based on the chemical and crystallographic data, eight mineral classes have been identified (more than 25 varieties of stones);

III- Transformation: According to the material and the type, one or more stages of transformation was necessary.

These stages include the extraction of the material, the "débitage", the shaping, the perforation and the finishing. One or more technological sequences can be counted in one stage of transformation. With this approach I tried to identify the different techniques employed within the technological sequences and then to identify the order of the stages and the whole process of fabrication. To answer specific questions regarding the manufacturing of beads made from silica rocks (*e.g.* carnelian), I developed several protocols based on microscopic imagery analysis and on experimentations, to observe the abraded and polished surfaces and the trajectory and typology of perforations. The manufacturing processes of many items, such as the cowry shells, the tiny discoid stone beads and the so called "butterfly beads" were reconstructed and explained;

IV- Consumption: This approach intends to trace the history of the items after their fabrication based on the use wear analysis, the composition of the whole ornament and the study of archaeological contexts of these finds. The stringing systems of some stone pendants as well as the fixing methods of the cowry shell were reconstructed too. The composition of belts, necklaces, head ornaments and bracelets have been proposed using additional criteria such as the typological uniformity or diversity, colors, sizes, number of items and symmetry within the ornament.

The first analyses considered the assemblages individually according to the site. Thus, the personal adornments of each studied site have been characterized. The obtained results were then treated from a synchronic and diachronic point of view along with a large comparative study with ornaments found in contemporaneous settlements in the Near East. This allowed characterizing the ornamental traditions in the Levant, main aspects of which can be summarized as follows.

It was shown that if stones, shells and bones have been exploited for making personal adornments since the Epipalaeolithic period, stones progressively took on greater importance during the Pre-Pottery Neolithic. The use of mineral materials first increased significantly during the PPNA, simultaneously with the important innovations occurring in lithic industry and with the emergence of the spectacular "communal buildings" (*e.g.* Tell Mureybet, Jerf el-Ahmar) in the Middle Euphrates valley. Later, starting from the Middle PPNB, when food-producing economies were well set up, a second threshold was reached with the introduction of new minerals such as the "semiprecious" stones (carnelian, agate, turquoise, amethyst, amazonite, *etc.*), whose first uses should be dated back to the late 9<sup>th</sup> millennium calBC. The use of shells, and particularly those from marine origins, increased during the Middle PPNB, whereas animal bones and teeth progressively lost the important place they had for personal adornments until the Early PPNB. These changes are intimately related to the relative proportions of autochthonous and allochthonous origins of the materials, especially in regards to stones and shells. Indeed, regularly present in small proportions during the Epipalaeolithic, the allochthonous materials

became more frequent during the Pre-Pottery Neolithic. Circulation spheres of raw materials/or finished items also experienced changes during the Neolithisation. In early times, the circulation networks were limited to the northern Near East including northern Syria, Anatolia and the upper course of the Tigris valley. For example, during the PPNA, ornaments, vessels, sticks, engraved stones and raw materials exploiting diverse ophiolitic rocks (e.g. chlorite, serpentine, talc) remained among goods that were exchanged between the Euphrates and the Upper Tigris valley along with obsidian from the oriental sources near Lake Van. During the PPNB, especially from the Middle PPNB onwards, the circulation sphere is much more extended and includes, in addition to the previous regions, the central and southern Levant down to the Red Sea. This is particularly attested by the high frequencies of Red Sea shells (*Cyprea*, *Nerita*) and beads made from amazonite and turquoise that probably originated from southern Levant (Wadi Rum and Sinai Desert).

Such an evolution in raw material procurement had obvious repercussion on the choices regarding the forms and on the emergence of new types. Within the typological class of pendants, the longitudinal and grooved pendants are characteristic of the PPNA communities of the Middle course of the Euphrates. They were no longer in use in the following periods. The so-called “butterfly” beads appear clearly during the Early PPNB, but their first emergence as simple flat beads can be dated back to the Khiamian period. They became characteristic of the Middle and Late PPNB and remained in use during the Pottery Neolithic and the Chalcolithic.

From a technological point of view, important innovations have been recorded during the PPNB. Some of them were dedicated to the improvement of technological processes, tools and mechanical devices allowing more efficient work, such as processing a series of items (e.g. abrasion of several shells or beads at the same time). The introduction of hard stones such as quartz, carnelian or amazonite certainly contributed also to the improvement of the technological performances, especially for shaping and perforating flat long beads.

Through the study of the archaeological contexts and the reconstitution of some ornaments, the functions of these objects have been partly addressed. Thus, during the PPNA, the ornaments expressed a social and cultural group affiliation, while from the Middle PPNB onwards they were also associated with death and to particular funeral rituals. Furthermore, it was shown that ornaments in the early Pre-Pottery Neolithic period could have had ritual functions related to religious symbolism, especially those involving aurochs bucrania. Later, during the PPNB, personal ornaments become more frequently associated with the dead and were themselves part of special funerary practices, such as the anthropomorphic pendants systematically broken at the proximal part, suggesting symbolic ritual of head removal.

The hypothesis proposed by this work offers promising research perspectives that can be explored by extending the corpus to adjacent areas (Anatolia, Jordan, etc.) and later periods.

### Hala Alarashi

Archéorient-UMR 5133, Maison de l’Orient et de la Méditerranée, 7 rue Raulin, 69007, Lyon, France  
hala.alarashi@free.fr

### Khawam, Rima

2014 *L’homme et la mort au Néolithique précéramique B: l’exemple de Tell Aswad*, Lyon, Université Lumière Lyon 2: unpublished PhD thesis, submitted in 2014. Supervisor: Danielle Stordeur.

### Résumé

Tell Aswad, situé à environ 30km à l’Est / Sud-Est de Damas, est un grand tell d’environ 6 hectares qui ne dépasse de la grande plaine lacustre qui l’entoure que de 4,50 m. Tell Aswad date entièrement du Néolithique Précéramique B (entre 8200 et 7500 av. J.-C.) et c’est un site de référence pour le Levant Central. Ses habitants, complètement agriculteurs/éleveurs, montrent des liens entre les populations et les cultures du Levant Nord et Sud. Les niveaux attribués à l’horizon PPNB ancien lui donnent une grande importance pour la préhistoire régionale. Ainsi, ce site offre une documentation rare qui peut être utilisées pour la recherche des origines du PPNB dans la région et pour reconstruire les identités culturelles qui lui correspondent. Il a livré une riche documentation sur les pratiques funéraires. Répartis sur presque la totalité de son occupation, plus de 119 individus ont été découverts. On observe une continuité diachronique des pratiques funéraires tout au long de l’occupation, celles-ci étant issues d’une tradition ancestrale. Elles révèlent le recours aux funérailles uniques mais se spécifient par des funérailles multiples, à travers le prélèvement des crânes sans distinction liées au genre ou à l’âge. Chacun de ces deux modes résulterait d’un choix imposé et sélectif issu du système social (hiérarchisé), indiquant la manière dont le défunt doit être inhumé. Les différents traitements des crânes prélevés, dont le surmodelage, correspondraient à des «rituels» et pratiques funéraires hautement culturalisées. Ces dernières témoignent de l’ordre social et de l’intégrité du groupe, et matérialisent l’un des traits majeurs de l’identité culturelle des sociétés Néolithiques du PPNB à Tell Aswad.

Le but de cette thèse est de renouveler le débat en confrontant les nouveaux résultats et interprétations de Tell Aswad aux données déjà anciennes. En effet, les découvertes des crânes isolés et surmodelés à Tell Aswad en 2003 et en 2006 (Stordeur, 2003, Stordeur *et al.*, 2006, Stordeur et Khawam, 2007) se caractérisent par leurs contextes collectifs purement funéraires, particulièrement bien conservés.

Dans la plupart des sites PPNB moyen ou récent du Levant Sud, ce contexte est de caractère collectif. La pratique des crânes surmodelés est donc un acte d’abord collectif (Stordeur et Khawam, 2007).

Sur le plan technique les crânes surmodelés de Tell



Aswad, attribués au début de la phase récente du PPNB, montrent une évolution dans leurs modes de fabrication (entre les niveaux B0 et B-5)<sup>1</sup>. Les crânes surmodelés du niveau B-5 montrent le recours à la reconstruction faciale, par le modelage des traits du visage et d'un socle, opérations qui ont lieu avant d'appliquer la couche de surmodelage. Ces gestes ont permis d'éviter le problème d'un décalage possible entre l'os et le surmodelage et ils ont permis, de ce fait, de se rapprocher de la morphologie du portrait du défunt. Le savoir-faire qui se révèle dans les crânes surmodelés de l'aire funéraire la plus récente est d'une grande performance, avec des résultats très réalistes et naturalistes.

Par ailleurs, l'expression des visages n'a pas changé d'un niveau archéologique à l'autre. C'est celle de visages endormis, aux sens inactifs, autant pour le nez, que pour la bouche et les oreilles. L'objectif est de plonger dans un univers où la mort est définitive, avec des visages sans vie. Néanmoins ces visages conservent leur dernière image, préservée et entière. C'est celle d'une présence/absence du défunt avant que le processus de décomposition ne se soit déclenché. En retenant cette image de mort certaine, l'application de la couleur se révèle emblématique. Le recours à l'utilisation de deux couleurs différentes selon le genre dédouble le symbole. Les aspects morphologiques des visages, leur expression parfois douce et féminine ou plus masculine, nous ont influencés pour penser au possible symbole que la couleur pourrait avoir eu.

Les différents états de détériorations des enduits, nous ont fourni (parmi d'autres) un argument pour proposer que l'enterrement définitif des crânes se soit produit alors qu'ils étaient déjà dégradés. Ce qui incite à les considérer comme des objets manipulés pendant des rituels funéraires (pratique connue en ethnographie), jusqu'au moment de leur enterrement. Ce qui est complètement justifiable suite à la disparition d'un être cher et le chagrin que ça peut provoquer. Mais outre ce que nous supposons ici, sur le plan du sentiment, c'est sur la dimension sociale qu'il faut insister. Ces gestes sont d'autant plus probables et explicables lorsqu'il s'agit de l'élite sociale. Les fortes impressions qu'ils produisent sont à replacer au sein d'une communauté, d'une vie collective organisée. Si la pratique du surmodelage des crânes à Tell Aswad contribue à « embellir » la mort, et l'a rendre plus acceptable, c'est dans le cadre de la mémoire collective que l'hommage prend toute son importance.

L'étude de l'organisation spatiale des sépultures au cours de l'occupation PPNB de Tell Aswad, révèle un changement des lieux d'inhumation, depuis l'inhumation à l'intérieur de la cellule familiale dans des maisons, jusqu'à la conception de lieux spécifiques dédiés aux pratiques funéraires.

Par exemple, à l'échelle d'une maison, l'organisation des sépultures est planifiée parallèlement au mur dans une maison (EA24) à la phase ancienne. À la phase moyenne, la rareté des vestiges annonce le début de la séparation entre habitat et aires funéraires, séparation qui s'affirmera dans les niveaux récents. À la phase récente du

PPNB à Tell Aswad, l'établissement des aires funéraires aux niveaux B 0, B -2 et B -5 ne traduit pas seulement une volonté d'établir un espace dédié aux morts, mais tout un monde de pratiques et de rites funéraires qui se déroulent lors des cérémonies mortuaires. Cette idée est renforcée au niveau B0 par la présence de foyers contenant des restes d'ossement d'animaux et de végétaux qui ont été interprétés comme des offrandes. Une figurine féminine de type Ain Ghazal dans un des foyers du niveau B-2 est chargée de sens dans un contexte qui présente des sépultures d'enfant et de sujet périnataux. Et enfin un crâne humain avec des côtes de bœuf dans un foyer (au niveau B-5) fait partie des traitements différenciés du prélèvement du crâne humain à Tell Aswad. On peut considérer ces os comme un matériel utilisé lors des rituels funéraires, symboliques sur le monde de la mort au PPNB. L'ensemble des gestes et l'organisation de chacune des aires funéraires nous induisent à les concevoir comme étant des lieux, voire même des monuments consacrés à la mémoire collective.

### Endnote

<sup>1</sup> Il s'agit des cinq derniers niveaux de l'occupation du site de Tell Aswad dans le secteur B.

### Abstract

Tell Aswad, located 30 km east-southeast of Damascus, is a nearly 6 hectares tell not exceeding 4.5 meters height above the great surrounding lacustrine plain. The whole stratigraphy of the site dates from PPNB (8200-7500 BCE) and is a reference site for the central Levant because of the farmer/herder population that shows connections between the southern and northern Levant. The ancient PPNB levels give to the site an important historical status on a regional level. Thus, Tell Aswad offers us a rare documentation for a better understanding of the PPNB period origins in the area and the corresponding cultural identities. The data are especially rich for the funeral practices. More than 119 individuals have been excavated spread across the entire occupation. Our results indicate the presence of a diachronic continuity of the funeral practices throughout the occupation due to an ancestral tradition. They reveal the use of simple burials but also specifically in the multiple burials by means of the skull removal. Both models result from a selective choice imposed by the social system (hierarchical), indicating how the deceased had to be buried. The variability in the skull treatment, including the modelled skulls, corresponds to "ritual" and funerary practices of a highly developed culture. They reflect a social order and a group integrity materializing one of the major features of the cultural identity of Neolithic PPNB society in Tell Aswad. Studying the spatial organization of the burials during the PPNB occupation of Tell Aswad reveals changes in burial sites, from burials in the house inside the family unit, then later the establishment of a

specific area dedicated to funerary practices. The spatial organization of these areas becomes for our research a supplementary testimony of the social organization in the site.

**Keywords:** Tell Aswad, Pre-Pottery Neolithic B (PPNB), Central Levant, funerary practices, ancestral traditions, simple burials, multiple burials, individual selection, isolated skulls, modelled skulls, cultural identities, social organization.

### Rima Khawam

Vice Directeur du Département des Fouilles et des Études Archéologiques Conservatrice du Département du Préhistoire au Musée National de Damas  
Direction Générale des Antiquités et des Musées de Syrie, Rue Qasr el Hir, Damas, Syrie  
rimakhawam@hotmail.com

### References

- Stordeur D.  
2003 Des crânes surmodelés de Tell Aswad (PPNB, Syrie). *Paléorient* 29(2): 109-116.
- Stordeur D. and Khawam R.  
2007 Les crânes surmodelés de Tell Aswad (PPNB, Syrie). Premier regard sur l'ensemble, premiers réflexions. *Syria* 84: 5-32.
- Stordeur D., Jammous B., Khawam R., and Morero E.  
2006 L'aire funéraire de Tell Aswad (PPNB). In: Huot J.-L. and Stordeur D. (eds.), *Hommage à H. de Contenson I.* *Syria* 83: 39-62.

## Call for a Peer-Supported Data Base: The Near Eastern Sling Ball Short Information Sheet

Barbora Kubíková, Centre of Prehistoric Archaeology of the Near East, Masaryk University

This is a call for a peer-supported data base for prehistoric Near Eastern sling balls, operated as a Google form.

While working on my master's thesis on prehistoric sling missiles in the Near East at the Department of Prehistoric Archaeology of the Near East at Masaryk University in Brno, Czech Republic, I recognized the need for a comprehensive collection of data for this group of objects; often they are neglected and insufficiently described in the literature. The data bank should comprise all spherical and sub-spherical clay and stone objects which may have been sling balls/missiles, and for which no other firm interpretation exists. The data bank will be maintained and accessible beyond the aims of the master's thesis. The thesis, however, aims to analyse the distribution of sling missile evidence period-wise, and thus needs as many entries as possible (cf. the short list of characteristics (form) below. I am kindly asking you to fill up the attached questionnaire at:

<http://goo.gl/forms/Mcm9XzdohS>

For the beginning, it is sufficient if you react by providing basic information, marked by an \*). Thank you very much for your help in my research, and for joining the peer data bank.

*Near Eastern Sling Balls Data Base*  
organised by Barbora Kubíková  
Centre of Prehistoric Archaeology of the  
Near East at Masaryk University in Brno,  
Veveří 26-28, 602 00 Brno, Czech Republic  
barbora.kubikova.89@gmail.com

### Parameters of the Sling Ball Questionnaire/ Information sheet

Site name (Project name): \*

Contact partner: \*

Site's georeferences:

Site's location: \*

Period(s) having sling balls attested: \*

Layer / locus reference for sling ball assemblages:

Contextual information of sling ball assemblages:

Published reference made to sling ball findings: \*

Preliminary information on sling balls: (please, tick appropriate) \*

Yes, I would like to contribute more

No, I will not contribute more

Raw materials of produced sling balls: \*

Non-formal sling ball raw materials, geofacts (specify minerals): \*

Shapes:

Comments:



**Tell Ṭawīla, Tell Ḥalaf und Wādī Ḥamar: Ḥalaf- und 'Obēd-Zeit in Nordost-Syrien.  
Regionale Entwicklungen, Gemeinsamkeiten und Unterschiede**

by Jörg Becker (with contributions by Kirsten Drüppel and Markus Helfert).  
bibliotheca neolithica Asiae meridionalis et occidentalis (2015)  
(XXIV+808 pages, 200 figs., XX+170 plates, 8 photo plates (incl. 22 colour pages/  
illustrations, 2 hardcover volumes - 245 Euro) [ISBN 978-3-944178-08-0]

**BAND 1: TEXT**

VORWORT  
ABBILDUNGSVERZEICHNIS / FIGURES  
TAFELVERZEICHNIS / PLATES  
FOTOTAFELN / FOTO-PLATES  
BEILAGEN / ADDENDA

- 1 EINLEITUNG
- 2 AUSGRABUNGEN IN TELL ṬAWĪLA
- 3 SIEDLUNGEN DER ḤALAF- UND 'OBĒD-ZEIT IM WADĪ ḤAMAR
- 4 AUSGRABUNGEN IN TELL ḤALAF
- 5 ARCHITEKTUR UND SIEDLUNGSSYSTEME DER ḤALAF- UND 'OBĒD-ZEIT IN NORDMESOPOTAMIEN
- 6 ZUM KULTURELLEN WANDEL VON DER ḤALAF- ZUR 'OBĒD-ZEIT IN NORDMESOPOTAMIEN
- 7 NATURWISSENSCHAFLICHE UNTERSUCHUNGEN DER KERAMIK
- 8 ZU RITUELLEN PRAKTIKEN DER ḤALAF- UND 'OBĒD-ZEIT
- 9 GESELLSCHAFTSENTWICKLUNG VON DER ḤALAF- ZUR 'OBĒD-ZEIT IN NORDMESOPOTAMIEN
- 10 ERGEBNISSE ZUR ḤALAF- UND 'OBĒD-ZEIT IN NORDMESOPOTAMIEN ANHAND DER UNTERSUCHUNGEN IN TELL ṬAWĪLA, IM WADĪ ḤAMAR UND IN TELL ḤALAF / RESULTS FOR THE HALAF AND UBAID PERIODS IN NORTHERN MESOPOTAMIA FROM THE RESEARCH AT TELL TAWILA, WADI HAMAR AND AT TELL HALAF
- 11 BIBLIOGRAPHIE

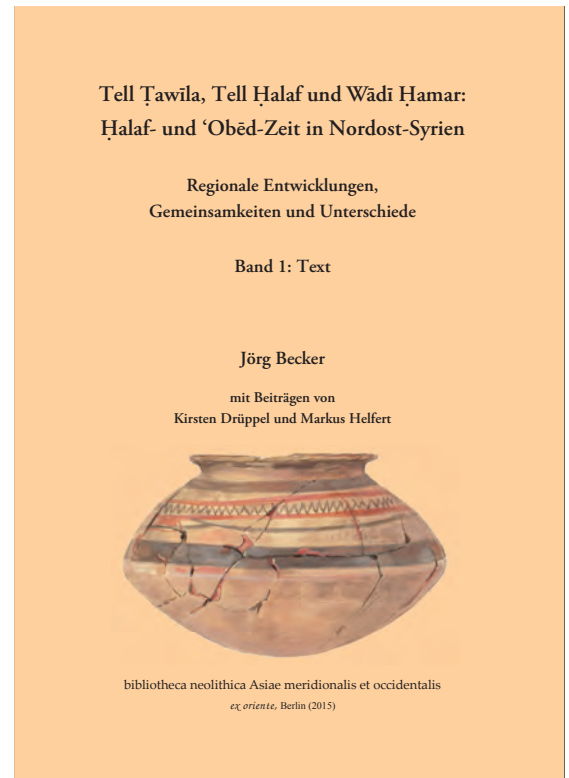
**BAND 2: KATALOG UND TAFELN**

APPENDIX I: Tabellarische Übersicht der bemalten Motive aus Tell Ṭawīla

APPENDIX II: Tabellarische Übersicht zur Verteilung der Ḥalaf- und 'Obēd-Keramik im Wādī Ḥamar

KATALOG DER ḤALAF- UND 'OBĒD-KERAMIK

Abkürzungsverzeichnis  
Konkordanz der Farbwerte



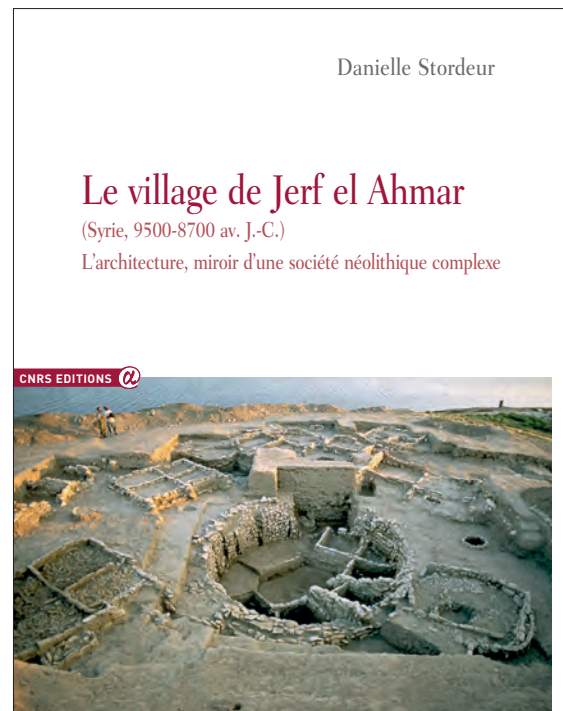
**Le village de Jerf el Ahmar  
(Syrie, 9500-8700 avant J.C.)  
L'architecture, miroir d'une société  
néolithique complexe**

by Danielle Stordeur, 366 pages,  
2015, Paris, CNRS Editions.  
ISBN 978-2271087409

On the right bank of the Euphrates in northern Syria, the prehistoric village of Jerf el Ahmar (9500-8700 cal BC) was discovered in 1989. Witnessing a primitive form of agriculture, it has become one of the key-sites for the « Neolithic Revolution ». In an exceptionally creative environment, its architecture reached an unprecedented high level of sophistication. In her publication, Danielle Stordeur, head of the excavation until the floods of the Tichrine Dam submerged the site in 1999, explores the architectural changes of this early Neolithic site. The aim of the book is to highlight the increasing diversity of the constructions and the increasingly sophisticated planning of the village, which in turn reveal changes in the site's social organisation.

In the first part, the author analyses the constructions in regard to three aspects: the building techniques used, their form and their functions. The second part is concerned with the village and its transformations. From one period to the next, the preparation of the terrain became more collectively organised, communal spaces increased, communal buildings were constructed, and social differentiation emerged.

The occupation of the place was continuous, features of transmission and memory can be observed, even after the site's total destruction by a blaze. The third and last part of the book concludes with taking up the challenge that has been at its origin – to demonstrate how clear evidence of social transformations can be detected in architecture in a time without writing.



Préface - Jean Guilaine  
Introduction

**PREMIÈRE PARTIE  
LES CONSTRUCTIONS**

Chapitre I. Techniques de construction  
Chapitre II. Conception des constructions. Une typologie des structures  
Chapitre III. Équipements et activités domestiques  
Conclusion

**DEUXIÈME PARTIE  
CONCEPTION ET STRUCTURATION DE  
LESPACE CONSTRUIT. VIE ET MORT  
DES VILLAGES SUCCESSIFS**

Chapitre IV. Préparation, conception et utilisation de l'espace construit  
Chapitre V. Vie et mort des villages successifs. Continuité et ruptures. transformations de l'espace construit

**TROISIÈME PARTIE**

Chapitre VI. Synthèse. L'architecture, miroir d'une société néolithique complexe

Conclusion  
Bibliographie

*Editorial Board*

Co-Editors  
Marion Benz, ex oriente, Berlin  
Hans Georg K. Gebel, ex oriente and Free University of Berlin  
Dörte Rokitta-Krumnow, ex oriente, Berlin

Founding Co-Editor  
Gary O. Rollefson, Whitman College, Walla Walla

*Advisory Board*

Ofer Bar-Yosef, Harvard University  
Didier Binder, C.N.R.S., Valbonne  
Ferran Borrell, CRF Jerusalem (CNRS)  
Frank Hole, Yale University  
Tobias Richter, Copenhagen University  
Hans J. Nissen, Freie Universität Berlin  
Mehmet Özdoğan, University of Istanbul  
Danielle Stordeur, Archéorient, CNRS, Jalès

---

*Submissions* NEO-LITHICS, Dr. Marion Benz / Dr. Hans Georg K. Gebel / Dr. Dörte Rokitta-Krumnow  
ex oriente, c/o Free University of Berlin, Fabeckstr. 23-25, 14195 Berlin, Germany,  
Emails: benznm@hotmail.com · hggebel@zedat.fu-berlin.de · d.rokitta-krumnow@gmx.de, Fax 0049 30 98 311 246.

*Orders (New Subscriptions, Payment of Subscription Renewal, Back Issues)*

New subscriptions: via <https://www.exoriente.org/bookshop/>

Payment of Subscription Renewals: via <https://www.exoriente.org/bookshop/> (please, mention the invoice number under Message to ex oriente Bookshop from Customer in the shopping basket) or send credit card details (card type -Visa or Master-, cardholder name, credit card number, expiry date, CVV number) to ex oriente Fax 0049 30 98311246 or by letter to ex oriente, c/o Institute for Near Eastern Archaeology, Fabeckstr. 23-25, 14195 Berlin, Germany.

Back Issues before 2010: can be downloaded from [www.exoriente.org/downloads/neolithics.php](http://www.exoriente.org/downloads/neolithics.php)

*Subscription*

Minimum of three years subscription requested = 6 issues, c. 40-50 pages each, 66 Euro for 6 issues/ minimum subscription period (postage included); back issues available; members of ex oriente receive Neo-Lithics free of charge (included in the annual membership fee: 40 Euro for employed members, 15 Euro for students/ unemployed members).

*Deadlines* twice a year: 15th of May and 15th of November

*Submission Guidelines*

Text formats: in Word without formatting; for the general style of text, bibliography, and captions consult this or a recent issue of Neo-Lithics - Illustration formats: individual EPS, TIFF- files or JPEG in high resolutions; illustrations should not be embedded in the Word file. Please, sent a hard copy of the manuscript in case of complex contributions; keep bibliographic references to the utmost minimum. Authors are obliged to present with their submissions formal letters of agreement by copyright owners if they use illustrations, texts, materials, or ideas from oral presentations obtained from sources not their own. Captions of photo and graphic illustrations must mention the author(s) of the photo or graph, even if rights for these are in the hands of the institution providing these materials for publication.

ex oriente respects UN resolutions as well as the project permits of antiquities departments and or the ethics of funding institutions. ex oriente does not publish data obtained in occupied territories or assists the publication of field data not covered by a permit.

*Subscription Information*

In the upper right part of the address field (envelope) you will find the issue mentioned until which (included) you paid your subscription. If you find an invoice with this issue, a renewal of subscription is necessary for the next three years / 6 issues. If an invoice is not paid after two months it is understood that a prolongation of the subscription is not desired, and no further issues will be send.

*Copyright Note*

Authors of Neo-Lithics receive a PDF file of their individual contribution upon publication. Please, understand that your contribution is subject to the copyrights of ex oriente Publishers. However, you are licensed to circulate the pdf file of your contribution privately, but beyond this we ask you not to publish it (or parts of it) in the World Wide Web, or in any other form without our prior permission.

Neo-Lithics is published and distributed by ex oriente, Berlin.

Printing House: dbusiness, Berlin - © ex oriente e.V., Berlin - ISSN 1434-6990