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The Newsletter of Southwest Asian Neolithic Research

Contents

Editorial

The temporal and geographic emphasis of *Neo-Lithics* has come to concentrate on the Early Neolithic of the Levant and Upper Mesopotamia, and while this focus has been informative, the editors always liked to see the scope of the newsletter to include all the Neolithic periods of all the Middle Eastern countries. Especially we would also like to stress more the importance of Pottery Neolithic trajectories, together with more information on new theses, lab reports and conferences. We appeal to all colleagues to help us to diversify *Neo-Lithics* by sending or encouraging such contributions to our newsletter.

With this issue *Neo-Lithics* introduces a new section: *Comments on Recent Publications*. It is aimed to provide the chance for discursive or critical comments on aspects or ideas brought up in recent publications. These contributions should not be traditional book reviews (as the first one in this issue may appear), but should provide an opportunity to enhance critical discussion among colleagues. Often the general and formal demands of an invited book review do not provide the framework for discursive comments to be published, for which we now would like to provide a forum.

Hans Georg K. Gebel and Gary O. Rollefson

Shkârat Msaied: The 2005 Season of Excavations. A Short Preliminary Report

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In 2005, two short campaigns were undertaken at the Neolithic site of Shkârat Msaied, Southern Jordan (Fig. 1), under the direction of Charlott Hoffmann Jensen (spring), Ingolf Thuesen (fall) and Bo Dahl Hermansen (spring and fall) and with Talal al-Amarin as representative of the Department of Antiquities. This year's efforts turned out to be fruitful, especially in four areas of research.

1) In addition to the relative dating of the site, we now have five C14 dates which allow us to approach an absolute dating.

2) Excavation in Unit F finally yielded an answer to the question, recently raised by Bienert *et al.* (2004), concerning the PPNB: 'where are the dead'?

3) The recovery of a group of flat stone slabs with engravings suggests the existence of some sort of symbol system, employed in association with the mortuary practices of the neolithic inhabitants of the site.

4) Complete excavation of the interior of Unit K yielded some of the most comprehensive evidence yet known for how stone architecture was constructed in the MPPNB of Southern Jordan. Additional important information on this point was provided by the excavation of Unit U and the surface exposure of Unit H.

Ad 1 – Radiocarbon Dates

The conventional dating of the site within the MPPNB is based on relative dating of the chipped stone material. In addition, five radiocarbon dates are now available, given below in uncalibrated conventional dates BP, according to find context, material, and lab. no.

Context	Material	Lab. no.	Date BP
Unit E	Charcoal	Aar-9336	9590 + 90 BP
Unit E	Charcoal	Wk-15160	9144 + 55 BP
Unit E	Charcoal	Wk-15159	8977 + 60 BP
Unit E	Charcoal	Aar-9337	8885 + 70 BP
Unit C	Charcoal	Aar-9335	8880 + 80 BP

Of these samples AAR-9335 is a charcoal sample of *Ephedra* sp., *i.e.* a shortlived herb. This sample was collected from a stone cist in Unit C, in which it has been sealed until excavated, *i.e.* a very good context. The other samples are of *Juniperus* (AAR-9336), *Pistacia* (AAR-9337) and unidentified tree species (WK-15159 and WK-15160). They are all from Unit E: AAR-9337 was found beneath the floor of the late phase of that building. Wk-15160 and AAR-9336 were found just above (6-15 cm) that same floor; Wk-15159 was recovered higher up in the fill of the same room, in material interpreted as 'collapsed roof material'. Significantly, Wk-15159 was apparently part of the wooden construction of the roof of the building. This may well have been the case with Wk-15160 and AAR-9336, too.

At face value, the dates acquired so far would seem, in general to place the tested samples in the EPPNB (AAR-9336), and in the early-middle part of the MPPNB. However, in particular the early date of AAR-9336 requires explanation (reused timber? old wood?). Therefore, while awaiting additional radiocarbon dates (more samples are available, esp. from Unit K; Unit H looks promising), we maintain the previously proposed MPPNB date, which is particularly supported by the *Ephedra* sample: Aar-9335. However, AAR-9336, together with the recovery of a few Helwan points (Jensen *et al.* in press), does raise a suspicion that the beginning of occupation of the site may have been earlier.

Ad 2 – Burials

Excavation at Unit F (Fig. 1), a large house with a floor area of *ca.* 25 m^2, but not subterranean, indicates that this house was set apart as an architectural frame for mortuary rites of the inhabitants. A minimum of 15 inhumations have been found in this house so far, and more can be anticipated. One burial, recovered already in 2003, consisted of the bones of a *ca.* 30-years-old female. Her arms had been placed inside the rib cage, the legs in front of it, and the skull and mandible were missing, probably

Fig. 1 Plan of Shkârat Msaied, 2005.

having been removed in order to be subjected to some sort of ritual manipulation, as was accorded some individuals in the MPPNB. Found together with the burial were four ovi-caprine mandibles, suggesting that feasting may have been part of the practices associated with burial. This individual was buried in the stone cist found inside the building just to the right (east) when entering, and marked by a large monolithic slab (*cf.* Hermansen and Jensen 2002: 92, fig. 6).

The stratigraphy of Unit F indicates that the original floor of the building was made of lime plaster. This plaster floor was cut at some point in time. Several subfloor stone cists, built of flat sandstone slabs, were then constructed, most of which contained human remains. Two small cists contained the burials of two and four infants, respectively. In both cases, the burials were secondary and the skeletal remains were fragmentary. A third cist contained the bones of at least eight individuals, six adults and two subadults (Fig. 2). The bones were sorted very carefully, so that individual bodily identity had been totally dissolved: 7 skulls were laid down first in the southern part of the cist, all but one standing upright and facing north, and the last one resting on the facial part of the skull with skull cap facing the south. An eighth skull (of an adult) was already fragmented when buried, as the fragments were found scattered in the grave. A rib cage and vertebral column were found at the bottom of the grave in anatomical order. Lower extremities of one individual were found to be lying in an articulated position; however, left and right side had been separated. Most of the long bones had been placed in a north/south direction together with the flat bones such as hips and scapulae. Mandibles were mostly strewn in the center and surrounded by a scatter of ribs and vertabrae. The last skull to have been buried was resting on the other skulls in the southern part with articulated mandible. Two additional cists, one large and one small, were excavated, but no inhumations were found in either. Instead a very large greenstone bead was recovered in the fill of one of them. In the fill within and above the stone cists,

Fig. 2 Shkârat Msaied: Stone cist with burials.

additional fragments of human (and animal) bones and teeth were found, possibly indicating several events that would have caused disturbance to earlier burials, as well.

We hope that further excavation of Unit F and analysis of this material will allow us to gain detailed insights into the practices associated with burial in PPNB Shkârat Msaied.

Ad 3 – Incised Sandstone Slabs

Associated with the stone cists were found a group of three incised sandstone slabs. The incisions on these stones could well be part of some sort of symbol system. The most complex examples are a cross with two additional lines in the upper right quadrant, suggesting a shooting star? (Fig. 3) and two interconnected rectan-

Fig. 3 Shkârat Msaied: Incised stone slab.

Fig. 4 Shkârat Msaied: Incised stone slab.

gles set at a right angle (Fig. 4). The preserved edge of two of the slabs (which do not all seem to have belonged to the same original piece) is engraved with short grooves, perhaps some sort of counting system. Having suggested such an interpretation, it must be added that it is purely speculative, and that we do, of course, not presently have a key to reading any representative meaning in these engravings. However, they do seem to have been deliberately destroyed, and left behind in some sort of association with the burials. Thus, their meaning would seem to have been closely associated with the very act of manipulating and destroying them in the social context of burial.

Ad 4 – Architecture

This year's excavations uncovered the complete plan of a stone-built house, Unit K (Fig. 5), with a floor area of *ca.* 18 m^2, preserved to a height of ≤1.60 m. The collapse fill inside the walls contained roughly 1/2 m^3 of dressed stones per m^3 of excavated volume, indicating that the walls originally stood even higher. Charred remains of wooden beams and posts indicated that the house was constructed on a wooden frame consisting of a circle of posts, supporting the wall. A central post supported a radiating skeleton of roof beams on which was laid a construction of wickerwork, mortar, and fist-sized stones, much as can be observed in more recent bedouin stone architecture of the region. This construction would have served as a flat roof or as the floor of a second storey. The collapse fill indicated a fireplace and activities on this roof or second floor. Particularly important is that the house had two stone-built staircases set in mortar. One staircase, in the southwest, leads six steps and roughly 1m down from the MPPNB surface to the ground floor of the house. The other one, opposite the former, leads eight steps upwards from the ground floor along the wall, supporting our interpretation that this house had a substantial, flat roof or a second storey.

Turning towards an adjacent architectural unit, Unit H, we were able to calculate a minimum original height of that building by studying the collapse fill. A fallen wall segment with at least 16 courses of stones was traced on the surface (Fig. 6). Measuring the thickness of each stone and adding them together suggested an original height of 1.34 m for this piece of collapsed wall. Further, adding this to the preserved height of the still standing wall, from where this wall segment had fallen (0.78 m), suggested that Unit H would have stood to the considerable height of 2,12 m. Lumps of mortar between stones indicate that these may have been separated by mortar. If this were the case, the wall could have stood to a height of some 2.28 m. Except for a small cut in the northeast corner which allowed us to study the collapse pattern, the plan of Unit H is only known from the surface. Consequently, its plan is not well known, but it does seem to have had a doorway in the west-northwest, probably (but not yet certainly) with a staircase down to the floor of the building, and it does seem to have an entrance in the southeast, flanked on the exterior by two vertical stone slabs. Thus, it appears that this building reproduces the plan of Unit J, while also reproducing some features of Unit K, including its remarkable height.

The excavation of Unit U is also of considerable interest. With its much smaller floor area (*ca.* 5 m^2), this architectural unit is entirely different from other build-

Fig. 5 Shkârat Msaied: Unit K.

ings at the site. It, too, was entered by a staircase, in this case from northeast, leading down from the exterior, with three steps bridging a difference of some 0.5 m between outside and inside. Thus, the houses in the southern part of the site were clearly dug into the ground, and their access patterns and architectural installations differ from the patterns hitherto observed in the central and northern part of the excavated area (Hermansen and Jensen 2002; Jensen *et al.* in press; Kaliszan *et al.* 2002).

Interestingly, in Unit K, a scatter of groundstone tools was found in the debris on the floor at the base of the interior staircase. A similar scatter of groundstone objects was found at the base of the stairway into Unit U. The meaning of this is not clear, and a committed interpretation of this pattern must await close contextual analysis.

Fig. 6 Shkârat Msaied: Collapsed wall material.

Final Remarks

The exposed part of the village now comprises more than 600 square meters of area occupied in the PPNB. Plans have been made for continuing excavation another two years if funding is provided and permission granted by the Director-General of the Department of Antiquities. The idea is to finish excavation of the Units F, H, and L; to extend the excavated area towards the southern edge of the site; to make a sounding from the present boundary of excavation to the eastern edge of the site; and to make small trenches to document the west and north boundaries of the Neolithic village archaeologically. Another important aim will be to investigate the stratigraphical relation between the architecture in the southern part of the excavated area (Unit H, K, L, and U) and that of the central and northern parts of the site, excavated in previous campaigns (Hermansen and Jensen 2002; Kaliszan *et al.* 2002; Jensen *et al.* in press). If we succeed in this, a significant proportion of a village plan from the MPPNB will have been exposed. And, given the excellent preservation of the architecture and burials in the central and southern part of the site, Shkârat Msaied will have contributed significantly to our knowledge and understanding of architecture and burial practices from this period.

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References

Bienert H-D., Bonogofsky M., Gebel H.G.K., Kuijt I. and Rollefson G.O.
2004 Where are the Dead? In H.-D. Bienert, H.G.K. Gebel and R. Neef (eds.), *Central Settlements in Neolithic Jordan:* 157-175. Studies in Early Near Eastern Production, Subsistence, and Environment 5. Berlin: ex oriente.

Bienert H-D., Gebel H.G.K. and Neef R. (eds.)
2004 *Central Settlements in Neolithic Jordan.* Studies in Early Near Eastern Production, Subsistence, and Environment 5. Berlin: ex oriente.

Gebel H.G.K., Hermansen B.D. and Jensen C.H. (eds.)
2002 *Magic Practices and Ritual in the Near Eastern Neolithic.* Studies in Early Near Eastern Production, Subsistence, and Environment 8. Berlin: ex oriente.

Hermansen B.D. and Jensen C.H.
2002 Notes on Some Features of Possible Ritual Significance at MPPNB Shaqarat Mazyad, Southern Jordan. In: H.G.K. Gebel, B.D. Hermansen and C.H. Jensen (eds.), *Magic Practices and Ritual in the Near Eastern Neolithic:* 91-101. Studies in Early Near Eastern Production, Subsistence, and Environment 8, Berlin: ex oriente.

Jensen C.H., Hermansen B.D., Bille Petersen M., Kinzel M., Hald M.M., Bangsgaard P., Lynnerup N. and Thuesen I.
In press Preliminary Report on the Excavations at Shkârat Msaied 1999-2004. Submitted for publication in *Annual of the Department of Antiquities of Jordan* 49.

Kaliszan L.R., Hermansen B.D., Jensen C.H., Skuldbøl T.B.B., Bille M., Bangsgaard P., Ihr A., Sørensen M.L. and Markussen B.
2002 Shaqarat Mazyad – The Village on the Edge. *Neo-Lithics* 1/02: 16-19.

Homepage
http://www.neolithic-shkaratmsaied.hum.ku.dk/index.htm

Field Report

The Neolithic Site of Tell Abu as-Sawwan, Jordan: Preliminary Report

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Introduction

Tell Abu as-Sawwan is a PPNB site located to the east side of the Jarash–Amman highway just before the turn to Ajloun. Many archaeologists and non-archaeologists visited the site through the past several decades, but it was not until the summer of 2005 that the University of Jordan started the first season of excavation. So far, Tell Abu as-Sawwan is the only PPNB site under excavation north of the Zarqa river.

Tell Abu as-Sawwan consists of an upper part and lower part. In an earlier survey, lithic pieces were mostly found in the northern part (Leonard 1987: 359). Diana Kirkbride was the first to examine the site in 1955 (Kirkbride 1958). She dated the site to three periods; the Lower Paleolithic, Middle Paleolithic, and the Pre-Pottery Neolithic periods. Additionally, she excavated a testing trench with a maximum depth of 1.5 m. Many stone tools and a hearth were found in this sounding (Simmons *et al.* 1988: 15).

In 1984 Tell Abu as-Sawwan was mentioned within the Tell el-Husn survey (site 30) conducted by Albert Leonard. In this survey lithic artifacts and pottery shards were found. The pottery shards were dated to the Late Roman/Byzantine period, while the lithic tools were dated to the Pre-Pottery Neolithic (Leonard 1987: 359-360).

In the summer of 1987 A.H. Simmons, D.I. Olszewski and Z. Kafafi surveyed the site and collected some of the lithic tools found on the surface. According to the lithic collection, they realized that these tools were very similar to PPNA and B tools. Some of these tools were similar to the tools found in 'Ain Ghazal, Bayda, and Tell Abu Thawab in Jordan, Jericho in Palestine, and Tell Ramad in Syria. Moreover, they also believed that the site was occupied during the Pottery Neolithic period

and that it probably contains Neolithic architecture (Simmons *et al.* 1988: 15-20).

In summer of 2005, the University of Jordan started the first season of a field school at the site directed by the author. The excavation season started in the beginning of July and finished by the end of August. Unfortunately, most of the site was extensively disturbed by agriculture and cultivation practiced at the area. Therefore, only the northern and the eastern parts were surveyed, and excavation was confined to the northern part.

Project Methodology

At the northern part of the site the working area was divided into two parts: Area A, which was located in the northwest side of the site, and Area B, located in the northeast side. Since this was the first season of excavation, the procedure was as follows: a 5 x 5 m grid was located at the site for each area. A systematic survey was conducted in each area, and the recording of this survey was associated with the grid squares. In each area 1 x 1m test trenches were excavated. It was taken into consideration to open the test trenches within the 5 x 5 m grid squares at one of its corners. These trenches were distributed randomly within the grid of each area . In Area A nine test trenches were opened (C2, D1, D2, D5, E2, F1/1, F1/2, G3 and H2), and in Area B 12 test trenches were sampled (B10, D6, E8, E6, E5, F8, G6, H5/1, H5/2, H8, K5 and L8).

Based on the results of the test trenches, larger excavation squares were selected. In Area A seven 5 x 5 m squares were excavated: D2, D3, E2, E3, F2, F3, and part of D5. In Area B nine 5 x 5 m squares were excavated: F2, H4, H5, I4, I5, I6, J5, J6 and G7, which was extended into G6 for about 1.5 m (Fig. 1).

The Excavation Results

Although many scholars have surveyed this area and many diagnostic pieces have been collected, there is still an enormous number of lithics lying on the surface in both areas of the site.

Area A Features

Walls

The excavation of test trench E2-1 revealed part of a wall (Loc. 3). This result led us to excavate all the squares around trench E2-1. In Sq. E2 the rest of the wall (Loc. 3) was unearthed and we found its juncture with a second wall (Loc. 04). The direction of the Loc. 3 wall is East-West and its length about 2 m with 0.50 m width. It was made of medium-size stones and consisted of two

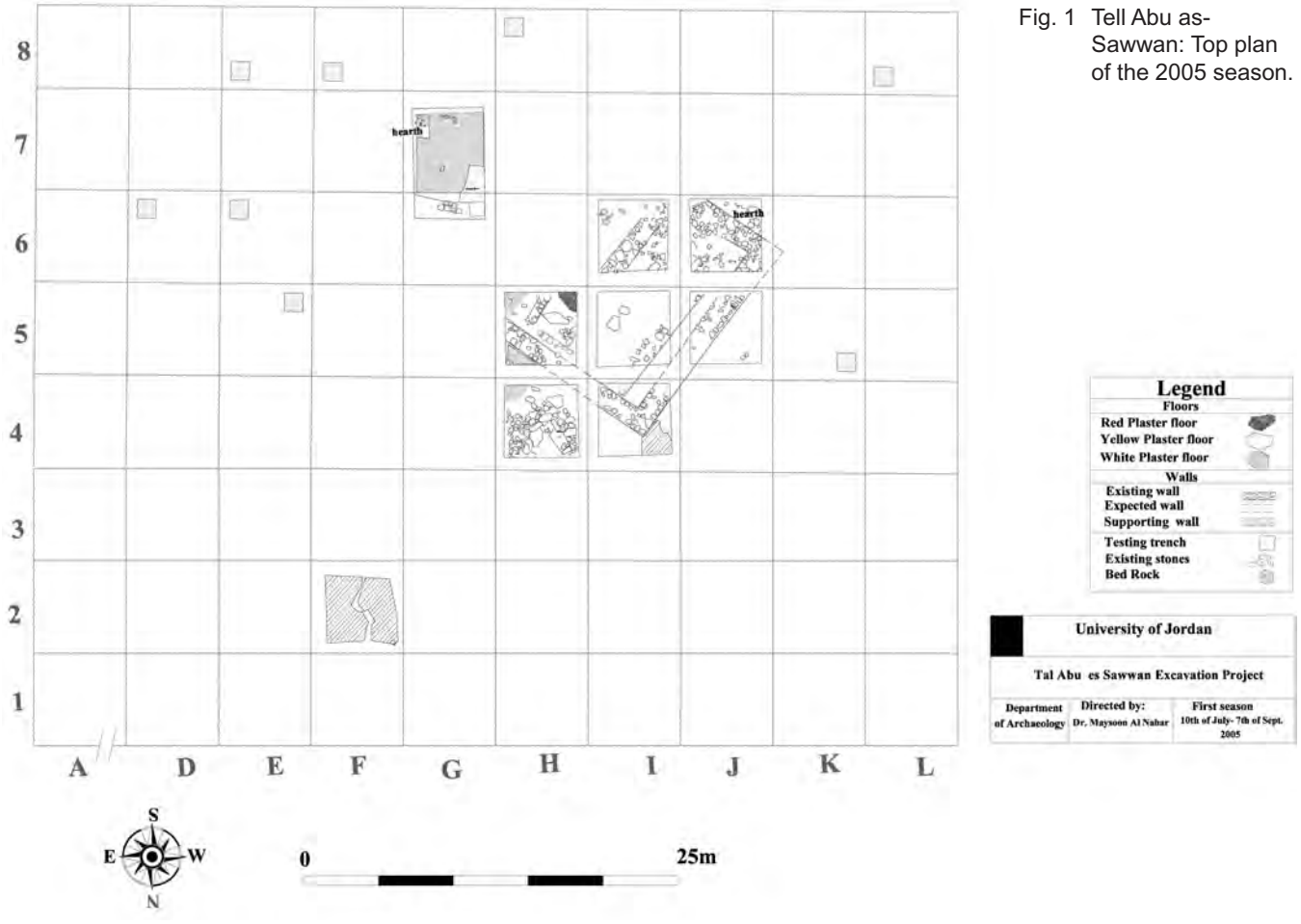

Fig. 1 Tell Abu as-Sawwan: Top plan of the 2005 season.

rows and one row. It was in good conditions when excavated. The mortar used for the walls was a mixture of mud and small stones

The Loc. 4 wall running North-South was exposed for c. 1 m, and the width ranged between 50 to 20 cm; it seems that parts of it have been damaged, and the rest of it seems to be under the east baulk of the square. The wall was made in the same technique as the Loc. 3 wall and bonded with it. The two walls seem to be part of some structure of uncertain function (house, workshop, *etc.*). No more walls were found in Sq. D2, E3, F1 and F3. However, two parts of walls appeared during the excavation at Sq. D3 and D5. One of them appeared at the southwest corner of Sq. D3, and the other appeared in the southeast corner of Sq. D5. Further research needs to be done with the collected material to give us an idea about the function of these structures.

Floors

In the northwest part of Sq. F3 two well-made plaster floors (Loci 06 and 09) lay directly on top of each other. Both floors have a yellowish color; they were both made of fine plaster and clay mixed with gravel. Unfortunately, they were cracked and fractured into pieces. It seems that modern cultivation activities caused the damage of this floor. Presumably this double plaster floor was surrounded by walls, but it appears that the local farmers either removed the stones or that the walls are still under the surrounding unexcavated squares. Additionally, the double plaster floor indicates that this structure was reused over a long time.

Other Features

Some other features found at Area A give us an idea about the human activities carried out at the site. In Sq. D5 remains of a hearth were found in the southern part of the square adjacent to the wall. The hearth area was stratified as follows: at the top there was a thin layer of fine-powdered compacted sediments. This layer is located on the top of about 10 medium size white chalky stones and a few other limestones. Six of them lay on a straight line and the others were distributed randomly. Ash mixed with very fine sediments occurred between these stones and under them. It is clear that there is another part of the hearth still under the south baulk that needs to be excavated next year.

In Sq. D3 in front of the north baulk a possible hearth was found (Loc. 06), although few traces of ash were recovered from this location. Medium to small size chalky stones shaped a circular feature, which suggests that it was used as a hearth. At about the same level in the south side of the square seven scrapers of different size were found along with many bones and other tool types scattered to the west and northwest of the square. The hearth, bones, and the tools at the same level suggest that this area was a processing area. The hearth was found close to the surface (about 80 cm depth), and the floor associated with it suffered severe damage due to recent agricultural practices at the site.

Area B Features

Walls

In a test trench in H5 part of a wall with a white plaster floor was found. Additionally, in G6 a clear yellow plaster floor in good condition appeared. As a consequence, it was decided to excavate several more 5 x 5 m squares.

Area B yielded a large rectilinear structure (Fig. 2). Two of its corners appeared during the 2005 excavation. One of the corners points toward the north in Sq. I4 (Fig. 3), while the other corner is pointing towards the west in Sq. J6. The other corners still need to be sought in the coming years. It is clear that the walls forming these corners are the exterior walls of a large building. The west exterior wall of the structure appeared in Sq. I4, J5, and J6, and the north exterior wall appeared in Sq. I4 and H5. Interior walls appeared in Sq. H5, I4, I5, I6 and J5. The interior walls mostly extend from northeast toward southwest, and they are parallel with the west exterior wall of the building. In the coming seasons of excavation, we expect to find the other interior walls and their directions.

Most of this structure's walls were intact with well-made foundations. The walls were constructed with the

Fig. 2 Tell Abu as-Sawwan: General view of excavation from N.

Fig. 3 Tell Abu as-Sawwan: Exterior building corner in Sq. I4.

same material and in the same way. Different sizes of limestone and sandstone stones were used to construct the building. Large and medium stone sizes were used for the walls, whereas between the courses small-sized stones and gravel were used. The walls' mortar composition was mud mixed with plaster chunks, gravels and pebbles.

The description of the corner walls of Sq. I4 is as follows: the first wall extended from northeast to southwest forming the west wall of the building It is connected with another wall extending from northwest towards southeast and forming the north wall of the building. The exterior side of the west wall extended to 2.8 m length, and the exterior of the north wall extended for a length of 2.95 m. The thickness of both walls ranged between 1.20-1.50 m. The wall has a height of a single stone in some parts and two rows of stones in other parts. Therefore, the walls' heights ranged from 25-50 cm. The excavation in Sq. I4 resulted in finding part of a third wall connected with the north wall of the building. The third wall is an interior wall and it seems that it extends from the northeast towards the southeast of the building and it parallels the exterior west wall.

In Sq. J5 the extension of the west exterior wall was found (Loc. 06). The length of this wall here is 3.00 m, its thickness is 1.00 m and the wall height consisted of two rows of stones ranging between 50-60 cm. At the southeast corner of Sq. J5 part of an interior wall was found (Loc. 09). This wall was parallel with the exterior west wall. The interior wall length is 1.20 m and is one stone high (20 cm). Its thickness wasn't clear because it is under the southeast baulk. It seems that this wall is an extension of the interior wall of Sq. I4 and I5.

The description of the exterior corner walls found in Sq. J6 is as follows: The first wall is an extension of the west wall of the building, and it is connected with another wall that extends from northwest towards southeast forming the south wall of the building. The exterior angle of the structure's southwest corner is under the baulk, however the interior angle became clear by the end of the 2005 season. This square was full of fallen stones and therefore it was hard to recognize all of its dimensions. Some of the wall dimensions were clear and they are as follows: the length of the interior side of the structure's west wall in Sq. J6 is about 1.60 m. The length of the exterior part of the south wall is about 3.00 m, with a thickness of about 1.00 m. The south wall height ranged from two to four rows, or 50 to 85 cm. In this wall boulders and large stones were used. This square still needs a lot of work because of the confusion caused by the fallen stones.

The extension of the north exterior wall of Sq. J4 continued into Sq. H5 (Loc. 04). The length of the interior side of this wall is 3.90 m and the exterior is about 2.50 m long. The thickness of the wall ranges between 0.94 to 1.00 m. This wall seems to be the foundation of the north wall and one row of stones was found with a height between 17-20 cm. This wall (Loc. 04) is supported by another short wall with one course of stones and is 2.00 m in length and 50 cm in thickness. In Sq. H5 there was an interior wall (Loc. 013) oriented from southwest towards northeast, parallel to the exterior west wall of the main structure. Its length is about 2.00 m and its thickness is about 70 cm. This wall consisted of one course of stones with a preserved height of about 20 cm. This supporting wall indicates the reuse of the structure through time.

In Sq. I6 one wall was found (Loc. 02). Its direction is from southwest towards the northeast and it is parallel to the exterior west wall of the main structure. The length of this wall is about 3.00 m and its thickness c. 1.00 m. It is not clear yet if this wall was an interior or an exterior one.

In Sq. G6 a small part of a wall was found (Loc. 08). The direction of the wall is from southwest towards northwest and it is parallel to the exterior south wall of the main structure. The length of the wall is 1.30 m and its thickness is about 50 cm. Outside the main structure in the north side of Area B an unclear triangular structure was found in Sq. H4. It was founded on natural bedrock on which a course of boulders was placed.

Floors

In Area B at least three main floors were found. The oldest floor is a smooth polished red-pigmented plaster floor. This floor (Loc. 014) was found in the southwest corner of Sq. H5. Its dimensions are about 70 x 75 cm. This floor has a thin red top layer atop a thick white plaster. It is expected that the floor extends under the southwest baulk into Sq. H6 and I5. This floor is similar to the PPNB floors at 'Ain Ghazal.

A higher-level floor was found in Sq. G6 and G7 (Loc. 04). It is yellowish in color and thicker and coarser than the red floor, but it seems that its surface was polished, too. It looks like it was part of one room that extended from Sq. G7 to G6. The archaeological evidence found on top of this floor (such as burnt bones and lithics) indicates that it was burnt at some point. This floor was in a very good condition, but since it is close to the surface level it was undoubtedly disturbed by modern agricultural activities. A similar floor composition was found in Area A in Sq. F3 (Loci 06 and 09). This indicates that both areas were occupied at the same time.

The third floor is a white plaster floor. This floor has been badly damaged but its traces were clear in many squares. It was found in most of Sq. G7, in the southern part of Sq. H4, and in the eastern part of Sq. H5.

Other Features

Area B is rich with distinctive human activities performed at the site. The features found here are as follows:

1) A hearth was found outside the south wall in Sq. J6. The hearth consisted of a circle of white chalky stones with ash, and much burnt material was recovered. At the same level, many animal bones were found as well as eight flint cores.

2) In Sq. G7 close to the east baulk there is a possible hearth close to the surface. It seems that this hearth was destroyed because of recent agriculture activities.

3) At the southeast area of Sq. G7, lots of animal bones were found at the same level as the white plaster floor. And in the northeast corner many diagnostic lithic tools were found. This indicates that this area was a faunal processing area.

4) In the northwest corner of the main structure in Sq. I4 many animal bones were found together with lithic tools.

5) In Sq. F2 bedrock was encountered. It was cut by humans who made a water channel, possibly during the Roman/Byzantine periods. The bedrock has an irregular shape. In the west part of it in the bottom of the rock slope many diagnostic lithic tools were found, probably due to erosion over time.

Lithics and Bone Artifacts

A large number of lithics and many grinding stones were recovered from Tell Abu as-Sawwan. The lithics are still under analysis, but in general, all stages of lithic production have been found at the site, including a large number of cores of different types, flakes, blades, bladelets and tools. Typology confirms that this is a PPNB site, including different types of arrowheads, sickle blades, and different types of scrapers, especially a large number with different sizes of tanged scrapers (Figs. 4, 5). A number of the arrowheads are similar to arrowheads from Jericho. A few tools found on the surface indicate that the site includes a PPNA occupation.

A significant number of animal bones were recovered from the site including bones of large mammals, with several horns found within the structure close to the plaster floors. A number of bone tools were found at the site, some of them decorated and incised.

Site Dating

A number of radiocarbon samples were taken from different layers at the site that will give us precise dates. Large samples of grinding stones, chipped stone artifacts and animal bones need to be analyzed and classified. However, many diagnostic lithic tools such as arrowheads and structures demonstrate that Tell Abu as-Sawwan is a Pre-Pottery Neolithic B site.

Conclusion

Tell Abu as-Sawwan includes a large rectilinear structure with three clear plaster floors, which indicates that the site was occupied for a long time. Many diagnostic lithic tools such as arrowheads and scrapers were found. The lithic tools, structures, and the different features found at the site demonstrate that Tell Abu as-Sawwan is a Pre-Pottery Neolithic B site, part of the Jordanian megasite phenomenon. Very few PPNB sites have been found to the north of the Zarqa river during the different surveys conducted in the area, and Tell Abu as-Sawwan is the only PPNB site excavated in this underexplored region.

Acknowledgments. I would like to thank the University of Jordan for giving me the chance to teach this field school and for their financial support. I am grateful to the Department of Antiquities, represented by Dr. Fawwaz al-Khraysheh, for its professional and financial support. A special expression of gratitude is extended to Dr. Zeidan Kafafi for drawing my attention to the Tell Abu as-Sawwan site and for his academic advice. I am thankful to the representative of the Department of Antiquities at the site who made things easier for us in the Jarash area. I am also grateful to Mr. Muathe al-Fuqaha (curator), Mr. Darar Langer De Bolacky (field technician), and Mr.

Fig. 4 Tell Abu as-Sawwan: Crested blades, celts, tanged arrowheads, and tanged scrapers.

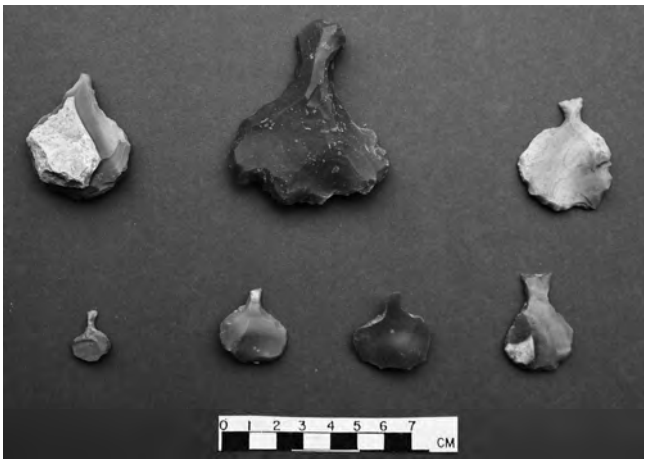

Fig. 5 Tell Abu as-Sawwan: Tanged scrapers.

Mohammad Aady (photographer) at the University of Jordan Museum. I also am appreciative to Mr. Fawwaz Suhakat (architect) from Hashemiyeh University.

References

Kirkbride D.
1958 Notes on a Survey of Pre-Roman Archaeological Sites near Jerash. *Bulletin of the Institute of Archaeology* 1: 9-20.

Leonard A.
1987 The Jerash – Tell el-Husn Highway Survey. *Annual of the Department of Antiquities of Jordan* 31: 343-390.

Simmons A.H., Olszewski D.I. and Kafafi Z.
1988 Abu Suwwan Briefly Revisited: Additional Notes on a Large Neolithic Site near Jerash, Jordan. *Annual of the Department of Antiquities of Jordan* 32: 15-25.

Field Report

Ba'ja 2005: A Two-Storied Building and Collective Burials. Results of the 6th Season of Excavation

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Aims of the Season

The aims of the 2006 season at Ba'ja included:
1) the excavation of two collective burials in the lower room stratigraphy of Area C;
2) the re-measurement of all architectural levels taken earlier in Areas B-North, B-South, C, D, and F;
3) the clearance of architectural features in Area B-North (B22/32) and Area B-South (B64); and
4) the excavation of a Test Unit (TU7) in Area A.

The goals were devoted to strengthen the basis for the planning of future strategies and questions of large-scale excavations at the site, and to check data needed to finalize an interim monograph on Ba'ja 1997-2005. Without excavating the collective burials in Area C, a continuation of work in this area would have been difficult, and without clearing up the potential domestic character of Area A the understanding of the site would have been loaded with unsolved questions. Except for the latter aim, all aims were fully met.

A Two-Storied Building in Area B-North

Clear evidence of a two-storied building came up during the re-measurement of architectural levels after rains during the past winter exposed a buttress and parts of the eastern baulk of Sq. B22. With other it represents

Fig. 1 Ba'ja 2005, Area B-North, Sq. B22: "girder grillage" of Walls 16 and 19, Buttresses 33 and 55, stairwell Room 3, and cut Wall 34 with *in situ* ceiling Layer 41, from WSW (cf. Figs. 2-3). (photo: M. Kinzel, Ba'ja N.P.)

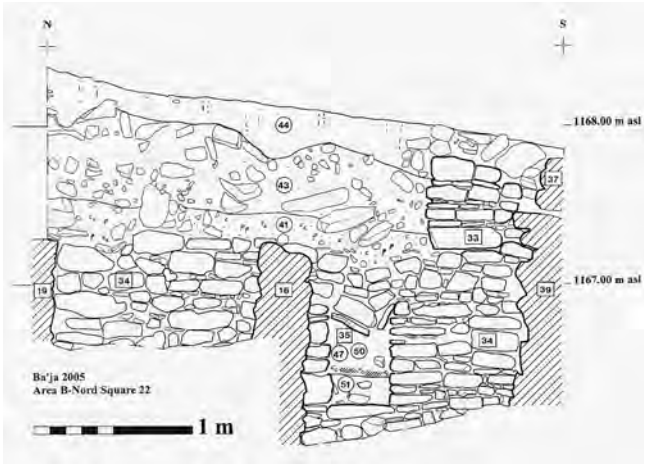

Fig. 2 Ba'ja 2005, Area B-North: part of the eastern sections of B22/32, with the evidence of leveled wall heights (Wall 34) and in situ floor/ceiling remains (Layer 41). (drawing: C. Purschwitz, Ba'ja N.P.; for legend cf. Fig. 3)

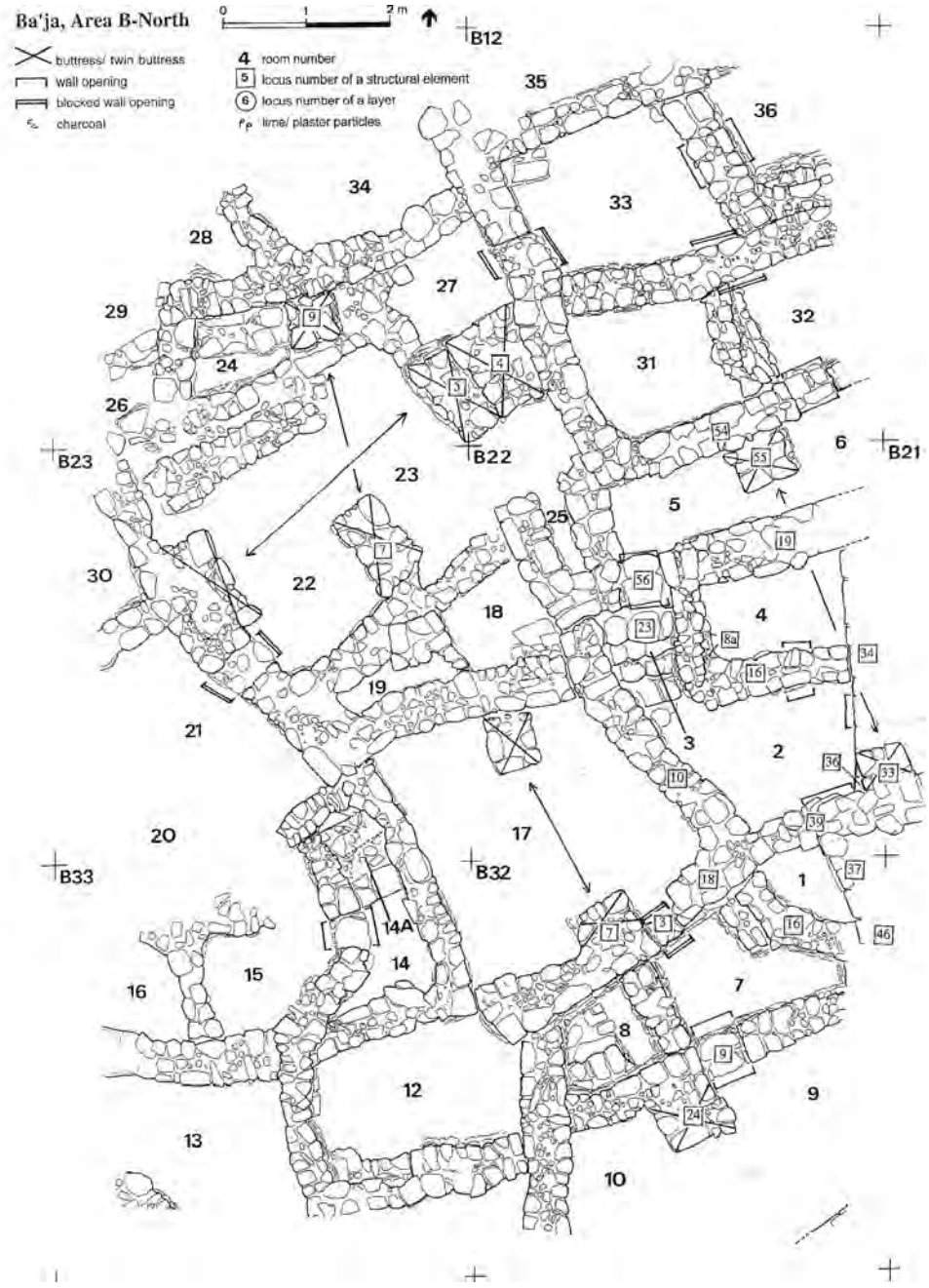

Fig. 3 Ba'ja, Area B-North: ground plan of the domestic steep-slope architecture. (field record: B. Borowski; edited: H.G.K. Gebel, M. Kinzel; Ba'ja N.P.)

"hard" evidence for two-storied housing in Ba'ja, which now assembles all parameters (Gebel 2006) for a true second story. Until now we had had many isolated indications from the steep-slope LPPNB settlements for two stories, but not all indications came together in one finding. Our subsequent clearance (Fig. 1) of the eastern baulks in B22 and B32 exposed twin buttresses (Fig. 3: Loci 33 and 55 in B22) as well as a leveled wall (Fig. 2: Loc. 34) with remains of a ceiling on top (Fig. 2: Loc. 41).

In the finding presented here, we deal with a story (ceiling) level at the height of about 1167.30 m a.s.l. (Figs. 2-3: Walls 19, 34, and 16 of B22). It is the approx. height of ceiling remains (Fig. 2: Layer Loc. 41) and of the aforementioned walls, which were bearing the second floor, forming a kind of "girder grillage" for the upper floor. Two supports for the upper floor's beams could be identified at 1167.20 m (Fig. 3: Loc. 8a, running out of Wall 8) and 1167.24 m (Fig. 3: Loc. 36, below Buttress 33). The fourth measure preparing the domestic structure to have an upper story was the erection (or modification, *cf.* below) of the stairwell between Walls 8 and 10 (Fig. 3: Room 3). Four steps were identified, crossing a height of some 80 cm. The uppermost Step 23 ends at 1166.71 m in front of Wall 19, at a spot, where a Threshold 56 (at 1167.32 m) exists in this wall. Staircases ending blindly in front of a wall are quite common in the terraced steep-slope architecture of the LPPNB, not only in Ba'ja. The evidence we have here suggests that the greater depth of the upper Step 23 helped to create a place for another small step or ladder to lead up to the Threshold 56, crossing the remaining height of some 60 cm. Thus, the stairwell, a supposed small step or ladder of perishable material on Step 23, and Threshold 56 allowed access to the floor of the upper new room, located between Walls 39, 10, 8, 7, and 54, or between

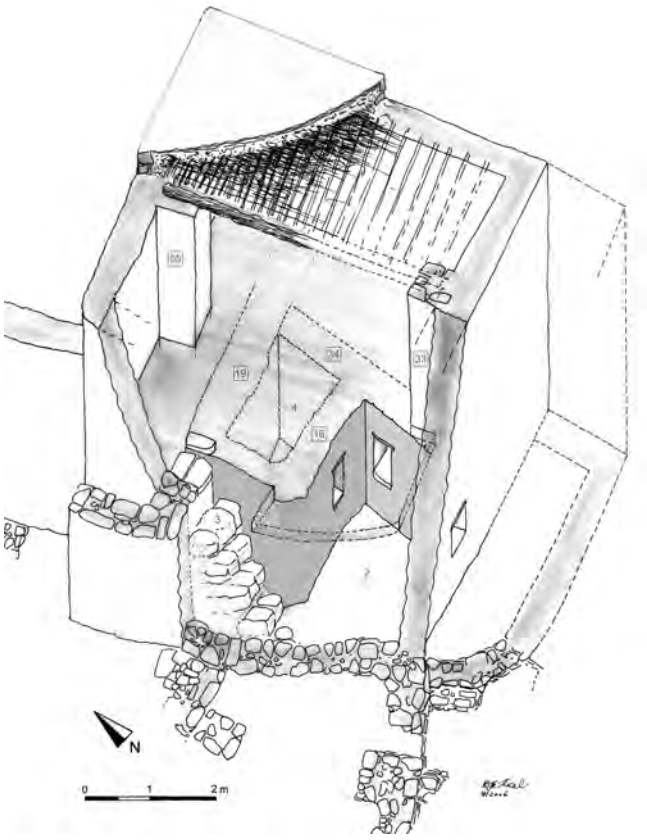

Fig. 4 Ba'ja 2005: isometric reconstruction of the central two-storied parts of a house in B22, from SW. (reconstruction: M. Kinzel)

the twin Buttresses 33 and 55 respectively (*cf.* Fig. 4).

Room 17 (*ca.* 8-9 m^2) with its twin buttresses may well represent the remains of a yet unexcavated larger room of the last story existing in this domestic area, and most likely a "girder grillage" of leveled walls like the one mentioned above will show up in its lower stratigraphy. Like the upper room between buttresses Loci 33 and 55 that had a stairwell to its west (Room 3), Room 17 also had a stairwell (Room 14a) to west.

The reconsideration of the architecture in Area B-North proved the existence of three such twin buttresses in possibly three buildings (*cf.* Fig. 3, marked by arrows): The other example exists in Rooms 22/23, which have a system of altered twin buttresses (Loci 7 and 9, Loci 4/5 and the opposed one in B23).

Buttresses are a common feature in the LPPNB architecture of southern Jordan, as are walls extending in right angles into the interior of rooms (*e.g.* Wall 7 in B23). They do not necessarily have the function of being supports for a ceiling's beams (Kinzel 2004, 2006). They simply could represent wall strengthening for long walls or dividing the space of a room. Such added wall strengthening most likely was – especially if not executed with the original building plan ("retro-fitted buttresses" as named by Bill Finlayson, pers. comm.) – undertaken for walls that later had to carry the load of another story. Wherever they appear in pairs in opposed locations, however, we may expect that they were erected to carry the main or central beam of the beam network of a ceiling/floor.

Ceiling Layer 41 in Fig. 2 (*cf.* also Fig. 1) rests on the Wall 34, and is about 20-30 cm thick. The height of its base corresponds to the height of the beam supports Loc. 8a and 36, the height of a support gap (Loc. 40) in Wall 39, and the tops of Walls 16 and 19. It was not only the corresponding heights, but also the kind of incorporated material that let us interpret this Layer 41 as the in situ remains of a floor/ ceiling between the upper large room with the twin Buttresses 55 and 33 and Rooms 2, 4, 5, and 6 underneath. The clayey-silty material is a compact and dense mixture of finer sediment with a high content of lime, recycled plaster, and charcoal.

It is the interpretation of one of the authors (H.G.K.G.; *cf.* also Gebel, in: Gebel and Hermansen 2001: 19 and Gebel 2006) that this evidence is another example for how in Ba'ja larger, presumably central rooms of upper stories were established on top of leveled room walls (= cutting back wall heights) of earlier stories (*e.g.* Wall 34 in Figs. 2-3), which were before an upper story and became transformed by this action into a basement. Into these new basements walls could be inserted creating the small-room ground plans, or walls were modified including their wall openings. The story below this new basement (which was the basement of the previous building or room association) was intentionally filled during these actions of transforming upper floors into basements. In the present case, the new and partly eroded upper room must have rested over Rooms 2 and 4-6, and unexcavated areas in B21 (Fig. 3); the stairwell Room 3, probably giving access to a roof before, may have been modified now by a freshly inserted threshold (Loc. 56 in Wall 19) to give access to the new upper room. This story alteration stands for one of the building principles in Ba'ja; it not means that all building in Ba'ja followed this principle: We imagine that two-storied houses or room associations were also planned and build in one action. Gebel (2006) provides more information on the specifics of the southern Jordanian LPPNB architectural and sedimentary morphodynamics, as related to second stories, the local building history, and he suggests preliminary definitions for the discussion of second stories in the LPPNB. A summary generalizes the measures taking place when a new story or room association in the LPPNB steep-slope housing is established, considering evidence from all southern Jordanian LPPNB sites. Here, it must be briefly mentioned that the shallow-slope architecture of Basta is considered to be single-storied (Nissen 2006), without excluding an occasional (optional) use of second stories.

The increasing use of the vertical space in the LPPNB of southern Jordan (if not to be traced back into the MPPNB; *cf.* Hermansen *et al.*, this issue and Gebel 2006: footnote 2) is one of the expressions of the many mate-

rial and immaterial agglomeration processes of the Near Eastern Early Neolithic. In the southern Jordanian LPPNB the use of real two-storied structures was widely introduced after 7500 BC cal. in the steep-slope domestic architecture, co-existing together with other forms of shared wall architecture founded on different levels (*e.g.*, split-level structures or rising-floor structures). Intra-site social and spatial pressure – especially in Ba'ja – may have forced the use of the vertical space, since domestic space became topographically more and more restricted through progressive community/family growth.

Collective Burials in C10

(with information provided by J. Gresky, A. Kozak, and N. Roumelis, Zentrum Anatomie of Göttingen University)

The two collective burials in Area C were already encountered in the 2003 season in the lowermost stratigraphy of two neighboring rooms between the buttresses of the major terrace wall in Area C (Gebel and Hermansen 2001: fig. 3; 2004: fig. 2); they were completely excavated, and all of their material was screened, by the participating anthropologists (graphic documentation: C. Purschwitz).

The rooms in which the two collective burials made up the lower stratigraphy were connected by a raised wall opening, appearing more as a passage than a "window". On or over its threshold an anthropomorphic figurine of the es-Sifiya type (Mahasneh and Bienert 1999) was found.

Both collective burials – like the one excavated in Area D (Gebel and Hermansen 2001: 17f, figs. 6-7) – most probably represent a real mortality profile of the social groups (extended families) inhabiting the houses at a certain period: The frequencies of infants in the collective burials of Ba'ja may indicate more the characteristic infant mortality for the LPPNB in southern Jordan than the data from sites like Basta (Berner and Schultz 2004: fig. 5) with their individual burials. Here again it has to be emphasized that the collective (family?) burials in the small rooms of the Ba'ja houses are unique: Squeezed into small burial pits of not more than 0.65 m^2, they contain sequences of burials that were disturbed by the deposition of later corpses or corpse parts. Articulated parts do exist mostly for the later inhumations, and the use of red (liquid?) pigment is attested for the burial rituals. So far none of the normal individual intra- and extra-mural LPPNB burials were found in Ba'ja.

In Area C, Sq. C10, Burial Loc.152 was excavated in Stages A-H. This collective burial (Fig. 5) is located at the bottom of a small room between the buttresses of the major NNW-SSE terrace wall (Gebel *et al.* 1997: fig. 6) in C10-11. The burial was deepened into the virgin soil (playa-like sediments of the al-Mehmad Basin), and the burial pit has an extension of *ca.* 80 x 70 cm. The pit

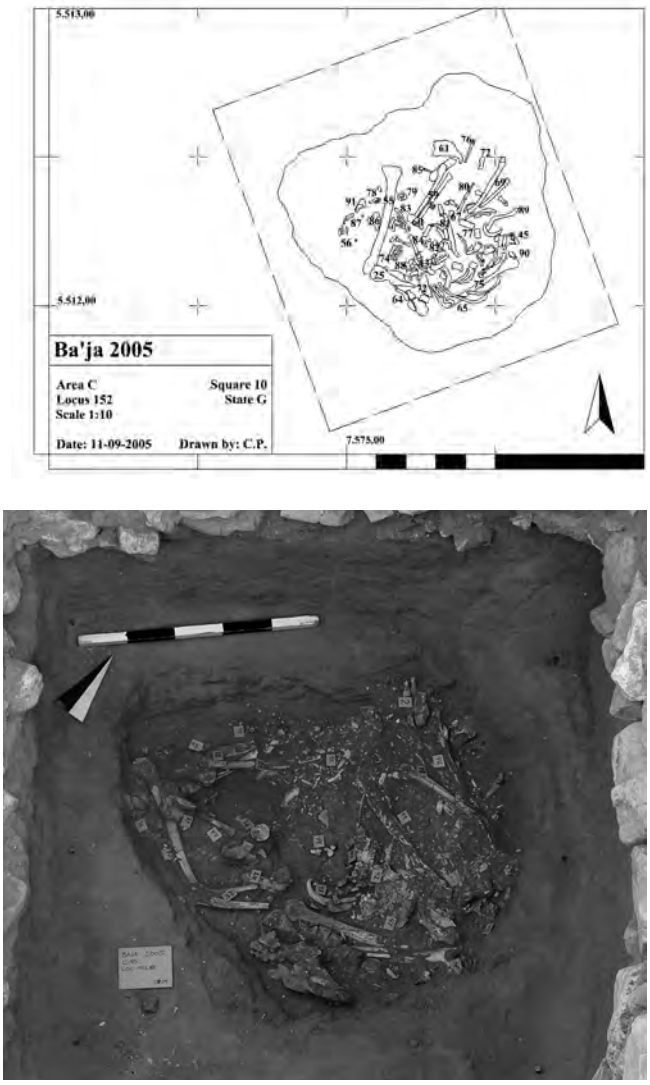

Fig. 5 Ba'ja 2005, Sq. C10: collective burial Loc. 152: (top) excavation Stage G, (bottom) excavation Stage E. (drawing and photo: J. Gresky et al./C. Purschwitz, Ba'ja N.P.)

was dug through an earlier plaster floor founded directly on the virgin soil. At least on the northern side, the plaster floor extends below the room's wall, meaning that the wall is founded on the plaster floor (Fig. 7 bottom).

The burial contained three to four adults, among which is one juvenile (18-20 years, male), and three or four infants, among which is a possible newborn. No animal bones were found. The juvenile appeared to be articulated and complete except for the cranium, and the other (male?) adult was articulated for the spine and legs. One adult also had articulated legs including the feet we. The child remains and other parts of the adults were mixed throughout the burial pit. The depth of the bone deposits is approx. 30-40 cm, and they rested nest-like in the pit. The bone preservation was bad, but increasingly better in the lower parts of the deposits; the bone concentration increased towards the pit's bottom.

Compared with the collective burial in Area D, the

Tab. 1 Inventory and samples of Burial C10, Loc. 152.

Excavation Stage	Finds/Samples	Excavation Stage	Finds/Samples
A	red plaster fragment	F	4 beads
A	red pigment	F	2 arrowheads (1 frag.)
B	1 flint dagger	F	charcoal
B/C	1 flint arrowhead	F	red pigment
H	greenish sediment	F	yellow pigment
C	2 beads	F/G/H	1 hair slide (bone, 2 parts)
C/D	3 beads	G	1 bone bead, 3 mineral/shell beads
D/E	1 sandstone ring fragment	G	strong silty material
D/E	red pigment	G	"green sediment"
E	3 (4) beads	H	3 (4) bone beads
E	plaster, moulded material	H	black pigment/charcoal
E	1 arrowhead	H	"greenish pigment"

variety of grave goods was more limited: a few isolated beads and arrowheads, as well as one flint dagger (Stage B, Fig. 6), and one bone hair slide inside a child's skull were found together with red pigments: many of the human bones, especially in the upper layers of the deposits showed a red pigmentation, and these pigments also occurred as smaller and larger lumps (up to 10 mm) in the deposits. Charcoal fragments as well as yellowish pigments were attested, too, while for the lowermost part of the burial a strange green/olive colored soil can be recorded. In 2003, the fragment of a stone plate or bowl was found on top of the burial; its depression still contained red pigment from the last use for the burial.

Fig. 6 Ba'ja, 2005: flint dagger found in a collective burial (Area C). (photo: H.G.K. Gebel, Ba'ja N.P.)

The complete flint dagger (Fig. 6) found in the burial represents one of the rare pieces known from the LPPNB. Another complete one (Gebel and Hermansen 2001: fig. 8) – intentionally broken into 3 pieces – had been found in the previously excavated collective burial in Area D. This pressure-flaked artifact type deserves a thorough comparative study of its meaning in terms of contextual evidence and its geographic and chronological distribution.

Adjacent to the north of Loc. 152 in C10, another multiple burial (Loc. 170) was excavated in four Stages (A, B, D, C/D, and E) (Fig. 7). The bone preservation was extremely crumbly; many stones (up to fist-size) in the grave and the hard soil into which the bones were "baked" made it difficult to excavate the deposits. The human remains rested together with animal bones above a typical and well-preserved LPPNB plaster bed having no final fine plaster finishing coat (Loc. 170F). It appeared that the lower burials were in close contact or located atop the aforementioned plaster bed, while the animal bone concentrations were in contact with the other human bone layers. The animal bones were concentrated within a circular stone alignment set into the SW corner of the room. In the upper grave stratigraphy mixed animal/human remains prevailed, while in the lower stratigraphy the human remains were dominant. The contextual relation between the animal and human remains is unclear, and they might not be ritually associated. In the eastern part of the room ashy layers of some 10 cm existed, which were not present in the middle part of the room. The burial appears to be older than the neighboring buttress (Loc. 64), since parts of it go underneath this eastern buttress. The most probable stratigraphy in which the collective burial rests is as follows.

Excavation Stage	Finds	Excavation Stage	Finds
A	1 arrowhead	C	3 arrowheads
A1	3 arrowheads	E	2 arrowheads
B	3 arrowheads		

Tab. 2 Inventory of Burial C10, Loc. 170.

· foundation of a floor, possibly on earlier cultural sediments or on the virgin soil (unexcavated).
· building of the first terrace Wall 3 (in C11, *cf.* Gebel *et al.* 1997: fig. 6) and its continuation Loc. 16 towards NNW (partly resting on top of the floor?)
· building of the reinforcement Wall 32 in front of the earliest terrace Wall 3/16 (partly resting on top of the floor?)
· a series of inhumations in the collective burial Loc. 170 in front of the reinforcement Wall 32
· building of buttress Loc. 64, partly founded on the burial Loc. 170. (The parts of the collective burial underneath Buttress 64 appear undisturbed).
· (multiple?) disturbance events (deposition of animal remains and ashy layers, Layers A-B) affected those parts of the collective burial that were not located under Buttress 64. The ashy remains covered all of the room.

However, there is a small likelihood that the collective burial rests against the buttress, which has a "reduced" ground plan at this spot. To the extent the locus could be excavated, the chest area of one individual appears resting beneath the buttress where it could not be reached by excavation.

In the NE part of the collective burial, many non-articulated human remains were embedded in a yellowish-brown sediment; only one upper and one lower arm were found in anatomical order. Among the bones, one skull was placed directly in the NE corner and looking towards the east; the related thorax – most probably articulated – rests underneath Buttress 64. (The cervical vertebra and a right clavicle could be seen, indicating that the corpse was placed on its back). The chin must have rested on the chest. The other non-articulated post-cranial remains seem to belong to the 6 skulls found, and they

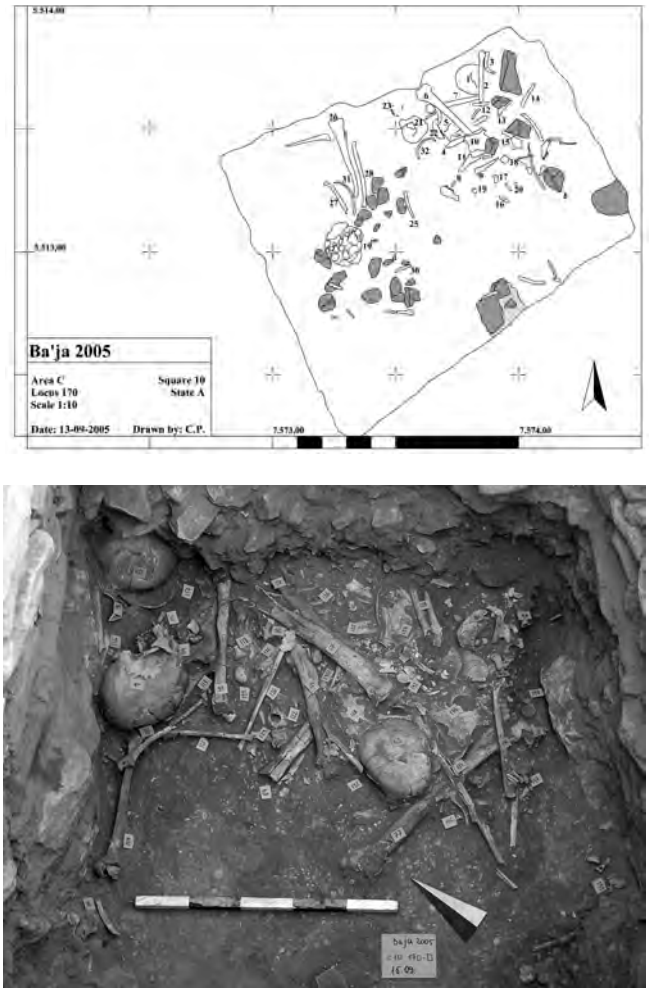

Fig. 7 Ba'ja 2005, Sq. C10: collective burial Loc. 170: (top) excavation Stage A, (bottom) excavation Stage D. (drawing and photo: J. Gresky et al./C. Purschwitz, Ba'ja N.P.)

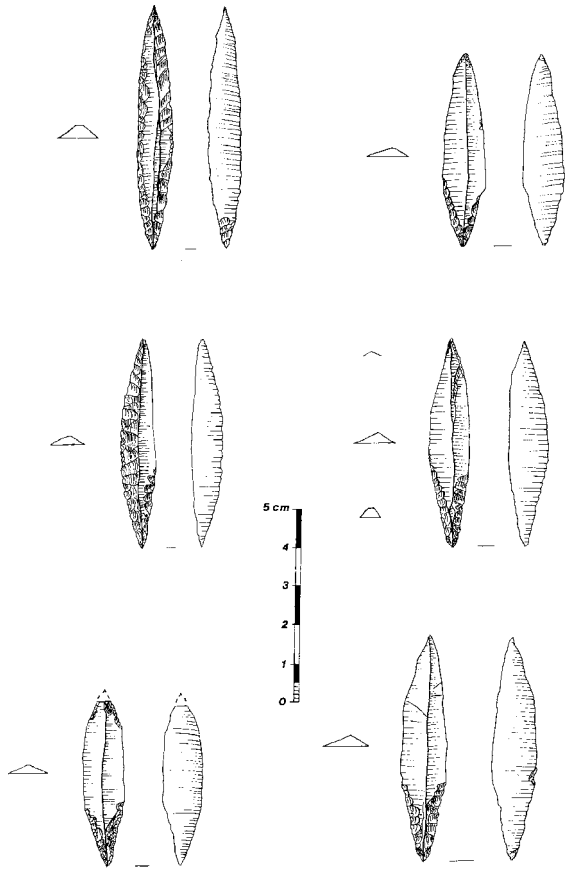

Fig. 8 Ba'ja 2005, Sq. C10: arrowhead types of the collective burial Loc. 170 (drawings: M. Bshesh/H.G.K Gebel)

may represent two children (6-14 years), one woman, and three men. The only grave goods, 12 arrowheads (Fig. 8), were concentrated in one part of the collective burial, and three were placed along a femur. The general arrangement of the human remains created the impression that they were moved from the southern part to the northern part of the burial space. All grave disturbances happened in the LPPNB, or during occupation respectively. The burial sediment itself was free of ash and contained almost no charcoal; one piece of red pigment was found.

The animal bones – also preserved in a crumbly condition – in the SW corner of the room may represent kitchen waste, and they seem to have been intentionally separated from the collective burial by a single-row "wallet" preserved in two courses. In the upper part of this bone layer, long bones – probably goat – prevail. A few human remains (ribs) were found among the animal bones, which become more frequent towards the base of the deposit where the sediment is ashier.

Test Unit 7

This probe was an exercise to understand the potential domestic and communal units in this area giving access to the site from the Siq al-Ba'ja (Gebel *et al.* 1997: fig. 4, table 1 "the Towel"). The various inclinations of the slope let us expect erosional activity, which at least destroyed structures in the central parts of Area A. The only occupational evidence hitherto known from Area A consisted of garbage deposits in the lowermost parts of the slope (Sounding I in 1984: Gebel 1988: 85ff), which had already provided most of the information on the material culture of LPPNB Ba'ja.

Test Unit 7 was placed in the central part of Area A, with a slight shift towards south, in order to reach the rocky fringes of this area bordered by vertical sandstone formations. The extension of the sounding was 6 x 2 m, oriented South-North. The depth reached in the NE corner is about 2 m; the depth reached in the NW corner is about 1.3 m, and in the SW corner *ca.* 0.9 m. The eastern section and the evidence from the excavations give evidence of the following stratigraphy:

The surface is densely covered with eroded stone (building) material, grinders, and artifacts, providing an instable (slope, erosion) stone pavement. A top soil seems not to exist due to erosion activity. The uppermost layer is *ca.* 40-50 cm thick and shows the downslope transportation of LPPNB wall stones deriving from Neolithic architecture further up. Both erosional activity and agricultural use of the slope are responsible for this transport. Except for the re-deposited Neolithic material, this layer contains sherds from the Nabatean and Roman periods. The share of stones in this layer (by volume) is 5 to 10 %, indicating that field clearing from stones took place in the area. Transverse walls are characteristic for

Fig. 9 Ba'ja 2005, Test Unit 7: burial Loc. 5, excavation Stage C, from W. (photo: C. Purschwitz, Ba'ja N.P.)

Area A, proving the existence of former agricultural terraces for which the field clearing of stones was carried out. Below this fine-grained layer a light greenish layer of some 80 cm thickness is attested, containing many Neolithic wall stones with an increasing number of Neolithic artifacts. The upper end of this deposit (Loc. 4) has the same height as the preserved LPPNB wall tops in the southern part of the Test Unit. Loc. 4 represents most likely the earlier erosional and colluvial sediments depositing here from the ruins of the LPPNB settlement above.

Below the Loc. 4 layer is Loc. 9, consisting of ashy patches and yellowish-brown lenses, leading us to expect that here the deposits more or less *in situ*, probably deriving from midden activities (deposits of building material, settlement garbage). The lenses do not give the impression that their material was transported far downslope; the ashy midden area of Test Unit 1 excavated in 1984 is more certainly a garbage area for organic and non-organic matter.

A burial (Loc. 5, *cf.* Fig. 9) was found within the layers of Loc. 9, meaning that here an extramural inhumation had taken place in an LPPNB midden area. It appears that the corpse was not placed in a proper burial pit, *i.e.*, lined and covered by set stones, but rather was buried in the stone rubble. This rubble not only characterized the burial's fringes; the area in which the contracted corpse rested was also full of densely packed stones (2-20 cm, in average 5-10 cm). The corpse appears to have been protected by stones, and nothing indicates a later disturbance of the burial. This means that at least Loc. 9 remained as a stable deposit in the slope of Area A. The thorax of the body rested on its back with the skull being placed slightly higher (north of the thorax, facing south). The right arm rested below the lower part of the spine, while the lower left arm stretched towards ESE. The lower extremities were contracted, but not really representing a "hocker" position. All parts of the body appear to be represented (the right foot is still embedded in the

eastern section of the Test Unit, as well as the left femur, tibia, fibula, and the left hand). The remains are of a gracile adult female aged 25-50 years. The individual suffered from dental diseases such as abscesses. Two leaf-shaped arrowheads seem to be linked with the burial, while some sandstone ring fragments seem to represent intrusive settlement debris. Stratigraphically, the burial might belong to a post-occupational early Neolithic phase of the site, a final PPNB/PPNC.

The architectural remains in the southernmost third of the test unit represent an extremely solid part of an LPNNB building, using large boulders at this spot. It "announces" the architectural occupation to be expected in Area A. It is not clear if the remains represent a massive wall corner reaching a thickness of about 80 cm (height 105 cm), or if they belong to a buttress. Nothing can be said about the ground plan. However, it might be stated that the preservation of the burial and various lenses in Loc. 9 indicate that no erosion or later agricultural activity had disturbed this part of the central slope. However, we may not have reached the necessary depths yet to identify LPPNB wall tops in the central part of the slope.

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References

Berner M. and Schultz M.
2004 Demographic and Taphonomic Aspects of the Skeletons from the Late Pre-Pottery Neolithic B Population of Basta (Jordan). In H.D. Bienert, H.G.K. Gebel and R. Neef (eds.), *Central Settlements in Neolithic Jordan.* Studies in Early Near Eastern Production, Subsistence, and Environment 5: 241-258. Berlin: ex oriente.

Gebel H.G.K.
1988 Late Epipalaeolithic-Aceramic Neolithic Sites in the Petra-Area. In A.N. Garrard and H.G. Gebel (eds.), *The Prehistory of Jordan: The State of Research in 1986.* British Archaeological Reports – Internat. Series 396.1: 67-100. Oxford: B.A.R.
2006 The Domestication of Vertical Space. The Case of Steep-Slope LPPNB Architecture in Southern Jordan. In E.B. Banning and M. Chazan (eds.), *Domesticating Space: Construction, Community, and Cosmology in the Late Prehistoric Near East.* Studies in Early Near Eastern Production, Subsistence, and Environment 12: 65-74. Berlin: ex oriente.

Gebel H.G.K. and H.D. Bienert, with contributions by T. Krämer, R. Neef, B. Müller-Neuhof, J. Timm and K.I. Wright.
1997 Ba'ja Hidden in the Petra Mountains: Preliminary Results of the 1997 Investigations. In H.G.K. Gebel, Z. Kafafi and G.O. Rollefson (eds.), *The Prehistory of Jordan II: Perspectives from 1997*. Studies in Early Near Eastern Production, Subsistence, and Environment 4: 221-262. Berlin: ex oriente.

Gebel H.G.K. and Hermansen B.D.
2001 LPPNB Ba'ja 2001: A Short Note. *Neo-Lithics* 2/01: 15-19.
2004 Ba'ja 2003: Summary on the 5th Season of Excavation. *Neo-Lithics* 2/04: 15-18.

Kinzel M.
2004 Some Notes on the Reconstruction of PPNB Architecture. *Neo-Lithics* 2/04: 18-22.
2006 Basta Architectural Reconstruction. In H.G.K. Gebel, H.J. Nissen and Z. Zaid, *Basta II: The Architecture and Stratigraphy*. Berlin: ex oriente (in press).

Mahasneh H.M. and Bienert H.D.
1999 Anthropogenic Figurines from the Early Neolithic Site of es-Sifiye (Jordan). *Zeitschrift des Deutschen Palästina-Vereins* 115.2: 109-126.

Nissen H.J.
2006 The Architecture. In H.G.K. Gebel, H.J. Nissen and Z. Zaid, *Basta II: The Architecture and Stratigraphy*. Berlin: ex oriente (in press).

A Pottery Neolithic Clay Surface from Lod, Israel: Characteristics and Possible Meanings

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Introduction

A small-scale salvage excavation in the eastern part of the city of Lod, Israel, produced a large clay surface overlying on a sandy dune. The accumulations above this surface produced an abundance of Pottery Neolithic material mixed with later finds, while beneath it only scarce finds were noted, partly incorporated in the base of the surface (for more, see Paz *et al.* 2005). This unusual surface and its possible function are the focus of this paper.

The Settings and Excavations

Tel Lod (55.55 m above sea level) in the outskirts of the modern city of Lod is situated in a transitional zone between the *Shephelah* (piedmont) and the Costal Plain in the Mediterranean climatic zone, some 20 km east of the current Mediterranean Sea shore (Fig. 1). The excavated area is located some 200 m southwest of the Ayalon River and about 5 km from the western slopes of the Judean hills.

The 2003 excavations[1], anticipating the construction of new residences, were conducted in an area where previous excavations yielded abundant material belonging to the Pottery Neolithic period (Gopher and Blockman 2004; Kaplan 1977; 1993; van den Brink in press a, b; Yannai and Badihi in press; Yannai and Marder 2000). Two areas were placed about a hundred meters apart in accordance with the construction plans: area D, in which the feature discussed here was uncovered, contained accumulations predominantly of the Pottery Neolithic and Chalcolithic periods; and area I, where Chalcolithic finds and very tight stratigraphy of EBI occupations were investigated.

In Area D, four 5 x 5 m probes were excavated from the surface down to virgin soil. In Sq. D3, below 1.5 m accumulation of modern through Neolithic debris, a designated Pottery Neolithic stratum was excavated. This stratum is characterized by a dense gray-brown matrix. The accumulation of this stratum suffered serious disturbances from the Bronze Age through modern times, and it rests upon a sizable clay surface below which only scant finds were found superimposed directly above the otherwise sterile dune.

Fig. 1 Map showing the location of Lod and selected Late Neolithic sites.

The Clay Surface

The preserved clay surface is 20-25 cm thick and stretches from the northern section of the probe due south (Fig. 2), covering an area of *ca.* 8 m^2. Because the excavation was limited in area, the exploration of the entire surface was not possible, and it is reasonable to assume that it was significantly larger, penetrating the north, east and south sections of the probe (Fig. 3).

The upper face of the surface is mostly level while the lower face (bottom) is relatively uneven. Soot marks were observed mainly on the lower face of the surface while its upper face is reddish. Within the clay matrix, the negatives of twigs and branches were noted (usually 5-20 mm in diameter). These were probably incorpo-

Fig. 2 Lod: View of the clay surface from above.

Fig. 3 Lod: View of the clay surface in the northern section.

Fig. 4 Lod: A fragment of theclay surface showing negative imprints of organic material.

Fig. 5 Lod: A piece of the clay surface showing a section of the clay mass.

rated in an infrastructure used to consolidate the clay (Fig. 4).

The burnt clay matrix is reddish-brown (Fig. 5). A petrographic thin section of this feature revealed the matrix to be relatively ferruginous with low calcareous content, and an abundance of silt (15%); the coarse grain component is comprised predominantly of quartz accompanied by nari and flint. The nature of the material seems to be a combination of traits typical to *terra rosa* and *rendzina* soils. These features are typical of alluvial soils of this region, the closest example of which is found immediately east of the Ayalon River just a few hundred meters from the site.

The Finds below the Clay Surface

While the contexts above the clay surface suffer from post-Neolithic interferences and should thus be dealt with caution, below the surface, partly embedded in the clay and in the sand dune, a few items of Pottery Neolithic attribution were found, sealed by the clay. These included some potsherds, flint and stone items along with scant remains of small, unidentifiable animal bones.

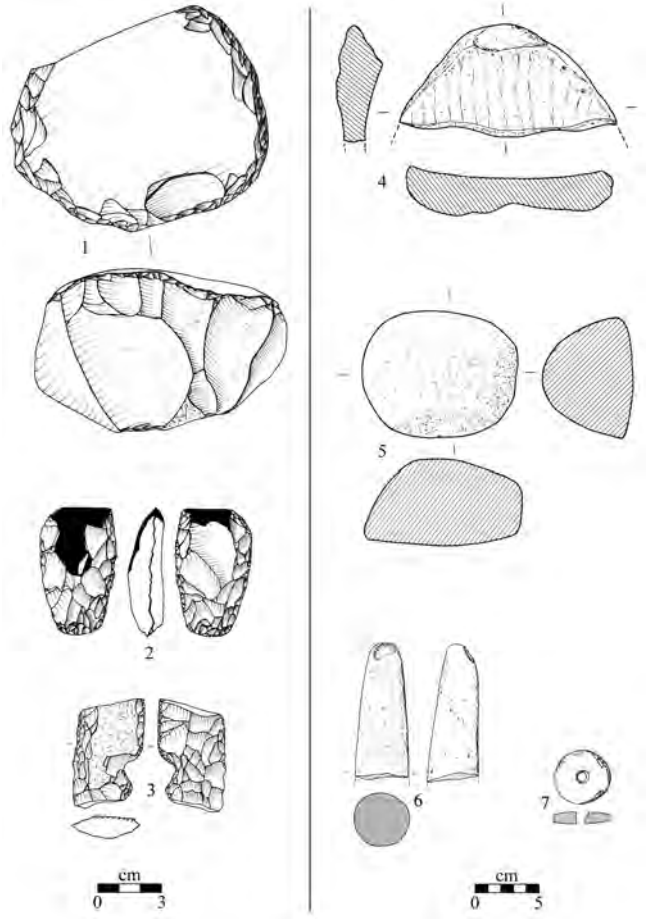

Fig. 6 Lod: Items found below the clay surface: 1: flint core; 2: flint axe/adze; 3: flint bifacial fragment; 4: limestone grinding slab; 5: limestone mano/processor; 6: basalt pestle; 7: disc/whorl made of undetermined raw material.

The few sherds found beneath this surface are plain body sherds. Most are white-yellow in color, and the fabric is coarse with chaff temper (leaving longitudinal voids) similar of the characteristic pottery of the Jericho IX/Lodian culture (Goren 2004: 51).

The flint assemblage comprises eighteen items: three cores, four tools, a blade section, five flakes and five fragments. Three items in the flint assemblage are worth further discussion. These are a large single platform core, bearing flake and blade scars (Fig. 6:1), and two bifacials: a partly polished axe/adze made of brown flint (Fig. 6:2) and a fragment of an elongated item (bifacial knife?) made of brown, burnt flint (Fig. 6:3).

Five stone items were found beneath the clay surface. These include a small limestone grinding slab (Fig. 6:4); an unidentified grinding tool fragment; an oval limestone mano/processor (Fig. 6:5); a broken basalt pestle (the only basalt item in the assemblage) (Fig. 6:6), and a perforated disc/whorl (possibly used as spindle whorl) made of undetermined raw material (Fig. 6:7).

Discussion

The clay surface found in the 2003 excavation at Tel Lod is an intriguing feature, adding another aspect to the growing body of data concerning this period (see Gopher 1995; Gopher and Gophna 1993 for relevant summaries). Similar features are uncommon in Pottery Neolithic contexts in the Southern Levant, and thus the function of this surface is difficult to determine by comparison. Nonetheless, it is possible to discuss a couple of hypotheses, though we do not find any of them truly compelling.

One hypothesis is that this is not a surface at all, but the remains of a wattle and daub structure that succumbed to a conflagration. This would account for the clay being burnt as well as to the clear negatives of branches and sticks. Such a structure would undoubtedly had been unique in the general landscape of the settlement that consisted mostly of semi-subterranean, round structures, no more than 3 m in diameter, with mud brick walls (Gopher and Blockman 2004: 4; plan 2; fig. 2); hence, a public function may be suggested. However, two significant difficulties arise when considering this option. First, the absence of a floor or living surface, upon which the structure would have collapsed, appears to be a major nail in the coffin of this proposal. Secondly, the horizontal layout of this feature, and the lack of fissures and slanting "slabs" hardly agree with the dynamics of a collapse. Moreover, no signs of postholes were found, which would have been expected in such a case, nor were there other signs of activity (*i.e.*, hearths, floor construction etc.).

Another option is that it is a floor or a platform, set purposefully on the sand dune. This makes some functional sense, as the sand dune affords little resistance for those moving and working on it. The reconstruction in this case would be of an open space in which a large, massive and possibly rectangular clay surface, was located. Symbolically, its reddish-brown color would set it in marked contrast to the yellowish sand dune surrounding it. Hence, a public function suggests itself, and the stone and flint implements could very well have been deposited as foundation offerings. The placing of some exceptional items such as the large core, the bifacials, and the basalt pestle may strengthen this notion. It is of note that in a close proximity to this surface, a small pit was exposed (though the stratigraphic relation of these features could not be reconstructed due to late interference hampering any such attempt) containing Lodian/Jericho IX material (Paz *et al.* 2005).

In the absence of a superstructure, the option of an accidental fire responsible for burning the clay surface is eliminated. The surface was, therefore, either intentionally burnt as part of its construction, or burnt as a result of activities involving the use of fire upon it but aimed toward other purposes. In any event, such clay surfaces are highly unusual for Pottery Neolithic sites in the Southern Levant, and the lack of parallels coupled with the absence of finds that can be securely associated with the clay surface leave very little to guide other hypotheses.

To sum up, all that can be stated at this point with reasonable confidence is that the feature discussed here presents an uncommon investment in producing a massive, leveled surface constructed of burnt clay supported by strengthening branches and boughs. This feature stood out in the general Pottery Neolithic occupation landscape at Tel Lod, and most probably had some public function. However, whether this was communal, industrial, or religious cannot be determined.

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Note

[1]The excavation near Beitar St. took place in the end of 2003 and was conducted on behalf of the Sonia and Marco Nadler Institute of Archaeology at the University of Tel Aviv through the Israeli Archaeological Association (License no. B-280/03).

References

Gopher A.
1995 Early Pottery-Bearing Groups in Israel – The Pottery Neolithic Period. In T.E. Levy (ed.), *The Archaeology of Society in the Holy Land*: 205-225. New York: Facts on File.

Gopher A. and Blockman N.
2004 Excavation at Lod (Nevé Yaraq) and the Lodian Culture of the Pottery Neolithic Period. *'Atiqot* 47: 1-50.

Gopher A. and Gophna A.
1993 Cultures of the Eight and Seventh Millennia BP in the Southern Levant: A Review for the 1990s. *Journal of World Prehistory* 7(3): 297-353.

Goren Y.
2004 Technological Study of the Ceramic Assemblage from Nevé Yaraq, Lod. *'Atiqot* 47: 51-55.

Kaplan J.
1977 Neolithic and Chalcolithic Remains at Lod. *Eretz Israel* 13: 57-75 (Hebrew with English summary).

Kaplan J.
1993 Lod. *New Encyclopaedia of Archaeological Excavation in the Holy Land* 3: 917. Jerusalem: Massada Press.

Paz I., Rosenberg D. and Nativ A.
2005 Excavations at Lod – The Neolithic and Chalcolithic Periods and an Egyptian Presence in the Early Bronze Age IB. *Salvage Excavation Reports* (Tel Aviv University) 2: 114-158.

van den Brink E.C.M.
in press a Lod, Nevé Yaraq: A Roman Pottery Kiln and Pottery Neolithic A (Jericho IX/Lodian) Remains. *'Atiqot*.

van den Brink E.C.M.
in press b Recent Salvage Excavation at Tel Lod in the Central Coastal Plain of Israel (with Byzantine, MBI, Late EBIb and Sporadic Chalcolithic and PNA Remains). *'Atiqot*.

Yannai E. and Badihi R.
in press The Excavation at Lod (Permit 2409). *'Atiqot*.

Yannai E. and Marder O.
2000 Lod. *Hadashot Arkheologiyot* 112: 63-65.

Field Report

A New Pre-Pottery Neolithic Site in Southeastern Turkey: Sefer Tepe

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Fig. 1 General view of Sefer Tepe from NE.

Sefer Tepe is a small settlement located within the boundaries of Viranşehir township, c. 70 km to the east of Şanlıurfa (Fig. 1). The site was discovered by a team of three archaeologists (A. Cihat Kürkçüoğlu, Bahattin Çelik and Muharrem Oral from Harran University Archaeology Department) within the framework of the "Şanlıurfa Region Culture Inventory Project" between 2000-2003 (*cf.* Çelik 2005: 171-189; Kürkçüoğlu and Kara 2005: 62-63). The settlement extends over an area of approximately 1,000 square meters at an altitude of 700 meters. The settlement rises *ca.* 6 meters directly on bedrock just as the other Pre-Pottery Neolithic settlements in the region, including Karahan Tepe (*ca.* 15 km), Göbekli Tepe (*ca.* 50 km), Şanlıurfa-Yeni Mahalle and Hamzan Tepe (both *ca.* 70 km). In the southeast corner of the settlement is a house occupied by villagers cultivating cotton in the fields along the south side of the site thanks to the artesian wells bored there. About 30 meters north of the site is another but smaller settlement, again directly on bedrock. To the north and east of Sefer Tepe extend the Viranşehir plains. To its south is partially flat land, while to the southwest and west rise the Tektek Mountains and their extension, the Çoban Deresi locale. The nearest water source is the Doğu Cırcıp stream, a tributary to the Habur River, *ca.* 500 meters east. The site is found in a calcareous area in regard to geology, while the nearest source of basalt is about 2 km north. Surveys around the site did not reveal any flint stone sources.

The most noteworthy feature of Sefer Tepe settlement are the 16 intact T-shaped pillars *in situ*. All of these pillars are of limestone and stand either side by side or opposite from each other. Dispersed over the entire settlement, these intact pillars are placed 1.50 to 2.00 meters apart and rise *ca.* 30-40 cm above the ground. In this regard, they exhibit close parallelism with the *in situ* and intact pillars on the surface of Karahan Tepe and the Layer II architecture of Göbekli Tepe (Schmidt 2002: 8, fig. 7. See the positions of the pillars in trenches L10-71,

Fig. 2 A T-shaped pillar recovered intact at Sefer Tepe.

Fig. 3 A pillar body fragment from Sefer Tepe.

L9-80, L9-55 and L9-56; Çelik 2000b: 6-7). In addition, two more pillars were uncovered during the construction of the village house in the southeast corner of the site. One of these two pillars was recovered intact (Fig. 2) and measures 198 cm tall, 25 cm thick and its width at the top is 72 cm, while that of the body is 54 cm. Devoid of any engravings or reliefs, the head of the stele is rendered quite squat. The other pillar was recovered in two pieces and measures approximately the same as one of the central pillars from Nevalı Çori (Hauptmann 1991-92: 28, fig. 21): *ca.* 2 meters tall, 75 cm wide and 40 cm thick; we are of the opinion that a bucranium sketch is depicted on it (Fig. 3).

Very few small finds have been found at Sefer Tepe, and these include mainly flint and obsidian items but no pottery at all. Flint is seven times more numerous than obsidian finds. Flint artifacts include arrowheads, borers, endscrapers and sickles. Among obsidian finds, only one scraper could be identified while others are blade fragments and flakes. The flint items reflect the properties of Pre-Pottery Neolithic implement typology. The flint arrowheads include Byblos-type examples as well as others that consist only of tips and stems (Fig. 4). Parallels to these arrowheads can be found at Göbekli Tepe (Beile-Bohn *et al.* 1998: fig. 23.3 ; Schmidt 2001: 52, fig. 10/3, fig. 11/5), Nevalı Çori (Schmidt 1988: fig. 8.5), Şanlıurfa-Yeni Mahalle (Çelik 2000a: fig. 5.2) and at Karahan Tepe (Çelik 2000b: fig. 4a).

The discovery of the Sefer Tepe settlement points to an important fact: the Pre-Pottery Neolithic settlements containing T-shaped pillars are found not only in Euphrates Valley and Harran Plain but can also be found to the east of Şanlıurfa. Sefer Tepe is a new member of the settlements characterised with an architectural tradition featuring T-shaped pillars that were discovered in the last 20 years. It is highly likely that future comprehensive and systematic surveys in the region will bring to light new settlements of this tradition. Due to the fact that Sefer Tepe displays parallelism with the Layer II architecture of Göbekli Tepe, it is plausible to date it to the Early or Middle Pre-Pottery Neolithic B Period.

References

Beile-Bohn M., Gerber C., Morsch M. and Schmidt K.
1998 Frühneolithische Forschungen in Obermesopotamien: Göbekli Tepe und Gürcütepe. *Istanbuler Mitteilungen* 48: 5-78.

Çelik B.
2000a A New Early Neolithic Settlement in the Center of Şanlıurfa, Turkey. *Neo-Lithics* 2-3/00: 4-6.

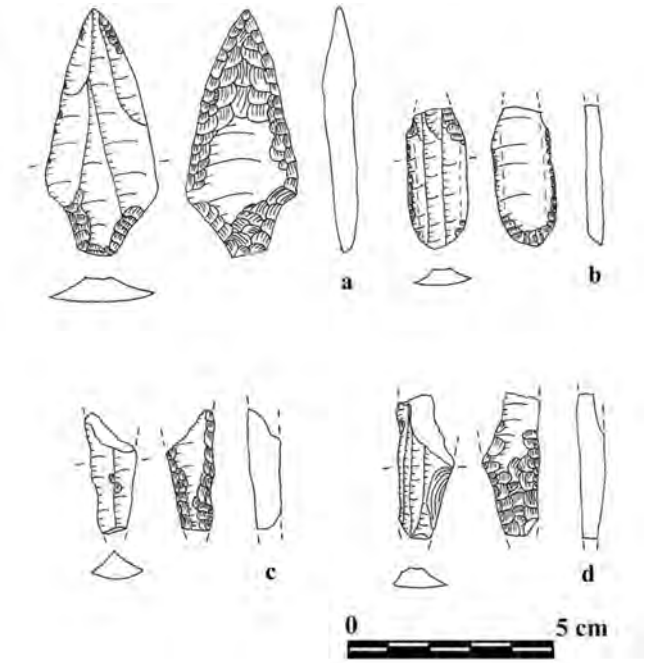

Fig. 4 Arrowheads from Sefer Tepe: a) Byblos-type, b-d) unidentified point fragments.

2000b A New Early-Neolithic Settlement: Karahan Tepe. *Neo-Lithics* 2-3/00: 6-8.

2005 *Şanlıurfa-Yeni Mahalle, Karahan Tepe, Sefer Tepe ve Hamzan Tepe Yerleşimlerinin Işığı Altında Güneydoğu Anadolu Bölgesi'nde Çanak Çömleksiz Neolitik Dönem.* Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü. Unpublished doctoral thesis.

Hauptmann H.

1991-92 Eine Siedlung des akeramischen Neolithikums am mittleren Euphrat. *Nürnberger Blätter zur Archäologie* 8/9: 15-33.

Kürkcuoğlu A.C. and Z. Karahan Kara

2005 *Adım Adım Viranşehir.* Viranşehir Kaymakamlığı Kültür ve Turizm Yayınları, 1. Basım, Yılmaz Ofset, Şanlıurfa.

Schmidt K.

1988 Nevalı Çori: Zum Typenspektrum der Silexindustrie und der übrigen Kleinfunde. *Anatolica* 15: 161-201.

2001 Göbekli Tepe, Southeastern Turkey: A Preliminary Report on the 1995-1999 Excavations. *Paléorient* 26/1: 45-54.

2002 The 2002 Excavations at Göbekli Tepe (Southeastern Turkey): Impressions from an Enigmatic Site. *Neo-Lithics* 2/02: 8-13.

Field Report

Shir: A Neolithic Site in the Middle Orontes Region, Syria

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Since 2003, the middle Orontes region between the small town of ar-Rastan and Qal'at Shayzar in west Syria has been intensively surveyed by the German Archaeological Institute Damascus (DAI) in close cooperation with the Direction Générale des Antiquités et des Musées de la Syrie (DGAMS) In five field seasons, an area of *ca.* 600 km^2 was investigated resulting in the documentation of, so far, 175 sites that cover the entire time span from Lower Palaeolithic to Ottoman periods.

During the archaeological prospection of spring 2005, a large settlement was discovered, with surface material pointing to late PPNB and early PN. The site of Shir is situated about 10 km northwest of the provincial capital of Hama on the river Sarut, a tributary of the Orontes. It is located on one of the lime marl terraces, 30 m high, that flank the river in the north and in the south (Fig. 1). Today the entire region is intensively cultivated, and terracing or levelling has heavily altered the original relief of the landscape. The prehistoric settlement of Shir was affected by such measures: the

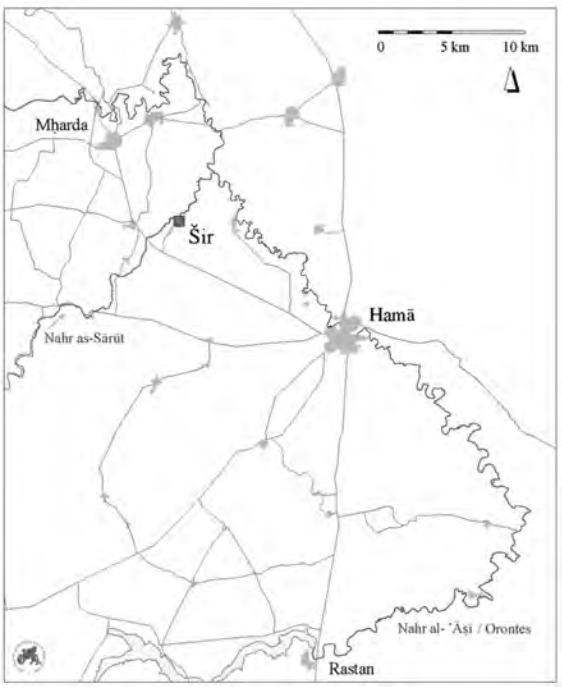

Fig. 1 Location of the site of Shir.

Fig. 2 Shir: Ugarit point from the surface.

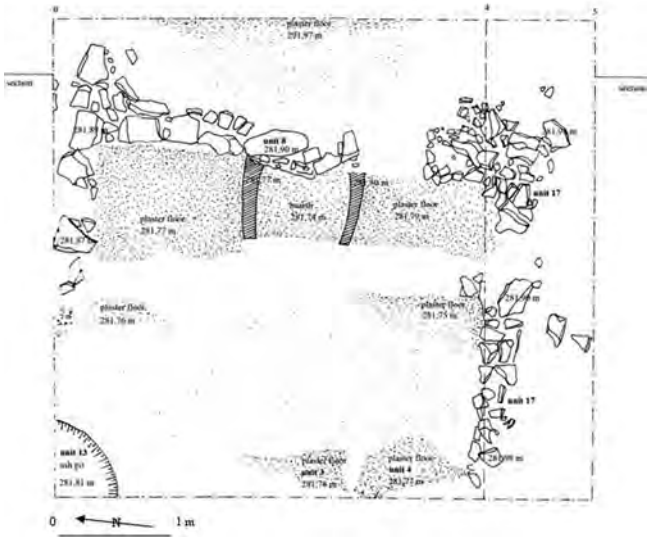

Fig. 3 Shir: Test trench A, architecural remains.

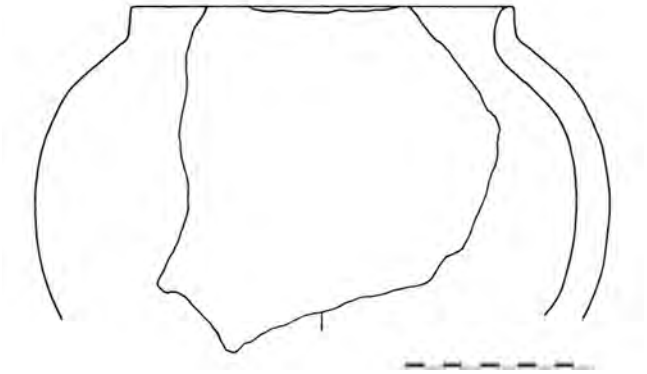

Fig. 4 Shir: coarse ware pottery.

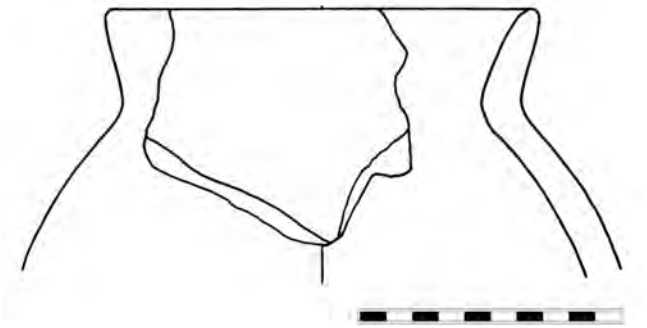

Fig. 5 Shir: coarse ware pottery.

western third of the site, which comprises about 4 to 5 hectares in all, has been bulldozed, leaving a section *ca.* 2 m high and extending roughly north-south over a length of *ca.* 200 m. In that section were several discernible occupation levels defined by thick layers of lime plaster. The archaeological surface material included numerous lithic tools, some large Byblos and Ugarit points among them (Fig. 2), and a large quantity of pottery, including *dark-faced burnished ware*.

The nature of the finds and the expanse of the site singled it out as a particularly important place for the end of the Pre-Pottery and the beginning of the Pottery Neolithic period. It was also obviously endangered by further terracing activities with the aim to obtain larger fields. In consequence, the DGAMS immediately granted an application to put down a sounding in preparation of a later rescue excavation. During a one-week campaign in the autumn of 2005, a 4 x 4 m sounding was opened right next to the main profile.

The stratigraphic sequence that has been examined so far comprises *ca.* 2 m of occupation levels. Taken together with the previously existing section, the stratigraphy adds up to *ca.* 4 m of exclusively Neolithic occupation. Virgin soil has not yet been reached. Right underneath the modern surface, portions of two rectangular rooms were exposed (Fig. 3). Only the lower parts of the wall foundations are preserved; they are made of unhewn limestone. The two rooms are connected by a narrow passage. Because of an almost horseshoe-shaped hearth or fireplace built of mud, the westernmost of the rooms is considered as a kitchen. In both rooms, several layers of white lime floors can be observed, some of them still showing traces of the polished surface. The layers under this building level consist of dense loamy soil with numerous shallow pits, most of which are filled with ashes. They suggest an open space used for domestic activities.

Besides *dark-faced burnished ware*, the ceramic material includes numerous fragments of coarse ware with vegetable temper and of cord impressed as well as lime-coated ware (Figs. 4-5). White ware is also relatively frequent. Comparisons may be found in Amuq A as well as in Tell el-Kerkh. Typical lithic specimens are narrow, long blades, triangular in profile – a type that is well documented in Tell el-Kerkh. Flint cores showing traces of chipping, large quantities of which were also found on the surface, point to lithic production right there.

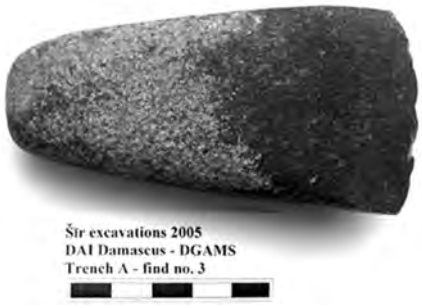

Fig. 6 Shir: small stone axe.

The inventory is further made up of small stone axes (Fig. 6), hammerstones or sling pellets, and of variously shaped limestone pestles. There is a great number of bone implements, awls, needles and spatulae among them. A first analysis of the bone material has shown sheep and goats to be predominant.

The promising results of the sounding at Shir let us expect future undertakings to yield important information about the Neolithization process in the Orontes region, which is not yet well understood.

Contribution

Bidirectional Blade Technology after the PPNB: New Evidence from Sha'ar Hagolan, Israel

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Introduction

Bidirectional blade technology in the southern Levant is commonly associated with the Pre-Pottery Neolithic B period. This technology was targeted towards producing long blades that were in turn modified into standard Neolithic tools, mainly projectile points and sickle blades.

The bidirectional blade technology was reintroduced[1] in the northern Levant in the late PPNA (Abbès 1998). In the following PPNB period, it became the dominant method for blade production all around the Levant incorporating regional and socio-economical variants including the naviform method (Abbès 2003; Nishiaki 1994; Wilke and Quintero 1994). Bidirectional blade variability is also expressed in raw material selection encompassing obsidian, lustrous purple and pinkish flint and ortoquartzite in addition to local high quality flint.

Until quite recently it has been suggested to see the demise of one of the prominent variants, the naviform blade technology, being replaced by flake technology as one of the cultural markers for a new period in the southern Levant, namely the PPNC (Rollefson 1990; 2001). Recent excavations at the Yarmukian site of Sha'ar Hagolan presented herewith contradict this notion and support a continuation of the bidirectional blade technology into the Pottery Neolithic period.

Sha'ar Hagolan

Sha'ar Hagolan is the type site for the Yarmukian culture of the Pottery Neolithic period, radiometrically dated to 7400-7000 uncalBP. This culture was first defined by Stekelis following his pioneer excavations at the site in 1949-1952 (Stekelis 1951). The Yarmukian, named after the nearby Yarmuk River, was recognized by the unique character of its flint industry, pottery and art objects (Garfinkel 1993; Stekelis 1972).

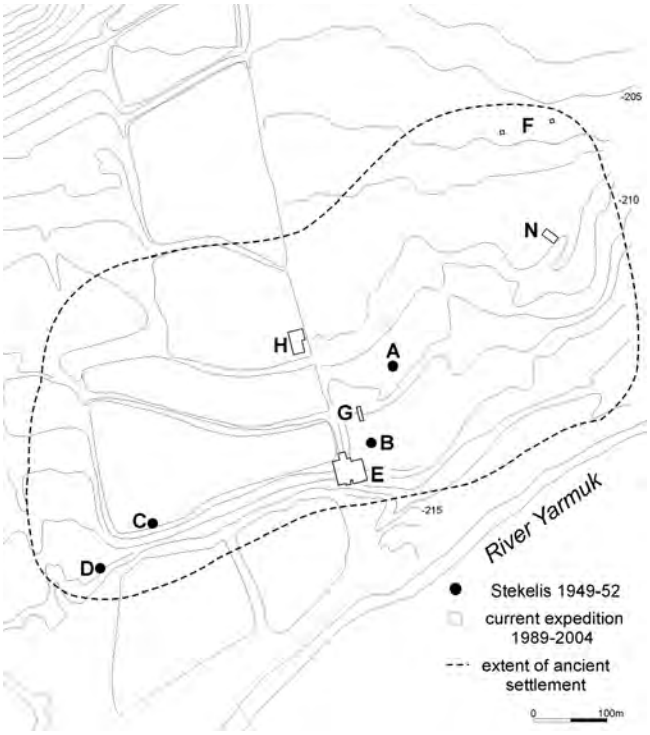

Fig. 1 Sha'ar Hagolan site map and location of the excavated areas.

Forty years later Sha'ar Hagolan was re-excavated by Garfinkel for eleven seasons (1989-90, 1996-2004), exposing a large settlement of 20 hectares comprised of monumental courtyard structures, street system and a water well (Garfinkel and Miller 2002). In the summer of 2004, the last excavation season, a new area located at the eastern part of the site (Area N) was opened (Fig. 1). Here an area of 200 m^2 was excavated, creating a section from topsoil to virgin soil. The stratigraphy in Area N is comprised of five layers dated to modern (1), late Islamic (2) and Pottery Neolithic periods (3a, 3b and 4). The lower three phases are Yarmukian, typical of

Sha'ar Hagolan. The Yarmukian layers here did not reveal impressive architectural remains as in other areas (E and H). Architecture was found only in the eastern part, and most of the area was an open space in the settlement.

Two radiometric dates obtained recently clearly places this area (N) in the Yarmukian culture of the Pottery Neolithic period, thus eliminating PPN derivation:

RTT 5048 Sha'ar Hagolan Basket N344 Locus N154
14C age Year BP7290±60 BP, δ13C -25.8‰
68.2% probability: 8170 BP (68.2%) 8020 BP
95.4% probability: 8200 BP (95.4%) 7960 BP

RTT 5049 Sha'ar Hagolan Basket N96 Locus N15
14C age Year BP 7525±60 BP, δ13C -25.7‰
68.2% probability: 8390 BP (47.7%) 8290 BP, 8270 BP (20.5%) 8210 BP
95.4% probability: 8410BP (95.4%) 8190BP

Area N provided large quantities of chipped flint artifacts, basalt and limestone tools, pottery, and animal bones. An ongoing flint analysis of Area N reveals great similarity in composition to analyzed assemblages from previous seasons (Alperson and Garfinkel 2002; Stekelis 1972). While bidirectional blade technology was not observed up to now in the renewed excavations (Alperson and Garfinkel 2002; Khalaily n.d.), it was suspected to exist at the site although its quantity and context were unclear (Gopher and Gophna 1993; Stekelis 1972).

In this preliminary note we present the bidirectional blade component of Layer 3b in Area N, as this layer is the only one from this area that has been completely analyzed thus far.

The Flint Assemblage

Layer 3b displays great abundance of chipped flint numbering 40509 items (Table 1). The general breakdown of the assemblage attests that initial knapping stages were made on site, for primary elements comprise a little less than 20%. The low frequencies of core maintenance and rejuvenation types (RB, CT, and CTE) indicate that most of the products required relatively simple, low-investing knapping modes. A careful examination of other debitage types, tool blanks and cores indicate presence of four lithic technologies: bifacial tools, unidirectional blades, bidirectional blades and *ad hoc* flakes.

The dominant technology in the assemblage is the *ad hoc* flake as shown by the great abundance of almost 70% of flakes and flake cores. It seems that flake production was aimed at three major tool groups: retouched flakes, scrapers and notches/denticulates, altogether comprising almost 40% of the tool types.

The bifacial tool technology was mainly aimed to produce axes and adzes. The production of these elegant tools certainly added to the figures of the primary element and flake categories, but in small quantity, as the bifaces compose only 2% of the tool types.

The last two technologies were aimed to produce blades. These are the unidirectional and bidirectional technologies (Table 2). Of the two, the unidirectional technology is much more common as shown by its high frequencies among the debitage and core categories. The unidirectional technology is almost four times more frequent than the bidirectional method according to the

	n	%
Debitage		
Primary elements	2280	18.54
Flakes	8587	69.83
Blades	648	5.27
Bladelets	550	4.47
Burin spalls	12	0.10
Ridge blades	15	0.12
Core tablets	16	0.13
Core trimming elements	189	1.54
Total	***12297***	***100***
Debris		
Chips	21689	82
Chunks	4632	18
Total	***26321***	***100***
Tools		
Projectile points	34	2.10
Perforators	85	5.25
Sickle blades	311	19.22
Retouched blades	382	23.61
Retouched flakes	315	19.47
Scrapers	167	10.32
Burins	60	3.71
Notches/denticulates	130	8.03
Multiple tools	8	0.49
Bifaces	40	2.47
Varia	86	5.32
Total	***1618***	***100.00***
Cores		
Flake	184	67.40
Blade	31	11.36
Bladelet	8	2.93
Flake/blade	6	2.20
Flake/bladelet	2	0.73
Nodule	42	15.38
Total	***273***	***100.00***
TOTAL	**40509**	

Tab. 1 General breakdown of the flint assemblage for Layer 3b, Area N.

Type	Unidirectional		Bidirectional		Total	
	n	%	%	n	%	%
Debitage						
Non-retouched blades	585	90.28	63	9.72	648	100
Cores						
Blade cores	22	78.57	6	21.43	28	100
Tools						
Projectile points	2	9.52	19	90.48	21	100
Sickle blades	135	69.23	60	30.77	195	100
Retouched blades	229	77.36	67	22.64	296	100

Tab. 2 Unidirectional and bidirectional products in Layer 3b, Area N.

cores and ten times more according to the non-retouched blades. When examining the tool blanks it is clear that sickles and retouched blades were mainly made on unidirectional blades while projectile points were modified on bidirectional blanks.

The Bidirectional Blade Technology

The bidirectional blade production in Layer 3b was employed on two flint types also used in other areas (Alperson and Garfinkel 2002). The more common is local battered river pebbles of dark brown and black colors. The blades produced from this flint type were struck off wide cores and were relatively broad (Figs. 2:5-7; 3:1-2, 6; 4:1-3). The other flint material is a light grayish nodular flint with limestone cortex. This raw material was modified into slimmer cores from which narrower blade and bladelets were manufactured (Figs. 3:3-5; 4:4).

In spite of the differences in core and blank width, it seems that both flint types were used the same knapping style. The *chaîne opératoire* reconstruction based on blade and core morphology and the absence of core trimming elements indicate a simple mode. It starts from an acquisition of local flint pebbles/nodules that did not require extra investment in obtaining it as the raw material is found nearby on the river banks. The block was then prepared at both ends by detaching thick primary flakes thus initiating the striking platforms. Then primary blades were removed from one or both platforms establishing the removal surface. It is important to state that no core performing was made, for we lack debitage types such as crested core tablets and crested blades. This observation is also supported by the blades' scar patterns. These include blades with bidirectional scars with no perpendicular variety that would indicate on core preparations (Fig. 2:1-5, 8-9).

The core convexity was maintained mainly by epsilon blades (Fig. 2:9-13) indicating production of preferential pointed blades probably used as blanks for projectiles (Fig. 3:1-2, 6). As seen in other sites where bidirectional blade technology was practiced, the common knapping mistake in Layer 3b was hinged blades. At Sha'ar Hagolan this error was repaired by 'clean-up' blades removed from the opposite end (Fig. 2:6-7). There is no evidence for secondary ridge blades that are often used to overcome this obstacle (Clark 1997).

The cores were utilized until they were too small (Fig. 4:4) or bore too many hinges (Fig. 4:1-3). It is interesting to note that some of the cores were discarded when the striking platforms were overused, even though their removal surface was still long (Fig. 4:1-2). This might explain the absence of core tablets in the assemblage as striking platforms were not rejuvenated.

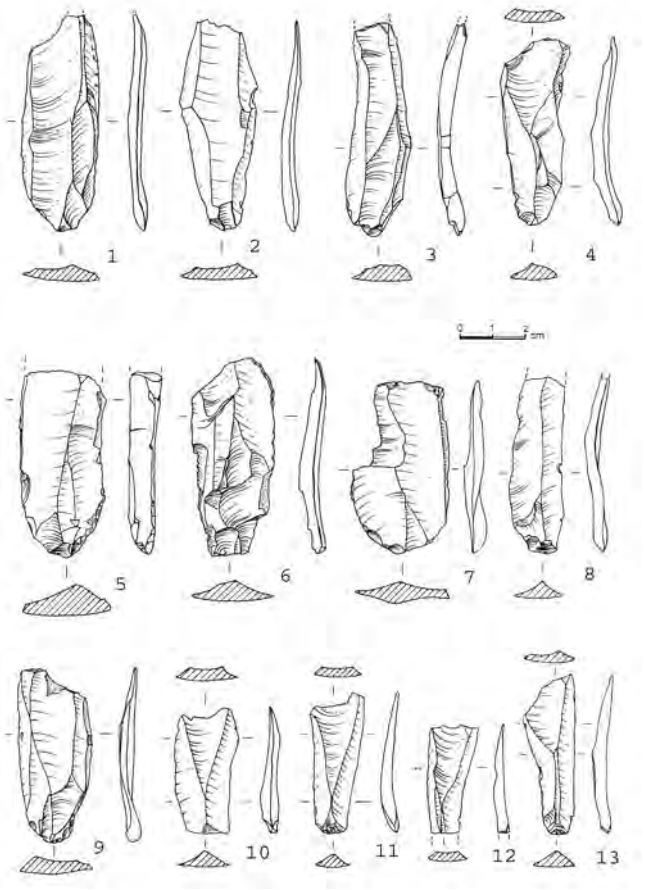

Fig. 2 Bidirectional blades. Sha'ar Hagolan, Layer 3b, Area N.

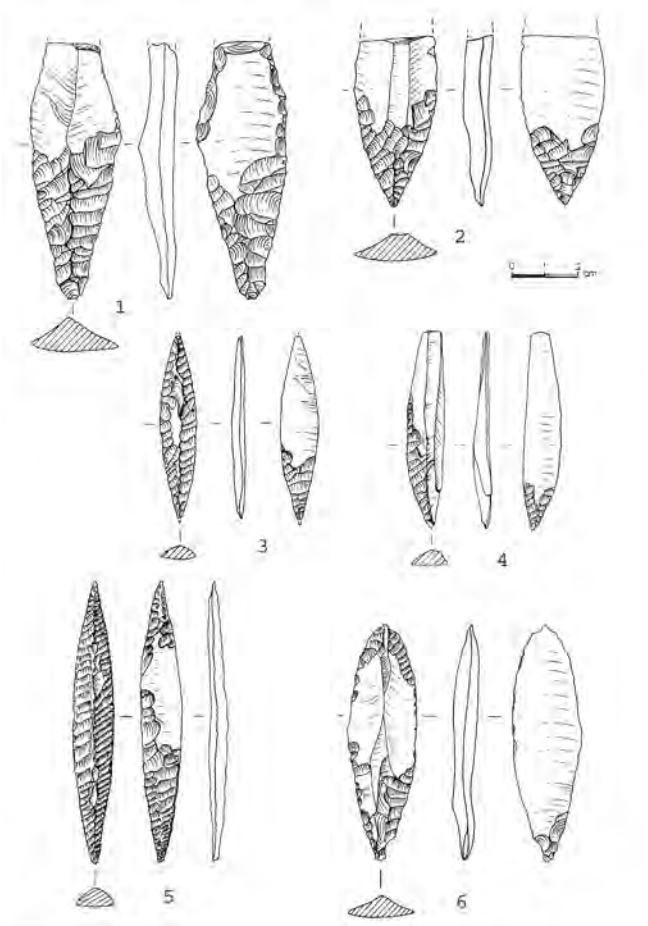

Fig. 3 Projectile point fashioned on bidirectional blade blanks. Sha'ar Hagolan, Layer 3b, Area N.

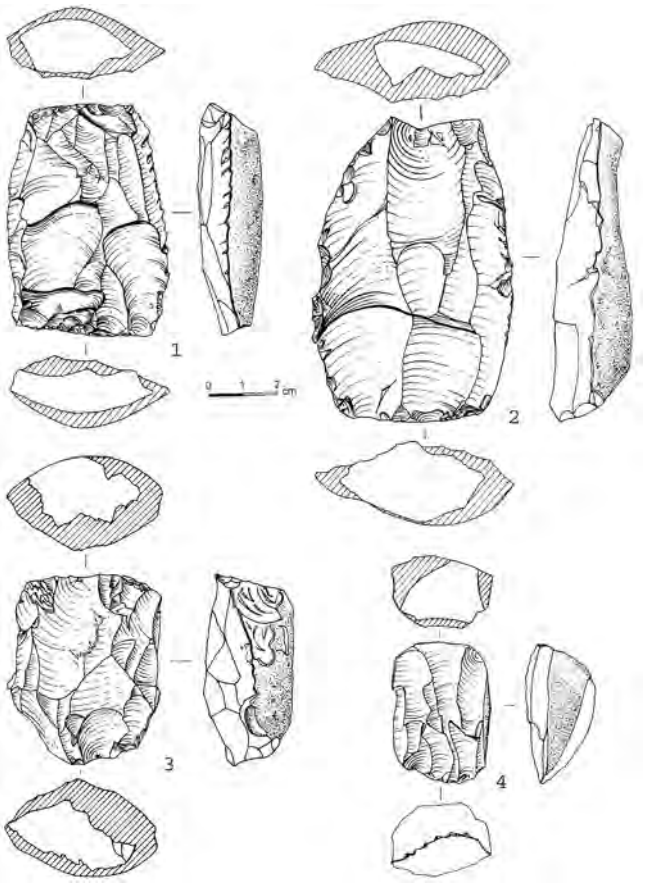

Fig. 4 Bidirectional blade cores. Sha'ar Hagolan, Layer 3b, Area N.

Discussion

The introduction of bidirectional blade technology to the southern Levant was just a constituent of the greater "neolithization" process that began by the end of the 10th millennium BP. Like other innovations such as animal and plant domestication, or rectangular architecture, the bidirectional blade technology gradually appeared in the southern Levantine regions at different times during the PPNB.

Similarly, this seems to be the pattern of its demise. First, as described at 'Ain Ghazal, flake technology replaced the naviform method by the end of the 8th millennium BP (Rollefson 2001). Yet in other regions this technology was in use during the next millennium to a different degree. In the PPNC it is present at the submerged village Atlit Yam as apparent by the numerous bidirectional cores, blades and tools from surface collection as well as from a workshop (Galili *et al.* 1993). Here bidirectional blade production bears great resemblance in its organization and volume to PPNB flint workshops. Still, one should keep in mind that the bidirectional blade component at Atlit Yam could derive from unexcavated PPNB contexts at the site (Khalaily, pers. comm.).

At other PPNC sites, such as Ashkelon and Tell 'Ali, there is also evidence for bidirectional blade production but to a lesser degree (Garfinkel 1994; Garfinkel and Dag 2001). At Tel 'Ali bidirectional production is evident through the cores, blades, and tool blanks. As for Ashkelon, there are no bidirectional blades or cores, and the only evidence for bidirectional technology are the arrowhead blanks (Garfinkel and Dag 2001: fig. 4).

In the succeeding Pottery Neolithic, bidirectional blade technology is found in the Yarmukian sites of Hamadiya, Munhata IIB and Sha'ar Hagolan Area N. At Hamadiya, contemporaneous with Sha'ar Hagolan, bidirectional blade production was observed (Goldman 2000). At Munhata IIB, as in PPNC Ashkelon, there were no bidirectional elements except for some of the arrowheads (Gopher 1989: fig. 38:6, 8). These were of the Amuq type made on broad bidirectional blades and stylistically fashioned by unique pressure retouch. Interestingly, it seems that some of the points from Sha'ar Hagolan try to imitate them (Fig. 3:1-2; Stekelis 1972: Plate 23:3-4, 16). Currently the latest occurrence of bidirectional blade technology is recorded at Sha'ar Hagolan. Here it existed in low quantities at the early stages of the site (in Area N) and later on was completely abandoned (Area E).

In summary, bidirectional blade technology started in

the late PPNA in the northern Levant and coexisted with unidirectional blade technology. Then during the PPNB it spread all over the Levant, replacing local unidirectional blade technologies that were common in the PPNA. During the PPNC it started to disappear at certain regions, mainly in Trans-Jordan, but it did continue in other regions into the Pottery Neolithic period. Finally, bidirectional blade technology was completely abandoned in the later stages of the Yarmukian, corresponding to the replacement of the big Amuq arrowheads by the small arrowheads fashioned on flakes (Gopher 1994).

Acknowledgments. We thank A. Belfer-Cohen, A. Davidzon, H. Khalaily and N. Goring-Morris for their comments.

Note

[1] The earliest evidence for bidirectional blade technology in the Levant is recorded in the Upper Paleolithic layers at Ksar Akil, Lebanon (Bergman and Stringer 1989).

References

Abbès F.
1998 Reflections concernant les nucleus bipolaires et naviformes du Proche-Orient Néolithique. *Cahiers de l'Euphrate* 8: 139-150.
2003 *Les outillages Néolithiques en Syrie du Nord. Méthode de debitage et gestion laminaire durant le PPNB.* BAR International Series 1150. Oxford: Archaeopress.

Alperson N. and Garfinkel Y.
2002 The Flint Knapping Industry. In Y. Garfinkel and M. Miller (eds.), *Sha'ar Hagolan 1: Neolithic Art in Context.* Oxford: Oxbow.

Bergman C.A. and Stringer C.B.
1989 Fifty Years After: Egbert, an Upper Palaeolithic Juvenile from Ksar Akil, Lebanon. *Paléorient* 15: 99-111.

Clark J.E.
1997 Prismatic Blade Making, Craftsmanship, and Production: Analysis of Obsidian Refuse from Ojo de Agua, Chiapas, Mexico. *Ancient Mesoamerica* 8: 137-159.

Galili E., Weinstein-Evron M., Hershkovitz I., Gopher A., Kislev M., Lernau O., Kolska-Horwitz L. and Lernau H.
1993. Atlit-Yam: A prehistoric Site on the Sea Floor off the Israeli Coast. *Journal of Field Archaeology* 20:133-157.

Garfinkel Y.
1993 The Yarmukian Culture in Israel. *Paléorient* 19(1): 115-134.
1994 The PPNC Flint Assemblage from Tel 'Ali. In H.G. Gebel and S.K. Kozlowski (eds.), *Neolithic Chipped Stone Industries of the Fertile Crescent:* 543-562. Berlin: ex oriente.

Garfinkel Y. and Dag D..
2001 The Pre-Pottery C Flint Assemblage of Ashkelon. In I. Caneva, C. Lemorini, D. Zampetti and P. Biagi (eds.), *Beyond Tools: Redefining the PPNB Lithic Assemblages of the Levant:* 333-352. Berlin: ex oriente.

Garfinkel Y. and Miller M.
2002 *Sha'ar Hagolan 1: Neolithic Art in Context.* Oxford: Oxbow.

Goldman T.
2000 *The Flint Assemblage of Hamadiya.* Unpublished seminar paper. The Hebrew University, Jerusalem. (In Hebrew).

Gopher A.
1989. The Flint Assemblages of Munhata (Israel). *Les Cahiers du Centre de Recherche Français de Jérusalem.* Paris: Association Paléorient.
1994 *Arrowheads of the Neolithic Levant.* American Schools of Oriental Research Dissertation Series 10. Winona Lake: Eisenbrauns.

Gopher A. and Gophna R.
1993 Cultures of the Eighth and Seventh Millennia BP in the Southern Levant: A Review for the 1990s. *Journal of World Prehistory* 7(3): 297-353.

Khalaily H.
n.d. *Lithic Traditions of the Late PPN and the Question of the PPNC of the Southern Levant.* PhD. Dissertation, in preparation.

Nishiaki Y.
1994 The Naviform Method at Douara Cave II, Palmyra, Syria. In H.G. Gebel and S.K. Kozlowski (eds.), *Neolithic Chipped Stone Industries of the Fertile Crescent:* 363-378. Berlin: ex oriente.

Rollefson G.O.
1990 Neolithic Chipped Stone Technology at 'Ain Ghazal, Jordan: The Status of the PPNC Phase. *Paléorient* 16(1): 119-124.
2001 The Neolithic Period. In B. MacDonald, R. Adams, and P. Bienkowski, *The Archaeology of Jordan:* 67-105. Sheffield: Sheffield Academic Press.

Stekelis M.
1951 A New Neolithic Industry: The Yarmukian of Palestine. *Israel Exploration Journal* 1: 1-20.
1972 *The Yarmukian Culture of the Neolithic Period.* Jerusalem: Magnes Press.

Wilke P.J. and Quintero L.A.
1994 Naviform Core-and-blade Technology: Assemblage Character as Determined by Experiments. In H.G. Gebel and S.K. Kozlowski (eds.), *Neolithic Chipped Stone Industries of the Fertile Crescent:* 33-60. Berlin: ex oriente.

Equifinality, Clay and Tradition: Towards an Understanding of Tell Formation

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The 'Tell Phenomenon'

Perhaps one of the most fascinating features of the Near Eastern Neolithic is the emergence of *tells*. Many Near Eastern landscapes are dotted with these stratified mounds of settlement debris, also known as *tepe, choga, khirbet* or *telul*. From the Neolithic until today these mounds were central places of habitation. The question of why people in the Near East (and India and southeastern Europe) were so attached to a place that they literally raised themselves above the ground forming tells, continues to intrigue many archaeologists. Nevertheless, remarkably few studies have been devoted to this issue, in this paper referred to as the 'tell phenomenon' (*e.g.*, Bailey 1999; Chapman 1997; Rosen 1986; Steadman 2005). Indeed, as yet, the social reasons for tell formation have not been satisfactorily explained. Not only are the very strong ties between people and their places remarkable; also striking is the fact that tell formation took place in very different times and places within the Near East. This prompts us to ask the question whether the same phenomenon was due to different processes; *i.e.*, is this a prime example of equifinality (different causes or processes having the same effects, ends or results), or might there be one underlying process? This brief and exploratory theoretical paper is intended to outline a few possible avenues for understanding tell formation – in the Neolithic as well as in later periods – in the Near East.[1]

Thinking about Tells

There are two main classes of explanations for the extraordinary attachment to place resulting in tells. In a recent paper about the tell phenomenon Sharon Steadman (2005) has conveniently summarized these.

First, there are functional approaches. In these models economic motives and the physical landscape are emphasized. It is argued that location and duration of settlement was the result of proximity to – foremost – water, fertile soils, resources (*e.g.*, flint) and trade routes. Moreover, defensibility may have played a role in settlement location. Reconstructions of "site catchment areas" and "land use potentials", such as developed for Paleolithic and later sites in the Mount Carmel region of Israel (Vita-Finzi 1978: 83-88), are good examples of functional, economy-based, approaches.

The second type of theories may be termed symbolic and cognitive. As Steadman (2005: 292) indicates, in these theories the tell phenomenon is mainly approached from (1) a 'sacred landscape perspective', or (2) a 'kinship/ancestral lands perspective'. In his discussion of the origins of tells in eastern Hungary, John Chapman (1997) also focuses on the role of ancestors, but he places this in the context of social competition and the shaping of identities. In the following the basic tenets of these viewpoints are briefly outlined, starting with the landscape perspective.

Since the mid-1990s a particular kind of landscape archaeology has surfaced. Instead of functional and economic dimensions, attention is foremost focused on symbolism, ritual, religion and perception (*e.g.*, Ashmore and Knapp 1999; Topping 1997; Ucko and Layton 1999). In general, it is argued that the landscape is not only a functional "container", dictating and restricting human behaviour; it is also a meaningful surrounding where people interact with the supernatural. Moreover, a basic point of departure is that landscape and people are dialectically related, the one giving shape to the other, thus escaping either environmental or cultural determinism. Perhaps the best examples of this kind of landscape archaeology stem from Northwest Europe, where especially studies of the location and meaning of prehistoric megalithic monuments have produced fascinating clues for the symbolic dimensions of ancient landscapes (*e.g.*, Scarre 2002; Tilley 1994).

For the Near East, Tony Wilkinson's recent monograph on archaeological landscapes (Wilkinson 2003) contributes significantly to an understanding of sites in their settings, but the perspective is largely functional. Indeed, symbolic and cognitive approaches to landscape are very rare in Near Eastern archaeology. One exception is the already mentioned paper by Steadman (2005). With regard to the location and meaning of one particular tell, Late Chalcolithic to Byzantine Çadir Höyük in central Turkey, she suggests that, apart from practical matters, site location also had symbolic significance. It is argued, then, that the Late Chalcolithic village was purposely oriented towards a prominent mountain peak (Çaltepe), which may have been a natural – religious? – monument (Steadman 2005: 299-300). This suggestion stems from the general recognition within cognitive/symbolic landscape archaeology that natural features may have had

special meanings to ancient people, and were of influence on their behaviour, including construction of architectural features (*e.g.*, Tilley 1994). A common problem with such a view is that the symbolic links between – supposed – special landscape features and human-made structures are often difficult to establish with any certainty.

Let us now turn to the 'kinship/ancestral lands perspective'. One of the most popular – and perhaps accepted – explanations for the strong ties between persons and place leading to tell formation in the Neolithic, in the Near East as well as in southeastern Europe, is the idea that tells were places of the ancestors (*e.g.*, Akkermans and Schwartz 2003: 88-97; Bailey 1999; Kuijt 2000; Rollefson in Bienert *et al.* 2004: 170). In the Levantine Pre-Pottery Neolithic B, for instance, burials were commonly located under the floors and surfaces of houses and courtyards. Moreover, many sites have produced cached and displayed human skulls. These apparent spatial and symbolic relations between the living and the dead suggest kinship relations related to very specific places. As Steadman (2005: 296) puts it: "As time carried on and generations of that kin group inhabited their place, the claim to a sacrosanct ownership of property would have become linked in the minds of all inhabitants. In essence, the identity of person would have become inextricably bound with the locality of her place in the settlement or on the landscape". Thus, so-called corporate land-holding descent groups may have been established, with lineages requiring ancestors from whom descent could be traced and justified (Bellwood 2005: 56-57). A problem with the kinship/ancestor hypothesis is the abandonment and re-occupation of tells: why did people eventually leave their ancestors behind? And why did other, much later, communities again occupy tells (often without burying their dead there)?

In a somewhat more extended version of the ancestors hypothesis, Chapman (1997) regards tells as so-called arenas of social power were peoples' identities were constructed and negotiated. Moreover: "... the primacy of commitment to a communal rather than a household ideology is evident: the memory of ancestors binds the living to a special place and these ties become more reticulated and complex through constant presence" (Chapman 1997: 144). The constant re-occupation of a place resulting in a tell would result in a 'vertical dominance' of tell communities over people living on flat sites. This dominance (or competitive advantage) of tells, then, is indicated by (1) monumental visibility; (2) the extended ancestral time-depth; (3) perhaps a cosmological significance to heights; (4) a relatively rich material culture. Tells, moreover, would illustrate a new attitude towards – or new ideology concerning – clay. In this view, apart from being a very effective building material, clay was a meaningful cultural material which connected nature and culture, the past and the present, *i.e.* was "... a symbolic appropriation of ancestral homes into current structures" (Chapman 1997: 163).

To summarize: both functional and symbolic/cognitive approaches have produced valuable insights in the tell phenomenon. However, although Chapman combines functional, symbolic and social factors, all too often one of these is given priority. As Steadman also stresses, there is no need to separate such approaches. The functional and symbolic/cognitive approaches are two sides of the same coin and should be integrated, rather than separated. Indeed, this is the approach taken in this paper.

Settling Down, Going Up

In the following a number of different hypothetical scenarios with regard to tell formation are presented, also indicating possible so-called archaeological correlates, by which are meant means of verification. A basic distinction is made between (1) tell location (see note 1) and (2) continuity of occupation, with, of course, the latter having been heavily influenced by the former.

Tell Location

Functional and Socio-Economic Factors

Scenario 1:
· The tell was located at an economically favourable location in the landscape; *i.e.*, a place where enough or abundant natural resources were available. In the generally arid Near East, especially the presence of sources of water (lakes, rivers, springs) undoubtedly was of primary importance in settlement location. Good soils and presence of raw materials (*e.g.*, flint) must have been other major factors.
· Archaeological correlates: Settlement evidence, analysis of local environment (foremost relating to water, soils and vegetation), and site-catchment analysis should provide data for exploring source-based motives.

Scenario 2:
· The location of the tell was due to its position in exchange/trade networks, *e.g.*, along trade routes.
· Archaeological correlates: In the settlements one would expect evidence for exchange/trade, *e.g.*, sealings, written records, storage, exotic artefacts, etc. Off-site ancient roads or canals may indicate routes, especially if they link different (contemporaneous) sites. Archaeological survey may reveal settlement patterning suggestive of exchange relationships, *e.g.*, a system of central and 'satellite' settlements.

Scenario 3:
· The tell was strategically located in an area that could easily be defended.

· Archaeological correlates: Natural rises in the landscape may have been used for defensive purposes. On and around the sites walls, gates and ditches may further strengthen such an interpretation.

Symbolic Factors

Scenario 4:
· The tell was located at a special symbolic (sacred) place.
· Archaeological correlates: Foundation deposits might indicate this, although, these – buried deeply in tells – would in most cases be difficult to locate. It may be possible to relate visually the tell to "special" landscape features (*e.g.*, mountain peaks, peculiarly shaped rocks, *etc.*) by means of view-shed analysis (*e.g.*, Lagerås 2002).

Functional, Socio-Economic, and Symbolic Factors

Scenario 5:
· Combinations of scenarios 1 to 4:
1-2; 1-3; 1-2-3, *etc.*
· Archaeological correlates: see above.

Continuity of Occupation

Functional and Socio-Economic Factors

Scenario A:
· People kept living at the tell because of the advantages with regard to, and investments in, locational factors: (1) natural resources; (2) exchange/trade (see scenario B); (3) central place (see scenario B); (4) defense; (5) availability of clay for building; (6) combinations of 1-5. It is to be expected that groups gradually identified themselves with plots of land. In other words: territories would have developed. As a result of agricultural intensification, and possibly growing populations, the available farmland may have become restricted and territorially defined, resulting in continued occupation at one place.
· Archaeological correlates: see above.

Scenario B:
· The tell was part of a socio-economic exchange network. In the case of the Neolithic, it seems probable that some tells were not densely occupied year-round, but rather functioned as central locations in an agro-pastoral society consisting of nomads and farmers. Tells, then, may have acted as centres of economic production, distribution, consumption and as focal points of social interaction, *e.g.*, meetings, marriages, feasts, initiation rituals, *etc.* (Akkermans and Schwartz 2003: 130-131; Quintero *et al.* 2004; Verhoeven n.d.). This model may also hold for (some) post-Neolithic tells.
· Archaeological correlates: First, on-site interactions between pastoralists and farmers may be indicated by storage facilities which exceed settlement-subsistence purposes and administrative practices, such as sealings (Akkermans and Duistermaat 1997). Second, discontinuous, temporary occupation may be revealed by breaks in stratigraphical sequences. Third, relations between (large) centres and (small) pastoralist sites may be revealed by comparing site locations (*e.g.*, fertile valleys *vs.* steppe/desert sites) and material culture (*e.g.*, architecture, lithics, biological remains) of contemporaneous sites (*e.g.,* Köhler-Rollefson 1992).

Symbolic Factors

Scenario C:
· People kept living at the tell because of its access to sacred power.
· Archaeological correlates: see above.

Scenario D:
· People kept living at a location because their ancestors were buried there; apart from indicating kinship and property, the ancestors were sources of supernatural power and protection. Tells were monuments of a mythical past.
· Archaeological correlates: on-site burials, especially subfloor/subsurface burials under houses and courtyards, and special treatment of human remains (*e.g.*, skull caching and/or plastering) may indicate the importance of ancestors for kinship and territory.

Cognitive/Psychological Factors

Scenario E:
· People kept living at the tell because it was their home, because they were emotionally attached to it. Moreover, the tell was part of their tradition (this important notion is dealt with in more detail in the discussion). With regard to re-occupation after long periods of time (*e.g.*, Bronze Age occupation upon Neolithic settlements), when presented with a choice of where to settle down, an existing tell would seem to be a logical choice, because tells would generally be located at favourable locations. Moreover, when presented with alternatives (*e.g.*, an "empty landscape" or a place of previous occupation), people generally tend to prefer the known, rather than the unknown. Tells may have been the most prominent, visually dominant, human land markers, perhaps acting as "magnets", attracting occupation.
· Archaeological correlates: uncertain

Functional, Socio-Economic, Symbolic, and Cognitive/Psychological Factors

Scenario F:
· Combinations of scenarios A-E:
B-C; B-D; B-C-D, *etc.*

· Through time, functions and meanings of tells may have changed. Various trajectories are possible: A1>B; C>D; D>B, *etc.*
· Archaeological correlates: see above.

Conclusions and Discussion

Concerning the emergence of tells in the Near East (in the Pre-Pottery Neolithic A), it was commonly assumed that the phenomenon was closely related to year-round sedentism and agriculture (*i.e.*, scenario 1). However, it is now clear that agriculture started much later, in the Pre-Pottery Neolithic B (*cf.* Cappers and Bottema 2002), and, moreover, it is not at all clear if Early Neolithic tells were permanently occupied. Population pressure has often been mentioned too, but like year-round sedentism, as yet there is no secure evidence for this (*cf.* Kuijt in Bienert *et al.* 2004). Tells, especially Neolithic mounds, may have been "central places", rather than densely occupied sedentary settlements. They might have served a variety of social and economic purposes for both on-site and off-site groups (such as pastoralists). By its very definition, central places would be fixed points in the landscape.

Most likely the tell phenomenon was due to a multiplicity of factors (scenarios 1-5, A-F). In other words, there probably were many different trajectories leading to tell formation: equifinality at work. It is to be expected, though, that the presence of water, fertile soils and other natural resources (scenario 1) was one of the most important motives, as obviously without a proper subsistence human communities could not survive. But this holds for settlements all over the world; why, then, don't we find tells everywhere?

One reason may be the primary building material of tells: clay. When buildings and structures of clay disintegrate, clay does not decay, as wood does, but it accumulates instead. Moreover, this material can be used again for construction purposes. Thus, clay promotes vertical buildup of settlements. If walls of abandoned buildings are not wholly eroded, their bases can be (often are) used as bases for subsequent structures (Rosen 1986). Structures of stone are much more difficult to level and build upon, and wooden buildings do not lend themselves for it. Moreover, as Chapman (1997) has argued, clay may have been seen as a symbolic link to the past, particularly the structures built by the people who became the ancestors.

Another reason for tell formation could be the fact that, generally speaking, Near Eastern tells are located in circumscribed settings such as valleys and oases within fragile – dry – environments. Shifting of settlements within these settings may have been highly restricted due to availability of resources, territorial claims and/or investments in agriculture. Moving outside the settings would have induced wholly different subsistence practices, such as hunting and pastoral nomadism. As has been argued, the latter likely was probably closely related to the establishment and continuation of central places.

Finally, and obviously, the concept of tradition is of particular relevance for understanding the remarkable degree of occupation continuity as seen at tells. Around the world, cultural continuity is based on traditions, *i.e.*, the handing down of information, beliefs and customs from one generation to the next, or, put differently, cultural continuity in social attitudes, customs and institutions. Original meanings of practices and features may change, or be lost, but the appearance of these behaviours and especially objects themselves may continue over very long periods of time. Examples abound in all cultures (Pauketat 2003). Ultimately, the reason for the existence of traditions lies in the human desire to be part of that in which one was brought up. Or, in other words, a person's identity, perception and understanding of the world are grounded in the immediate surroundings, the place of enculturation (Bourdieu 1977; Carrier 2003; Ingold 2000; Jones 1997), or social competition (Chapman 1997). In this view, tradition is a multifaceted concept, referring to many aspects of life as experienced, including social, economic, political and religious contexts. Thus, tradition has functional, symbolic and cognitive/psychological dimensions, again indicating that tell formation probably was a many-sided phenomenon. Through time, settlements and tells acquired meanings and provoked emotions (Tarlow 2000). People ate, slept, worked, feasted, buried their dead, mourned, fought, laughed, *etc.*, in tell settlements. As monuments of the past, tells were reminders of the many contexts that make up social life. Tells were places which triggered memories, not only of ancestors, but also of relatives, friends, fellow workmen and so on (Van Dyke and Alcock 2003). Thus, once established, for whatever reason, tells became major – very visible and dominant – elements in peoples' lives, as traditional and meaningful places where the present and the past merged and directions towards the future were given shape.

It could be argued that the concept of tradition is of no use in the case of re-occupation of tells in later periods, such as a Bronze Age occupation on a Neolithic tell for example. However, in the case of such re-occupations, we are dealing with the – possible – start of a new series of stratified settlements, *i.e.*, with location of new settlements, followed by continuity of occupation. Possibly, later occupants chose to link themselves with ancient – mythical – generations, perhaps inventing traditions for political reasons (Hobsbawm and Ranger 1992 [1983]). Moreover, in the case of continued occupation, new traditions would have been formed, shaping, and shaped by, peoples' ideas, identities and objects.

Admittedly, tradition as a concept does not explain the tell phenomenon, as it is a very general notion which can be applied in a multitude of archaeological expla-

nations. Likewise, the proposed scenarios and concepts discussed are general ideas. Intentionally so: they are meant as broad directives that need to be contextualized. That is to say that reconstructions of the reasons for tell formation need to be based on local evidence, taking into account – a combination of – various factors. Tradition seems to be a key factor, as – just like archaeologists – people in the ancient Near East chose to associate themselves with the past, in a most literal sense, in order to define themselves and future generations.

Note

[1] With regard to terminology: First, a tell is not necessarily one coherent occupation mound. In fact, many tells as we see them today are the result of merging of different smaller mounds (*e.g.*, Verhoeven 2006). Second, the notion *tell formation* is used as a convenient shorthand; it does not implicate a conscious attempt to create a (future) tell by past settlers. Third, likewise, *tell location* indicates site selection of 'tells-to-be' (Chapman 1997).

References

Akkermans P.M.M.G. and Duistermaat K.
1997 Of Storage and Nomads: The Sealings From Late Neolithic Sabi Abyad, Syria. *Paléorient* 22: 17-44.

Akkermans P.M.M.G. and Schwartz G.M.
2003 *The Archaeology of Syria: From Complex Hunter-Gatherers to Early Urban Societies (ca. 16,000-300 BC).* Cambridge: Cambridge University Press.

Ashmore W. and Knapp A.B. (eds.)
1999 *Archaeologies of Landscape: Contemporary Perspectives.* Oxford: Blackwell.

Bailey D.
1999 What is a Tell? Settlement in Fifth Millennium BC Bulgaria. In J. Brück and M. Goodman (eds.), *Making Places in the Prehistoric World:* 94-111. London: UCL Press.

Bellwood P.
2005 *First Farmers: The Origins of Agricultural Societies.* Oxford: Blackwell.

Bienert H.D., Bonogofsky M., Gebel H.G.K., Kuijt I. and Rollefson G.
2004 Where are the dead? In H.D. Bienert, H.G.K. Gebel and R. Neef (eds.), *Central Settlements in Neolithic Jordan:* 157-175. Studies in Early Near Eastern Production, Subsistence, and Environment 8. Berlin: ex oriente.

Bourdieu P.
1977 *Outline of a Theory of Practice.* Cambridge: Cambridge University Press (originally published in French in 1972).

Cappers R.T.J. and Bottema S. (eds.)
2002 *The Dawn of Farming in the Near East.* Studies in Early Near Eastern Production, Subsistence, and Environment 6. Berlin: ex oriente.

Carrier J.G.
2003 Mind, Gaze and Engagement: Understanding the Environment. *Journal of Material Culture* 8(1): 5-23.

Chapman J.
1997 The Origins of Tells in Eastern Hungary. In P. Topping (ed.), *Neolithic Landscapes:* 139-164. Oxford: Oxbow.

Hobsbawm E. and Ranger T. (eds.)
1992 *The Invention of Tradition.* Cambridge: Cambridge University Press (originally published in 1983).

Ingold T.
2000 *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill.* London/New York: Routledge.

Jones S.
1997 *The Archaeology of Ethnicity: Constructing Identities in the Past and Present.* London/New York: Routledge.

Köhler-Rollefson I.
1992 A Model for the Development of Nomadic Pastoralism on the Transjordanian Plateau. In O. Bar-Yosef and A. Khazanov (eds.), *Pastoralism in the Levant: Archaeological Materials in Anthropological Perspectives:* 11-18. Madison: Prehistory Press.

Kuijt I.
2000 Keeping the Peace: Ritual, Skull Caching, and Community Integration in the Levantine Neolithic. In I. Kuijt (ed.), *Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation:* 137-164. New York: Kluwer Academic/Plenum Publishers.

Lagerås K.E.
2002 Visible Intentions? Viewshed Analysis of Bronze Age Burial Mounds in Western Scania, Sweden. In C. Scarre (ed.), *Monuments and Landscape in Atlantic Europe: Perception and Society during the Neolithic and Early Bronze Age:* 179-191. London/New York: Routledge.

Pauketat T.R. (ed.)
2003 *The Archaeology of Traditions.* Gainesville: University Press of Florida.

Quintero L.A., Rollefson G.O. and Wilke P.J.
2004 Highland Towns and Desert Settlements: Origins of Nomadic Pastoralism in the Jordanian Neolithic. In H.D. Bienert, H.G.K. Gebel and R. Neef (eds.), *Central Settlements in Neolithic Jordan:* 201-213. Studies in Early Near Eastern Production, Subsistence, and Environment 8. Berlin: ex oriente.

Rosen A.
1986 *Cities of Clay: The Geoarcheology of Tells.* Chicago: The University of Chicago Press.

Scarre C. (ed.)
2002 *Monuments and Landscape in Atlantic Europe: Perception and Society during the Neolithic and Early Bronze Age.* London/New York: Routledge.

Steadman S.R.
2005 Reliquaries on the Landscape: Mounds as Matrices of Human Cognition. In S. Pollock and R. Bernbeck (eds.), *Archaeologies of the Middle East: Critical Perspectives:* 286-307. Oxford: Blackwell.

Tarlow S.
2000 Emotion in Archaeology. *Current Anthropology* 41(5): 713-730.

Tilley C.
1994 *A Phenomenology of Landscape: Places, Paths and Monuments.* Oxford/Providence: Berg.

Topping P. (ed.)
1997 *Neolithic Landscapes.* Oxford: Oxbow.

Ucko P.J. and Layton R. (eds.)
1999 *The Archaeology and Anthropology of Landscape: Shaping your Landscape.* London: Routledge.

Van Dyke R.M. and Alcock S.E. (eds.)
2003 *Archaeologies of Memory.* Oxford: Blackwell.

Verhoeven M.
2006 Megasites in the Pre-Pottery Neolithic B: Evidence for 'Proto-Urbanism'? In E.B. Banning and M. Chazan (eds.), *Domesticating Space: Construction, Community, and Cosmology in the Late Prehistoric Near East.* Studies in Early Near Eastern Production, Subsistence, and Environment 12. Berlin: ex oriente (in press).

n.d. Outside the Body, Inside the Mind: Interpreting Neolithic Landscapes of the Syrian Jezirah. In Y. Nishiaki, K. Kashima and M. Verhoeven (eds.), *Neolithic Archaeology in the Khabur Valley, Upper Mesopotamia and Beyond* (forthcoming).

Vita-Finzi C.
1978 *Archaeological Sites in Their Setting.* London: Thames & Hudson.

Wilkinson T.J.
2003 *Archaeological Landscapes of the Near East.* Tucson: The University of Arizona Press.

The Near East in the Far East – Tokyo Symposium

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Introduction

In July 2005 The University Museum of The University of Tokyo hosted an international symposium entitled *Neolithic Archaeology in the Khabur Valley, Upper Mesopotamia and Beyond.* Two days were devoted to presenting, discussing and synthesizing a variety of new research projects. Fourteen lectures were given by speakers from Japan, the U.S.A., Turkey, France, the Netherlands, and Poland (Fig. 1). There were about 40 participants. The Khabur valley in eastern Syria was chosen as a focus point because of the important new data of the universities' excavations at Neolithic Tell Seker al-Aheimar. Research related to other regions in Syria, the Levant, Southeast Anatolia, North Iraq and West Iran provided contexts for comparison, but also for thinking about different aspects of the Neolithic in general. In order to cover a variety of such aspects, archaeological, geological, geomorphological and archaeozoological papers were presented. In the following I shall briefly summarize all presentations, which were organized in three main sessions.

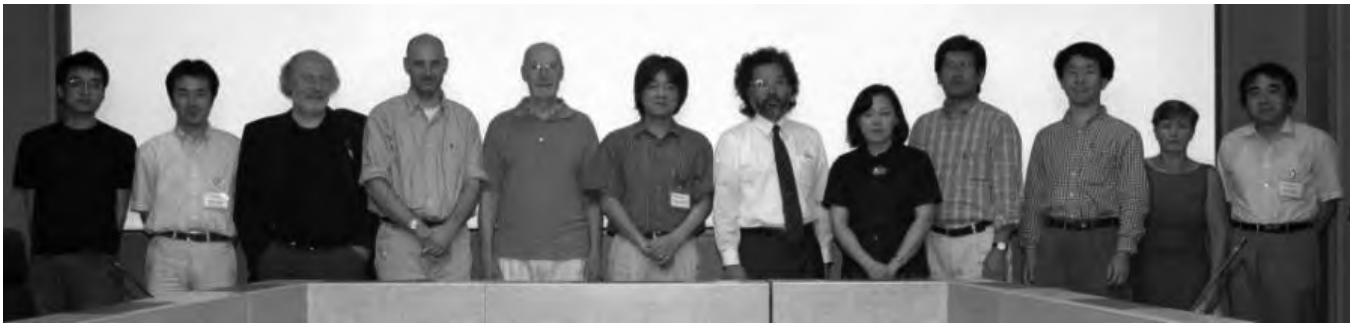

Fig. 1 The lecturers at the symposium, from left to right: Shogo Kume, Takahiro Odaka, Stefan Kozlowski, Marc Verhoeven, Frank Hole, Yoshihiro Nishiaki, Kaoru Kashima, Hitomi Hongo, Yutaka Miyake, Takashi Oguchi, Marie Le Mière, and Akira Tsuneki.

Prehistoric Environment of the Khabur Valley and Surrounding Areas

Hakan Yigitbasioğlu from Ankara University discussed geological, geomorphological and environmental features and changes in the upper drainage areas of the Euphrates and Tigris. He argued that in order to be safe from flooding, many Neolithic sites were located on river terraces. Winter crops would have been planted when the Euphrates and Tigris were at their lowest levels, the rivers rising towards harvest time. Simple flood-water irrigation farming, involving the use of residual soil moisture, would have been part of Neolithic agriculture from the very beginning.

Takashi Oguchi (The University of Tokyo) focussed on land forms and deposits along the Khabur river. His research has indicated the presence of three terraces. One of these terraces was dated with a new method for dating sand: Optical Stimulated Luminescence (OSL) dating. Furthermore, he argued that reduction in river energy in the Holocene and the resulting increase in land-form stability may have facilitated human settlement in the area.

Kaoru Kashima (Kyushu University) and *Kotaro Hirose* (Osaka City University) dealt with climatic events during the Neolithic period in Syria and Anatolia. Foremost, they reported the results of a drilling in sediments of Lake Khatouniyeh, a saline lake located near the Syrian-Iraqi border near Hassake. A large number of diatom and ostracod fossils were recovered from the drilling, allowing reconstructions of changes in water salinity. It seems that the lake was marked by a high saline environment around 8000-7000 cal. BC. Subsequently, about 7000-6500 cal. BC the salinity of the water decreased, becoming close to that of freshwater lakes. This environment continued until *ca.* 5000 cal. BC. Afterwards it became saline again.

In a keynote lecture, *Frank Hole* (Yale University) combined geography and archaeology in his integrated approach. This approach aims at reconstructing habitat and economy of Neolithic societies in the Near East by means of reconstructing three principal and interacting variables: human society, the natural ecosystem, and climate. Point of departure is that the Neolithic was composed of small, locally organized societies that resided in several interacting communities. Minimally, approximately 400-500 persons were required to sustain society through many generations. Thus, clusters of sites, rather than single sites, were the physical manifestations of a society. Furthermore, it was argued that Neolithic societies in the northern and southern Levant were more developed than those to the east, whether in the Balikh, the Khabur, northern Mesopotamia, or the Zagros. According to the integrated approach possible reasons for such disparities have to be sought in both positive and negative feedbacks between humans and environmental factors.

Neolithic Archaeology in the Khabur Valley

Yoshihiro Nishiaki of The University of Tokyo presented new discoveries at Neolithic Tell Seker al-Aheimar. This mound provides secure evidence for previously unknown Neolithic periods on the Upper Khabur, in the form of stratified deposits of the Middle and Late PPNB, Pottery Neolithic levels with so-called Pre-Proto-Hassuna and Proto-Hassuna assemblages. Obviously the phase termed 'Pre-Proto-Hassuna' refers to a predecessor of Proto-Hassuna. The phase is justified by stratigraphy as well as radiocarbon dates (*ca.* 6900/7000 to 6500/6600 cal. BC). Pre-Proto-Hassuna is of particular interest, since it is new not only with regard to the Khabur but also for Upper Mesopotamia in general.

In another lecture Nishiaki dealt with Neolithic flint exploitation at Tell Seker al-Aheimar. He suggests three procurement strategies: (1) *Local and semi-local flint:* procured through direct trips, and reduced with simple flake technology in the settlement; (2) *Non-local flint (type 1) and obsidian:* procured through trade or exchange in the form of prepared cores and finished products, and reduced with pressure blade technology in the settlement; (3) *Non-local flint (types 2 and 3):* procured through trade or exchange in the form of finished products, manufactured by other communities using two different types of the so-called Naviform method: the *Douara* method (typical for the Euphrates and Balikh) and the *Upsilon* method (South Anatolia), respectively. Chronological developments indicate significant transformations in raw material procurement strategies during the Pre-Proto-Hassuna period.

Marie Le Mière (CNRS) discussed the new data on very early Neolithic ('Pre-Proto Hassuna') pottery in the Khabur basin, especially as found at Tell Seker al-Aheimar (Early Dark Ware, Basalt-Tempered Ware, Basalt and Plant-Tempered Ware). The main topics of her lecture were the incipience of pottery production in the Khabur valley, the relation of newly discovered pottery with Proto-Hassuna wares, and the relations with early pottery from other regions, especially the Balikh and Southeast Anatolia.

Shogo Kume (Leiden University) presented the first results of a technological analysis of gypsum-plaster artefacts from Tell Seker al-Aheimar, including ethnographic observations on the gypsum-plaster manufacture in the Jebel Abd al-Aziz area. The paper also addressed the long-standing debate on the relationship between White Ware and ceramics. New data about the White Ware from Tell Seker al-Aheimar implies that these two categories are closely associated, and that White Ware is not necessarily the precursor of pottery.

Neolithic Archaeology in Upper Mesopotamia and Beyond

In this session research projects related to, respectively, the Jezirah, the eastern Taurus mountains, and the northern Levant were presented.

Mainly based on Kozlowski's and Aurenche's new book about territories, boundaries and cultures in the Neolithic Near East (BAR International Series 1362), *Stefan Kozlowski* (Warsaw University) dealt foremost with the complex interactions between the so-called Levantine province (the West) and Iraqi-Iranian province (the East). The Jezirah between the Balikh and the Khabur would have been both a border and a zone of contact between these provinces. Kozlowski also introduced the concept of 'markets' in order to explore the mechanisms behind economic transactions in the Neolithic.

The paper of *Marc Verhoeven* (The University of Tokyo) was clearly theoretical in nature. Inspired by post-processual archaeology, he dealt with experiences and interpretations of the Neolithic landscape in the Balikh valley by using an approach based on (1) phenomenology and dwelling, and (2) contextuality. He argued that the so-called cognitive landscape of farmers, pastoralists and hunter-gatherers was based on the concepts of respectively *boundaries, paths,* and *tracks*. These concepts were not necessarily static, but could be altered depending on spatial and temporal context. Furthermore, a case for a relational, holistic world-view in the Neolithic was made. At last, with regard to the role of tells and as an alternative to a *concentric model*, with the settlement as the primary feature, a *surface model* was proposed, indicating spheres of influence and flows of people, goods and ideas.

Yutaka Miyake (Tokyo Kasei-Gakuin University) presented significant new data about excavations in the Tigris valley in Anatolia, which were carried out as a rescue programme within the framework of the construction of the Ilisu Dam. So far, four Neolithic sites have been excavated: Demirköy Höyük, Körtik Tepe, which are dated to the Pre-Pottery Neolithic, and Pottery Neolithic Hakemi Use and Salat Cami Yani. Surprisingly, some Hassuna Standard Painted Ware, Hassuna Standard Incised Ware and Samarra Painted Ware were found at the latter site. This is the first time these wares have been reported from Anatolia.

Hitomi Hongo from Kyoto University talked about the results of the analysis of faunal remains from Pre-Pottery and early Pottery Neolithic levels of Çayönü in southeastern Turkey. She also compared these with contemporary sites in southeastern Anatolia and northern Syria. She suggested that changes in the size and exploitation patterns of pigs, sheep, goats, and cattle had already started at the end of the Early Pre-Pottery Neolithic B (PPNB) or the beginning of Middle PPNB, although marked change was not observed until the end of the Pre-Pottery Neolithic. These developments are interpreted within the framework of settlements in a resource-rich region which had a certain degree of social stratification from a very early period onwards. It seems that elaborate community rituals played an important role in the organization and integration of the settlements.

Akira Tsuneki (University of Tsukuba) gave an interpretation of his excavations at the huge site (16 ha.) of Tell el-Kerkh in the Rouj basin in western Syria. This site was mainly occupied in the late PPNB and the middle phase of the Pottery Neolithic (ca. 7500-6500 cal. BC.). Tsuneki particularly dealt with signs of what he termed complex socio-economic organization. It was argued that this was indicated by special caches, a bead-working workshop, the import of exotic materials, stamp seals and clay sealings with stamp-seal impressions, carefully built large two-storey rectangular buildings, and ritual pits.

Finally, *Takahiro Odaka* from the Tokyo National University of Fine Arts and Music, presented his research of the Neolithic pottery from Tell el-Kerkh (see contribution by Tsuneki). He compared the various wares (especially Dark Faced Burnished Ware [DFBW] and Coarse Wares) with ceramics from the upper Euphrates and the Balikh regions. In particular, it seems that with the appearance of Fine Painted Wares, ceramic assemblages in the Upper Euphrates and the Balikh regions transformed drastically, whereas in the northern Levant the DFBW tradition largely continued. Moreover, a comparison with the Khabur region was made. With respect to manufacturing techniques, the very early mineral-tempered wares from Seker al-Aheimar (see contribution by Le Mière) seem to be similar to Kerkh Wares and the so-called Black Series of the Upper Euphrates region.

Discussion

In the final general discussion six main themes were dealt with: (1) the environment; (2) the Khabur valley; (3) pottery; (4) socio-economic issues; (5) general issues; (6) Frank Hole's integrated approach. The most important topics that were discussed were: the relation between the 'natural sciences' (geology and geo-morphology) and archaeology, the climate in the Neolithic, problems of associating climatic events with archaeological phenomena/periods, the rarity of PPNB settlements in the Khabur (as opposed to the Balikh), the incipience of pottery in the Khabur region, Neolithic complexity, the 'megasite' phenomenon, the role of pastoralists and hunters in the Neolithic, the usefulness of the concept of archaeological cultures and periods (*e.g.* PPNB), the supposed emptiness of the Jezirah between the Balikh and Khabur, and the estimation of group size in the Neolithic.

Conclusion

In the symposium *Neolithic Archaeology in the Khabur Valley, Upper Mesopotamia and Beyond* a variety of research from both the 'cultural' and 'natural' sciences from different perspectives and various geographical regions was presented and discussed. Important new data and viewpoints have been presented, potentially leading to a better understanding of the Neolithic in Upper Mesopotamia. It is planned to publish all papers in a book edited by the organizers (Yoshihiro Nishiaki, Kaoru Kashima and Marc Verhoeven), dealing with Neolithic communities of the past and intended for Neolithic archaeologists of the present.

Acknowledgements. The symposium was sponsored by the Mitsubishi Foundation and the Japan Society for the Promotion of Sciences. Yoshi Nishiaki provided useful comments on the text. Ans Bulles corrected the English.

Comments on Recent Publications

Peltenburg, Edgar and Alexander Wasse (eds.)

2005 *Neolithic Revolution: New Perspectives on Southwest Asia in Light of Recent Discoveries in Cyprus.*
xx +188 pp. Oxford: Oxbow Books.

Reviewer:

Avraham Ronen
Zinman Institute of Archaeology, University of Haifa; and Max Stern Academic College of Emek Yezreel.

The 14 articles in the volume concern Cyprus (6 papers), the mainland (3 papers) and Cyprus in the context of the mainland (5 papers). In the following text, page numbers refer to the volume.

In the first chapter Simmons summarises his excavations at the rockshelter of Aetokremnos, the oldest known habitation on the island and the only one where humans appear to have been associated with endemic remains. The debate concerning the possible coexistence of humans and the endemic Cypriot fauna is presented (p. 8). There are in this small shelter over 200,000 bones belonging to over 500 animals. This reviewer shares Simmons' view that the most plausible explanation for the Aetokremnos occurrence is death inflicted by human intervention.

Reflecting on Island colonization (ch. 2), Finlayson attributes the original Khirokitian culture to "a deliberate expression of local identity" and "island ideology" (19), rejecting "actual isolation" in the Khirokitian (p. 20) while ignoring the disappearance of cattle and obsidian.

Watkins warns (ch. 3) from assuming that Cypriot prehistory is really known to us, a warning valid for any segment of the past, not for Cyprus alone. Watkins suggests (p. 31) earlier colonization of Cyprus by advanced hunter-gatherers of the end-Pleistocene.

Kolska Horwitz, Tchernov and Hongo (ch. 4) maintain that the animal species transported to the island (pig, cattle, sheep, goat and deer, later followed by dog, fox and cat), were wild. But isn't the transportation of animals outside their natural habitat in itself management? Our present concepts of "wild", "managed" and "domesticated" ought perhaps be refined to include forms of animal-human relations not observed at present (Vigne 2000). The fallow deer did was not a dominant meat animal on the mainland, yet in Neolithic Cyprus deer became the main meat animal. The Cypriot "deer-oriented economy" (Croft 1991: 63) was perhaps not solely economical (Ronen 1999: 188).

Colledge (ch. 5) reexamines the origins of cereal domestication in light of grains found in level 1A at Kissonerga-*Mylouthkia*. These wheat and barley grains are placed in the range of domesticates (fig. 5.1). Colledge concludes that domestication took place in the northern Levant, whence it spread in the early PPNB to the south (Levant) and west (Cyprus).

In ch. 6 Moore discusses the site of Abu Hureira, one of the most ancient centres of agricultural beginnings. Moore suggests that the transition from foraging to farming 13,000 cal BP (p. 61) came to intensify food resources as a response to environmental constraints.

For the first time, Peltenburg (ch. 7) no longer views the Cypriot aceramic as environmental adaptation. Following Flannery (2002), the dominant circular house is now considered to express a co-operative and egalitarian society (p. 71). Peltenburg observes (p. 83) that contrary to the accepted model, farming did not cause a population increase nor competition in Cyprus. Peltenburg suggests that the co-operative system was maintained on the island "because it was advantageous" (p. 84). The advantage on Cyprus as well as the implied disadvantage on the mainland, are left unexplained.

Galili, Gopher, Rosen and Kolska Horwitz (ch. 8) note that on the mainland and on Cyprus alike, a millennium has elapsed between initial sedentism and the fishing village. The reasons for this gap are not understood.

McCartney (ch. 9) describes the evolution of Cypriot Neolithic lithics. Original similarities with Natufian/ PPNA and especially PPNB later shifted into the

'evolved' Cypriot lithic tradition. Changes through time involved raw material, core production and tool morphology.

In ch. 10 Stewart analyses the relationship between sites and raw material sources in Neolithic Cyprus. Considering distance and altitude difference between site and source, Stewart notes that beside quality, additional factors – individual preference, social relations and risk management-may have played a role in raw material selection.

Haïdar-Boustani studies (ch. 11) a flint workshop at Qar'oun in the southern Beqa' in Lebanon, geared to the production of celts (axes, adzes and chisels), with numerous large 'orange-slices' (perhaps backed knives?).

Eirikh-Rose (ch. 12) analyses the Neolithic pebbles with geometric designs, distinguishing 8 major patterns divided into 15 varieties which later occur on seals to mark identity or ownership.

Tyrrell Stewart and Rupp (ch. 13) offer a variety of possible explanations to the Neolithic pebbles with geometric design, with no conclusion reached.

Garfinkel (ch. 14) demonstrates that the 'Early Neolithic' layers of Byblos, disturbed in antiquity, contain a mixture of PPNB and Yarmukian remains.

Neolithic Revolution is recommended to students of Near Eastern Neolithic as a well presented, up-to-date source of information concerning Cyprus, the mainland and their relations. Cyprus is an exceptional laboratory for the study of human conduct (Evans 1973). The book's main shortcoming is avoiding to treat the entire Khirokitian behaviour as enabled by that laboratory.

When the bulk of 'odd' Khirokitian traits is considered, a coherent ideological system emerges which diametrically opposed mainland norms (Ronen 1995): in the realm of religion, the worship of cattle and the 'Mother Goddess' were rejected. In the realm of technology, weapons of aggression are non-existent. In the socio-economic realm, the old fashion curvilinear house and egalitarian society (Flannery 2002) continue. Still within socio-economics, 'old fashion' deer hunt remained a major meat supply on the island, contrasting the mainland.

We may further note that Khirokitians used only sun-dried bricks. They had no fired bricks nor fired lime plaster (Le Brun, pers. comm.) nor, of course, pottery. Fire and earth/clay were apparently so persistently kept apart in the Khirokitian that some formal prohibition seems plausible. Bearing in mind the importance of lime plaster in mainland PPNB for house floors, sculptures and the skull cult – all non-existent on the island, this Khirokitian behaviour is yet another opposition to mainland norms.

Two things stand out as the most amazing Khirokitian phenomena: a) the island's isolation and b) the perimeter walls.

a) During the Cypro-PPNB contact with the mainland was regularly maintained. Contact was disrupted from the onset of the Aceramic until its demise about 5500 cal BC. Skilled sea farers as the Cypriots were curiously became isolated a short distance from the mainland for as long as three millennia. There is no escape from concluding that it was a self-imposed isolation (Ronen 1995), maintained even at the risk to the genetic well being of the community. Self-imposed isolation is common practice by opposition movements (Talmon 1962), as attested by the Qumran group which has isolated itself near the Dead Sea or the present-day Hutterites, to give only two examples.

b) The perimeter wall at Khirokitia was 2.5 m thick and 3 m high (Le Brun 1997: 16). This costly investment is incomprehensible in view of the low density, non-competitive and non-aggressive population, and the absence of fighting equipment. Accordingly, this reviewer has suggested (Ronen 1995: 194-95) that the Khirokitian city walls were not intended against human aggression, but had functioned within the realm of ideology. Later, Le Brun has admitted that the mighty Khirokitia walls apparently had no other task than "separating the inhabited territory from the outside world" (Le Brun 1997: 17). A maritime isolation coupled by a physical barrier ensured a complete isolation from the outside world, distinguishing between 'good/safe' and 'bad/dangerous' spheres. Considering the entire Khirokitian way of living and believing, the present reviewer has suggested that the "Aceramic Cypriots thus constitute the oldest religious sect and the oldest sociopolitical opposition known in human history" (Ronen 1995: 177). The idea was later echoed in similar words (with no reference) as follows: "evolutionary trajectories of insular and mainland socio-political and perhaps belief systems diverged strongly" (Peltenburg *et al.* 2001: 85).

Whether the Khirokitian ideology arrived from the mainland or was initiated on the island, remains an open question.

References

Croft P.
1991 Man and Beast in Chalcolithic Cyprus. *BASOR* 282/83: 63-79.

Evans J.D.
1973 Islands as laboratories of culture change. In C. Renfrew (ed.), *The Explanation of Culture Change: Models in Prehistory:* 517-520. London: Duckworth.

Flannery K.V.
2002 The Origins of the Village Revisited: From Nuclear to Extended Households. *American Antiquity* 67: 417-433.

Le Brun A.
1989 Le Néolithique de Chypre et sa relation avec le PPNB du Levant. *Paléorient* 15: 161-167.
1977 *Khirokitia: A Neolithic Site.* Bank of Cyprus Cultural Foundation, Nicosia.

Peltenburg E., Croft P., Jackson A., MacCartney C. and Murray M.A.
2001 Well-Established Colonists: Mylouthkia 1 and the Cypro-Pre-Pottery Neolithic B. In S. Swiny (ed.), *The Earliest Prehistory of Cyprus: From Colonization to Exploitation:* 61-93. Boston: American Schools of Oriental Research.

Ronen A.
1995 Core, Periphery and Ideology in Aceramic Cyprus. *Quartär* 45/46: 177-206.
1999 Ideology-Dependent Subsistence in the Aceramic of Cyprus. In H. Ullrich (ed.), *Lifestyles and Survival Strategies in Pliocene and Pleistocene Hominids:* 505-516, Gelsenkirchen: Archaea.

Talmon Y.
1962 Pursuit of the Millenium: The Relation Between Religion and Social Change. *Archives Européennes de Sociologie* III: 125-148

Vigne J.-D.
2000 Les débuts néolithiques de l'élevage des ongulés au Proche-Orient et en Méditerranée: acquis récents et questions. In J. Guilaine (ed.), *Premiers paysans du monde: naissance des agricultures:* 141-168. Paris: Editions Errance.

New Publications & Theses

Ali, Nabil

2005 *The Development of Pottery Technology from the Late Sixth to the Fifth Millennium B.C. in Northern Jordan: Ethno- and Archaeological Studies: Abu Hamid as a Key Site.*
(British Archaeological Reports: International Series 1422). X + 188 pages, ill., maps. Oxford: Archaeopress.

Müller-Neuhof, Bernd

2006 *On the Potential Use of Archaeological Sources in Conflict Research: A Study on Conflicts in the Neolithic of the Near East.*
PhD Thesis, Free University of Berlin
(in German)

Summary
Archaeological conflict research is a new direction in prehistoric archaeology hitherto mainly pursued in North American and European prehistory (see *e.g.*, Carman 1997; Carman & Harding 1999; Guilaine & Zammit 1998; Keeley 1996; Lambert 2002; LeBlanc 1999; Milner 1999). Near Eastern prehistoric research has remained largely untouched by this development. Exceptions are single articles by Childe (1941) and Roper (1975), which had no subsequent influence, and some publications dealing with prehistoric and early historic weapons and fortifications (*e.g.*, Nicolle 1999; Watkins 1983; Yadin 1963). In contrast to the near absence of research on conflicts in Near Eastern prehistory is the interest taken in this issue by many scholars, which is reflected by short comments in a number of articles (*e.g.*, Bar-Yosef & Meadow 1995: 80; Bar-Yosef 2001: 6; Forest 1996; Hole 2003: 33ff.; Watkins 2003: 37 for external conflicts and Byrd 1994, 2000 and Hole 2000 for internal conflicts).

The thesis *"Zum Aussagepotenzial archäologischer Quellen in der Konfliktforschung: Eine Untersuchung zu Konflikten im vorderasiatischen Neolithikum"* (On the Potential Use of Archaeological Sources in Conflict Research: A Study on Conflicts in the Neolithic of the Near East) tries to open the discussion with a study on conflict in the Near Eastern Neolithic. Major inventions and developments in the history of civilization occurred in the Near East during the Neolithic period and it is of great interest to examine whether and how conflict may have played a role in these developments.

The major problems faced are how to trace conflict in the archaeological record, and to understand what kind of internal and external conflicts may have occurred in Near Eastern Neolithic societies? Because of these fundamental questions it is important that the research includes the results of conflict research in human ethology and ethnography, especially regarding the forms of, and reasons for, conflicts. The first part of the thesis, consisting of four large chapters, therefore discusses the results of ethnographic observations on subsistence strategies and forms of social structures in recent and subrecent societies which are in some ways comparable with Neolithic societies in the Near East. These observations are used to develop a methodology for tracing conflicts in the archaeological record and to establish the possible reasons and forms of conflict in this period.

The second part of the thesis deals with the methodology of identifying conflict in the archaeological record. It can be considered as a catalogue of criteria, based on already defined methodologies from North American and European archaeological conflict research, ethnographic observations, and newly defined forms of evidence which are not restricted to specific archaeological cultures or periods. Traces of conflict can be found in settlement structures, systems and locations, in pathological evidence, burial habits, iconography, weapons and tools, and in different forms of archaeological evi-

dence revealed by settlement destruction, the distribution of artefact styles, the procurement and location of resources, trade, marking of property, ancestor commemoration, *etc.* The combination of several forms of evidence give clear hints on the existence of conflict or conflict potentials (*e.g.*, threats, internal and external control, overpopulation in a closed community, *etc.*) in the archaeological record.

In the third part of the thesis this catalogue of criteria is employed in a study on evidence for conflict in the archaeological record of Neolithic sites in the Near East. The area of research was restricted to Neolithic sites (PPNA to Halaf) in Northern Mesopotamia and Anatolia, which have been extensively excavated and published. These sites are: Jerf el-Ahmar, Nemrik, Qermez Dere, Çayönü, Aşıklı, Maghzaliya, Tell Bouqras, Jarmo, Tell Sabi Abyad, Çatal Höyük, and Umm Dabaghiyah.

The results of this study are summarised in the fourth part of the thesis, including a discussion on possible causes and forms of internal and external conflicts in the Neolithic of the Near East. It is shown that several types of evidence for conflict and conflict potential can be identified in the archaeological record, although research and excavation strategies at most of the sites were not designed to examine this issue. It is also possible to define specific reasons and forms of conflict. However, it is also clear that the conflict research in Near Eastern prehistory is at its very beginning. A broader discussion regarding this issue and the research and excavation strategies required to investigate specific questions of archaeological conflict research are the first steps required to make progress in this field.

The thesis was submitted in February 2005, defended in July 2005 and published as a micro-fiche at the Free University of Berlin in January 2006. It is planned to publish it as a book, shortened in parts and with additional archaeological evidence from Neolithic sites in the Levant, Southern Mesopotamia and Cyprus until end of 2006. Therefore any information on possible (unpublished) evidence for conflict (*e.g.*, pathological evidence, location of long-distance weapons, settlement structures) by colleagues working on Neolithic sites in the Near East is most welcome.

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References

Bar-Yosef O.
2001 From Sedentary Foragers to Village Hierarchies: The Emergence of Social Institutions. In W.G. Runciman (ed.), *The Origins of Human Social Institutions:* 1-38. Oxford/New York: Oxford University Press.

Bar-Yosef O. and Meadow R.H.
1995 The Origins of Agriculture in the Near East. In P.T. Douglas and A.B. Gebauer (eds.), *Last Hunters – First Farmers:* 39-94. Santa Fé, New Mexico: School of American Research Press.

Byrd B.
1994 Public and Private, Domestic and Corporate: The Emergence of the Southwest Asian Village. *American Antiquity* 59.4: 639-666
2000 Households in Transition: Neolithic Social Organization within Southwest Asia. In I. Kuijt (ed.), *Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation:* 63-98. New York: Kluwer Academic/ Plenum Publishers.

Carman J. (ed.)
1997 *Material Harm: Archaeological Studies of War and Violence.* Glasgow: Cruithne Press.

Carman J. and Harding A. (eds.)
1999 *Ancient Warfare: Archaeological Perspectives.* Phoenix Mill: Sutton.

Childe V.G.
1941 War in Prehistoric Societies. *Sociological Review* 33: 126-138.

Forest J.D.
1996 Le PPNB de Çayönü et de Nevalı Çori: pour une approche archeo-ethnologique de la neolithisation du Proche-Orient. *Anatolia Antiqua* IV: 1-31.

Guilaine J. and Zammit J.
1998 *Le sentier de la guerre.* Paris: Seuil.

Hole F.
2000 Is Size Important? Function and Hierarchy in Neolithic Settlements. In I. Kuijt (ed..), *Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation:* 191-209. New York: Kluwer Academic/ Plenum Publishers.

Keeley L.H.
1996 *War before Civilization: The Myth of Peaceful Savage.* New York/Oxford: Oxford University Press.

Lambert P.M.
2002 The Archaeology of War: A North American Perspective. *Journal of Archaeological Research* 10.3: 207-241.

LeBlanc S.A.
1999 *Prehistoric Warfare in the American Southwest.* Salt Lake City: The University of Utah Press.

Milner G.R.
1999 Warfare in Prehistoric and Early Historic Eastern North America. *Journal of Archaeological Research* 7.2: 105-151.

Nicolle C.
1999 *L'époque des premiers bourgs fortifiés. Pertinence de l'existence d'un processus d'urbanisation dans le Levant Sud au troisième millénaire.* Beirut: Institut Français d'archéologie du Proche-Orient.

Roper M.K.
1975 Evidence of Warfare in the Near East from 10.000 – 4.300 B.C. In M.A. Nettleship, R.D. Givens and A. Nettleship (eds.), *War, it's Causes and Correlates:* 299-340. Paris: Mouton.

Watkins T.
1983 Sumerian Weapons, Warfare and Warriors. *Sumer* 39: 100-102.
2003 Developing Socio-cultural Markers. *Neo-Lithics* 2/03: 36-37.

Yadin Y.
1963 *The Art of Warfare in Biblical Lands.* London: Weidenfeld & Nicholson.

Rokitta, Dörte

2005 *Obsidian Tools of the Near Eastern Neolithic: The Çayönü Tools.*
MA Thesis, Free University of Berlin
(in German)

Abstract
The research objective of this MA thesis in German language *"Obsidiangeräte im Vorderasiatischen Neolithikum: Die Çayönü Tools"* is the study of the chronological and spatial distribution of obsidian tools, with a special focus on the Çayönü Tools in the Near Eastern Neolithic.

The tool class of the Çayönü Tools shows a chronological occurrence from the Early PPN B to the Early PN, with its quantitative climax in the PPN C. While Çayönü Tools are known as the *fossile directeur* of the "Taurus PPN B", the tools are also found in the southern as well as in the eastern regions of the Ancient Near East, but are absent in the Levant. This spatially limited distribution of the implements can be correlated with the raw material used for their production. Thus Çayönü Tools have been found in those regions where obsidian from south-eastern Anatolia occurs. The Levant, however, obtained its supply of obsidian in these periods mostly from Cappadocia. An analysis of the circulation of side-blow blade-flakes made from south-eastern Anatolian obsidian supports this view: their occurrence in the West can be correlated with a late intrusion of south-eastern Anatolian obsidian. Increased and altered exchange networks and interaction spheres are thought to be responsible for this phenomenon. Following from this analysis is the assumption that the distribution of Çayönü Tools is directly connected with the obsidian exchange networks that existed throughout the Ancient Near East. At the same time, sites without obsidian tools lack until today findings of functionally equivalent tools even when the toolkits between sites are otherwise mostly identical. It is therefore suggested that the raw material preferred for the production of Çayönü Tools, namely volcanic glass, is determined by functional considerations rather than by prestigious claims, which provides an important aspect for further functional and tool class evaluation. Future studies have to be carried out in order to address this question in more detail.

While the Çayönü Tool itself is showing typological variants, its function is thus still under debate. Use-wear analyses have shown that Çayönü Tools were used in the production of stone artifacts. In this thesis, all sites bearing Çayönü Tools were therefore sampled from the existing literature and evaluated according to the categories of wear-striations, composition of toolkits and occurrence of ground stone artifacts. Correlations with the complete artifact assemblage of each site suggest the working of stone bowls and stone rings as well as the production of most of the other classes of stone artefacts, for example grooved stones, which were found at almost every site.

In order to explain the spatial and chronological characteristics of obsidian tools, other implements like side-blow blade-flakes, corner-thinned blades, and microliths were examined in this thesis as well. The analysis of the temporal-spatial distribution of the Çayönü Tools was based on computer-generated maps, whereby for each period all known sites were represented on a series of maps. The results from this graphical analysis show that all sites are lying at or nearby rivers and therefore suggest that the rivers served as routes for the distribution of ideas or of the tools itself. Finally, the graphic analysis of the spatial distribution of obsidian tools in the Near Eastern Neolithic does not only have chronological, but also general methodological implications for future studies: It can be suggested that distribution maps carry the most significant messages for periods with fine chronological divisions. In addition, such distribution maps are only meaningful when they also incorporate information on natural borders, such as rivers, mountain ridges, deep valleys, *etc.*, thus providing grounds for new questions concerning phenomena of diffusion within the natural landscape.

New books of *ex oriente:*

see page 46

We are happy to inform you of some important developments taking place in *Dating the Neolithic*. First of all we have finally managed to prepare the *Aegean Catchment 14C-chart* www.canew.org/data.html as an accompaniment to the Aegean Catchment 14C-database that has already been online since September 2004. We have tried to assess in graphic form the meaning of all those dates and think they form a nice pattern of site development around the Aegean. For what it's worth, we have added to the chart the 8.2 ka BP event, which may help in tracing this issue along the sites' individual histories.

Additionally, we are proud to announce a new *Anatolian Radiocarbon Dating Project (ARDP)* (http://www.canew.org/ardp.html) starting in *2006*, being a collaboration between CANeW and Dr. Bernhard Weninger's University of Cologne Radiocarbon Dating Laboratory. More details on this project can be found as now on our website, but let us just say it will involve the taking of up to 100 samples for 14C-dating from Anatolian sites for the 10,000-5000 cal BC timespan, free of charge for the excavations involved. The sites have been chosen for their critical position in space and time, and an extension of these sites' data-sets will surely be a major boost in addressing issues such as the transition to *farming*, the appearance and development of *pottery* and the *8.2 ka BP event*.

Please check the News section on our website from time to time, and inform us if you know of 14C-dates we might have missed, or if there are errors in need of fixing.

We will continue to updating the site on a regular basis. Once more we would like to extend our thanks to the colleagues who have provided us with data, and we hope they will continue to do so in the future.

Check it all out on www.canew.org

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