NEO-LITHICS 2/11

The Newsletter of Southwest Asian Neolithic Research

Contents

Editorial

This belated issue allowed us to consider events of early 2012, including an obituary to Angela von den Driesch, the outstanding archaeozoologist who laid much of the foundations on which studies of Neolithic animal subsistence rest.

Thanks to Ferran Borrell, Juan José Ibáñez and Miquel Molist for arranging and hosting the 7th Conference on PPN Stone Industries that took place in Barcelona in February 2012. It documented the most prosperous developments of this research field (*cf*. this issue), witnessing fundamental shifts of research agendas and topics, regional foci, and generation.

Increasing regional bloodshed and supra-regional tension in the Middle East paralyze our hearts and minds. While mourning and being at a loss for words, some of us try to manage by doing business as usual, while others question the role and meaning of prehistoric research in the face of these monstrous and outrageous developments; some reflect or modify their emotional engagement and formalties; some prefer to remember the good old times … This all stays introverted, and it is difficult to share our mourning, fears and weakness. We who love the lands and people of the Middle East, or are part of them, have lost our voices.

Hans Georg K. Gebel and Gary O. Rollefson

in memoriam

Angela von den Driesch

Professor emeritus and former director of the *Institut für Paläoanatomie, Domestikationsforschung und Geschichte der Tiermedizin* at the Ludwig-Maximilians-University, Munich

An Obituary by Cornelia Becker

The practise of archaeozoology was second nature to Angela von den Driesch – it was her profession and more than that her vocation. It is therefore easy to suppose that it must given her great pleasure to be able to conduct research and scientific writing until the last weeks of her life. The day in December 2011, when we last talked on the phone, was a moment that underlined this quite clearly. Angela von den Driesch jumped straight away into the matter we had to discuss: how and when to finish a joint archaeozoological project that would add another fragment of knowledge to the still evolving and compelling question concerning men-animal relationships in prehistory. Her focus at that moment was on the exploitation of fish at a Phoenician trading post off-shore Morocco (von den Driesch, almost finished).

But it was not only in the field of fish anatomy that Angela von den Driesch was recognised as one of the most experienced analysts out there, her knowledge of vertebrates was second to known, this included not only their skeletons, but also the biological context of these animals in all their complexity. With comparable passion, she was an osteologist, zoologist, ecologist and a specialist in the history of veterinary medicine.

Angela von den Driesch enjoyed an enviable career arc that began with her work in 1965 at the Institute for Palaeoanatomy under the direction of the late Joachim Boessneck. For all the women's liberation the 1960's was not an easy time for female. Thus, it is even more admirable that Angela von den Driesch in her early years not only acted as a pioneer in the genre of archaeozoology, but also started seriously building up an osteological laboratory and a comparative bone collection, naturally with the tacit help of her chef and colleagues. Together, over the years they assembled one of the largest bone collections worldwide. Yet in the enormous repertory of fish skeletons it was Angela von den Driesch who was the driving force. She also felt a great responsibility towards preserving prehistoric bone finds, too. Both these collections of skeletal material are now the foundation of the recently founded ArchaeoBio-Center at Munich.

At no time in her life did Angela von den Driesch feel the need to observe professionally mandated boundaries, always pushing at the seams for the good of the discipline. Well-known at Munich University and beyond, even during politically fraught periods she was successful in safeguarding the needs and achievements of the Institute, at the beginning as an assistant to Boessneck and after 1993 as the director of the institution herself. Although in 1999 Joris Peters took the reins there, the word "retirement" was never heard from her own lips. From her mid 60s onwards Angela von den Driesch still enjoyed a fruitful and vigorous late period of research and writing. Old age did not mellow her as far as her scientific ambitions were concerned – on the contrary. She braved and overcame the effects of some severe illnesses and some physical distress. Yet these were only unwelcome interruptions that her iron resolution helped her overcome. Reflecting, she once told me that these inconveniences were the ultimate handicaps for a scientist who still had plenty to do. An archaeozoological project in Bolivia was to be her next adventure – unfortunately things did not pan out that way.

The scale of her work is incredibly large, her interests remarkably varied: Under her direction, more than 100 projects including archaeozoological research were carried out, these were located all over Europe, Eurasia and Africa. One would be hard-pressed to find an archaeozoologist who could match the variety of quite simply exquisite and precise articles and books she produced over the last four decades (see Becker *et al.* 1999; online). Many of her papers were thought provoking and you had to admire her for her ability to turn against trivial nonsense or pseudo-profound commentaries on biological matters, even if they came from notable scientists. Her character was singularly

free of any career aspirations, self-importance and aggrandisement; in turn scores of young students were trained and nurtured by her. Even archaeologists were not free of a debate with her on the reliability of archaeological data or a possible overexploitation of resources in prehistoric periods, to name but two topics she was preoccupied with. She was a passionate advocate on ecological, economic or historical issues and very successful in crossover discussions.

Although she undertook a variety of archaeozoological analyses on material from pre- and proto-historic sites in Europe, she was always primarily attracted by research in the Near East. Yet how did all this begin? Was it by chance or was it her destiny that in her young career she worked on material from the Iberian Peninsula and that this took her Eastwards? In 1970 she published an analysis about the history of the rabbit from Spain, followed by many other contributions about the faunal history of this region. After that, her path to glory led her ever Eastwards following backwards the direction of the first wave that the Neolithic package once pursued. Therefore from Spain, Angela von den Driesch‘s field of research turned to sites along the Italian and Greek coasts and ended up in Turkey, Syria, Jordan and beyond. Of special interest and focus was the region between Central Anatolia and the Southern Levant. Korucutepe, Norşuntepe, Tell Heşban, Demirçihüyük, Fikirtepe, Tepeçik, Pergamon, Bogazköy-Hattuşa, Hassek Höyük, Munbaqa, Tell Halawa, Tell Habuba Kabira, Sirkeli Höyük, Körtepe, Ain Ghazal, Ba’ja and Göbekli Tepe are archaeological sites that will forever resonate with her name. One of her main interests touched upon animal domestication during the Pre-Pottery Neolithic and the significance of this long process for cultural development. Beyond that core area of research, a large number of other archaeological sites fell under the remit of her continuing work, projects to which she always applied herself with exacting discipline and rigor, be it on the Arabian Peninsula, in Iraq and Iran, in Southern Africa, Nepal and Cambodia, in the Gobi Desert and above all, in Egypt.

Along the Nile valley, a long list of archaeological sites of varied natures where researched in terms of their animal bone material. Angela von den Driesch worked on this narrative with a number of authors, most often jointly with J. Boessneck, but also with younger colleagues from the Institute. She not only set a high bar concerning the handling of faunal material, but also used written and pictorial sources, which are particularly rich in Egypt, to transform osteological results into a vivid multi-facetted scenario of ancient life-ways in this region.

This kind of multi- and trans-disciplinary approach was typical for Angela von den Driesch, a method she also applied to her research in the Levant and Central Anatolia. A characteristic feature of hers was that of communicating the enormous potential of archaeozoological research to everybody. And through her deeply ingrained scientific knowledge and her particular charm she could fascinate people, be it a specialist or amateur. Her publications in various languages (English, French, Spanish and Dutch) serve as evidence of this talent. Throughout all these activities in different countries, she was convinced that the most lasting effect of her work consisted in good scientific collaboration and the sustainable transfer of knowledge.

I cannot begin to list the pantheon of colleagues, students and friends who will mourn her passing, but it would most certainly include hundreds of scientists worldwide. Angela von den Driesch will be remembered for her curiosity in unexplored areas, her search for contextual background information and her efforts in bringing to light the importance of archaeozoology to the greater public. To have been able to live this until her last moments surely might stand as a lasting reconciliation to an extremely rich life.

Angela von den Driesch indeed was a revered and highly respected member of our archaeozoological community. She died last January, the 4th, halfway through her 77th year, followed closely by her husband who just passed away some months ago ending a connection and mutual devotion of decades.

Berlin, the 6th February 2012

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New Excavations at Wadi Madamagh, Petra Region

Deborah I. Olszewski and Maysoon al-Nahar

Introduction

During the summer of 2011, the Western Highlands Early Epipaleolithic Project (WHEEP) undertook new excavations at the rockshelter site of Wadi Madamagh in the Petra Park (Fig. 1). The site was originally excavated by Kirkbride in 1956, when she opened two trenches that ran roughly East-West and which were oriented perpendicular to the backwall of the rockshelter. Her Trench A was about 2 meters long and *ca.* 1.5 meters wide; it was separated from Trench B (to the north) by a baulk of about 1 meter. Trench B was considerably longer, at approximately 6-7 meters long as it ran from the rockshelter backwall down the slope to the edge of the wadi cut. It also was originally about 1.5 meters wide[1]. In the case of both of Kirkbride's trenches, she notes that the deposits of the trench walls were subject to collapse during excavations, making them wider than she had intended (Kirkbride n.d.). Also complicating this is the fact that Kirkbride did not backfill either trench and with exposure to the elements over several decades, the walls of the trenches have continued to slump and erode, as has the baulk between them. The condition of Trench B is particularly poor.

In her brief publication, as well as her recollections (Kirkbride 1958, n.d.), she describes the archaeological remains at Wadi Madamagh as Epipaleolithic, basing her description on the presence of narrow, double arched backed bladelets which she notes are similar to the Kebaran tradition then known from sites in Palestine. This microlithic component undoubtedly was one reason why she made no chronological distinctions between lithic assemblages from her various stratigraphic levels in the two trenches, considering them to all belong to the same occupation. Her trenches were situated to expose what she identified as major hearth areas, and her notes and stratigraphic profiles and descriptions clearly distinguish levels that were fire-reddened and/or ashy deposits. She also observes that faunal materials greatly outnumbered lithics. Aside from her short publication in 1958, Kirkbride made no further study of the lithics or fauna, although Perkins (1966: 66-67) does mention the Wadi Madamagh fauna (primarily *Capra*, but also *Bos*, *Gazella*, and *Equus*) in Kirkbride's report on her excavations at the Neolithic site of Beidha, which also is in the Petra region. Contextual information for Kirkbride's Wadi Madamagh collections was later compromised by flooding in rooms where they were stored in Amman, although some bags of lithics did retain enough information to be useful in a later study by Brian F. Byrd[2].

For nearly 30 years, the site remained as Kirkbride left it after her excavations. In 1983, however, Wadi Madamagh was reinvestigated by Daniel Schyle, who placed a small test unit (70 cm x 20 cm x 1 m deep) in the south wall of Kirkbride's Trench A, and briefly reported the results in an article discussing several Paleolithic and Epipaleolithic sites in the Petra region (Schyle and Uerpmann 1988: 47-52). Although the lithics from Schyle's test unit are not numerous, they include materials from at least two distinct occupations. The upper materials (Levels A1 and A2) are Early Epi-

Fig. 1 Overview of Wadi Madamagh looking southwest. Sandbags placed on slope are in the upper portion of Kirkbride's Trench B, which extends downslope to the right of the juniper trees. Person on the left in the rockshelter is in Trench A and working in the area south/southwest of this trench. Individual excavating at center of photo is working in Units D93/E93.

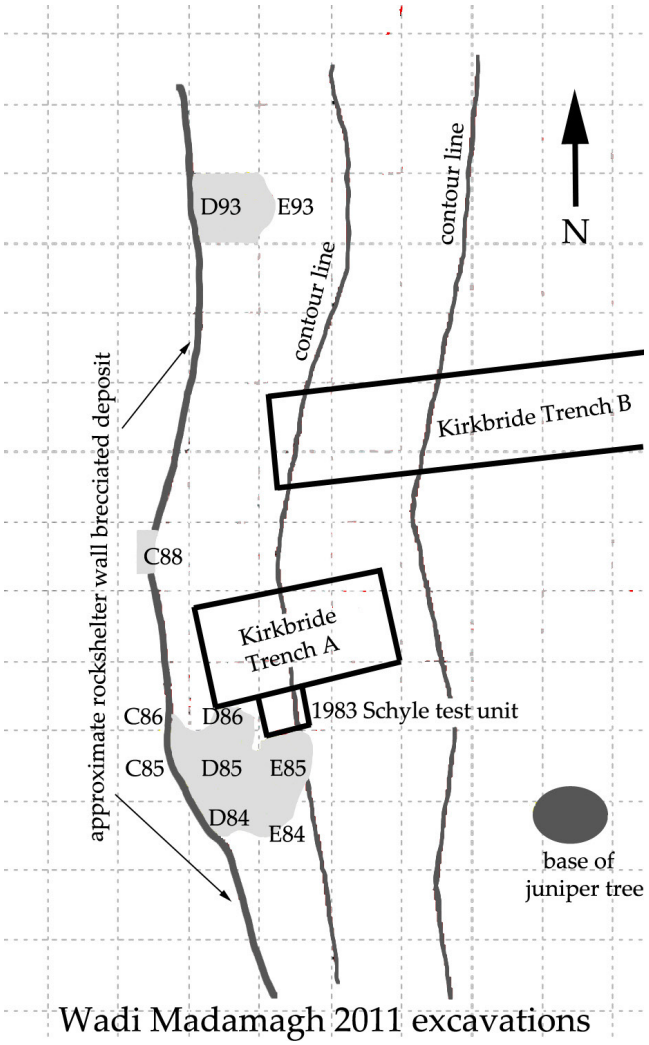

Fig. 2 Gridded plan view of Wadi Madamagh showing the WHEEP 2011 excavation areas/units, as well as the approximate boundaries of the Kirkbride trenches and the Schyle test unit. Grid is in 1 m increments.

paleolithic (Nebekian), with a few microburins and backed bladelets. Lithics from the lower levels of the test unit (Levels A3–A5, B, C, D1–2, and E1–2) include inversely retouched bladelets. One radiocarbon date on bone (*ca.* 14,300 uncal bp) was obtained for the upper deposits, but it is clearly chronologically too late given other Nebekian sites in Jordan, which date to between about 22,000 to 15,500 uncal bp (25,000 to 19,000 cal BP) (*e.g.,* Byrd 1994; Olszewski 2003)[3].

The goal of the Western Highlands Early Epipaleolithic Project (WHEEP) at Wadi Madamagh in the summer of 2011 was to investigate the Early Epipaleolithic occupation(s). We hoped to recover not only lithics and fauna, but also wood charcoal for radiocarbon dating, as the bone dates obtained by Schyle in 1983 were too young.

The WHEEP 2011 Excavations

One of the difficulties of excavating at Wadi Madamagh is the apparently limited portions of the site remaining after the 1956 Kirkbride excavations, as well as subsequent erosion and collapse of the walls of Kirkbride's Trench B and the north wall of her Trench A. Upon our examination of the site, however, a small area in the north end of the rockshelter (along the rockshelter backwall) appeared to preserve nonbrecciated sediments at an elevation higher than the deposits remaining between Kirkbride's Trenches A and B and the area south of Trench A (Fig. 2). This northern part of the site seemed to be the best possibility for recovering Nebekian occupation materials. Moreover, as noted by Kirkbride and others over the years, Wadi Madamagh does preserve brecciated deposits adhering to the back wall of the rockshelter, in which two distinct natural layers can be seen. These also are elevationally high and appeared to be a second possibility for materials from the Nebekian Early Epipaleolithic occupation. Finally, we decided to excavate the upper portions of the area south/southwest of Kirkbride's Trench A in order to better understand the occupation that appears to have immediately preceded the Nebekian (as per Schyle's observations in Schyle and Uerpmann 1988: 49). We also sought to clarify if this earlier occupation should be termed Early Epipaleolithic, Late Upper Paleolithic, or a transition between the two.

North Area

Most of Unit D93 and a small portion of E93 were excavated (northern portion of the site); excavations were limited by the rockshelter back wall in D93 and the fact that sediments in E93 were present only in the western portion of the unit, as a steep slope extends eastwards from this point. Combined, the area excavated was about 1 m². The stratigraphy here is relatively uncomplicated; bedrock was not reached. A thin topsoil (Level 1) was present in a portion of the units; below this, there are two major natural layers (Levels 1b and 2), along with three small areas of thin, slightly different colored sediments (Levels 1a, 2a, and 2b). Generally speaking, lithics are more common than fauna, with nearly all microliths comprised by backed bladelets (mainly attenuated curved [double arched backed] bladelets). Microburins also are common. A few inversely retouched and Ouchtata bladelets are present, as is one Qalkhan point. One of the most significant discoveries is a large boulder with a mortar, *in situ* in Level 2 (Fig. 3).

Breccia Area

Some 20-30cm of brecciated deposits are adhering to the rockshelter back wall along most of its length. In some portions, particularly south of Kirkbride's Trench B, there are two distinct colors of breccia. Unit C88 was placed to investigate both these layers, and was dug from the exterior of the deposit towards the rockshelter back wall. Thus, it is in essence a vertical rather than a

Fig. 3 The Nebekian boulder mortar in situ in Level 2 of Unit D93 at Wadi Madamagh.

horizontal unit. Its dimensions are roughly 55 m vertically, 53 cm North-South, and 10 cm from the exterior toward the rockshelter wall. The rockshelter wall was not reached. The upper portion (Breccia A) has a high ash component and a pinkish grey color; the underlying Breccia B is a yellowish red deposit that seems to contain relatively more fauna compared to lithics.

Lithics from Breccia A are Nebekian and include a number of attenuated curved backed bladelets and microburins. Microliths from Breccia B are much fewer in number, and are inversely retouched.

Area South/Southwest of Kirkbride's Trench A

Exposed sediments in the area south and southwest of Kirkbride's Trench A appeared to offer good potential for the recovery of both Nebekian and earlier occupations, as the deposits here were slightly higher than other areas south of Trench A. Due to constraints (the rockshelter back wall, the south face of Kirkbride's Trench A, the test unit dug by Schyle into the south wall of Trench A, and the limits of the remaining higher deposits), we excavated portions of several units (D84, E84, C85, E85, C86, and D86), as well as one full 1 x 1 m unit (D85). In total, the combined excavation area here was about 2 m².

The stratigraphy in this portion of the site is relatively complex, with color and texture differences occurring with some frequency across our excavation units. These likely represent a variety of contexts, including ash dumps, hearth areas, layers that are bone beds, and so forth. In some cases, we designated some of these as both distinct layers and as features, although it is difficult to reconstruct if these are *in situ* features such as actual hearths, or simply dumping events from hearths that are no longer present (perhaps excavated by Kirkbride in Trench A). In total, we identified and excavated 16 levels, but each of these tends to be present only in a portion of the area we excavated. There also is extensive rodent burrowing in one level (5b) and some rodent tunneling in other levels (4, 6 and 6a). Fortunately, the rodent activity is quite distinctive and was excavated and screened separately from the archaeological levels.

Occasional microburins and backed microliths occur in several of the levels in this portion of the site. However, most microlith tools are inversely retouched, including Dufour bladelets.

Discussion

The WHEEP excavations are based on digging in arbitrary 3cm levels within natural levels in roughly 50 cm x 50 cm areas of units. All materials larger than 2.5 cm were point provenienced with a total station. Sediment from each 3 cm level was collected as a "bucket" and point provenienced to the center of the 50 cm x 50 cm area excavated. The sediment was sieved through 2 mm mesh screens and all relevant cultural materials collected and bagged for analysis. We also collected sediment samples for flotation, pollen, phytolith, and geoarchaeological analyses, as well as sediment and some lithics for residue studies. Small charcoal samples were recovered from several levels, which will help place the occupations chronologically. Profiles of Units C88 and D93/E93 were drawn, but because we excavated horizontally across units in the area south/southwest of Kirkbride's Trench A, level tops for each natural level were shot in using the total station and a plan view of the levels present was drawn when excavations were terminated at the end of the field season.

Wadi Madamagh has materials from at least two distinct occupations. These are the Nebekian Early Epipaleolithic and an earlier occupation characterized by inversely retouched microliths. As noted by Kirkbride, faunal materials are very abundant, usually much more frequent than the lithic materials, although our impression is that fauna outnumbers lithics particularly in the pre-Nebekian occupation deposits. We recovered and analyzed 13,894 chipped stone lithics, and based on this are able to provide a preliminary correlation of the levels across the rockshelter site.

Correlation of Levels

Breccia A in Unit C88 and all the levels excavated in Units D93 and E93 correspond to the Nebekian occupation of the rockshelter. These deposits are elevationally higher than the remaining sediments elsewhere at the site, with the exception that brecciated deposits do extend higher up the rockshelter back wall. It is probable

	pre-Nebekian		Nebekian	
Debitage	**N**	**%**	N	%
Blades	283	3.4	305	6.2
Bladelets	366	4.4	326	6.6
Flakes	1192	14.2	420	8.5
Small Bladelets (<25mm)	741	8.9	436	8.8
Small Flakes (<25mm)	5146	61.7	2822	57.4
Burin Spalls	37	0.4	19	0.4
Microburins	14	0.2	97	2.0
Shatter	**564**	**6.8**	**494**	10.0
Total	**8,343**		**4,919**	
Ground Stone	-		1	
Mineral (hematite)	2		-	
Manuport	7		1	
Total	**8,352**		**4,921**	

Table 1 Debitage, Ground Stone, and Manuports from Wadi Madamagh.

	pre-Nebekian		Nebekian	
Cores	**N**	**%**	**N**	**%**
Blade				
single	2	1.2	3	6.9
Bladelet				
single	12	7.4	12	27.9
opposed	1	0.6	1	2.3
ninety-degree	4	2.5	2	4.7
subpyramidal	2	1.2	1	2.3
pyramidal	1	0.6	-	-
Flake				
single	12	7.4	2	4.7
opposed	9	5.6	1	2.3
ninety-degree	2	1.2	-	-
subpyramidal	3	1.8	-	-
pyramidal	1	0.6	-	-
subdiscoidal	1	0.6	-	-
multiple	4	2.5	1	2.3
core-on-flake	12	7.4	1	2.3
tested	3	1.8	1	2.3
Mixed				
single	11	6.8	2	4.7
opposed	2	1.2	2	4.7
ninety-degree	2	1.2	2	4.7
subpyramidal	1	0.6	1	2.3
multiple	2	1.2	1	2.3
tested	1	0.6	1	2.3
Core Fragment	74	45.7	9	20.9
Total	**162**		**43**	

Table 2 Cores from Wadi Madamagh.

that most of these upper brecciated deposits correspond to the Nebekian occupation here.

The stratigraphy of the area south/southwest of Kirkbride's Trench A yielded a few lithics typical of the Nebekian, although it is not clear if this is because there is still a small amount of these deposits here (particularly Levels 1 and 2), or if this is the result of intrusive elements due to erosion of the brecciated deposit on the back wall or the extensive rodent activity in some of the levels. Generally speaking, the levels in Units D84, E84, C85, D85, E85, C86, and D86 correspond with Breccia B in Unit C88, although there is not a one-to-one match of the complex stratigraphy in these units to Breccia B. As noted elsewhere, these levels are a pre-Nebekian occupation with inversely retouched microliths.

	pre-Nebekian		Nebekian	
Tools	**N**	**%**	**N**	**%**
Scrapers	25	10.6	7	3.6
Burins	13	5.5	6	3.1
Backed Pieces	-	-	3	1.6
Perforators	-	-	1	0.5
Truncations	-	-	2	1.0
Geometric Microliths	3	1.3	10	5.2
Nongeometric Microliths	137	58.3	141	73.4
Special Tools	7	3.0	3	1.6
Notch/Denticulates	30	12.8	6	**3.1**
Retouched Pieces	16	6.8	13	6.8
Multiple Tools	2	0.8	-	-
Core Tools	1	0.4	-	-
Tanged Piece	1	0.4	-	-
Total	**235**		**192**	

Table 3 Tools from Wadi Madamagh.

Description of Lithics

Tables 1, 2, and 3 show the debitage, cores, and tools recovered during our excavations at Wadi Madamagh. These have been divided into Nebekian and pre-Nebekian occupations, although it is possible that the pre-Nebekian might contain subphases, particularly if the lower deposits (not excavated by us) are included. There also are some subtle raw material differences between the two occupations, with the Nebekian including somewhat more phosphatic flint (6 % compared to the 4 % of the pre-Nebekian, which focuses slightly more on chalcedony [*ca*. 39 % compared to the Nebekian 31 %]. Both occupations primarily use fine flint, much of which trends toward translucency.

The Nebekian Occupation

Chipped stone lithics from the Nebekian occupation of Wadi Madamagh total 5,154 pieces. Not including the small flake component (< 2.5 cm), blades, bladelets, and small bladelets are about twice as frequent as flakes (see Tab. 1). All but two of the microburins are regular types, with the two exceptions being instances of Krukowski microburins. Use of the 2 mm mesh screens allowed for the recovery of quite tiny small flakes, which

comprise nearly 60 % of the debitage assemblage. As noted above, one mortar boulder was found in situ in Level 2 of Unit D93.

As might be expected from the composition of the debitage, the cores are predominantly blade/bladelet types (see Tab. 2). Most of these are single platform cores, typical of Epipaleolithic occupations elsewhere in Jordan.

The tool component is dominated by nongeometric microliths (see Tab. 3); excluding backed fragments, about 24 % of these are attenuated curved (double arched backed) bladelets, with an additional 11 % curved backed bladelets. There also are about 6 % inverse/Dufour bladelets and 4 % Ouchtata bladelets (in both cases, all these, except one Ouchtata from Breccia A, were recovered from Unit D93). Other microliths include examples of backed and truncated, pointed, blunt, and truncated bladelets, as well as a few la Mouillah points and one Qalkhan point. All of these types are common to Early Epipaleolithic assemblages, with the combination of microburin technique and attenuated curved backed bladelets being especially characteristic of the Nebekian Early Epipaleolithic (Olszewski 2006, 2011).

There are 94 burnt lithics, not including instances of burnt small flakes, small bladelets, and shatter. This is not surprising given the extensive evidence for hearths, ash deposits, fire-cracked rock, and fire-reddened sediments, as well as burnt faunal remains at the site.

The Pre-Nebekian Occupation

Chipped stone lithics from the pre-Nebekian deposits in the units south/southwest of Kirkbride's Trench A and from Breccia B in Unit C88 include some 8,740 pieces. As can be seen in Tables 1 and 2, this occupation is somewhat more flake-oriented. There are a small number of microburins (mostly regular microburins) present; nearly all are from Levels 1 and 2 in this area of the site (two are from Breccia B in Unit C88).

Among the tool component (see Tab. 3), nongeometric microliths are quite frequent. Excluding the five unidentifiable fragments, 22 % are twisted Dufour bladelets (mainly from Levels 1 and 2), 55 % are nontwisted inversely retouched, including both bladelets and small flakes [66 % of these nontwisted inversely retouched microliths are from Levels 4, 4a, 4b, 4c, 4d, 5, and 5b). A small number of Ouchtata bladelets are present, as are some backed types such as pointed, truncated, and backed and truncated. There also are a few probable intrusive geometric microliths.

Other notable features of the pre-Nebekian occupation are its slightly more frequent endscrapers, burins, and special tools (mainly single sidescrapers). Among the endscapers are flake, circular, and denticulated types. There are 49 burnt lithics (not including small bladelets, small flakes, and shatter), a somewhat smaller presence than might have been expected given the hearth related deposits. Quite interestingly, we recovered five lithics that appear to be patinated Middle Paleolithic flakes (one piece is a Levallois flake) reused during this pre-Nebekian occupation as cores, sidescrapers, and a notched flake. Finally, we also recovered two pieces of hematite in the pre-Nebekian (Levels 4a and 5b), which Kirkbride also remarked as present in her excavations at the site.

Summary

The summer 2011 excavations (about 3 m² total) by the Western Highlands Early Epipaleolithic Project at Wadi Madamagh in the Petra Park yielded information crucial to refining observations made by Diana Kirkbride during her 1956 excavations here. She described the materials as homogeneous Epipaleolithic, but as noted by the 1983 test conducted by Daniel Schyle, there are differences in the lithic component between various levels. The WHEEP research this summer confirmed Schyle's impressions of the site and provides data for discerning between an Early Epipaleolithic Nebekian occupation and a pre-Nebekian use of the rockshelter. Both occupations are similar in having an abundant microlith component in the lithic assemblage, but the Nebekian is characterized by attenuated curved backed bladelets made using microburin technique, while the pre-Nebekian yields mainly twisted Dufour and nontwisted inversely retouched bladelets (and inversely retouched small flakes). Both phases also yielded an abundant faunal assemblage, which is currently under study, as are pollen, phytolith, and geoarchaeological samples.

It is too early to definitively state if the pre-Nebekian use of Wadi Madamagh should be classified as Early Epipaleolithic or as Late Upper Paleolithic. Results from the specialists' studies of the animal bones and environmental context should aid in this determination, as will obtaining radiocarbon dates from the small charcoal samples that were recovered from a variety of the levels identified at the site. Of particular interest was the recovery of a ground stone boulder mortar, which was found *in situ* in a Nebekian level in Unit D93 in the northern portion of the site. Such instances of in situ ground stone during the Levantine Early Epipaleolithic are relatively rare (Piperno *et al.* 2004).

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Notes

[1] The exact dimensions of Kirkbride's trenches and the area separating them are approximated based on what is currently visible at the site.

[2] Brian Byrd will be publishing the results of his analysis of the Kirkbride lithic collections from Wadi Madamagh in a comprehensive report on the site that the authors are organizing.

[3] A team led by Schyle excavated at Wadi Madamagh in the Fall of 2011, focusing on the earlier occupation which was partially exposed by the WHEEP team during the summer. The results of the new excavations by Daniel Schyle will be published jointly with the authors in a comprehensive report on the site.

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Aviel: A New Neolithic Site at the Foothills of Mt. Carmel

Ran Barkai and Nadav Biran

Introduction

In this paper we report the discovery of a new Neolithic site at the Plain of Manasseh and the foothills of Mt. Carmel, Israel (Fig. 1). The site is located at the western hills of the Plain of Manasseh, characterized by chalky limestone formations a with calcrete (Nari) coating. The typical soils for this site are grey rendzina for the upper parts, and alluvial gromosol for the areas along the stream. The current arboreal vegetation is mainly composed of oak and pistacio trees. The site was found by one of us (N.B.) in the course of agricultural work at the fields of the village of Aviel (Fig. 2) some 15 years ago, and a large collection of artifacts was assembled throughout the years. In recent years N. Biran realized the importance of the site and following his wish to bring it to the awareness of the archaeological scientific community the main characteristics of the lithic collection are presented here. We believe that the lithic collection from the site reflects its potential in terms of Pre-Pottery and Pottery Neolithic research in the Levant, and we hope that this publication will lead to a long-term field project at the site.

The site is located on both banks of Nahal Alona, which is a tributary of Nahal Taninim (Crocodile Stream), the major river in this part of northern Israel. The area of the basin of Nahal Taninim and its tributaries is about 200 square kilometers, including the Taninim, Ada, Barkan, Alona and Mishmarot streams. It is suggested that the name of this river derives from sightings of crocodiles and hippopotamuses by priests and pilgrims who trekked through the swamps some three centuries ago.

Most of the artifacts were collected from the surface of fruit plantations located on both banks of Nahal Alona, in an area encompassing *ca.* 500 dunams. However, the presence of lithic finds on the surface of the earth is highly dependent on the agricultural pro-

Fig. 1 Location map of the Aviel site in the framework of the known Neolithic sites in northern Israel (courtesy of Omry Barzilai).

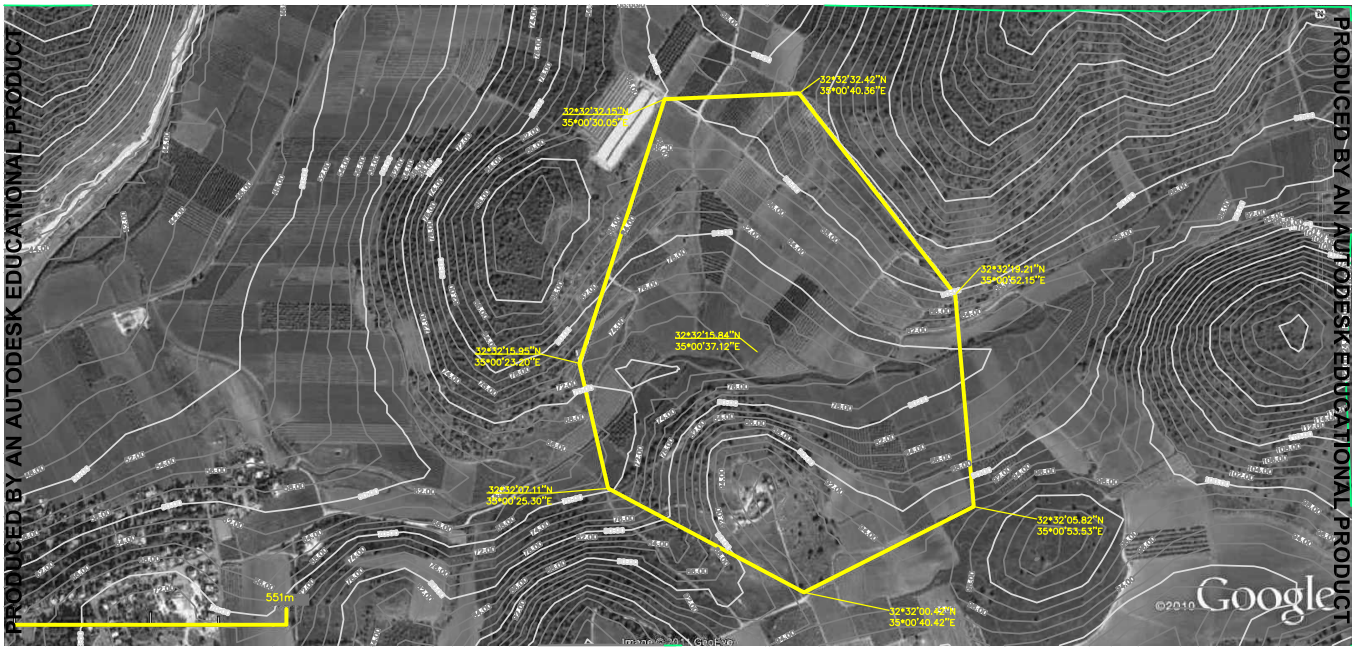

Fig. 2 A topographic map of the Aviel site with location coordinates of the surface collection area.

Fig. 3 Large flint axes with the Hula break from the site of Aviel.

cessing of the land, and thus it is most probable that the collection is limited by modern activities while the extent of the prehistoric site might be of a different scale.

The large collection of artifacts from the site is heavily dominated by Late PPNB and/or PPNC lithic characteristics. In addition, a Pottery Neolithic component is clearly indicated. The collection described in this paper does not include pottery items, and this could be explained both by collection bias and terms of preservation. During a recent visit to the site by both authors, large quantities of flint items were clearly observed but no pottery was noticed; future surveys should check the validation of these preliminary observations. Large numbers of stone items, including both basalt and limestone artifacts, are present at the site but were not collected. For the reasons stated above it should be made clear that our preliminary statements presented below are based only on the lithic collection and are intended to encourage further work at the site.

A brief summary of the main characters of the lithic collection from the Aviel site is provided below.

Bifacial Tools

The most conspicuous component both in the collection and on the surface of

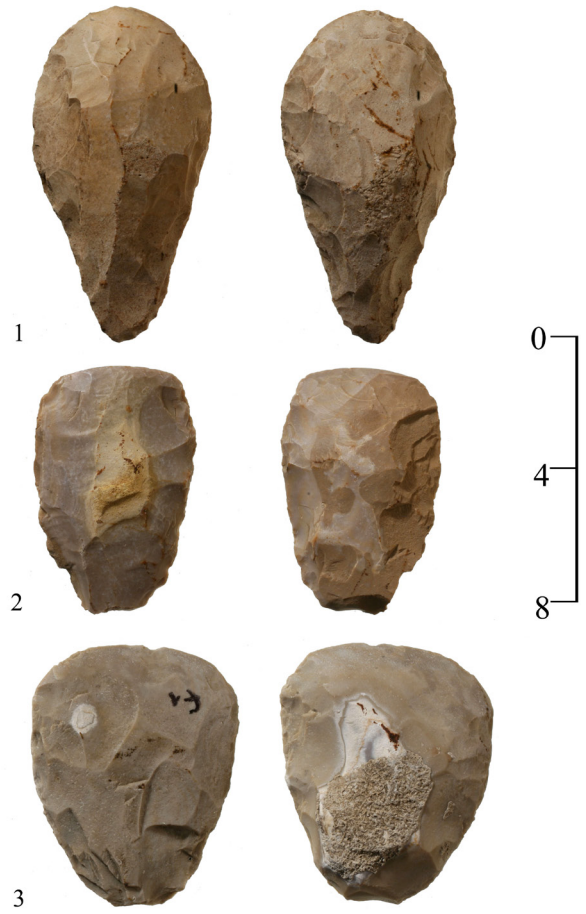

Fig. 4 Flint axes from the site of Aviel.

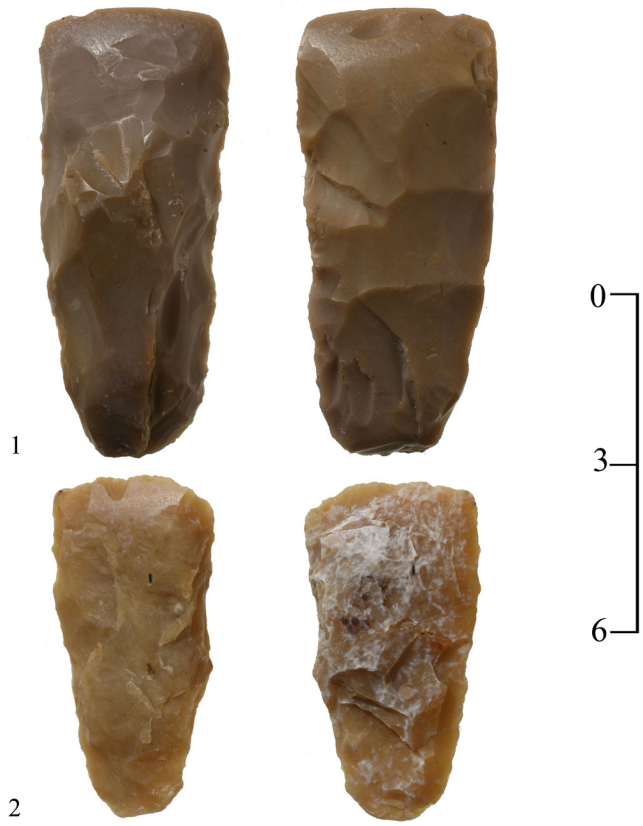

Fig. 5 Two polished flint adzes from the site of Aviel.

Fig. 6 Bidirectional naviform core from the site of Aviel.

the site is the abundance of bifacial tools. Flint axes are especially prominent, with hundreds of specimens collected and many more still observed on the surface of the site. The large quantity of bifacial tools as well as the characteristics of the flint axes resemble axe-rich sites from the Hula valley in northern Israel, especially the site of Beisamoun (Barkai 2005: 155-161). The presence of large and thick flint axes carefully shaped by bifacial flaking and polish (Figs. 3-4) clearly places the major bulk of the bifacial tool category within the later Pre-Pottery Neolithic (Barkai 2011). The identification of a specific breakage pattern (*e.g.* Fig 3) observed on many of the flint axes from the Aviel site, previously termed „The Hula break“ (Barkai 2005: 31-33), is of note. This typical breakage pattern is strikingly common at the late Pre-Pottery Neolithic sites at the Hula Valley but was observed at Neolithic sites elsewhere as well. The Hula break is a large central removal originating from the working edge of the axe and spreading on significant parts of one of its faces (see Figs. 7-9 in Barkai 2005). It is argued that this type of a break is a testimony to an intensive use of polished thick flint axes that occurred most probably in the course of tree felling or some other massive woodworking tasks. The distinctive presence of such axes at Aviel bearing this breakage pattern (Fig. 3) reflect some of the tasks performed by the site inhabitants and put the site within

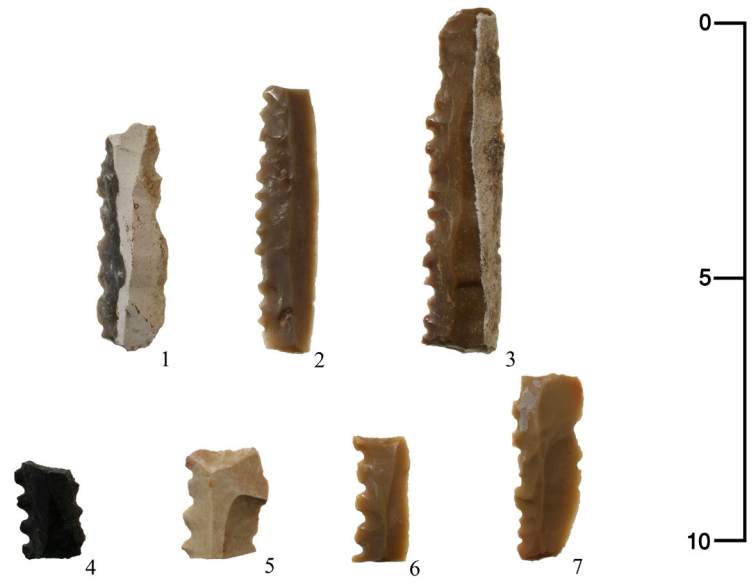

Fig. 7 Sickle blades from the site of Aviel.

Fig. 8 Arrowheads from the site of Aviel.

Fig. 9 Bifacial knives from the site of Aviel.

the general framework of late Pre-Pottery Neolithic activities.

In addition to the large, thick flint axes, thin and broad axes appear as well. These axes have a polished working edge and bear similarities with the terminal PPNB/PPNC axes from the site of Atlit Yam (Barkai and Galili 2003). Another distinctive component within the bifacial tool category is the presence of polished flint adzes (Fig. 5). Flint adzes made their appearance during the late Pottery Neolithic in the Levant and became dominant within the lithic assemblages in Chalcolithic times (Barkai 2011). The adzes from Aviel could be assigned to a Pottery Neolithic occupation of the site, although they might originate from a Chalcolithic settlement as well.

Bidirectional Blade Technology

The presence of naviform cores for the production of long and straight blades is a clear Pre-Pottery Neolithic characteristic (Fig. 6). Abundant crested blades indicate large scale blade production at the site, as evidenced at other Pre-Pottery Neolithic sites such as Yiftahel (*e.g.* Khalaily *et al.* 2008).

Sickle Blades

The most prominent sickle blades in the Aviel collection are made on blades, in some cases long straight blades most probably detached from naviform cores. The sickle blades have a denticulated working edge shaped by pressure flaking, and their proximal and/or distal ends are truncated (Fig. 7). The back of these sickle blades is not worked. Similar sickle blades were found at the later Pre-Pottery sites of Beisamoun and Atlit Yam, for example (*e.g.* Gopher *et al.* 2001; Bocquentin *et al*. 2007), and serve as another line of evidence for attributing the Aviel site to the late Pre-Pottery Neolithic settlement pattern. It should be mentioned that at the current state of research at the site no typical PPNB or Pottery Neolithic sickle blades were found at the site.

Arrowheads

The lithic collection from Aviel includes mainly Byblos and Amuq points, both in large and small sizes (Fig. 8). The large arrowheads are clearly made on blades produced from typical naviform cores (*e.g.* Fig. 8: 5). All arrowheads are shaped by pressure flaking. The presence of typical late PPNB arrowheads types such as Byblos and Amuq, accompanied by smaller forms of these types, could indicate a Late PPNB and/or PPNC period. However, it could not be ruled out that the larger arrowheads originated from a PPNB site while the smaller ones originate from a later Pottery Neolithic occupation of the Aviel site.

Bifacial Knives

A very interesting component of the collection is a very distinctive group of flint bifacial knives carefully shaped by pressure flaking (Fig. 9). Most of these knives were found broken. These tool types are generally attributed to the Pottery Neolithic, and recently a workshop for the production of such items was uncovered at the Pottery Neolithic level (Area G) of the site of Yiftahel (Khalaily *et al.* 2008).

Concluding Remarks

The discovery of a new Neolithic site on the Plain of Manasseh at the foothills of Mt. Carmel is an important addition to our scientific knowledge regarding Pre-Pottery and Pottery Neolithic settlement patterns and regional site settings. It is not very far from the recently excavated site of Mishmar Hae'mek (Barzilai and Getzov 2011) nor far away from the site of Atlit Yam. Further studies are in order in an aim to investigate whether we are dealing with a local concentration of later Pre-Pottery and Pottery Neolithic sites that acted as a regional inter-connected system. The site of Aviel presents a wonderful opportunity to investigate a large scale Neolithic complex in a Mediterranean environment and in vicinity to other important Neolithic sites.

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Neolithic Caves in the Jebel Ansarieh, Tartous

Bassam Jamous and Yoshihiro Nishiaki

Introduction

The Mediterranean coast of southwestern Syria, to the west of Homs, is one of the least investigated regions for Neolithic research of the Levant. The paucity of systematic fieldwork has prevented the integration of this region's Neolithization into wider contexts, which have been documented particularly well in the Levant, including the Euphrates Valley in the north and the Jordan Valley to the south. Referring to the lack of archaeological information from this region, which is known as the Homs Gap, a Syrian-Lebanese-Spanish mission recently conducted a series of intensive site reconnaissance surveys that partly filled that gap. Several previously unknown Pre-Pottery and Pottery Neolithic mounds, as well as Epipalaeolithic sites, were discovered in the plateau between the Jebel Ansarieh and the Lebanon Mountains (Haïdar-Boustani *et al*. 2007). In this article, we report on two new Neolithic sites in the region, discovered by a Syrian mission. These are cave sites in the mountains.

The caves in question, the Qasumiyyeh Cave and Qadoun Cave, were found in 2003 by a Syrian archaeological mission directed by Bassam Jamous of the Directorate-General of Antiquities and Museums (Fig. 1). The special interest is because of their unique geographic position: the caves are located in the high mountainous region of Jebel Ansarieh, with altitudes of more than 800 m, in which no other prehistoric investigations had previously been carried out. The heavy vegetation in such a deeply forested area of oak and pine trees has hindered fieldwork on prehistoric interests. Consequently, Neolithic evidence from those caves, the first of this kind, should provide us with not only additional information about the distribution of Neolithic sites in this desolate region but also a new insight into the timing and nature of the prehistoric exploitation of this particular ecological habitat in Syria.

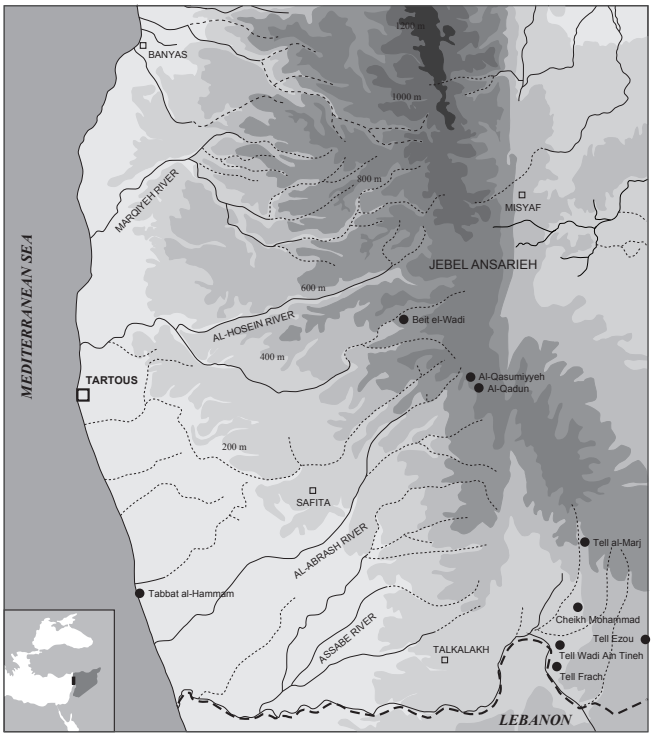

Fig. 1 Map of the Neolithic sites near Tartous, Syria.

Qasumiyyeh and Qadoun Caves are located close to one another, approximately 3 km from the village of Bseirat Jird and 30 km east of Tartous. These caves, which open on the slope in one of the deep valleys comprising the source of Al-Abrash River, form a narrow tunnel-like shape penetrating into the limestone bedrock. The Qasumiyyeh Cave is 100 m long. The archaeological investigations, which were carried out in the summer of 2003, principally aimed to identify the period of occupation, if any. Small-scale soundings and a survey of the surrounding area were conducted.

Qasumiyyeh Cave

The Qasumiyyeh Cave has two entrances at both ends, each approximately 6 and 7 m wide, while the inner area has a width more than 10 m in some places. The sounding trench, 5 m by 2 m, was opened near the western entrance. The deposits were 1 to 2 m thick above bedrock, consisting of at least six geological layers. Most of these layers were sterile, but the third one yielded a small number of flint artifacts. The third layer comprised burnt soils including ash, which also suggested some form of human occupation. No pottery was recovered.

The flint artifacts included blades and blade tools (Fig. 2: 1-3), such as one crescent-shaped blade with a backed edge (Fig. 2: 2) and one elongated unretouched glossed piece (Fig. 2: 3). The others consisted of flakes and flake tools (Fig. 2: 4). The limited amount of material creates difficulty assigning them to a specific period, but the morphology of the blade tools suggests the Pottery Neolithic period. The crescent-shaped blade is most likely to be a backed knife or a sickle element common in the Pottery Neolithic period of the region (see below). The fact that all the blades were manufactured from single-platform cores could also support this provisional dating.

Qadoun Cave

The Qadoun Cave is slightly smaller in scale, 3 to 5 m wide at the entrances, and about 7 m at the widest part of the inner area. The sounding was made in an area of 1 m

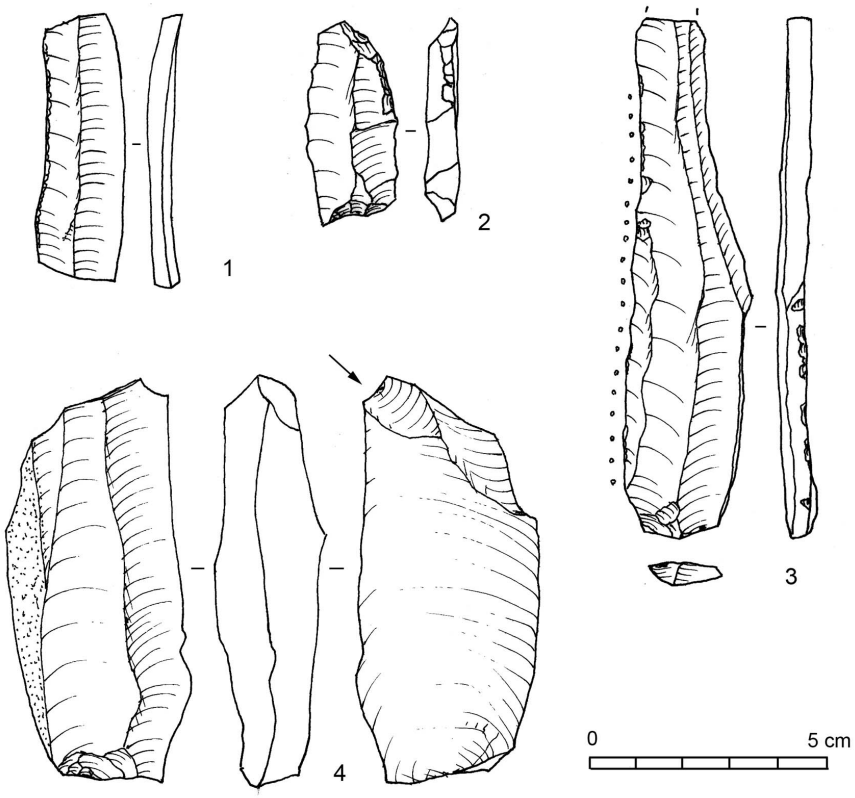

Fig. 2 Lithic artifacts from Qasumiyyeh Cave. 1: blade segment; 2: crescent-shaped backed flake; 3: sickle element; 4: atypical burin on a core-front flake.

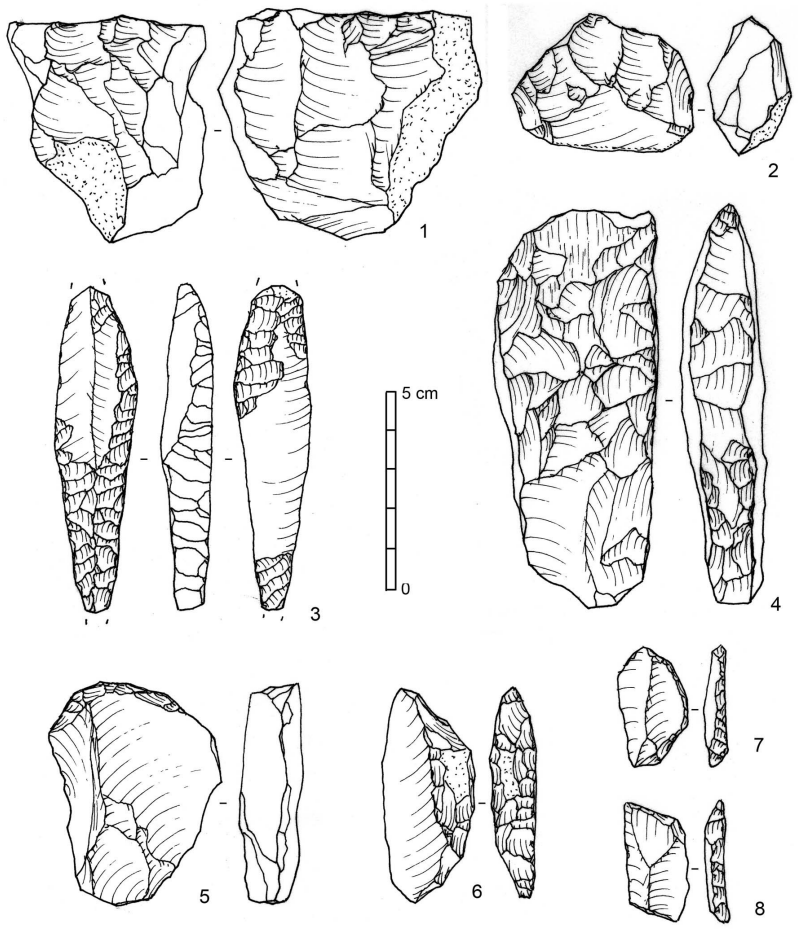

Fig. 3 Lithic artifacts from Qadoun Cave. 1: Single-platform core; 2: Levallois core; 3: Amuq point; 4: adze with a polished edge; 5: end scraper; 6-8: crescent-shaped backed flakes

by 2.5 m, located close to the northern entrance. The deposits, more than 3 m thick, were divided into two major layers, A and B. Both layers yielded a small number of flint artifacts but no pottery. Interestingly, a concentration of large limestone blocks, which might represent an artificial construction, was recovered in Layer B. Along with the sounding, the Syrian mission conducted an archaeological survey with a 500 m diameter area from the cave. The survey produced a collection of nearly 400 flaked stone artifacts, which amply demonstrated that the area, including the cave terraces, was considerably occupied in prehistoric times. The excavated material included a few crescent-shaped backed flakes, which probably represent either knives or sickle elements of the Pottery Neolithic period. However, the vast majority of the materials from the survey were simple flakes and cores (Fig. 3: 1, 2), occasionally exhibiting traces of the Levallois method. The retouched tools include fine endscrapers (Fig. 3: 5). The heavily weathered surface with a pinkish-white color, as well as these techno-typological features and the absence of pottery, might lead one to conclude that these artifacts are derived from the Palaeolithic period. However, this is probably not the case for the Qadoun Cave. The collection included obvious Neolithic tools such as Amuq points (Fig. 3: 3) and a bifacially flaked adze with a polished edge (Fig. 3: 4), and these dated artifacts also exhibited a similar surface condition to that of the others.

Our overall impression is that the major occupational period of this cave and its surrounding area is the Pottery Neolithic. In addition to the arrowheads and the adze mentioned above, the series of rectangle- or crescent-shaped backed flakes and blades in the survey collection (Fig. 3: 6-8) are also indicative of this dating. Strong parallels to them are known from the Pottery Neolithic assemblages from the Mediterranean region, notably in the contexts of Byblos Néolithique récent (Cauvin 1968: 134-135). Although the cutting edges of the backed pieces have received too heavy a weathering to show cereal gloss, their typological features may indicate their use as sickle elements. Comparable specimens have been reported from the Homs Gap survey as well, at such Pottery Neolithic sites as Tell al-Marj and Tell Ezon (Haïdar-Boustani *et al.* 2007), and from Tell Arjoune, south of Homs (Copeland 2003). Furthermore, endscrapers often comprise a regular portion of the lithic assemblages of

this period (see Cauvin 1968). Likewise, the use of the Levallois method (Fig. 3: 2), generally considered a marker of the Middle Palaeolithic, is not unusual for the Pottery Neolithic period of the coastal region. The occurrence of Levallois cores and flakes is often reported at Pottery Neolithic sites in Lebanon (Cauvin 1971).

Conclusions

The flint artifacts from these caves and the vicinity are provisionally assigned to the Pottery Neolithic period. Given the elements indicating both earlier (arrowheads) and later phases (crescent-shaped backed flakes) of the Pottery Neolithic period, these caves may have been visited at different times within this period. The common occurrence of the latter elements, and the absence of denticulated sickle blades and opposed platform cores, may indicate more intensive occupation in the later phase. Whatever the case, the artifacts show compelling parallels to those thus far defined for the Pottery Neolithic period in Lebanon, particularly at Byblos. The tool manufacturing traditions of the Lebanon Mountains was apparently shared by the communities in the southern Jebel Ansarieh, a region with a similar environmental setting to the woodlands that developed along the Mediterranean coast.

The discovery of the cave sites in the mountainous area is an important addition to the Neolithic database of the region, which had previously consisted of mound sites in the lowland plateau (Haïdar-Boustani *et al.* 2007). Likewise, Tabbat al-Hammam had long remained the only excavated Neolithic site (Hole 1959). The cave sites pose new research dimensions for the Neolithic phenomenon: the relationship between the sites in the mountains and the lowlands would be an interesting issue to explore. The complete absence of pottery at the caves, even in the Pottery Neolithic period, suggests that a limited range of activities took place in the mountains. While the activities in the mountains must have included hunting, harvesting, and woodworking, the whole system of subsistence should be analyzed in relation to the mound sites in the plateau in the future. Reference to the Heavy Neolithic or Shepherd Neolithic sites in Lebanon (Copeland and Wescombe 1965: 43; Cauvin and Cauvin 1968; Copeland and Yazbeck 2002: 149), similarly known to be aceramic in the Pottery Neolithic period, may also be useful to define specialized facets of the economy.

Another interesting issue for future research in the Jebel Ansarieh is to determine the timing of the extensive exploitation of this mountainous environment. The survey of the Homs Gap suggests the increase of settlements in the plateau since the Late PPNB (Haïdar-Boustani *et al.* 2007: 8). The Syrian mission has recovered another possible PPNB or early Pottery Neolithic station near Beit el-Wadi, also in the woodland at an altitude of about 700 m (Damascus Museum collection). More research in the future may contribute to testing the current argument that emphasizes increasing deforestation by human interference since roughly 8 ky cal. BP (Hajara *et al.* 2010).

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A 'Well' and an Early Ceramic Neolithic Assemblage from Domuztepe

Stuart Campbell and Elizabeth Healey

Introduction

The site of Domuztepe in southeast Turkey (Fig. 1) has been under excavation since 1995, and it has been almost entirely known as one of the largest Halaf sites in the Near East. In contrast, this article focuses on giving an outline of the pre-Halaf material owing to some surprising discoveries in the 2011 field season.

Excavation of the upper 2 m of a probable well was begun in 2009. It clearly dated to the latter part of the Halaf period, both on stratigraphic grounds and on the basis of the pottery in the fill. Since the shaft was cut from the top of the southern part of Domuztepe, we knew that it would be deep so no more excavation was carried out until the summer of 2011, while we contemplated the logistics of safely excavating a well shaft through many metres of cultural deposits. When the excavation of the shaft was completed, it revealed several surprises, including shedding some light on the earlier stages of occupation at Domuztepe and the fact that the word 'well' may not be an entirely accurate description.

Previous work at the site has concentrated on the upper *ca*. 2.5 m of deposits of Halaf date, deliberately focusing on horizontal exposures. Nevertheless hints of early ceramic Neolithic activity have been regularly found in surface and residual contexts in previous years. The depth of the deposits also led us to surmise that there was a long sequence of cultural deposits predating the Halaf. While the classic deep sounding of Near Eastern archaeology has all but disappeared, the need to cut the sides of the 'well' back to allow it to be shored for safety offered the prospect of at least limited sampling of a column of earlier strata, potentially through the complete sequence in this part of the settlement.

Thus in 2011 the sides of the 'well' shaft were cut back to a square plan, with sides of approximately 1.2 m (Fig. 2). The soil from these cut-backs was collected to provide a series of bulk samples (lots 5086, 5119, 5143, 5186, 5216 and 5217). Because the priority was to excavate the well and the restricted space made proper contextual excavation impossible, these are large, merged spits that only provide a very broad brush stratigraphy. However, the sample sizes are obviously also small so finely detailed sequencing would never have been possible. A series of different strata were observed in the sections. All appeared to run horizontally and there was no indication that extensive pitting might have disrupted the basic sequence. These strata proved important in our interpretation of the deposits within the 'well'.

On excavation, the 'well' itself proved to consist of a vertical shaft that was circular in plan and approximately 1.1 m in diameter (Fig. 2). The total depth was probably originally slightly more than 9 m although, because we had truncated the top section, the excavated depth was just over 8 m. The shaft tapered slightly towards the bottom, where its plan also became less regular. The bottom of the shaft reached the present day water table and the bottom was approximately 50 cm below that level. Although the level of the prehistoric water table is not known, because there is a consistent layer of dense clay underlying the present plain, it was probably not greatly different, and may actually have been slightly higher in the absence of modern pumping and drainage. The shaft could, therefore, have functioned as a well.

What was surprising, however, is that it could only have been in use for a very short period. It does not appear to have been lined and there were several indicators that the shaft was filled in very soon after its original excavation. The sides of the shaft were also remarkably pristine, with exceptionally well preserved pick marks from the original excavation. Given the relatively soft earth

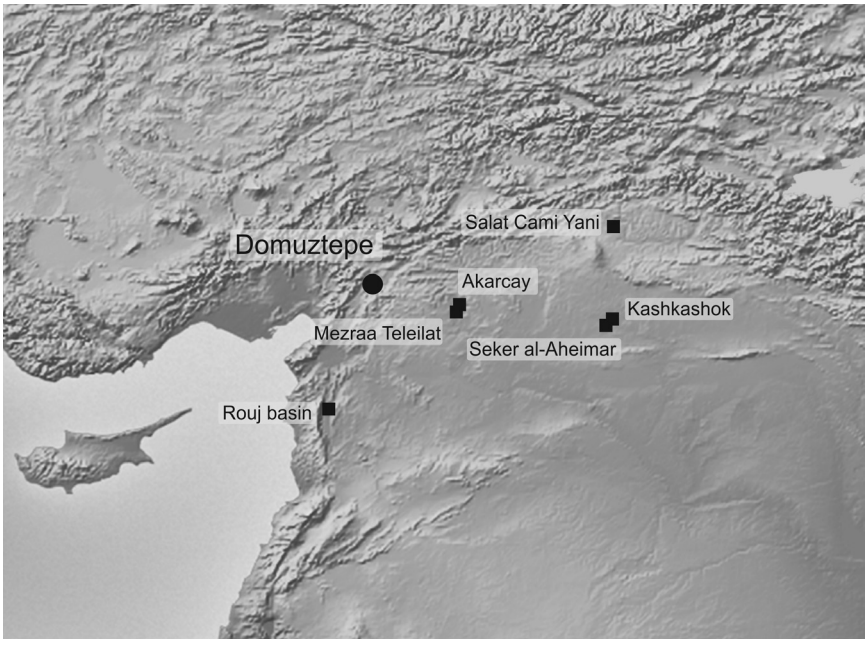

Fig. 1 The location of Domuztepe and other sites mentioned in the discussion.

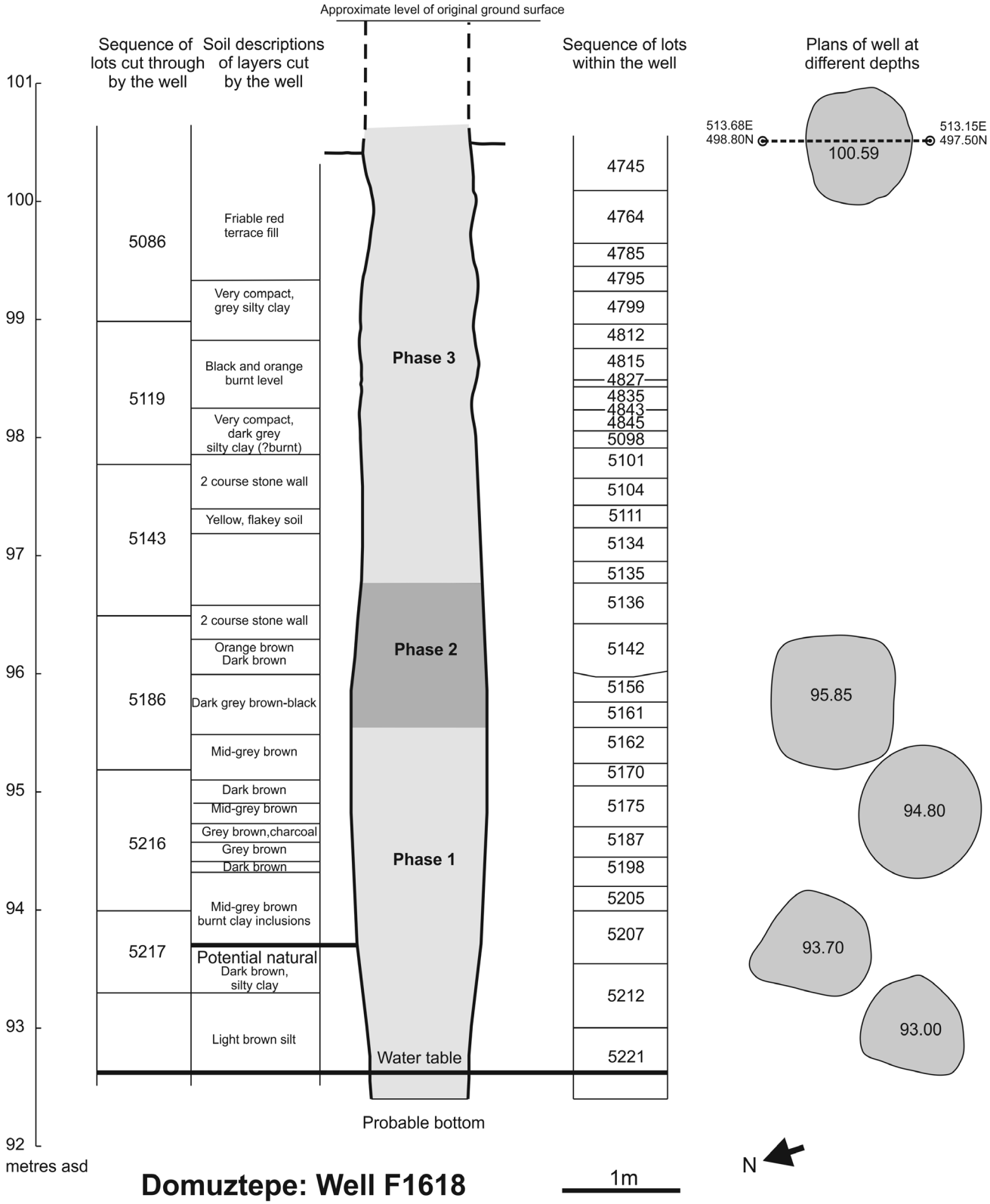

Fig. 2 The section of well F1618 with the sequence of deposits in the well and in the cut-backs at the sides of the well.

that the shaft cut through, these marks would have been rapidly blurred if significant amounts of water had been drawn from the well; blurring of the marks happened quickly simply from the minimal rubbing caused by the archaeologist working in the base of the shaft. Our provisional conclusion, therefore, is that the shaft was dug with the intention of backfilling it. This raises fascinating questions of interpretation which will be discussed elsewhere.

There are three basic episodes in the in-fill of the

shaft. Phase 1 (lots 5126 and below) consists of the lowest 3.20 m of the shaft and appears to be backfill from the excavation of the lowest part of the shaft, dumped back without any admixture from later Halaf deposits. Phase 2 (lots 5136 to 5161) is 1.20 m thick and is a very distinctive deposit; it was remarkably soft and full of organic material. While further analysis is being undertaken, this is probably the residue of light, organic material that may have been thrown into the well to fill it rapidly after the deposition of Phase 1. As it decayed, it would have slumped and been compressed to the deposit excavated. Phase 3 (lots 5135 and above) consists of later material, with substantial quantities of late Halaf ceramics, which had presumably been dumped or eroded into the upper portion of the shaft. In the following sections we will briefly describe the ceramics and lithics, but all material was sieved and sizable samples floated for organic material and the results of this are awaited. At present radiometric dates are not available but they will eventually allow the sequences outlined above to be much better anchored in time.

Ceramics

Ceramics were present throughout the sequence of deposits cut back from the sides of the 'well' shaft. Although sherd density dropped towards the bottom of the sequence, isolated body sherds were found very close to the probable natural soil underlying the tepe. In broad terms, the sequence runs from the Ceramic Neolithic to the early Halaf. The thickness of the deposits as well as the cultural material from them suggests that this sequence must cover almost all of the 7th millennium cal. BC. Although the analysis has used a much wider range of attributes, these phases can be most simply illustrated using four broad ceramic types: painted, incised, burnished and coarse ceramics. There are probably three major assemblages represented, with provisional descriptions of Early Halaf, Later Ceramic Neolithic and Earlier Ceramic Neolithic.

The latest assemblage represented within lot 5086 contains painted Early Halaf material but this ceases before the end of the lot. The spit below this (lot 5119) contains material known from elsewhere in Operation I to date from the Later Ceramic Neolithic. Starting within lot 5143 and continuing in all the lower deposits (lots 5186, 5216 and 5217), there is a single assemblage present. The very small sample from the cut-backs in the sides of the shaft certainly obscures any more subtle changes but the pottery from the Earlier Ceramic Neolithic is technologically unchanged through approximately 3.50 m of deposit, suggesting a long phase of continuity.

Within the 'well' shaft, the pottery assemblage from the Earlier Ceramic Neolithic can be easily recognised and clearly corresponds exactly to the stratigraphic phase 1; there is little or no later material in this phase of fill. There is a complete absence of painted or incised material and a paucity of coarse fabrics. Instead burnished sherds dominate. This allows us to use the pottery from the bottom 3 m of the shaft to augment the assemblage retrieved from the cut-backs in the shaft sides. Although the material from the shaft is certainly mixed, it is only mixed from material that comes from the lowest *ca*. 3.5 m of the site. In the absence of larger and better stratified samples, this allows us to profile the Earlier Ceramic Neolithic assemblage with rather more detail.

Technologically, the pottery of the Earlier Ceramic Neolithic is clearly characterised and very distinct from the material from the Later Ceramic Neolithic. It is dominated by sherds with a high quality brown or red-brown burnish, although greys are occasionally also represented. The fabric is lower fired than later prehistoric pottery from the site and tends to have a wide grey core. Temper most usually consists of fine grit temper, sometimes rather dense. There is occasionally also a very fine vegetable temper present as well. There are occasional finer and thinner-walled sherds, sometimes in a cream of light brown fabric.

The shapes are also well defined and limited in type (Fig. 3). There are only two basic shapes. The first is a series of open bowls, varying mainly in their depth. The diameters are typically 100-200 mm, although there are some larger examples. Rims are commonly rounded and the burnish is applied to both the interior and exterior. The second shape is a holemouth pot, rather larger than the bowls. Typical rim diameters are between 150 and 250 mm. In at least two cases, there are vertical loop handles on the upper body. There is almost no decoration on any sherds; the only exceptions are features which may also be functional, including a low relief knob and several examples of applied horizontal ledges or bands.

Lithics

Over 1,000 artefacts of chipped stone were recovered from the 'well' shaft and a further 169 from the associated deposits in the cut-backs. As with the ceramics there is a marked difference in the lithics from phase 1 of the shaft fill compared to those in other contexts, although it becomes apparent at a slightly different level in the cut-backs (Tab. 1).

In the deposits cutting back the sides of the well, the change can be seen in cutback lot 5216 and below. Above this level the lithics are dominated by small flakes and chips but from lot 5216 and below the assemblage is very different. For example, there are more larger pieces and cores than in the upper phases and there are more narrow blades, almost half of which have been segmented and show a narrow band of high gloss. The raw material is dominated by a distinctive orange coloured translucent flint. Noteworthy, too, is that only grey obsidian is present in the two lowest lots, whereas in the higher levels

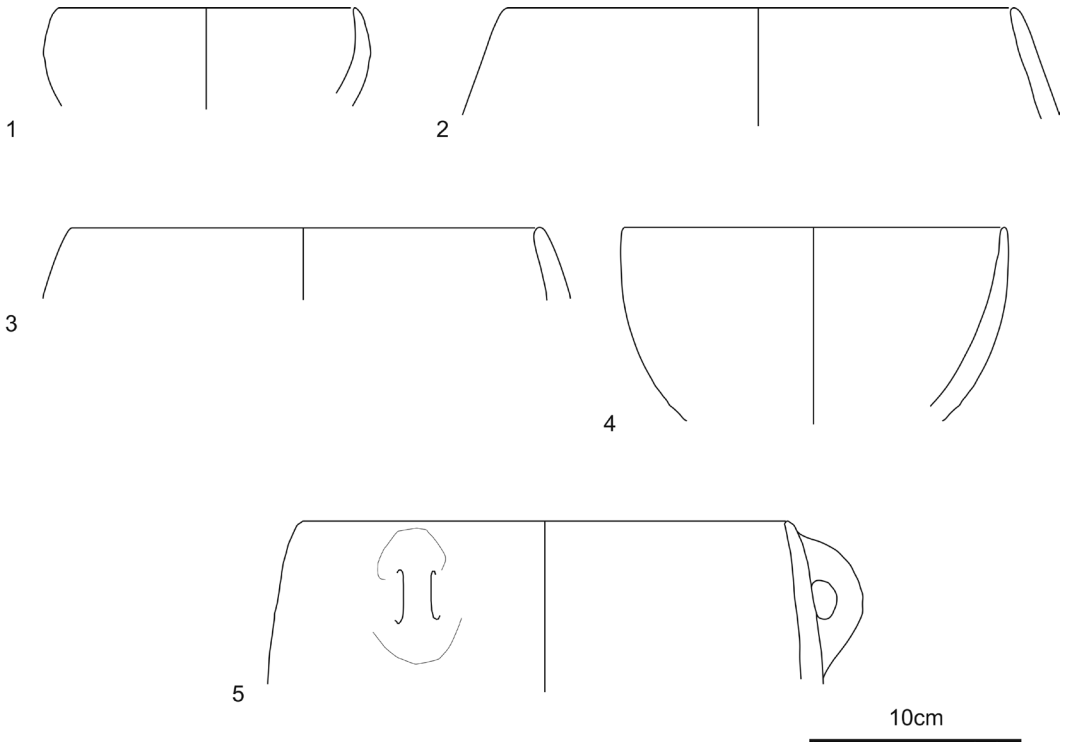

Fig. 3 Pottery from the Early Ceramic Neolithic. All ceramics are red-brown and brown burnished. 1. 5216/1; 2. 5187/2 3; 5216/4; 4. 5216/2; 5. 5187/1..

several different colours were present.

These changes are mirrored in the lithics (as with the ceramics) from the shaft fill. Only a small amount of material was present in the upper levels (phase 3), although the number of lithics increased towards the bottom of this phase. The retouched pieces include a fragment of a ground and polished bifacial and a knife. Obsidian consists of blades, one of which is truncated, and flakes and is present in a variety of colours. The lithics from phase 2 (Later Ceramic Neolithic) had a rather different profile. The proportion of larger flakes is higher although blades are still rare, and those that are present are mostly fragments from substantial blades, but a few narrower blades of different flint are present as well as a number of smaller flakes of orange and creamy beige flint. The obsidian is again of mixed colours.

In phase 1 (the Earlier Ceramic Neolithic), however, the lithics have a very different profile and are similar to those in cut-back lot 5216. The raw materials are predominantly translucent orange and creamy brown and many of the narrow blades are made of this flint, although the cores found are all the

		Cores	Flakes	Blades	Indet.	Retouch	Total flint	Total Obsidian		Retouched type (including non-flint artefacts)
Cut back deposits	Early Halaf (Phase 3)		1				1			
	Late Ceramic Neolithic (Phase 2)	1	46	7	14	1	69	14	85% grey	1 glossed piece 1 stone axe 1 obsidian pendant unfinished
	Early Ceramic Neolithic (Phase 1)	2	47	16	4	8	77	8	100% grey	6 glossed pieces 2 abr. ret
Well deposits	Upper fill		232	21	17	3	273	39	23% grey	1 knife 1 frag. of bifacial gr. & pol. 1 backed 1 obsidian blades truncated
	Middle fill	2	247	10	18	6	283	26	50% grey	2 piercers 1 scraper 1 denticulate 1 worn 1 obsidian blades truncated
	Lower fill	9	204	82	37	34	366	30	100% grey	22 glossed blades 1 Amuq point 2 piercers 3 burins 1 bifacial 1 scraper 2 denticulates 1 chopper 1 flake from hammerstone 1 obsidian piercer 1 small serpentenite axe 3 chipped limestone discs

Table 1 The lithic assemblage.

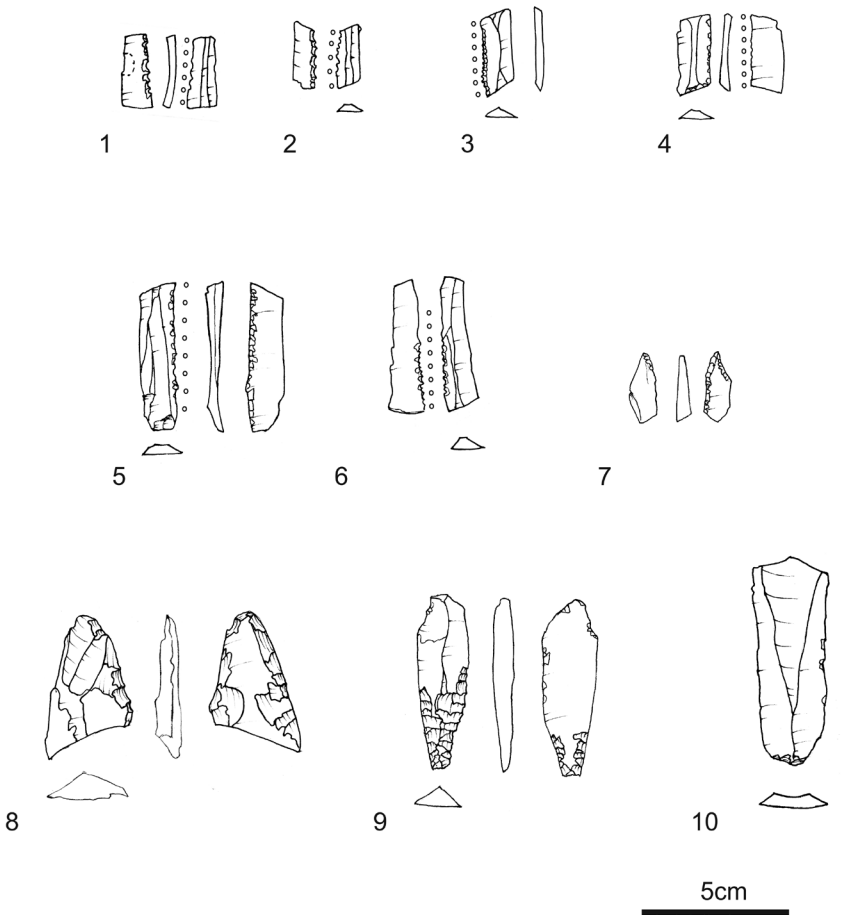

Fig. 4 Lithics from the Early Ceramic Neolithic. 1. 5216/8; 2. 5216/5; 3. 5187/3; 4. 5175/3; 5. 5216/7; 6. 5205/62; 7. 5187/6; 8. 5198/2; 9. 5207/3; 10. 5207/4.

result of flake production. There are more retouched pieces, including 22 pieces with edge-gloss; these are mostly the narrow blades which have been segmented (Fig. 4: 1-6), but one is an 'upsilon' blade with gloss on one edge (Fig. 4: 10). There is also a damaged Amuq point (Fig. 4: 9), and other tool forms such as piercers (Fig. 4: 7), a bifacially flaked piece (Fig. 4: 8) and so on, as well as three chipped limestone discs (Fig. 5) and a small serpentinite axe. As in the cut back, only grey obsidian is present.

This lithic assemblage from phase 1, though small when compared to the substantial later assemblages from the rest of the site (Healey in prep.) is remarkably different on a number of counts. These will be considered in detail elsewhere but are worth summarising here. For example, the use of a bright orange semi-translucent flint and an opaque creamy beige flint is striking as it is rare elsewhere on the site. We might also note that only grey obsidians are present in the lower deposits and in cut back lot 5216, although obsidians of various

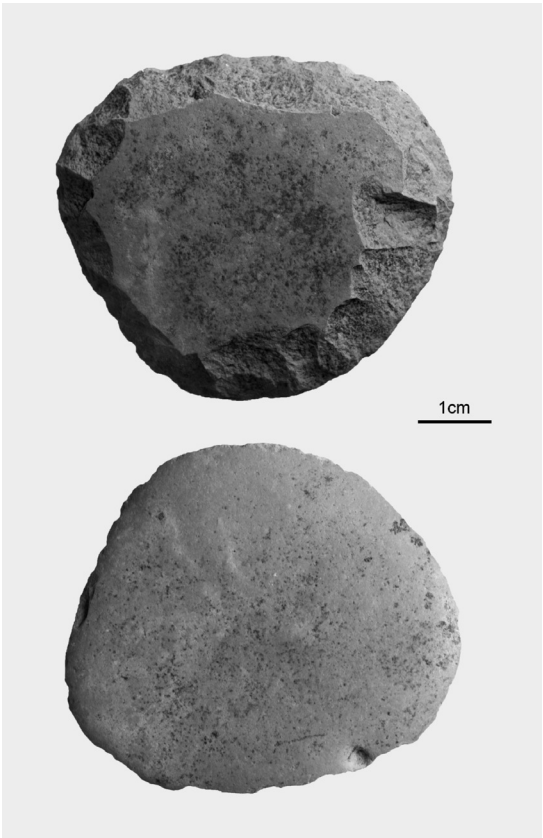

Fig. 5 Chipped disc dt7277.

Fig. 6 The excavator exiting the well (photo: Alexandra Fletcher).

colours are present in the upper deposits. Technologically the presence of the small unidirectional narrow blades contrasts with the larger blades from the Halaf levels, but also with the much larger upsilon blade from lot 5207 towards the bottom of phase 1; this is the only piece which clearly signifies the presence of a bi-directional technology (most likely PPN in affinity) and its unique nature suggests that it may have been an import or an heirloom. Typologically, too, the tool kit is very different from that found in the Halaf levels. For example, the glossed blades (mainly the narrow blades mentioned above) are morphologically completely different from the Halaf examples. The Amuq point, although not unique is also unusual.

Discussion

Consideration of the wider context of this new and unexpected early ceramic assemblage is only at an early stage but already we can say that quite apart from its obvious difference from the Halaf material, it also stands apart from material excavated in the later ceramic Neolithic levels both in terms of the lithics and of the ceramics.

For the lithics direct comparison with other sites is not straightforward, partly because of the small assemblages involved and partly because PN lithic assemblages are mostly discussed in terms of the change from PPN assemblages rather than in their own right and it is sometimes difficult to disentangle the two. The lithic component from Domuztepe seems to be broadly similar to assemblages in the Rouj Basin and contemporary sites in the north-western Levant (Arimura 2003: 161ff), Akarçay (Borrell 2011) and Mezraa Teleilat (Coşkunsu 2011: 387). However they seem to belong to a different cultural milieu from those further east for example at Salat Cami Yanı and other sites in northern Mesopotamia (Maeda 2011: 322) and Seker al-Aheimar and Kashkashok 2 (Nishiaki 2011: 459-460). The obsidian component, though small, shows a definite preference for grey obsidians (probably from Cappadocian sources as discussed in Healey and Campbell 2009) in the earlier levels. We might also note that at Tell el Kerkh 2 in the el Rouj 2a and 2b levels obsidians of eastern origin are virtually absent, not appearing until Rouj 3 at Tell Aray 1 (Maeda 2003: 180-182 and Fig. 71).

The pottery assemblage from the Early Ceramic Neolithic phase of Domuztepe also has parallels with a wider range of sites across northern Mesopotamia (*cf*. Le Mière 2009; Nieuwenhuyse *et al*. 2010). The fine grit temper, high quality burnished surfaces and the restricted range of shapes fits a pattern that is emerging across much of northern Mesopotamia as characteristic of the first phase of ceramics in the region. However, it remains surprising to see the chronological depth of the deposits at Domuztepe.

This small assemblage is then of great interest partly because it provides information on the antecedents of later prehistoric Domuztepe but particularly because it provides a glimpse of the earlier ceramic Neolithic occupation in the Kahramanmaraş region, which hitherto has only been known from surface survey. This is significant because this is a relatively unknown area for this time period and even this small assemblage should allow a better understanding of regionalisation.

The cultural significance of the relatively intact assemblage at the bottom of a Halaf 'well' is particularly striking. It is no surprise that the Halaf occupants of Domuztepe were technically capable of digging a deep shaft (*cf*. Neo-Lithics 2/10). However, there must be a suggestion that the later population who first excavated this 'well' shaft into the early ceramic Neolithic levels recognised the material as something different and set it aside until the shaft was finished and then put it back virtually uncontaminated, almost as though they did not want to disturb their ancestors. The later excavator who dug the 'well' again in 2011 (Fig. 6) may not have been as unique as he might otherwise have assumed!

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Examination of the Deep Sounding in the Great Courtyard of the Jupiter Sanctuary at Baalbek – the Lithic Evidence of the Southern Section

Dörte Rokitta-Krumnow

Introduction

Baalbek in the Beqa'a Valley, Lebanon, is known for its well-preserved Roman sanctuary and is objective of scientific research since 1900.[1] The architectural remains of the Great Courtyard of the Jupiter Sanctuary were part of many examinations starting between 1900 and 1904. The uppermost layers revealed remnants of an Ayyubid-Mameluke palace-like structure as well as a Christian basilica. While the German excavators removed the Ottoman and medieval periods, the "Service des Antiquités" removed the Christian basilica and uncovered a second altar in 1933. To verify the structure and depth of the foundations of the altar a small sounding was opened on the southern side of the Great Altar (*ca*. 7 m x 7 m x 17 m, with a depth of *ca*. 8.50 m). With excavation it became clear that the altar was founded very deep, and later it became obvious that an ancient hill settlement was cut (van Ess 2008b). This initial settlement in Baalbek can be dated to the turn of the Pre-Pottery Neolithic and Pottery Neolithic not later than the very end of the 8th millennium BC cal.

In 2002 a cooperative project between the Directorate General of Antiquities of Lebanon and the German Archaeological Institute, Orient-Department-Berlin, was initiated, and since 2004 the sections of the deep sounding have been cleaned and documented. It is not surprising that the cleaning of a 50 year-old deep trench encountered some difficulties, and distinguishing the layers – working on scaffolding – has been a complex undertaking. In addition, it became apparent that this part of the tell was disturbed by pits and later construction activities. It is therefore clear that the material is heavily mixed (van Ess 2008b: 102). Nonetheless, the lithic material deriving from the southern profile of the deep trench is described in the following according to the layers from which they have come – although this designation is sometimes uncertain.

The lithic material

According to the pottery evidence (van Ess 2008b: 107-112), the lithic material was chronologically identified as ranging from Iron Age to the Pre-Pottery Neolithic. The material from the southern profile cleaning consists of 2,031 pieces of chipped stones, with 227 specimens from layers dated to the Iron Age, 160 from the transition Iron Age/Late Bronze Age, 235 to the Middle Bronze Age, 445 from the Transition Middle Bronze Age/Early Bronze Age, 64 from the Early Bronze Age, 304 from the Pottery Neolithic, and 596 from the Pre-Pottery Neolithic.

The following examination describes the toolkit for every time span:

Iron Age (upper surface – *ca*. 1143.00 amsl)

The assemblage of the Iron Age (or the uppermost layers of the trench, Loci 2-7, 1a/2, Layer 4, 7, 9) is dominated by flint, including burnt flint (most probably not intentionally heated). One piece of Obsidian occurred.

Primary production is evidenced by blanks such as flakes and blades. Cores are nearly absent while chips (flakes < 2 cm) occur frequently. Tools are represented by retouched blanks, end-scrapers, and sickles. A thumbnail-scraper – typical for the PPNB – occurs as well. The number of the tools is very high, constituting nearly 30 % of the collection. According to the pottery examination the material is comparable with Middle Bronze Age II as well as Late Bronze and Iron Age (Van Ess 2008b: 107). Since chipped stone inventories of the Iron Age are poorly known, the material has to be viewed as heavily mixed.

Iron Age/Late Bronze Age (*ca*. 1144.50 – *ca*. 1142.50 amsl)

The sample from transitional period of Iron Age/Bronze Age (Loci 8, 7a/7c) consists of 160 pieces of chipped stone, dominated by flint (n = 159 = 99.4 %), of which burnt flint (31 = 19.5 %) is considerable. Blank production is reflected by a high amount of flakes and blades as well as chips and fragments. The toolkit contains of retouched flakes and blades, five sickles, one burin and a point among others.

Middle Bronze Age (*ca*. 1143.00 – *ca*. 1142.00 amsl)

The lithics from Middle Bronze Age layers (Loci 9, 10, Layer 10) are represented by 235 pieces of flint artefacts, of which nearly a quarter were affected by fire. Blank production is shown by a high amount of flakes, chips, and blades, and one amorphous core occurred. The tools are very few and consist of retouched blanks mostly (*e.g*. retouched flakes and blades, notched flakes and blades). One Byblos-Point (Fig. 1: p) came from the eastern section (Locus 15e [old locus]) and is most probably of an earlier origin than the Middle Bronze Age.

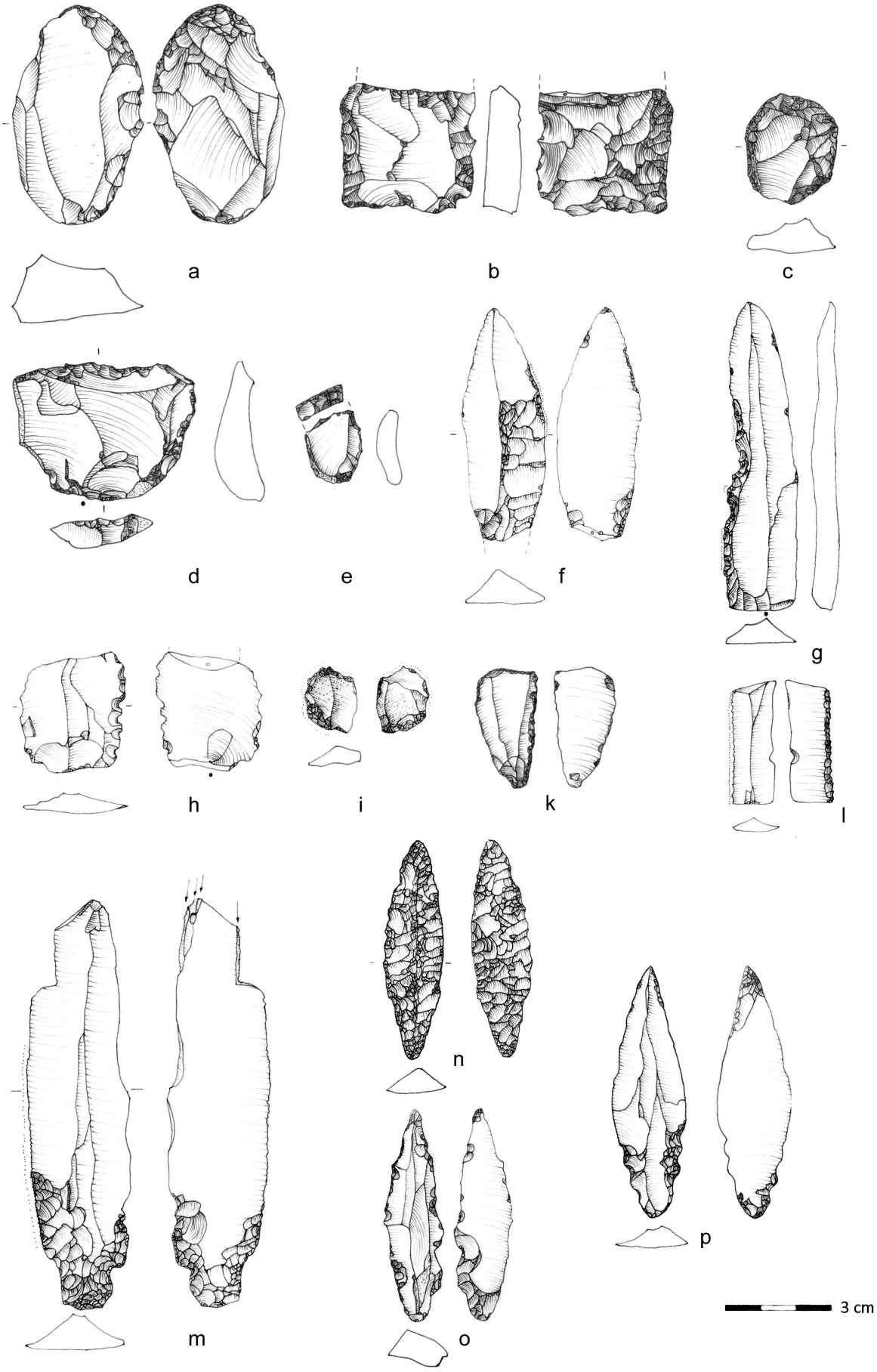

Fig. 1 Baalbek chipped stones. a: hammer; b: knife/sickle?; c, d, e: scraper; f: retouched blade; g-l: sickles; m: fragment of a Jericho Point; n: Amuq Point; o, p: points.

Middle Bronze Age/Early Bronze Age (*ca*. 1141.70 – *ca*. 1140.60 amsl)

The Middle Bronze Age/Early Bronze Age transitional layers (Loci 11, 11a, 11b, 12) produced 445 pieces of flint artefacts, of which nearly a third (32 %) were burnt. The blank production is comprised of a high amount of flakes, chips, and blades. The toolkit is dominated by retouched flakes, followed by a relatively high number of sickles, points, and scrapers. One "bifacial" (Fig. 1b) occurred in the southern profile of Locus 12 and could be part of a knife or a sickle (although sickle gloss is absent) (*cf*. Rokitta-Krumnow 2008: 123). This piece fits very well with similar inset-pieces known from Bronze and Iron Age contexts, where they are classified as composite sickles (Schmidt 1994: 50; Mozel 1983; Rosen 1986).

Early Bronze Age (*ca*. 1140.50 – 1140.00 amsl)

The Early Bronze Age layers (Layers 26, 28, 30) produced only 64 pieces of chipped flint artefacts, 28 % of which were burnt. The assemblage is dominated by flakes, blades, and chips, and tools are represented by retouched flakes, a burin, some scrapers and a hammer.

Pottery Neolithic (*ca*. 1140.70 – 1139.40 amsl)

The Pottery Neolithic Layers (Loci 13(?), 13a, 16, 17, and 18) yielded 304 pieces of worked flint, 39 % or which were burnt. Blank production is represented by a high amount of flakes, chips, and blades, as well as one amorphous core and a crested blade. Two Amuq-Points deriving from locus 18 (fig. 1n, 1o) are typical for the PN.

While pottery is not documented below layers 26, 28 and 29 (van Ess 2008b: 111), the dates for these layers are more probably assignable to the Pottery Neolithic than the Pre- Pottery Neolithic (first half of the 7th millennium BC). As observed in western Syria, the Pottery Neolithic can be dated at its earliest to the very end of the 8th millennium BC (Bartl *et al.* 2006). Therefore, it should be noted that a possibly PN Layer shows no pottery in this trench. For the PN phase, a boot-shaped object found in locus 13 (0-4m) has to be mentioned (van Ess 2008b: 112, fig. 10). This kind of object is known, for instance, from Labweh (Haïdar-Boustani 2006: 143) and Shir (Bartl 2007) and dates to the Pottery Neolithic.

Pre-Pottery Neolithic (*ca*. 1139.20 – bottom)

The Pre-Pottery Neolithic Layers (Loci 14, 15, 19, 20, 15/19) have the highest quantity of chipped stone with 596 pieces. The material consists of 99 % flint (36 % burnt) and 0. 5% obsidian. Primary flaking and blank production include a high number of flakes, blades, and chips. Cores are absent, although crested blades indicate significant blade production.

The toolkit consists of retouched blanks, some scrapers, sickles, and perforators; there are also two microlithic tools (< 3 cm). Points are not well represented, although there is one fragment of an Amuq-Point and a piece that could be designated as a transverse arrowhead. The dates of these layers are somewhat confusing: only one date fits to the PPN, located in Layer 15c, M 0-4 m.

Remarks

Some special finds from the eastern as well as from the northern profile are worthy of mention. A large Jericho Point with burin facets and sickle gloss from Locus 19c (Eastern Section) should be dated to the PPNB and stems from the stony layer on the ground at the base of the profile (fig. 1m). Other so-called typical Neolithic tools such as a thumbnail-scraper (fig. 1c) and a tanged sickle came from Bronze Age contexts (probably mixed material).

Conclusion

Even though the deep sounding did not reveal a large number of diagnostic items, it is clear that the lowermost levels of the tell date to the Pottery and Pre-Pottery Neolithic, which may indicate an initial settlement in Baalbek in a transitional phase. The occurrence of Dark Faced Burnished Ware, White Ware, and Amuq and Byblos Points are indicators for the Late PPNB and Early PN (*cf*. Cauvin 2000: 155). Although the transition between the Pre-Pottery Neolithic and the Pottery Neolithic can be observed according to the material culture (*i.e*. the appearance of pottery), the nature of this transition is not well understood since the sections of the deep sounding were just cleaned and not excavated.

Since the quantity of items in the total assemblage is not very high and chipped stone industries for the post Neolithic periods are not very well known, chronological developments and toolkit comparisons are not possible at the present stage of research. Nevertheless, it is important to note the existence of Neolithic material at Baalbek, which is of significance for other contemporaneous sites in the region (*e.g.* Tell Labweh, and Neb'a Four [Copeland and Wescombe 1966]).

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Note

[1] For the history of research see van Ess 2008a.

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Times of Change: a Short Report on the International Conference at the Free University Berlin, TOPOI-Building, November 24-26, 2011

Peter F. Biehl and Eva Rosenstock

http://www.iema.buffalo.edu/research/catalhoyuk_west_mound/

Background and Objectives of the Conference

The Neolithic site of Çatalhöyük is widely known for its large East Mound dating to the 8th and 7th millennia BC and has been excavated on a large-scale in the 1960s (Mellaart 1967) and again since 1993 (Hodder 2007). Its smaller West Mound dating to the 1st half of the 6th millennium (Mellaart 1965; Biehl *et al.* 2010) has often been viewed as no more than an epilogue of the East Mound settlement. New excavations (Gibson - Last 2003; Erdoğu 2010; Biehl *et al*. 2010), however, do not only point to a continuation of the settlement of the East Mound on the West Mound, but have also produced substantial evidence of change (Biehl and Rosenstock 2009; Biehl *et al.* in press). As we believe these continuities and changes can only be understood by looking beyond the site of Çatalhöyük and scrutinize them in a wider regional and supra-regional context, the international conference which concludes the first phase (2006 - 2011) of our Çatalhöyük West Mound Project was entitled "Times of Change: The Turn from the 7th to the 6th Millennium BC in the Near East and Southeast Europe".

The conference brought together archaeologists working on sites that did and did not experience major change and disruption at the transition from the 7th to the 6th millennium. The geographical scope of the conference ranged from the Persian highlands to the Danube Gorges in order to overcome the borders between modern geographical entities as well as between archaeological sub-disciplines. Thus, this differed therefore from the mainly circum-Aegean focused conference "How Did Farming Reach Europe? Anatolian-European relations from the 2nd half of the 7th through the first half of the 6th millennium BC in Istanbul in 2004" (Lichter 2005). We asked the speakers to address the key questions of how change and continuity can be conceptualized in the archaeological record and which signals of continuities and changes are visible in the material culture as well as the settlement patterns, economy, society and symbolic expression around 6,000 BC. After an opening keynote lecture by Ian Hodder on human-thing entanglement on the Çatalhöyük East Mound, 24 papers were given and vividly discussed during the following two days by more than 90 registered participants. The full program and abstracts of the papers are available at the conference website http://www.iema.buffalo.edu/research/catalhoyuk_west_mound. In this report we will focus only on some of the key issues discussed at the conference and point to the publication of the proceedings of the conference, which is planned for spring 2013.

Key Issues

There were three major issues scrutinized: 'Neolithization' or the so-called 'Second Neolithic Revolution' (Düring 2010: 122-125), chronology, and climate. The discussion was especially fruitful as most of the speakers presented new and mostly unpublished data ranging from the Persian highland and the Syrian plains to the whole of Anatolia and the Aegean and the Balkans. Though climate was not the focus of the conference, the recent research on the so-called 8.2 cal BP climatic event and its possible impact on communities in the Near East and Southeastern Europe after 6,200 BC (Weninger *et al.* 2006, Biehl and Nieuwenhuyse forthcoming) was referred to in many papers. There was a consensus that new research of and data for the 8.2 climatic event is especially needed in Anatolia, and that climate could only be considered as one of many possible triggers for culture change around 6,000 BC.

The mono-causal interpretation of the development of Central European Neolithic societies due to climatic changes (Gronenborn 2009) was criticized as a revival of simplistic processual explanation of culture change in archaeology (Schier). It is true that we have either a complete collapse of settlements around 6,000 BC as in the Syrian site of Shir (Bartl), or some sort of hiatus as in Mersin-Yumuktepe/Turkey (Caneva), or the phenomenon of re-locating settlements as in Khirokitia/Cyprus (Daune-le Brun/Hourani/le Brun), Sabi Abyad/Syria (Nieuwenhuyse), or Çatalhöyük/Turkey (Biehl *et al.*), but climate change seems to be only one many factors. Several changes seemed to have already been under way well before 6,200 BC at some of the discussed sites and could have been helpful pre-adaptations for the climatic event and its supposedly materialization as 'innovations' during the event which lasted ca. 180 years. In this context the introduction of domestic cattle or hulled barley as well as the role of milk (Schoop) and the proliferation of ceramic containers as a means of food sharing and as expressions of identity (Franz/Pyzel, Nieuwenhuyse, Last) were discussed.

Foremost, the conference reaffirmed the importance of material culture studies as indicators of culture contact and culture change/continuity and chronology – especially ceramics – and provided a comprehensive and in-depth discussion of case stu-

Fig. 1 Participants of the conference (photographed by Emre Talu Tüntaş).

dies from the Iranian plateau (Pollock/Bernbeck), Cappadocia (Godon/Özbudak and Düring), Central Anatolia (Franz/Pyzel), Greece (Perlès), and Thrace (Nikolov). Many papers succinctly demonstrated that the study of pottery must go beyond form and decoration in order to include questions of symbolic expression as well as subsistence, cooking and nutrition. In Ian Hodder's words in his concluding commentary, "we should think more of pots and butter than of pots on their own." But it was mostly agreed that the research of sites within the context of micro-regional analysis of regions such as the Konya Plain (Çatalhöyük: Czerniak/Marciniak, Biehl et al.), Cappadocia (Tepecik-Çiftlik: Bıçakçı), Western Anatolia (Ulucak: Çilingiroğlu), Thrace (Aşağı Pınar: Özdoğan), the Balkans (Kovačevo: Lichardus-Itten), or the Danube Gorges (Lepenski Vir and Vlasac: Borić) is still a prerequisite for macro- and supra-regional large-scale models (Perlès) and for a coherent chronological system (Biehl/Rosenstock).

The fascination of mapping the westward spread of a Neolithic lifestyle from its homeland in the Fertile Crescent (Demoule) across Anatolia into the Balkans (Salanova) and subsequently across Europe was challenged by the increasing awareness of possible contemporary and similar north- and eastward movements as well as multidirectional networks such as in the Aegean (Reingruber) or Anatolia (Düring).

We believe that the conference confirmed that the approach we took when asking the speakers in our initial invitation 'what happened at 6,000 BC at your site and in your region' was a good one and helped us to not only break down chronological but also theoretical and methodological barriers that had so far prevented us from connecting the Near East and Southeast Europe. It certainly closed chronological and conceptual gaps in our understanding of the Neolithic at the transition of the 7th and 6th millennia BC and laid the groundwork for a new and multi-facetted approach to the phenomenon of the 'Neolithization' and the 'Second Neolithic Revolution'.

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A Short Report and Some Reflections on the 7th International Conference on the Chipped and Ground Stone Industries in the Pre-Pottery Neolithic, Barcelona, 14th-17th February 2012

Ferran Borrell, Juanjo Ibáñez and Miquel Molist

Introduction

Four years after the last conference in Manchester (Healey *et al.* 2011) and nineteen years since the first meeting in Berlin in 1993 (Gebel and Kozłowski 1994), the seventh get-together of the "lithic family", whose research is focused on the lithic record in the Pre-Pottery Neolithic in the Near East and neighbouring regions, was held in Barcelona from 14 to 17 February 2012. The event was organised by the Institut Milà i Fontanals (Consejo Superior de Investigaciones Científicas – Spanish National Research Council) and the Prehistory Department at the Universitat Autònoma of Barcelona, with the financial support of the Department de Cultura i Mitjans de Comunicació (Government of Catalonia) and the Ministry of Economy and Competitiveness (Government of Spain). The conference was held in the Pati Manning building in Barcelona during the first three days and on the last day it was based at the Universitat Autònoma of Barcelona in Bellaterra.

The Conference

The conference opened with a brief introductory ceremony, with the participation of Josep Manuel Rueda (General Sub-director of Architectonic, Archaeological and Palaeontological Heritage in the Culture Department of the Government of Catalonia), Manuel López Béjar (Research Vice-Rector at the Universitat Autònoma of Barcelona) and Luís Calvo (Delegate in Catalonia of the Spanish National Research Council – CSIC). This was followed by a warm tribute to the researcher Dr Marie Claire Cauvin, for her long outstanding role in understanding the origin and development of animal-husbandry and agriculture in the Near East, mainly through the study of a large number of lithic assemblages (Mureybet, Umm el-Tlel, Qdeir, Nadaouiyeh 2, El Kowm 2, Khirokitia, Ramad, and Cafer Höyük). After this tribute, which unfortunately Dr Marie Claire Cauvin herself could not attend for health reasons, began the series of 53 oral presentations and 10 posters. In addition, during the coffee breaks, collections of materials kindly brought by delegates were displayed.

The Conference format was the classic one, consisting of 20-25 minutes for each presentation including questions, and time for discussion and more questions at the end of each day. This structure followed the line marked by previous conferences, apart from the first ones where the format resembled a workshop (see Gebel 2011). Certain nostalgia for the earlier format was noted among some delegates, as it allows more direct and practical participation, but it is difficult to maintain this approach in conferences with a large number of delegates. Furthermore, it is becoming increasingly difficult to export materials even temporarily from the countries where the fieldwork is performed. Despite this internal debate, in the course of the Barcelona Conference, the growing interest and vitality of research into the Near Eastern lithic record could be clearly seen. A total of 86 delegates presented 63 studies, with an interesting mixture of nationalities and age ranges, and consequently also of topics, approaches, and study

Fig. 1 Conference opening ceremony on 14 February (photo: H.G.K. Gebel).

Fig. 2 Audience during one of the oral presentations (photo: H.G.K. Gebel).

areas. In this aspect, as organisers of the conference, we were fully satisfied to see the interesting combination of fully established senior scholars who have contributed in one way or another to all or nearly all the meetings, young researchers who have recently become established or in the process of doing so, and students aiming to make their way in this field of study. After the Barcelona Conference, it seems clear that a new generation of researchers is assured and the different "lithic traditions" or "schools" will continue to be represented in coming years. However, based on the presentations and the delegates, a series of trends is apparent. In the first place, the enormous human and scientific potential generated by Israeli universities and institutions was made clear by nearly a quarter of the presentations and a large number of delegates, mainly young researchers with a long career ahead of them. Personally, we were also especially pleased to note an increase in the Spanish presence; this was not only due to the fact the conference was held in Barcelona but also to the consolidation of several research projects in different Near Eastern countries and fieldwork at a large number of sites. The number of researchers from universities in the United Kingdom, United States of America, Turkey, Japan and Canada stayed stable, if not increased, whereas some changes were observed in Europe. The participation of researchers from French institutions was lower than in previous conferences, and countries from the centre-east of Europe were only represented by German researchers. The absence of researchers from countries with a large number of delegates at previous conferences, such as Italy, was particularly noticeable. However, the participation of researchers from Iran, Syria and Lebanon was noteworthy.

The presentations were quite varied in their topics, although in most cases they focused on chipped lithic industries in flint or obsidian. A few other contributions referred to other materials, like groundstones, bedrock mortars, beads and pendants. As regards their chronological range, most of the communications referred to the PPNB, although many others were about lithic assemblages dated in the Natufian, PPNA and PN. The geographical area which received most attention was clearly the southern Levant with a large number of presentations about sites in Israel, Jordan and Lebanon. However, many other presentations focused on lithic assemblages from the south, centre and north of Syria and south-east Turkey. Among the other regions, it is interesting to note several communications about studies of sites in Iran.

Reflections after the Conference

Concerning the results presented in the different sessions, while it is not our aim to assess the presentations exhaustively or individually, in this part of the report we would like to summarise a series of conclusions and general reflections that became evident during and after the conference.

In the first place, the large number of presentations, categories of materials, and wide chronological and geographical range leave no doubts about the good health of research focused on the study of the lithic record in the Near East. The macro-region of southern Levant appears particularly active and dynamic, where knowledge not only about different aspects of Natufian communities is increasing, but also about other periods that are less well-represented in the area, like the PPNA and the Early PPNB. These presentations and the growing identification of bidirectional blade technology at Early PPNB sites in southern Levant re-opened the debate about the Neolithisation process in that area originating in the northern Levant. On this occasion, the debate did not reach any particular conclusions, largely because the evidence needed to define in greater detail how this Neolithisation process took place from the supposed original regions towards the south, if it took place, is still very scarce. Additionally, and unfortunately, the debate seemed restricted to the researchers working in southern Levant and curiously aroused little interest among those studying sites in northern Levant, supposedly the region where the process originated.

Secondly, without moving from the same region, numerous presentations about different aspects of bidirectional knapping during the PPNB continue to produce new data about the several variants for producing bidirectional blades that have been identified in southern Levant, and various aspects of the social complexity of these Neolithic communities and their evolution throughout the PPNB. Finally, still in southern Levant, we can highlight the growing interest in the circulation and arrival of obsidian during the first stages of the Neolithic in the area, as the large number of presentations on this matter can testify. In connection with these, we can cite the studies combining techno-typological research with the corresponding analysis to determine the provenience of the raw material, while we eagerly await their integration within the ample framework of flint production known in the same area.

The outlook in the northern Levant is somewhat different. There were fewer presentations about materials from new sites and instead more about the materials from some sites that are already known. The exception was seen in the presentation of assemblages from sites in East Turkey, and whose interest was quickly seen. The other new contributions were mainly studies about materials from new sites in Iran. Among studies that are less preliminary in nature and focused on particular aspects of lithic technology, above all in Syria, we must highlight the new hypotheses about the Neolithisation process in central Syria based on the identification of different techno-complexes in the region. In this respect, as in southern Levant, current studies show the regio-

nal and temporal variability within bidirectional blade technology. They support the idea that what has been regarded as the "chief unifying factor" of PPNB culture in the Levant in fact exhibits heterogeneity attesting to greater technological and social complexity.

Although we could also mention some other interesting strong points of the conference, we would like to go on to describe in brief some of the less favourable aspects that became clear. Whilst it is a point in favour of the conference, the diversity in the presentations, which is increasing due to the different approaches with which research is carried out, the growing use of different study methodologies and the specialisation in research, may lead to a series of problems. Most of these were discussed openly during the conference. The first of these is formal, but also conceptual, and was stressed by some researchers, as has happened in previous conferences. This is the increasing heterogeneity in the use of some terms and concepts. Some of the possible steps that could be taken to solve this problem are a traditional dictionary of lithic terminology to be drafted by workgroups or an open encyclopaedia for the scientific community in the style of wikipedia.

Another of the less positive aspects to be noted after the conference is the rarity of studies emphasising the more interpretative part of the results, going beyond the stones and the site itself in their interpretations. There was a clear absence of integrating studies, more interpretative and clearly risk-taking, in contrast with more technical studies about the lithic assemblage at a single site and little regional contextualisation of the results. This trend does not only affect our discipline but is a general tendency affecting all science. Research is weighed down, and yet at the same time impelled by the hyper-specialisation in disciplines and the format of presenting scientific results in high impact factor journals, where interpretative studies encounter serious difficulties in finding a place. In the current model, based on what we have seen in this congress, the figure of the specialists with a wider vision of the historical processes in which their research is framed, which was very common among the first generation of "Orientalists", is becoming increasingly rare.

As a final point, it was also noted that compared with previous conferences, few presentations dealt with the use of the lithic implements or with the identification and characterisation of the raw materials employed. It remains to be seen whether this is part of a general trend or a one-off occurrence.

Conclusions

The "lithic family" has achieved a great deal in nearly twenty years, as its own survival and reaching its seventh conference in Barcelona has shown. However, many challenges remain for the future: new and old problems to be overcome in order to continue working and contributing to what is both our profession and passion: the Neolithic in the Near East through the study of lithic implements.

Finally, we would like to thank everyone who made the Barcelona Conference possible, beginning with the delegates, the "family" without whom the event could never have been held. Thank you!

Fig. 3 Official photograph of the "lithic family" in the Pati Manning building in Barcelona (courtesy of Osamu Maeda).

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Book Reviews

QUINTERO L. 2010. Evolution of Lithic Economies in the Levantine Neolithic. Development and Demise of Naviform Core Technology as Seen from ʿAin Ghazal. By Ferran BORRELL.

Naviform core-and-blade technology formed the basis of many flaked-stone industries in the early Neolithic of the Levant and the prevalence of this technology in Pre-Pottery Neolithic assemblages is evident. This book, which is a revised version of the author's dissertation (1998), accounts for the evolutionary history of naviform core technology by considering it in the broad context of changing economic conditions that occurred from Epipaleolithic to Pottery Neolithic times. More specifically, the analysis traces the evolving character of the community of ʿAin Ghazal, as revealed through its lithic economy over 2,000 years. The research concentrates on two periods, the Pre-Pottery Neolithic (*ca*. 9,500-7,500 BP) and the Pottery Neolithic (*ca*. 7,500-6,000 BP), and the disparate lithic economies (blade-tool production declined and production of flakes tools gradually gained importance) that were created by stone-workers during these periods. The specific focus of the book is to identify the organizational structures of the various lithic industries at ʿAin Ghazal and the evolutionary history of the naviform core-and-blade technology as well as the economic organization that its development entailed. Through the technological characterization of the PPNB naviform core-and-blade industry at ʿAin Ghazal, the author aims to determine the presence of unspecialized lithic economies or, conversely, the presence of some form of industrial specialization during a portion or all of the time that ʿAin Ghazal was occupied.

In the first part of the book (chapters 1 and 2) the author briefly introduces the reader to the site of ʿAin Ghazal, the cultural background of the region and the lithic assemblages studied (a part of the PPNB and PN assemblages excavated at Ghazal from 1982 to 1996). In the next chapter the author describes the theoretical framework and methodology within which the lithic analysis is framed. Processual archaeology and replicative systems analyses are strongly advocated instead of the "Old World systematics", "regional cultural syntheses", "descriptivist archaeology" and the role played by fossiles directeurs. The author makes a strong case for the importance of having flint-knapping skills in order to reconstruct entire stone-working procedures so as to avoid relying on the expertise of others, on core refitting or microwear analyses. The author also reports the lack of technological studies of lithic tool production and use, lithic economic organization (including resource procurement), and inter-site functional variation. In the light of this, in chapter 4, the author presents her research perspective, its implementation, her research procedures, and the database. At this point the author admits that the ideal of studying a developmental continuum, or gradual (?) evolution in lithic tool production behaviours during 2,000 years to identify subtle variations within the lithic economies cannot be done because of the lack of fine-tuned contextual assessments, so she has had to conduct her research through larger generalized periods and consider the trend of lithic production from the Middle PPNB to the early Pottery Neolithic. The main part of this chapter discusses some general considerations of economic organization, production technology, and organization of lithic economics; these provide the basis for author's subsequent interpretations regarding, for example, craft specialization at ʿAin Ghazal. This part is particularly enjoyable because it makes clear how much the author is concerned with the different notions or concepts of craft specialization. The author suspects that some initial form of specialization (perhaps part-time) existed within the context of non-stratified socio-political systems in the first Neolithic villages. Craft specialization could be practised within an appropriate socio-economic organizational system (growing communities, social complexity, fully developed agriculture, role or status differentiation, *etc*.) and it has been sometimes related to technological evidence (technical difficulty, high level of skill, costly raw materials, presence of workshops, production expertise, efficiency and uniform manufacturing strategies, standardization, etc.), but for the author this is not enough as these things are not exclusive characteristics of craft specialization. Additionally, a desire for "profit" linked to production and a general consideration of the socio-economic setting in which the potential specialized production is situated is required to corroborate craft specialization.

In chapters 5 to 7 the reader will find the core of the author's lithic analysis. Chapter 5 reports on flint resources that were used at ʿAin Ghazal and the Wadi Huweijir flint mines near the town site. In this aspect results are quite conclusive. The Wadi Huweijir, which differs from highly lustrous pink to red flint, is thermally unaltered and was a major flint resource during the PPNB at ʿAin Ghazal for manufacturing naviform cores and blades. Chapter 6 is, in essence, a study of flint knapping behaviour and more especially about PPNB naviform core technology, which is based on the analysis of archaeological collections and replicative experiments. The author concludes that development of the naviform core-and-blade technology resulted from the combination of tool/blank requirements (*i.e.* the need for versatile tool blanks -blades- of standardized form) of the Neolithic lifestyle, the availability of appropriate raw materials

in the nearby lithic environment, and an economic situation that fostered diversification of industrial activities. This argument is in fact based in the assumption that the "high-quality blades" required not only skillful flint-knapping, but also constant knapping to maintain the required degree of skill. On the basis of Mesoamerican peasant economies, the author infers that the annual needs of an average family at ʿAin Ghazal would have been the products of two cores (40-50 blades which could be knapped in around 40 minutes), which is not enough for a knapper to learn and maintain the required degree of skill through the year. Thus, she concludes that blades were not made by individual farmer flint-knappers for their own needs, but by craft specialists who regularly made blades for other members of the community.

Chapter 7 is a technological analysis of the by-products (debitage) of tool-blank manufacturing from 26 selected loci (production contexts) representative of each phase (Middle PPNB, Late PPNB, PPNC and Yarmoukian PN) at ʿAin Ghazal. The small number of primary production contexts of naviform cores and blades in the Middle PPNB, in contrast with the large number of tool production and waste disposal loci, leads the author to propose that naviform core reduction was executed by a few specialist flint-knappers who knapped at workshop localities. Blade-tool blanks were later distributed to other community members who took the blades to their residences for their own tool-making activities. Data from selected Late PPNB loci is extremely limited, but the author suggests that naviform core-and-blade production continued even though controlled blade production began to diminish, blades and tools were less finely crafted, and flake production dramatically increased. According to the author these results provide evidence of stability and continuity of a varied technological system through the PPNB. In the PPNC and PN phases naviform core technology ceased to be a viable economic entity. Tools were fashioned mainly from flakes and occasionally from scavenged PPNB tools, and there is no evidence to support the existence of workshops or specialist flint-knappers.

In the last chapter the author summarizes the organization of lithic technologies at ʿAin Ghazal, concluding that in the Levant the economic organization of naviform-core technology during the Neolithic is the earliest evidence yet discovered of lithic craft specialization. The author also goes further and, based on previous interpretations, makes a new set of assertions: 1) specialists in flint-working would have managed and controlled access to Huweijir flint; 2) craft specialization was organized in a few selected households in the community; 3) the increase of population in Late PPNB might have taxed the existing economic system, and lithic specialists may have been less able to cope with increases in demand for blades; 4) dual lithic economy (specialized production of blades and domestic production of tools) collapsed during the PPNC and PN as socioeconomic stability faltered and lithic production was undertaken at a generalized household level; 5) increasing economic momentum from population growth in the Pre-Pottery Neolithic required technological rigor and predictability so naviform core-reduction strategy was developed in response to these needs; 6) Pre-Pottery blade technology involved craft specialization at ʿAin Ghazal and probably prevailed throughout the Levant in settings with similar socioeconomic circumstances, as other technically complex processes did (burnt-lime technology); and 7) the economic crisis at the end of the Pre-Pottery Neolithic put an end to the regional economic infrastructure that supported craft specialization, and blade technology collapsed and less structured lithic production prevailed.

I would now like to briefly mention some aspects the absence of which might be questioned by the potential reader. The author is crystal clear about the goals of her research and the theoretical framework within which she is conducting her research, and the book leaves no doubt about the high level of understanding that the author has about the naviform core-and-blade reduction sequence. The technological study grounded in empirical tests is as solid as a rock, though the statistics are very basic. In contrast, other stages of the production process are not treated in the same detail (raw material identification and procurement strategies) or discarded in advance (retouched tools production and use). The importance of ʿAin Ghazal to the understanding of the later phases of the Pre-Pottery Neolithic and the Pottery Neolithic is without doubt, but there is a growing number of studies that include debitage analyses, refitting studies, new interpretations of craft specialization in southern Levantine PPNB that are not considered in the author's interpretations (*e.g.* Khalaily 2006; Davidzon and Goring-Morris 2007). More information about the contexts (*loci*) from which the assemblages came and some 14C dates might have helped the reader to understand the relationship between loci belonging to the same phases, which represent extremely long periods of time. On the other hand, it is obvious that Middle PPNB assemblages are much more representative, in quantity and quality, than those from Late PPNB, PPNC and PN, a factor which might sometimes make comparison between phases difficult.

Turning to the interpretative part of the book there are some comments to be made. The first thing to note is that what the author is proposing is the existence of craft specialization at ʿAin Ghazal and the Levant, which is mostly based on lithic data. In the first part of the book the author mentions that many factors need to be considered before identifying craft specialization, but detailed data concerning other production processes, subsistence strategies, or ritual practices at ʿAin Ghazal are not given in this book. Once into the lithics, a set of technological evidence of craft specialization is mentioned (technical difficulty, high level of skill, costly raw

materials, presence of workshops, production expertise, efficiency and uniform manufacturing strategies, standardization), but the prevailing parameters seem to be technical difficulty and production skill. In other words, the key questions are about who has the skill to knap using such difficult techniques and why. The answer is: those who knap regularly enough to learn and maintain their knapping skills through the year. Such skill can only be achieved by part-time specialist flint-knappers because the yearly estimated need for blades of a family (around 40-50 blades) is not enough for the household members to learn and maintain their skill. So, it seems that most of the interpretation is based in the estimated number of blades that a family needs through the year. If the estimate was significantly higher, household members would have the opportunity to knap more often and so would learn and maintain their skills to higher standards that would allow them to perform core-and-blade naviform production, and craft specialization won't be necessary. Besides, other aspects related to craft specialization are not debated or incorporated into the final interpretation. The desire for "profit" is mentioned in the first part of the book, but not incorporated in the interpretation. Why should specialists knap for others? What do they get from it? Why did the others renounce to the opportunity to knap? Is knowledge restricted to some members of the community? Is there any other evidence of the division of labour perhaps according to gender, age or status, ...? All these questions are fundamental for tracing the origins of craft specialization in large Neolithic settlements in the Levant.

With regard to the final part of the author's interpretations I would only mention that extrapolating the lithic history of ʿAin Ghazal and applying it to the whole Levant is a complex thing to do, and it should only be done once the huge amount of data available is integrated and alternative approaches that are abundant in the literature considered. The existence of different cultures (with different lithic complexes) and types/levels of specialization (related to bidirectional technology) has been proposed in the southern Levant (*e.g.* as summarized in Barzilai 2010), while both technical specialization and unspecialized production have also been proposed in the Northern Levant (e.g. Nishiaki 2000; Abbès 2003; Borrell 2011). Different hypotheses have also been suggested that might explain the change in lithics (*e.g.* decline of hunting activities), and the gradual abandonment of bidirectional blade production, by the end of the Pre-Pottery Neolithic. Nobody has done this yet, and the answer to this phenomenon is still elusive partly because, as the author mentions, lithic changes relate to the more general economic restructuring that characterizes this dynamic period in the Levant (environmental, demographic and socioeconomic crises, socioeconomic collapses, ...), which, in my opinion, surpass the interpretative potential of lithic production.

In conclusion, this is a straightforward and honest approach to identifying craft specialization within the Neolithic communities of the Levant. A book full of high quality data and interpretations that, whether the potential reader agrees with them or not, must be considered by those studying the Neolithic communities in the Levant.

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HEALEY E., CAMPBELL S., AND MAEDA O. (eds.) 2011. The State of the Stone: Terminologies, Continuities and Contexts in Near Eastern Lithics. Studies in Early Near Eastern Production, Subsistence, and Environment 13. By Melody K. POPE.

The State of the Stone publishes proceedings from the Sixth PPN Conference on Chipped and Ground Stone Artifacts in the Near East and the Fourth PPN Workshop on Chipped Lithic Industries. This collective work of over 60 authors and 44 chapters cuts a swath from Iran to Egypt, but with a notable emphasis on sites in Israel, Palestine and Turkey, and a notable absence of studies of lithics from sites in Iraq. While the emphasis of the featured workshops is on Pre-Pottery Neolithic societies, several papers take a diachronic approach viewing change and continuity from the Epipaleolithic to the Neolithic and beyond. Taken as a whole, the book, as aptly titled, provides a snapshot of current lithic research trends and findings, and, as such, will surely be a valuable source book for archaeologists not only interested in the Neolithic in the Near East, but to anyone interested in lithics as a source of data on past lifeways. For this reason it is hoped that the volume will be widely distributed.

The opening two chapters provide an introduction to the book as well as a retrospective on the history, social milieu, and trends in the past six PPN workshops. It is clear that the participants in the PPN workshops are enthusiastic about the research and interpretive potentialities of lithic materials and I am hope that there will be many more workshop conferences in the future. The breadth and content of both workshops is impressive. The contributions of the Sixth PPN Workshop are organized into four sections: 1) PPN predecessors, 2) Beyond chipped stone, 3) Change or continuity, and 4) Social contexts of production and use. The observation by the editors that it was difficult to group the papers noting that many could have been put in several sections, I take to be an indication that the 'state of the stone' is generally strong. As a researcher who works in both the Near East and North America, it is exciting to see lithic studies that critically question what constitutes a lithic 'assemblage' and explore variability from a variety of perspectives in order to move discourse beyond functional and cultural divides. The last section of the book includes 15 papers from the Fourth PPN Workshop, inclusive of an introduction that lists the presentations of all conference participants, some of which were published in other venues. Four chapters focus on obsidian-based technologies from perspectives of both production and distribution. Three chapters deal specifically with points, microliths, and arrowheads. Three chapters deal with lithics and symbolic contexts, one chapter synthesizes data on raw material use from the Late Upper Paleolithic through the Neolithic on the Transjordan Plateau, and one chapter contrasts economic strategies at two PPNB sites in the southern Levant.

As is made clear by the papers in this book, traditional approaches that focus either on taxonomy and nomenclature, technology or morphology, style or function, chipped or ground stone, are no longer viable if we wish to make substantial contributions to problem-oriented research on past lifeways using lithic data sources. Many of the authors grapple with the complexity and diversity of stone technologies as a material category and in doing so demonstrate the importance of approaches that integrate lithic and non-lithic data sources. A recurring theme throughout the book is a call for holistic approaches that explore variability along multiple dimensions of procurement, production, use, and discard in order to better understand the complex ways in which technology, economic, symbolic, social, and cultural spheres are inter-related. The majority of chapters in the book are data rich presenting new information from specific sites, but there are also several papers that offer synthetic overviews focused on a particular region or subregion, or a particular lithic artifact class or type. The papers are generally well illustrated for both artifacts and archaeological site contexts from which they derive, and provide radiocarbon dates for sites where they are available. Studies aimed at both regional and local-scale variability and interactions are well-represented. The section on ground stone includes studies of tools used in both subsistence and manufacturing realms, including Neolithic reamers and pestles and Halaf obsidian beads, pendants and seals. The chapters in the section on change and continuity demonstrate the potential of lithic data to inform research concerned with the relationship between subsistence and technology.

Rocks are not people, but they were important to people for several millennia. Realizing potentialities of all things stone will require diverse methodologies and perspectives that are theoretically-informed. In this regard, practice and learning theory, landscape and chaîne opératoire approaches, along with such concepts as tool biographies and communities of practice are noteworthy and exciting avenues of research explored by many case studies included in this book. Chaîne opératoire approaches, by design, require researchers to address variability in lithic materials along many dimensions and to relate variability in technology to social contexts and relations of production and use. As illustrated in some of the cases presented, chaîne opératoire approaches, whether applied to chipped or ground stone, often result in a more refined understanding of morphological and typological variability that is often needed to address key taxonomy problems. A GIS-based study in the section on social contexts of production and use demonstrates the utility of three-dimensional spatial methods to situate technologies and related practices within communities and to refine site stratigraphy. Several studies demonstrate that changes in how

activities and practices are organized within communities along social dimensions may have more influence on technology than economy. Unfortunately, use-wear data is somewhat under-represented in the collection of papers; only one chapter presents primary data derived from microwear analysis. This is unfortunate since use-wear data are critical for identifying many blade and flake tools that lack formal retouch (so-called *ad hoc* or situational tools), and for understanding the effects of hafted and composite implement design on individual stone elements. On the other hand, there was much commentary throughout the book extolling the importance of integrating functional data with technological, spatial, and non-lithic data in order to better address lithic variability and its interpretation in particular social and historical contexts.

As the story of the Neolithic changes it is clear that lithic analysts working in the Near East are keen to expose new problems and rectify past interpretive impasses with stone, a prolific and data-rich material category. Several of the papers in the book aptly demonstrate that in addition to contributing to an understanding of materiality and people's attitudes toward stone, lithic data can also provide information on intra-site spatial patterns, site stratigraphy, and occupation duration. It is clearly no longer sufficient to view technology only as adaptive responses to particular environmental and economic circumstances. The assumption of a unilinear sequence from hunting and gathering, agriculture, animal husbandry, and sedentism has also been challenged on empirical and theoretical grounds by archaeologists working in both North America and the Near East. Lithic analysts are well poised to contribute to understanding the processes of 'neolithisation' in all its complexity and in different parts of the globe. Ellen Belcher's statement in her chapter on Halaf bead, pendant and seal 'workshops' at Domuztepe that "…there needs to be a more integrated approach to the study of different categories of artefacts…The outcome could be an integrated interpretation of excavated assemblages in which tools can be considered as objects with negotiated place(s) amidst community lifeways and craft production networks" is applicable to many contexts and time periods. The State of the Stone confronts many of the challenges that scholars face when using lithic data to explore anthropologically-informed problems, and in doing so raises the bar for lithic analysts everywhere. Lithics, chipped and ground, provide information on subsistence and manufacturing practices, mobility, materiality, and the environment, all of which are important facets of Neolithic life.

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2011 Overmodelled skulls of the Neolithic in the Ancient Near East. M.A. thesis (German), Free Uninversity Berlin; supervisors: Prof. Dr. Reinhard Bernbeck, Dr. Helga Vogel

Abstract

The Master's thesis focuses on overmodelled/ plastered skulls in the Neolithic Near East.

The excavations in Jericho/Palestine, led by Kathleen Kenyon in the 1950's, brought to light so-called plastered skulls. Further objects of this kind were excavated in the following years in other sites at the Levant. But those plastered skulls represent only one aspect of a skull cult. By reason of these findings one can postulate a skull cult for the PPNB in the Levant.

By the term skull cult we understand a special treatment of the skull appearing in the archaeological record. In most cases one deals with an isolated deposit or burial of one or more skulls. But one must distinguish different phenomena. On the one hand there are isolated skulls and headless skeletons and on the other hand the overmodelled skulls. Publications mostly refer to skull cult evidence from Palestine or other countries of the Levant, but the skull cult is not limited on these regions. In the aceramic and early ceramic Neolithic of Anatolia a special treatment of skulls is also observable.

The studies in the M.A. thesis concentrate on the plastered skulls from selected settlements in Syria, Jordan, Israel and Turkey. First, the study gives an overview about the geographical and chronological framework. Second, I dealt with the subject of the archaeological findings and the methodical framework. Following the overview are the studies on the selected sites and at the end is the discussion on the basis of an article of Ian Kuijt.

From the Natufian (12,500-10,000 BC) permanent settlements emerged for the first time, and from this period we have a large number of burials. Some of them show the common tradition of skull exhumation. Moreover, different places exist where isolated skulls were found. Similar findings are part of the repertoire of the PPNA (10,000-8,800 BC) and PPNB (8,800-7,000 BC). This chronological arrangement applies to the regions of Syria, Jordan, and Israel. But the Neolithic in Anatolia can also be divided in these two phases. The aceramic Neolithic there is followed by a Pottery Neolithic period, which lasts until 6,000 BC.

Concerning the interpretation of isolated and overmodelled skulls, one deals with an ancestor cult. It was believed that by a special treatment of the ancestors they could deliver help in the present. Deceased members of a community were thought to still have crucial influence on daily life; for example, they were involved in problem solving. The ancestor cult was a means to keep contact with dead community members. Within this framework Cauvin and others postulate that a relationship existed between the development of this cult and the beginning of the Neolithic revolution. Since the community was more dependent on the environment, they needed help to address and define new problems, thus the skull served as a representative of a person with special characteristics.

One must consider that the skull was not taken from every dead person, but that a selection was made, which probably corresponded to the position of the person within the community. In the Levant burials were located within the settlement under the floors of the houses. The heads were usually found in groups, and amongst them were also a large amount of women and children. The dead were buried in direct contact with the domestic area of life. But the houses seem not to have had a special position within the settlement structure. It can be assumed from the predominance of intramural burials, that the dead belonged to the household. The mainly intramural burials show that the dead still belonged to the community. Because life and death as well as sowing and harvesting were regarded as parts of one concept, the human living and the dead formed part of a social organism. From the afterlife the dead continued to act beneficially for the settlement. The different burial customs within a community indicate social distinctions. A skull cult implies beliefs of a soul that continues to live after death and is connected with the skull of the dead person. The character of possible ancestor worship is different from settlement to settlement. For example, in Ain Ghazal or Jericho the overmodelling looks different from other sites like Tell Ramad or Kfar HaHoresh. But one must clearly distinguish different phenomena that appear within the concept of skull cult. The overmodelled skulls from Çatal Hüyük and Köşk Hüyük were later than the PPNB skulls of the Levant. So one can search the origin of this custom in the Levantine region, but the custom of isolated and overmodelled skulls has also probably separate cultural roots in Anatolia. But one must point out that there exist no known connection (for example, trade routes) between the Levant and Anatolia. So it is impossible to say that the phenomenon of the skull cult derives from the Levant.

The claim stated in previous publications, namely that one can observe a skull cult only in the Levant during the PPNB, must be rejected, even if there are differences in the treatment of the skulls. On the basis of the material I could determine that there was a strong focus on the skull/ head of certain people, but I cannot clearly ascertain why these people were selected for plastering. Maybe they had a high position in the settlement or a corporeal abnormality. In addition, I could ascertain local differences in the treatment of plastering and finer differences in the burial of them. Certainly most of the skulls lost their original function with the burial (e.g. exhibition). It is also difficult to speak of an ancestor cult, because the material includes a lot of skulls from young people and also children.

The M.A. thesis delivers at the end an overview on the material and some ideas for further studies.

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2011 Biography of a Neolithic Storage Building: The Construction, Modification and Abandonment of Communal Storage and Communal Space at the Pottery Neolithic Settlement of Shir, Syria (6200-6100 BC), M.A. thesis, Free University Berlin; supervisors: Prof. Dr. Susan Pollock, PD Dr. K. Bartl

Abstract

The master thesis studied a building complex at the Pottery Neolithic site of Shir in western Syria, excavated since 2006 under the directory of Karin Bartl from the German Archaeological Institute Damascus in cooperation with the Syria Department of Antiquities (DGAMS). It represents a first step towards understanding an outstanding area in the northwest of the site, comprised of large and small buildings (*ca*. 28m x 2.5m) and unroofed areas most probably used for storage, food processing and craft work, and its implications for the community living in, with and around it *ca*. 6,200-6,100 BC. The thesis focused on processes related to Building A, being part of this building complex. Already during excavation it became clear that the building underwent numerous restructuring events and changes of use during its life, thus the concept of a building biography was chosen for the analysis of Building A. This approach develops an interpretation of larger processes in past societies from a detailed study of human activities that are preserved in architectural form. It draws on archaeological, ethnographic, architecture sociological literature.

The analysis of the archaeological record for Building A was carried out for each room and the building skeleton separately, and the seven biographies were then combined to reconstruct the biography of Building A. For this to be achieved, depositional layers and lenses in the room fills were identified using the descriptions, photos and plans recorded during excavation. It turned out that while complex sequences of use, re-use and abandonment could be reconstructed for each individual room, only in very few cases could certain events be related to the sequence of neighbouring rooms. It is therefore impossible to establish a chronology of the events that resulted in the depositions of the excavated layers encompassing the whole building and to grasp its appearance at a certain point in time. The visualisation of the biography of Building A therefore was not done in form of phase plans, but in form of a table showing the possible contemporaneity of events.

The biography of Building A can be summarised as construction – original use – temporal abandonment – multiple events of re-structuring and re-use for different purposes such as storage and refuse disposal, possibly also living spaces, use of fire and re-use of deposited refuse – final abandonment. The very good state of preservation of the building ensemble indicates that this complete process did not take more than a few decades, thus reflecting a time of rapid and important alterations in the lives of people related to the building.

Two episodes of the biography were chosen for further discussion and evaluation: the original use of the building as a large storage facility, and its long second life marked by alternating uses as storage facility and phases of refuse disposal. In order to arrive at a preliminary interpretation of original Building A and the whole building complex, previous research on Neolithic storage buildings and organisation and on abandonment and refuse was studied. A discussion based on the evidence from Building A itself and the literature identifies the original building as a facility for the communal storage of plant staple foods. Its biography characterises the period of the early Pottery Neolithic in Shir and beyond as a time of important changes in the life-ways of its inhabitants, which might have been catalysed by a climatic deterioration during the 8.2ka event in combination with human choice about responses to it, and possibly an encounter of groups following different life-ways, resulting in exchange and/or conflict.

The study of Building A and the preliminary interpretation summarised here shall later be complemented and revised by analyses of the neighbouring roofed and unroofed spaces, artefacts and organic remains from the room fills and contemporary buildings of the main settlement at Shir.

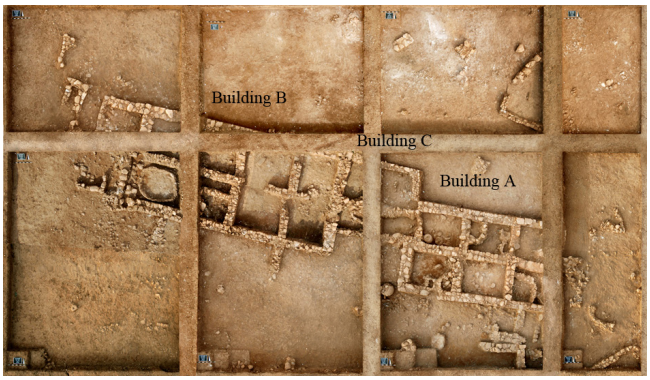

Fig. 1 Shir, Northern Quarter: Buildings A and B under excavation (Bartl n.d.: Fig.15).

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Errata Note

Neo-Lithics 2/10, Contents List, Page 2:
The editors of Neo-Lithics regret a mistake in the authors' list: Please, read correctly Coşkun, Benz, Erdal, Koruyucu, Deckers, Riehl, Siebert, Alt and Özkaya instead of M. Benz, Living by the Water – Boon and Bane for the People of Körtik Tepe.

Neo-Lithics 2/10, Submerged Neolithic Settlements of the Mediterranean Carmel Coast and Water Mining in the Southern Levant by E. Galili and B. Rosen
Page 48, left, Line 14 from top: change to BP. It should be: ranging 8210-8370 cal BP
Page 48, right, Line 5 from bottom: add. It should be: ... olive oil (pits) containing broken…
Page 49, left, Fig. 5 caption, Line 3: omit PPNC. It should be: excavations.
Page 51, left, Line 23 from bottom: change to 4 m. It should be: additional 4 m …
Page 51, left, Line 6 from bottom: add and omit fruit trees. It should be: cereals and legumes, animal husbandry, …

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