

Obituary

Sytze Bottema

Field Reports

Fujii, Wadi Abu Tulayha

Bartl, Hijazi & Haidar, Shir

Makarewicz & Austin, el-Hemmeh

Ronen, Bar-Oz & Nadel, Burgata-Eli

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The Newsletter of
Southwest Asian Neolithic Research

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Editorial

Since we began publishing *Neo-Lithics*, we were not comfortable with political country names and borders in titles and illustrations. All over the Middle East we have disputed frontiers of countries and districts, be they ethnic, tribal or international borders. It has always seemed problematic to passively arouse such issues, especially since they are unnecessary and have nothing to do with a piece on prehistoric times. Thus we and *ex oriente* have decided that from 2007 onwards we will not publish modern country names or borders in titles and illustrations, etc. We kindly ask all authors not to submit material containing such information, and suggest that locations be

indicated by mentioning regions (*e.g.*, Mureybet, Middle Euphrates; Ramat Tamar, Southeastern Dead Sea; Hamim, Greater Liwa Oasis, etc.), nearby cities, etc. In this way, *ex oriente* tries to depoliticize information on the Neolithic. We kindly ask authors for a broad support of this policy.

We hope to see as many of you as possible at our next (6th!) International Conference on PPN Chipped and Ground Stone Industries, to be hosted in Irbid and Wadi Musa by Yarmouk University from March 18 - 23, 2007. Let us hope for a fruitful gathering without borders,

Hans Georg K. Gebel and Gary O. Rollefson

In Memoriam Sytze Bottema

Last year we lost one of the pioneers on the study of the Eastern Mediterranean and Near East vegetation in the late Pleistocene and Holocene, Professor Sytze Bottema, who died at an age of 68. He suffered for several years from Multiple System Atrophy, a disease which affected more and more of his functions. It first halted his beloved daily bird observation ride by bicycle, which led him through rain and snow and against the generally adverse winds in the Netherlands from his farmhouse to the institute. But still, the disease could hardly affect his keen spirit and humorous temper.

Sytze Bottema started to work as a palynologist at the former Biological Archaeological Institute (now Groningen Institute of Archaeology) in 1963. The main focus of his research lay in the Eastern Mediterranean, the Near East and his spiritual home of the northern Netherlands. But being a generalist, he also studied and published in other fields of research, such as archaeozoology and animal behaviour. From the results of the coring expeditions, especially in Greece, Turkey, Syria and Iran, Bottema, partly together with Professor van Zeist and Henk Woldring, laid the base of our knowledge on the vegetation history of these areas. His special interest was climatic development since the Last-Glacial and the first and ongoing human impact on the vegetation in this cradle of agriculture. He always emphasized the importance of the knowledge of the dynamics in modern vegetation for the interpretation of the results from the fossil assemblages in the cores and the final reconstruction of past environments. For his excellent research Bottema received an extraordinary professorship at Leiden University in 1993 and at Groningen University in 1994. From 1995 onwards, he was visiting professor at Leuven University.

He brought his knowledge of past vegetations and environments into publications and expert advises on nature conservation in the Netherlands, always wondering at the bureaucracy, with a regional management plan for every square meter of nature reserve.

Besides being a scientist, he personified in his hobbies the farmer, the hunter – and even the gatherer in his Frisian passion for seeking the eggs of lapwings. On his hospitable farm he kept many rare domestic breeds, ranging from geese, which did not always behave that pleasantly, to gracious and good looking breeds like the Lakenfelder cow. He was one of the founders of a Dutch organization for the preservation of endangered domestic breeds. During his expeditions, Bottema always practised his maxim which stated that all over the world it is



Sytze Bottema
6 October, 1937 – 21 November, 2005

no problem for farmers at all to communicate, even if they speak different languages.

He incorporated many of his observations and experiences from field work, his farm and nature conservation in his research. In this way he was able to assay theoretical models for the past on their practical relevance.

It is to his merit that he succeeded in handing on his own position for a successor to guarantee at least some continuity in the leading role of the environmental sciences at the Groningen Institute of Archaeology.

Sytze Bottema will be kept in mind as an unconventional and original scientist, who will be missed by students and colleagues.

Reinder Neef
German Archaeological Institute, Berlin

Bibliography of Sytze Bottema, cf.:
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in *Palaeohistoria* 45/46 (2003-2004), 3-10.

A PPNB Agro-pastoral Outpost at Wadi Abu Tulayha, al-Jafr Basin

Sumio Fujii

Faculty of Letters, University of Kanazawa <fujii@kenroku.kanazawa-u.ac.jp>

Introduction

Wadi Abu Tulayha, or JF-0155 in the registration code of JBPP (*i.e.*, the Jafr Basin Prehistoric Project), is a small composite site lying in the northwestern part of the al-Jafr basin, southern Jordan (Fig. 1). It was found for the first time during our 2001-2002 winter season survey and has been briefly referred to elsewhere (Fujii 2006a; Fujii and Abe 2006).

To date, the investigation has been conducted three times, in the spring and summer seasons of 2005 and the spring season of 2006. The topographic survey and brief soundings, both conducted in the first season, have shown that this site, covering an area of *ca.* 1.5 ha, consists of the following three distinct components: 1) a sizable PPNB outpost occupying the northwestern corner of the site; 2) a pair of Early Bronze Age cist enclosures overlying the PPNB outpost; 3) a long, roughly V-shaped freestanding wall extending to the southeast of the PPNB outpost (Fig. 2). The second season was focused on the first component (*i.e.*, the PPNB outpost), the western half of which has been fully excavated. As a result, this outpost has proved to be dated to the Late PPNB period on the basis of lithic evidence, the frequency of Amuq points in particular. It has also provided a key to tracing the pastoral nomadization in the al-Jafr basin as far back

as to its very beginning. The spring season of 2006 dealt with the third component (*i.e.*, the V-shaped masonry wall), which has proved to be a barrage system roughly coeval with the PPNB outpost¹). Owing to limited space, this paper will focus on the first component, leaving the others to another occasion.

The Site Setting

The al-Jafr basin, our research field containing Wadi Abu Tulayha, is a large closed drainage system that occupies the southern end of the Transjordanian plateau. Though seemingly sterile in an archaeological sense, this arid basin is highly important in that it has the potential to have formed a setting of pastoral nomadization derived from the PPNB (semi-)sedentary agro-pastoral settlements to the west including Beidha, Basta, Ba'ja, Basit, and Shkârat Msaied.

The site of Wadi Abu Tulayha, our main concern, is located in the middle of *Hamada*, flint pavement desert, that extends in the northwestern part of the basin. Topographically, it lies on a gently rolling plain that extends between the two major drainage systems in this area: Wadi Abu Tulayha to the east and Wadi Ruweishid ash-Sharqi to the west. Hydrologically, it belongs to the former drainage system through a small tributary flow-

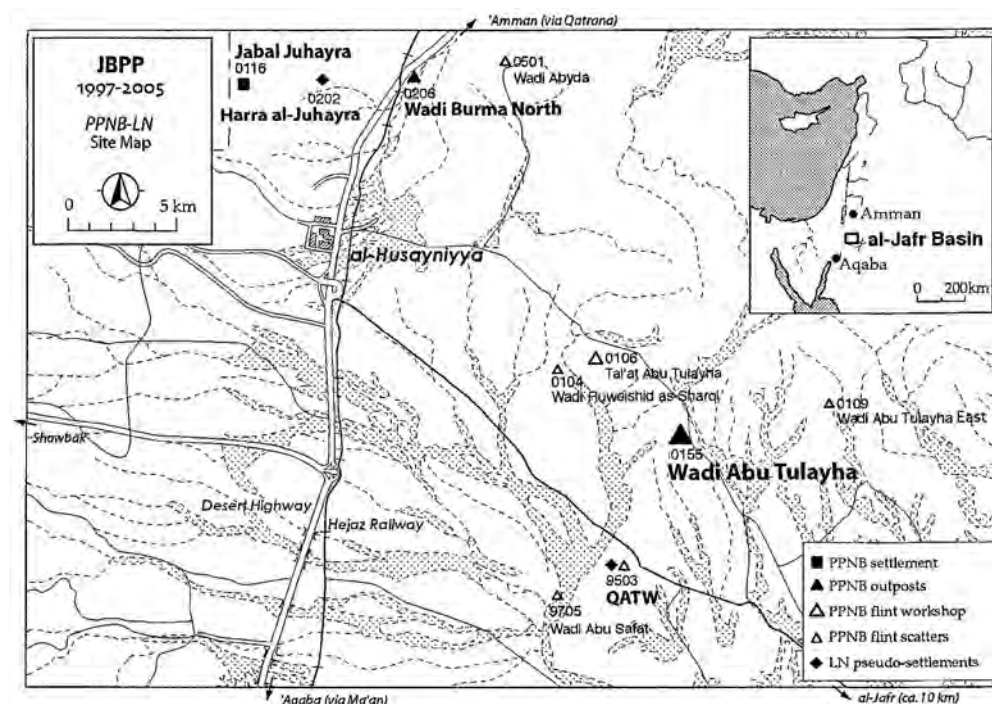


Fig. 1 The al-Jafr Basin: the site map of the PPNB-LN sites.

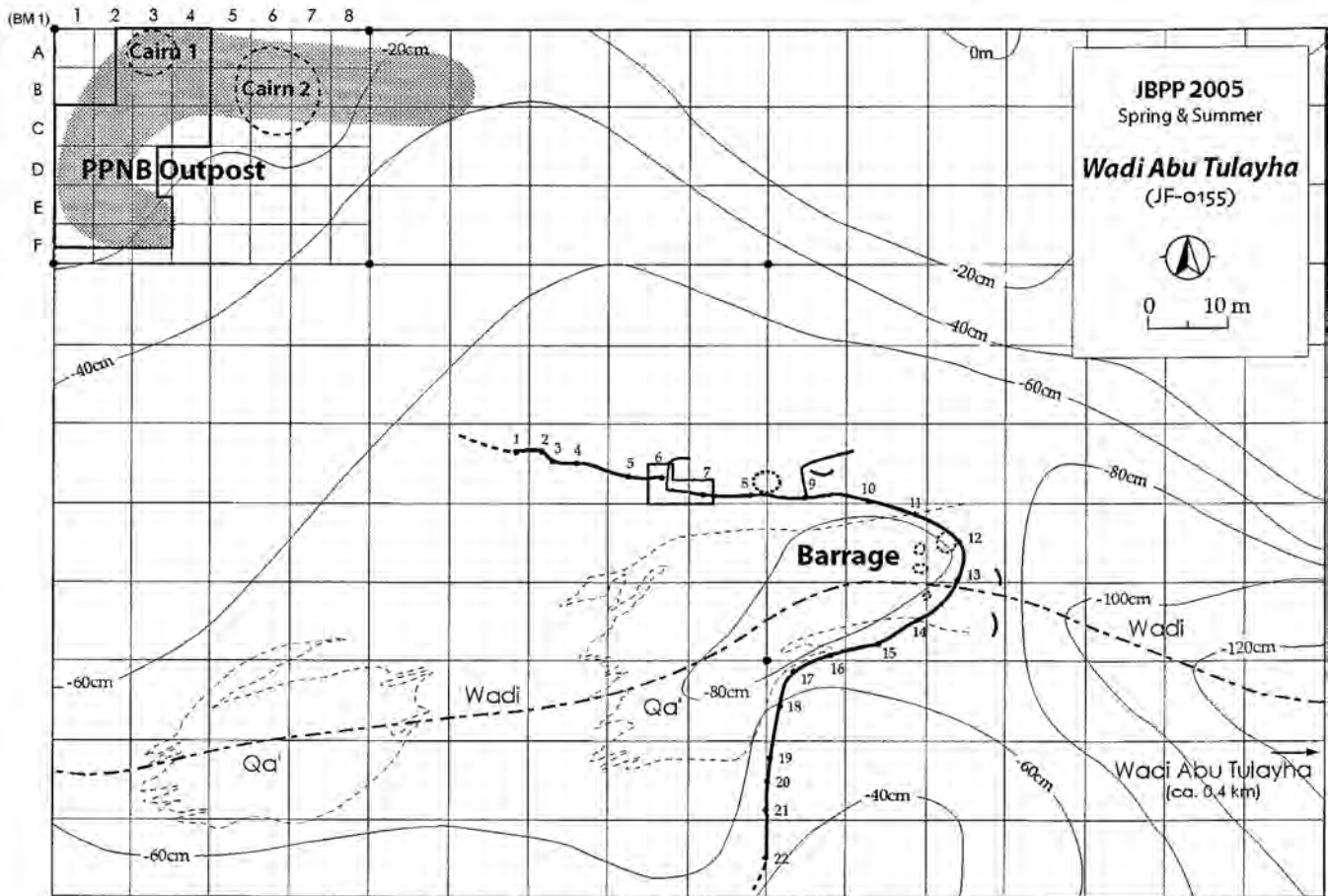


Fig. 2 Wadi Abu Tulayha: the site map.

ing eastwards across the southern fringe of the site. The surrounding natural environment is (and probably was) very harsh. The annual average precipitation is less than 50 mm (Jordan National Geographic Center 1984: fig. 114) and no natural perennial water source is available within a radius of a few dozen kilometers around the site. Consequently, the vegetation is very poor, being limited exclusively to wadi beds. No settlements are existent; even local pastoral nomads are rarely encountered. It was quite unexpected that a PPNB settlement, even if small in size and used probably on a seasonal basis, was founded in such a barren wasteland.

Structural Remains

The excavation has revealed a total of eleven structural remains, Structure A to K (Fig. 3, 4). What most characterize them are that: 1) they are stone-built, semi-subterranean structures constructed on a large foundation pit ca. 0.4-1.2 m in depth; 2) they fall into smaller, shallower, round to oblong components (Fig. 5) and larger, deeper, square to rectangular components (Fig. 6, 7); 3) both types of structures are often, if not always, connected with each other by means of a narrow passage, thus forming a dual unit (Fig. 8); and, 4) these units were developed in lateral direction, resulting in the formation

of an elongate, curvilinear settlement encompassing a communal forecourt to the east.

The first item (*i.e.*, the semi-subterranean type of structures) is a key to understanding architectural properties of these structures in that a large foundation pit dug beforehand determined not only the floor depth of a structure but also the other major attributes including its size, orientation, and general plan. Available evidence suggests that these foundation pits were dug at a relatively steep angle, and that masonry walls were constructed partly leaning on them. The stone masonry technique varied to a considerable degree from locus to locus. Subterranean walls were commonly single-row wide, whereas aboveground walls, especially those of rectangular structures, were usually two-row wide with rubble being packed in between. As for stacking pattern, stretcher bond was the norm of subterranean walls, but header bond technique was often applied to aboveground, two-rowed walls. It should also be added that upright stones were often used for foundations.

Overall, the mason's work was superior in quality and every course was piled up roughly in a horizontal position, using rubble and mud mortar as adjustment material. The use of partly dressed flat cobbles as construction material also contributed to this stability. Also noticeable is the existence of rubble and sand filled up

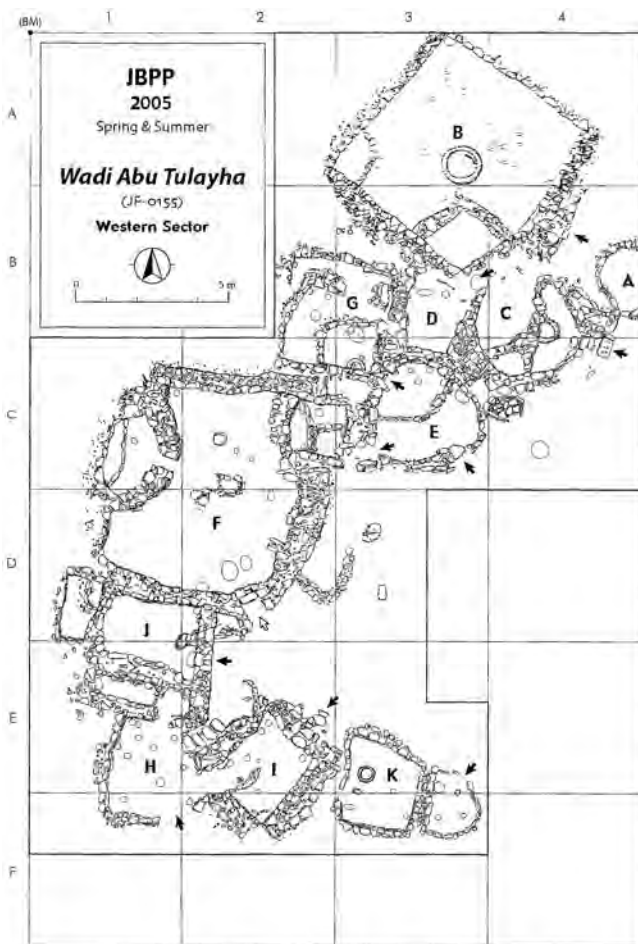


Fig. 3 Wadi Abu Tulayha: the western excavation sector of the PPNB outpost.



Fig. 4 Wadi Abu Tulayha: the general view of the western excavation sector of the PPNB Outpost (from SW).

into a narrow gap behind walls, which served as a rear support for walls especially of large, rectangular structures. (Contrary to this were walls of small round structures and shallower rectangular structures, which were built appressed to a flank of a foundation pit without any filling behind. It is for this reason that the profile of a foundation pit of these structures is less traceable in comparison with that of larger, rectangular structures.)

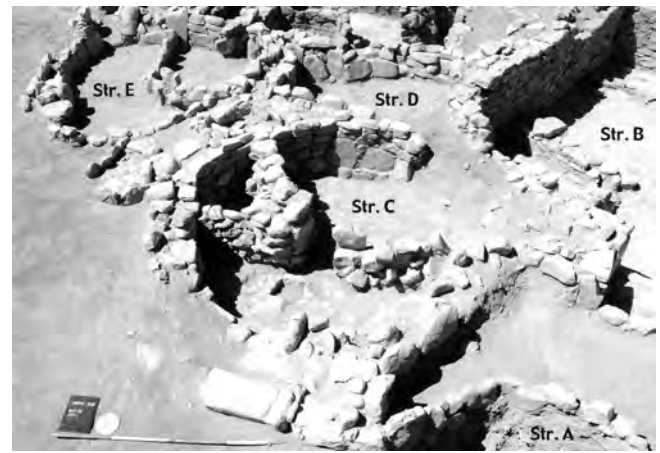


Fig. 5 Structure A-E: the general view (from E).



Fig. 6 Structure B: the general view (from SW).

The wall height varied from a single to a dozen courses depending on structures. Overall, subterranean walls were well preserved owing to the existence of the rear support noted above and the covering with aelian deposits. In contrast, aboveground walls were poorly preserved due to the lack of such helpful agencies, being preserved up to only a few courses in height. Nonetheless, the amount of fallen stones around them suggests that they were originally a few courses higher, especially in the case of rectangular structures. It is most unlikely, however, that the ceiling height of most structures was sufficient enough to allow one to walk around a room without arching one's back. Nothing specific is known about roofs, but, in view of the general plan of a structure and the arrangement of plinth stones and postholes, flat roofs supported with wooden pillars and beams seem most likely for rectangular structures. On the other hand, temporary shed is more plausible for round structures.

The second and third items (*i.e.*, the combination of two distinct types of structures) are mostly involved in the functional division among structures. As noted above, round structures are usually smaller in both total size (*ca.* 2-3 m in diameter) and floor depth (*ca.* 0.3-0.5 m), more flexible in general plan, and inferior in construction quality. In addition, they often lack a carefully designed entrance, which is substituted by a simple slope. All these, coupled with the relative scarcity of postholes,



Fig. 7 Structure F: the general view (from E).



Fig. 8 Structure K: the general view (from S).

suggest that they were a semi-open space under a temporary shed. Importantly, they are often equipped with plural hearths and a few small compartments, an indication that they served as a space for domestic affairs including cooking and storing. It is probably for this reason that they were arranged in the front row facing the communal forecourt. The contrary applies to rectangular structures, which are larger in both size (*ca.* 3.5-6.5 m wide) and floor depth (*ca.* 0.5-1 m), more standardized in general plan, and much superior in construction quality. Furthermore, they are equipped with a carefully designed, stone-lined, stepped entrance as well as plural postholes. It is also noticeable that they are usually separated from the communal forecourt with round structures in between. It is therefore most likely that they served as living and sleeping space protected with higher masonry walls and a substantial roof. Taking these into consideration, it is no wonder that these rectangular main rooms were often connected with round structures, the domestic section in front, to form a cross-species dual unit.

All these observations provide a plausible explanation for the fourth point (i.e., the curvilinear settlement form). The unique profile of this settlement can best be understood as a lateral aggregation of dual units consisting of a semi-open, round antechamber for domestic affairs and a main rectangular room for living and sleeping. It should

be noted, however, that the combination of both components varies to a considerable degree from unit to unit. One may also note that the settlement includes a variety of small features including windbreak walls and above-ground type of storages. The various combinations of these distinct features are responsible for the complicated, heterogeneous appearance of the structural complex.

Façade-side Cairn Burial

A few special comments should be made about a burial cairn that was found along the eastern wall of Structure G. This structure occupied a narrow space sandwiched between Structure B and F, and, through a narrow passage at the southeastern corner, it was connected with Structure E, a communal antechamber shared with Structure F. In comparison with the two neighboring rectangular structures, it was much smaller in size (*ca.* 3-3.5 m on a side and *ca.* 1 m in floor depth) and inferior in construction quality. Nonetheless, this structure is highly important in that it provided precious information about the unique burial practice at this outpost.

In order to fully understand the archaeological implications of this burial cairn, it is essential to put it in the context of the occupational history of Structure G. The careful excavation has shown that this structure contained at least three construction phases. The first phase, or the original state of this structure, is represented by the four exterior walls and the lowest floor. Noteworthy is the fact that the northern wall was poorly preserved, and that the western wall diverged on the way. This means that both of these partly collapsed due to strong sideways earth pressure. (Contrary to this were the southern and eastern walls, both of which were built leaning against neighboring structures and, for this reason, saved from collapse.) The second phase witnessed the abandonment of the northern wall and the reconstruction of the northern half of the western wall. Since no remarkable stratigraphical gap is recognized between the original western wall and its reconstructed part, it appears that these episodes happened soon after the construction of this structure. What interests us is that, despite the addition of a buttress wall at its northern end, the western wall thus renovated is still critically inclined inward. This probably indicates that the reconstruction of the western wall ended with a failure and the northern half of the structure was left as semi-open space without a roof. The third phase followed this episode, but a certain stratigraphical gap intervened between the two. What took place in this final phase is the addition of a L-shaped partition wall at the southeastern corner, which converted this narrow space into a kitchen equipped with a small, clay-lined hearth. This means, in turn, that the northern, probably unroofed half of this structure was finally abandoned as an indoor space at this stage.

What occurred roughly at the same time as the last episode was the construction of a small burial cairn at the northern end of the eastern (that is, frontal) wall, where a primary interment of an infant assuming a crouching position was found in situ underneath a large capstone (Fig. 9). It is possible that this interment triggered the functional conversion of the southeastern corner as well as the final abandonment of the northern half of this structure. Alternatively, it is also conceivable that the interment took place at the northern half, precisely because it had already broken down as an indoor space. Whatever the case, this burial is highly important in that it is the first to exemplify the facade-side cairn burial leading to (or, possibly, deriving from) the abandonment of a house, a unique burial practice inherited, though losing its substance, down to the two Late Neolithic pseudo-settlements mentioned below.



Fig. 9 Structure G: a close-up view of the façade-side cairn burial after removing a capstone (from W).

The Finds

The finds from the Wadi Abu Tulayha PPNB outpost consisted of some hundreds bags of chipped flint artifacts, several dozens of groundstone artifacts made of either flint or limestone, some game boards made of limestone slabs, a few dozen bone tools, and a large number of miscellaneous objects. In addition, faunal remains occurred in considerable quantity. What follows is a brief overview of these finds.

Chipped stone artifacts

Overall, the chipped stone artifacts were based on the naviform core-and-blade technology, a hallmark of the PPNB flint industry, although other types of cores, largely of single platform type, also occurred to some extent. The core and debitage classes included cortical chunks as raw material, cores at various stages (Fig. 10: 1-2), crest blades (no. 3), core tablets (no. 4), bidirectionally detached blade blanks (no. 5, 6), and small debris. It is evident that the inhabitants of this outpost were engaged

in on-site tool production utilizing the rich flint resources in the al-Jafr basin, especially along its northern fringe.

The tool kit is characterized by the predominance of points, which, along with the frequency of faunal remains, highlights the importance of hunting activities at this outpost. Typologically, they fall into Byblos (no. 7-9), Amuq (no. 10, 11), and Jericho types (no. 12, 13). It is our first impression that the Amuq and Jericho points are more frequent and the Byblos type is less common. The rich occurrence of Amuq points is suggestive of a Late PPNB date for this flint assemblage. The tool kit also included finely serrated blades probably used for sickle elements (no. 14, 15), notches and denticulates (no. 16, 17), borers/perforators (no. 18, 19), burins (no. 20, 21), side- and endscrapers (no. 22, 23), axes/adzes (no. 24), large bifacial knives (no. 25), and picks (no. 26). Unexpected was the frequency of sickle blades, which suggests that plant resources, probably including cereal crops, were extensively exploited around the site. Also unexpected was the existence of axes and adzes, which implies that wood processing was essential at this outpost where substantial structures were built. The occurrence of large bifacial knives and the predominance of angle burins are also noticeable in that both of these are unique to Badia PPNB-LN sites, among others, in the Transjordan plateau. One may therefore tentatively define this flint assemblage as an eclectic form sharing the two distinct aspects: the sedentary PPNB to the west and the Badia PPNB to the east.

Groundstone artifacts

This second largest category included grinding equipments and pillar bases as two major classes. The grinding equipments consisted of upper and lower stones, the former of which were relatively homogeneous in both size and morphology. In contrast, lower stones or querns varied from smaller, oblong, flat examples made of cortical flint (Fig. 11) to larger, round, basin-like examples made of fine-textured limestone (Fig. 12). Interestingly, basalt products, the norm of grinding tools, were extremely scarce and, instead, flint products were relatively common. It seems that the unique site location in the middle of *Hamada* is responsible for this imbalance in material choice. (Nonetheless, the upper stones included a few basalt products. This is probably because they were portable and, therefore, able to be brought into the outpost as finished or half-finished products.) A few examples still retain red pigment on their working surfaces, suggesting that they doubled as cosmetic pallets. The occurrence of some colorful mineral fragments corroborates this view. The common use of heavy-duty grinding implements, along with the occurrence of sickle blades, strongly suggests that the cereal cultivation played an important role in the subsistence strategy of this outpost.

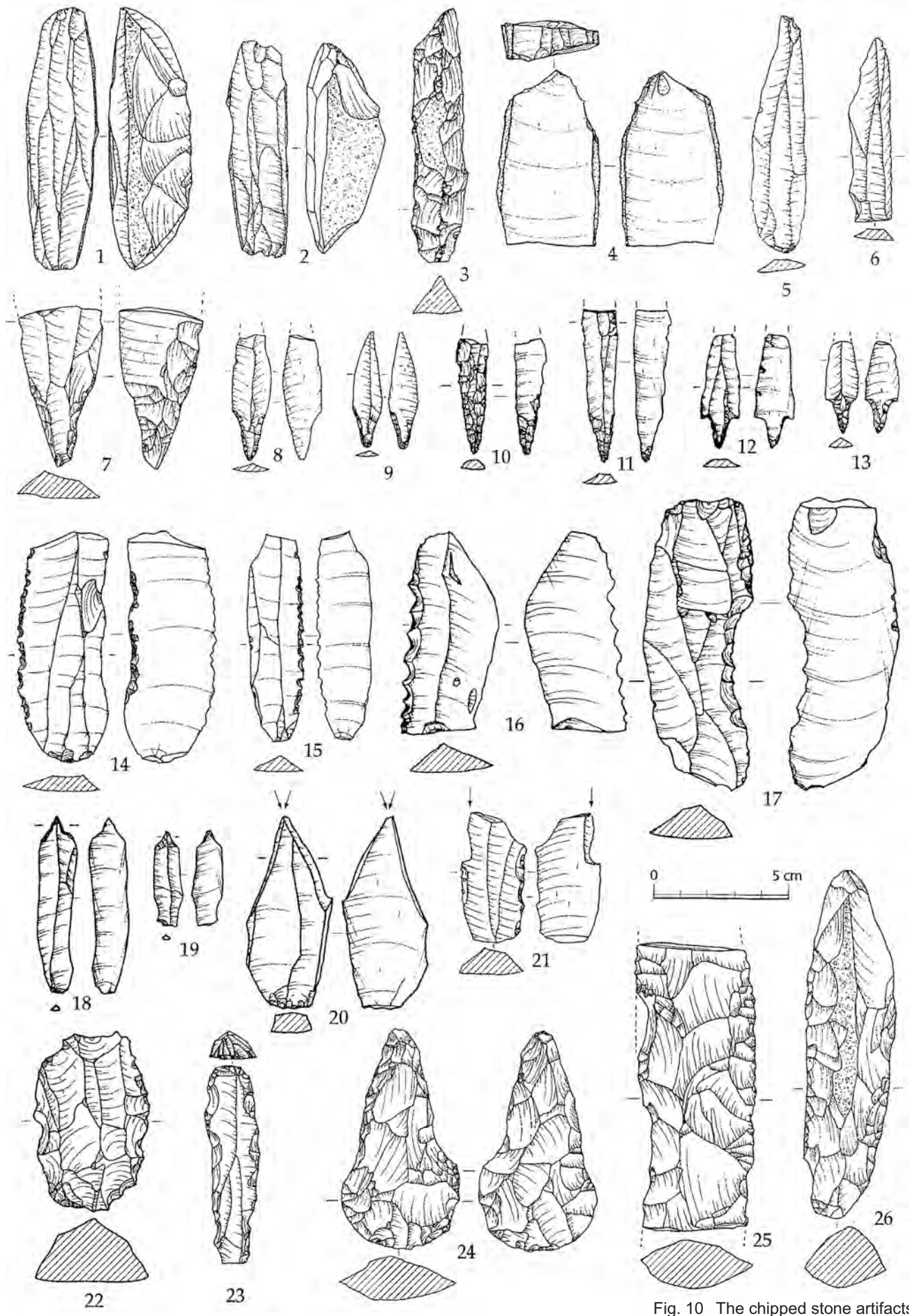


Fig. 10 The chipped stone artifacts.



Fig. 11 A flat quern and grinding stone both made of flint.



Fig. 13 A plinth stone made of limestone.

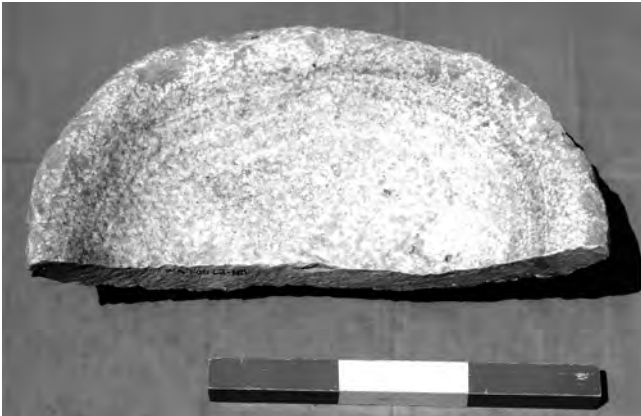


Fig. 12 A basin-like quern made of limestone.



Fig. 14 A game board made of limestone.

The pillar bases, defined by a flat upper surface and a relatively small yet deep central depression or hole, were made usually of coarse-textured limestone and amorphous in profile. The only exception to this is a biconical plinth stone that was found *in situ* on the eastern floor of Structure B (Fig. 13). This example stood out in terms of the superior craftsmanship as well as for the use of fine-textured limestone as its raw material. Interestingly, these plinth stones were often found incorporated into walls as converted construction material. This may be a suggestion that the structures were not built at a time but developed unit by unit, a clue to understanding the formation process of this elongate outpost.

This category also included, as minor components, a few large engraved weights made of coarse limestone, some stone vessels made of either flint or limestone, a partially polished axe made of fine-textured limestone, and several pumice stones possibly used for scrubbing grime off the skin. In addition, fist-sized hammerstones made of heavily-patinated flint nodules, another line of evidence for the on-site flint tool production, occurred in considerable quantity.

Game boards

It was our great surprise that a total of six game boards occurred at an outpost isolated in the middle of *Hamada*. These unique artifacts, all made of relatively fine-textured limestone slabs, fall into two types: boards with six depressions in two rows and those with eight depressions in two rows (Fig. 14). It is interesting to note that the same holds true of game boards from Beidha *ca.* 50 km southwest of this outpost (Kirkbride 1966). Some of our samples are accompanied with engraved lines connecting any two neighboring depressions, another similarity to the Beidha samples. These observations illustrate that there was a close relationship between this outpost and the PPNB sedentary society to the west. Unfortunately, no clear evidence for game pieces was attested, but small, semi-translucent colorful pebbles *ca.* 1-2 cm in diameter, found in considerable quantity from various contexts including floor deposits, might have substituted for them.

In light of the two-rowed arrangement of plural shallow depressions, it seems that these limestone boards were used for playing a board game analogous to *mancala*, a number-juggling game popular throughout modern Africa and Southeast Asia as well as the Near East

(Murray 1951). Similar examples have been reported from a few Neolithic sites including Beidha and 'Ain Ghazal (Rollefson 1992). The occurrence of such heavy-duty game boards is suggestive of a relatively long stay at and repeated use of this outpost as well as the affluent life shared among the inhabitants.

Bone artifacts

Animal bone artifacts were less common, totaling a few dozen pieces. They included narrow spatulas, long points and needles, and chunky drills with a short tip. In addition, personal adornments such as beads, pendants, and rings occurred in a limited number. A preliminary examination by Dr. Hitomi Hongo, zooarchaeologist of our team, suggests that these artifacts were made largely of gazelle bones, a picture consistent with the excavated fauna referred to below.

Miscellaneous finds

Miscellaneous finds included a tooth of shark, some beads and pendants made of sea snail, a grooved whetstone (or, possibly, arrowshaft-straightener) made of reddish sandstone, and an engraved plaque made of reddish stone. They also included several fragments of malachite, crystal, and reddish sandstone, all of which were probably used for pigment or raw material for accessories. Since none of these is available in the al-Jafr basin, it is doubtless that they were imported from outside. A long-distance trade with, and/or transhumance from, the western or southern region is assumable as a social background of this material flow. In addition, a number of unbaked or slightly baked clay fragments were found, but nothing specific can be said about their use because of the total absence of complete examples. It appears, however, that they include anthropomorphic figurines and geometric pieces commonly found at PPNB settlement sites.

Faunal and floral remains

Faunal remains were relatively frequent. A preliminary analysis by Dr. Hitomi Hongo suggests that they consist largely of gazelle, sheep, and goats' bones, the norm of excavated fauna from Levantine PPNB settlements. An important observation is that gazelle bones include a relatively high percentage of postneonatal individuals. This probably means that the use of this outpost was focused on a short term after the birth season of gazelle, that is, a few months from spring to early summer, a likely assumption in terms of water supply too. Even further significant is the observation that, mingled with wild individuals, domesticated sheep and goats are included to some extent. It follows that, along with hunting and cereal cultivation, pastoralism was among the major sub-

sistence strategies of this outpost. Given the seasonal use of this outpost, there is a strong likelihood that the inhabitants were engaged in short-distance transhumance from a parent settlement probably to the west.

On the other hand, no specific information has been obtained about floral remains. Nonetheless, in light of the common use of reaping and grinding tools, there is little doubt that plant resources were extensively exploited around the site. A few dozen bags of floor soil and hearth contents, now stored in our house at al-Husayniyya, would hopefully provide a key to exploring the plant exploitation strategy of this outpost.

Summary and Discussion

It was quite unexpected that, though probably used on a seasonal basis, such a sizable outpost was founded in the middle of *Hamada* where no perennial natural water source is (and probably was) available. Suggestive in this regard are the predominance of hunting weapons in the tool kit and the rich occurrence of faunal remains. There is little doubt that hunting of wildlife played a major role in the subsistence strategy of this outpost. It seems most unlikely, however, that this sizable outpost was sustained merely by such an unpredictable form of subsistence. Noticeable in this respect is the sporadic occurrence of domesticated sheep and goats in the excavated fauna, which indicates that small-scale transhumance from a parent settlement probably to the west also contributed to the livelihood in *Hamada*. (Thus, unlike the existing consensus shared among scholars, it is likely that the initial introduction of livestock into the Levantine arid peripheries dates from the Late PPNB horizon at least in the case of the al-Jafr basin.) It is no less important to note that the tool kit also included a large number of reaping and grinding tools. The occurrence of such agricultural utensils strongly suggests that plant resources including cereal crops were also extensively exploited around the outpost. Highly suggestive in this regard is the co-existence of the barrage system (Fig. 15). It is intriguing to hypothesize that it was used for primitive basin irrigation (Fujii 2006b, in prep.),



Fig. 15 The barrage system 1 (from SE).

although further evidence is needed to substantiate this perspective²). Whatever the case, one may tentatively conclude that a mixed economy based on hunting (mainly of gazelle), transhumance (derive from a parent settlement probably to the west), and cereal cultivation (possibly in combination with the neighboring barrage system) supported the relatively long stay at and the steady use of this outpost isolated in the middle of *Hamada*.

Also of interest is the fact that this agro-pastoral outpost has much in common with the Late Neolithic *pseudo-settlements* first identified at Qa' Abu Tulayha (Fujii 2000, 2001, 2002a, 2002b, 2003) and, then, re-exemplified at Harrat al-Juhayra (Fujii 2005). What attracts our attention first is the unique settlement form (Fig. 16). These three sites share the elongate, curvilinear or linear settlement form extending from the northeast to southwest. This unique settlement form is com-

mon to the Azraq/Jilat PPNB-LN entity (Garrard *et al.* 1994). Contrary to this is the Hisma/Negev/Sinai PPNB-LN entity, where a beehive-like, conglomerate settlement form is the norm (Kirkbride 1978; Goring-Morris 1993; Henry *et al.* 2003).

Another resemblance lies in the structure typology. As noted above, the structural complex at the Wadi Abu Tulayha PPNB outpost is marked by a combination of a larger, square to rectangular main room and a smaller, round to oblong antechamber. The same is roughly true of the Late Neolithic pseudo-settlements, where a square to rectangular structure is often accompanied with a curvilinear windbreak, probably a deteriorated form of a round antechamber (Fujii 2004). (It is highly suggestive in this regard that the antechamber of Structure K, probably the last structural unit of the structural complex, was remarkably reduced in size and, at the same

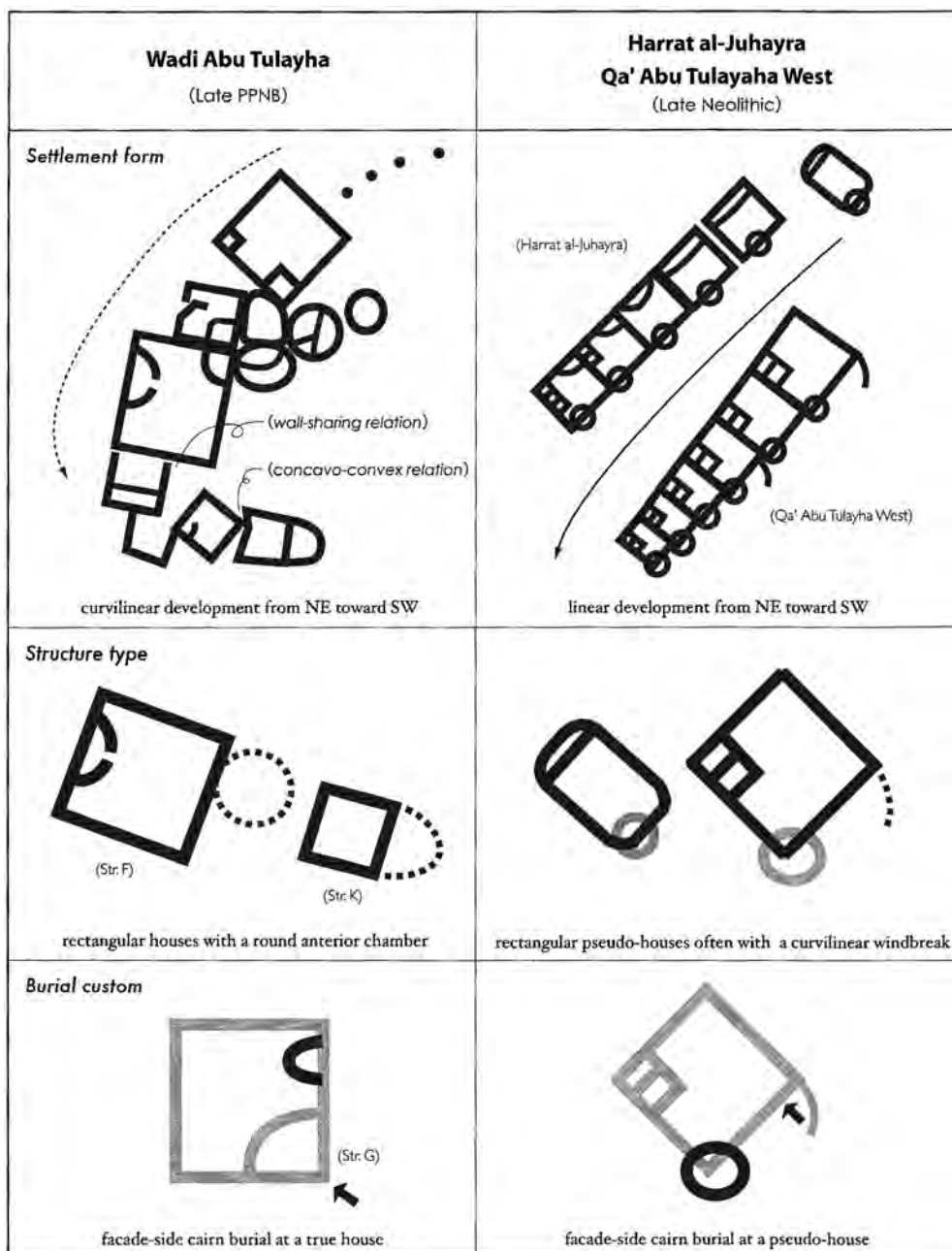


Fig. 16 The comparisons between the Wadi Abu Tulayha PPNB outpost and the two Late Neolithic pseudo-settlements.

time, simplified in morphology.) Nonetheless, the resemblance among the three is not limited to this respect. The arrangement of the main feature to the windward side and the minor feature to the lee side is also shared among the three. In addition, the equipment of a single or a few compartment(s) along a rear wall of a main room is also common to the three. All these observations allow us to conclude that there is an intimate relationship between the Wadi Abu Tulayha PPNB outpost and the two Late Neolithic pseudo-settlements.

Even more significant is that the three sites share the façade-side cairn burial, a unique burial practice related to the abandonment of a structure and its renewal at an

abutting, southwestern lot. This is all the more significant, because burial practice is among the most conservative of cultural spheres and, for this reason, serves as a telling indicator when tracing the genealogy of a cultural entity. In this sense, it deserves special emphasis that the unique burial custom attested at the two Late Neolithic pseudo-settlements can be traced back to the PPNB outpost in the same area.

It is therefore safe to say that the two Late Neolithic pseudo-settlements are directly-descended from the Late PPNB outpost at Wadi Abu Tulayha. Given this, the following flow chart will emerge about the pastoral nomadization in the al-Jafr basin. That is:

A small agro-pastoral group periodically came around to an outpost founded at Wadi Abu Tulayha, bringing along a small number of domesticated sheep and goats from a parent PPNB settlement probably to the west. Being engaged in hunting as well as short-distance transhumance a few dozen kilometers long in a crow line, they stayed there probably from spring to early summer. Available evidence implies that they were also involved in optimistic agriculture based on the primitive basin irrigation at neighboring wadi beds. They constructed stone-built, substantial houses consisting basically of a round antechamber and a rectangular main room. Since they often abandoned a house (probably in association with the façade-side cairn burial) and reconstructed it at an abutting, southwestern lot, the outpost was gradually developed from the northeast toward the southwest, thus resulting in the formation of an elongate, curvilinear settlement encompassing a communal forecourt. In light of the sizeable site size (if including the eastern sector yet to be excavated), it appears that the outpost was stably used for more than several generations. Nonetheless, a turning point came by when the parent settlement was abandoned for some reason at the end of the PPNB period or the beginning of the PPNC. Making use of their past experience as transhumants, they gradually adapted themselves to a new lifestyle, that is, pastoral nomadism. However, a fixed outpost makes sense only in connection with a parent, sedentary settlement. Thus, in the course of the lifestyle transformation, they finally abandoned it and, instead, constructed a pseudo-settlement as a large cemetery that inherited the unique burial practice of the direct ancestors as well as the unique settlement form and structure typology.

Such is a scenario of the pastoral nomadization in the al-Jafr basin retrieved from the excavated evidence. Nonetheless, it will remain a working hypothesis until the supposed parent settlement (*i.e.*, Jabal Juhayra or JF-0116) is investigated and, on this base, the validity of the scenario is fully substantiated. It leaves no doubt, however, that the Wadi Abu Tulayha PPNB outpost and the two Late Neolithic pseudo-settlements were inseparably linked to each other. In this sense, we shall be allowed to conclude that the small-scale transhumance attested at the PPNB outpost paved the way to the pastoral nomadization that took place in the subsequent period.

Concluding Remarks

The excavations at Wadi Abu Tulayha have enabled us to incorporate the al-Jafr basin thus far taken as a *terra incognita* in an archaeological sense into the southeastern fringe of the PPNB cultural sphere. This site fills up a large hiatus intervening between the Azraq/Jilat PPNB entity to the northeast and the Hisma/Negev/Sinai PPNB entity to the south or southwest, thus facilitating the north-south comparative studies of the Badia PPNB. Not

only that, it has also provided a reliable base to trace the pastoral nomadization in the al-Jafr basin as far back as to its very beginning. We can now draw a rough flow chart of this epoch-making episode on the basis of excavated evidence. However, two issues still remain to be addressed at this site: the clarification of the overall picture of the PPNB outpost including its eastern half yet to be excavated and a closer examination on the relationship between this outpost and the neighboring barrage system. Further investigation focusing on these two issues is scheduled for the summer excavation season of 2006.

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Notes

¹ This dating is based on the stratigraphical consistency with the outpost, the occurrence of a few naviform cores and blades from the floor level, and the similarity in masonry technique (the application of header bond technique merely to the uppermost course, in particular). Another support for this dating comes from the set-

tlement pattern of the al-Jafr basin, where, with the only exception of the neighboring PPNB outpost, no settlement sites have been confirmed within a radius of a few dozen kilometers around this barrage. Both the construction of an Umayyad tomb at the uppermost layer (critically separated from the construction surface of the barrage) and the occurrence of a few Hismaic inscriptions on the exposed surfaces of construction material warrant the dating to a period before Christ. Unfortunately, no radiometric data is available about this barrage, because no hearth was found within the original context of this feature, a likely situation for a water catchment facility. Nonetheless, another barrage system investigated in the same season (*i.e.*, Barrage 2 at Wadi Ruweishid ash-Sharqi or JF-0104; for the location, see Fig. 1 in the text) produced some charcoal samples from a reliable context, which would hopefully provide more convincing evidence for this dating.

² The functional identification of this elongate wall is based on the two-tiered approach. To begin with, in light of its unique location across a wadi and the V-shaped profile opening toward the upstream, there is little doubt that it served as a barrage to collect seasonal runoff water of the small wadi that flows eastward across the southern half of the site. It is also suggestive that the wall extends roughly in parallel with contour lines, and that, despite the remarkable difference in elevation of foundation stones, the uppermost course is relatively unified in elevation. Likewise, the use of larger cobbles around the converging point to the east can be reasonably understood as an essential device to bear strong sideways water pressure. Also of significance is the evidence for washout and reconstruction of this core part, which clearly indicates that this elongate wall served as a water catchment facility. Thus the real question lies in its specific use. Both the flat topography around this feature and the large evaporation rate in the al-Jafr basin cast doubt on the use as a simple reservoir. The porous dry-walling technique applied to this feature is also inconsistent with the use. Rather, the use for an irrigation installation seems more likely, because the frequency of reaping and grinding tools at the neighboring outpost cannot be reasonably understood without a nearby cultivated land, and because it is most unlikely that the annual average precipitation in the Neolithic al-Jafr basin was sufficient to make dry farming possible. Then, where did the inhabitants get drinking water? Highly suggestive in this respect are two smaller barrages (Barrage 2 and 3) found at the lower stream of the same wadi. In light of their location at a more dissected part of the wadi, their simple, slightly incurved morphology, and their robust structure (*ca.* 2 m wide) disproportionate to their length (less than 10 m), it seems that both of these barrages were used for simple reservoirs. Given this, it follows that the outpost used two distinct types of water catchment facilities for each purpose; the larger yet more slightly-built barrage (constructed on a flat terrain of the upper stream) was used for basin irrigation, whereas the smaller yet more solidly-built barrages (constructed at a lower, more dissected stream of the same wadi) presumably served as reservoirs for both the inhabitants and their livestock. This assumption, if accepted, would explain the reason for the seasonal yet stable use of this outpost from spring to early summer, because this term falls on the harvest season of cereal crop probably cultivated on the wadi bed that was irrigated by means of the former barrage. Pollen and phytolith analyses of floor deposits of this barrage, now in progress, would hopefully provide specific evidence for the cereal cultivation based on the primitive basin irrigation.

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The Late Neolithic Site of Shir: Preliminary Report of the German-Syrian Cooperation Project 2006

Karin Bartl¹, Majd Hijazi² and Ammar Haidar²

¹ German Archaeological Institute Damascus (DAI) <bartl@dainst.damaskus.org>

² Direction Générale des Antiquités et des Musées de la Syrie (DGAMS)

The Late Neolithic site of Shir is situated *ca.* 12 km northwest of Hama on the river Sarut, a tributary of the Orontes; it was discovered in spring 2005 in the course of a survey. Judging from the surface finds, the settlement extends over *ca.* 4 hectares; in the spring of 2005, 2-2.5 ha of its western part were bulldozed in preparation for agricultural use (Fig. 1). The resulting profile with a length of *ca.* 200 m runs NW-SE and shows a great number of lime plaster floors as well as remains of walls, pits and ashy spots suggesting a dense sequence of layers.

After a one-week test sounding (sounding A, since 2006 part of the deep trench in K/L7) in autumn 2005 with promising results (*cf.* Bartl *et al.* 2006), the German-Syrian excavations in Shir began in spring 2006.¹ From April 25 to June 4 and from August 25 to October 20, 2006, two excavation campaigns took place laying the foundations for future work and pursuing several aims: to retrieve the complete stratigraphic sequence and a representational segment of the settlement, and to ascertain the boundaries of the settlement. In accordance with that programme there were opened a deep trench (K/L7) and two larger excavation areas in the north and in the south of the occupational region (K/L/M7 and G/H14) (Fig. 2). In addition, extensive explorations by geomagnetics and georadar were undertaken.²

Excavation areas G/H14 and K/L7 are just to the west of the bulldozer profile on the partially destroyed settlement area; excavation areas L-M7 are situated in the intact eastern part of the settlement and thereby 2-2.5 m higher than the other two trenches.

In the second 2006 campaign, the complete stratigraphic sequence of the settlement was pursued down to virgin soil. There are *ca.* six meters of cultural levels dating exclusively to the Ceramic, *i.e.*, Late Neolithic Age. Two ¹⁴C-dates of ash samples taken from the middle (layers of clay and ashes between building levels 3 and 4), attest the time span between 6651 and 6496 calBC.³

In the excavated southern part of the settlement the stratigraphy shows nine building levels that may be subdivided into two complexes: the lower/earlier complex of levels 1-3 and the upper settlement levels 4-9. These complexes are separated from each other by several layers consisting of 1.5 m of ash and soil suggesting a long

stagnation of building activities after Level 3.

The lowest building level (Level 1) is founded on a burnt level *ca.* 0.2 m thick and containing numerous charcoal samples as well as burnt mud lumps and burnt animal bones. The burnt level lies over a sterile reddish-brown layer of solid clay (virgin soil), or it intrudes into that layer with small pits. It is possible that here the original vegetation was first burnt. Sterile rock of the terrace formation occurs beneath the mud layer, with a thickness between 0.2 and 0.6 m.

In Level 1 we have begun to dig an interior room with portions of a lime plaster floor, repeatedly renewed, a round fireplace and part of a structure resembling a silo. In Level 2, a completely preserved oval structure with dimensions of 1.4 x 1.6 m came to light. The floor consisted of fine, light-grey lime plaster, and the interior walls were also coated with lime plaster (Fig. 3). The small size of the structure points to a possible use for storage purposes. In Level 3 we excavated parts of a larger room/building with pisé walls on stone foundations and several lime plaster floors. As already mentioned, *ca.* 1.5 m of clay and ash layers follow upon that level. Numerous traces of fire and pits filled with ash point to a use as a free space outside the built area.

In the completely preserved settlement area (L/M 7) the upper levels 4-9 show, in the south, a dense sequence of rooms of which only the stone foundations are preserved. Numerous lime plaster floors with intricate substructures indicate repeated renewals at many places. There is a great number of installations, such as platforms, pits, small rooms, a stone silo set into the ground (Fig. 4), and a large ceramic storage vessel: the overall impression is that of a complex mainly used for storage.

In the northern part of excavation area L/M7, especially in L7.1, there are severe disturbances by numerous pits, all of which date back to the Neolithic. Several burials were found there: a secondary burial of five individuals, two primary burials of single individuals, and four incomplete skeletons of new-born babies. The two primary burials are especially interesting – one of them (Unit 117) in a strongly flexed position (Fig. 5) – as the skulls were lacking. In Unit 11 there was a very large, dagger-like flint blade close to the original position of the head, and in Unit 117 two pieces of obsidian were found near the head.

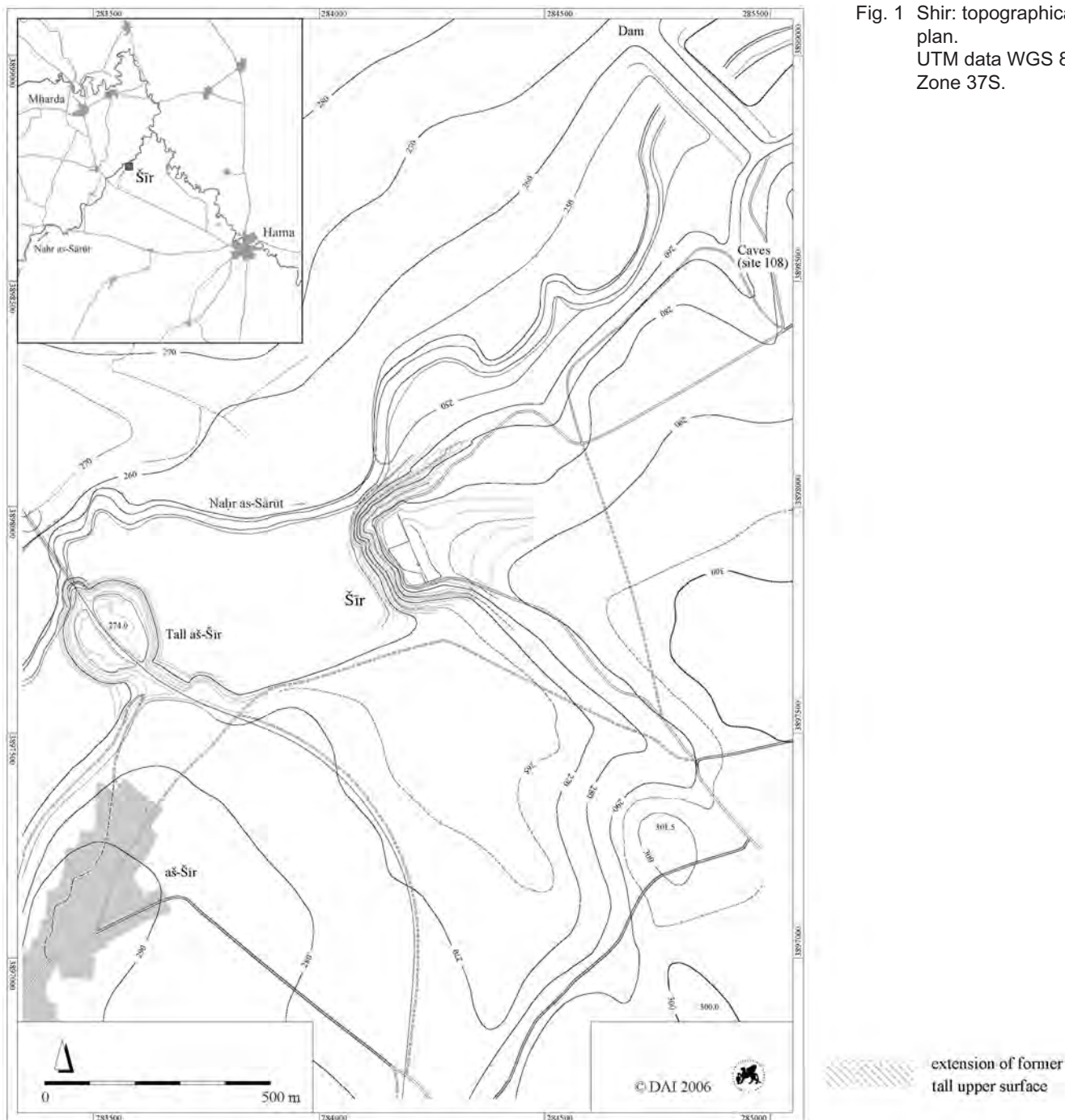


Fig. 1 Shir: topographical plan.
UTM data WGS 84,
Zone 37S.

In spring 2006 when the uppermost layer of the northern excavation trench G/H14 was examined a badly disturbed building complex came to light. It corresponds probably to Layer 4 in K/L/M7. It was comprised of numerous fragments of lime plaster floors, disturbed or robbed stone foundations, and a great number of pits. One fragment of lime plaster floor 0.6 m thick showed numerous renewal phases.

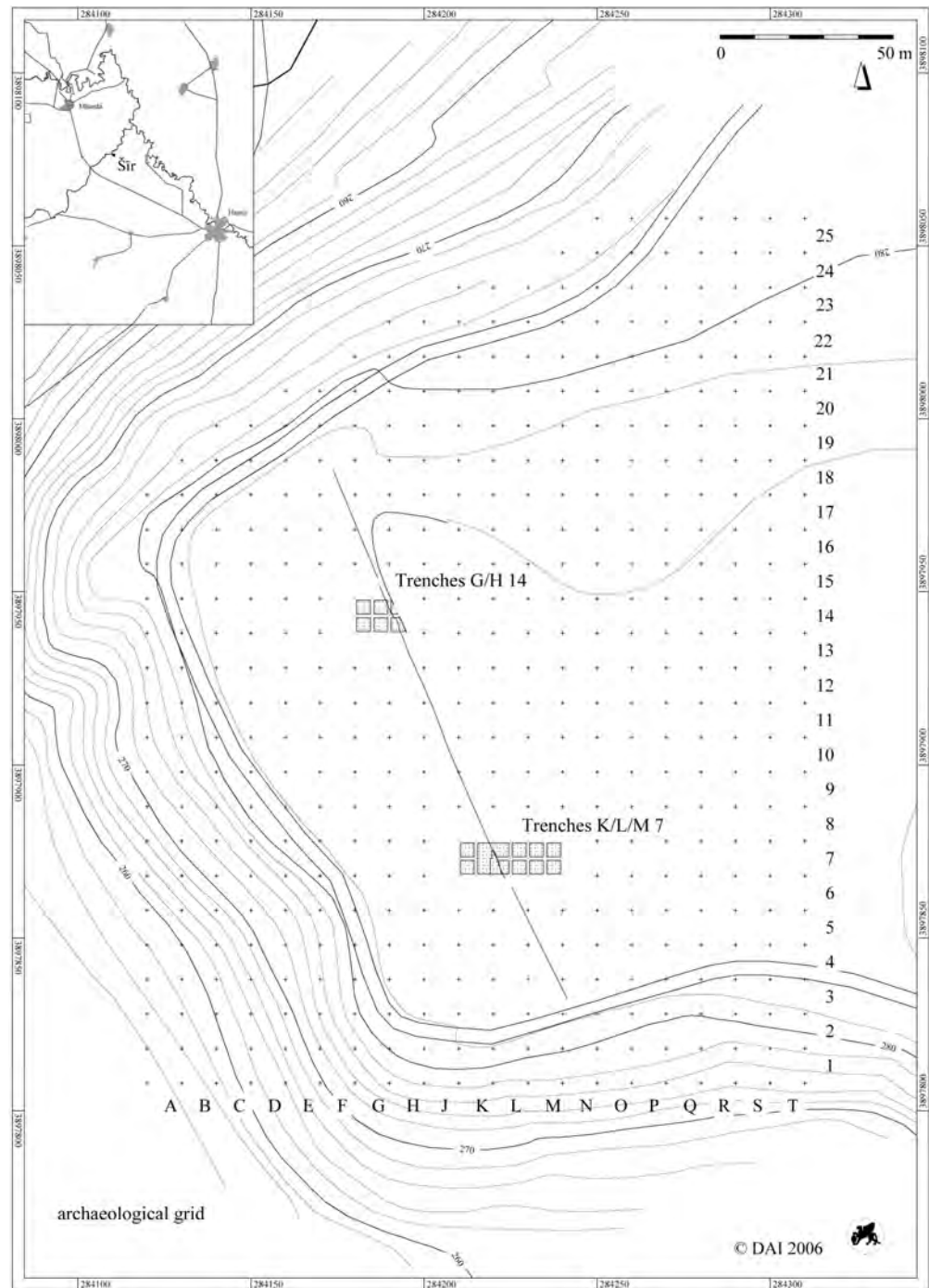
The finds consist of large amounts of ceramics and lithics. Most of the ceramic material of the upper layers is badly fragmented vegetable-tempered coarse ware without any decoration; the lower layers are dominated by dark-faced burnished ware (DFBW) (Fig. 6) in, however, greatly decreasing quantities. DFBW appeared also

in the burnt level under building Level 1. In addition, a small percentage of whiteware in different shapes occurs up to the uppermost layers.

The lithic material is dominated by debitage, and the tools range from numerous sickles (Fig. 7a) to sidescrapers and endscrapers. Arrowheads of the Amuq type are rare. Obsidian is attested to by less than 1% of the inventory. The flint is probably local in origin because numerous deposits of tabular as well as nodular flint are to be found on the settlement terrace and in its near surroundings. The frequent occurrence of cores attests to the local lithic production.

The other finds are dominated by bone tools, with awls and needles as the most frequent types (Fig. 7b). Among

Fig. 2 Shir: plan with excavation trenches. UTM data WGS 84, Zone 37S.



the stone objects there are numerous small axes and small bowls. Rarities within the range of finds are two seals with geometrical design (Fig. 7c) and some beads of the butterfly type. Numerous heavy implements such as grinding stones and pestles were found within the excavation area as well as on the surface. The basalt and limestone used are probably local.

Comparisons for the finds come, above all, from Tell el-Kerh in the Rouj basin, from the excavations in the Amuq (Tall Judaidah) and from Byblos.

The excavation results of 2006 were supplemented by geophysical investigations. Two methods were used: geomagnetics and ground-penetrating radar. Both explorations provided very good results showing the lay of



Fig. 3 Shir: Level 2, oval structure.



Fig. 4 Shir: Level 9, floor and silo.

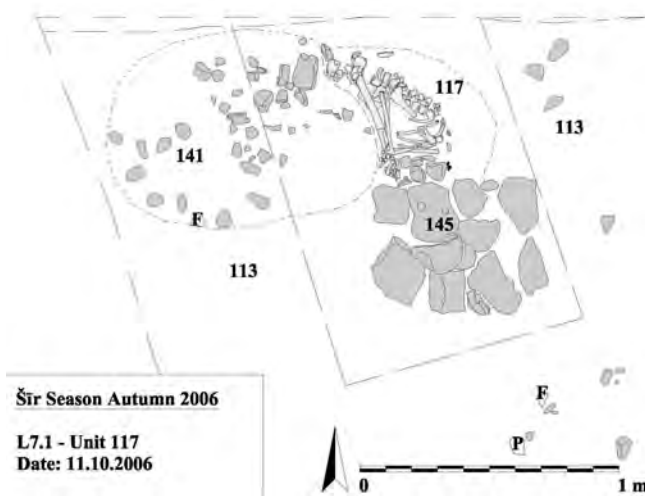


Fig. 5 Shir: flexed burial.

the settlement that, in the west, the north and the south, extends in the shape of a crescent around a free space. The centre of the settlement lies obviously in the north to either side of the bulldozer profile. In the northeast of the settlement centre, several rectangular buildings with small rooms are distinctly visible. Another striking complex is a round structure measuring *ca.* 15 m across; it is situated in the bulldozed part of the settlement centre. Those results will have to be taken into account by future work.

The 2006 campaigns in Shir have impressively confirmed the special position of this site, already suggested by the surface finds from spring 2005 and the soundings undertaken in autumn 2005. It is, therefore, of great importance that the Syrian Antiquities Department is going to put the Neolithic settlement of Shir under protection.



Fig. 6 Shir: small pot in dark-faced burnished ware.



Fig. 7 Shir: a) flint sickle; b) bone needle; c) limestone seal.

Notes

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² The work was conducted by Karin Bartl, Ammar Haidar (spring 2006) and Majd Hijazi (autumn 2006). In the spring campaign participants included Reinder Neef, Christoph Purschwitz, Dörte Rokitta, Markus Schulze, Jawad Uqla, Irmgard Wagner. Participants of the autumn campaign included Erol Bayırlı, Andrea Gubisch, Jan Krumnow, Dr. Olivier Nieuwenhuysse, Kristina Pfeiffer, Christoph Purschwitz, Dörte Rokitta, Sirri Seren, Manfred Tonch, Jawad Uqla, Thomas Urban and Irmgard Wagner. To all of them we express our cordial thanks for their enthusiasm and exceptional devotion without which the results could not have been achieved.

³ The charcoal samples were evaluated by the Leibniz laboratory in Kiel.

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Late PPNB Occupation at el-Hemmeh: Results from the Third Excavation Season 2006

Cheryl Makarewicz and Anne E. Austin

Department of Anthropology, Harvard University <makarew@fas.harvard.edu; anne.e.austin@gmail.com>

El-Hemmeh is a Pre-Pottery Neolithic village site located in the Wadi Hasa, Jordan. Previous excavation work has revealed the presence of substantial cultural deposits at Hemmeh dating to the PPNA, Late PPNB, and PPNC (Makarewicz *et al.* 2006). This third season of excavations at el-Hemmeh has focused on increasing the vertical and horizontal exposure of both LPPNB and PPNC deposits (Fig. 1). Although substantial PPNC and possibly Pottery Neolithic occupations were also encountered during the 2006 season, this report focuses on the results obtained from the LPPNB occupation layers. A pattern of continuous architectural modifications applied to internal living spaces and cycles of use and disuse of particular spaces is beginning to emerge at LPPNB Hemmeh. We describe here the LPPNB deposits and architecture uncovered in 2006 on a space-by-space basis.

Space 13

Space 13 is a particularly intriguing area, likely serving as a major passageway into other areas of the site (Figs. 1, 2). The most remarkable features of Space 13 are the

two massive doorways located at each end of the space. The first passageway is situated on the eastern end of Space 13, and is defined by the huge door lintel (L. 360) measuring 1.6 m long, 0.7 m wide, and 0.25 m thick that spans both Walls 120 and 403 so that it sits flush with the top of each wall. The immense size and weight (*ca.* 800 kg) of the lintel suggests that it would have taken considerable effort to not only situate the lintel on top of the walls, but to transport it to the site. The lintel, walls, and flagstone flooring of Space 13 together form an incredibly large doorway that is over 2 m in height and 80 cm wide that provides easy passage into Space 14/15.

The second passageway is situated in the southwestern end of Space 13 and is almost as large as the first door encountered. This doorway was built as a part of Wall 403; the top of this doorway is located roughly 1m below the top of W. 403 and is 1.4 m tall and 60 cm wide. Just before entering the doorway to pass into Space 14 there is a step leading down, suggesting that the floor surface of Space 14 is even lower than the one encountered in Space 13. Space 13 was also likely roofed; the top three courses of stones in the southern wall forming

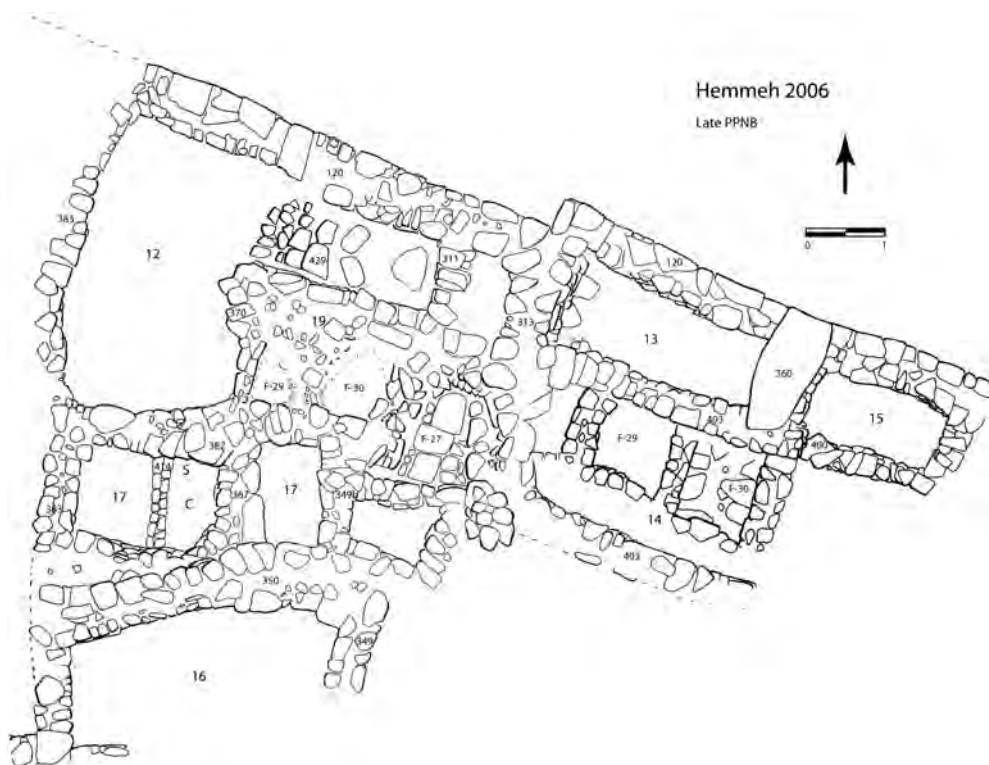


Fig. 1 Plan of Late PPNB architecture uncovered during the 2006 season at el-Hemmeh.



Fig. 2 Hemmeh 2006: Space 13 (upper right) and Space 15 (lower right) divided by lintel 360. Space 14 is visible to the left.



Fig. 3 Hemmeh 2006: Storage features F-29 and F-30 in Space 14. Note that each feature is accessed from Space 13 through small windows.

Space 13 (W. 313) are roughly corbelled and could easily support beams.

Space 13 also served as an access point for bin features F-29 and F-30 via carefully constructed small windows replete with small lintels and sills situated within Wall 403 (Fig. 3). The bins are identical in size and shape, but the material used to floor each bin is different and suggests that each bin served a slightly different function. Bin F-29 was lined with plaster and F-30 lined with six

large oval stones rounded like bread loaves. It is unclear if the bins could have been reached from other areas in Space 14; additional excavations are required in this area. However, the depth of the bins, combined with the absence of small windows in any of the smaller walls that form the bins, strongly suggest that while they were certainly visible in Space 14, the bins were not accessed from Space 14.

Through the use of doorways and windows, Space 13 served as a conduit through which individuals could access storage bins F-29 and F-30 and pass into Space 14. The reasons why the scale of construction employed in Space 13 is so large are still unclear. One possibility is that in addition to containing bin features F-29 and F-30, Space 14 held particular importance, either for an individual household or as a public space, and required architecture that marked the significance of entering the space. It is also important to note that the southwestern door may not have necessarily led into Space 14, but instead bypassed it, as the westernmost wall of storage bin F-29 (Wall 427) forms with Wall 313 a small corridor immediately after exiting the southwestern door of Space 13.

Space 14 and 15

At some point in time, Space 14 was heavily modified so as to change drastically the function of Space 13. A wall (W. 401) was placed in the eastern doorway of Space 13, and although a small window (40 x 30 cm) opening a line of sight between Spaces 13 and 14 was built into Wall 401, passageway between the two areas was effectively blocked. At the same time, or later, Wall 403 was extended beyond the southern doorway of Space 13 approximately 2 m and bonded with new construction Wall 403. The addition of these two walls, created a relatively small space (Space 15) of unknown function (Fig. 1, 2). While no floors were encountered in this new space during the 2006, the new room presumably functioned as storage area or sub-basement that would have been accessed through Space 13.

After an unknown period of time, Spaces 13, 14 and the storage bins F-29 and F-30, ceased to function as living spaces and Space 13 and the bins instead seemed to serve as middens. The fill contained in Space 13 maintains a marked homogeneity over 1.5 m of vertical depth and suggests that Space 13 was filled all at once with trash material. However, it is possible that the fill represents multiple trash-dumping events; future micromorphological analyses may lend insight into the depositional processes responsible for the creation of fill deposits like the ones encountered here.

While Spaces 13 and 15 ceased to function as living areas, new living space was created in Space 14 by laying down a rough *huwwar*-type floor over the filled bins F-29 and F-30, constructing a new wall containing two

small windows (W. 418), and re-using Walls 403 and 413.

Space 16

Space 16 is a 3 x 1.5 m room created by three walls (W. 349, 350, and 383) that reach 1.5 m during the latest phase of occupation for Space 16; the fourth wall (W. 433) is largely collapsed. There are no windows or doorways present in the three intact walls and may indicate that Space 16 would have been accessible only through a roof. Space 16 is also characterized by repeated cycles of architectural modifications within the space, alternating with periods when the space was used as a midden.

In its earliest known phase of occupation, Space 16 contained an arrangement of large flat, rectangular stones several courses deep set along the room's northern wall (W. 350), creating a bench feature. Deposited on top of this feature was a midden containing loose and moist brown soil with numerous plaster inclusions, some charcoal-rich sediments, and relatively well-preserved faunal remains. After a period of time, the room ceased to be used as a midden and two new architectural elements were introduced to Space 16: a small, poorly constructed wall that abuts Wall 350 and an unusual small stone feature set in the corner of the northern and eastern walls of the room (W. 350 and 349). This feature was constructed of four large flat stones and 8 smaller stones enclosing a hard-packed surface between the feature itself and the corner of Walls 349 and 350.

The high density of charcoal, seed, and faunal remains in a rich, almost loamy sediment found in the sediments above these two architectural elements suggests that Space 16 was then re-used again as a midden. This debris layer is relatively thin, indicating that the area functioned as a midden for a relatively short period of time. A thick plaster floor was then laid down on top of the midden, after which the space was used briefly again as a dump, and then floored again with plaster. After an extended period of disuse when the space was once again used as a refuse area, Space 16 was turned into an active storage or work area with the construction of yet another plaster floor. The space served as a midden for a final time as well as a depository for secondary human remains. The remains were mixed within the midden sediments and suggest a secondary 'trash' type burial.

Space 17

Like Space 16, Space 17 is a 1 x 2.5 m fully enclosed area that was accessible only through the roof. The internal area of Space 17 was also frequently altered during its course of use, primarily through the construction of small walls that reduced available floor space. The earliest phase of architecture in Space 17 included Walls 350,

382, and 383 and likely formed a large room. A fourth eastern wall that would close off the early phase of Space 17 is likely located under the bin features F-23, F-24, and F-27, none of which were removed this year.

After this initial construction event, three new walls and architectural fill were added to Space 17, closing Space 17 off and dividing it into three sections. The eastern, unexcavated portion of Space 17 was filled, intentionally or not, with medium to large stones and rocky sediments. A medium-sized wall 1m in height was then placed on top of the fill (W. 349b), reducing Space 17 from its original dimensions and function and likely containing the fill to the east. The rocky fill was further contained by W. 367, which is situated west of W. 349b. The top of this wall lies just above the bottom of W. 349b to form a small terrace that greatly constricted Space 17 to a much smaller area relative to its original size. In addition to serving as an internal terrace, W. 367 curved south to cover the entire northern side of pre-existing W. 350, essentially re-facing W. 367 with medium-sized cobbles. When this re-facing was complete, a short third wall only 20 cm high (W. 414) was built and a fine plaster floor laid down to the west of it and a plastered bin placed in the small area created by Walls 414 and 367.

This plaster bin contained some of the most exciting, unique, and intriguing finds of the 2006 excavation season. Lying immediately on the bottom of the bin was the unplastered skull of an adult human male. Deposits around the skull consist of a loose matrix mostly wall plaster debris, indicating that the skull originally sat exposed in the bin. This individual exhibits extensive tooth wear, which may indicate this individual died at an advanced age. However, it is also possible that extreme tooth wear was caused by the use of groundstone implements made of sandstone, which are abundant at Hemmeh.

Placed just north of the skull was a long, bifacially thinned knife. Lying immediately south of the skull and also directly on the surface of the plastered bin was a rich cache of burial goods. The items included four more bifacially thinned knives, two large bone needles, a bone spatula, a bone awl, two metapodials that were split in half and subsequently polished, three unmodified medium ungulate metapodials, a large chunk of red ochre (approximately 50 grams), and an anthropomorphic figurine. The items in the cache were stacked on top of each other in a disorganized way, but they were arranged in a circular shape, indicating the items may have been placed within a container that has since disintegrated.

The anthropomorphic figurine was sculpted out of a multicolored stone of unknown origin, with its arms folded and reaching towards the shoulders (Fig. 4). The elongated head of the figurine is detailed with sunken eyes and a thin nose that extends the full length of the face. The figurine demonstrates no secondary sexual characteristics.



Fig. 4 Hemmeh 2006: Anthropomorphic figurine recovered from the burial cache in Space 17.



Fig. 5 Hemmeh 2006: Space 12. Stairs 329 are located to the left. Note the (filled) small window in Wall 370 (upper right).

Space 19

The earliest phases of occupation in Space 19 were not excavated during the 2006 season. We do know that the space was originally accessible through the large window in the shared wall of Spaces 12 and 19 (W. 371), but without additional excavation, it is not possible to determine if Space 19 was originally roofed or was an open area. Regardless, at some point in time Space 19 was completely filled, perhaps as part of the same event described above for Space 17, and three well-constructed bin features were built within the fill of Space 19.

The three bins were joined together by a poorly preserved, *huwwar*-type floor. The two westernmost bins (F-23 and F-24) found on top of Space 19 were roughly triangular in shape and exceptionally well plastered.

They were sunk approximately 20 cm into the fill of Space 19 and used the stones from Wall 370 to form their northern boundary. Unfortunately, these bins were just beneath the modern-day surface, and all sediments contained within the bins were topsoil.

The third, easternmost bin (F-27) is a complex stone installation. The bottom of this bin consists of a series of flat stones of varying sizes set in a mud lining that sit approximately 30 cm below the surrounding walls. The largest of these flat stones has four unusual divots set in a line ground into its surface. Sediments from this bin yielded a high concentration of small mica discs (5 mm in diameter) with no holes in the center, which may indicate that F-27 was used for bead production.

Space 12

Relative to the other LPPNB spaces identified during the 2006 season, Space 12 received minimal internal architectural modifications. With the exception of Wall 311, all of the walls forming Space 12 were part of the initial LPPNB construction event in this area of the site (Fig. 5). An extremely durable white plaster floor was identified in the southern half of Space 12. The southwestern portion of this floor is elevated *ca.* 10 cm above the rest of the floor to form a raised area 2 x 2 m in size. The plaster floor loses its robustness in the northeastern half of Space 12 and seems to disappear entirely in the northwestern corner, perhaps to make room for a series of six stones expediently placed in an arc between Walls 120 and 383.

Access into Space 12 was provided by a set of stairs (L. 429) wedged between two major walls. The stairs contain four steps covering 90 cm in height, and the uppermost step is raised *ca.* 20 cm above a series of large flat stones that form a depressed landing for the stairs. These stairs and associated landing end in front of a Wall 311 and recall a set of stairs recently uncovered at Ba'ja (Gebel *et al.* 2006). Unlike the stairs at Ba'ja, which are interpreted as leading to a second story but did not lead to any specific features, the stairs at Hemmeh led to the bin installations in Space 19 described above.

The 2006 excavation season at Hemmeh has revealed patterns of continuous architectural modifications applied to internal living spaces and cycles of use and disuse of space. These findings have the potential to inform us about Late PPNB social dynamics and how they were maintained over time. Future seasons at Hemmeh will further address this issue by clarifying the stratigraphic relationship between Spaces 12, 13 and 14 and this season's excavation area with Unit 448E/224N opened in 2004.

Acknowledgements. This research was funded in part by the American School of Prehistoric Research. The 2006 Hemmeh excavation team deserves special thanks, whose

hard work and positive attitude made this a tremendously exciting season. Many thanks are also due to Gary Rollefson for his support and also to Joshua Wright and Richard Meadow for their insightful conversations. We also especially like to acknowledge Karam Naweiseh and Abdullah Habbaih for their constant help both in the field and at home in Mu'tah, and our kind and helpful neighbor, el-Sheikh.

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Field Report

Burgata-Eli: A Multi-phase Neolithic Site in the Eastern Sharon Plain

Avraham Ronen^{1, 2}, Guy Bar-Oz¹ and Dani Nadel¹

¹ Zinman Institute of Archaeology, University of Haifa <aronen@research.haifa.ac.il>

² The Max Stern Academic College of Emek Yezreel

The finds reported here were extracted from their place of origin in 1994 by mechanical equipment while digging a 30 m deep reservoir for a sewage reclamation plant on the left bank of Nahal Alexander, between the small settlement of Burgata in the eastern Sharon plain and the city of Tul Karm at the foot of Samaria hills (UTM E 69320 N 57540) (Fig. 1). The finds were collected by Mr. Eli Atar from the upper slope of the reservoir, close to its top and were later given to the authors for study. There is no information on the precise depth below surface at which the site is located.

The finds include 1,729 flint artifacts (Table 1), tens of pottery shards, 72 animal bones, a single sea shell (*Glycemeris* sp.) and a few reddish brick fragments. Obviously mixed, the Burgata-Eli assemblage represents three periods within the local Neolithic sequence: the Pre-Pottery Neolithic B or C phase and two phases of the Pottery Neolithic, Yarmukian and Wadi Raba. Hence the site spans the time between ca. 7000/6000 – 4,500 BC (uncalibrated).

The Burgata-Eli assemblage is worth publishing due to the paucity of Neolithic sites known in the eastern Sharon (Gopher and Gophna 1993) and because of the long stratigraphical sequence, represented in only a few sites in the Levant. A long PPNB – Pottery Neolithic sequence is especially well documented in 'Ain Ghazal (Rollefson *et al.* 1992). Other cases with a stratigraphical sequence of a similar magnitude occur mainly along the Jordan Valley in such sites as Jericho (Kenyon 1981), Wadi Shu'eib (Simmons *et al.* 2001), Munhata (Perrot 1967), Tel Teo (Eisenberg *et al.* 2001) and Hagoshrim (Getzov 1999).

Tab. 1 Burgata-Eli: The flint assemblage.

Category	n	%
Flakes	1,113	64.3
Blades	199	11.5
Bladelets	74	4.3
Rejuvenation elements	22	1.3
Cores	68	3.9
Retouched tools	118	6.9
Chips	135	7.8
Total	1,729	100.0



Fig. 1 Location of Burgata-Eli site.

The Burgata-Eli flint assemblage clearly reflects in-situ knapping activities, as cores, hammerstones and all stages of tool manufacture are present. The flints are in mint

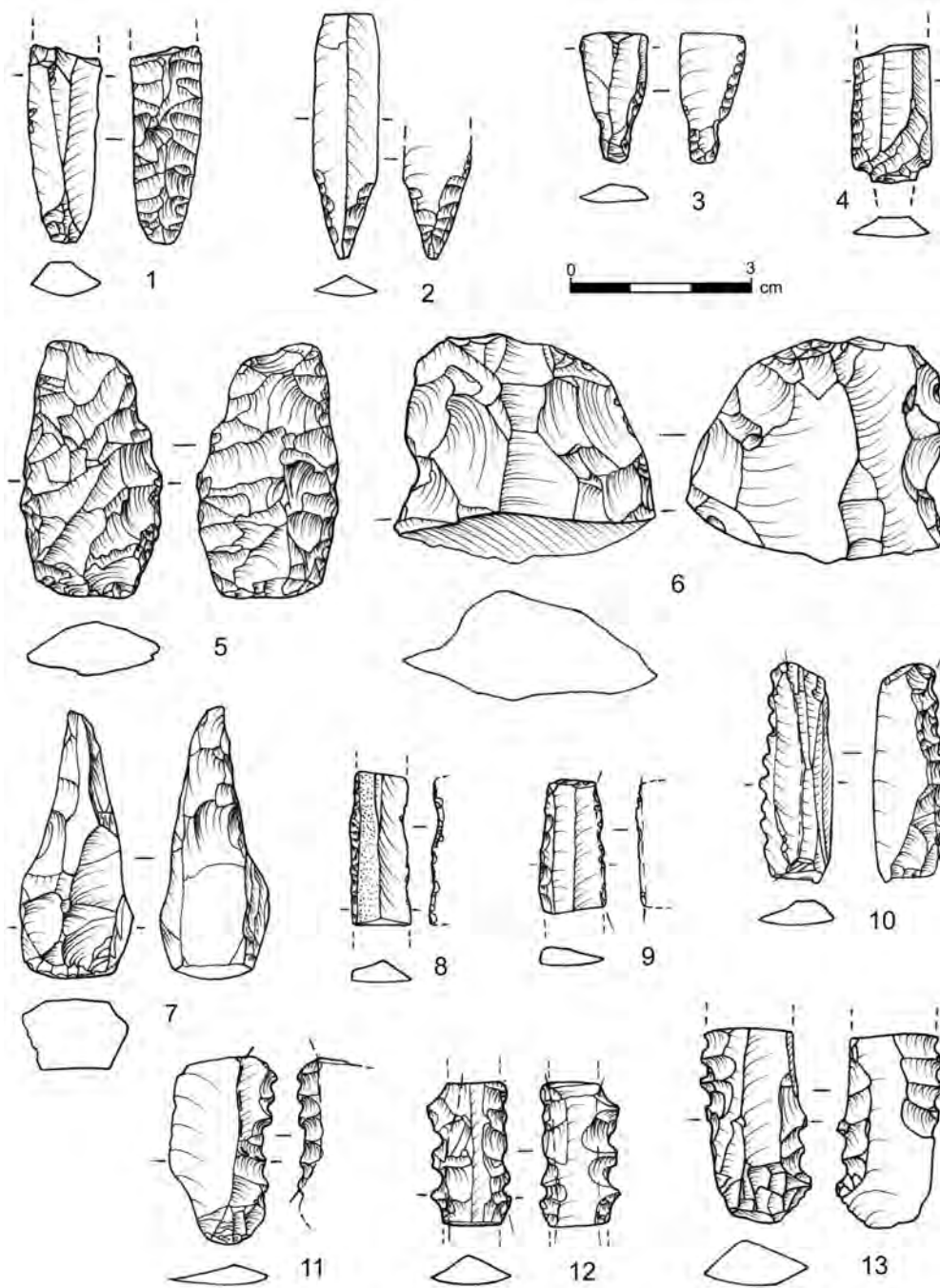


Fig. 2 Burgata-Eli: flint artifacts.
 1-4: arrowheads (1,2: Amuq; 3: Byblos; 4: Jericho);
 5-7: bifacials (5: axe; 6: adze; 7: pic);
 8-13: sickleblades (8,9: fine teeth; 10-13: large teeth).

condition. The high ratio of breakage is, however, noticeable: all the arrowheads, bifacials, sickle blades and retouched bladelets are broken, as well as the large majority of the retouched blades.

Some pink flints are also present, as in numerous Pre-Pottery Neolithic sites (Nadel 1997). At this level it is impossible to assign most debitage elements to a specific culture, with the exception of a few tool types: the arrowheads, with Amuq, Byblos and Jericho types (Fig. 2: 1-4) can be attributed to the end of PPNB/PPNC (Gopher and Gophna 1993; Gopher 1994; Galili 2004, figs. 108-109). The rather crude workmanship of the bifacials (Fig. 2: 5-7) would place them in the Pottery Neolithic. The sickle blades with fine or large denticulation (Fig. 2: 8-13) are typically Yarmukian (Garfinkel

1993). The assemblage includes also some pre-Neolithic elements (Table 2).

Most pottery shards are body fragments not indicative of a specific culture. However, the piece with wavy incisions (Fig. 3: 2) is typical to the Wadi Raba culture (e.g. Eisenberg et al. 2001, fig. 5.10: 1), as is probably the basalt perforated object too (Fig. 3: 1). If not intrusive, the brick fragments may also originate in the Pottery Neolithic.

The small assemblage of 72 complete and fragmented animal bones recovered at Burgata-Eli constitutes exclusively of domesticated livestock (Fig. 4). The assemblage is comprised predominantly of cattle (*Bos Taurus*, 49%), sheep and goat (*Capra/Ovis*, 34%) and to a lesser extent of domestic pig (*Sus scrofa domesticus*,

Tab. 2 Burgata-Eli: The retouched flint tools.

Type	n	%
Arrowheads	7	5.9
Amuq	3	
Byblos	2	
Jericho	2	
Bifacials	5	4.3
Axe	3	
Adze	1	
Pick	1	
Sickleblades	25	21.2
Retouched	6	
Denticulated	19	
Scrapers	6	5.1
Burins	4	3.4
Borers	1	0.8
Truncations	5	4.3
Notches	3	2.5
Denticulates	18	15.2
Retouched flakes	12	10.1
Retouched blades	13	11.0
Retouched bladelets	5	4.3
Perforated ring	1	0.8
Varia	13	11.0
Total	118	99.9

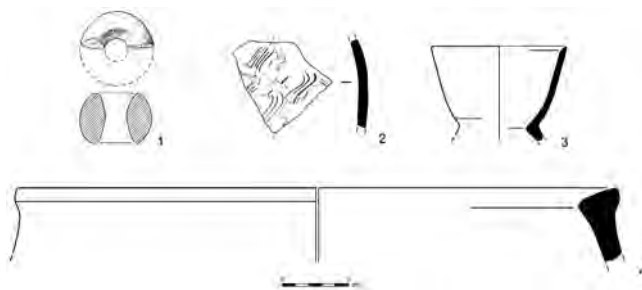


Fig. 3 Burgata-Eli: pottery and a perforated object of basalt.

12%). Additional species represented include the remains of horse/donkey (4%) and dog (1%), both of which could not be identified to species. The assemblage contains a large proportion of immature pigs, lower proportions of immature sheep and goats, and relatively high proportion of prime-adult cattle. The high juvenile ratio of pigs suggests that they were slaughtered primarily for their meat, while sheep and goats were apparently used for secondary products such as milk and/or wool. Similarly, the low rate of young cattle suggests milk or labor exploitation.

The bone assemblage reflects excellent conditions of preservation. The negligible signs of weathering indicate rapid burial and sediment accumulation. Cut-marked (n=8) and burnt bones (n=10) were observed on the

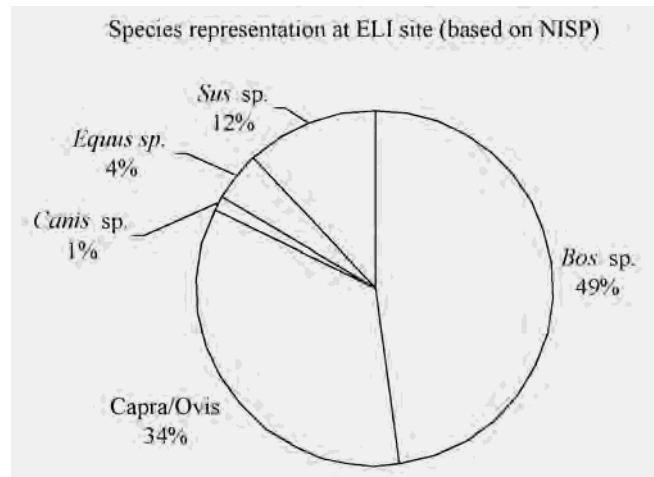


Fig. 4 Burgata-Eli: composition of the faunal assemblage.

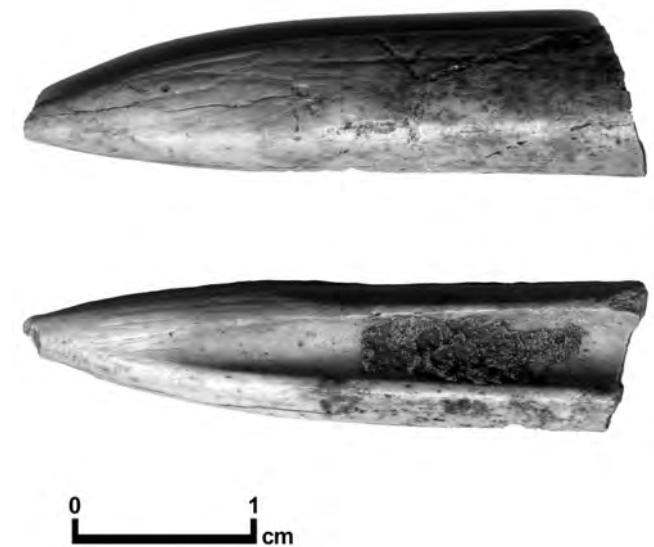


Fig. 5 Burgata-Eli: bone point made on a long bone shaft of sheep/goat (Photo G. Bar-Oz).

remains of cattle, sheep/goat and pig. In addition, a single bone point made on sheep/goat long bone shaft was found (Fig. 5). The absence of wild species from the faunal assemblage and the sole representation of fully domesticated taxa exclude the PPNB from contributing to the assemblage. It is, however, not possible to distinguish between the contribution of each of the Pottery Neolithic phases.

The eastern Sharon is covered by various Pleistocene and Holocene deposits. Accordingly, it is only in unusual cases that prehistoric sites are exposed and become available for study. The remains of the river-bank Neolithic site Burgata-Eli were brought to the surface by construction works. Other Neolithic valley sites in Israel are also covered by a thick alluvium layer, for

example Yiftahel (Braun 1997). We may deduce that in the eastern Sharon additional Neolithic sites are probably hidden beneath alluvial deposits.

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Field Report

Nahal Lavan 1006: An Ephemeral PPNB Camp Site in the Western Negev

Nigel Goring-Morris, Michal Birkenfeld and Omry Barzilai
Institute of Archaeology, Hebrew University, Jerusalem <msomry@mscc.huji.ac.il>

Introduction

The Pre-Pottery Neolithic period in the Levant is marked by great changes in settlement patterns and subsistence strategies in the Mediterranean woodland zone. These include among others, the establishment of permanent agricultural villages and stock herding economies. In the desert, on the other hand, life seems to have continued the pattern of the earlier Epipalaeolithic mobile foraging cultures based on seasonal residential camps and task-specific sites. The subject of the present note, the site

of Nahal Lavan 1006 in the western Negev dunes, falls within this latter category, as an ephemeral campsite.

The western Negev dunefields date primarily to the Late Glacial Maximum and are characterized by parallel ridges of longitudinal (alab) dunes oriented southwest-northeast which overlie Pleistocene loess and fluviially reworked silts and drape over exposures of the Eocene bedrock of the Har Qeren anticline (Goring-Morris and Goldberg 1991). The dunes have been, and are still, partially active and were reworked also at various different times during the Holocene.

The Site

Nahal Lavan 1006 is located at the southern edge of the western Negev dunes, close to the confluence of Nahal Nizzana and Nahal Lavan, both of which are less than 750 m away to the west and east respectively (Fig. 1). More specifically, the occupation atop a hill is situated within an extensive but shallow swale that gently slopes to the west, towards finer playa-type silts (Fig. 2). Active deflation in and around the swale has exposed earlier, partly consolidated dunes on and from which the occupation horizon was located. A few sand hummocks anchored by small bushes covered part of the site. A biogenic crust was present on the top of the compacted dune, though in other areas of the site there was a thin veneer of active sand.¹

Most of the recovered finds from the site (and especially the flint artifacts) can be dated to the Pre-Pottery Neolithic B period, although there are also minor components of Pottery Neolithic through Early Bronze lithics², as well as Early Bronze age through recent potsherds.

A total of 450 m² were systematically collected and excavated during the two seasons, using a 0.5 x 0.5 m grid except for an area at the edge of the excavation area that was surface collected (Fig. 3). Squares that were found to be rich in artifacts were dry sieved using a 0.25 cm mesh.

The Neolithic occupation was partially *in situ*, especially in the center of the excavated area (grid squares F-N/6-10), where most of the flint artifacts were recovered (Fig. 3). Still, minor post-depositional activity was iden-

Fig. 1 Location of Nahal Lavan 1006.

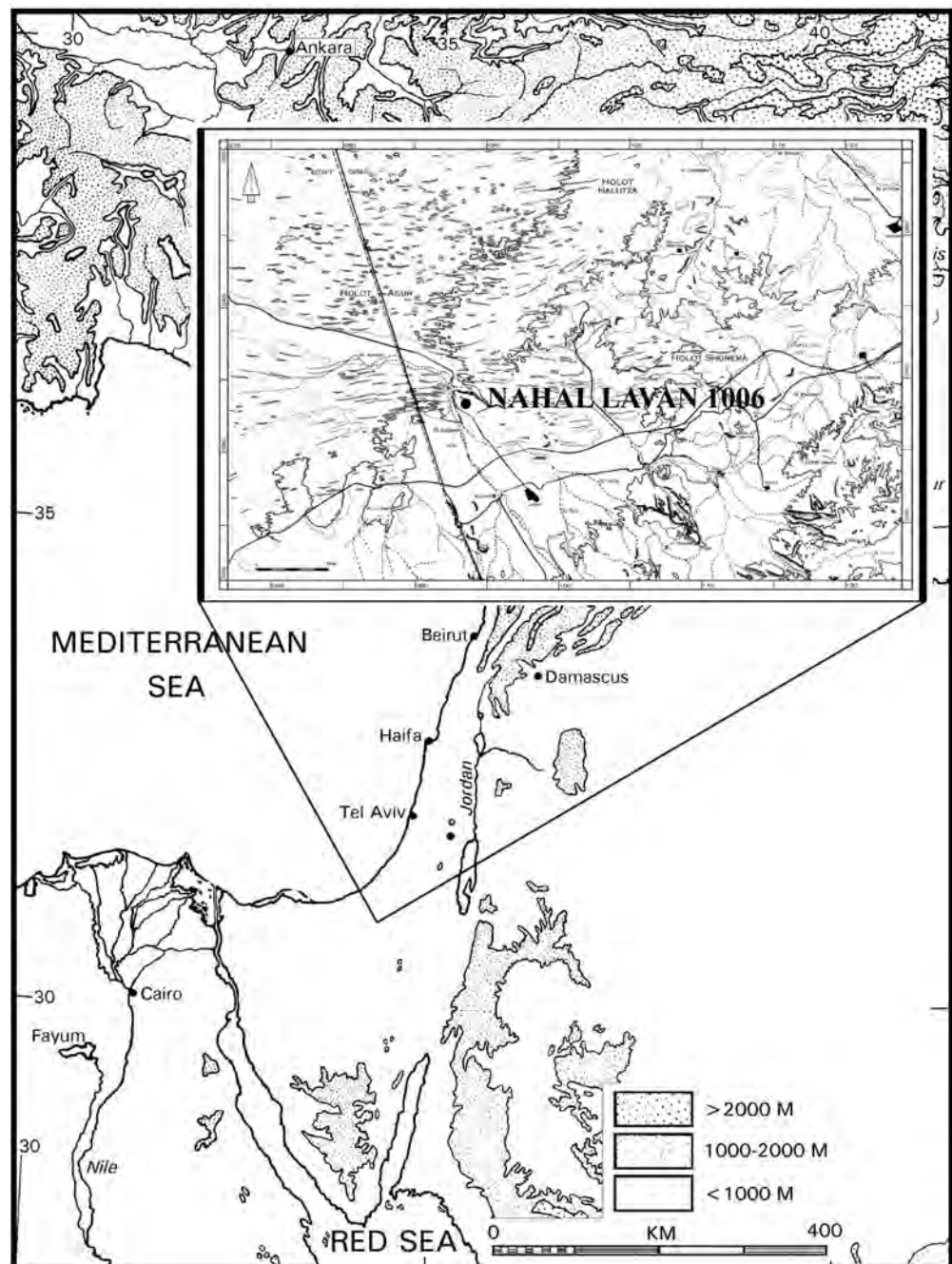




Fig. 2 The environmental setting of Nahal Lavan 1006. View to north-east.

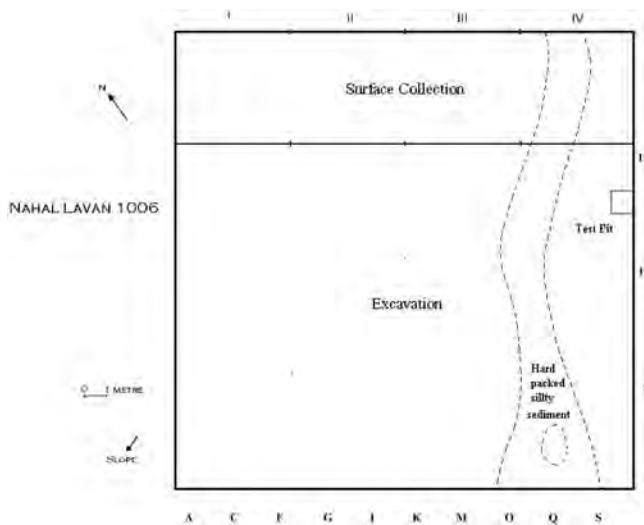


Fig. 3 Nahal Lavan 1006: plan of the excavated area.

tified around the southeastern edge of the site (grid squares O-R/1-15). This apparently reflects post-depositional erosion and runneling, which account for the low artifacts counts in this area and possibly for the later intrusions. A small test pit conducted at the eastern edge of the excavated area showed that this is a single-stratum site, some 5 cm thick, on top of a biogenic crust.

Numbers of angular burnt limestone fragments were strewn throughout the site, probably indicating the original presence of a hearth, which was not preserved. The non-lithic finds recovered include: 16 ostrich eggshell fragments, two of which were burnt; a small *Glycymeris* sp. seashell of Mediterranean origin; and 10 weathered unidentifiable animal bone fragments, on two of which cut marks are evident.

The Flint Assemblage

The lithic artifacts were made on Eocene pebbles and nodules, locally available either within the terraces and bed of Nahal Lavan and Nahal Nizzana or from exposures on the nearby slopes of Shluhat Qeren. The colors and

Tab. 1 General breakdown of the NL1006 lithic assemblage.

Debitage	n	%
Primary elements	525	10.3
Flakes	2513	49.2
Blades/bladelets	1599	31.3
Core trimming elements	300	05.9
Core tablets	114	02.2
Ridge blades	45	0.9
Burin spalls	15	0.3
Total	5111	100
Debris		
Chips	4283	84.5
Chunks	786	15.5
Total	5069	100
General		
Debitage	5111	49.1
Debris	5069	48.7
Tools	203	2.0
Cores	21	0.2
Total	10404	100

Tab. 2 Core types at Nahal Lavan 1006.

Core type	n	%
Initial cores	2	9.5
Flake cores	15	71.5
Bidirectional blade cores	4	19
Total	21	100

textures of the raw material are diverse, ranging from dark brown, to grey and beige. The texture also varies from fine grained, fine grained with chert or fossil inclusions, cherty, and striped. The recovered flint assemblage totals 10,404 artifacts, comprising cores (0.2%),debitage (48.7%), tools (2%) and debris (49.1%) (Table 1).

The cores

The flint assemblage includes 21 cores, which are divided into three groups: preforms (initial cores), flake cores, and bidirectional blade (*i.e.*, naviform) cores (Table 2).

The two preform cores (9.5%) were probably intended to produce flakes as their configuration is short and stubby. Most common are the flake cores (71.5%). This high frequency indicates the dominance of an *ad hoc* flake technology in the assemblage, which is also provided by thedebitage and tools (see below).

The bidirectional blade industry is represented by four exhausted cores (19%) (Fig. 4). Although few in number their shapes are heterogenic, including both narrow

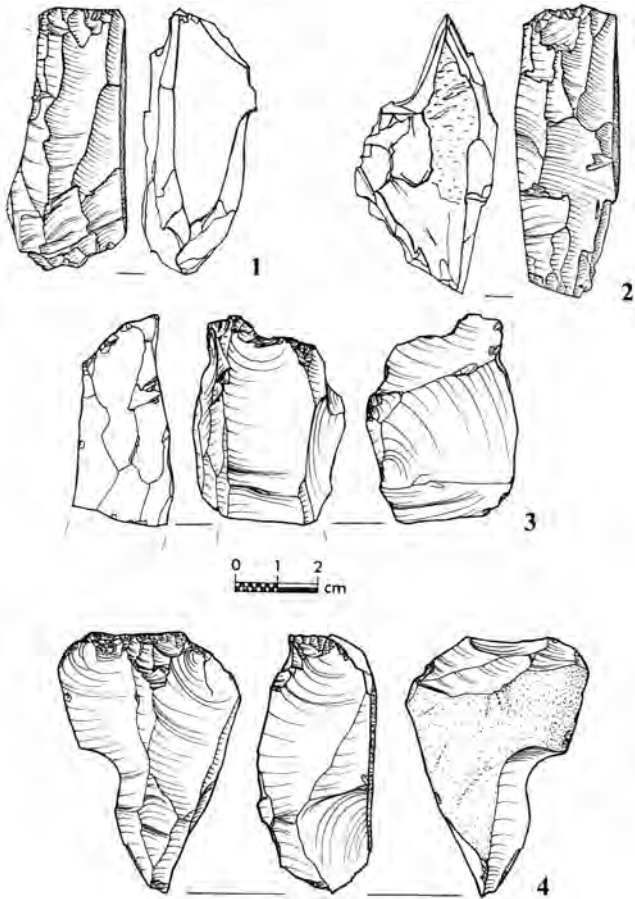


Fig. 4 Cores from Nahal Lavan 1006.
1-2: narrow bidirectional blade cores; 3-4: wide bidirectional blade cores.

(Fig. 4:1-2) and wide removal surfaces (Fig. 4:3-4). One of these cores displays non-hierarchical platforms (a dominant and a supporting platform – Fig. 4:a), while another, quite wide, was subsequently modified into a burin (Fig. 4:d).

The debitage

The composition of debitage types also confirms the presence of two technologies. The dominant one is an *ad hoc* flake technology as flakes are the most common type in the debitage (49.2%). Additionally, there are blades (31.3%), primary elements (10.3%), core trimming elements (5.9%), core tablets (2.2%), ridge blades (0.9%) and burin spalls (0.3%). It is interesting to note that, although 14 burin spalls were found, only four burins were recovered.

The second technology present focused on producing bidirectional blades, namely the characteristic PPNB “bipolar” or “naviform” technology. The distinctive products of this technology could be recognized including initial platform spalls, ridge blades, core tablets and core maintaining elements, as well as targeted blade fragments (Fig. 5).

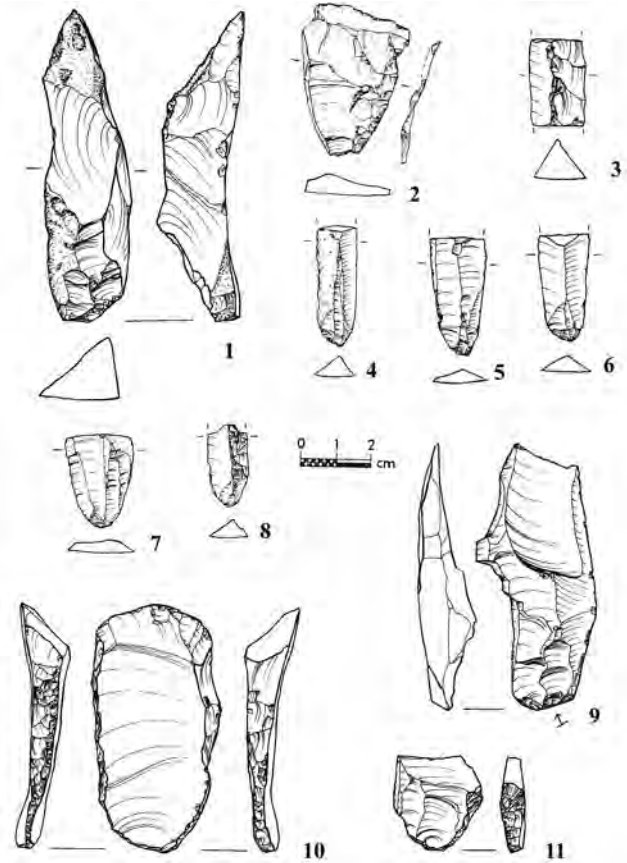


Fig. 5 Bidirectional blade technology debitage from Nahal Lavan 1006.
1-2: initial platform spalls; 3: ridge blade; 4-7: target blade fragments and a hinge; 8: secondary ridge blade; 9: hinge removal blade; 10-11: core tablets.

The tools

The tools contain 203 items (Table 3). Most common are the retouched blades and the *Varia* group (17.7% and 17.2% respectively). Within the retouched blades group, bidirectional blade blanks constitute about one third of the items (Fig. 6:16).

Tab. 3 Tool types at Nahal Lavan 1006.

Tool type	n	%
Projectile points	9	4.4
Perforators	23	11.3
Burins	4	2.0
Scrapers	26	12.8
Knives	5	2.5
Notches & Denticulates	29	14.3
Retouched flakes	27	13.3
Retouched blades	36	17.7
Bifacials	1	0.5
Hammer stones	8	3.9
Varia	35	17.2
Total	203	100

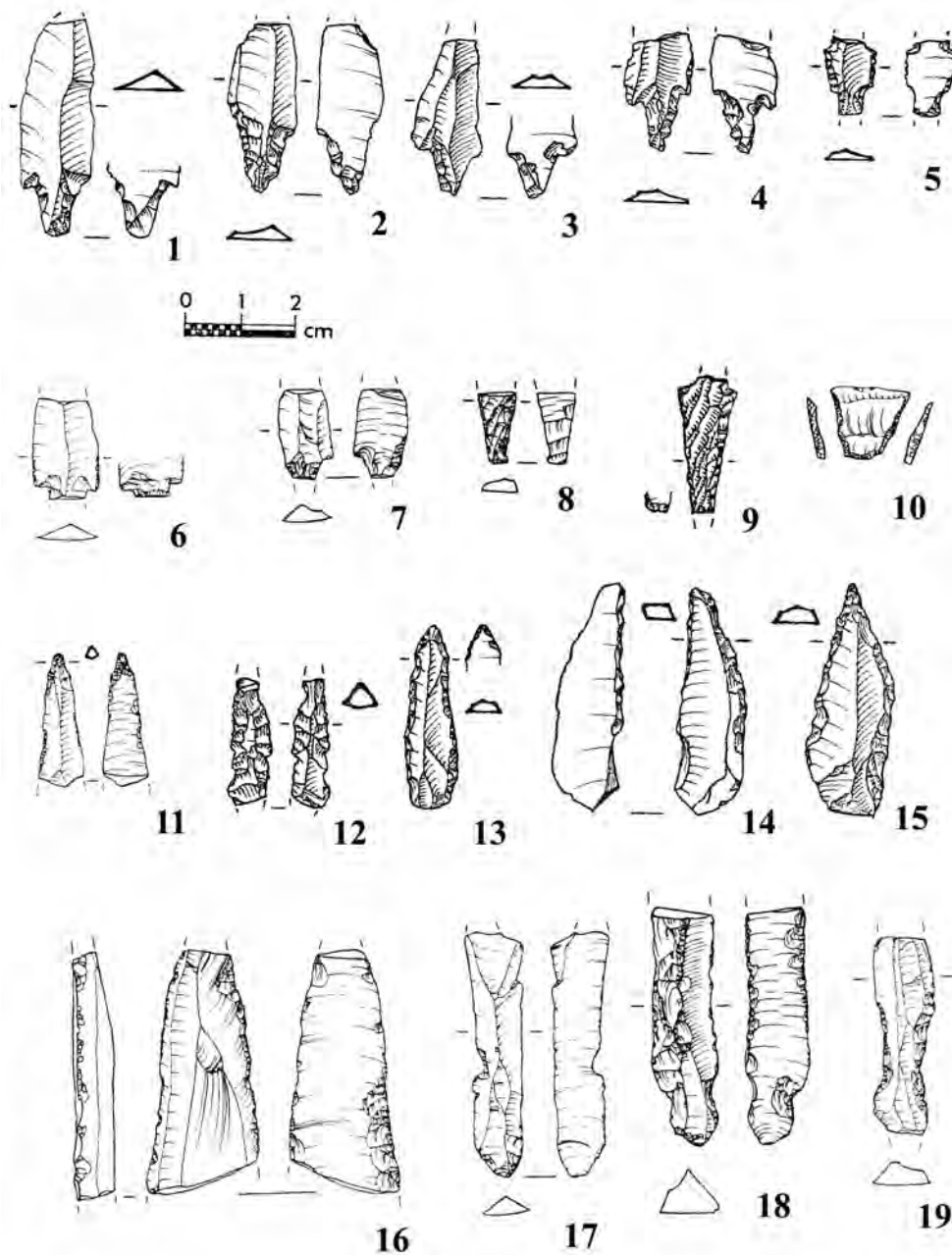


Fig. 6 The Nahal Lavan 1006 tools.
 1-10: projectile points;
 11-15: perforators;
 16: retouched blade;
 17: notch on an epsilon blade;
 18-19: atypical Nahal Hemar knives.

Second in frequency are the notches and denticulates (Fig. 6:17), the scrapers,³ and the retouched flakes, constituting 12.8 - 14.3% (per group) of the total tools. Awls and borers constitute 11.3% of the tool assemblage, of which the majority are micro-borers (Fig. 6:11-15). These could be related to the manufacture of ostrich egg-shell beads.

The two most chronologically indicative tool groups are the projectile points (4.4%) and the knives (2.5%). The projectile points group comprises nine points, all broken, and includes Jericho and Byblos points (Fig. 6:1-7). Two tang fragments, fashioned by atypical Abu-Gosh pressure flaking (Fig. 6:8-9), together with the Jericho and Byblos points date the major occupation at the site to the middle PPNB (Gopher 1994). However, a Late Neolithic presence is indicated by a transversal arrowhead (Fig. 6:10), as well as a fragment of a bifacial

knife. The remainder of the knives (N=4) include two blades with parallel notches fashioned at the proximal end of the tool⁴ (Fig. 6:18-19), somewhat resembling Nahal Hemar knives (Bar Yosef and Alon 1988).

The rest of the tool groups include burins and flint hammer stones constituting 2-3.9% of the tool assemblage (per group).

Discussion

The size and nature of the site indicate that this was an ephemeral camp site. Although no hearth was preserved the presence of burnt limestone fragments and ostrich egg fragments indicate one was originally present. The composition of the flint assemblage accords well with hunting-related activities, including retooling.

The tool frequency is relatively low, perhaps indicat-

ing that many tools were removed from the site. All of the projectile points are fragmented and several bear impact fractures. Other types present, such as the retouched flakes and scrapers, are often attributed to hide working. In addition, ostrich egg shell-related production may be indicated by the relative abundance of perforators and ostrich egg shell fragments.

Such ephemeral occurrences are well documented during the PPNB in the arid regions of the southern Levant (Bar-Yosef 1985; Simmons 1981). Small-scale occupation sites in the western Negev and northern Sinai dune fields include others in the Nahal Nizzana-Nahal Lavan region, the Halutza and Nahal Sekher regions, and Gebel Maghara (Burian and Friedman 1973, 1975, 1982; Mintz and Ben Ami 1977; Noy 1972, 1976). Others are located in the highlands as at Ramat Matred V, VI and VIII (Goring-Morris and Gilead 1981; Goring-Morris 1992). These are all short-term open-air activity sites, primarily focused on hunting and related activities.

These sites are part of a wider settlement pattern, which also includes more substantial seasonal base camps showing repetitive use as evidenced by the presence of architecture, and ground stone tools (Goring-Morris 1993; Simmons 1981; Bar-Yosef 1985). Such were recorded both in the Negev lowlands at Nahal Nizzana IX (Noy 1976), as well as in and around the central Negev highlands, as at Nahal Divshon (Servello 1976), Lavan Elyon I (Goring-Morris and Rosen 1987), and Ein Qadis I (Gopher *et al.* 1995).

A similar settlement pattern is known from other semi-arid PPNB hunter-gathering populations, such as in southern Sinai (Bar-Yosef 1985). It seems that this pattern reflects a continuation of broadly Late Epipalaeolithic models of exploitation, where mobility and seasonality played a crucial role (Goring-Morris 1991, 1993).

The location of Nahal Lavan 1006, together with other ephemeral Neolithic camps at the low sand dunes of the western Negev reflects a cyclic pattern of exploitation, probably by hunting groups. This should be seen in the broader context of foraging strategies of the Pre-Pottery Neolithic population of the Negev, as opposed to the Mediterranean regions in the southern Levant.

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Notes

¹ The site was discovered in the late 1970's by one of us (NGM), during the Emergency Archaeological Survey of the Negev. A small test excavation/collection was conducted then in order to define the site's boundaries, character and chronology. Some

25 years later, in 2003, a short season of salvage excavations was conducted prior to construction in the area under the direction of two of us (NGM and OB) on behalf of the Israel Antiquity Authority (Permit # B-274/2003) under the auspices of the Institute of Archaeology, The Hebrew University of Jerusalem.

² These are included in the counts given below.

³ Amongst the scrapers are two clearly intrusive Chalcolithic/Early Bronze fan-scrapers.

⁴ It should be noted that one of the artifacts (No. 18) was fashioned on a ridge blade.

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Contribution

An EPPNB Human Sculpture from Tell Sheikh Hassan

Bernd Müller-Neuhof

Museum of the Ancient Near East, State Museums Berlin <mueller-neuhof@gmx.de>

Introduction

Tell Sheikh Hassan is situated *ca.* 100 km east of Aleppo on the left bank of the Middle Euphrates in an area, which today is flooded by a lake behind the Tabqa Dam. After the archaeological reconnaissance in 1963 by A. Rihaoui and in 1964 by M.N. van Loon, J. Cauvin carried out an excavation season in 1976 to expose layers of a Neolithic settlement on the western flank of the tell. In 1981 evidence for an occupation of this site during the Uruk period atop Neolithic layers were found during a survey and a sounding on the tell by W. Orthmann. This was an important discovery, because it was the first Uruk settlement found on the left bank of the Euphrates River. For this reason, and because of the threat of the site caused by the rising water level, rescue excavations were carried out on the site under the direction of J. Boese (Universität des Saarlandes, Saarbrücken) from 1984 to 1990, 1992 to 1994, and 1997. These excavations concentrated on the occupation of the Uruk period (Boese 1995). Some soundings in Neolithic layers previously exposed by the German team in the centre of the tell beneath excavated Uruk layers, were carried out in 1993 under the direction of D. Stordeur (Stordeur 1999).

The stratigraphy reflects occupation periods which can be dated into the PPNA/EPPNB, Early Chalcolithic (Halafian/Ubaid period)¹, Late Chalcolithic (Uruk-period), Iron Age (Neo-Babylonian) to the Islamic period (Boese 1995: 13; 1995/96: 158f.; Boese n.d.; Stordeur 1999: 60f.).

Although the German research concentrated on the Uruk period layers, Neolithic layers were also exposed during these excavations, due to the fact that the Uruk architecture was erected almost directly on the remains

of the Neolithic occupation (Boese 1995: 139). Besides some architectural remains and a burial, mostly lithic artefacts were found in these layers reflecting the PPNA/EPPNB lithic technology (*cf.* Müller-Neuhof forthcoming), which was also noticed by Abbès and Stordeur in the material of the French excavations at Tell Sheikh Hassan (Abbès *et al.* 2001; Stordeur 1999).



Fig. 1a Photo of the statuette of Tell Sheikh Hassan. Front-side. (by H. Peters).

During the first season in 1984 a small anthropomorphic alabaster sculpture was found. A workman of the excavation team discovered it in the lower part of a high section of the NW slope of the tell at the level of the Neolithic layers (Boese, pers. comm. Oct. 16, 2006). The sculpture was briefly published in the compilation of preliminary excavation reports of the Tell Sheikh Hassan excavations in 1995 (Boese 1995: 12, 17 fig. 4.c).

Description

The anthropomorphic sculpture was carved out of a flat alabaster slab. This sculpture is a representation of a standing person with hanging upper arms and flexed lower arms in front of the trunk, where both arms are connected with each other on upper abdomen level.

It has a preserved height of 119 mm, a maximum width in the shoulder area of 65 mm, and a thickness of 13 mm (Fig. 1 a, b and 2). Front and back sides can be identified, although the face is missing, probably broken off or made of a different material that became lost. The legs are broken off just above the knees, and the left upper arm including the elbow is also missing, leaving a short stump of the upper arm and the rest of the lower arm.

The outline shape, characterised by wide shoulders and slender hips, points to the depiction of a male person, a suggestion also supported by the lack of any other sex characteristics. The right upper arm (Fig. 1a) and the elbow are sculptured, leaving a narrow gap between the

trunk and the arm. The same must be assumed for the missing left upper arm. The transition from the upper arm to the lower arm forms an angle of *ca.* 45°, directing both lower arms towards the upper abdomen area at the front of the trunk. Contrary to the upper arms, the lower arms are worked in half relief, and the hands at their ends are not visible. Because the arms are connected with each other forming an angle of *ca.* 90°, it is clear that the hands are not broken off, but instead they were just not depicted. The upper part of the legs on the front side are not represented too, in contrast to the back side, where a vertical groove shows the existence of legs (Fig. 1b)². Just above this vertical groove are two parallel horizontal grooves, which can be interpreted as the depiction of a belt. Besides the belt depiction on the back side, which probably indicates clothing, the front side also shows evidences for clothing (Fig. 1a). The torso was clothed, which is indicated by a V-shaped neckline and a waistband. Both characteristics are represented by steps, leaving the clothed parts of the trunk in high relief compared to the head and the lower part of the body. Interestingly, the legs and also possible male genitalia are not visible on the front, therefore it might be assumed that the lower parts of the body was clothed at least on the front side too. Considering the step fracture at the lower end of the sculpture, it is also possible that representations of legs and possible sex characteristics existed on the front side but later broke off. The whole representation is characterised by a high naturalness with nearly exact proportions of all body parts with the exception of the non-depicted hands.

Interpretation and Dating

It was difficult for the excavators to date this object clearly in the year of discovery since a clear stratigraphy for the tell was not yet established that year; furthermore,



Fig. 1b Photo of the statuette of Tell Sheikh Hassan. Back-side (by H. Peters).

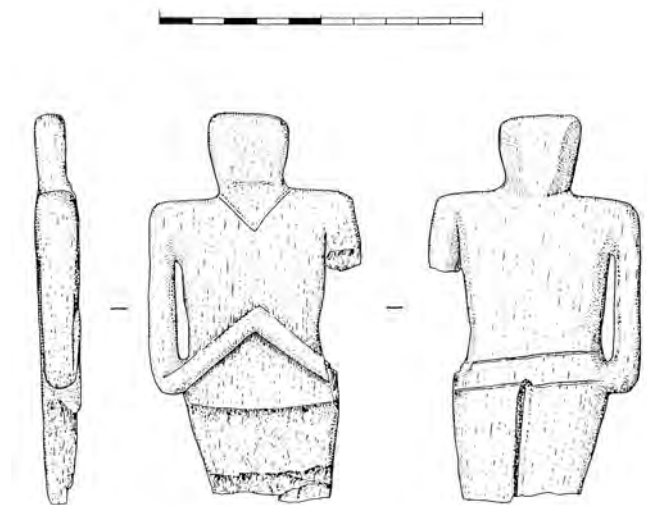


Fig. 2 Drawing of the statuette of Tell Sheikh Hassan (W. Ventzke/F. Bachmann; see Boese 1995: fig. 4c).



Fig. 3a Photo of the Göbekli statuette from the “Löwenpfeilergebäude” (by D. Johannes, German Archaeological Institute, Istanbul).



Fig. 3b Photo of the Göbekli statuette from the “Löwenpfeilergebäude” (by D. Johannes, German Archaeological Institute, Istanbul).

in 1984 early Neolithic artwork, especially anthropomorphic sculptures from the region of the Middle Euphrates, was not well known. A very provisional dating into the Early Bronze Age was proposed in the first preliminary report, more or less based on some stylistic features typical for Early Dynastic sculptures, especially the flexed position of the arms in front of the body, keeping worshipper statuettes of the ED II (Early Dynastic II) and later periods in mind. But the doubtfulness of this provisional dating was already clear to the excavators in 1984, especially since no Bronze Age layers could be traced in the stratigraphy of the tell and no similar objects were known from the Western and Middle Euphrates region dating into the assumed period (Boese 1995: 12).

Meanwhile, in the region of Upper Mesopotamia and the Levant, a growing number of human representations in sculpture and relief were discovered that dated to the PPN period (e.g., ‘Ain Ghazal, Basta, Göbekli Tepe, Jericho, Jerf el-Ahmar, Nahal Hemar, Nevalı Çori, Ram, Urfa, etc.). For a proper dating of the Tell Sheikh Hassan sculpture according to stylistic characteristics, three human representations showing strong stylistic similar-

ities to the Sheikh Hassan statuette from Göbekli Tepe, Urfa and Nevalı Çori can be taken into consideration.

Göbekli Tepe

The closest resemblance to the statuette is found in a small anthropomorphic figure from the “Löwenpfeilergebäude” in Göbekli Tepe (Turkey) (Fig. 3 a, b and 4), which has a preserved height of 32 mm, a width of 15 mm and thickness of 7 mm (Schmidt 2000: 34, fig. 14b). Head and feet are missing. Similar to the Sheikh Hassan sculpture is the utilization of a flat piece of stone as raw material, the representation of a standing (male?) person with hanging upper arms and flexed lower arms in a degree of *ca.* 45°, which meet in the area of the upper abdomen; legs are characterised by a vertical groove, and the depiction of the lower end of the torso or maybe a belt by a horizontal groove on the back. Contrary to the Sheikh Hassan sculpture, the arms of the Göbekli sculpture are worked out in half relief, leaving no gaps between the trunk and the upper arms. The depiction of legs is visible on the front and on the back sides. On the

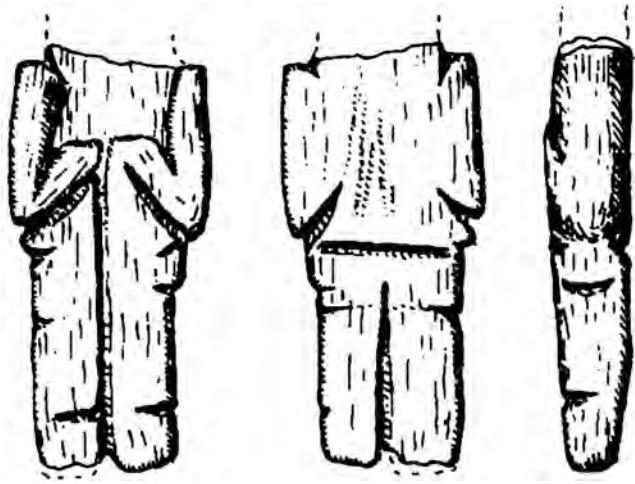


Fig. 4 Drawing of the Göbekli statuette from the “Löwenpfeilergebäude” (by K. Schmidt, see Schmidt 2000: fig. 14 b).

back-side just one horizontal groove is visible, possibly indicating a waistband of clothing. Clothing on the front side is not depicted by steps and high relief, but there are small grooves, located on the sides of the trunk of the sculpture on the level of the lower end of the body and additionally above the ankles of the feet(?) that might represent clothing. This small statuette was found in the filling debris of the EPPNB “Löwenpfeilergebäude” and was dated to this period (Schmidt 2000: 33).

Urfa

Another example comes from Urfa (Turkey), where a life-sized anthropomorphic sculpture (Fig. 5) was found in the 1980s by construction works in the old town (Schmidt 2006: fig. 93). The head was broken off, but it was found and attached to the body. The feet of this statue are missing. The lower part of the body seems to be shaped like a pillar, so there was probably no intention to depict legs. The whole representation shows some similarities with the Sheikh Hassan sculpture, especially the sculptured hanging upper arms that leave a gap between them and the body, and the arms and a V-shaped neck, worked out in high relief, representing clothing. But some differences are also visible. In contrast to the Sheikh Hassan sculpture the lower arms of the Urfa sculpture are not flexed, hands are depicted, meeting just above the genitals, and a part of the penis and the testicles are visible below these hands. The male sex is therefore clearly represented. Also the depiction of the V-shaped neck shows some differences, for here it is a “double neck” consisting out of two angles, each worked out in high relief.

Nevalı Çori

The third example, showing similarities with the Tell Sheikh Hassan statuette, is not a sculpture but a nearly

3m high pillar from the “Gebäude III” in Nevalı Çori (Fig. 6) dated to the EPPNB (Hauptmann 1993: 52f., 56, fig. 16). This pillar bears some depictions in high relief that have anthropomorphic features. On both lateral surfaces of the pillar an angle is worked out, representing flexed arms in an angle of nearly 90°. Compared to the lateral surfaces the front side of the pillar is very narrow; here, continuous with the lower arms on the lateral surfaces, hands are depicted nearly meeting each other also in an angle of *ca.* 90°. Above the hands a “stola”-like feature is visible, represented by two long vertical bands connected in the upper part of the pillar by a V-shaped angle that shows some similarities to the V-shaped neck of the Tell Sheikh Hassan and the Urfa sculptures. The lower ends of the two bands are located just above the hands. Due to the delineations on three sides of the pillar, this representation distinguishes it from the other mentioned sculptures. But strong similarities with the other sculptures become clear if the three surfaces are placed side by side (Fig. 7). It is again the representation of a standing person with flexed arms and hands meeting in front of the body. The stone-workers of the pillar transferred a two-dimensional image on three sides

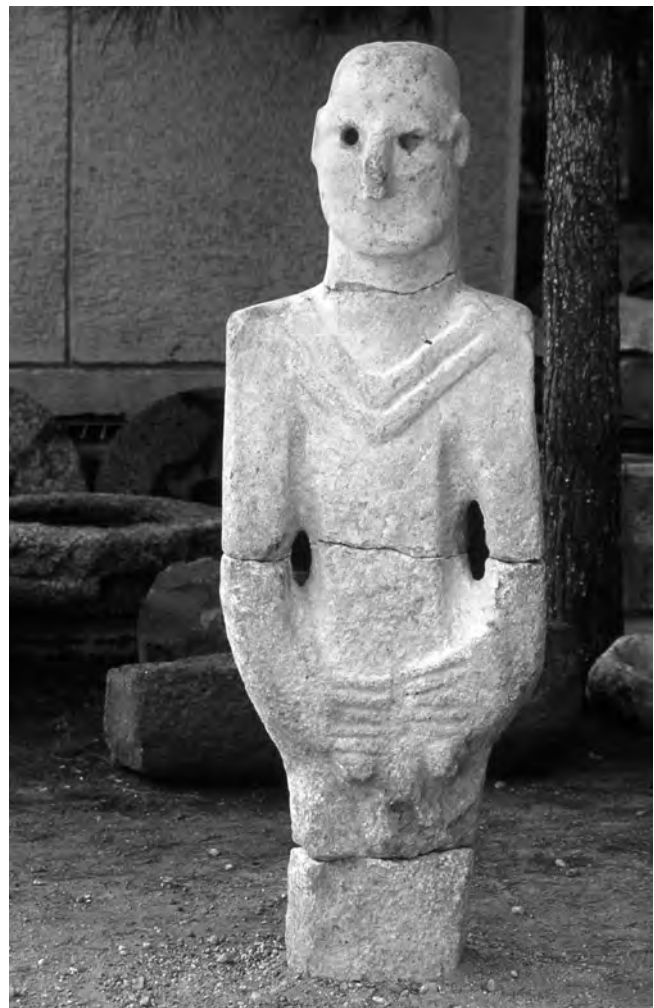


Fig. 5 Photo of the Urfa sculpture (by I. Wagner, German Archaeological Institute, Berlin)

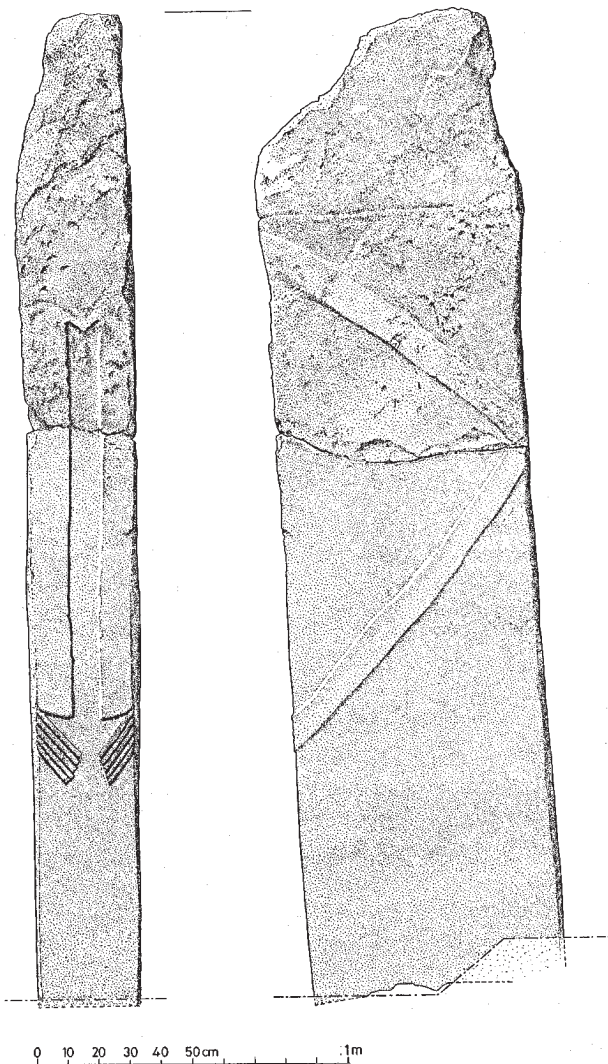


Fig. 6 Drawing of the pillar in "Gebäude III" in Nevalı Çori (by N. Wrede; see Hauptmann 1993: fig. 16).

of a block to create a "pseudo" three dimensional sculpture, which resulted that the whole representation of the person with this gesture is not visible from one place. It is evident that the representation on the Nevalı Çori pillar is not only a transfer of this motif on three sides of a block, but also a reduction of this motif to its most essential characteristics. This means that such a motif (standing [male?] person with flexed arms and hands on front of the body) and its meaning were familiar to the original viewer, because he was also familiar with the more natural depictions of these motifs, such as the Göbekli Tepe and Tell Sheikh Hassan sculptures.

Dating

The statuette from Göbekli Tepe and the pillar from Nevalı Çori are clearly stratigraphically dated into the EPPNB, which is also assumed for the Urfa sculpture. Therefore a dating into this period on basis of stylistic similarities can also be proposed for the Tell Sheikh Hassan sculpture. This stylistic dating is supported by

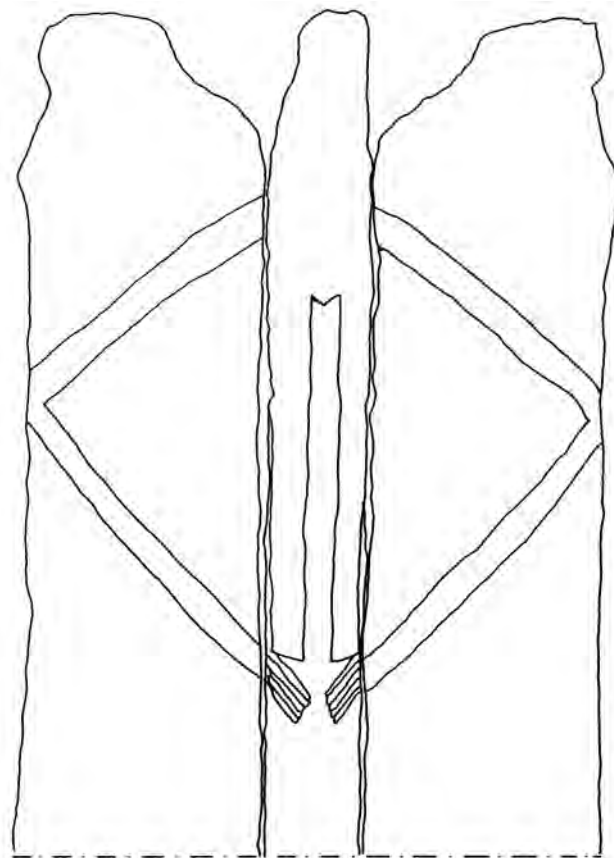


Fig. 7 Assembling of the three sides of the pillar in "Gebäude III" in Nevalı Çori (by Müller-Neuhof).

the evidence of Final PPNA and EPPNB occupation layers in the stratigraphy of Tell Sheikh Hassan, especially characterized by lithic finds (Abbès *et al.* 2001; Stordeur 1999; Müller-Neuhof forthcoming).

Interpretation

It is interesting to see that the mentioned human representations are all characterised by flexed arms and lower arms and/or hands resting in front of the trunk. These are the first known representations of a specific gesture that can be found again in anthropomorphic sculptures in the Late Neolithic, Chalcolithic and Bronze Age in the whole Near East, such as those from Tell es-Sawwan, Be'er Sheva, Tell Asmar, and Khafajah (Mellink and Filip 1985: Taf. X; Oates 1966: 146ff.; Frankfort 1939; 1943).

The meaning of this specific gesture remains unclear to us today, although different explanations are proposed, ranging from the psychology of gestures to the comparison with 'modern' gestures, for instance in religious ceremonies. From the psychological point of view, flexed arms with hands lying on front of the body signal the readiness of a person to react; especially in defensive or offensive situations, this gesture is a typical starting position (Strehle 1954: 129). It also implicates self-control and self-confidence (Strehle 1954: 129). Arms crossed

on the thorax indicate a sort of self-isolation; the person assumes a wait-and-see attitude and refrains from any action (Strehle 1954: 129). It is a retention pose, which in some parts of the world has the meaning of respectful subordination, but it can also be part of a provocation gesture when it is combined with specific facial expressions (see Strehle 1954: 129f.).

Another interpretation of this gesture is the assumption that it reflects praying. This was assumed for the much later “worshipper” statues from the Early Dynastic II and later periods in Mesopotamia (e.g., from Tell Asmar and Khafajah: Frankfort 1939; 1943; Braun-Holzinger 1977), which show similarities with the EPPNB sculptures in their hand- and arm-positions. The interpretation of this gesture as a prayerful one was in accordance with an analogy to modern praying poses (cf. Bonatz 2002: 60). Meanwhile these sculptures are interpreted as intercession figures (Bonatz 2002: 60). But it is too insecure to draw any conclusions from these similarities.

It is clear that we are not able today to interpret the gestures of these EPPNB sculptures and therefore their functions. It is even highly possible that the four mentioned examples reflect different poses and therefore functions. Differences in their depictions occur in the position of the hands. For instance, the Urfa statue and the Nevalı Çori pillar show 90° angles for the flexed arms, and hands are orientated more towards the lower end of the trunk. On the other hand, the statuettes from Göbekli Tepe and Tell Sheikh Hassan are characterised by flexed arms with a ca. 45° angle and (missing) hands that would have met in the upper abdomen area of the torso. Additionally, the sizes of these representations are very different, with life- or over-life sizes for the Urfa and Nevalı Çori representations and small sizes of the Göbekli Tepe and Tell Sheikh Hassan statuettes.

For a better interpretation of the function of these sculptures many more similar figures are needed from EPPNB (even earlier and later) contexts in order to have enough comparable material. Additionally, the context of the location where these sculptures have been found, should be considered too. Except for the Nevalı Çori pillar, all sculptures were found in rubble layers (Göbekli Tepe, Tell Sheikh Hassan) or during construction work without attending archaeologists and without proper documentation (Urfa). The location of the Nevalı Çori pillar in a non-domestic building (“Gebäude III”), probably used for meetings of a group of people, may have a ritual background, reflects a possible function of this depiction in a ritual/religious context.

In conclusion, it can be stated that with this statuette from Tell Sheikh Hassan we have another example of anthropomorphic artwork from the EPPNB period; a date supported by iconographic features with strong similarities to other EPPNB human representations of the wider region and the existence of final PPNA and EPPNB

occupation layers on the tell itself. Although so far it is not possible to interpret the function of this statuette and to understand the meaning of its pose, it has to be stated that this statuette is a very early example of a sculptured representation of a standing human being with a gesture that becomes common for the human sculpture in the later millennia in the Near East.

Acknowledgements. It was a coincidence that I saw a replica of this statuette in Berlin, the original of which is exhibited in the museum in Raqqa (Syria), while discussing the lithic material from Tell Sheikh Hassan with Johannes Boese. I am very grateful to him for giving me the permission for the publication of this statuette. My thanks also go to Klaus Schmidt for his permission to publish a photo of the Göbekli figurine and the Urfa stela in this contribution.

Notes

¹ At the northern foot of the tell.

² Although the representation of clothing is in my opinion the most possible one, other interpretations of this V-shaped “neck” should be mentioned too. It could also be possible that this is the depiction of a necklace or of the clavicle.

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Short Note

Animals and a Headless Man at Göbekli Tepe

Klaus Schmidt

German Archaeological Institute, Berlin <cls@orient.dainst.de>

Since 1995 impressive enclosures of the 10th and 9th millennium B.C., the time of the transition to sedentism, have been excavated at Göbekli Tepe near Şanlıurfa. The most important discoveries are round enclosures made up of T-shaped pillars that can be interpreted as stylised representations of humans. Frequently they bear depic-

tions of snakes and spiders, foxes and wild boars, gazelles and wild asses or other animals native to the region in low-relief.

Work in the campaign of 2006 aimed, as in earlier years, at enlarging the excavated area to uncover the monumental enclosures. In the course of excavation in



Fig. 1a Göbekli Tepe: The high-relief on Pillar 27, Enclosure C, from the east; about 9000 BC.



Fig. 1b Göbekli Tepe: The high-relief on Pillar 27, Enclosure C, about 9000 BC.

Enclosure C a sculpture of a snarling predator was discovered in situ on Pillar 27 (Figs. 1a, b). The animal and pillar are made of one piece.

In Enclosure D Pillar 43, of which so far only the front has been visible, could be uncovered on its western side up to a height of 3 m (Fig. 2). The whole surface of the pillar is covered by a variety of motifs. Dominating is a big vulture, looking right to the center of the enclosure. It lifts its left wing, while the right wing points to the front. It is possible, that this gesture aims at the sphere or disc, which can be seen above the tip of the right wing.

To the right of the vulture another ibis-like bird, a snake, two H-shaped symbols and maybe a poult are depicted.

Between the vulture and “ibis“ lies a pattern of slightly bent multiple angles and squares. Immediately above we see three big, similarly carved box-like objects with handle-like attachments, each accompanied by an animal. Another line of angles forms the upper limit of the relief as well as of the pillar.

On the shaft beneath the head of Pillar 43 more animals are depicted. Here, a huge scorpion and the head and neck of another bird dominate the scene. Neither is ori-



Fig. 2 Göbekli Tepe: Pillar 43, Enclosure D; about 9000 BC.

ented to the center of the enclosure, but to the outside. This is the first case of animals on the reliefs of Göbekli Tepe not looking to the inside of “their” enclosure.

To the right of the bird’s neck an especially interesting motif is depicted. Due to damage to the pillar it is not preserved completely, but the representation of a headless human with erect penis is recognizable quite clear-

ly. The state of the man could indicate a violent death, and his company of scorpions, snakes, and vultures strengthens this impression. The sequence of pictures on this pillar shows us impressively how rich the stone age mythology must have been and how poor our knowledge about it still is.

Workshops

The 6th International Conference on PPN Chipped and Ground Stone Industries Yarmouk University (Jordan), March 18–23, 2007

Provenance, Function, and Technology:
The Contribution of Science to the Study of Chipped and Ground Stone Tools

First circular

We warmly invite you to participate in the 6th Workshop on PPN Chipped Stone Industries to be hosted by Yarmouk University (Jordan), March 18 – 23, 2007. The University of Jordan, the University of Mu’ta, and the Department of Antiquities of the Hashemite Kingdom of Jordan are also participating in the organization of the meeting. The opening ceremony and visits to the Faculty of Archaeology and Anthropology museum and laboratories (which notably contain collections from ‘Ain Ghazal, Abu Thawwab, Abu Hamid, and Basta) will be held at the University in the town of Irbid in northern Jordan on the 18th of March, and then all conference participants will be taken to Petra (Wadi Musa) for the night.

The remainder of the conference will be based at a hotel in Wadi Musa. The University of Yarmouk is currently negotiating a rate with a very good hotel immediately outside the gates of Petra. Wadi Musa is very well situated for tours to many important PPN sites, including Basta, Ba’ja, and Beidha in its immediate vicinity, Shkarat Mseiad on the road down to the Wadi Araba, Ghuwair 1 and Wadi Faynan 16 in the Wadi Araba, and many others within a short distance of the conference, such as Es-Sfiya and ‘Ain Jamman. We have programmed a day and half for excursions. The Department of Antiquities is supporting the conference, and we hope to use some of their facilities close to the hotel to provide secure space for people to bring material and lay it out for discussions and evening workshops.

Call for proposals

At this stage we are calling for proposals, both for individual papers and for sessions. We intend to include papers, posters and practical workshops within the con-

ference. We will be especially pleased to include some sessions based around Jordanian material.

Continuing the tradition of the previous workshops (Berlin 1993, Warsaw 1995, Venice 1998, Nigde 2001, Fréjus 2004), our purpose is to organize a discussion between the specialists of the PPN chipped and ground stone industries in the Fertile Crescent and its surroundings. We hope to present new contributions on the main issues developed over the previous workshops, especially those which address anthropological considerations, i.e., the connection between technological systems and the economic and social organization of Pre-Pottery Neolithic communities, their cultural identities, and interactions.

The organizers wish to promote several topics that could help us to deal further with such issues. The main theme of the conference, which recognizes the expertise of Yarmouk University, is the contribution of science to the study of stone tools.

Following on from Fréjus, we believe that it is important to look at stone tools within their contexts and therefore to include information on sites, and to discuss such issues as spatial patterning. We are also very keen to hear reports on new projects, remembering that the focus of papers is always on the stone tools.

During the workshop, we plan to organize a knapping session in order to illustrate the current debates.

Organising Committee:

Ziad al-Sa’ad (Chairman), Zeidan Kafafi, Hamzeh Mahasneh, Bill Finlayson, Khaled Abu Ghaniemeh, Mohammad Najjar, Maysoun Nahar, Nizar Abu Jaber.

International Committee:

Hans-Georg Gebel, Gary Rollefson, Leslie Quintero.

Contact:

Zeidan Kafafi: zeidank@yahoo.com

Landscapes in Transition: Understanding Hunter-Gatherer and Farming Landscapes in the Early Holocene of Europe and the Levant, March 2007

This workshop is being held in Jordan to bring together a number of invited participants working on this subject in both NW Europe and the Levant. The workshop is being organised by Bill Finlayson (CBRL) and Graeme Warren (School of Archaeology, University College Dublin) to examine what it is that makes hunter-gatherer and farming landscapes different in the late Pleistocene/early Holocene, taking case studies from the contrasting regions of the Levant, where the transition to farming is indigenous, and the NW of Europe, where the transformation is initiated externally. The contrast between the two regions will also provide valuable comparisons between archaeological traditions and bodies of evidence. By invitation, for further information contact: b.finlayson@cbrl.org.uk

Eat, Drink and Be Merry: Approaching Consumption in the Neolithic Near East. Workshop at TAG 2006, Exeter

As part of the 2006 TAG, the annual British conference on Theoretical Archaeology, 15-17 December in Exeter, we submitted a small session on the theme of consumption practices in the Near Eastern Neolithic. Eight papers in total were presented, covering a wide variety of topics and regional-material specializations. Whilst the main focus of this session was the Near East, we welcomed comparative papers from elsewhere. Thus, Thomas Dowson offered his views on the “cup and ring motifs” of the Irish and British Neolithic/Early Bronze Age.

What do we mean with *consumption*? It is evident that consumption – from Latin *consumere* – has some very different meanings in English, from pulmonary tuberculosis to being exposed to a particular audience (as in “but my paper was never intended for public consumption”), from the literal consumption of food or resources to the metaphorical utilizing of goods within a capitalist economy. Most participants of the workshop took it to refer broadly to the literal and/or metaphorical con-

sumption of food, resources and goods, but some included monuments, art and even the human body. A main concern with many of the participants was to show how consumption practices were not passive reflections of whatever social, symbolic or cognitive structures or identities Neolithic communities had established; rather they were social mechanisms actively involved in negotiating, maintaining and reproducing these structures.

Feasting in particular appeared to be a rather popular theme among many of the participants. Rob Carter, Phil Karsgaard and Olivier Nieuwenhuyse discussed the role of feasting in relationship to painted ceramics in the Neolithic and the Ubaid, arguing for an important role of these items and associated practices in the formation of prehistoric social identities. By way of contrast, Jonathan Last and Catriona Gibson also talked about ceramics and feasting, but arguing that these should always be seen as part of a wider set of practices. Catherine Breniquet discussed the role of pig husbandry and feasting in the formation of Ubaid and Early Uruk societies. Rachel Conroy and Stuart Campbell analyzed ritual feasting as part of burial practices at Early Bronze Age Jerablus Tahtani. Karina Croucher and Stuart Campbell ended the session by talking about the complex practices surrounding the infamous “Death pit” at Domuztepe; whilst making a case for cannibalistic practices in the Late Neolithic, the social aspects surrounding the practice were focused on.

We are currently considering the publication of the session and would welcome any suitable further submissions to the publication. Abstracts and further information is available from the session organisers and the individual participants.

We would like to thank all of the session’s speakers, as well as the audience participants, for a stimulating session.

Olivier Nieuwenhuyse, National Museum of Antiquities, Leiden,
onieuw@xs4all.nl
Karina Croucher, University of Liverpool,
karina.croucher@liverpool.ac.uk
Rachel Conroy, Sheffield Galleries and Museums Trust,
rachelconroy@gmail.com

New Theses and Ongoing PhD and MA Research

Abdulrahman, Ammar

2006 *Neolithic Figurines in Syria*.
PhD Thesis, Damascus University, Department of History
Supervisor: Prof. Sultan Muhesen

Abstract

The ancient Near East witnessed development in many cultural aspects during the Neolithic period. One of these aspects, common in most Neolithic sites, was the appearance of figurines. Their roles, either religious or something else, were important in the everyday life of ancient

communities. Syria is the land of many Neolithic sites. The title of this thesis has been defined as “Neolithic Figurines in Syria”.

Architecture represents an approach to study the context in which those figurines existed. This makes it pertinent to study the Neolithic architecture in the PPNA and PPNB in part I of the thesis. In this part domestic architecture is studied according to the development of its planning, construction and materials. In addition, structures with possible religious features are given special attention. The existence of some figurines in such structures, or rather “sanctuaries”, has significance connected with the topic of the thesis.

The second chapter in the first part deals with new factors in the Neolithic economic life, *i.e.*, agriculture and husbandry, and their effects on the daily life of people. This could help in the evaluation if such developments are reflected in figurines and their usage.

To recognize the skills of neolithic man, the making of flint tools technic and its developments through the PPNA, PPNB and its importance in daily life is studied. This would focus on the new level of advanced thinking in the field of technic. Hence, a new phenomenon, “statues”, appeared early in the Neolithic with human and zoomorphic representations; they were similar to figurines in shape and gender, except for their bigger size and that sometimes they were connected with places that certainly were not domestic but instead involved ritual, and we call them “sanctuaries”. These statues in several sites, ranging from Anatolia to southern Palestine and Jordan, have been thoroughly dealt with.

The thesis includes an attempt to find answers to questions regarding the function of those statues and their relationship to the figurines, especially those which resemble them.

Plastered skulls are included in the research to investigate their meanings. Also under study is the similar phenomenon of “masks”, which have been discovered in some Near Eastern sites, because they both appear to recreate the ancestors in order to worship them or commemorate them for some purpose.

Part II deals with figurines on three basic scales: definition, description and explanation, all in accordance with chronological and geographical distribution. The conclusions which resulted through this research might be summarized as follows:

1 – There was no specific context for figurines in the archaeological sites. They could be found anywhere at the site, as well as in places with ritual features.

2 – The connection between the function of the figurine and their material remains to be explained.

3 – Female figurines are associated with the cult of the “Mother Goddess.”

4 – It has to be clarified if the male figurines have roles similar to that of the “Mother Goddess” figurines.

5 – Figurines with special features, such as pregnan-

cy, nursing, childbirth and association with animals, could have social significance other than religious ones.

6 – Through the study of the zoomorphic figurines it is obvious that there was no relationship for these figurines with the domesticated animals.

The study distinguishes figurines with symbolic functions from realistic figurines. The latter type is often discovered broken, unlike those of symbolic type. Finally, it can be said that figurines were an important factor in the Neolithic society. One would expect them to be anywhere in the archaeological sites. They are mostly symbolic, neither deities nor dolls for children, but rather a means to approach the supernatural powers to what people might wish.

Contact: amrahman@gmx.de

Richter, Tobias

2006 *Reconstructing Social Agency Through Use-Wear Analysis in the Natufian of the Levant*
MPhil. Thesis, University of Wales, Lampeter

Abstract

This study aimed to reconstruct the use of late Epipalaeolithic (Natufian) chipped stone artefacts from the southern Levant in order to address questions regarding the relationship between form and function in final Pleistocene lithic assemblages in the region. The study concentrated on the analysis of geometric and non-geometric microliths from three sites in the southern Levant: ‘Ain Rahub in northern Transjordan, Hayonim Cave in the Galilee and Salibiya I in the Jordan valley. In total 409 artefacts were analysed using a combined approach of low- and high power microscopic observation. The study revealed frequent variability in the use of microliths from all three study sites. In the majority of cases the thin, long edge opposite the backed part of the microliths produced use-wear traces, which indicated the execution of longitudinal or transverse motions. These likely relate to cutting or sawing, and whittling or scraping activities. The often claimed function of microliths as projectiles (Bar-Yosef 1987; Byrd 1998; Henry 1989) was repeatedly found to be unsubstantiated, although certain pieces had impact fractures, which probably relate to their use as arrow tips or barbs. A number of non-microlithic stone tools from each site were also studied to gain a more comprehensive picture of late Epipalaeolithic stone tool use. The few burins studied in the analysis produced negative results for wear traces, which may suggest that they were not ‘tools’ in the classic sense of the word, but debitage reused as part of a secondary knapping strategy (*e.g.*, Barton *et al.* 1996; Finlayson and Betts 1990; Tomášková 2005). Backed

pieces were found to have been used over extended periods of time producing evidence of hafting, resharpening and different types of use. This suggested that such pieces may have been curated to a certain degree.

Amongst the group of most diagnostic late Epipalaeolithic chipped stone artefacts – the lunates – evidence for a variety of uses was documented. Tentatively, a trend from transverse uses towards longitudinal motions could be reconstructed corresponding with the switch from Helwan backing to abrupt or bipolar backing on lunates from the early to the late Natufian. The relative disappearance of Helwan backing from late Epipalaeolithic lunates may therefore correspond to a change in the type of hafting arrangements and conversely in the use of lunates over time.

In general, the study confirms evidence from other use-wear analyses carried out in the southern Levant, which has also suggested that late Epipalaeolithic microliths (incl. lunates) should be understood as a ‘poly-functional’ technology (Valla *et al.* 1991; Valla 1984). The present thesis raised questions regarding the unambiguous connection between lunate shape and the identification of the Natufian as a homogenous cultural entity. While homogeneity appears to have prevailed in the production of lunates over time, it appears that use was variable. This discrepancy between form and function suggests that – although a shared norm regarding the shape of the end product existed – there was variation in the application of the artefacts. The idea that morphological homogeneity of lunates in the Natufian also implies cultural homogeneity is not entirely supported by the use-wear evidence, as different sets of rules appear to have applied to the use of lunates, which did not relate to their form.

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Contact: t.richter@ucl.ac.uk

Samuelian, Nicolas

Les chasseurs et cueilleurs sédentaires du Natoufien final de Eynan-Mallaha (Israël) : la structuration spatiale et fonctionnelle de leur habitat. (The sedentary hunter-gatherers of the Eynan-Mallaha Final Natufian layer (Israel): The spatial and functional structuration of their habitations)

PhD Thesis at University of Paris I

Supervisors: Prof. N. Pigeot and Doc. F.R. Valla

Abstract

This work is dealing with the unexpected architecture of the last occupation of Eynan-Mallaha in Upper Galilee. Until the beginning of the excavations in 1996, the Final Natufian was mainly based on lithics from samples of not very clear layers. This phase is now characterised by many stone constructions (houses, hearths, postholes, etc.), stone industries (flint, basalt, limestone), faunal remains, shells, and burials. This work is to make a difference in the major structure category between buildings utilized as habitations (everyday life evidences) and others, with a more specialized function. Other constructions are called minor structures (fireplace, posthole, etc.), usually associated with the major ones. We focus on two major structures considered as habitations due to the large variety of activities represented here.

First, these two constructions show a similar architectural organization: an oval shape built of stones only on one half, the other limited by the sediment matrix. The middle axe shows an alignment of minor stone structures as hearths, postholes, which separate the building in two parts: probably a roof covered one half marked by

the stone wall, whereas the other half was an open area. They form a kind of architectural model.

Second, in order to confirm this observation we make a spatial analysis on both floors. All artefacts are taken into account. It shows a different picture. In the first house (n°200), all activities, knapping and butchery, take part in a well-defined area next to a central hearth. In the second house (n°203), a hearth pit is localized at the periphery of the building and doesn't attract any specific activity. The main artefacts densities are localized in the middle axe between two postholes as if the remains were pushed out from the roof-covered area to the open one.

All these discoveries put in evidence the reality of a fully qualified archaeological cultural phase: the Final Natufian.

Submission expected: December 2006 – January 2007.

Contact: nicolas.samuelian@free.fr

Iris Groman-Yaroslavski

The Transition to Early Neolithic Economy Reconstructed by Functional Analysis of Glossed Blades and Related Implements: A Case Study of Late Natufian and Pre-Pottery Neolithic A Sites from the Salibiya Basin, Southern Jordan Valley

PhD Thesis at University of Haifa
Supervisors: Dr. Dani Nadel (University of Haifa); Prof. Avi Gopher (Tel-Aviv University)

Abstract

The transition from hunting and gathering to agriculture was a major socio-economic shift, commonly referred to as the *Neolithic Revolution*. In the Levant, this shift corresponds to the end of the Epi-Paleolithic (Late Natufian) and the Pre-Pottery Neolithic A (PPNA) periods, roughly from 10,500/300 to 9,500/300 B.P. (uncalibrated). The purpose of this research is to investigate the establishment and development of a blade industry and to determine the actual function of blades during this transitional period. Blades from the four sites of Salibiya I, Salibiya IX, Gilgal I and Netiv Hagdud are analyzed, as a case study for the selected time span in the restricted area of the Salibiya Basin, Southern Jordan Valley.

A sample of 200 blades was selected from each site for a functional research including sickle blades and other tool types shaped on blades. The functional research combines technological and use-wear trace analyses for the understanding of changes in blade production and use from the Late Natufian to PPNA.

The technological aspect focuses on raw material procurement and management and on a detailed analysis of

attributes indicating production modes and knappers' tendencies. Use-wear trace analysis concentrates on defining use modes and materials processed by the blades. First, macrowear traces are examined by a stereo-microscope (up to X50), and then microwear traces are examined by a metallurgic microscope (up to X400). Interpretation of use-wear traces visible on archaeological implements will be based on an experimental collection produced during this research, comprising blades of similar characteristics to the archaeological sample.

It is assumed that during the PPNA blades became a major blank used intensely in a variety of tasks while during the Late Natufian blades were rarely produced and used only occasionally. Furthermore, the PPNA blade industry is the first step in the establishment of the special Naviform core technology, used extensively during the later PPNB period.

Contact: irisg@bezeqint.net

Danny Rosenberg

The Stone Industries of the Pottery Neolithic Period: Socio-Economic Aspects of the Late Neolithic Cultures of the Southern Levant

PhD Thesis at University of Haifa
Supervisors: Prof. Mina Weinstein-Evron and Dr. Dani Nadel

Abstract

Stone tools (groundstone tools), moreover tools made for food processing are one of the platforms through which social, economical and symbolic characteristics and attributes of past societies could be deduced from the archaeological record. In this regard and in spite of the progress made in the last two decades in the field of stone tools research, the study of the Late Neolithic stone industries remain relatively hidden. In this regard, the role stone food processing tools had played in village economies is still obscure to date.

The present study is aimed at tackling thus, various socio-economic and symbolic issues concerning the Pottery Neolithic cultures of the Southern Levant, stemming from the study of mainly stone-made (basalt, limestone etc.) food processing tools. In this regard, typological and technological aspects, raw material selection, decoration and style will be analyzed alongside with discard characteristics and spatial positioning of stone food processing tools. The relation between certain processing tools and various types of food will also be tested mainly through ethnographic analogies.

Contact: aromat@netvision.net.il

Cheryl Makarewicz

The Role of Fodder Provisioning in Emergent Goat Husbandry in the Southern Levant: A Stable Isotopic Approach

PhD Thesis at Harvard University

The domestication of animals such as goats drastically changed the subsistence base of human group by providing a readily accessible, reliable source of meat and secondary products such as milk and wool. Through stable isotopic analysis of bone collagen from a range of Pre-Pottery Neolithic sites in the southern Levant, this dissertation research explores the role of fodder provisioning in emergent goat husbandry practices and how foddering may have contributed to the domestication of the goat. This research examines if fodder provisioning of individual captive goats was followed by foddering of both captive individuals and portions of small herds and systematic fodder provisioning practiced on entire herds. Variation in foddering practices on an intra-site basis according to the sex and age of the animal is also explored, as herders may employ different foddering practices for animals of different ages and sex depending upon their short and long-term subsistence goals and herd maintenance strategies.

Contact: makarew@fas.harvard.edu

Abrupt Climate Change and the Cultural Transformation of Syria in Late Prehistory (c. 6800-5800 BC)

In summer of 2006 at Leiden University we began a four-years multidisciplinary research programme comprising multidisciplinary research into the material, technological, economic, social and ecological changes in Late Neolithic Syria during the seventh and early sixth millennium BC. Special attention is given to the relationship between an abrupt climatic change around 6200 BC and a number of contemporaneous, very far-reaching, material innovations and socio-economic transformations in local prehistoric society. This abrupt climate change of 8200 years ago (the “8.2k calBP climate event”) has received wide attention among natural scientists, also because of today’s rapid climate changes and their impact on our own society. The event and its possible impact on prehistoric society is now rapidly gaining archaeological recognition as well. This research programme is primarily based on the extensive recent fieldwork at Tell Sabi Abyad in Syria (where occupation layers of the seventh millennium BC are currently investigated at a large scale) but includes information from

other archaeological sites as well. The project treats a number of important cultural and ecological changes, and it comprises the analysis of natural isotopes, animal bones, plant remains, architecture, settlement history and material culture. An essential part is the reevaluation of existing concepts and explanatory models for the Late Neolithic period.

The project is directed by Prof. Peter M.M.G. Akkermans (Leiden University) and Prof. Hans van der Plicht (Groningen University). Parts of the planned research are specifically in the hands of senior researchers: Hans van der Plicht will focus on the isotope research, Dr. Hilke Buitenhuis (ARC Groningen) will contribute to the faunal studies, Dr. René Cappers (Groningen University) will take care of the relevant plant remains. In addition to the senior researchers, the team includes one post-doctoral fellow and two PhD candidates:

Olivier Nieuwenhuys (post-doctoral researcher)

Title of research: *Material Continuities, Renewals and Cultural Transformation*.

O. Nieuwenhuys’s subproject adopts a contextual perspective to investigate changes and continuities in the functional, social and symbolic uses of the material culture, c. 6800-5800 BC. The focus is on the social dimensions of containers made in various materials, and the role of these artefacts in archaeological theory.

Contact: onieuw@xs4all.nl

Akemi Kaneda, MA (PhD candidate)

Title of research: *Settlement Dynamics and High-Precision ¹⁴C Dating*

A. Kaneda’s project concerns the development and change in the organization of settlement and architecture, with particular focus on the effects of the climate change around 6200 BC. The project focusses on issues such as the ‘cultural biography’ of individual buildings, episodic contraction and expansion of occupation, changes and innovations in the architecture, and a high-definition ¹⁴C dating programme.

Contact: akemi@kaneda.nl

Anna Russell, MA (PhD candidate)

Title of research: *Changing Patterns of Animal Exploitation*

A. Russell explores the developments and changes in the exploitation of animals. Adopting a long-term perspective she will investigate developments in the process of domestication, the role of pastoralism and herd management, and the role of hunting in the seventh and early sixth millennium BC, and their relationship with climate change.

Contact: annarussell82@hotmail.com

General information: Prof. Peter M.M.G. Akkermans

Contact: p.m.m.g.akkermans@arch.leidenuniv.nl

Call for Submissions: Reports on MA and PhD Research/Abstracts of Thesis

Neo-Lithics invites our readers to publish information on MA and PhD research projects and abstracts of finished theses related to the Middle Eastern Neolithic. By these means *Neo-Lithics* hopes to promote the circulation of information which otherwise is difficult to find. It is also aimed to help young researchers to establish contacts to other researchers in the Middle Eastern Neolithic research community. Supervisors are asked to encourage MA and PhD candidates to inform via *Neo-Lithics* about ongoing or completed MA and PhD research. Submissions should be directed to the managing editor of *Neo-Lithics*, Dr. Juergen Baumgarten (baumgarten@mpib-berlin.mpg.de). Information should consider the following details: Name of Candidate / Title of Thesis / Institution (and Supervisor) / Abstract / Address of Contact (postal address and email).

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The re-installed mailing list Neo-Lithics is now ready to serve again as an exchange on Middle Eastern Neolithic topics and research strategies. You would need to register to the list if you want to receive messages/send messages to the *Neo-Lithics* family. The list will be used as a forum of informal discussion, news, and inquiries, and other sorts of “peer counseling”; the newsletter Neo-Lithics is published as hard copies and has to be subscribed to separately. The list is operated by the server of Free University of Berlin, and the subscription and use is free of charge. The list administration is in the hands of *ex oriente*.

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Hans Georg K. Gebel

New Publications

To appear in Spring 2007:

Alan H. Simmons

The Neolithic Revolution in the Near East: Transforming the Human Landscape.

360 pp., 16 photos, 7 ill., 8 maps

Tucson: University of Arizona Press, 2007

Now available:

Yosef Garfinkel and Doron Dag (eds.)

Gesher

see p. 48

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- Submissions** NEO-LITHICS, Prof. Dr. Gary O. Rollefson, Department of Anthropology, Whitman College, Walla Walla, WA 99362, USA. Email: rollefgo@whitman.edu
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Gesher: A Pre-Pottery Neolithic A Site in the Central Jordan Valley, Israel. A Final Report

edited by

Yosef Garfinkel and Doron Dag

with contributions by Shoshana Ashkenazi, Shmuel Belitzky, Gaëlle Le Dosseur, Liora K. Horwitz, Mordechai E. Kislev, Yoel Melamed, Henk K. Mienis, Orit Simchoni

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- 11.1. The Khiamian-Sultanian Debate
- 11.2. Production and Specialization
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