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The Newsletter of Southwest Asian Neolithic Research

Contents

Instead of an Editorial

The editors in silent agony commemorate the dead and traumatized on both sides of Ghazza's boundaries.

Gary O. Rollefson and Hans Georg K. Gebel

Recent Excavations at the Neolithic Site of Yiftahel (Khalet Khalladyiah), Lower Galilee

Hamoudi Khalaily, Ianir Milevski, Nimrod Getzov, Israel Hershkovitz*, Omry Barzilai, Alla Yarosevich, Varda Shlomi, Arfan Najjar, Omar Zidan, Howard Smithline and Roy Liran

Israel Antiquities Authority <hamudi@israntique.org.il> <ianir@israntique.org.il> <getzov@israntique.org.il>
* Faculty of Medicine, Tel Aviv University <anatom2@post.tau.ac.il>

Introduction

The site of Yiftahel (Khalet Khalladyiah) is located at the western fringe of the Beit Netofa valley, Lower Galilee, approximately 25 km east of the city of Haifa and about 8 km west of Nazareth (see map Fig.1 in Barzilai *et al.*, this issue, p. 12). The archaeological remains are embedded within the eastern bank of Nahal Yiftahel (Wadi Khalladyiah). The site is estimated to extend over approximately 40 dunams (4 ha).

Prior to the site's being buried beneath a new highway, two extended seasons of excavations were conducted there during September 2007-January 2008 and April-November 2008. The large-scale archaeological salvage excavations, on behalf of the Israel Antiquities Authority (IAA), were conducted by H. Khalaily, I. Milevski and N. Getzov. Four new areas (F, G, H and I) were excavated, in addition to five previously excavated areas (A, B, C, D and E) (Fig. 1).

Previous archaeological excavations at the site, conducted during the 1980's (Lamdan and Davies 1983; Garfinkel 1987a; Ronen *et al*. 1991; Braun 1997) and the late 1990's (Khalaily, Marder and Milevski 2000), revealed two major periods of occupation: the Pre-Pottery Neolithic B (PPNB; 8,000-7,000 BC) and the Early Bronze Age IA (EB IA; 3,600-3,300 BC). Some finds dated to the Pottery Neolithic period (PN; 6,600-5,500 BC) and the Early Bronze Age IV (EB IV) (Intermediate Bronze Age [IBA] *c.* 2,300 BC) were noted in Braun's excavation.

The aims of the present excavations were manifold. First and foremost, it was essential to record, in as much detail as possible, the remains and finds present at the site prior to the highway construction. This would enable an understanding and subsequent comparison of the architecture of the main periods of occupation. It was important, furthermore, to define the relations among the various previously excavated areas and those presently excavated. This synthesis would assist in identifying the northern border of the site. Each period was found largely, but not solely, concentrated in different areas. It was necessary, therefore, to determine an appropriate area in which to execute and to attain a relatively deep section that would reflect the stratigraphy of the site (Area G).

Squares of 4 x 4 m divided by a one meter wide balk were the basic excavation unit. Each square was further subdivided into smaller units of 2 x 2 m. A new grid was constructed that combined the old and new areas of excavation into a viable ground plan. A total of 2,000 sq.m. were excavated to a depth of 0.50 to 2.50 m. All of the excavated earth was dry sifted with a 5 mm mesh. Several contexts were wet seived.

During the present excavations four different chronostratigraphical layers were discerned (Table 1): PPNB,

Fig.1. Yiftahel: aerial view with the location of the excavated areas.

Periods	Area F	Area G	Area H	Area I
Roman- Modern		1	1	1
EB IV		2		
Post-EB IA	1			
EB IA	2	3		
PN – Wadi Rabah				2
PN – Lodian/Jericho IX	3	4		
PPNB	4	5	2	3

Table 1. Preliminary stratigraphy of Yiftahel, seasons 2007-2008.

the PN Lodian (Jericho IX) culture, the PN Wadi Rabah culture and the EB IA. Additional cultural horizons were represented by several EB IV pits and by randomly distributed material found in the topsoil dated to the Roman and later periods. This article is devoted to the Neolithic occupation layers.

The Pre-Pottery Neolithic B

The main occupational period at Yiftahel is clearly the Mid-Late PPNB (8,000-7,000 BC) of which approximately 2,000 sq.m. were excavated by all expeditions combined.

The internal stratigraphy within the PPNB in each area of excavation is not identical (Table 1). In Area F (local Stratum 4), which includes former Area C and part of Area B, four phases were discerned. In Area G (local Stratum 5), which includes part of former Area B, only three phases were discerned. In Area I (local Stratum 3), which includes former Area D, seven phases and/or floor levels were discerned.

The PPNB buildings display a rectilinear plan with mud-brick and/or stone walls. Elements present within the structures include constructed hearths, pits, installations and burials. All of the structures have thick lime-plastered floors. The building entrances were narrow openings also with a plastered floor. A brief description of the main structures according to areas is given below:

In Area F, as in the previously excavated Areas C and E, rectangular rooms (8 x 4 m) were found with plastered floors. In Area G, an impressive large building, Building 200, measuring 9 x 8 m, was exposed in Stratum 5 (Fig. 2). It has broad stone walls 0.80 m thick, and four symmetrically distributed pillar bases.

The floor consisted of a thick layer of plaster with flat stone inclusions. The pillar bases, 40-50 cm in diameter, comprised a circle of small stones circumscribing larger flat stones dug into and below the floor. Wooden pillars appear to have been *ca.* 30 cm in diameter in accordance with the diameter of the flat stones. This structure is interpreted as having functioned in a communal capacity. After having undergone several changes within the PPNB it was eventually abandoned during this period. A large flint- knapping refuse pit in this area is dated to a later phase of the PPNB sequence.

Fig. 2. Yiftahel: Area G. PPNB Building 200, Stratum 5.

The arrangement of the buildings in Area I and the development of the area differed from other areas of the site. It appears as though Area I underwent more dynamic change, possibly as a result of a series of destructions that occurred during the PPNB. In several places, building debris seems to have experienced extremely high temperatures.[1]

Stratum 3 contains the most impressive Area I occupation with two large rectangular buildings, 501 (14 x 6 m) and 552, and one smaller rectangular building, 502 (8 x 3 m) (Fig. 3). More research is necessary in order to determine whether these structures can be interpreted as being communal buildings, where various activities were carried out. While Building 552 was unfortunately cut by a modern trench in the southwestern part of the area, Building 501, constructed of either mud-bricks or *terre pisé*, was well preserved. Entrance to the structure was by either of two narrow entrances in the west. Within were postholes, several installations and numerous burials. The postholes, which penetrated the two thick layers of the plaster floor, indicate that the pillars were 0.20 m in diameter. The postholes were randomly distributed in the room thereby suggesting that they were occasionally rearranged. Remnants of red color were found in the southeastern part of the building on the floor. Building 501 was rich in lithic and faunal assemblages.

Building 500 was built over the remains of Building 501. The walls of this later building were constructed of stone; several modifications occurred, including the construction of a small room in the southeastern part of Building 500.

At some point Building 552 ceased to function but several small buildings in the southwestern part of the area continued to exist. Remarkably, a surviving fragment of one of the wooden pillars (*ca.* 0.15 m in diameter) was discovered in Building 550. A square plastered installation was built into the floor of this structure.

All of the buildings of Stratum 3 in Area I exhibited postholes while numerous lumps of mud with branch and plants impressions were found strewn throughout the area. It may thus be conjectured that wooden pillars were utilized to support a roof comprised of branches.

Finds

Botanical remains. Concentrations of seeds, mainly lentils *(Lens culinaris)* and beans (probably *Vicia faba*, Kislev 1985), were encountered in Area I (Fig. 4: a-b). Probably hundreds of thousands of lentil seeds were

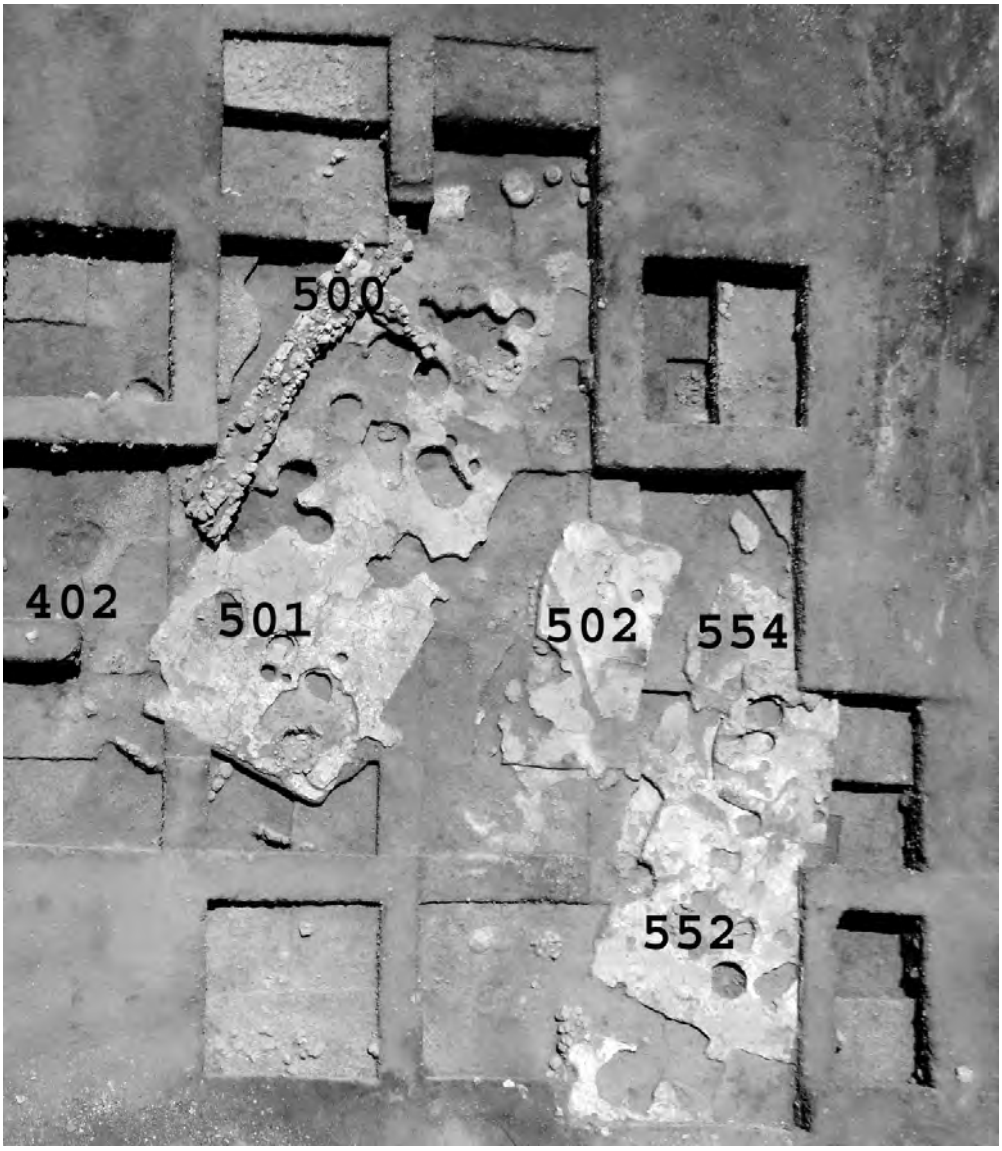

Fig. 3. Yiftahel: PPNB buildings in Area I, Strata 3c-f, looking southeast.

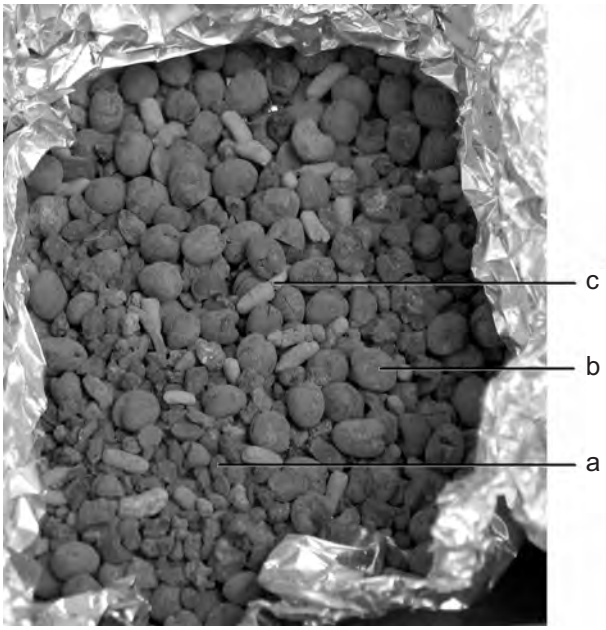

Fig. 4. Yiftahel: seeds from Area I. a. Lentils *(L. culinaris)*. b. Beans *(Vicia sp.)*. c. Emmer *(probably T. dicoccoides)*.

found in a structure built on the plaster floor of Building 502 and is interpreted as having served as a silo. While the identification of *L. culinaris* is certain, the wild ancestor of cultivated *V. faba* was not discovered. The cultivated pulses are morphologically similar to wild species such as *V. narbonensis* and *V. galilea* (Zohary and Hopf 1993: 106-107). As in previous excavated areas (*e.g.* Garfinkel *et al.* 1998), the occurrence of *Galium triconutum* among the *L. culinaris*, is suggestive of cultivation. In addition, small quantities of emmer, probably wild *Triticum dicoccoides* (Zohary and Hopf 1993: 40-42) (Fig. 4: c), were found in the same area, though it is too soon to confirm this (U. Weiss, pers. comm.).

The same pulses were found in several concentrations in the previously excavated Areas C and E and were dated by C14 to 7,800 ± 100 Cal. BC (Garfinkel 1987b; Segal and Carmi 1998). This dating suggests that Yiftahel was witness to the earliest occurrence of domesticated pulses in the Southern Levant.

Faunal remains. The main species found included gazelles *(Gazella gazella),* wild goat *(Capra aegagrus),*

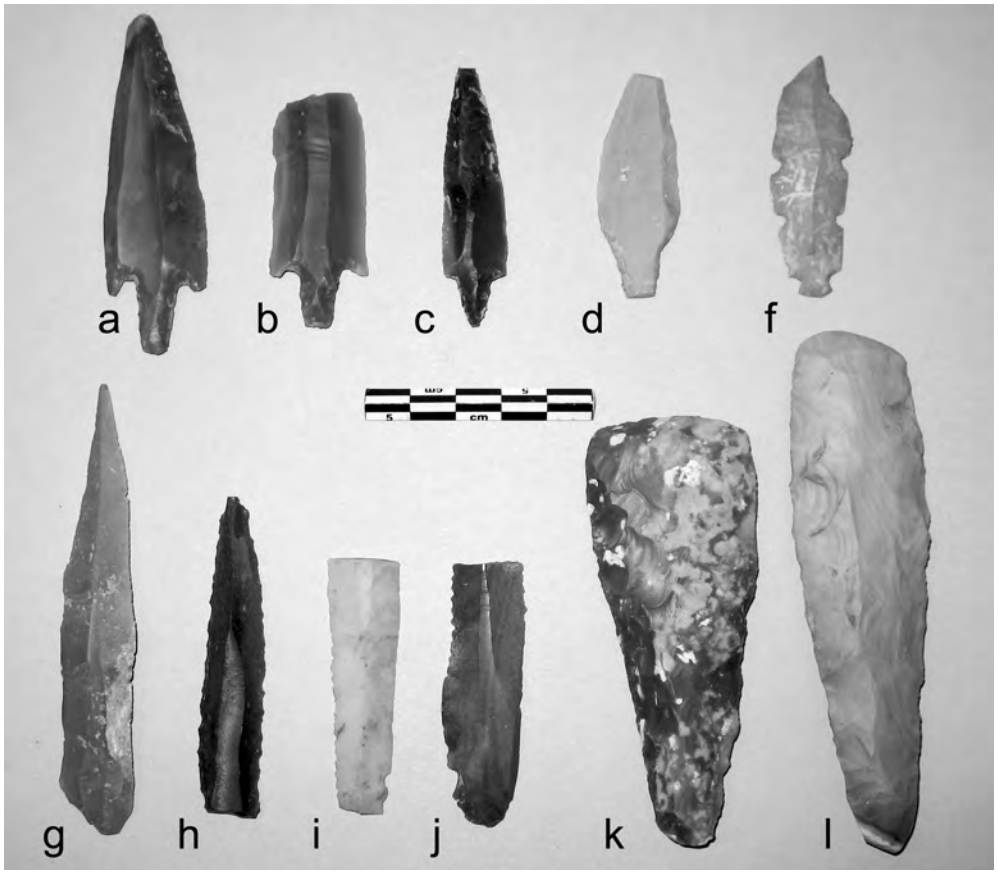

Fig. 5. Yiftahel: PPNB formal tools:
a-f arrowheads;
g-j sickle blades;
k-l bifacial tools.

Fig. 6. Yiftahel: naviform cores from Building 501, Area I.

Fig. 7. Yiftahel: cache of flint implements and bone tools, L5058, Area I.

aurochs *(Bos primigenius)* and wild boar *(Sus scrofa)*. Cervids were also present although in lesser quantities. The presence of an almost complete red deer *(Cervus elaphus)* antler on the floor of Building 501 in Area I is especially noteworthy. Fragments of similar antlers have been found at the site in the past. It has been suggested that shed antlers could have been used as raw material for tool manufacturing (Garfinkel and Horwitz 1988).

Lithic assemblages. The PPNB lithic industry at the site is outstanding, especially in regards to the "naviform" blade technology (Quintero 1995; Abbès 2003; Barzilai forthcoming). More than ten tons of flint artifacts were retrieved in the 2007-2008 seasons. Several industrial waste pits were located and several naviform workshops were identified indicating the intensive specialized knapping that was performed at the site. Khalaily (2006) has

Fig. 8. Yiftahel: Burial L3057, Area H, looking east.

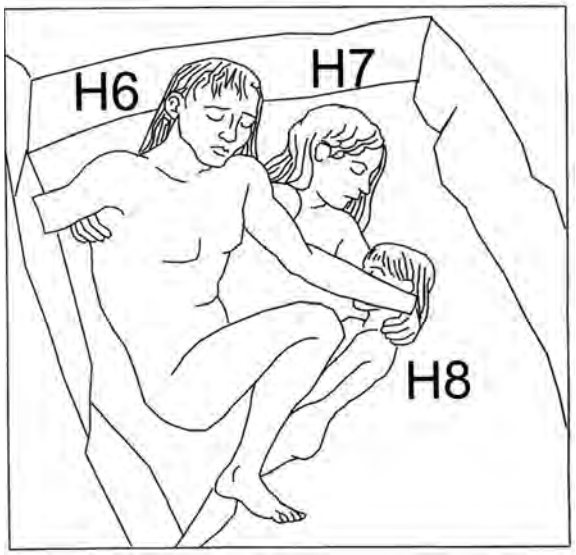

Fig. 9. Yiftahel: a. Burial L5224, Area I; b. suggested reconstruction.

suggested that large quantities of blades produced at the site were exported to other localities.

The formal flint tools retrieved in the 2007-2008 seasons are inversely retouched sickle blades, arrowheads and several axes, some with tranchet blows. A few obsidian tools were also found indicating the early existence of a rather extensive exchange network.

Arrowheads are predominantly Jericho, Amuq, and Byblos types (Fig. 5: a-d). Very few Helwan points (Fig. 5: f) were found at the site. It is possible that there are two phases in the Middle PPNB at Yiftahel, each of which is represented in different areas of the excavation. In contrast with areas F and I, where mainly Jericho and Amuq points are clearly dominant, Area G has a massive presence of Byblos points, thus probably dating it to late in this sequence.

One remarkable workshop was excavated inside Building 501 in Area I, where a group of 21 naviform cores in early production stages were found (Fig. 6). This group of cores is associated with a stock of 11 blade tools, two polished axes, two rubbing stones, a brick that was probably utilized as an anvil, a hammerstone, and bone tools that were all placed in a pit (L5047).

Several caches of flint and bone tools are also associated with Buildings 500 and 501. One cache, consisting of 105 items among which were 20 Amuq arrowheads, dozens of blades, naviform cores, and four bone tools, was uncovered in a sort of pit (L5058); this pit appears to be part of Building 500 (Fig. 7). A unique cache of small and miniature axes made of green stone was found on the floor of Building 501 in Area I. Several additional axes made of serpentine were found in close proximity to burials.

A large refuse pit containing hundreds of thousands of flint implements was found in Stratum 5 of Area G. Among the implements were naviform broad cores, blades, core debitage and numerous bifacial tools.

Other finds. Incised pebbles with net-like motifs rendered with fine artistic execution were found in Areas F and G. Clay and stone figurines, both anthropomorphic and zoomorphic, were found as well. Two of the figurines are probably phalli.

Mortuary and Cultic Practices

Burials. The mortuary practices at the site display the known PPNB pattern of intra-site interments in flexed position under plaster floors and in pits. Primary and secondary burials were found mainly in Area I, with several more in Areas F, G, and H. The minimum number of human inhumations during the PPNB, in all areas and phases, stands today at 30, with 21 having been uncov-

Fig. 10. Yiftahel: plastered skulls *in situ,* L4187, Area I, looking east.

Fig. 11. Plastered skulls from Yiftahel in the lab. From left to right: Homo 1, Homo 2 and Homo 3.

Fig. 12. Yiftahel: remains of *Bos primigenius* from Area I.

ered during the 2007-2008 seasons. Some of the skeletons were found with their skulls intact (Fig. 8) while others were found without the skull. Several infant burials were recovered in Areas F (formerly C) and I, one of which had a Helwan point close to the skull. Certainly the most emotive burial comprised an adult man (Homo 6), a woman (Homo 7) and a juvenile (Homo 8), probably members of a single family, interred in a mutual embrace (L 5224) (Fig. 9).

Plastered Skulls. The most impressive mortuary and cultic find, however, are three plastered skulls found in pit L4187 excavated in Open Area 402 north of Building 501 (Fig.10). These plastered skulls are an important addition to the inventory of modeled skulls accumulated from several sites in southern Anatolia and the Levant (Bonogofsky 2003; Stordeur and Khawam 2007; Kuijt 2008).[2]

The three skulls from Yiftahel (Homo 1, Homo 2, Homo 3) were probably deposited at the same time, in a single row, all facing west. The skulls belong to adults of as yet undetermined age and gender (Fig. 11). Homo 1 and Homo 3, located at the two extremes of the group, underwent similar treatment with plaster applied only in the orbits.

Homo 2, located in the center, bears a relatively well preserved plaster mask, resembling in some aspects that from the nearby PPNB site of Kfar HaHoresh (Goring-Morris 1995: figs. 8-9). The facial features include the nose, the mouth, the chin, the cheeks and the eyes. Because all of the skulls were buried without the lower mandible, the lower jaw was necessarily recreated in plaster. The eyes are made by the attaching of one vertical shell between two horizontal shells. The horizontal shells are probably *Donax sp*.

Fig. 13. Yiftahel: PN (Jericho IX) Building 201, Area G.

Fig.14. Yiftahel: Jericho IX pottery.

Homo 1, to the north, has incrustations of mother of pearl and probably flint fragments in the eyes, the lower part of the skull is damaged. Homo 3, to the south, is extremely damaged, mainly on its left side. The right orbit has an application of plaster inside. Fragments of mother of pearl were utilized to portray the eyes.

Other cultic practices. Another aspect of a cultic practice performed in Area I entails the interment of *Bos primigenius* bones. A horn was found in one pit, while in a second an articulated spine, pelvis and leg, were unearthed (Fig.12). Similar ritually associated activities involving *Bos primigenius* and other species occurred also at the nearby site of Kfar HaHoresh (Horwitz and Goring-Morris 2004).

The Pottery Neolithic:
Lodian (Jericho IX) and Wadi Rabah Cultures

One of the main contributions of the 2007-2008 seasons was the excavation of several buildings dating to the PN period. The PN occupation phase was not identified by any of the previous excavations, although several pottery and flint items that hinted at the possible existence of such an occupation were recovered by Braun.

The buildings ascribed to the PN belong to the Lodian (Jericho IX) and Wadi Rabah cultures (Gopher and Gophna 1991; Garfinkel 1999). A rectangular building dated to the Lodian/Jericho IX culture (*c.* 6,000 BC) that exhibited probably three phases was uncovered in Area G (Stratum 4) (Fig.13). It appears that there are additional rounded structures dated to the PN in Area G. One of the buildings (Bldg.III/B/1), partially excavated by Braun (1998) in Area B, was re-excavated and was found to be related to the PN stratum of Area G.

Pottery characteristic of the Lodian/Jericho IX culture includes bowls, jars and hole-mouth jars, all occasionally decorated with red and beige geometric motifs (Fig. 14). Flint items from the Lodian/Jericho IX culture were found in fewer quantities than those of the PPNB assemblages. Sickle blades with retouch pressure, arrowheads, and bifacial knives are components of the Lodian/Jericho IX flint tool kit. The arrowheads are mainly of the "Herzliya" and "Nizzanim" types. Several refuse pits and adjacent debitage and tool surfaces probably define the elements of a knife preparation workshop that was uncovered in Area G but whose chronological assignation is still not definite. It is unclear if it should be assigned to the PN or to a late phase of the PPNB. The raw material associated with the workshop is dark brown flint with limestone inclusions and differs from the flint utilized in the naviform industry of the PPNB. The finds retrieved from the workshop include a wide range of artifacts, from cores to the final products, thereby enabling the reconstruction of the main reduction sequence of the bifacial tools.

Some burials were also ascribed to the Lodian/Jericho IX culture in Area G. Tomb L2100, contains an adult female in a flexed position. A standing stone, possibly a stele, was discerned above the skull.

Building 400 in Area I (Stratum 2) may be enumerated as one of the few architectural remains that dated to the Wadi Rabah culture (5,500-4,500 BC). In Area D we believe that PN remains were present but that they were unintentionally destroyed and removed by previously executed road works.

A small quantity of pottery vessel fragments ascribed to the Wadi Rabah culture was identified (Fig. 15). The most frequent vessel type is the small hole-mouth jar with a wide opening and ornamented with distinctive decoration. Many sherds display the various types of characteristic incised decoration that are considered to be the hallmark of the Wadi Rabah ceramic repertoire. Painted red bands circumscribing the rim are also a common decorative technique.

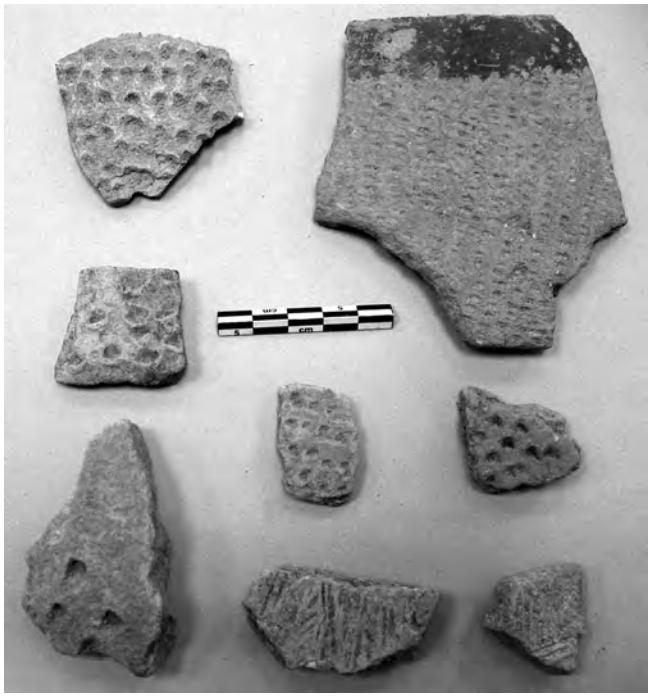

Fig. 15. Yiftahel: Wadi Rabah pottery.

A small Wadi Rabah flint assemblage was retrieved. Sickle blades, shaped on short rectangular blanks possessing a triangular section, are the most diagnostic tools of the Wadi Rabah culture. The back of the sickle blades is fashioned by abrupt retouch and truncations on both ends. The working edge is shaped by deep and regular denticulation.

Preliminary Conclusions

The results of the renewed excavations at Yiftahel have considerably modified our understanding of the site, mainly of the PPNB and the PN periods. The location of Lodian/Jericho IX and Wadi Rabah structural remains, though limited to the southern and northern parts of the known site, add important information regarding the settlement patterns of the PN in the Lower Galilee.

The understanding of the large PPNB architectural units unearthed during the 2007-2008 seasons could have revolutionary implications, since buildings of such outstanding dimensions have never been previously excavated in the western part of the southern Levant. The combination of large units in conjunction with small buildings could point to a possible social hierarchy and/or a division of labor within the village structure.

Deeper insight into craft specialization and social division within Yiftahel may be obtained by further understanding of the architectural units. The wealthy lithic assemblages unearthed illustrate the existence of several workshops at the site. Caches of blades and cores, bone tools, and bifacial implements demonstrate the existence of tool kits specifically related to the knappers and associated cult activities.

The excellent preservation of organic remains should contribute to greater understanding of the domestication of pulses, as well as enabling increased insight into the faunal and botanic exploitation of the zone during the PPNB.

Previously recognized features of PPNB burial practices at the site were recorded during the 2007-2008 excavation (*e.g.* Lamdan and Davies 1983; Hershkowitz, Garfinkel and Arensburg 1986; Khalaily, Marder and Milevski 2000). The outstanding addition, however, to the accumulated knowledge of Yiftahel PPNB burial practices contributed by the 2007-2008 excavation is the cache of three modeled skulls.

On the basis of the recent discoveries from the last excavation seasons, PPNB Yiftahel must be considered a centrally located and integral component of a PPNB network of interacting sites that is presently being formulated. Most of the sites, all situated in the Lower Galilee and only several kilometers one from the other, have been either recently discovered or excavated. Most familiar of these sites is Kfar HaHoresh. Additional sites include Triangulation Point Q-1, Ein Zippori, Ilut, Givat Rabi East, and Kfar Qana (Oshri *et al.* 1999; Gal 2002).

Although this is a preliminary report, composed shortly after the end of the final excavation season, the potential contribution of Yiftahel to the study of the Neolithic period is clearly outstanding.

Acknowledgements. Thanks are due to the remaining members of the staff and workers who participated in the excavations: A. Abu Hamid, Z. Daniel, E. Stern (field supervisors); E. Amos (architect); V. Essman, T. Kornfeld and R. Moussaief (surveyors); A. Shapiro (registrar and GPS); Howard Kanare (plaster floor analysis); E. Boaretto, L. Regev and S. Weiner (materials analysis and C14 dating); E. Kamaisky (conservator); T. Kuperman and a team from Tel Aviv University (physical anthropology); L. Weissbrod (microfauna); U. Weiss (archaeobotany); Y. Ya'aqobi, R. Abu Halaf, E. Bakhar and Y. Laban (administration); workers from Kfar Manda, Nazareth, Tiberiah, and Umm el-Fahm; and volunteers from Israel and Argentina.

Notes

[1] The analyses were conducted by the team headed by Prof. Steve Weiner of the Weitzman Institute working at the site.

[2] The skulls and the skeletons were carefully excavated and removed from the site by the team headed by Prof. Israel Hershkowitz, Faculty of Medicine, Tel Aviv University, and Elisheva Kamaisky, Dept of Material Treatments, IAA.

References

Abbès F.
2003 *Les outillages néolithiques en Syrie du Nord: méthode de débitage et gestion laminaire durant le PPNB.* BAR International Series 1150. Oxford: Archaeopress.

Barzilai O.
forthcoming *Social Complexity in Southern Levantine PPNB as Reflected through Lithic Studies: The Bi-directional Blade Industries.* Ph.D. Thesis, The Hebrew University of Jerusalem.

Bonogofsky M.
2003 Neolithic Plastered Skulls and Railroading Epistemologies. *Bulletin of the American Schools of Oriental Research* 331: 1-10.

Braun E.
1997 *Yiftah'el: Salvage and Rescue Excavations at a Prehistoric Village in Lower Galilee, Israel.* IAA Reports 2. Jerusalem.

Gal Z.
2002 Settlement Location in Nahal Zippori as a Reflection of Cultural Diversity from the Neolithic through the Early Bronze Age II-III Periods. In E.C.M. van den Brink and E. Yannai (eds.), *In Quest of Ancient Settlements and Landscapes: Archaeological Studies in Honour of Ram Gophna:* 45-56. Tel Aviv: Ramot Publishing.

Garfinkel Y.
1987a Yiftahel: A Neolithic Village from the Seventh Millennium B.C. in Lower Galilee, Israel. *Journal of Field Archaeology* 14: 199-274.
1987b Dating of Horsebean and Lentil Seeds from the Pre-Pottery Neolithic B Village of Yiftah'el. *Israel Exploration Journal* 37: 40-42.
1999 *Neolithic and Chalcolithic Pottery from the Southern Levant*. Qedem 39. Jerusalem.

Garfinkel Y. and Horwitz L.K.
1988 The Pre-Pottery Neolithic B Bone Industry from Yiftahel, Israel. *Paléorient* 14: 73-86.

Garfinkel Y., Kislev M. and Zohary D.
1988 Lentil in the Pre-Pottery Neolithic B Yiftahel: Additional Evidence of its Early Domestication. *Israel Journal of Botany* 37: 49-51.

Gopher A. and Gophna R.
1991 Cultures from the Eighth and Seventh Millennia BP in the Southern Levant: A Review for the 1990's. *Journal of World Prehistory* 7: 297-353.

Goring-Morris A.N., Goren Y., Horwitz L.K., Bar-Yosef D. and Hershkovitz I.
1995 Investigations at the Early Neolithic Settlement in the Lower Galilee: Results of the 1991 Season at Kfar Hahoresh. *`Atiqot* 27: 45-62.

Hershkovitz I., Garfinkel Y. and Arensburg B.
1986 Neolithic Skeletal Remains at Yiftahel, Area C (Israel). *Paléorient* 12: 73-81.

Horwitz L.K. and Goring-Morris A.N.
2004 Animals and Ritual during the Levantine PPNB: A Case Study from the Site of Kfar Hahoresh, Israel. *Anthropozoologica* 39: 165-178.

Khalaily H.
2006 *Lithic Traditions during the Late Pre-Pottery Neolithic B and the Question of the Pre-Pottery Neolithic C in the Southern Levant.* Unpublished Ph.D Thesis, Ben-Gurion University.

Khalaily H., Marder O. and Milevski I.
2000 New Excavations at the PPNB Site of Yiftahel. *Neo-Lithics* 2-3/00: 18-20.

Kuijt I.
2008 The Regeneration of Life: Neolithic Structures of Symbolic Remembering and Forgetting. *Current Anthropology* 49: 171-197.

Lamdan M. and Davies M.
1983 Le site d'Yiftah'el (Israël): in *L'anthropologie* 87: 273-274.

Oshri A., Khalaily H., Milevski I. and Marder O.
1999 Yiftah'el (Northeast, Triangulation Point Q-1). *Excavations and Surveys in Israel* 119: 89*.

Quintero L.
1995 Evolution and Economic Significance of Naviform Core-and-blade Technology in the Southern Levant. *Paléorient* 21: 17-35.

Ronen A., Bentur A. and Soroka I.
1991 A Plastered Floor from the Neolithic Village, Yiftah'el (Israel). *Paléorient* 17: 149-155.

Segal D. and Carmi I.
1998 *C14 Dates from Samples of the Prehistoric Excavations at Yiftahel (Preliminary Report).* Report No.142. Weitzman Institute. Rehovot. (Hebrew).

Stordeur D. and Khawan R.
2007 Les cranes surmodelés de Tell Aswad (PPNB, Syrie). Premier regard sur l'ensemble, premières réflexions. *Syria* 84: 5-32.

Zohary D. and Hopf M.
1993 *Domestication of Plants in the Old World: The Origin and Spread of Cultivated Plants in West Asia, Europe and the Nile Valley.* Oxford.

Mishmar Ha'emeq: A Neolithic Site in the Jezreel Valley

Omry Barzilai and Nimrod Getzov

Israel Antiquities Authority <omryster@gmail.com> <getzov@israntique.org.il>

Mishmar Ha'emeq is located at the western edge of the Jezreel Valley, at *ca.* 114 m a.s.l. (Fig. 1). The site was discovered in the winter of 2006 survey; mechanical trenches and a test excavation were conducted due to a plan to construct a new residential quarter for Kibbutz Mishmar Ha'emeq. This discovery led to a two-month salvage excavation by the writers in the summer of 2007 on behalf of the Israel Antiquities Authority. The excavation revealed two major occupations dated to the Pre-Pottery Neolithic B and the Pottery Neolithic periods. These were respectively recovered in two areas that slightly overlap (Fig. 2).

The Pre-Pottery Neolithic B, found at the southern part of the site, is estimated to extend over 5 acres of which 450 sq. m. (Area H) were excavated. The Pottery Neolithic is found adjacent to Area H to the northeast and extends over *ca.* 1 acre. Its remains were mainly found in Area G of which 75 sq. m. and in a grave that was dug in Area H (see below).

The PPNB

The PPNB occupation in Area H revealed two elements: a paved flagstone structure and a burial ground adjacent

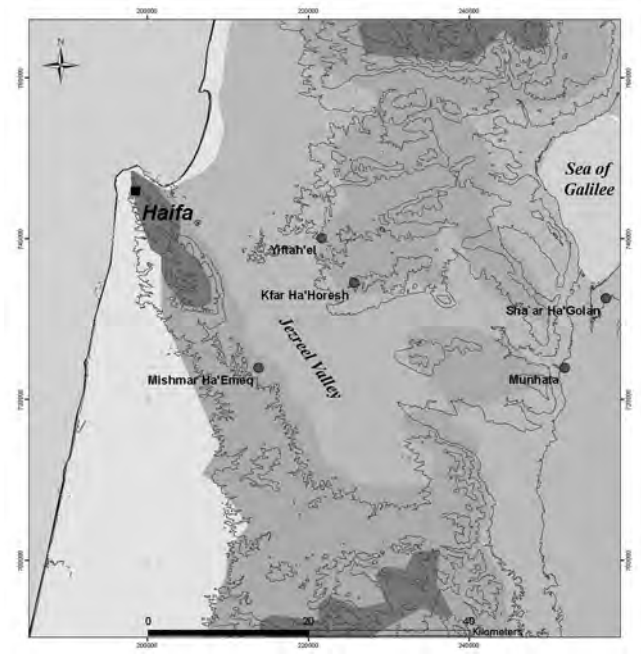

Fig. 1. Map showing the location of Mishmar Ha'emeq and other sites mentioned in the text.

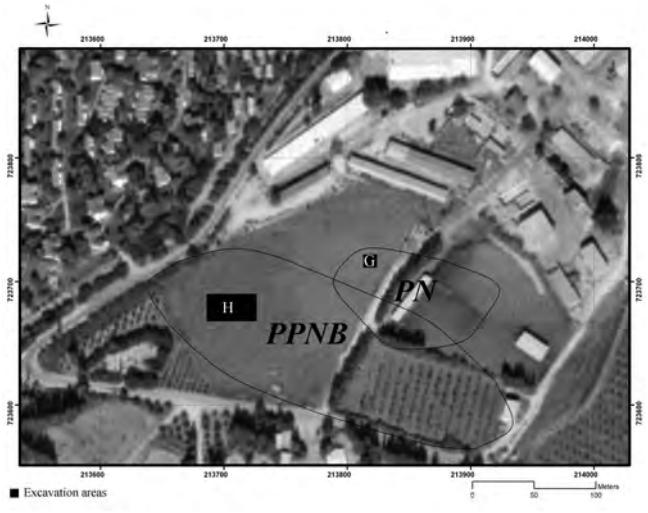

Fig. 2. Mishmar Ha'emeq: aerial photo showing the location of the excavation areas and the estimated extensions of PPNB and PN occupations.

Fig. 3. Mishmar Ha'emeq: Area H: a view to the east. The flagstone structure and the burial ground in the background.

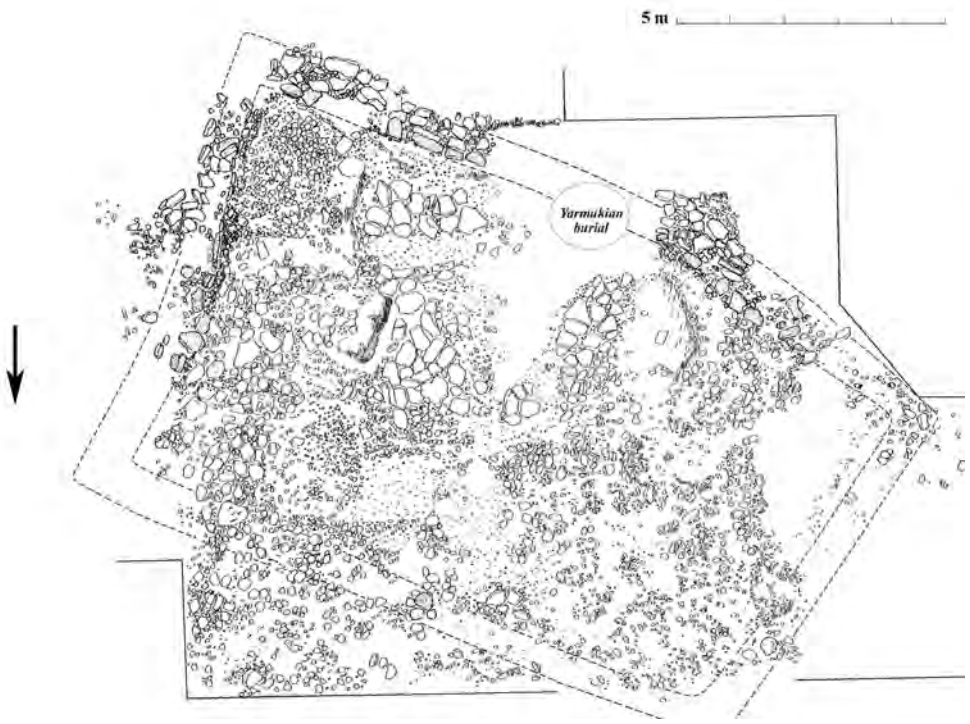

Fig. 4. Mishmar Ha'emeq: the plan of the flagstone structure.

to it (Fig. 3). The flagstone structure is a unique rectangular feature measuring 8 x13 m (Fig. 4). It is comprised of long benches, of which two were preserved, and a central paved floor. The benches are made of flat basalt stones delimited by a row of white dressed limestone slabs which were paneled by small basalt orthostats (Fig. 5). The floor is comprised of several segments that are assumed to represent different activity areas or constructive stages (Fig. 6). The initial patch, located at the southeastern corner, is made of small angular basalt stones set in a plaster matrix. Another segment is made of large polygonal lime and basalt slabs that were placed on top of a thin layer of crushed chalk. The latest element in the structure is a group of small flat basalt slabs that were placed vertically, possibly representing *matzevot* (Fig. 6).

The burial ground is located 7 m to the east of the flagstone structure (Fig. 3). It is marked by a long wall and is comprised of at least eight graves (Fig. 7). We assume that there should be more graves in the excavation area since we did not finish excavating it. The graves contain single adult burials (seven males and one female) in secondary deposition. Most of the graves were capped by small flat stones and plaster remains. Offerings were recorded in three of the graves, two contained complete Byblos points (Fig. 8: 6-7) and another, which is the female burial, had an articulated foot of wild cattle *(Bos primigenius)* and a perforated Cowrie *(cypraea)* shell. Interestingly *Bos* comprises *ca.* 40% of the ungulates at Mishmar Ha'emeq which is relatively high when compared with neighboring sites such as Kfar HaHoresh and Yifta'hel (Horwitz *et al.* 1999: 69).

The lithic assemblage of Mishmar Ha'emeq is estimated to contain 8,000 artifacts, of which approximate-

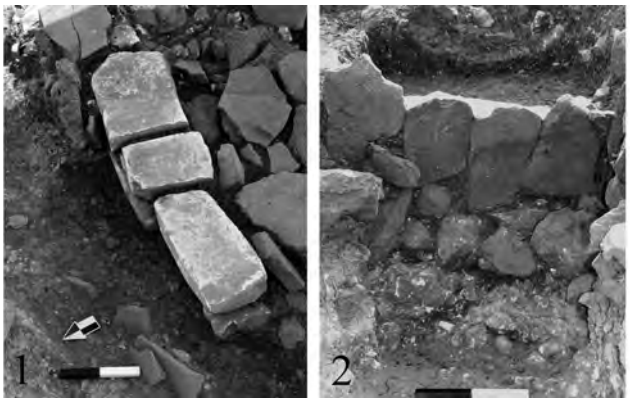

Fig. 5. Mishmar Ha'emeq: the benches of the flagstone structure. 1: south bench; 2: east bench.

Fig. 6. Mishmar Ha'emeq: the southeastern corner of the flagstone structure. Note the differences in floor segments and the group of *matzevot* at the base of the pit in the center.

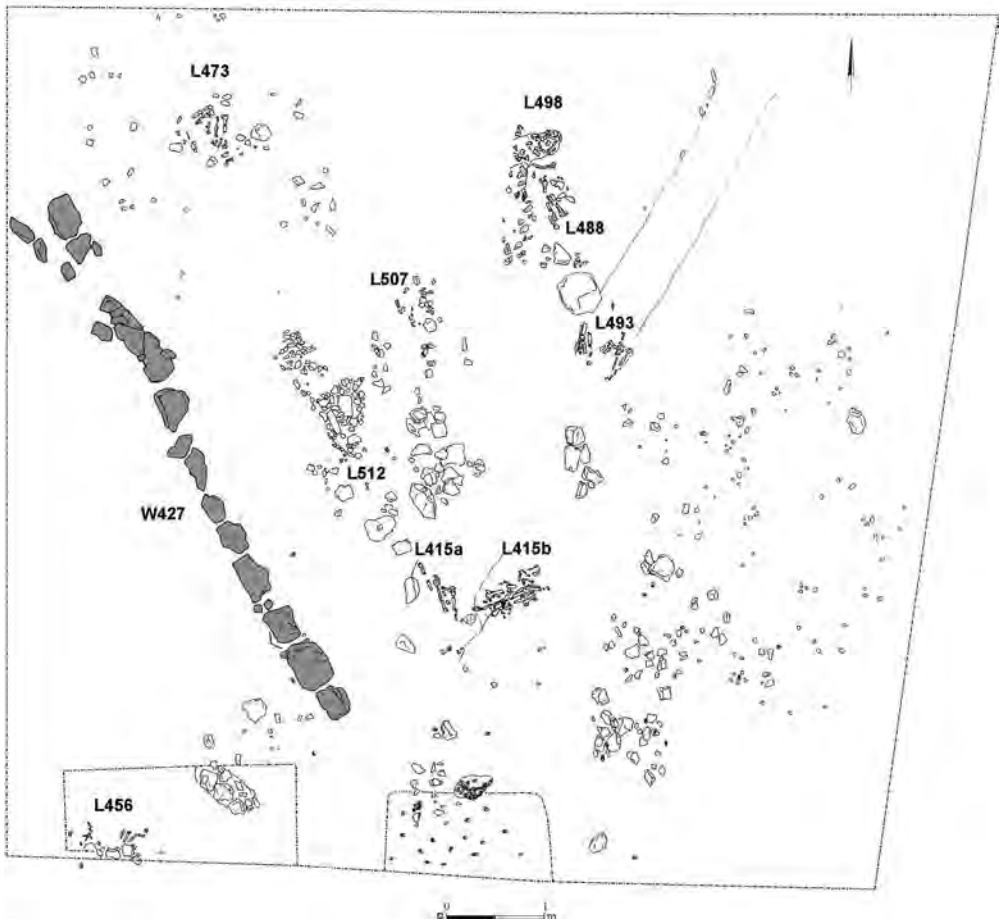

Fig. 7. Mishmar Ha'emeq: the plan of the burial ground.

ly half were analyzed. A comparison between the flagstone structure and the burial ground show a similar pattern in the general breakdown of the assemblage and in the tool composition (Barzilai *et al.* in press).

Two lithic technologies were recognized at Mishmar Ha'emeq, bidirectional-blade and *ad-hoc* "flakelets". The bidirectional-blade technology was mainly made on high siliceous purple flint. It appears that it was not knapped in the complex as indicated by the low frequency of diagnostic knapping waste and cores. The *ad-hoc* "flakelets" were knapped in the vicinity of the complex on locally available small grey flint nodules.

The tool frequency is dominated by retouched blades and flakelets. The diagnostic tools include projectile points and inversely retouched sickle blades, while bifaces are absent (Fig. 8). The projectile points are mainly comprised of Jericho type, although few Byblos and one Helwan points are also present. Interestingly, some of the Jericho points have extremely pronounced bifacially flaked tangs.

The Mishmar Ha'emeq lithic assemblage displays similar chronological and stylistic affiliations with Munhata 4-6 and the early phases at Kfar HaHoresh and Yifta'hel (Gopher 1989; Goring-Morris et al. in press; Khalaily et al. in press). Notably in all sites the bidirectional-blade production favored high siliceous purple flint and the dominant projectile type is the Jericho point.

Architectural Parallels

The closest parallels to the flagstone structure of Mishmar Ha'emeq are found at Çayönü, Beidha and Kfar HaHoresh. The flagstone building at Çayönü is dated to the Grill-plan phase (Braidwood *et al.* 1981; Schirmer 1990: 378). Like at Mishmar Ha'emeq it is located at the edge of the village, the structure size is *ca.* 10 m wide, and the building elements include a paved floor and an orthostat frame. This structure was interpreted as an "unusual structure" or a "temple" (Schirmer 1990; Özdoğan 2001).

The "sanctuary area" at Beidha (Kirkbride 1968) includes three paved structures located *ca.* 45 m north of the village. The architectural plan of Beidha shows similarities with Mishmar Ha'emeq in the following aspects: Location at the edge of the village, flagstone paving and orthostats frame. The size of structure T1 is smaller than Mishmar Ha'emeq (6 x 3.5 m) but the size of all three is 7.5 x 10.5 m. This complex it is interpreted by Kirkbride as "sanctuary area" or "cenotaphs".

The parallel closest to Mishmar Ha'emeq is embedded in the early stage at Kfar HaHoresh where a large structure with lime-plastered floor was found within a burial area (Goring-Morris 2007). The similarities in this case are more conceptual, where a large structure is associated with burial ground.

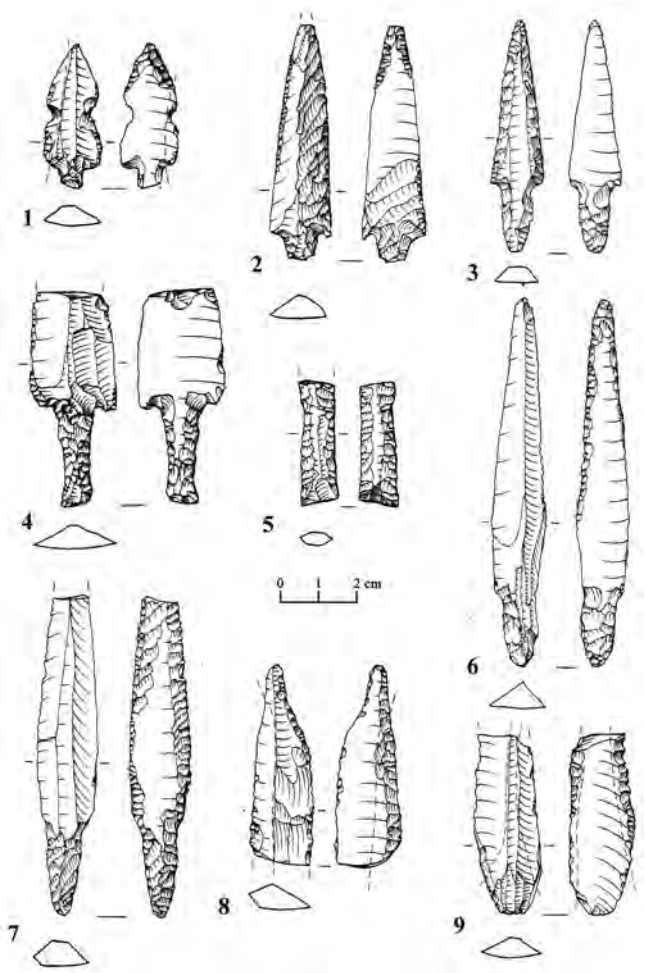

Fig. 8. Diagnostic tools from the PPNB level at Mishmar Ha'emeq. 1: Helwan point; 2-4: Jericho points; 5: "fishtail" tang; 6-7: Byblos points; 8-9: sickle blades.

The Pottery Neolithic

The Pottery Neolithic at Mishmar Ha'emeq was exposed in Area G and in a grave dug into the flagstone structure in Area H (Figs. 2, 4).

Area G consists of six pits that were hewn through volcanic rock (Fig. 9). Four of the pits were arranged in pairs with one containing typical Yarmukian pottery sherds while the other contains angular stones (Fig. 9). Another form of "pit" is a primary burial of an adult male that was dug into the flagstone structure in Area H (Fig. 4). The burial seems to have been placed on an organic cloth as seen in an impression in the sediment below it. The grave contained an Amuq point (Fig. 10: 5) fashioned by collateral pressure retouch, an incised pebble (Fig. 10: 4) and fragments of a pottery vessel. A single 14 C sample taken from a femur dates the burial to 7640+/-70 cal BP (68%) which falls at the very end of the Yarmukian period.

Other finds attributed to the Pottery Neolithic include two small points (HaParsa and Nizzanim) that were made on recycled purple bidirectional blades from the PPNB (Fig. 10: 1-2). In addition one sickle blade that is typical of the Jericho IX culture was recovered from the flagstone structure in Area H (Fig. 10: 3). Interestingly, Jericho IX sickles were recovered in at least two more Yarmukian sites at Munhata and Nahal Qanah Cave (Garfinkel 1999: 9 and references therein).

The nature of the Yarmukian occupation at Mishmar Ha'emeq remains unclear due to the limited excavated area (75 sq. m.). Still, it makes a significant contribution because it emphasizes the Jezreel Valley as being a dense-

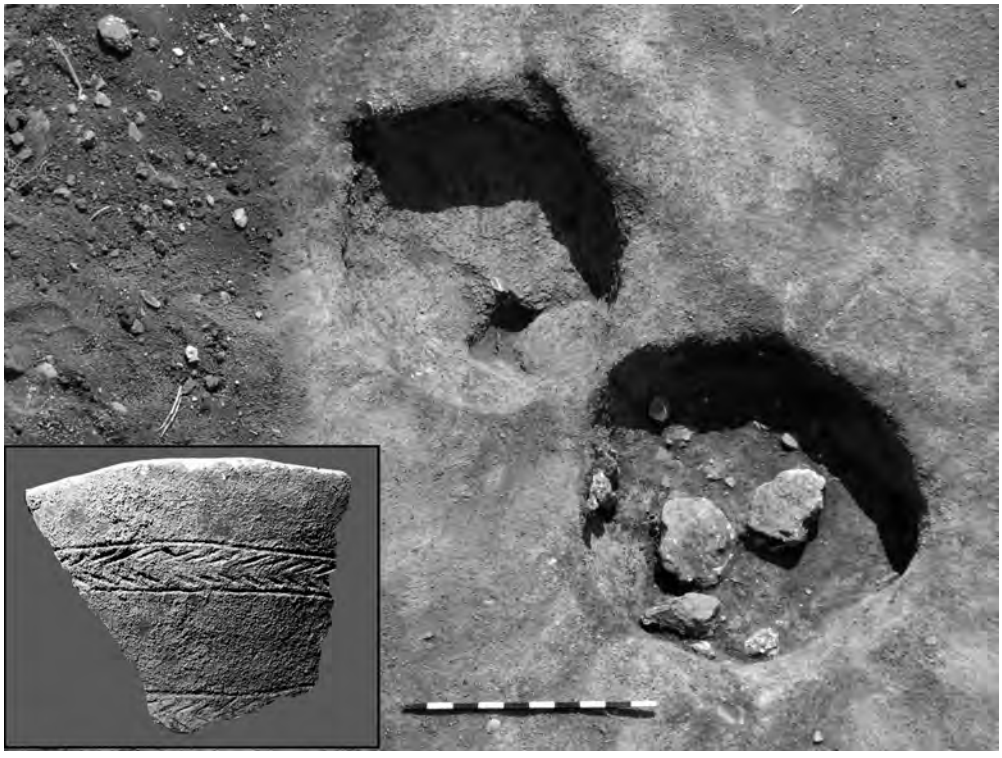

Fig. 9. Mishmar Ha'emeq: pair of rock-cut pits from Area G. Note that the lower one contains angular stones while the upper contains Yarmukian pottery.

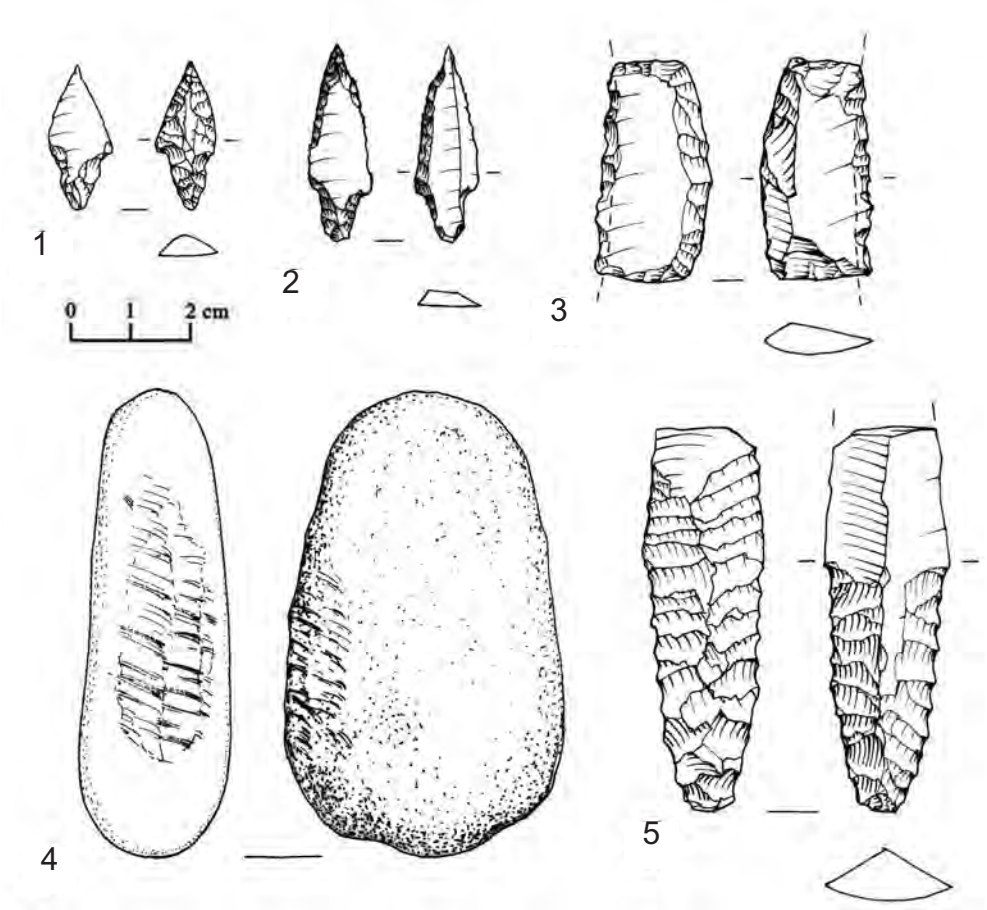

Fig. 10. Diagnostic tools from the PN level at Mishmar Ha'emeq. 1: HaParsa point; 2: Nizzanim point; 3: Jericho IX sickle blade; 4: incised pebble; 5: Amuq point.

ly settled region by "Yarmukians" (and see Garfinkel 1993). The same can be said for the burial since so few burials dated to the Yarmukian culture are known.

The pits at Mishmar Ha'emeq likely indicate the presence of a permanent settlement nearby. Such was the case at Sha'ar HaGolan where Stekelis defined the Yarmukian culture (1951). In his excavations in the early 1950's no architecture was found, therefore he concluded that the "Yarmukians" were living in pits (Stekelis 1966: 61). However, forty years afterwards, the Yarmukian village with its complex architecture was revealed not far from Stekelis' excavation area (Garfinkel and Miller 2002).

Acknowledgements. The excavation at Mishmar Ha'emeq was conducted under the auspices of the Israel Antiquities Authority and financed by Kibbutz Mishmar Ha'emeq. We wish to thank the following people for their work in the field: Ofer Marder (consultant and directing), Yael Givol-Barzilai (anthropology), Nimrod Marom (zooarchaeology), Oren Ackerman (geomorphology) and Yosi Laban (logistics). The lithic research was supported by a grant received from the Ruth Amiran Care Foundation of the Hebrew University of Jerusalem. Preliminary sorting and registration of the lithics were done by Vladimir Zbenovich. We thank the following people for preparing the figures for the publication: Leticia Barda (Fig. 1), Rivka Mishayev and Tania Meltsen (Figs. 4, 7), Anastasia Shapiro (Fig. 2); Howard Smithline (Figs. 3, 5-6, 9) and Leonid Zeiger (Fig. 8, 10). Lastly, we thank Samuel Wolff and Hamoudi Khalaily for their editorial comments.

References

Barzilai O., Getzov N., Givol-Barzilai Y., Marom N. and Marder O.
in press Lithics in a Ritual Context at the PNNB Site of Mishmar Ha'emeq, Israel: Do They Display Special Characteristics? In E. Healey, O. Maeda and S. Campbell (eds.), *Provenance, Function, and Technology: The Contribution of Science to the Study of Chipped and Ground Stone Tools. Proceedings of PPN6 Workshop in Manchester.*

Braidwood R.J., Cambel H. and Schirmer W.
1981 Beginnings of Village-Farming Communities in Southeastern Turkey: Çayönü Tepesi, 1978 and 1979. *Journal of Field Archaeology* 8(3): 249-258.

Garfinkel Y.
1993 The Yarmukian Culture in Israel. *Paléorient* 19/1: 115-134.
1999 Radiometric Dates from Eighth Millennium B.P. Israel. *Bulletin of the American Schools of Oriental Research* 315: 1-13.

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

Gopher A.
1989 *The Flint Assemblages of Munhata (Israel).* Les Cahiers du Centre de Recherche Français de Jerusalem. Paris: Association Paléorient.

Goring-Morris A.N.
2007 Kefar HaHoresh. In E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land. Revised Edition:* 1907-1909. Jerusalem: Israel Exploration Society and Simon & Schuster.

Goring-Morris N., Ashkenazi H., Barzilai O., Birkenfeld M., Eshed V., Goren Y., Horwitz L., Oron M. and Williams J.
In press The 2007-8 Excavation Seasons at Pre-Pottery Neolithic B Kfar HaHoresh, Israel, to appear in *Antiquity* 82 (317): http://www.antiquity.ac.uk.

Horwitz L.K., Tchernov E., Ducos P., Becker C., Von den Driesch A., Martin L. and Garrard A.
1999 Animal Domestication in the Southern Levant. *Paléorient* 25: 63-80.

Khalaily H., Milevski I., Getzov N., Smithline H., Barzilai O., Shlomi V., Abu Hamid A., Daniel Z. and Zidan O.
in press Renewed Excavations at Yiftahel (Kh. Khalladyiah): A Late Prehistoric Site in the Lower Galilee. *6ICAANE, Rome.*

Kirkbride D.
1968 Beidha 1967: An Interim Report. *Palestine Exploration Quarterly* 100: 90-96.

Özdoğan M.
2001 Southeast Anatolia Joint Project and the Excavations at Çayönü. In O. Belli (ed.), *Istanbul University's Contributions to Archaeology in Turkey (1932-2000):* 10-16. Istanbul: Istanbul University.

Schirmer W.
1990 Some Aspects of Building at the 'Aceramic-Neolithic' Settlement of Çayönü Tepesi. *World Archaeology* 21(3): 363-387.

Stekelis M.
1951 A New Neolithic Industry: The Yarmukian of Palestine. *Israel Exploration Society* 1: 1-20.
1966 *The Yarmukian Culture.* Jerusalem: Magnes Press. (In Hebrew)

Contribution

Under Control: The Use of 'Virtual' Sections for Stratigraphic Management in Multi-component Archaeological Sites

A. Nigel Goring-Morris[1], Michal Birkenfeld[1] and John K. Williams[2]

[1] Institute of Archaeology, The Hebrew University of Jerusalem <goring@mscc.huji.ac.il>
[2] 120 London Road, Wheatley, OX 331YH, UK

Introduction

The excavations of terminal Pleistocene and early Holocene sites in the Near East commonly suffer from competing interests with regards excavation strategies. On the one hand there is the desire to open sufficiently large areas of sites in order to expose and document complete architectural and other depositional units; and on the other there is the necessity for excavating with sufficient resolution and stratigraphic controls to enable detailed documentation of the depositional processes and phasing. This is particularly valid with the beginnings of sedentism from the Natufian onwards through to and including the Neolithic. Site sizes tend to increase dramatically in comparison to earlier mobile hunter-gather occupations. In addition durable architectural and associated features and installations commonly abound and sites are often occupied for lengthy periods.

During later periods in the Near East, a widely used excavation strategy involves the use of a 5 x 5 m grid, with 1m wide baulks separating each excavation unit, so that actual excavation units measure 4.5 x 4.5 m. These baulks provide observable stratigraphic controls in the sections provided as the excavation is conducted using the basket and locus method. However, the systematic use of baulks often impedes horizontal observations across the entire excavated area, especially as excavation proceeds to depth.

In the following note a simple and straightforward field method involving the drawing of 'virtual' cross-sections is presented. This approach furnishes illustrated stratigraphic controls for documenting and visualizing the complex interrelationships between different architectural structures and features and other deposits as they are exposed and removed. But it also maximizes the horizontal dimension by leaving the entire area of the excavation open and unimpeded by baulks. By way of illustration the use of 'virtual' cross-sections from the ongoing excavations at Pre-Pottery Neolithic B Kfar HaHoresh in the lower Galilee Nazareth hills is presented.

Kfar HaHoresh

Since its discovery 13 excavation seasons have been held at Kfar HaHoresh and a total of 500 m^2 have now been exposed. The investigations have revealed a complex strati-

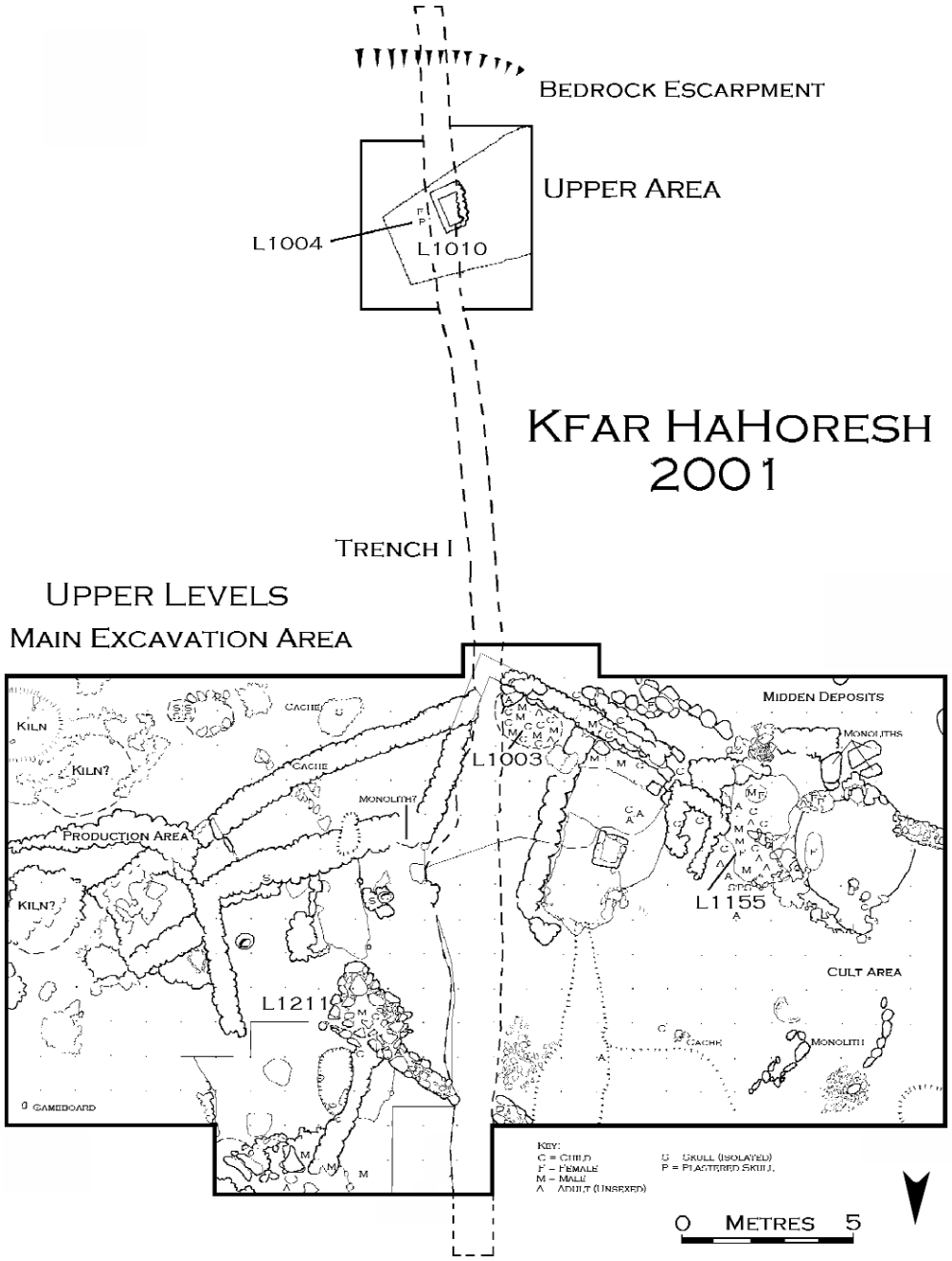

Fig. 1. Plan of the upper, mostly Middle and Late PPNB levels at Kfar HaHoresh.

graphic sequence of occupation reaching up to 1.25 m thickness. Based on techno-typological markers of the lithic assemblages together with a series of C14 dates, ranging from 8,523±154 to 7,668±54 calBC, the occupation corresponds to the Early through Middle and Late PPNB (Goring-Morris 2005; Goring-Morris *et al.* 2001, 2008). In light of the numerous and wide range of mortuary installations and practices documented at the site, as well as the varied nature of the material culture remains and, in particular, their contextual co-associations, the site has been interpreted as a cult and mortuary site, perhaps serving nearby communities in lowland settlements, such as Yiftah'el and Ayanot Zippori (Goring-Morris 2000, 2005).

The stratigraphic sequence at Kfar HaHoresh is complex and initially relied primarily upon the sections of the mechanically excavated test trenches and pits excavated in 1991, prior to the initiation of excavations, and in particular on the ~40 m long Trench I, which follows a south-north orientation down the centre of the upper part of the site (Fig. 1). The slope of the occupation layer (~1:13) differs considerably from the present topography (~1:6); at its southern end Trench I abutted a bedrock cliff at least 3 m high, which was subsequently completely covered by colluvium reaching up to 2 m thickness. Since the inclination of the occupation layer is less steep, to the north (*i.e.* down-slope) the colluvium wedges out and the upper part of the occupation layer is partially truncated by the plough zone and disturbed surface deposits, such that that the preserved occupation there only reaches *ca.* 0.5-0.8 m thickness.[1]

Fig. 2. View across the main excavation area at Kfar HaHoresh to the west at the end of the 1996 season, showing mostly LPPNB levels. Note tape measures for drawing the 'virtual' sections.

Fig. 3. View across the main excavation area at Kfar HaHoresh to the west at the end of the 1998 season, showing Late and Middle PPNB levels. Note the numerous walls, plastered surfaces and other features.

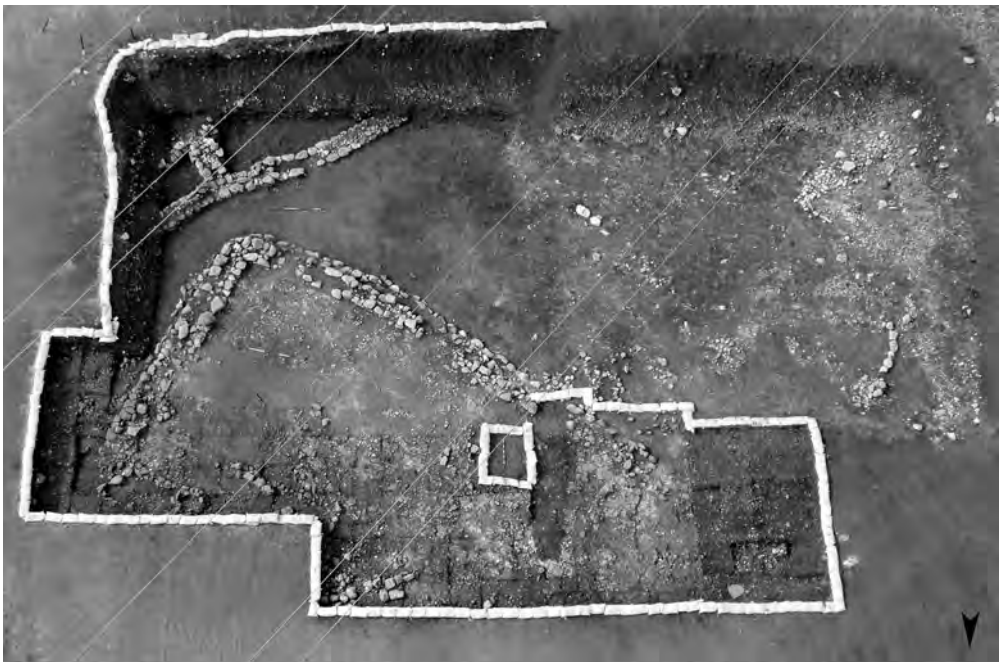

Fig. 4. Aerial view of Kfar HaHoresh in 2008 showing mostly EPPNB and MPPNB levels. Note erosion of south (top) face of the section. Rectangle of sandbags denotes the "Bos pit", L1005, underlying the L1604 complex. Diagonal lines are high tension power lines above the site. Photo: Skyview Limited. See http://www.antiquity.ac.uk/ProjGall/goringmorris/index.html

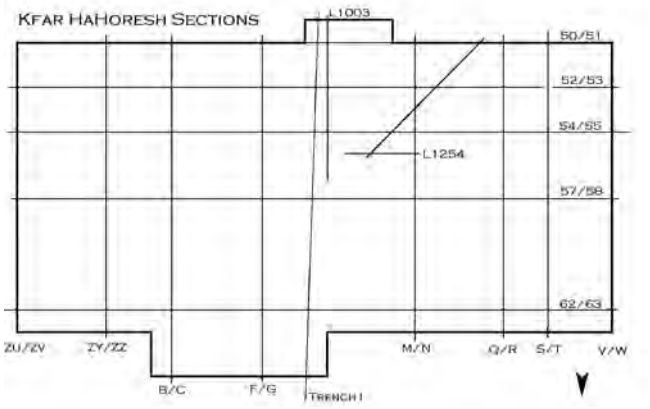

Fig. 5. An actual cross-section of the southern (upper) end of Trench I at Kfar HaHoresh (looking east) (drawn by A.N. Goring-Morris).

Several lime plastered surfaces were noted in the section of Trench I, although only 2-3 stratigraphic phases were originally recognized. Subsequent excavations have revealed that the stratigraphy of the site is actually much more complex than initially recognised, comprising numerous lime-plastered surfaces of various dimensions (from 1.5 x 3.0 m to 10 x >20 m) and plans (quadrilateral through rectangular), walls, cists and platforms, together with numerous graves, installations, stele, post supports, hearths, ovens, kilns and pits against a backdrop of huge quantities of midden and fire-cracked rock accumulations of varying densities (Figs. 1-4).[2] The various major architectural complexes shift spatially through course of the sequence (Birkenfeld 2008; Birkenfeld and Goring-Morris in press).

It appears that the southern (*i.e.* up-slope) part of the original EPPNB occupation was located within an embayment created by the bedrock cliff; and that at least the base of the occupation was actually gently inclined from SW to NE, but that it also dipped somewhat from both the east and west in towards the centre of the main excavation area (*i.e.* towards Trench I). While the plastered surfaces and associated features are often relatively flat and provide invaluable stratigraphic 'anchors' and 'separators' throughout the occupation sequence, it has often proven difficult to trace unequivocal connections and correlations across the extensive midden deposits[3] and between some of the independently 'floating' installations. These difficulties are compounded since there is also some evidence for leveling and perhaps some terracing by the occupants (Goring-Morris 2005; Goring-Morris *et al.* 1994-5).

Furthermore, several of the major architectural units display signs of repair and re-use through different stages of the occupation. Many of the numerous graves appear to be directly related to plaster surfaced complexes as well as other features and installations, *i.e.* platforms, cists, walls, stone markers and post sockets. The graves themselves are variable, from single through to multiple, with articulated, partially articulated, and secondary burials, as well as lone skulls and skull caches (Eshed *et al.* 2008). Isolated human bones are also found within the midden deposits.[4]

There are no indications of sterile levels separating the phases or sub-phases. There is evidence that occupation surfaces at different periods were more intense and accumulated at faster rates in certain areas, while other areas were cleaned and/or leveled, thus creating elements of what may be termed 'horizontal' stratigraphy. Additionally, given the heavy nature of the background soils in the area of the site (Tsatskin *et al.* 2000; Tsatskin and Gendler 2002) no mudbrick or daub was identified in the field, although micromorphological analysis of sediments has revealed their original presence (Arpin 2004). Finally, differential compaction of organic and other remains is evident in various areas of the excavation. All of these factors further complicate spatial and other analyses from a stratigraphic perspective.

'Virtual' Cross-sections

As soon as the complexity of the sequence became apparent during the early seasons at Kfar HaHoresh (see Figs. 1, 2), the twin objectives of maximal horizontal exposure and robust stratigraphic control became critical issues.[5] It is, of course, a valid truism that the initial stratigraphic divisions should be accomplished in the field and that such field observations form the basis for all subsequent analyses. Given the nature of the sediment at Kfar HaHoresh, the possibility of leaving baulks for drawing sections from one season to the next was not deemed pragmatic (indeed over the years the southern section of the main excavation area has eroded significantly as the total depth of the section has reached almost 3 m; see Fig. 4).

Accordingly the strategy adopted in order to provide visual documentation of the stratigraphic sequence (in addition to written field notes and observations) was the systematic drawing of 'virtual' cross-sections at regular intervals along both axes of the excavation grid and wherever else was considered pertinent (see Fig. 6). As walls, lime-plastered surfaces, installations, post-sockets, graves, etc. are exposed their top heights and position are marked on the cross-section. Concurrently the general nature and relative densities of the intervening midden and other deposits are noted and sketched in onto the cross-section in semi-schematic fashion. As the walls and lime-plastered surfaces, etc. are exposed and then dismantled basal heights are recorded along the line of the cross-section and drawn.[6] Examples of an actual section and two 'virtual' sections are presented in Figures 4-8. It can be seen that the 'virtual' sections, while perhaps not quite as detailed as the actual section illustrated, nevertheless provide invalu-

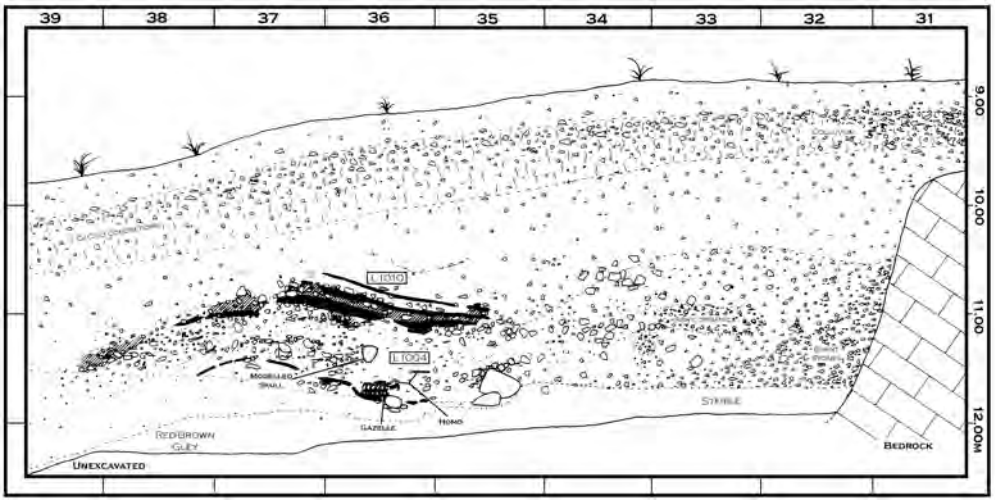

Fig. 6. Plan of main area of excavations at Kfar HaHoresh showing the location of actual (Trench I, L1003 and grid lines ZU/ZV, V/W, 50/51) and 'virtual' (grid lines ZY/ZZ, B/C, F/G, M/N, Q/R, S/T, 52/53, 54/55, 57/58, 62/63, and L1254) cross-sections.

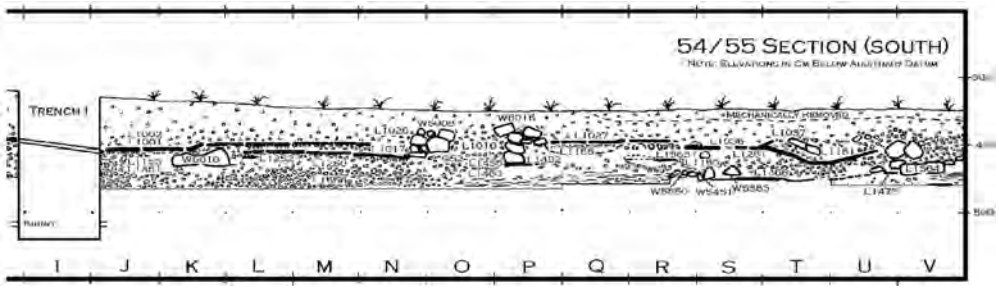

Fig. 7. A 'virtual' cross-section west of Trench I at Kfar HaHoresh along the 54/55 grid line looking south (drawn by M. Birkenfeld, R. Burns and J.K. Williams).

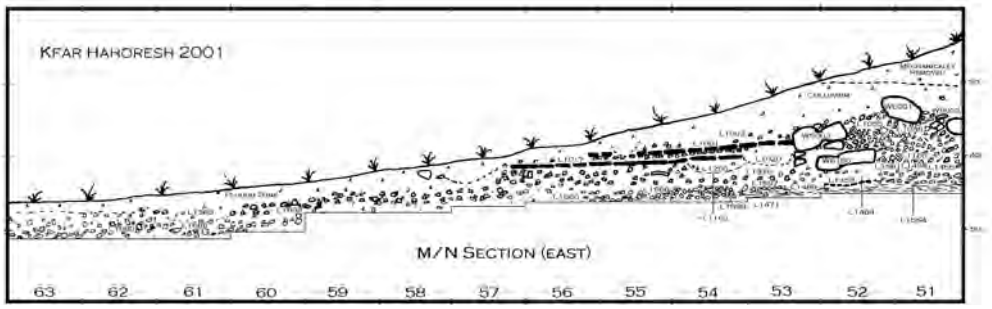

Fig. 8. A 'virtual' cross-section along the M/N grid line at Kfar HaHoresh looking east (drawn by M. Birkenfeld, R. Burns and J.K. Williams).

able visual representation of the stratigraphic relationships between various features.

Currently at least seven main architectural sub-stages have been identified in the western side of the main excavation at Kfar HaHoresh based upon field observations and stratigraphic correlations with the aid of the virtual cross-sections. However, these sub-stages may be grouped into three main stratigraphic units that appear to broadly correspond to Early, Middle and Late PPNB phases. In addition there are overlying colluvial deposits and recent disturbances in the form of plough furrows, pits and pipeline trenches.[7] A pilot study using GIS applications has recently been conducted on the west side of the site (Birkenfeld 2008; Birkenfeld and Goring-Morris in press). This has involved the digitisation of the architectural and other features including graves and the subsequent modelling of the contours of the different stratigraphic units based upon the field observations and notes, together with the 'virtual' cross-sections. It is then possible to investigate the various small finds categories spatial distributions and densities in relation to the architectural and other features.

Discussion

It is, of course, a truism that all archaeological excavation is, by its very nature, destructive. As archaeologists we are commonly confronted with the contrasting and opposed aims of maximising areal exposures in order to understand the 'big picture' on-site and excavating with sufficient resolution in order to provide detailed documentation of the contexts of the finds. Ultimately, it is the combination of the recovery techniques employed on-site and the field observations *during* excavation that provide the stratigraphic correlations vital to all subsequent analyses. This is especially critical in the case of sites characterised by long complex stratigraphic sequences with numerous architectural and other features and installations. Such is the case with many Late Epipalaeolithic and Neolithic sites in the Near East. We

believe that the drawing of 'virtual' sections as described above provides a simple, straightforward and useful complementary technique to aid more traditional stratigraphic field observations. Its use enables the opening up of extensive horizontal exposures across the entire excavated area, without the visual impediment of baulks.

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Notes

[1] It is of some interest that, given the depth of the PPNB occupation (~1.25 m) and the ~1750 year duration of the site, the mean accumulation rate can be estimated at ~0.7 mm/year. Obviously, accumulation rates were not constant, but rather reflect combinations of the sporadic character of the occupations, the nature of activities on-site, including construction, cleaning and leveling, as well as subsequent post-depositional processes.

[2] A gross estimate of the relative volumes of fine-grained sediments to angular fist-sized and smaller rocks (some 75-95% of which display evidence of burning) throughout much of the excavated area is ~3:2. Although actual ash deposits are hardly preserved or visible in the heavy sediment, pyrotechnic activities were clearly ubiquitous and intense across the site, whether for kilns for lime production, firing clay, cooking, application of adhesives and other activities (see also Goren and Goring-Morris 2008).

[3] Notwithstanding the seemingly 'blended' nature of many of the extensive midden deposits, it is still possible to locally identify well-defined specific activity events, whether as hearths or other features, graves, articulated animal remains, caches or even conjoinable flint knapping episodes (*e.g.* see Davidzon and Goring-Morris 2007).

[4] And see Simmons *et al.* 2007 for details concerning the differential taphonomic processes within various burial contexts.

[5] Excavations at Kfar HaHoresh are conducted using a combination of a locus system combined with a 1 x 1 m grid. Each grid square is usually further subdivided into four 0.5 x 0.5 m subsquares and excavated in 10 cm spits. Most artefacts are recorded accordingly (and see Gilead 2002). All excavated sediments are dry-sieved using a 4 mm sieve. Items considered to particularly significant or from special contexts were registered, where possible, with 3-D provenance coordinates to the nearest 1 cm. These included more standardised chipped stone artefacts, groundstone tools, exotic minerals, pendants, clusters of notable items, as well as finds from grave contexts.

[6] Obviously this accompanies the drawing of plans of the same features and the recording of top and basal heights.

[7] Previous descriptions of the spatial distribution of activities (mortuary, cult, midden and production) at Kfar HaHoresh related primarily to the upper phases of the occupation, *i.e.* MPPNB and especially LPPNB (Goring-Morris 2000, 2005). The lower, EPPNB levels have only begun to be investigated systematically in recent seasons, so it has not been possible to definitively characterize the initial spatial organization of activities on-site.

References

Arpin T.L.
2004 *Micromorphological Analysis of Four Early Neolithic Sites.* Unpublished Ph.D. Thesis, Boston University.

Birkenfeld M.
2008 *Spatial Analysis in Kfar HaHoresh, a PPNB Site in the Lower Galilee, Israel.* MA Thesis, The Hebrew University of Jerusalem.

Birkenfeld M. and Goring-Morris A.N.
in press A New Methodological Approach, Using GIS Applications, to Stratigraphy and Spatial Analysis at PPNB Kfar HaHoresh. In E. Healey, S. Campbell, and O. Maeda (eds.), *Studies in Technology, Environment, Production, and Society (STEPS) of Neolithic Chipped and Ground Stones.* SENEPSE. Berlin: ex oriente.

Davidzon A. and Goring-Morris A.N.
2007 Knapping in the Graveyard: A Refitted Naviform Sequence from Kfar HaHoresh, Israel. In L. Astruc, D. Binder and F. Briois (eds.), *Technical Systems and Near Eastern PPN Communities:* 295-309. Antibes: Éditions APDCA.

Eshed V., Hershkovitz I. and Goring-Morris A.N.
2008 A Re-evaluation of Burial Customs in the Pre-Pottery Neolithic B in Light of Paleodemographic Analysis of the Human Remains from Kfar HaHoresh, Israel. *Paléorient* 34: 91-103.

Gilead I.
2002 Too Many Notes? Virtual Recording of Artefacts Provenance. In F. Niccolucci (ed.), *Virtual Archaeology. Proceedings of the VAST Euroconference, Arezzo 24-25 November 2000:* 41-43. Oxford: BAR International Series 1075.

Goren Y. and Goring-Morris A.N.
2008 Early Pyrotechnology in the Near East: Experimental Lime Plaster Production at the PPNB Site of Kfar HaHoresh, Israel. *Geoarchaeology* 23: 779-798.

Goring-Morris A.N.
1994 Aspects of the PPNB Lithic Assemblage from Kfar HaHoresh, near Nazareth, Israel. In H.G. Gebel and S. K. Kozlowski (eds.), *Neolithic Chipped Lithic Industries of the Fertile Crescent.* SENEPSE 1: 427-444. Berlin: ex oriente.
2000 The Quick and the Dead: The Social Context of Aceramic Neolithic Mortuary Practices as seen from Kfar HaHoresh. In I. Kuijt (ed.), *Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation:* 103-135. New York: Kluwer Academic/Plenum.
2005 Life, Death and the Emergence of Differential Status in the Near Eastern Neolithic: Evidence from Kfar HaHoresh, Lower Galilee, Israel. In J. Clark (ed.), *Archaeological Perspectives on the Transmission and Transformation of Culture in the Eastern Mediterranean:* 89-105. Oxford: Council for British Research in the Levant and Oxbow Books.
2008 Kefar Ha-Horesh. In E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land.* Supplementary Vol. 5: 1907-1909. Jerusalem and Washington, DC: Israel Exploration Society and Biblical Archaeology Society.

Goring-Morris A.N., Ashkenazi H., Barzilai O., Birkenfeld M., Eshed V., Goren Y., Horwitz L.K., Oron M. and Williams J.K.
2008 The 2007-8 Excavation Seasons at Pre-Pottery Neolithic B Kfar HaHoresh, Israel. *Antiquity* 82/318. http://www.antiquity.ac.uk/ProjGall/goringmorris/index.html

Goring-Morris A.N., Burns R., Davidzon A., Eshed V., Goren Y., Hershkovitz I., Kangas S. and Kelecevic J.
1998 The 1997 Season of Excavations at the Mortuary Site of Kfar HaHoresh, Galilee, Israel. *Neo-Lithics* 3/1998: 1-4.

Goring-Morris A.N., Boaretto E. and Weiner S.
2001 Radiometric Dating the PPNB Mortuary Site of Kfar HaHoresh, Lower Galilee, Israel: Problems and Preliminary Results. *Journal of the Israel Prehistoric Society - Mitekufat Haeven* 31: 213-218.

Goring-Morris A.N., Goren Y., Horwitz L.K., Hershkovitz I., Lieberman R., Sarel J. and Bar-Yosef D.
1994-95 The 1992 Season of Excavations at the Pre-Pottery Neolithic B Settlement of Kfar HaHoresh. *Journal of the Israel Prehistoric Society - Mitekufat Haeven* 26: 74-121.

Simmons T., Kolska Horwitz L. and Goring-Morris A.N.
2007 "What Ceremony Else?" Taphonomy and the Ritual Treatment of the Dead in the Pre-Pottery Neolithic B Mortuary Complex at Kfar HaHoresh, Israel. In M. Faerman, L.K. Horwitz, T. Kahana, and U. Zilberman (eds.), *Faces from the Past: Diachronic Patterns in the Biology and Health Status of Human Populations from the Eastern Mediterranean. Papers in Honour of Patricia Smith:* 1-27. Oxford: Archaeopress, BAR International Series 1603.

Tsatskin A. and Gendler T.S.
2002 Further Notes on terra rossa and Related Soils near Kfar HaHoresh Archaeological Site, Israel. In P. Zdruli, P. Steduto, and S. Kapur (eds.), *Options Mediterrannes, Serie A, 7th International Meeting on Soils with Mediterranean Type of Climate:* 109-120. Bari: CIHEAM-IAMB.

Tsatskin A., Itkis S. and Goring-Morris A.N.
2000 Identification of Human Influence in the Vicinity of the Site of Kfar HaHoresh with the Aid of Magnetic and Petrographic Methods. (Hebrew). *Archaeology and Science* 8: 71-80.

Contribution

Further Remarks on Obsidian Corner-thinned Blades from the Northeast Syrian Neolithic

Yoshihiro Nishiaki
The University of Tokyo <nishiaki@um.u-tokyo.ac.jp>

Corner-thinned blades represent a peculiar type of tool that I defined with the Proto-Hassuna obsidian tool assemblages from Tell Kashkashok II, Northeast Syria (Nishiaki 1990). They are blade tools that retain lamellar retouch for deliberately thinning one or more corners. The retouch scar resembles an angle-burin facet, but it obviously slants onto either the dorsal or the ventral surface. Besides this, a distinct characteristic was observed in the Tell Kashkashok specimens: the corners with thinning retouch scars were almost always located diagonally to dorsal and/or ventral surfaces, which are identical to each other in their relative position when rotated (D1, D4, V1, and V4 in Fig. 1). This trend seemed to have been maintained at the neighbouring sites in the Khabur basin. In the course of searching for their parallels, however, I found that corner-thinned blades had been also recovered from the Balikh Valley sites, but those did not always follow the "rule" of retouch location discovered at Kashkashok. Assemblages from the Late Pre-Pottery Neolithic B (PPNB) to the Pottery Neolithic settlements of Damishliyya and Sabi Abyad I contained a certain proportion of specimens with corner-thinning retouch at different corners. This led me to define two types of corner-thinned blades: Kashkashok-type, following the "rule" mentioned above, and Balikh-type, not following it. I provisionally regarded these two types as indicators of regional traditions in the manufacturing of this obsidian tool type (Nishiaki 1993, 2000).

In this paper, I provide further remarks on these two types of corner-thinned blades, on the basis of newly discovered materials from Tell Seker al-Aheimar, the Upper Khabur. A preliminary analysis of the Late PPNB to the Proto-Hassuna specimens from this site shows that Balikh-type corner-thinned blades do occur in the Khabur Basin as well, and they display a patterned diachronic variability. I briefly referred to this observation at the 4th PPN Workshop at Niğde (Nishiaki 2001) and some supporting evidence is added here.

Tell Seker al-Aheimar is situated approximately 45 km northwest of Hassake, occupying an area of *ca.* 4 ha with a height of 11 m. The excavations since 2000 have taken place at five major sectors, lettered A to E, which have produced lithic assemblages of one or all of the PPNB, "Pre" Proto-Hassuna, and Proto-Hassuna phases (Nishiaki and Le Mière 2005). The materials thus far studied for this paper are those excavated from a 6 x 9 m trench of Sector A and three 10 x 10 m squares of Sector C. When the stratigraphic sequences of these two sectors are combined, it is possible to monitor the chronological changes of corner-thinned blade types in the period between the

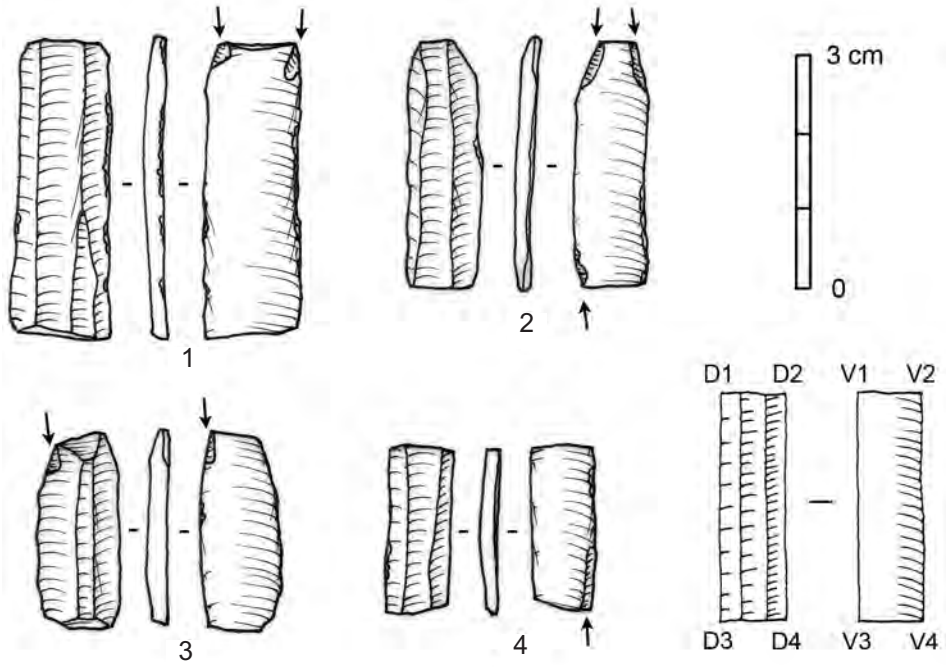

Fig. 1. Corner-thinned blades from Tell Seker al-Aheimar. 1, 2: Balikh type; 3, 4: Kashkashok type. Bottom right: Schematic presentation of a blade showing eight corner surfaces on which thinning retouch can be made.

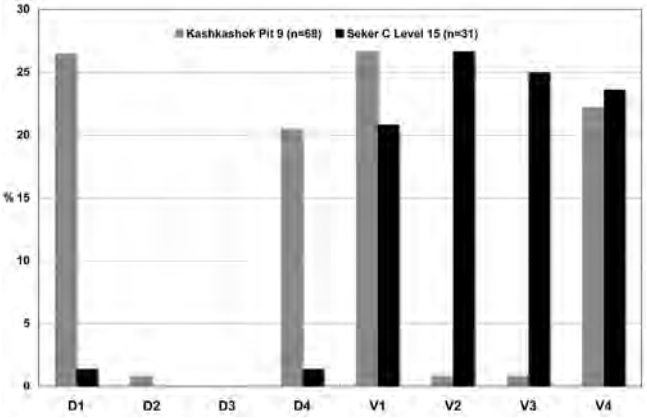

Fig. 2. Positions of the thinned corner surfaces on corner-thinned blades from Tell Kashkashok II (Pit 9) and Tell Seker al-Aheimar (Level 15, Sector C). Each of the samples contains both Kashkashok- and Balikh types. Data for Tell Kashkashok II were taken from Nishiaki 1990: Table 2.

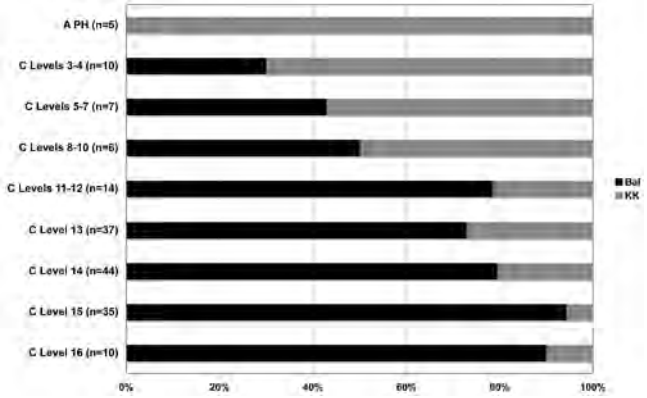

Fig. 3. Diachronic change of the relative frequencies of Balikh- (Bal) and Kashkashok- (KK) type corner-thinned blades at Tell Seker al-Aheimar. A-PH: Proto-Hassuna of Sector A; C Levels 3-7: "Pre" Proto-Hassuna of Sector C; C Levels 8-16: Late PPNB of Sector C.

final phase of the Late PPNB and the Proto-Hassuna (*ca.* 7100/7200 to 6500 cal. BC).

The obsidian assemblages from these two sectors contain corner-thinned blades of both Balikh (Fig. 1: 1, 2) and Kashkashok types (Fig. 1: 3, 4). These two types were originally distinguished by differing relative positions of the thinned corners; however, the details of the retouch position for Balikh-type pieces were not sufficiently elucidated in my previous analysis, due to the small sample size available from the Balikh Valley (Nishiaki 2000: 207). I examined this aspect at Seker al-Aheimar for the collection from Level 15 of Sector C, all but two of which consisted of Balikh-type specimens. The analytical method employed was the same as that applied to Kashkashok II (Nishiaki 1990). The results (Fig. 2) clearly point out that the thinned corners are practically limited to V1 to V4. That is, the thinning retouch of the Balikh-type specimens at Seker al-Aheimar was almost always seen to be slanting onto the ventral surface alone, making a strong contrast to the pattern noted at Kashkashok, in which it was slanting rather evenly onto both the dorsal (D1 and D4) and the ventral (V1 and V4) surfaces. The recent report of the Late PPNB site of Tell Sabi Abyad II on the Balikh, with numerous Balikh-type corner-thinned blades, also indicates the same pattern (Copeland 2000: figs. 3.2, 3.9 and 3.13), as does the small sample from Damishliyya (Nishiaki 2000: fig. 8.14: 7-10). Thus, the prevalent retouch of the ventral surface for the Balikh-type seems to have been a common trait in the Khabur and Balikh valleys.

The relative frequencies of the Balikh- and Kashkashok-types by levels revealed an interesting diachronic trend at Tell Seker al-Aheimar (Fig. 3). Balikh-type corner-thinned blades occurred more commonly in the lower levels and became increasingly replaced by Kashkashok-type specimens in the upper levels. The replacement came about rather progressively over the final levels of the Late PPNB through the Pre Proto-Hassuna phase, and the Balikh-type specimens finally disappeared in the Proto-Hassuna phase, as at the contemporaneous settlement of Tell Kashkashok II. Although one must admit the extremely small sample size from Damishliyya (Nishiaki 2000: 207), a similar change appears to have taken place in the Balikh Valley as well. The ratios of Balikh- to Kashkashok-type corner-thinned blades among the eight specimens from Damishliyya were 2:0 in the Late PPNB (Level 2), 1:1 in the Pottery Neolithic (Level 7), and 2:2 in the latest Pottery Neolithic (Pit). This should, however, be confirmed with a larger sample in the future.

Whatever the case may be in the Balikh Valley, this previously unknown diachronic pattern helps to define the Late PPNB to "Pre" Proto-Hassuna lithic industries of the Khabur Basin in a better manner. It should also help to identify more materials of this time period among future or current survey collections. At the same time, this trend poses a couple of issues that must be explored further. First, the background for this change should be investigated in the wider context of the changing cultural relationships among neighbouring regions. Corner-thinned blades have been discovered across different cultural provinces defined by the lithic industries, reportedly showing different proportions in manufacturing Kashkashok- and Balikh-types. In the Balikh Valley, Balikh-type corner-thinned blades apparently survived quite late, even in the Pottery Neolithic phases that allegedly include the Early Halaf (Copeland 1989: fig. VII.8: 8). On the other hand, settlements in the Middle Euphrates Valley, such as Tell Abu Hureyra and Bouqras, are said to have yielded abundant Kashkashok-type specimens in the PPNB period (Nishiaki 2000: 207-8). Second, the meaning of the different patterns of retouch position requires investigation. The remarkable standardization of the retouch position at Kashkashok was provisionally interpreted as reflecting a particular hafting method of corner-thinned blades (Nishiaki 1990). The emerging more complex pattern urges that this hypothesis be revised to accommodate the Balikh-type retouch position.

References

Copeland L.

1989 The Flint and Obsidian Artifacts of Tell Sabi Abyad. In P.M.M.G. Akkermans (ed.), *Excavations at Tell Sabi Abyad:* 237-284. British Archaeological Reports Int. Series 468, Oxford.

2000 The Flint and Obsidian Industries. In M. Verhoeven and P.M.M.G. Akkermans (eds.), *Tell Sabi Abyad II: The Pre-Pottery Neolithic B Settlement:* 51-89. Istanbul: Nederlands Historisch-Archeologisch Instituut Istanbul.

Nishiaki Y.

1990 Corner-thinned Blades: A New Tool Type from a Pottery Neolithic Mound in the Khabur Basin, Northeast Syria. *Bulletin of the American Schools of Oriental Research* 280: 5-14.

1993 Anatolian Obsidian and the Neolithic Obsidian Industries of North Syria: A Preliminary Review. In H.I.H. Prince Takahito Mikasa (ed.), *Essays on Anatolian Archaeology:* 140-160. Wiesbaden: Harrassowitz Verlag.

2000 *Lithic Technology of Neolithic Syria.* British Archaeological Reports Int. Series 840, Oxford.

2001 The PPN and PN Lithics from Tell Seker al-Aheimar, the Khabur Basin, Northeast Syria. Abstract for *The 4th Workshops on PPN Chipped Lithic Industries,* Niğde, 4th - 8th June.

Nishiaki Y. and Le Mière M.

2005 The Oldest Pottery Neolithic of Upper Mesopotamia: New Evidence from Tell Seker al-Aheimar, the Upper Khabur, Northeast Syria. *Paléorient* 31(2): 55-68.

Two Hafted Tools from PPNB Sites of the Southern Levant

Ofer Marder[1], Hamoudi Khalaily[1], Ianir Milevski[1], Emmanuel Eisenberg[1], Deborah Sklar-Parnes[1], and Gaëlle Le Dosseur[2]

[1] Israel Antiquities Authority, Jerusalem <oferm@israntique.org.il <hamudi@ israntique.org.il> <ianir@israntique.org.il> <eisenberg@israntique.org.il> <debbies@ israntique.org.il>
[2] Université de Paris I, Sorbonne. Institut d'Art et d'Archéologie <gledosseur@hotmail.com>

In recent years two Pre-Pottery Neolithic B sites were re-excavated; Motza, Area M (Eisenberg and Sklar 2005), west of Jerusalem and Yiftahel, Area E (Khalaily, Marder and Milevski 2000), in the Lower Galilee (and see Khalaily, Milevski and Getzov this volume, pp. 3-11). Yiftahel is dated by C14 samples to the Middle PPNB, and Motza, on the basis of typology, is attributed to the Mid/Late PPNB.

The hafted tool found at Motza (Fig. 1) comprised a flint point inserted into a hollow bone handle. It seems that this tool, broken at the tip, was originally made into an arrowhead of Byblos type, which was recycled into a borer. The shaft, a *G. gazella sp.* metapodial, measures 96 mm in length and 15 mm in average width, with the exposed axial cavity seen as 5.5 mm in diameter. Neither bitumen nor any other organic binding material was found conjoining the flint tool to the shaft. Furthermore, modification of the shaft other than minimal abrasion on the most distal parts of the epiphysis was not evident. The shaft displays slight smoothing as a result of use.

The hafted tool from Yiftahel (Fig. 2) derived from a fill above the plaster floor of a rectangular room in Area E. The haft was a rib shaft fragment of *Bos primigenius sp.,* with a flint blade inserted into the inferior edge. This composite tool was preserved to a maximum length of 97 mm and maximum width of 32 mm. It was cut lengthwise in order to fit the blades. The exterior part of the haft was finely polished, with probable heat treatment on one of its sides, presumably to shape the rib. The polishing is only visible on one small segment, while thick incrustations cover the majority of the shaft. The blade was rectangular in shape, feather head molded, with a truncated distal end, while the proximal end was truncated. Slight remains of gloss were visible under a low power microscope.

Since the discovery of the well preserved, hafted tools from Nahal Hemar (Bar-Yosef and Alon 1988), few arti-

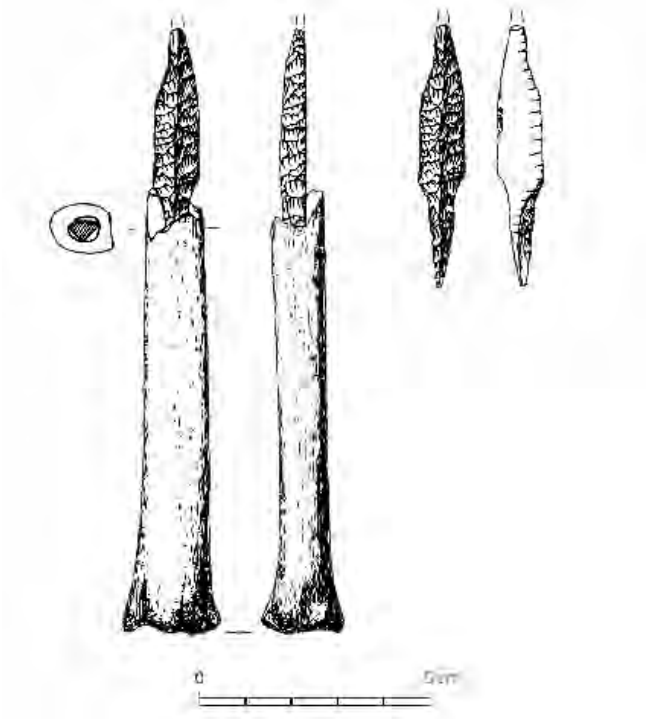

Fig. 1 Hafted tool from Motza.

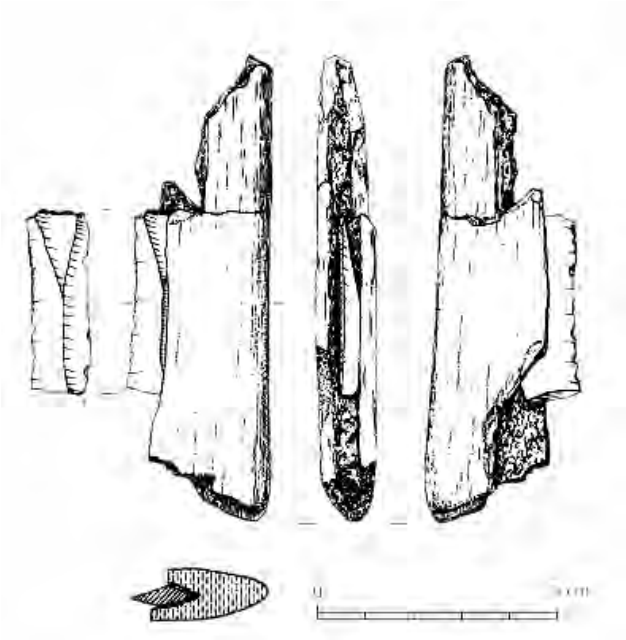

Fig. 2 Hafted tool from Yiftahel.

facts of this type, aside from two fragments found in Cave 22 at Qumran also dated to the PPNB (A.Gopher, pers. comm.), have been reported despite the fact that many Pre-Pottery Neolithic sites were excavated in recent years. The discovery of these composite tools from two PPNB sites represents a valuable contribution to our understanding of hafting methods and tool functions during this period.

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References

Bar-Yosef O. and Alon D.
1988 Excavations in the Nahal Hemar Cave. *Atiqot* 18.

Eisenberg E. and Sklar D.
2005 Motza 2000. *Excavations and surveys in Israel* 117: 53.

Khalaily H., Marder O., and Milevski I.
2000 New Excavations at the PPNB Site of Yiftahel. *Neo-Lithics* 00(2-3): 18-20.

Khalaily H., Milevski I. and Getzov N.
2008 Recent Excavations at the Neolithic Site of Yiftahel (Khalet Khalladyiah), Lower Galilee. *Neo-Lithics,* this volume.

Contribution

Göbekli Tepe – Enclosure C

Klaus Schmidt

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

Since 1995 at Göbekli Tepe, near Şanlıurfa in Turkey, sanctuaries of the 10th and 9th millennia calBC have been excavated – and the first report on the project was published 14 years ago in *Neo-Lithics* (Schmidt 1995). Now a certain number of articles and a monograph are available (Schmidt 2006a). Annual reports about the results of the recent excavations of the 2004, 2005 and 2006 seasons were published in *Kazı sonuçları toplantısı,* edited by the Department of Antiquities in Ankara (Schmidt 2006b; 2007; 2008). An article about the 2007 season is in print (Schmidt in prep.). The following contribution will focus on the results of the 2008 investigation in Enclosure C (Fig.1), which is one of the four monumental stone circles under excavations since 1999, dating to the second half of the 10th millennium calBC.

In contrast to the Enclosures A, B, and D, which were preserved in quite good condition, a heavy destruction took place in Enclosure C. A large pit with a diameter of about 10 m had been dug into the central part of the circle in order to destroy the huge and monumental central pillars: Pillar 35 (the eastern pillar) and Pillar 37 (the western one). Both pillars were smashed into several pieces. The destruction fortunately was restricted to the centre of the enclosure, and few pillars of the inner circle had been touched by it. Only Pillars 24, 46 and 47 were also damaged, or had been knocked down into the pit during the iconoclastic event (of post-Neolithic, but uncertain date).

During the 2008 season the inner space of this enclosure was excavated right to the floor. It was expected that at the bottom of the enclosure a terrazzo floor would be found – a floor made of a concrete-like material that had been uncovered in Enclosure B and in many of the rooms of Layer II at Göbekli Tepe; such floors were also discovered in one ritual building with T-shaped pillars at Nevalı Cori and a building at Cayönü. But in Enclosure C there was no terrazzo floor. At the bottom the natural bedrock was found – carefully smoothed and completely plain. This discovery was not really a surprise, since the bedrock had been reached in Enclosure C at a level of 769.60 m asl, a level which corresponds well with the height of the limestone plateau surrounding the artificial mound of Göbekli Tepe.

Already during the first season in 1995 a strange structure was observed on the bedrock of the western plateau of the limestone ridge where the artificial mound of Göbekli Tepe is situated (Fig. 2; Beile-Bohn *et al.* 1998: 47, fig. 20). Its main element is an oval with a diameter of about 10 m, where the surface is carefully pecked and very plain. Two platforms were created in the rock in the centre of the oval. In the middle of each platform a hole was opened, obviously in order to support a column or a pillar. The arrangement was given the nickname *"Felsentempel"* ("Rock temple") during the first seasons. Later it was named Enclosure E (Schmidt 2006a: 109), as it became clear that the layout of the rock-cut structure really is a repetition of the monumental stone circles excavated in the mound, only without pillars and walls. As the reuse of pillars and other worked stones could be often observed in the excavated structures at Göbekli Tepe, it was not so strange that at Enclosure E nothing had been left but the layout of the oval in the bedrock and the two platforms.

Fig. 1 Göbekli Tepe: vertical view of Enclosure C.

The existence of Enclosure E with its two platforms fashioned in the bedrock has been known since the beginning of the work at Göbekli Tepe in 1995. Therefore it was no real surprise that similar platforms were discovered at the bottom of Enclosure C.

It has been already mentioned that the central Pillars P35 and P37 were destroyed by a smashing force, partially accompanied by fire. Especially the eastern Pillar P35, whose lower part of the shaft is still *in situ* in an upright position, was cracked by intense heat. Fortunately, there are enough fragments left, which were recorded by three-dimensional scanning methods, to reconstruct the original height of the pillar, which was around 5 m above the bedrock platform. As the shaft remains *in situ,* which still has a height of about 2 m, the relief of a bull is visible despite the heavy destruction of the surface.

On the fallen fragments of the western Pillar P37 the relief of a fox is visible. Both animals, the bull on P35 and the fox on P37, were placed as usually on the inner face of the shaft, but it is not clear if there were more animals depicted originally.

In front of the eastern Pillar P35 four objects, all made from limestone, were placed on the platform. The group consists of two stone plates, a crude vessel and a sculpture of a wild boar. Not far away a fragmented third plate was found. The sculpture is one of the masterpieces of the art of Göbekli Tepe (Fig. 3, number of cat-


Fig. 2. Göbekli Tepe: Enclosure E, the “Felsentempel”.

Fig. 3. Göbekli Tepe: sculpture of a boar discovered in front of Pillar 35 (A62).

alogue of sculptures: A62). It is a twin of a boar (A25), which was discovered ten years ago not far away near Pillar P12. Again a fractured surface can be noticed under the feet of the otherwise complete preserved new animal, which allows us to assume that both sculptures (A25 and A62) were attached to a pillar's surface as a high relief originally, similar to the spectacular high relief of a predator at Pillar 27 discovered two years ago (Fig. 4).

Pillar 27 now is excavated completely. It is unbroken. The lower end of the pillar's shaft is not based in the bedrock, as one might expect, but rests instead on some stones of the wall of the inner circle of the enclosure. Below the high relief of the predator, the flat relief of a boar has been discovered. Finally, at the left face of the pillar's shaft another relief was recognized, but quite badly preserved. A zoological determination seems a little difficult, but most probably it is a rabbit or a hare. Near Pillar 27, but in the second circle of the concentric walls of the enclosure, a new pillar (P45) was discovered northeast of Pillar 25. So far only its upper edge is visible.

Coming back to P27 in the inner circle of the enclosure, we now turn north. Pillar 39 was excavated completely, but no reliefs are visible. But at Pillar 28, where the upper part of the pillar already was known in 2002, the two symbols which had been visible so far — a standing crescent above a horizontal line – have been completely exposed. While continuing the excavation the "horizontal line" changed into a H-shaped symbol like several similar ones already known from the Göbekli Tepe. Mirror-symmetrical to the crescent, a reclined second cresent appeared beneath the horizontal line. A motif like this, consisting of three geometric elements, was not known from Göbekli Tepe before (Fig. 5).

Farther down at the frontal face the already known H-shaped symbol in its upright version (turned around 90°) appeared. Whether there were more reliefs at this side further down must remain unknown forever, since the pillar's shaft is broken just below the erect H symbol. The shaft was – as already noticed in the other enclosures – set upon very improvised masonry to achieve the impression of an intact and complete setting of pillars, although the lower part of the pillar was missing.

Between Pillar 39 and Pillar 28 the sculpture of another boar (A61) was discovered. It was set in the bench which is in front of the inner wall of the enclosure. The arrangement was made in a way that it looked like that the boar is jumping out of the wall. This sculpture is a special find in several respects. First, the animal, which is nearly 1m long, was created with an outstanding, sculptural skill. For security reasons it couldn't remain *in situ* and the boar was removed from the bench a few days after its discovery, and the object was brought to the museum in Urfa. It is more of a protome than a complete sculpture (Fig. 6). Only the head, body and forelegs are realistically depicted, whereas the outline of the hind legs is more schematic, dissolving into a cone, which served as kind of anchor in the wall. The boar was encountered exactly in this situation. Thus we have another, albeit rare case where the place and type of installation of a sculpture is known.

The excavations were also continued in the so-called corridor between the first and second circle of walls. In the northern part of the second wall an animal's sculpture was immured in a way that the head was sticking out into the corridor, reminding one of the gargoyles of English churches, while the rest of the animal is hidden in the wall (A64, Fig. 7). The sculpture belongs to the type of a snarling aggressive predator.

It is interesting to note that nearly all predators found so far (excluding the foxes) are sculptures or high reliefs and not flat reliefs. The only exceptions are the two lions from Layer II, and an animal on Pillar 22 – but this animal is mostly covered by the enclosure wall, and a determination of its species remains uncertain.

At the front of Pillar 40 the hands from the pillars known of the Nevalı Çori type became visible. They are formed as flat relief, but the related arms are scratched only cursorily. Other reliefs were not found. Under a wall collapse between Pillars 24 and 36 a sculpture was uncovered and removed after documentation (A63). It is again the type of snarling predator known from earlier seasons and already mentioned above, which is present in Enclosure C, with seven examples now (Fig. 8). Also the miniature figurine of a boar, again made from limestone, was discovered here.

At the right of the shaft of Pillar 36 one more relief was found. In front of two cranes there is a small boar. This is the first example for a group of horizontally lined animals not being birds only, but with a mammal in between. It is also remarkable that the elongated head of a boar's sculpture, broken at the base of the neck, was discovered near to the east of the pillar during the campaign of 2002 (A34).

At Pillar 24, which is the western neighbour of Pillar 36, a previously unknown depiction was discovered, too. However, it is not like the usual flat reliefs, but an engraving depicting a fox. It is situated on the left side of the shaft. Pillar 24 is an extremely damaged and altered pillar, originally 50 cm thick. Its right side was reduced around 12 cm on average, and the head is not preserved.

Fig. 4. Göbekli Tepe: Pillar 27 with high relief (A60).

Fig. 5. Göbekli Tepe: Pillar 28.

Fig. 6. Göbekli Tepe: protome of a boar (A61), found in the bench between Pillars 39 and 28.

Fig. 7. Göbekli Tepe: sculpture of a predator in the wall of the second circle A64).

Fig. 8. Göbekli Tepe: sculpture of a predator in fallen debris between Pillars 24 and 36 (A63.)

List of high reliefs and sculptures found in Enclosure C

A25 boar, near P12
A27 torso, fallen debris in southwestern section
A31 snarling predator, in front of P23
A34 boar, southeast of P24 in front of flat relief
A35 snarling predator, on top of the inner wall of the circle east of P36
A36 boar northeast of P24
A38 snarling predator, near P13
A39 unidentified motif on top of wall near P26
A60 snarling predator, in situ on P27
A61 boar, in situ in wall west of P28
A62 boar, on bedrock south of P35
A63 snarling predator between P24 and P36
A64 snarling predator in situ in second circle of walls

Flat reliefs and engravings

The central pillars
P35 bull
P37 fox

The inner circle
P13 without relief so far
P24 fox (engraving, no relief)
P26 boar
P27 boar (below the high relief of a snarling predator), hare (?)
P28 3 boars, H-shaped symbols
P29 relief erased
P36 boar
P40 human arms and fingers

P46 without relief so far
P47 without relief so far

The second circle

P11 large quadruped (only the legs are preserved, probably a bear)
P12 „ducks caught in net", boar and fox
P23 boar
P25 boar
P44 without relief so far
P45 without relief so far

Table 1 Distribution of the species depicted in Enclosures A-D

Enclosure	A	B	C	D
boar	0	0	10	1
predator	1	0	7	0
fox	1	3	3	5
bull (including bucrania)	2	0	1	3
hare	0	0	1	0
„quadruped"	1	0	1	0
dog	0	0	0	0
duck, goose	0	0	8	7
crane, stork	1	0	2	4
vulture, ibis	0	0	1	2
snake, other reptile	24	3	0	31
scorpions, insects	0	0	0	5
abstract symbol	0	0	2	9
person	0	0	0	1

Preliminary Conclusions about the Distribution of Species in Enclosure C

The excavations of Enclosure C are nearly at their end. The bedrock was found to be the floor and only a part of a balk is left to be removed. Even if more examples of reliefs or sculptures are discovered when the work is finally finished, the range of the species depicted most probably will not change much. It is not possible to "read" the meaning expressed by the arrangement of the different images, but we can try to describe some of the results visible in the occurrence of different species of animals depicted in Enclosure C.

At first it is very astonishing that the snakes, which are so common in Enclosures A and D, are completely absent in Enclosure C. In contrast, the boars, quite rare in other enclosures, are very common. The same is true for a specific type of predator, which could represent a large feline, maybe a leopard, or a canine. This type was mostly found in Enclosure C. It is also interesting that the predators of Enclosure C always are depicted three-dimensionally as sculpture or high relief, but the motif is not included within the flat reliefs.

Most of the other species show an unequal distribution within the five circles, but it should not be stressed in detail yet as the excavations of Enclosures A, B, and D are unfinished. But as a result it can be observed that each of the enclosures obviously owned its specific *Bildprogramm,* which is distinguishing the circles by its iconography.

But there are common features too. In both Enclosures C and D birds are often arranged in horizontal lines, whereas the mammals usually are depicted in a vertical sequence. The flat reliefs of a boar on P12 in Enclosure C and the boar on P38 in Enclosure D are very similar, much like the sculptures of A25 and A62. It becomes evident that only well trained persons were able to produce such a similarity within the depictions and the arrangement of different motifs. The construction of the different monumental enclosures at Göbekli Tepe may have been ordered by different people, but the artistic work was made by the same school of specialists who had been well trained in a specific style.

References

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

Schmidt K.
1995 Investigations in the Upper Mesopotamian Early Neolithic: Göbekli Tepe and Gürcütepe, *Neo-Lithics. A Newsletter of Southwest Asian Lithics Research* 2/95: 9-10.

2006a *Sie bauten die ersten Tempel. Das rätselhafte Heiligtum der Steinzeitjäger. Die archäologische Entdeckung am Göbekli Tepe.* München: C.H. Beck (Third enlarged edition 2007; in Turkish language: Taş çağı avcılarının gizemli kutsal alanı. Göbekli Tepe. En Eski Tapınağı Yapanlar. İstanbul 2007, translated by Rüstem Aslan).
2006b Göbekli Tepe Excavations 2004. *27. Kazı sonuçları toplantısı, Antalya 2005.* Kültür ve Turizm Bakanlığı Dösim Basımevi, Ankara 2006, 2. cilt: 343-352.
2007 Göbekli Tepe Excavations 2005. *28. Kazı sonuçları toplantısı, Canakkale 2006.* Kültür ve Turizm Bakanlığı Dösim Basımevi, Ankara 2007, 1. cilt: 97-110.
2008 Göbekli Tepe Yılı Kazısı 2006. *29. Kazı sonuçları toplantısı. Kocaeli 2007.* Kültür ve Turizm Bakanlığı Dösim Basımevi, Ankara 2008, 2. cilt: 417-428.
in prep. Göbekli Tepe Yılı Kazısı 2007. *30. Kazı sonuçları toplantısı, Ankara 2008.* Kültür ve Turizm Bakanlığı Dösim Basımevi, Ankara 2009.

The Principle of Sharing – Segregation and Construction of Social Identities at the Transition from Foraging to Farming
SIGN Conference, University of Freiburg,
January 29-31, 2009

By Amelie Alterauge and Lukas Butsch
<Amelie.Alterauge@googlemail.com,
Lukas.Butsch@ucdconnect.ie>

Sharing and generalized reciprocity are two features that can be observed in recent hunter-gatherer societies all over the world. It has been shown by many anthropologists that these principles are often major barriers for the successful adoption of farming and herding. However, these characteristic rules structuring group identities in hunter-gatherer societies have not been considered in a detailed way for prehistory. It was the aim of the conference *The Principle of Sharing – Segregation and Construction of Social Identities at the Transition from Foraging to Farming* at the Department of Near Eastern Archaeology at Albert-Ludwigs University of Freiburg, Germany, to discuss the role of sharing and of generalized reciprocity as well as the changes of social identities during the transition from a foraging to a producing subsistence economy. Cultural and physical anthropologists, archaeologists and experts of comparative studies in religion gathered for this intense conference organized by Marion Benz and presented their approaches to the principle of sharing and to the means of creating corporate identities. New perspectives from different anthropological and social research were discussed in order to gain an advanced understanding of the factors enabling the transition from foraging to farming and of the ensuing social changes. The conference had a clear focus on the Near Eastern situation.

Thursday's programme was opened by Marion Benz presenting her analysis of skull burials in the Levant with specific references to Jericho. Her research showed that there were significant changes during the PPNA or early PPNB. Whereas during the PPNA, some skulls were grouped according to age classes, in the course of the PPNB, there was an additional focus on male adults. Some of them were distinguished after death via groupings of plastered skull burials, and then more and more often by separately buried skulls.

The following ethnographical communications gave important insights to theories and field experiences concerning the practice of sharing. As Thomas Widlok (University of Nijmegen) pointed out, sharing has to be clearly distinguished from reciprocity. Whereas sharing describes a one-way-transfer of goods or favours, reciprocity always entails the obligation to present a counter-gift. However, sharing is not altruistic. Sharing and reciprocity both focus on the construction of social networks and – as underlined by Mathias Guenther (Waterloo University) – the heuristic distinction between sharing and generalized reciprocity may be less clear in practice. Generalized reciprocity has to be restricted in a farming society to circumscribed groups in order to store seeds and sustain a herd. Guenther's fieldwork experiences with different Bushmen groups showed that trance dancers and good hunters are the best candidates for the accumulation of wealth and prestige.

Chrischona Schmidt (Australian National University) described the persistence of demand sharing amongst contemporary Australian Aboriginals in modern contexts based on a cash economy. With demand sharing, the interaction is initiated by the person receiving the goods thus reminding the donor of his/her social duties and putting social pressure on him/her.

Janina Duerr (University of Basel) emphasised the importance of the conceptual relationships of hunters to game regulating the exploitation of wild animals. A counter-gift is required by the spirit of the "master of the animals" for hunted game thereby limiting the number of animals to be killed. As wild animals are not owned by the people, it is also necessary to share them not only with the "master of the animals", but also with other people who claim use of them. Analysing human-animal relationships during the Neolithisation in the Near East, Brian Boyd (Colombia University, New York) stressed the bias of our classifications due to our modern socialisation and perspectives. Ethnographical examples from Madagascar and literature illuminated how different these conceptions might be.

Following the anthropological communications, Bill Finlayson (CBRL, Amman), on the next day, advised against the simple use of analogy emphasising the high variability among recent hunter-gatherers. At least since colonial times, they have all lived more or less intensively in contact with farmers and herders and therefore, their mode of living should also be regarded as a modern evolution not to be imposed on prehistory. He argued for a more "bottom-up approach" based on archaeological data.

Renate Ebersbach's (University of Basel) analysis of the principle of sharing in peasant societies demonstrated how the sharing of basic food and the ownership of living animals is restricted to the production unit. However, reciprocal herding is very common to overcome workload limits. Sharing pasture is common if the production unit is too small to manage farming. The archeozoological data from Çatal Hüyük presented by Amy Bogaard (UCL) corroborates these results as plant foods were stored more privately, whereas meat seems to have been shared at least in the neighbourhood.

In the following lectures, scalar stresses in big sedentary communities and the ensuing social differentiation between and within these groups was a recurrent theme. Gary Rollefson (Whitman College, Walla Walla) compared the architectural and demographic developments of Southwest American pueblos with the grouping of people in the Late PPNB "mega-sites" east of the Jordan Valley. He regards the large communal buildings as indications for sodalities replacing kinship ties. Ritual leaders and big men in positions of broader authority probably emerged during these times of social stresses.

In his contribution on Corporate Life in Ba'ja Hans Georg K. Gebel (Free University of Berlin) considered the process of commoditization as the key element for the creation of social identities during the Neolithisation. He thus pointed to a new perspective interpreting the relationship of a material culture and people: "People give value to things (objects of commoditization), things give value to people…" and thereby, structure and destructure social relationships.

Zeidan Kafafi (Yarmouk University, Irbid) underlined the importance of ritual structures for a corporate identity. From a perspective of longue durée, he emphasised the persistence of ritually symbolic installations comparing the ritual architecture of 'Ayn Ghazal with Bronze Age temples.

But not only ritual and social spheres were decisive for a corporate identity. As Nabil Ali (Jordan University, Amman) suggested, some differences in flint technology and tools between different sites of the early Neolithic were probably not due to function or ecology but were rather due to a cultural choice, thus reflecting the exchange of technological know-how and choice within circumscribed groups.

In her public evening lecture Danielle Stordeur (CNRS) followed J. Cauvin's approach explaining the transition as a mental revolution. While Cauvin saw the first symbolic revolution about 10.000 BC, she suggested a second symbolic change by the beginning of the MPPNB, meaning parallel to the invention of agriculture and herding. Whereas the first farming societies still had symbols representing wildlife (serpent, scorpion, aurochs, fox), in later farming societies, humans and domesticated animals occupied the centre of the symbolic world.

The third day was opened by Lisbeth B. Christensen (University of Aarhus), giving a paper inspired by the study of religions: she alluded to the problem that definitions of religion made by studying texts are indiscriminately applied to the archaeological record by archaeologists. In her opinion, religion has a cultural origin which – if it can be traced at all – must be evident in the archaeological material. She linked the origin of religion to the concept of authority: ultimately, there is a reference to something transcendent in the constitution of authority.

Esther M. John's (University of Freiburg) lecture provided an insight into the sociology of architecture. While

Fig. 1. Marion Benz (right) giving her opening lecture, together with chairing Gary O. Rollefson and Amy Bogaard. (to the left:) Marlies Heinz, head of the Department of Near Eastern Archaeology, Freiburg University.

Fig. 2. Danielle Stordeur in her public lecture at Freiburg University. on the occasion of the SIGN conference.

space is constituted through social interaction between people and by interaction with their artefacts, social interaction itself is influenced by concepts of space. Architecture and space are, therefore, powerful media to create social relations. Comparing Hallan Çemi, Göbekli Tepe and Nevalı Çori, she concluded that the emergence of communal architecture is not a by-product of religious developments, but that it is a part of a new form of socialisation.

Nigel Goring-Morris (Hebrew University, Jerusalem) and Klaus Schmidt (DAI, Berlin) described the development of cultic structures in the Levant and Southeast Anatolia, with a special focus on their excavations at Kfar HaHoresh and Göbekli Tepe respectively. Whereas in the North huge communal buildings serve as manifestations and demonstrations of communal identities, in the Southern Levant more ephemeral structures, special burial sites in caves and remote places appear as social and ritual foci of these communities.

Fig. 3. The participants of the SIGN conference.

Considering the long sequence of basalt tools from the Palaeolithic through Neolithic times until the Chalcolithic in the Levant, Avraham Ronen (Haifa University) suggested that basalt tools not only have a functional but also a symbolic significance probably enhancing the status of those people who had the power or right to use them. But while the above mentioned ethnographic observations would favour male individuals as potential candidates for the accumulation of power, the basalt grinding tools rather hint to the processing of cereals and thus most probably to the domain of women. Basalt axes only appear during the PPNA. Whether these new tool types then indicate a change of the access to power according to gender remains an intriguing question.

Karina Croucher (University of Manchester) and Johanna Kranzbühler (University of Mainz) examined the role of the dead in the lives of the living. Croucher analysed the different kinds of treatment of the dead, and Kranzbühler focused on investigating familial relations between the individuals by the analysis of morphological teeth variations. Further on, samples of tooth enamel had been taken for the examination of strontium isotope ratios in order to gain information on migration and mobility within Natufian and early Neolithic societies.

The final discussion put an emphasis on how important it is to allow for high flexibility as a main characteristic of modern hunter-gatherer societies and to search for variance in prehistoric hunter-gatherers rather than to slip one ethnographic model over all prehistoric data. Chrischona Schmidt again underlined the importance of sharing as its own economical system and refuted the evolutionistic conceptions of hunter-gatherers as static and a-historical. Furthermore, a network analysis of sites is indispensable to fully understand in which domains sharing was practiced. As sharing is always intentional it can equalize social positions and wealth, but may also be a way of confirming or even establishing hierarchies. Future research and new perspectives may show how different sharing systems and reciprocity could be detected in archaeological data.

In this context, Hans Georg K. Gebel (Free University, Berlin) encouraged all archaeologists to concentrate more on the topic of the conference. According to the ethnographic data, for example, beside rituals, trance dancers and skilled hunters played a crucial role being able to accumulate prestige and wealth. Do archaeological data reflect this, too, or do they give evidence of different/ additional processes? Several participants mentioned the difficulties to find traces of emerging hierarchies in the archaeological remains. It seems even plausible that incipient hierarchies were masked deliberately in the material culture, as Marlies Heinz suggested. Nabil Ali and Avraham Ronen both pointed to small scale traditional villages, where everybody knows who has got the power, although it is not visible in the material culture at all. The significance and influence of mating networks on sharing remained another intriguing question to be considered intensively in the future.

Though the conference could only illuminate potentials of these new perspectives, by an interdisciplinary approach, a much deeper understanding of the social processes and their shifting sharing and reciprocity patterns during the Neolithisation might be gained. The meeting showed how fertile such a dialogue can be.

The papers of the conference will be published as a SENEPSE volume of ex oriente. Papers should be submitted by the end of June 2009.

The delicious catering, organised by the students of the Department of Near Eastern Studies, Freiburg, contributed largely to the success of the conference.

The conference was organized within the frame of the SIGN-project (Social Identities of early Neolithic Groups in the Near East), a two year long, post-doctoral project financed by the Landesstiftung Baden-Württemberg gGmbH and the Albert-Ludwigs University of Freiburg. Additional financial support for the conference was granted by the Department of Near Eastern Archaeology, Freiburg, and the Stiftung der Sparkassen.

The Global Diversity of Early Sedentism
German Archaeological Institute Workshop, Berlin, October 23-24, 2008

By Hans Georg K. Gebel
<hggebel@zedat.fu-berlin.de>

Organized by Norbert Benecke, Friedrich Lüth, Marcus Reindel, and Klaus Schmidt, assisted by Henny Piezonka, an international workshop on Sedentism: *Worldwide Research Perspectives for the Shift of Human Societies from Mobile to Settled Ways of Life* was held by Research Cluster 2 (www.dainst.org/index_8240_de.html) of the German Archaeological Institute in Berlin from 23-24 October, 2008. In the workshop's outline, the organizers stated that "the term 'Neolithic', when too strictly applied, does not do justice to the actual developments associated with sedentarization: the beginning of sedentism and the emergence of a productive mode of economy did not always coincide, and indeed the development could lead in contrary directions." The workshop was understood to follow "the need to undertake a comparative analysis of the general circumstances of sedentarization in the highly diverse natural and cultural environments of the Old and New World".

Indeed, since longer studies question the understanding that the origins of sedentism are related to emerging food-producing life modes (*e.g.,* recently the *World Archaeology* 38.2 issue, *Sedentism in Non-Agricultural Societies,* edited by Yvonne Marshall). The Berlin gathering assembled many examples of beginning sedentism outside food-producing subsistence regimes or Neolithic/early Holocene contexts. The examples again illustrated how much the Near Eastern Neolithic and sedentism research suffers from its paradigmatic understanding, still claiming a validity for other parts of the world; how much this is influencing or even obstructing such research on other sedentism types and centers of the globe; and how much we are in need to broaden our narrow Near Eastern Neolithic mind to recognize the complexity and regionality of Near Eastern sedentism beyond our Neolithic views. For Near Eastern Neolithic sedentism specialists it was a stunning and demanding experience to listen to the sedentism-origin reports from Central Europe (Jens Lüning), east-central Sweden (Lars Sundström), Egypt (Noriyuki Shirai), arid West Africa (Kevin C. MacDonald), South Africa (Detlef Gronenborn), China (Li Lui), Japan (Junzo Ushiyama), Mesoamerica (John E. Clark), and South America (Thomas D. Dillehay).

Yvonne Marshall introduced the topic with the question: *Can "mobile foragers" and "sedentary food-producers" remain proper objects of study in the light of mounting evidence to the contrary?* Hans Georg K. Gebel offered a Near Eastern perspective on sedentism. A "comparative analysis" of sedentism origins was far beyond what a two-day's gathering could handle, and so it had to remain a workshop presenting insights from scholars working in various regions around the globe. The planned proceedings will assemble these results on early sedentism, providing thus a base for the comparative research which should follow. It would be of great service to international sedentism research if Research Cluster 2 of the German Archaeological Institute would help this by organizing follow-up international workshops with increased time allotted for direct discourse. However, already the results of this workshop, in the shape of the forthcoming proceedings, will underline the imperative of comparative analysis the topic has. Sincere thanks go to the organizers who initiated this.

For the sake of looking beyond the end of our Near Eastern noses, we may summarize in following aspects of early sedentism research from other parts of the globe:

For Y. Marshall, recent research has made it clear "that plant and animal domestication, sedentism, new technologies such as pottery, and population growth do not constitute a package of changes which drive each other forward in the manner once envisioned by Lewis Henry Morgan and Gordon Childe. The new global picture is a highly regional one of fluid, multi-speed, even reversible change." Marshall questioned "the cornerstone belief that mobile-foragers enjoyed a fundamentally different worldview and relationship with the natural environment than sedentary food-producers." She illustrated the need for alternative views by the results on sedentism from her own research area (New Zealand, *ca.*1200 – 1800 AD).

H.G.K. Gebel stressed in his contribution about the Near Eastern perspective on sedentism that the sedentism debate for the Near East had suffered from a lack of definition frameworks and, since Childe, from ingredients of seminal world perceptions of individual scholars. Everywhere comprehensive sedentism concepts failed to work when applied to specific regional mixtures of biotic and abiotic resources and related socio-economic traditions, ignoring the polycentric character of the Neolithic evolution. He advocated the introduction of the territoriality concept when defining the various types of early Near Eastern sedentism (which includes the oasis sedentism as late as the 4th millennium BC which made the arid lands of the Arabian Peninsula subject of sedentary life), which would help to avoid dismissing the otherwise useful term 'sedentism'.

J. Lüning elaborated that the discovery of the La Hoguette culture in 1987 proved that there has not been a demographic and cultural "wave of advance" overpowering "the mentally surprised, helpless indigenous hunters and gatherers." For example, the Rhein Mesolithic people around 5700 cal. BC, that is 200 years before the onset of the Bandkeramic cultural invasion, had already become acquainted with Neolithic ideology, namely the "herder's Neolithic' of the La Hoguette culture. The majority stuck to their "Mesolithic" life modes during these two centuries, getting "Bandkeramicised" only

around 5500 cal. BC. There is evidence "that the population of the earliest Linearband pottery culture consisted largely of "converted" local Mesolithic people. Lüning put forward the hypothesis that religious motives played an important role (new types of idol figurines) in this process. Regarding territoriality, the new settlement system gives evidence for strong supra-local clans and cultural expansion because of their competition.

For his working area, east-central Sweden, L. Sundström stressed the role of social change in the transition to sedentary life modes. The geographical and social abandonment of mobile life jeopardized the social ideology of the hunter-gatherer societies. He presented a simplified theory on social reaction to such change, which allowed one to "discuss the materiality of the Early Neolithic as an externalised and idealised social ideology with historical roots".

N. Shirai asked: "Sedentism before farming or farming before sedentism?" referring to the lack of clear evidence for sedentary life in the earliest Neolithic farming culture in Egypt. He stated that foragers' mobility strategies can be viewed as a continuum between moving resources exploited at distant locations to residential bases and moving residential bases close to resource locations, and between individual move and group move. Discussing this with regard to the central place foraging model and the results of his own field research, the thought was presented that sedentism emerges under a condition of local resource abundance in a context of regional scarcity. In addition, the traveler-processor model was discussed for his archaeological and ecological records from the well-watered regions of Egypt in the Early-Middle Holocene, and whether sedentism emerged before or after the beginning of farming by adopting Levantine domesticates.

K.C. MacDonald focused on the transition to sedentism in arid West Africa (modern Mali and Mauritania), and claimed that the "archaeological definition of sedentism in this region requires careful review and critique." He presented results on the settlement organization of relatively substantial (> 10ha) Ceramic LSA (Neolithic) sites that date as early as the third millennium BC, describing them as being either permanent "'generalized' agro-pastoral-fisher occupations or the semi-sedentary foci of specialized more mobile societies." Special attention was given to R.J. McIntosh's "Pulse Theory" for the Ceramic LSA settlement dynamics at the margins of the Middle Niger.

D. Gronenborn reported that sedentism in South Africa is a late phenomenon. For example, "in the western part of the sub-continent sedentism only occurs during the 20th century in the course of post-colonial shifts in land-use patterns. In the eastern regions migrating iron-using Bantu-speaking groups established the first agro-pastoralist settlements during the first millennium AD." Complex chiefdom-scale societies evolved in the Limpopo Basin towards the end of the first millennium AD (initiated by contacts with Arab civilizations), reaching "their climax in the metropolis of Great Zimbabwe during the 14th century AD," while "in the dry western regions of South Africa a simple and highly mobile forager economy persists until the present day."

Li Liu stated that the emergence of sedentism in China coincided with the early Holocene climatic optimum in China. "The development of sedentism was a long process with great temporal and spatial variation in China, and was closely associated with the technology of processing and storing (pottery!) of starchy foodstuffs, particularly nuts, tubers and cereals, mostly as wild plants. Pigs, dogs, rice and millets (foxtail and broomcorn) were domesticated, but these domesticates did not play an important role in subsistence strategies during the early Neolithic period (c. 7000-5000 BE)." Seasonal foraging localities co-existed with permanent communities, and the use of pottery and an advanced diversity in material culture was not necessarily associated with sedentism. "Fully developed sedentary Neolithic farming villages became much more prevalent cross-regionally after 5000 BC."

J. Uchiyama *(Reluctant Neolithisation? Resource management and landscape diversity in Jomon, Japan)* explained that the standard definition of neolithisation and sedentism does not conform with the hunter-gatherer to agrarian economy transition in East Asia's coastal areas. For example, in the Japanese archipelago "pottery and polished tools appeared already around 16,000 - 13,000 BP, while a sedentary life style only commenced around 9,000-6,000 BP. Small-scale plant cultivation and animal (wild boar) husbandry occasionally occurred from 6,000 BP onwards." However, these developments did not result in a shift to sedentary agricultural complexes, which only became established through the "rice paddy complex" from the continent around 3,000 BP with its "irreversible economical, social and cultural changes." This delayed introduction of agriculture may indicate a cultural "reluctance," for which Uchiyama sees a reason – among others – in "a change in worldview during the Jomon period" (archaeologically visible through shifts in landscape use, such as the disappearance of shell middens, occurrence of wild boar husbandry). The concept reviewed the neolithisation concept for Japan.

J.E. Clark illustrated that the origins and causes of sedentism in Middle America are poorly investigated, and stated that the best indicators for sedentism in this part of the world are villages and ceramics, with the earliest villages and pottery dating about 1900 cal. BE, with most regions "populated by sedentary people who practiced the basic Neolithic arts, including maize agriculture, around 1000 BC. Mesoamerica's first rank and stratified societies appeared centuries before this time." Clark considered sedentism as a possible cause for the emergence and rapid spread of rank and stratified societies in Mesoamerica, and he discussed the most reliable archae-

ological evidence for the transition from foraging to sedentary life modes in the region (3000-1000 BE). Questioning the role of maize agriculture, population pressure, warfare, commerce, etc., for the origin of Mesoamerican civilization, Clark noted that the "factor of the lot in causing hereditary social inequality and, consequently, the first steps towards true civilization based on social stratification and state government. Sedentism, in turn, first occurred among tropical lowland societies with ready access to swamp resources."

T.D. Dillehay reported that the Central Andes and parts of lowland South America "are one of the few areas of the world where the initial pulses toward pristine or independent civilization developed early, between at least 9,000 and 7,000 yrs B.P." Complementary mobility and sedentism allowed societies to simultaneously maximize the exploitation of multiple resource zones and to aggregate socially. Between 9,000 to 6,000 yrs. B.P, first domestications of plants and animals allowed people to live in complementary sedentary communities with a diet deriving from a mixed use of agricultural, pastoral, and marine resources. As a result, significant social and cultural changes ensued within a short time.

Interpreting the Late Neolithic of Upper Mesopotamia
Leiden University, March 26-28, 2009

(cf. *Neo-Lithics* 1/08, p. 44)

The final date for submitting abstracts for papers has been closed. The program includes some 40 presentations, exploring a wide range of topics. A list of speakers and abstracts is available online on the conference website:
www.interpretingthelateneolithic.nl

Survey on Current MA and PhD Research

Neo-Lithics is ready to publish constantly summaries/abstracts on current MA and PhD research related to the Middle Eastern Neolithic, or other research outlines, in order to promote exchange of information and cooperation in Southwest Asian Neolithic research. Often information on ongoing thesis research is not generally available.

We kindly ask candidates (and thesis supervisors to encourage their candidates) to submit outlines and summaries/abstracts for publication. We accept both work reports of unfinished thesis as well as summaries of completed thesis. In addition, we accept to announce thesis titles accepted by academic institutions in order to document "occupied" topics.

The information should consider the following details: 1) name of candidate, 2) title of thesis, 3) institution and supervisor, 4) abstract/summary/outline, 5) address of contact (snail mail, email, tel, fax)

Submissions should be directed to hggebel@zedat.fu-berlin (co-editor of *Neo-Lithics*).

Hans Georg K. Gebel and Gary O. Rollefson

Erratum

In *Neo-Lithics* no. 1/08 two errors occurred on p. 38 (in Bernbeck, Pollock & Fazeli Nashli's contribution on Rahmatabad: Dating the Aceramic Neolithic in Fars Province):

Table 1, line 1, must read: Lab date bp 7945 +/**- 45** (for the sample KIA 33174).
In the right column lines 1-2 of p. 38, the text must read: "the results indicate a span of time from the very end of the **8th** through the first third of the **7th** millennium BC."

Neo-Lithics online

Back issues of *Neo-Lithics* online available

Back issues of *Neo-Lithics* may be downloaded from the *ex oriente* website www.exoriente.org
pdf files are available for nos. 1/94 to 2/02 of our newsletter.

The Editors

Thank you, Jürgen

In 2003 Jürgen Baumgarten joined the editorial board of *Neo-Lithics* as the managing editor. During the five years of his term, the editorial and technical quality of our newsletter improved considerably, as did the care in communication with the authors. *Neo-Lithics* became a more attractive place to publish, and the number of subscribers increased. We and the readers deeply thank Jürgen for his engagement and the advice he gave during all these years. With this issue's work, Jürgen is leaving us. We are sure that he will not leave the Near Eastern Neolithic. We wish him all the best, including for his project to write about the fate of the vanishing pastoral people in the Beidha area and for experiencing herding himself in the Alpine mountains of Austria and Switzerland.

PS. The managing editorship for the next 1-2 issues of *Neo-Lithics* will be back in the hands of H.G.K. Gebel, before new managing editors will take over.

The editors of *Neo-Lithics* in the farewell photo (January 2009, Gary Rollefson, Jürgen Baumgarten and Hans Georg K. Gebel) (photo by Bill Finlayson).

Masthead

Addresses of Neo-Lithics

Submissions: NEO-LITHICS, Prof. Dr. Gary O. Rollefson, Department of Anthropology, Whitman College, Walla Walla, WA 99362, USA. Email: rollefgo@whitman.edu
NEO-LITHICS, Dr. Hans Georg K. Gebel, ex oriente e.V., c/o Free University of Berlin, Hüttenweg 7, 14195 Berlin, Germany. Fax 0049 30 98 311 246, Email: hggebel@zedat.fu-berlin.de

Orders: ex oriente e.V., c/o Free University of Berlin, Hüttenweg 7, 14195 Berlin, Germany
Fax 0049 30 98 311 246 · Email: ex-oriente@gmx.net · Web: www.exoriente.org

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

Submission Guidelines

Text formats: in WORD; text, bibliography and caption styles: *cf.* current issue of *Neo-Lithics*; illustration formats: high resolution eps or tif.files – no illustrations embedded in the WORD text –, originals prefered (illustrations are required to the Berlin addresses, as well as hard copies of texts); please, keep bibliographic references to the utmost minimum necessary.

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