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Published and distributed by *ex oriente*, Berlin
ISSN 1434-6990

NEO-LITHICS 1/98

A Newsletter of Southwest Asian Lithics Research

Editorial Note

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Gary O. Rollefson & Hans Georg K. Gebel

Sha'ar Hagolan 1997

Yosef Garfinkel
Institute of Archaeology, Hebrew University, Jerusalem

Introduction

The Yarmukian culture of the Pottery Neolithic period at Sha'ar Hagolan was first identified by M. Stekelis, who worked at the site between 1948-1952 and who published the final excavation report in Hebrew in 1966 and in English in 1972. New excavations at this major Neolithic site were initiated by Yosef Garfinkel on behalf of the Institute of Archaeology of the Hebrew University of Jerusalem. Four seasons were carried out so far, in 1989, 1990, 1996 and 1997. Stekelis' excavations were carried out in four different areas, all of them several hundred meters away from the Earmark river bank. The new excavations focus on one area only, close to the river. Although the following report concentrates on the most recent excavation season, it summarizes results of the previous three seasons as well.



Fig. 1. Sha'ar Hagolan 1997. The completely excavated monumental structure.

The Excavations

During the four seasons c. 750 m² were uncovered. Rich assemblages of pottery, flint, stone artefacts, art objects, obsidian and animal bones have been systematically collected by sieving the excavated sediment. A monumental building has been completely exposed. This 400 m² complex is composed of one triangle-like courtyard surrounded by eight rooms. One room is rounded (a silo?); the other are either rectangular or square. Three are paved with flat, basalt river pebbles. This structure is the earliest example in Israel of "courtyard building", which was very common in the ancient Near East and which is still used nowadays by traditional village communities. The building has one

entrance, from the street directly into an enclosed, open courtyard, which served as the center of the building and in which most of the activities took place. A series of roofed rooms, smaller than the courtyard, is located around it and open onto it. Some of them may have served for dwelling and others for storage.



Fig. 2. Sha'ar Hagolan 1997. The eastern part of the monumental structure and the curved alley alongside it.

Three outstanding finds have been discovered in the monumental building, suggesting that the building functioned as an important trade and cultic center:

1. Mediterranean sea shells, which were transported over a distance of 60 km.
2. Artefacts made of obsidian, a volcanic glass mineral found only in Anatolia and which testifies, therefore, to an exchange network that spanned some 700 km.
3. An unusually large clay statue of an anthropomorphic figure. Another clay figurine was found in a pit, north of the structure.

East of the monumental building there is a curved alley, and further east the edge of a second large complex is beginning to emerge.

West of the completely uncovered monumental building there is a 3 m wide straight street, and the edge of a third large complex is beginning to appear at the other side of the street. This building is very promising, since the areas so far excavated in it are richer in finds than those of the first monumental building. The finds include two basalt mortars (one with a pestle still lying in it); 12 stone weights; a basalt pebble with 11 parallel straight lines incised on one side and a central groove (interpreted by some as a symbol of the female sex organ) on the other; a clay cylinder pointed at both edges (sometimes interpreted as symbolizing the male sex organ); a zoomorphic clay figurine; an anthropomorphic pebble figurine; and pottery sherds with elaborate decorations. The fact that so many items have been discovered lying on the floors of this house suggests that its inhabitants did

not abandon it, and still expected to use it. The concentration of three such large structures indicate that we are currently excavating the heart of the ancient village of Sha'ar Hagolan.



Fig. 3. Sha'ar Hagolan 1997. A clay figurine of a female with cowrie shell eyes (photo by Gabi Laron).

Sha'ar Hagolan is exceptional in the fact that over the years more than 150 prehistoric art objects have been collected from the surface by local farmers, rather than in the course of scientific excavations. Thus, no information has been available concerning the function of these objects in the Neolithic community. Following the 1997 excavation season, it is now clear that this rich symbolic expression is associated with a well-planned village and monumental architecture, the earliest to have been discovered in Israel.

Deadline for the coming issue of *Neo-Lithics* is **June 1st, 1998.** (next deadline: Nov 1st)

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Fig. 4. Sha'ar Hagolan 1997. A clay statue of a seated woman (photo by Gabi Laron).

**New Late Pre-Pottery Neolithic B Sites
in the Jordanian Desert**

Philip J. Wilke & Leslie A. Quintero
University of California, Riverside

Since ancient times, arid-land nomadic pastoralists have pursued their existence across vast stretches of North Africa, the Middle East and the Arabian Peninsula, the Iranian Plateau, and on up through Southern and Central Asia to Mongolia. Across much of this immense region, nomadic pastoralism remains the only viable subsistence adaptation, attesting to the endurance and magnitude of this ancient lifeway. The roots of nomadic pastoralism are now the object of significant investigation in many of these areas (ZARINS 1990, BAR-YOSEF and KHAZANOV 1992, KÖHLER-ROLLEFSON 1992). In the Levant, reappraisals of Neolithic adaptations and discovery of tantalizing new sites give evidence that nomadic pastoralism may have originated during the PPNB.

Current research is focused on the Late PPNB presence in the arid portions of Jordan, as noted by the discovery and pending exploration of Bawwab al-Ghazal in the Azraq area (discussed previously in *Neo-Lithics* by WILKE *et al.* 1997). Three additional sites dated to the LPPNB have been found deep in the Jordanian desert. These sites are being tested to understand the early use of the arid zone of Jordan during the Pre-Pottery Neolithic and to discern if they are related to early nomadic pastoral adaptations in the area. Two of these sites are located about 50 km. ESE of Azraq

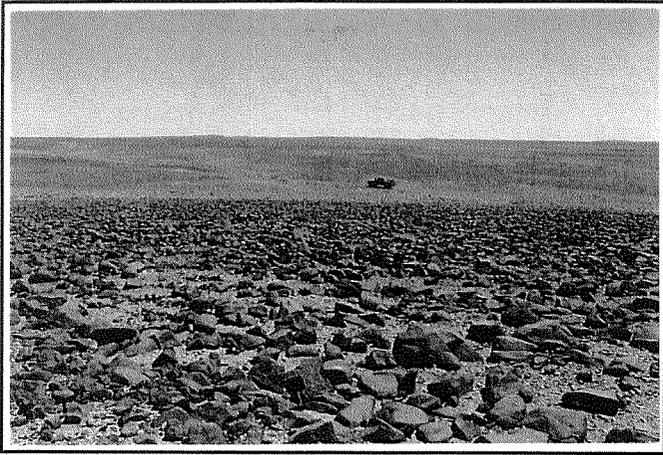


Fig. 1. View of Wadi Rajil-1. The lithic assemblage is clustered at the point from which the photograph was taken. The truck is adjacent to the small drainage containing the exploited flint exposure.

in an area reported on by Betts (1982), where Wadi Rajil spreads out onto Qa Muqalla (Qa Mejalla) as it traverses the Black Desert. The other site is located on the northeast rim of the arid Jafr Basin about 50 km. northeast of the military post of el-Jafr, and was discovered during reconnaissance of the region by the Jafr Basin Project in the summer of 1997 (QUINTERO and WILKE, this issue). All of the sites are located in extremely arid environments that probably receive less than 75 mm. of precipitation per year. Brief descriptions of the sites are as follows:

Wadi Rajil-1: Wadi Rajil-1 (Fig. 1) is situated on a steep slope on the south side of a high basalt hill about 1 km. south of Wadi Rajil and about 1.5 km. upstream from Qa Muqalla. The surface assemblage is scattered densely over an area 30 m. across, and diffuses to cover a larger area, extending downslope more than 100 m. to a minor drainage. The drainage contains natural exposures of very high quality nodular flint, predominantly gray in color (Fig. 2). Initial field observations of Wadi Rajil-1 suggest strongly that it is an LPPNB naviform core-production and -reduction site. The surface assemblage includes more than 50 exhausted naviform cores and abundant debitage from production and reduction of such cores. While poor-quality blades and blade-production debitage abound, good, straight blade-blanks for tool production are rare. Formed tools likewise are very poorly represented.

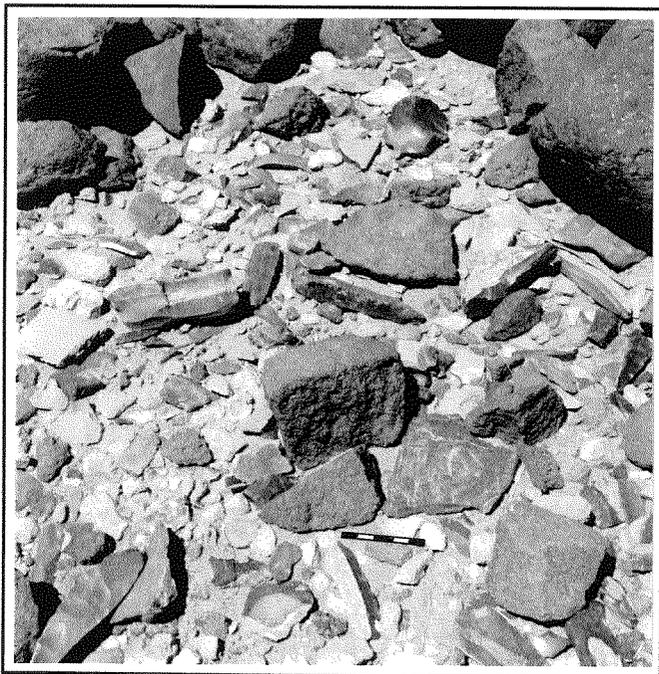


Fig. 2. Surface lithic scatter of Wadi Rajil-1 containing exhausted naviform cores and core-production and -reduction debitage.

The site appears to be a flint-procurement and blade-production locality where blades were made and then removed for use elsewhere. The assemblage has great potential for studying core-production and -reduction activities and strategies, and to ascertain the relationship of the lithic assemblage to similar LPPNB industries at major central PPNB settlements in the Jordanian highlands (cf. QUINTERO 1998). The site appears to represent very focused blade production activities based on naviform core technology at a special-use site. As such, it would be the first specialized site of its type known. To date, specialized naviform core-production industries are associated primarily with settlements, mainly those in the highlands. The Wadi Rajil-1 assemblage needs to be carefully studied to verify these initial assessments, and further testing is needed to ascertain if any excavatable deposits are present on the rocky terrain.

Wadi Rajil-2: Wadi Rajil-2 is a very small site not over 20 m. across and is located 1.5 km southeast of the point where Wadi Rajil enters Qa Muqalla, about 1 km. west of Wadi Rajil-1. Its location is 800 m into a basalt formation on a high hill with a commanding view. The terrain is extremely rough and fully mantled by basalt boulders of large size. Surface artifacts are quite varied, but they represent an LPPNB presence and include a Byblos projectile point, a number of naviform blade cores, single-platform blade cores, much blade-production debitage, blade fragments, and other items. The varied assemblage suggests use of the site for a variety of purposes during some portion of the LPPNB, and may reflect an LPPNB camp. No exploitable lithic raw material occurs in the immediate site vicinity. It is possible that subsurface deposits exist, and that the surface environment was much different from what it is today. Soundings between basalt boulders are necessary and may prove otherwise. The site has a good assemblage that can be studied for technological information that will help to clarify its economic role and the function it served in the past.

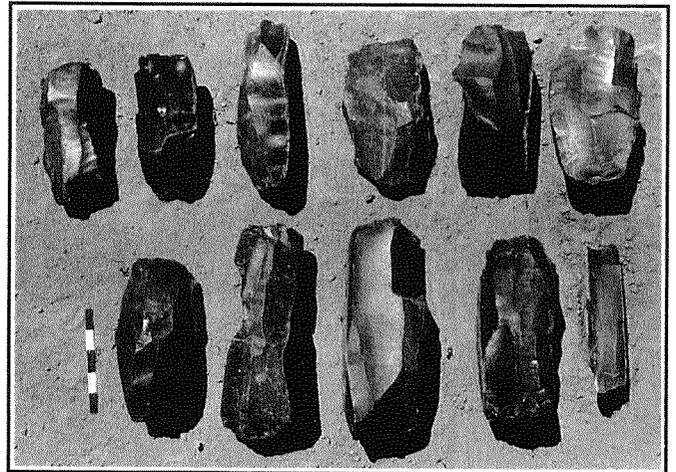


Fig. 3. Exhausted naviform cores at Jafr-17.

Jafr-17: Jafr-17 appears to be a small LPPNB encampment and is the most isolated and remote Neolithic presence yet found in far southeastern Jordan. It is situated immediately on the northeastern rim of the Jafr Basin, at the head of a main tributary of Wadi Quweir. The location is in the upland on the divide between the drainage of the Jafr Basin and that of the extensive Wadi Bayir system to the north. The main portion of the site is about 25 m. across, and contains a very dense LPPNB lithic assemblage that includes many naviform blade cores (Fig. 3), single-platform blade cores, core-production and -reduction debitage, burins of various kinds, a transverse-parallel pressure-flaked biface fragment, borers, and other artifacts. No projectile points were found, despite an exhaustive search. The presence of subsurface deposits has not yet been determined. A major surface feature is a rock-walled corral (about 10 by 25 m.) about 100 m southeast of the lithic deposit, built into the flanking slope of the tributary wadi. The corral has a meager assemblage of lithic flakes, so that its clear attribution to the Neolithic has not yet been made, and its apparent association to Jafr-17 needs verification.

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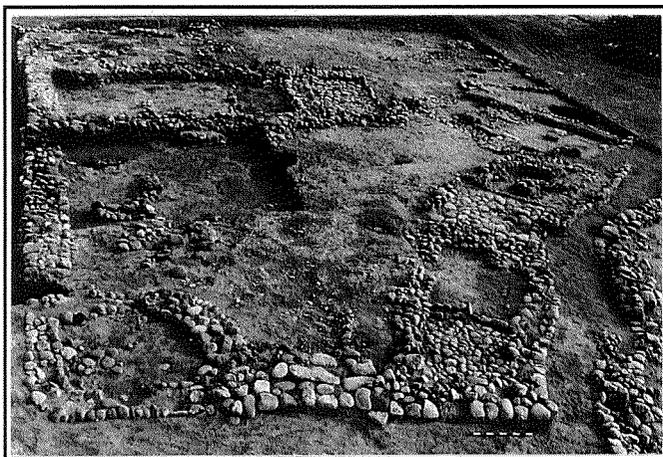


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entrance, from the street directly into an enclosed, open courtyard, which served as the center of the building and in which most of the activities took place. A series of roofed rooms, smaller than the courtyard, is located around it and open onto it. Some of them may have served for dwelling and others for storage.

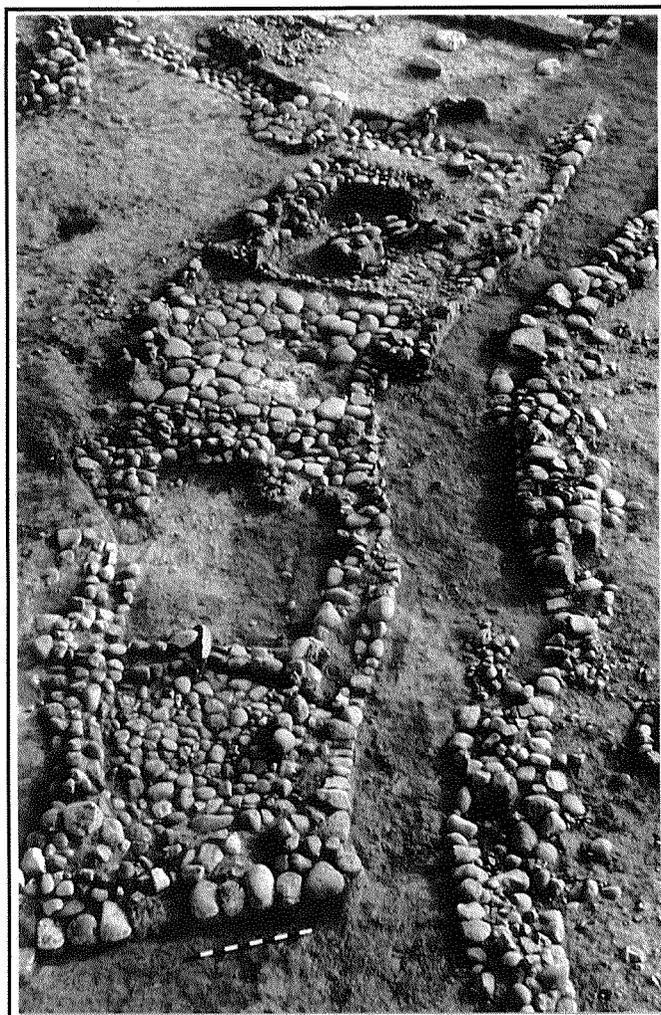


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Jafr-17 is significant because there is a strong possibility that it is an expression of pastoral adaptations in the LPPNB: its abundant and varied lithic assemblage is not strongly suggestive of hunting activity; it is located in very marginal desert terrain, but it is on a wadi drainage that likely afforded pasturage (as it does today) and access to water; and there is a possible association of a corral that may have been used for flock containment. All of these factors argue that Jafr-17 was a pastoral encampment.

Further studies of these sites are planned for the coming year, and there is great hope that these investigations, and the research at Bawwab al-Ghazal near Azraq, will enhance our understanding of the origins of pastoral adaptations in the desert zones of Jordan.

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Jafr Basin Archaeological Project

Leslie A. Quintero and Philip J. Wilke
University of California, Riverside

The sparsely explored Jafr Basin is the empty quarter of southeastern Jordan (Fig. 1). It is a rugged land dominated by ancient limestone escarpments that rim the largest enclosed playa system in Jordan, encompassing nearly 15,000 km² (BENDER 1974, 1975). In the center of the basin is Qa el-Jafr, an enormous dry Pleistocene lake that is estimated to have contained at its latest high stand 26,000 years ago a freshwater lake over 1,800 km² in area (HUCKRIEDE and WIESEMANN 1968), thus providing a rich lacustrine environment for ancient human



Fig. 1. Map of Jordan showing the general location of the Jafr Basin and the study area discussed in the text.

occupation. Nonetheless, only perfunctory scientific exploration has been conducted in this vast area, consisting mainly of undocumented reconnaissances and observations made in the course of early geologic exploration. This latter research by Huckriede and Wiesemann (1968) noted a conspicuous Upper Paleolithic human presence in the basin and some Middle Paleolithic material. Except for these studies, and a limited excursion by researchers from Japan in 1995 (FUJII 1996), the archaeological record of the Jafr Basin remains almost completely unknown, lacking even a preliminary archaeological sequence.

Recent studies commencing in 1993 (QUINTERO and WILKE 1998a, 1998b) established that the escarpments bordering the basin on the north and east (Fig. 2), the adjacent uplands, and the intermediate hills in the lowland contain abundant archaeological sites, attesting to very lengthy human occupation of the lacustrine environment and immediate vicinity. Two initial reconnaissances and a preliminary survey of the northern and eastern sections of the Jafr Basin resulted in the discovery and initial recording of 45 archaeological sites and their occurrence with respect to various geomorphic features in the basin. These extensive archaeological sites consist almost exclusively of lithic artifacts. While site data are attributable to a broad time frame, ranging from the Lower Paleolithic to the Neolithic, on technological grounds most are assignable to the Middle and Upper Paleolithic periods. Epipaleolithic and Neolithic cultural materials are also extremely important, however, as is the fact that both the geologic and cultural environment are in essentially pristine condition. And, while there has yet been no subsurface exploration of these sites, abundant quarry detritus at large flint extraction localities suggests that sites with some depth are present in the region. Taken together, these numerous and well-preserved sites make the Jafr Basin an incredible resource to extend our understanding of the human occupation of Jordan's desert regions.

The preliminary survey of 1997 extended from the west flank of Jebel Ghuzeima (Jebel Ghuzeima, 325III, 1:50,000) on the northern rim of the basin southeastward approximately 50 km. to Tell Wad'at esh Shahba (Qian Wad'a, 3350IV, 1:50,000) on the east edge of the Jafr qa. This phase of the project assessed the archaeological potential of diverse geomorphic regions in the basin. Preliminary assessment of the 45 sites located during this latest phase of research defined several ancient patterns of land use and site types in the survey area:

- (1) Lower Paleolithic sites in the survey area were poorly represented, consisting mainly of isolated handaxes on the flanks of the escarpment, and one cluster of lithic scatters in a single truncated wadi drainage that must once have contained an ancient spring.
- (2) Middle Paleolithic surface scatters were nearly ubiquitous and constitute one of the most abundant archaeological expressions noted in the region. There also is strong evidence supporting a Middle Paleolithic association with numerous, large, flint quarrying sites that occur along the entire span of the escarpment, wherever strata of good-quality flint are exposed and were available for use. Reduction of blocks of flint at these sites produced massive flake cores for the production of "side-struck," often cortical, flake blanks for scraper production (Fig. 3).
- (3) The Upper Paleolithic presence in the survey region is equally well-represented by numerous lithic scatters and blade core production-and-reduction localities. These latter sites also are often associated with impressive flint quarrying activities, and further documentation and study are needed to understand the nature of this association.
- (4) Epipaleolithic sites were notable in the southeastern portion of the region, in the lowlands and near the ancient lakeshore line (see HUCKRIEDE and WIESEMANN 1968). Those in the survey area consisted of sparse lithic scatters, consisting primarily of blade-core and bladelet-core reductions.
- (5) Finally, Neolithic use of these desert lands is evident from a single LPPNB encampment that was located in the upland region. Its surface lithic assemblage includes naviform core-production and -reduction debris, many naviform cores, and various types of mainly informal tools. A stone enclosure – apparently a corral – occurs nearby. The possibility that this site represents a pasto-

ralist camp warrants further exploration (see WILKE and QUINTERO, this issue).



Fig. 2. View of escarpment and flint-bearing sediments on the northern rim of the Jafr Basin. Quarrying and reduction sites in this region attest to extensive exploitation throughout the Paleolithic and continued use into the Neolithic.

Additionally, petroglyph sites of undetermined age and cultural association were noted in several regions in the upland. Documentation of these sites is scheduled for later phases of the project.



Fig. 3. Large flint block with two "side-struck" flake removals, typical of material from numerous quarry sites along the Jafr escarpment. Technological features and associated artifacts suggest a Middle/Upper Paleolithic age for this industry.

Of considerable concern for future research is the fact that all of the archaeological sites so far observed in the Jafr Basin are vulnerable to current, and potentially, future disturbance and destruction. An influx of modern land-use activities in the region, such as recent off-road vehicle races on the Jafr qa, makes it apparent that the pristine archaeological environment is not likely to prevail. In addition, a geological mapping project is being conducted by the Ministry of Energy and Mineral Resources, Natural Resources Authority, Geological Survey and Bureau of Mines, to assess the mineralogical potential of the region (e.g., KHERFAN 1987). It is essential, therefore, that archaeological surveying continues to record the presence and context of ancient cultural remains while they are still undisturbed.

Future plans of the Jafr Basin Project include detailed archaeological surveys of selected geomorphic settings and paleoenvironmental zones of the basin. Specific investigations also will include evaluation of patterns of occupation in this region of the basin, such as: (1) the conspicuous exploitation of flint from the flint-bearing deposits in the northern rim of the basin, particularly the extensive quarrying of flint blocks for both flake production and blade production during the Middle/Upper Paleolithic; (2) a Lower Paleolithic presence in regions of wadi drainages where

ancient springs were likely; (3) Epipaleolithic use of isolated flint outcrops near the projected Pleistocene lakeshore line; (4) Neolithic use of the northern uplands, particularly the LPPNB presence in this arid region; and (5), the presence of numerous inscription and rock-art sites in the uplands. It is hoped that such research will help to document the significance of this region to Jordan's cultural history.

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Preliminary Report of the 1997-98 Ghwair I Excavation Season, Wadi Feinan, Southern Jordan

Alan H. Simmons, University of Nevada at Las Vegas
&
Mohammad Najjar, Department of Antiquities, Jordan

Introduction and Research Strategy

During the winter (December/January) of 1997/98 excavations at the Neolithic settlement of Ghwair I in southern Jordan were conducted jointly by the University of Nevada at Las Vegas and the Jordanian Department of Antiquities. The co-directors of the project are Dr. Mohammad Najjar and Dr. Alan Simmons.

Ghwair I is an exceptionally well-preserved Pre-Pottery Neolithic B village that was first excavated in 1993 (NAJJAR 1994). In 1996, a limited season was conducted to assess the site's potential for additional investigation (SIMMONS and NAJJAR 1997). The results of that brief season were positive, and funding for additional investigations was provided by the National Science Foundation and the National Geographic Society, with additional support from the University of Nevada at Las Vegas and by the Department of Antiquities.

One of the project's goals is to investigate Neolithic "core/periphery" relationships (cf. ALGAZE 1989). In particular, we wished to examine whether Ghwair I, located in the periphery of the Neolithic world, functioned as a "frontier outpost" with minimal amenities, or if it was an elite, but small center. We wish to compare small settlements such as Ghwair I with larger Neolithic core centers, such as 'Ain Ghazal, Wadi Shu'eib, or Basta. Another objective of the project is to initiate paleoenvironmental and paleoecological reconstruction to determine if the occupants of Ghwair I contributed to environmental degradation. Finally, we wished to determine better the site parameters of Ghwair I, seeking to define its boundaries well, architectural layout and possible social indicators, material culture, and chronology.

The 1997/98 excavations concentrated in four major areas of the site that had been previously defined. The preliminary results of our investigation are discussed below.

Area I

This is the main area of the site, where architectural remains exceeding a depth of 3m had been previously defined. In 1996, a large room containing several niches was partially excavated, and a major goal of the current season was to complete this room, designated as "Room 1." Room 1 was completely excavated down to the first clear plaster floor level. We now know that this is an un-

usually shaped structure, roughly square, but with a "jog" in the western wall (Fig.1). Some remodeling is suggested. The southern wall contains at least three niches, the western wall has a blocked-in doorway with a passage leading to the west that was later inserted into the blockage. The western wall also has a small niche, a plastered bench, and a window-like feature. Preliminary indications suggest that at least two of the "niches" may in fact have functioned as vents, as they are "hollow" up the length of the walls. Immediately in front of the bench and directly on the floor was a group of four projectile points, three long blades, and a ground stone bowl, suggesting a primary use context. Unfortunately, most of the interior of the room's plastered floor has been damaged by roof fall, thus there are few intact features. Despite this, we know that Room 1's main plaster floor was replastered at least four times. The wall was plastered as well, although this is poorly preserved.

Along the southern wall of Room 1 were the remnants of a sub-floor feature in the form of a partially slab-lined pit. Excavation of this revealed it to be empty, but it did indicate the presence of additional, earlier walls under the plastered floor.

Finally, in the upper fill of the room were the remnants of a burial.

Unfortunately, this had been badly disturbed and was in poor context. Thus, we cannot tell if it is Neolithic or intrusive.

In summary, we know that Room 1 was an unusually complex structure for the PPNB period. The presence of several niches and other wall features suggests a special-use function of the room. Additional study in the vicinity of Room 1 during the next season should clarify its function. In addition to Room 1, two adjacent 5x5m units were partially excavated. Architectural features were apparent only a short distance below the present ground surface. These will be additionally investigated in subsequent seasons.

Area II

In 1996, a 5x5m unit revealed a complex series of walls, many of which were massive and parallel, running laterally across the site (east-west). In 1997/98, these were further investigated. Water erosion also exposed a portion of wall that was partially visible on the surface. We excavated between this wall and the previously exposed one, and to our surprise, the depth here was considerable. A large layer of ashy deposits was exposed, and beneath this is another series of walls. This adds up to a total depth of over four meters below the present ground surface! These indicate much greater depth to this area of the site than anticipated, as well as a much more complex stratigraphy and building sequence.

The large east-west wall exposed in 1996 was further followed to the west for ca 10 meters. To the north of this wall is a series of additional walls or buttresses, but we did not expand upon these.

Finally, in Area II we expanded a small sounding excavated in 1996. This is nearly adjacent to the base of the mountain forming the southern edge of the site. Initially we felt that deposits here were sterile, but the new excavation revealed the presence of artifacts, but not architecture, at a depth of c. 2 meters.

Area III

In 1996 this area near the eastern end of the site was tested, revealing a large ash deposit but no architecture. In addition, an el-Khiam type projectile point, a suggestion of the Pre-Pottery Neolithic A period, was recovered, as were a large number of bladelets. Radiocarbon determinations, however, indicate a contemporaneity with the rest of the site. This posed an interesting question, thus we continued to investigate this area, expanding upon the previous excavation. As with the rest of the site, this area is now more complex than expected. The ashy deposits con-

tinued, but a stratified series of at least three plastered floors, in very bad condition, also was exposed, as were fragments of walls. The function of these is as of yet unclear.

There also appear to have been some erosion "gullies" that may have been intentionally cut into this area, perhaps to channel water. Small walls also occur in what



Fig. 1. Ghwair: large room with "jog" (western wall), niches, passages and wall openings.

may be a natural erosion channel, suggesting attempts to block water. This channel cut through the previously mentioned plastered floors. Immediately to the north of this area some additional architectural elements are visible on the surface, including one that appears to be ovoid in morphology. A 5x5m unit was started here, better defining some of the walls visible on the surface. Here another partial burial was recovered, but this was even in worse shape than that in Area I, consisting primarily of portions of a skull. This human material does not appear to be *in situ*, and we cannot at this point determine if the individual was Neolithic or not.

Area IV

Area IV was initially excavated during the 1993 season and is located near the northern edge of the site. It consists of five 5x5m units that revealed a complex series of architectural remains, as well as one intrusive Roman burial. In 1997/8, we removed a series of balks that had been left in place since 1993. Material here was extremely rich, and once the balks were removed, the architectural plan was much clearer. As with other portions of the site, there appear to have been at least three building phases. What is striking here is that the earliest phase seems to have included a very large room, approximately 10 meters on each side. This was subsequently reduced during the second phase into a much smaller room, and finally, during the third phase, was further divided into

small units that may have been the lower storage units of a two story building.

New Areas

Several new areas of the site also were gridded out for subsequent investigation. This included a portion on the northwest slope of the site, where abundant architectural remains are visible on the surface. We also laid out two 5x5m units between Areas II and IV (labeled Area V) and excavated these down through the first level of fill. Finally, on the northern low terrace of the site, where some Roman remains are visible, we excavated two 1x1m units as geological test pits. These were over a meter deep and assisted the site geomorphologist in determining the deposition sequence of wadi deposits.

Chipped Stone

As expected, a huge quantity of chipped stone material was recovered. Over 30,000 artifacts were systematically recovered during this and the 1996 season. These are being subjected to a thorough typological and technological analysis following parameters established by Gebel and Kozlowski (1994). Initial impressions of this assemblage is that all stages of chipped stone reduction occurred on-site. Detailed analysis of these materials should allow us to determine technological parameters of the occupants of Ghwair I. What is apparent, and somewhat unusual, is that there is a large number of microlithic elements present at the site, not in the form of tools, but rather as bladelets. This may be related to the specialized blade technology utilizing naviform cores, where Quintero and Wilke (1994: 40) have demonstrated that bladelets are a by-product.

The tools have not yet been analyzed, but are consistent with materials previously recovered. A large number of projectile points was retrieved. While many of these are Byblos types, a variety of types is represented, including some very small forms. The el-Khiam point previously found at the site so far remains unique.

Ground Stone

Ground stone artifacts of numerous varieties also were recovered. These included a number of quern and pestle types, as well as more unusual forms, such as a large perforated weight.

Other Finds

A variety of other materials was recovered. These included some beads, a mica or mother-of-pearl pendant perforated at both ends and in the center, and a beautifully manufactured bone pendant. Unlike previous seasons, however, no complete clay figurines were recovered.

Specialized Studies

Fauna. Dr. Paul Croft is conducting the analysis of the faunal remains. Thus far, a variety of economic forms have been recovered, and he has identified gazelle as well as sheep/goat and numerous other species.

Paleobotany. Dr. Reinder Neef floated several liters of fill material and recovered a large amount of materials. These included abundant and identifiable charcoal, barley, emmer wheat, pea, and pistachio.

Phytoliths. Dr. David Rhode collected samples for phytolith and pollen analysis, which will be conducted in the United States.

Geomorphology. Dr. Rolfe Mandel conducted a preliminary geomorphological analysis of the site. He has identified three landforms upon which the site is located: an alluvial fan, a colluvial apron, and a high Pleistocene terrace. Most of the western third of the site is associated with the alluvial fan that formed at the mouth of a small, high-gradient wadi that joins Wadi Ghwair from the south. It was this wadi that initially exposed several meters of architecture at the site.

Mandel's study will place Ghwair I within a wider geological context and will address site formation and post-occupational processes as well as assess the site's economic potential. He also will study the possibility that the inhabitants of Ghwair caused severe environmental stress, as has been suggested for larger Neolithic core settlements, such as 'Ain Ghazal (e.g., ROLLEFSON 1997).

Radiocarbon Dates

Thus far, six radiocarbon determinations are available for the site. These are summarized in Table 1, and they indicate an early Middle PPNB placement.

Table 1. Radiocarbon Determinations for Ghwair I, Jordan.

Date bp	Cal BC	Lab No.	Provenience
8812 ± 61	7950-7870 7815-7705	Hd 17129- 17541	SW, Area 1, 10S40W, "early"
8627 ± 46	7690-7660 7635-7540	Hd 17220- 17550	SW, Area 1, 05S35W, "late"
8528 ± 89	7575-7485	Hd 17221- 17359	NE, Area 4, 30N10E
8754 ± 5 2	7929-7592	DRI 3256	SW, Area 2, 15S05W, Lev 3
8755 ± 311	8484-7033	DRI 3255	NE, Area 3, 00N40E, Lev 4
9027 ± 116	8345-8297 8273-7881 7810-7711	DRI 3253	SW, Area2, 15S05W, Lev 3
8806 ± 52	8007-7693 7661-7636	DRI 3251	SW, Area 1, 00S35W, Rm 1, Lev 5
8880 ± 117	8083-7592	DRI 3252	00S35E, Area 1, Rm 1, Lev 5
8659 ± 178	8035-7411 7399-7377 7368-7309	DRI 3254	SW, Area 1, 00S35W, Rm 3, Lev 6

Conclusions

The 1997/98 season at Ghwair I was extremely successful. We now know that the site is far more complex than previously believed. In particular, the architectural sophistication of the site indicates that Ghwair I was more than a simple "outpost." Several questions remain to be answered, and these will be addressed in subsequent seasons.

The co-directors wish to thank the Department of Antiquities and its director, Dr. Ghazi Bisheh, for assistance in the project. We also would like to thank the people of Wadi Feinan for their help throughout the project, as well as the Royal Society for the Conservation of Nature, the British Institute for Archaeology and Ancient History, and the American Center for Oriental Research.

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A New LPPNB Figurine Type: The "Tell Assouad Type"

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In Neo-Lithics 1/97 Mark Verhoeven gave an informative report about the excavations at Tell Sabi Abyad II. Beside the illustrated Byblos-points, which clearly include the variant described as Palmyra points (SCHMIDT and BEILE-BOHN 1996; cf. VERHOEVEN 1997, Fig. 2,1), he published three small limestone figurines, which represent two types.

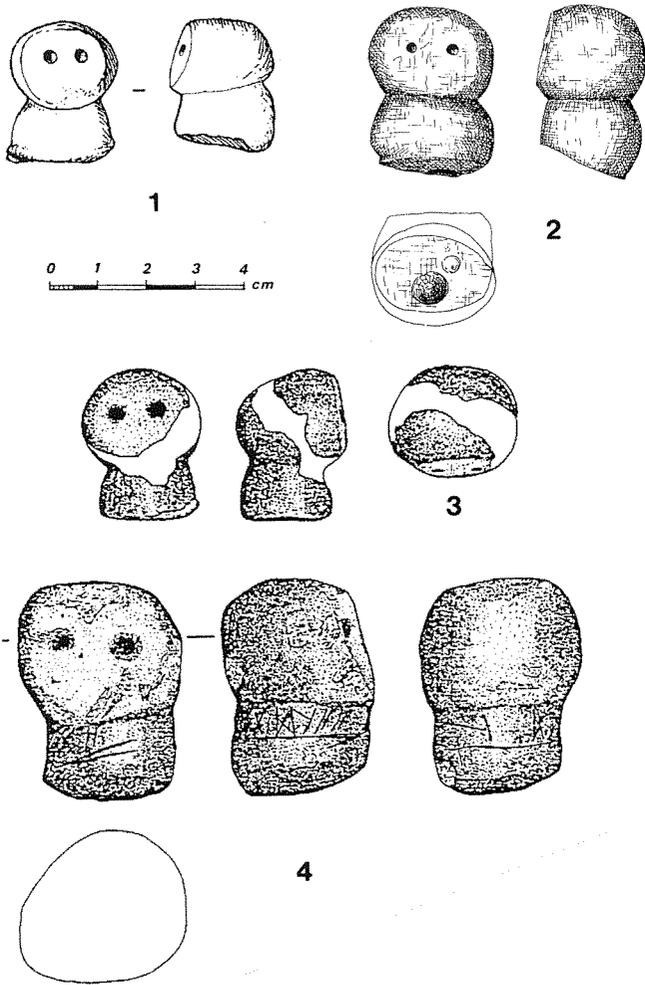


Fig. 1. Stone figurines of the Assouad-type: 1 from Tell Assouad (after Cauvin J. 1972: Fig.: 4:6); 2 Gürcütepe II; 3-4 Tell Sabi Abyad II (after Verhoeven 1997: Fig. 3:2-3); all made of limestone.

The first example is not subject of this article. As second type Verhoeven describes two small and very stylized human heads made of soft limestone (VERHOEVEN 1977, Fig. 3,2-3; here Fig.3-4). He remarks that no facial features are indicated apart from the eyes, which are represented by two small holes. On the upper part of the neck of the larger example (height 4.6 cm; the smaller one 3.2 cm) a number of shallow incisions are observable, which seem to indicate a necklace. Verhoeven further suggests that these heads were originally fastened to a body of clay or wood, as they cannot stand by themselves. Verhoeven already gives reference to a similar figurine from Tell Assouad (Cauvin 1972: 89, Fig. 4,6), which is very small (height 2.8 cm, here Fig. 1).

A further example now is known from Gürcütepe II (Fig. 2; height 3.6 cm). Again, it is made of soft limestone. As all four figurines are from LPPNB context and no earlier or later examples of this kind of representation are known to the author, it is proposed to call these figurines as type Tell Assouad, which seems to be a special L PPN B type of figurative small finds.

The suggestion of Verhoeven, that the heads are fastened to a separate body (of different material or not), is exactly proven by the Gürcütepe example, which shows a hole at the bottom, which allows a kind of attachment with another part. Figurines with separate head are well known in later periods in Aegean Prehistory ("Steckkopfidole"). Especially in the Chalcolithic Rahmani Culture of Thessaly stick-like heads made of marble are fastened in clay bodies (e.g. CHRISTMANN 1996: 308 Pl.151,7: a marble "Steckkopf" fragment *in situ* in a clay body). Also the four anthropomorphic bone figurines from Nahal Hemar Cave (BAR-YOSEF and ALON 1988: Fig.14,1-4; Pl. 9,1-4) seem to be the heads of "Steckkopfidole". Whilst the fastening method of the Assouad type heads is quite different from the plug-like lower parts of Nahal Hemar or Aegean examples, a widespread ritual be-

haviour using composite figurines in certain occasions is getting visible. The use of such composite figurines may have been connected with rituals, which caused the damage of the heads observable at most of early Neolithic anthropomorphic stone and clay figurines (e.g., BAR-YOSEF 1980: Figs. 3-4).

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A Note on PPNA Intra-Site Tool Variability

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The variability of PPNA lithic assemblages has recently been addressed again (KUIJT 1996, 1997; GOPHER and BARKAI 1997). This is the result of the publication of new finds from 'Iraq ed-Dubb (KUIJT 1996, KUIJT *et al.* 1991), Dhra' (KUIJT 1996) and 'Ain Darat (GOPHER 1995) on one hand, and the final publications of the Hatula, Netiv Hagdud and Salibiya IX assemblages on the other (LECHEVALLIER and RONEN 1994, NADEL 1997, ENOCH-SHILOH and BAR-YOSEF 1997). The aim of this limited and short note is to comment briefly on certain points concerning PPNA assemblages as they were raised in recent publications. *Inter-site* variability is usually interpreted in terms of cultures and chronology, and here is where the "Sultanian - Khiamian" debate developed. As part of my views, I would like to address the issues of continuity and innovation before turning to *intra-site* variability. I would also like to comment on the Netiv Hagdud lunates and the "absence" of certain tool types.

Continuity

In various aspects, there is clear continuity from late Natufian to Neolithic flint knapping technologies (e.g., BELFER-COHEN 1994). Among other observations, the PPNA assemblages include many small tools, a continuity of a long tradition. However, in Upper- and Epipalaeolithic instances, these small tools are called microliths. In PPNA cases, they are called arrowheads (though a large number of arrowheads are microliths by their dimensions) and Hagdud truncations (all of which are microliths in their dimensions). In addition, lunates were still manufactured during the PPNA - and I shall return to these below.

Innovation

The PPNA tool kit includes new types, never found in Natufian assemblages. These types do not appear instead of Natufian types. Thus, the appearance of arrowheads, symmetrical axes/chisels and Hagdud truncations does not coincide with the immediate disappearance of Natufian tool types. In other words, the PPNA tool list is longer and more varied than the Natufian list. Thus, there is a period where *both* microliths and new Neolithic types are manufactured (PPNA). However, by the end of the PPNA, the "old" types of microliths disappear (there are virtually none in PPNB assemblages).

The second point concerning innovation is the establishment of left-right symmetry in small tools. Such symmetry is not found in any of the Epipalaeolithic microliths, but it is a most important characteristic of arrowheads and other small Neolithic tools (NADEL 1994). This innovation reflects new hafting techniques (BAR-YOSEF 1987).

It should be noted that the Neolithic innovations do not appear gradually in the archaeological record. For example, there is no intermediate stage between asymmetric microliths and symmetric arrowheads.

Intra- and Inter-Assemblage Variability

In Natufian and other Epipalaeolithic sites, it is common to find the entire range of typological variability in each site, and even in each locus. Within each of the Epipalaeolithic cultures, the intra- and inter-assemblage tool type variability is more a question of quantitative scale than a qualitative one.

However, in PPNA cases, it is common to find typological differences between assemblages from contemporaneous loci at a site. For example, on three of the best preserved floors in the Upper Area at Netiv Hagdud, there are no arrowheads, no Hagdud truncations, one sickle blade and four bifacial tools (Table 1). In contrast, on another well-preserved floor (in the Deep Sounding), there were two El Khiam points, one sickle blade, two Hagdud truncations and no bifaces. In simple words, whereas in Epipalaeolithic sites the different tool types are found all over the site (this is the observed trend, though there are some exceptions), in PPNA sites certain tools are restricted in their distribution patterns. Thus, excavating one or two structures does not provide the range of variability of the entire site. It would seem that the differential distribution patterns of artefacts in PPNA sites represent patterns of human behavior that are distinct from preceding ones.

Table 1. The composition of the tool assemblages on three floors and in one open area (modified from NADEL 1997).

TOOL TYPE	L. 8A (floor)	L. 21A (floor)	L. 26A (floor)	L. 18 (open)	L. 1001A (floor)
point				7	2
borer-awl	2	4	1	85	5
sickle blade	1			6	1
bifacial	3	1		22	
scraper				2	2
burin	1	14	1	42	4
Hag. truncat.				5	2
ret. blade	1	8	1	55	4
microlith		1	1	22	26
geo. microlith	1	4		20	31
other	4	13	2	104	7
TOTAL	13	45	6	375	84

The Netiv Hagdud Lunates

It has been suggested by Kuijt (1996) that the microliths/lunates are not an integral part of the PPNA industry. The Netiv Hagdud case seems to contradict this statement. In general, if the PPNA lunates are intrusive, their dimensions will be used as a proof. This is because the Netiv Hagdud lunates do not continue the general Natufian trend of diminishing size through time (KUIJT 1997). However, as there are many PPNA technological and typological innovations, it is not self-evident that the PPNA lunates should be as small (or even smaller) than the final Natufian lunates. In addition, one of the characteristics of the Netiv Hagdud tool collection is the fact that there is a high range of size variability in each and every tool type. For example, there are "microlithic" El Khiam arrowheads, and there are bigger El Khiam arrowheads, which are 2-3 times longer. Accordingly, a variability in the size range of lunates could not be used as an argument against them being an integral part of the PPNA industry.

On an intra-site level, it is reasonable to compare the distribution of lunates to El Khiam points and Hagdud truncations because they are of more-or-less similar dimensions. Thus, if post depositional processes are responsible for relocation of artefacts at the site, the three types would have been affected in the same manner. At Netiv Hagdud, the number of lunates (n = 90) is somewhat higher than the El Khiam points (n = 62, including the varia and fragments) and Hagdud truncations (n = 63). The lunates are found in all types of loci (in association of floors, walls etc.). Furthermore, they are usually associated with El Khiam points: the two types were found in 52 loci and excavation units, and in c. 80% of the loci where lunates were found, there were El Khiam points too. The association with Hagdud truncations is less clear, as the truncations appeared "only" in 66% of loci and excavation units in which lunates were found. It should also be pointed out

that there are 23 loci and excavation units in which none of the three types was found.

If the lunates are indeed intrusive at Netiv Hagdud, the work of convincing the audience is to be undertaken by the one who claims so. The similar quantities and distribution patterns of lunates and other small tools are of importance here. Had the lunates been intrusive, a distinct pattern of distribution should have been documented. This is the case with the trapezes-rectangles, found in high concentrations almost exclusively in mud-brick material.

The "Absence" of Tool Types

Some of the most indicative PPNA tool types are found in relatively low numbers. For example, each of these types (arrowheads, bifaces, sickle blades and Hagdud truncations) forms less than 10% of the tool assemblage, and usually even less than 5%.

In addition, these artefacts are not randomly or evenly distributed over the site. Some are more common on floors, others are more common in the open spaces. Thus, the excavation of just one or two structures, or an open area at any similar site would not produce a tool assemblage representative of the entire site. As stated above, there are many loci at Netiv Hagdud with no El Khiam arrowheads, no Hagdud truncations, no axes/chisels and no Beit Ta'amir sickle blades.

And there is another point, relevant to this discussion, namely the density of finds. At Netiv Hagdud, c. 160 m³ were excavated (and all sieved). This means that the average density of El Khiam points, for instance, is only 0.37 specimens per m³. And if for some tools densities are even lower, one has to excavate several cubic meters just to find one specimen (on average). In general, the density of tools at Netiv Hagdud ranged between 11 - 37 tools/m³ in the Upper part of the site, and reached 52 in the Deep Sounding (Area 98, Table 2). These data suggest, again, that the distribution of tools at the site is not homogeneous. Stated differently, if one samples only a small area, or a limited number of loci at such a site, one will not necessarily find the full range of tool types used at the site.

Table 2. Tool densities according to areas of excavation at Netiv Hagdud (after NADEL 1997).

AREA	TOOL DENSITY (specimens/m ³)
34	22
35	13
43	37
44	16
45	11
54	12
98	52

Concluding Remarks

I would like to conclude with two points. First, it seems that we over-emphasize the importance of the presence/absence of certain tool types. Maybe lunates were not important in PPNA daily activities? Aren't we taking one tool, which forms in some sites less than 5% of the retouched pieces, and ascribing it undue cultural or chronological significance? As intra-site variability is so high in PPNA sites, the building and demolishing of models and theories by observing the presence/absence of one or two tool types (some of which might not have been common or important at the first place) seems to concern the wrong issue. By the way, if a tool type is to be chosen for specific analyses and comparisons, why not concentrate on the more common "Neolithic" types, such as the awls/borers which are the most common tool in many of the PPNA assemblages (cf. RONEN *et al.* 1994)?

The second point is, that *there are* typological differences between some of the PPNA sites. These are usually bigger than between two Natufian sites or two Harifian sites. And, not in contradiction to some of the above, however large the samples will be, the differences between some sites or groups of sites remain. The differences should be explained in terms of the assemblages as a whole. Reports should include detailed counts and observations; and due to the nature of the large sites, they should include the data for as many as possible loci / units of excavation. Although intra-site variability is not the result of the same factors causing inter-site variability, the basic data for each site should be presented and evaluated with an emphasis on the locus level. Only then can

we better understand both the daily activities at each site, and the broader cultural and chronological implications of inter-site variability.

Acknowledgments: I wish to express my thanks to Ofer Bar-Yosef and Avi Gopher who introduced me to the Neolithic world and gave me the opportunity to study and publish the Netiv Hagdud flint assemblage.

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Greener Pastures at Bawwab el-Ghazal?

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Introduction

In their recent report on the LPPNB site Bawwab el-Ghazal, Wilke, Quintero and Rollefson (1997) justifiably point out that lacunae exist in our reconstruction and understanding of the relationship between pastoral nomads and settled agricultural populations. Despite nearly twenty-five years of ethnographic, ethnoarchaeological and archaeological assessment of pastoral nomads in the Middle East and elsewhere, we have yet to move much beyond identification of pastoral nomads in the archaeological record. We are only beginning to consider the kinds of adaptations pastoral nomads pursued. To expand on this concern we need to focus on distinct forms of pastoral nomadism by reconstructing not only the natural but also the cultural context in which they thrived. To reconstruct these contexts we should apply our understanding of pastoral nomad strategies to the archaeological data. The research design proposed for Bawwab el-Ghazal offers an opportunity for such an endeavor.

By focusing on the role of pastoral nomads within the overall adaptive strategy of cultivation or domestication, we can clarify not only the origin and development of pastoral nomadism, but also the role of pastoral nomads in the development of complex societies in the ancient Near East. Following the mission of *Neo-Lithics*, this article will attempt to provide a brief but hopefully useful clarification of where we currently stand in ethnoarchaeological and archaeological studies of pastoral nomads. It will also

present a synopsis of pastoral nomad strategies and some considerations for how we can apply them to archaeology.

Pastoral Nomad Anthropology, Ethnoarchaeology and Archaeology

Based on anthropological literature, archaeologists usually refer to pastoralists as those who subsist on animal husbandry. Among the animals they herd are sheep, goat, cattle, camels, horses, llamas, reindeer and yak. Since pastoralists tend to be mobile in order to provide water and grazing for their herds year-round, they are usually referred to as pastoral nomads. Archaeologists concern themselves mostly with pastoral nomads as being a mobile alternative or a complement to farming (ADAMS 1974, 1978; BATES 1974; KHAZANOV 1997). As such, pastoral nomad groups fill ecological niches different from farmers and from one another (BARTH 1956).

With this in mind, Hole and Amanolahi-Baharvand have concentrated on typical pastoral nomad activities as observed in Iran and applied them to archaeology. They operationalized them into expected archaeological expressions of material remains, artifact patterns, and site locations for archaeologists to identify and relate to pastoral nomads (e.g. HOLE 1978). Therefore, an important component of the ancient Near Eastern cultural and adaptive repertoire could be identified and studied despite its ephemeral nature compared to sedentary villagers.

More recently such work has been extended to other parts of the Middle East, such as Jordan, Saudi Arabia and the Syro-Palestine area south and west of the Jordan Valley, as well as North Africa and Central Asia (e.g. BAR-YOSEF and KHAZANOV 1992, BRADLEY 1992, PYANKOVA 1994). In these studies the relationship between pastoral nomads and settled cultivators was considered carefully to create testable models for identifying their interactions in the archaeological record. This reflects more of an effort to identify pastoral nomad activities, not just their mere presence. The place of pastoral nomads in important processes such as domestication or specific political developments has been considered (BANNING 1985, KÖHLER-ROLLEFSON 1992, LEVY 1983). Archaeologists increasingly emphasized fauna, the most important component of the pastoral nomad adaptation (but see BANNING and KÖHLER-ROLLEFSON 1992 for drawbacks). Combining faunal with architectural and lithic data, archaeologists have created models outlining the role of pastoral nomads in the development of specific sites such as 'Ain Ghazal (ROLLEFSON and KÖHLER-ROLLEFSON 1993). Others have outlined specific models delineating the role of pastoral production in complex societies (e.g. STEIN 1987).

Despite the attention given to the relationship between pastoral nomads and settled farmers, the expected advances in clarifying the role, not just the presence, of pastoral nomads in this relationship have yet to materialize. Archaeologists continue to emphasize identification of pastoral nomads *per se* in the archaeological record, whether alone or in relationship to farmers. This is largely because of notable, but not insurmountable, obstacles to pastoral nomad site identification through survey (BANNING 1996). Furthermore, many of the models for the relationship between pastoral nomads and farmers remain to be fully tested archaeologically. The problem, unfortunately, is the result of our sparse data pertaining to pastoral nomads rather than an actual inability to test the models. It also may be related to the kind of archaeological data examined or the methodology used.

Pastoral Nomad - Agriculture Continuum

It is becoming increasingly imperative to develop a clearer archaeological reconstruction of the role or function of pastoral nomads within the adaptive range of the ancient Near East. In other words, how did pastoral nomad activities operate within a cultural milieu? How did they serve the overall adaptive scheme? Now that we have improved our ability to identify pastoral nomads in the archaeological record, developed testable models, and made advances in analyzing archaeological finds, we can put them to use by identifying how pastoral nomads filled specific ecological niches within the continuum that exists between the two poles of pastoral nomadism proper and sedentary agriculture. As has been observed among modern-day pastoral nomads and sedentary farmers, a range of adaptations between the two exists (KHAZANOV 1997). To observe this archaeologically requires

shifting from a coarse-grained consideration of the archaeological record to a fine-grained analysis. *Coarse-grained* refers to the examination of widespread archaeological patterning or general artifact attributes and the broad patterns they reveal. Examining settlement patterns based on survey data represents a common example of such an approach. *Fine-grained*, on the other hand, refers to examining specific artifact attributes and narrowly conceived aspects of the archaeological record. In this way we may be able to observe different adaptive forms of pastoral nomadism and how they fit into specific cultural contexts.

Just as pastoral nomadism represents a distinct adaptive strategy within the overall adaptation of domestication, one may consider specific adaptations within pastoral nomadism. The adaptive distinctions that could be considered are the specific mobility patterns pursued by pastoral nomads due to varying conditions. These distinctions result in divergent forms of pastoral nomadism (see RASSMANN 1996 for details and citations).

As pastoral nomads depend upon herds, their primary concern is herd sustenance, which requires access to pasture, water and protection. To acquire access to these means of production, they run a number of interrelated risks including microvariations in resources, seasonal fluctuations, stochastic events, herd size fluctuations, labor allocation and political instability. Microvariations in resources are minute changes in vegetation and water as a result of seasonal shifts or stochastic events. These shifts can result in dramatically fluctuating herd sizes. From time to time there can be labor shortages to provide adequate protection for herds. Changes in political relations with other human groups can threaten access to pasture and water.

To reduce these risks, pastoral nomads adopt a number of different strategies such as mobility, low population density, extensive land use, exploitation of multiple resources, loose decision making mechanisms, response diversity and interaction. The primary strategy pastoral nomads pursue is mobility. Mobility most commonly takes the form of household or camp group movement. By moving to different locations within a geographical area, pastoral nomads not only increase the amount of resources available to them, but they also decrease the drain on resources by removing or reducing the population at a given location. In short, different areas are exploited at different times, which enables them to gain access to a greater variety of resources. Mobility also affords pastoral nomads flexibility by allowing them to "vote with their feet" and to respond to risks in different ways. Finally, mobility enables pastoral nomads to interact with sedentary agricultural populations.

Numerous ethnographies have identified transhumance, seasonal migration, migratory drift, and migration as types of nomadic movement. Transhumant pastoral nomads respond to local habitat changes through vertical movement up and down mountain slopes. However, transhumance may be more the result of topography and climate, especially in mountainous areas where there is ecological variation within a short distance. In seasonal migration, pastoral nomads not occupying diverse land move in response to cyclical seasonal and hydrological changes with separate skeleton crews going the distance to available pasture. Migratory drift represents piecemeal occupation of new grazing grounds in a new range as a response to minute ecological changes. Migration is a response to catastrophic changes in ecology or flight from external pressure. On a final note, one must remember that it is difficult to maintain such a simple and general classification of movement. Pastoral nomads can and do switch from one form of movement to another quite easily according to specific circumstances.

One of the most important aspects of the pastoral nomad adaptation is interaction with sedentary agricultural populations. As a result of the importance of movement and interaction with others, Khazanov (1997) has delineated several basic forms of pastoral nomadism: pastoral nomadism proper, semi-nomadic pastoralism, semi-sedentary pastoralism, herdsman husbandry, transhumant pastoralism and sedentary animal husbandry. Pastoral nomadism proper entails no agriculture, but is rarely observed. Semi-nomadic pastoralism consists of responses to periodic changes in pasture: one form consists of groups that both farm and herd and the other includes specialist herders separate from the farmers. Semi-sedentary pastoralists, on the other hand, rely primarily on farming while a pastoral component migrates

seasonally. Most of those who practice herdsman husbandry remain sedentary as they farm, but pastoralism remains an important part thereby creating a mixed system. Transhumant pastoralists include farmers occupying farm land while herders specialize in exploiting seasonal pastures elsewhere as they become productive. Finally sedentary animal husbandry does not represent an independent economic system since it acts as a supplement to agriculture. Independence may be observed only on occasion among camel herders.

From the preceding discussion the variety of pastoral nomad adaptations should be clear. As a result of this variety there are a number of ways in which pastoral nomads can fill different ecological niches.

Future considerations

The question remains, what kind of artifact patterning in the archaeological record should be considered or can be considered that would indicate the above forms of pastoral nomadism? To answer this question can be difficult for a number of reasons. First and foremost is the inability to identify the above given pastoral nomad categories, because in many ways they remain nothing but categories within a set of analytical constructs (ZAGARELL 1989). They simply exist as a means of putting into order the perceived jumble of pastoral nomad adaptations. To make matters worse, as pastoral nomads co-reside or co-exist with other groups, they are invisible not only because of their ephemeral remains but because they may not display a culture distinct from those with whom they co-exist or co-reside. For this reason distinguishing culture areas, *sensu* A.L. Kroeber, may be an onerous task in the ancient Near East (BARTH 1956). Yet, this may be more apparent than real.

Nevertheless, it should be possible to identify the strategies outlined above. These strategies may crosscut cultures or remain culturally specific, but they still should be detectable in the archaeological record in some form. When contemplating pastoral nomad strategies one may consider applying lithic production strategies. These strategies could alter according to the form of pastoral nomadism practiced and even according to the types of movement and strategies pursued. Consequently, we may consider utilizing careful examination of lithic production strategies to begin clarifying the larger economic or adaptive strategies such as different forms of pastoral nomadism.

A step in this direction is Rollefson's concept of the blade-to-blade ratio (ROLLEFSON 1997). This may be reflective of distinct economic strategies and, perhaps, cultural phases. Various burin indices may also provide useful insights (NEELEY and BARTON 1994, ROLLEFSON 1995). However, we must exercise caution in relating economic strategies and, therefore, lithic production strategies to distinct cultures. Some researchers seem to interpret knapping strategy patterns as distinct cultural patterns (*e.g.* GORING-MORRIS 1996). Others view these strategies as the result of dynamic technologies (*e.g.* NEELEY and BARTON 1994). However one wishes to place lithic production and adaptive strategies, one can distinguish them and apply them to pastoral nomads. When combined with faunal and palynological studies this provides a promising avenue of research. The proposed research design at Bawwab el-Ghazal focusing on economy and social organization may provide greener pastures for such research.

Acknowledgments: Portions of this article derive from my MA thesis (RASSMANN 1996). I wish to thank my academic advisors for their advice, especially John J. Shea for his interest and unflagging support. This article in no way purports to be an exhaustive study or presentation of the pertinent material. Consequently, my apologies to anyone or anything that may be left out. The reader is strongly encouraged to examine Khazanov (1997) for more details. Nevertheless, I am aware that this does not exempt me from criticism of the ideas presented here. These I heartily, albeit anxiously, embrace. This is a continuing project; thanks to the encouragement and criticism of Ellen Belcher.

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BANNING E.B.

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1974 *Nomads and Farmers: A Study of the Yoruk of Southeastern Turkey*. Anthropological Papers 52. Ann Arbor, The University of Michigan Museum of Anthropology.
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1992 *Nomads in the Archaeological Record: Case Studies in the Northern Provinces of the Sudan. Meroitic*. Berlin, Akademie Verlag.
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1996 Square pegs into round holes: a critique of Neeley and Barton. *Antiquity* 70: 130-135.
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1997 *Nomads and the Outside World*. 2nd ed. Cambridge, Cambridge University Press
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1983 The emergence of specialized pastoralism in the southern Levant. *World Archaeology* 15.1: 15-36
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1994 A new approach to interpreting Late Pleistocene microlith industries in southwest Asia. *Antiquity* 68: 275-288.
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1994 Central Asia in the Bronze Age: Sedentary and nomadic cultures. *Antiquity* 68: 355-72.
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1996 *Reciprocal Frontiers in the Halaf: Searching for Material Cultural Correlates*. Stony Brook, State University of New York: unpublished M.A. thesis.
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1997 A further note on the blade:blade ratio as a Neolithic phase discriminator. *Neo-Lithics* 1/97:20
1995 Burin variability at Neolithic 'Ayn Ghazal, Jordan. *Studies in the History and Archaeology of Jordan* 5: 515-518. Amman, The Hashemite Kingdom of Jordan.
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1993 PPNC adaptations in the first half of the 6th millennium B.C. *Paleorient* 19.1: 33-42.
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1987 Regional economic integration in early state societies: Third millennium pastoral production at Gritille, southeast Turkey. *Paleorient* 13.2: 101-113.
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1997 Bawwab el-Ghazal: A temporary station of hunting pastoralists in the Eastern Jordanian desert. *Neo-Lithics* 3/97:12-13.
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1989 Pastoralism and the early state in greater Mesopotamia. In: C.C. LAMBERG- KARLOVSKY (ed.), *Archaeological Thought in America*: 280-301. Cambridge, Cambridge University Press.

**Current German Research
on the Neolithic of the Near East
and Adjacent Regions**

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(Seminar für Vorderasiatische Altertumskunde,
Freie Universität Berlin)

Note: The following list is compiled from informations provided to by the individual scholars working in the Near Eastern Neolithic / Late Stone Age, who answered our questionnaire. However, more German colleagues are carrying out projects in the Near Eastern Neolithic/ Late Stone Age, among which those of -W. Schirmer *et alii* (Karlsruhe): Cayönü architecture; - H.P. Uerpmann *et alii* (Tübingen): faunal remains, Late Stone Age of the Trucial States have to be mentioned.

The bibliographic informations given below are the latest references for the appropriate projects and contain references to earlier publications.

A. Current Field Projects

J o r d a n

Ba'ja

Directors: Hans-Dieter Bienert and Hans-Georg K. Gebel
Institutions: German Protestant Institute, Amman & ex oriente e.V., Berlin; by a research commission: the German Archaeological Institute - Oriental Dept., Berlin.
Activities / Period: soundings in 1984 by H.G.K. Gebel; first excavation, site surface survey and vicinity survey in 1997; LPPNB. *Lithics* H.G.K. Gebel *et al.* (Berlin)
Groundstone Industries: N.N.
Small Finds: H.D. Bienert and H.G.K. Gebel (Amman, Berlin)
Archaeobotany: Reinder Neef (Berlin)
Archaeozoology: Angela von den Driesch (Munich)
Geomorphology: Tobias Krämer (Berlin), N.N.
Architecture/ Stratigraphy: H.G.K. Gebel and H.D. Bienert
Surface and Vicinity Survey: Bernd Müller-Neuhof (Berlin)

Preliminary Reports:

- GEBEL H.G.K. and BIENERT H.D.
1997 Excavating Ba'ja, Greater Petra Area, southern Jordan. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 1/97: 9-11.
1997 The 1997 season of excavation at Ba'ja, southern Jordan. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 3/97: 14-18.
- GEBEL H.G.K. and BIENERT H.D. with contributions of KRÄMER T., NEEF R., MÜLLER-NEUHOF B., TIMM J., and WRIGHT K.I.
1997 Ba'ja hidden in the Petra Mountains. Preliminary results of the 1997 investigations. In: H.G.K. GEBEL, Z. KAFABI and G.O. ROLLEFSON (eds.), *The Prehistory of Jordan, II. Perspectives from 1997*. Studies in Early Near Eastern Production, Subsistence, and Environment 4: 221-262. Berlin, ex oriente. (in press)
- BIENERT H.D. and GEBEL H.G.K.
n.d. Archaeological excavations at Late PPNB Ba'ja. Preliminary report on the 1997 season. *Annual of the Department of Antiquities*. (forthcoming)

T u r k e y

Göbekli Tepe

Directors: Eyüp Bucak and Harald Hauptmann; field director: Klaus Schmidt.
Institutions: Museum Şanlıurfa & German Archaeological Institute, Istanbul; supported by archaeoNova e.V., Heidelberg.
Activities / Period: excavations since 1995; PPNA (?) and PPNB.
Archaeobotany: Reinder Neef (Berlin)

Preliminary Reports:

- DEUTSCHES ARCHÄOLOGISCHES INSTITUT
1996 Jahresbericht 1995 des Deutschen Archäologischen Instituts, Göbekli Tepe und Gürcütepe. *Archäologischer Anzeiger* 1996: 605-607.
- SCHMIDT K.
1995 Investigations in the Upper Mesopotamian early Neolithic. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 2/95: 9-10.
1996 The Urfa -Project 1996. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 2/96: 2-3.
1997 "News from the Hilly Flanks". Zum Forschungsstand des obermesopotamischen Frühneolithikums. *Archäologisches Nachrichtenblatt* 2.1: 70-79.
1997 A note on lithic implements for stone bowl production. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 1/97: 19-20.
1997 Snakes, lions and other animals: the Urfa- Project 1997. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 3/97: 8-9.
1997 A LPPNB Figurine Type - "Type Tell Assouad"?. *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 1/98. (in press)
1998 Frühneolithische Silexdolche, in: G. ARSEBÜK, M. MELLINK, and W. SCHIRMER (eds.), *Light on the Top of the Black Hill*. (Festschrift Halet Çambel). (in press)
n.d. Ikonographische Befunde des vorderasiatischen Frühneolithikums und ihre Deutungsmöglichkeiten, in: M. OTTE and R. MILLER (eds.), *Préhistoire d'Anatolie, Genèse de deux mondes*. Actes du colloque international, Université de Liège 1997. (in press)
n.d. Gürcütepe und Göbekli Tepe 1995-1997. Kazı sonuçları toplantısı 1998: 91-100. Ankara. (in press).
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1996 A LPPNB-variant of Byblos Points from Gürcütepe - "Palmyra Points?". *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 2/96: 9-11.
- BEILE-BOHN M., GERBER C., MORSCH M., and SCHMIDT K.
1998 Frühneolithische Forschungen in Obermesopotamien. Gürcütepe and Göbekli Tepe. *Istanbulier Mitteilungen* 48. (in press)

Gürcütepe

Directors: Eyüp Bucak and Harald Hauptmann; field director: Klaus Schmidt.

Institutions: Museum Şanlıurfa & German Archaeological Institute, Istanbul; supported by: archaeoNova e.V., Heidelberg.
Activities / Period: excavations since 1995; PPNA (?) and PPNB.
Archaeobotany: Reinder Neef (Berlin)
Preliminary Reports: see *Göbekli Tepe*

Kazane

Directors: Patricia Wattenmaker; field directors: Susan Pollock and Reinhard Bernbeck.

Institutions: University of Virginia

Activities / Period: Excavations since 1996, two short excavation campaigns, four sondages; late Halaf to "Transitional Halaf".

Preliminary Reports:

BERNBECK R., COURSEY C., and POLLOCK S.
1996 Excavations of Halaf Levels at Kazane, SE Turkey, *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 2/96, 4-5.

Homepage:

<http://www.brynmawr.edu/Acads/Arch/Kazane/rbernbeck.html>

Kirklareli - Aşağı Pınar (Thrakien)

Directors: Hermann Parzinger and Mehmet Özdoğan

Institutions: German Archaeological Institute - Eurasia Dept., Berlin & University of Istanbul.

Activities / Period: Large-scale excavations at the Neolithic tell with cultural connections to North-West Anatolia, since 1993; early to late Neolithic (Karanovo I-IV).

Lithics: Ivan Gatsov (Sofia)

Ceramic: Hermann Parzinger (Berlin)

Figurins and Small Finds: Svend Hansen (Bochum)

Archaeobotany: Reinder Neef (Berlin)

Archaeozoology: Norbert Benecke (Berlin)

Settlement patterns and architecture: Necmi Karul. Berlin, PhD-thesis. (in prep.)

Preliminary Reports:

PARZINGER H. und ÖZDOĞAN M.
1995 Die Ausgrabungen in Kirklareli (türkisch-Thrakien) und ihre Bedeutung für die Kulturbeziehungen zwischen Anatolien und dem Balkan vom Neolithikum bis in die Frühbronzezeit. *Berichte der Römisch-Germanischen Kommission* 76: 5-29.

NEEF R.
1998 On the crossroads between Asia and Europe. Archaeobotany in Turkish Thrace. (in prep.)

B. Finished Field Projects Prepared for Final Publication

Jordan

Abu Sneseh

Directors: Reinhard Bernbeck, Susanne Kerner, Roland Lamprichs, and Gunnar Lehmann.

Institutions: German Protestant Institute, Amman & Seminar für Vorderasiatische Altertumskunde, Free University of Berlin.

Activities / Period: two excavation seasons and vicinity surveys in 1990 and 1992; Palaeolithic to Ottoman, main settlement phases: Chalcolithic and MBA.

Lithics: Reinhard Bernbeck (Bryn Mawr), Bernd Müller-Neuhof (Berlin), NN.

MÜLLER-NEUHOF B.

1996 *Die yarmoukienzeitliche Silixindustrie aus Abu Sneseh, Jordanien.* Berlin, Freie Universität: unpub. M.A. thesis.

Ceramics: Susanne Kerner (Berlin) (PhD-thesis in prep.)

Archaeobotany: Thomas Engel (Berlin) (in prep.)

Archaeozoology: Kevin Rielley (London)

Physical Anthropology: Rula Nuri Shafiq (Irbid)

Stratigraphy/ Architecture: Roland Lamprichs (Dresden)

LAMPRICHS R.

1998 *Abu Sneseh: Ergebnisse der Ausgrabungen 1990 und 1992. Einführung - Stratigraphie - Architektur.* Orient-Archäologie 3. Berlin. (in press)

Preliminary Reports:

LEHMANN G., LAMPRICHS R., KERNER S., and BERNBECK R.
1991 The 1990 Excavation at Abu Sneseh: Preliminary Report. *Annual of the Department of Antiquities of Jordan* 35: 41-65.

KERNER S., LAMPRICHS R., LEHMANN G., and BERNBECK R.
1992 Excavations in Abu Sneseh: Middle Bronze Age and Chalcolithic architecture in central Jordan. In: S. KERNER (ed.), *The Near East in Antiquity* 3: 85-96. Amman, Al Kutba.

LAMPRICHS R. mit einem Beitrag von S. KERNER über die Keramik.
1996 Abu Sneseh: Erste Ergebnisse der Ausgrabungen 1990-1992. Fundortbeschreibung, Stratigraphie, Architektur. *Ugarit-Forschungen* 28: 287-324.

'Ain Rahub

Directors: Hans-Georg K. Gebel and Mujahed Muheisen

Institutions: Institute for Biblical Archaeology, University of Tübingen and Institute of Archaeology and Anthropology, Yarmouk University, Irbid.

Activities / Period: excavations in 1985, site was destroyed later; Yarmoukian above Natufian layers.

Lithics: Mujahed Muheisen and H.G.K. Gebel (Irbid, Berlin)

GEBEL H.G. and MÜLLER-NEUHOF B., with HEISTERMANN G., HENNIG M., and ZABEL M.

1994 Yarmoukian 'Ain Rahub, northern Jordan: the chipped industry. In: H.G. GEBEL and S.K. KOZLOWSKI (eds.), *Neolithic Chipped Stone Industries of the Fertile Crescent. Studies in Early Near Eastern Production, Subsistence, and Environment* 1: 567-594. Berlin, ex oriente.

Ground stone industry: Nabil Qadi (Irbid)

Pottery: Zeidan Kafafi (Irbid)

Palaeoethnobotany: Reinder Neef (Berlin)

Archaeozoology: Abdel Halim al-Shiyab (Irbid)

AL-SHIYAB A.H.

1997 Faunal Remains from 'Ain Rahub. In: H.G.K. GEBEL, Z. KAFABI and G.O. ROLLEFSON (eds.), *The Prehistory of Jordan, II. Perspectives from 1997. Studies in Early Near Eastern Production, Subsistence, and Environment* 4: 593-600. Berlin, ex oriente.

Basta

Directors: Hans-Jörg Nissen and Mujahed Muheisen, assistant co-director: Hans-Georg K. Gebel.

Institutions: Seminar für Vorderasiatische Altertumskunde, Free University of Berlin & Institute of Archaeology and Anthropology, Yarmouk University, Irbid.

Activities / Period: sounding by H.G. Gebel in 1984; large-scale excavations in 1986, 1987, 1988, 1989, and 1992; LPPNB and some PN evidence

Lithics: H.G.K. Gebel and M. Muheisen

GEBEL H.G.K.

1996 The chipped lithic industry in the Basta crafts system. In: S.K. Kozłowski and H.G.K. Gebel (eds.), *Neolithic Chipped Stone, Industries of the Fertile Crescent, and Contemporaries in Adjacent Regions. Studies in Early Near Eastern Production, Subsistence, and Environment* 3. Berlin, ex oriente. (in press)

Ground stones: Nabil Qadi (Irbid)

Small finds: Bo Dahl Hermansen (Copenhagen)

Bone industries: Wajeeh Karasneh (Irbid)

Archaeoethnobotany: Reinder Neef (Berlin)

Archaeozoology: Cornelia Becker (Berlin)

BECKER C.

1991 The analysis of mammal bones from Basta, a pre-Pottery Neolithic site in Jordan: problems and potential. *Paléorient* 17.1: 59-75.

1991 Faunal remains. In: H.J. NISSEN, M. MUHEISEN, and H.G. GEBEL *et al.*, Report on the third season of excavations in Basta, 1988. *Annual of the Department of Antiquities of Jordan* 35: 29-32.

1997 The role of hunting in Pre-Pottery Neolithic pastoralism and its ecological implications: the Basta example (Jordan). *Anthropozoologica* 26 (in press, will be out in July 1998)

n.d. On the identification of sheep and goats: the Evidence of Basta. In: H.J. NISSEN, M. MUHEISEN, and H.G.K. GEBEL (eds.), *Basta I. The Human Ecology*. <Ms 1993> (forthcoming)

n.d. Basta (PPNB Jordan): bone and species distribution-rethinking the anthropogenic factor. In: H. BUITENHUIS/ A.T. CLASON (eds.), *Archaeozoology of the Near East IV. Proceedings of the 4th International Symp. on the Archaeozoology of Southwestern Asia and Adjacent Areas (ASWA) Paris, June 1998.* Leiden, Backhuys Publ. (forthcoming)

Physical Anthropology: Michael and Tyede Schultz, Margit Berner (Göttingen)

Sedimentology / Geomorphology: Ulrich Kamp (Berlin)

Architecture/ Stratigraphy: H.G.K. Gebel, H.J. Nissen, and M. Muheisen (Berlin, Irbid)

Plaster materials: Lea Rehhoff Kaliszan (Copenhagen)

Clay materials: Jens Neuberger (Berlin)

NEUBERGER J.

n.d. Frühe Technologien modellierbarer Materialien in Basta, Jordanien. Berlin, Freie Universität: MA-thesis in prep.

Reports / Overviews:

GEBEL H.G. and MUHEISEN M.
1997 "Basta". *The Encyclopedia of Near Eastern Archaeology.* New York, Oxford University Press.

GEBEL H.G. and QADI N., with contributions by BECKER C., DAHL HERMANSEN B., and NEEF R.

n.d. Report on the 1992 excavations at Neolithic Basta. Unpublished manuscript.

DAHL HERMANSEN B.
1997 Art and ritual behavior in Basta. In: H.G.K. GEBEL, Z. KAFABI, and G.O. ROLLEFSON (eds.), *The Prehistory of Jordan, II. Perspectives from 1997. Studies in Early Near Eastern Production, Subsistence, and Environment* 4: 333-345. Berlin, ex oriente.

NISSEN H.J., MUHEISEN M., and GEBEL H.G.K. (eds.)
n.d. *Basta I. The Human Ecology* (with contributions by: M. THAIS CREPALDI AFFONSO, C. BECKER, H.G.K. GEBEL, A. HAUPTMANN, B. DAHL HERMANSEN, L. REHHOF KALISZAN, U. KAMP, W. KARASNEH, M. MUHEISEN, R. NEEF, H.J. NISSEN, E. PERNICKA, and N. QADI. (in prep.)

Petra- Area (Palaeoenvironmental Investigations in the Greater Petra Area - Early Holocene Reserach)

Director: Hans-Georg K. Gebel (Berlin)

Institutions: Sonderforschungsbereich 19 der DFG (TAVO)

Geomorphology: H.J. Pachur (Berlin)

Palaeoethnobotany: Reinder Neef (Berlin)

Archaeozoology: Walter Söffner (Böblingen)

Habitat analysis/ site catchments: H.G.K. Gebel

Stratigraphies: H.G.K. Gebel

Lithics: H.G.K. Gebel

Small finds: J. Starck and H.G.K. Gebel

Recent/ last publications:

GEBEL H.G.

1990 *Vorderer Orient. Neolithikum. Beispiele zur Fundortökologie. Petra-Region. <Middle East. Neolithic. Examples of the Ecological Setting of Sites. Petra Region>*. Map of the Tübinger Atlas des Vorderen Orients B I 15. Wiesbaden, Ludwig Reichert. <15 3-88 226-988-X>.

1992 Territories and palaeoenvironment: locational analysis of Neolithic site setting in the Greater Petra area, southern Jordan. In: S. KERNER (ed.), *The Near East in Antiquity. German Contributions to the archaeology of Jordan, Syria, Lebanon and Egypt* 3: 85-96. Amman, al- Khubta Publishers.

n.d. Die früneolithische Besiedlung der Größeren Petra-Region und die Palökologie und Territorien des Mega-Dorf-Phänomens am jordanischen Grabenbruch (working title). (in prep.)

SÖFFNER W.

1996 *Morphometrische Untersuchungen an Caprinen- und Gazellenresten aus prähistorischen Fundorten im Vorderen Orient. Palökologie im Spiegel morphologischer Veränderungen am Säugerskelett*. Tübingen, Universität Tübingen, Geowissenschaftliche Fakultät: unpubl. Dissertation.

Wadi Qattar

Directors: Reinhard Bernbeck, Susanne Kerner, Roland Lamprichs, and Gunnar Lehmann.

Institutions: German Protestant Institute, Amman & German Archaeological Institute, Berlin; Seminar für Vorderasiatische Altertumskunde, Free University of Berlin

Activities / Period: two surveys during the excavation in Abu Snesleh 1990 and 1992; lower Palaeolithic to Islamic.

Lithics: Reinhard Bernbeck (Bryn Mawr) and Bernd Müller-Neuhof (Berlin)

Ceramics: Susanne Kerner (Berlin) and Gunnar Lehmann (Beer-Sheva)

Lebanon

Plain of Akkar (North-Lebanon):

Director: Karin Bartl with Anis Chaaya.

Institutions: Seminar für Vorderasiatische Altertumskunde, Free University of Berlin & Department Général d'Antiquités, Beyrouth & German Archaeological Institute - Oriental Dept., Berlin

Activities / Period: survey in 1997; Palaeolithic to Ottoman period, one Neolithic/Chalcolithic site: Tell Hmeira (II)

Lithics: Bernd Müller Neuhof (Berlin)

MÜLLER-NEUHOF B.

1998 Pottery Neolithic / Chalcolithic lithics from Tell Hmeira (II), Lebanon. *Neo-Lithics. A Newsletter of Southwest Asian Lithics Research* 2/98. (in prep.)

Preliminary Reports:

BARTL K.

1998 Aqar Survey 1997. Preliminary Results of an archaeological survey. *BAAL* 3. (in press)

Turkey

Nevalı Çori

Directors: Harald Hauptmann and A. Misir

Institutions: University of Heidelberg & Museum Şanlıurfa.

Activities / Period: survey 1979/80 by Hans-Georg K. Gebel and Klaus Schmidt; seven seasons of excavations from 1983 until 1991; PPN A(?) and PPNB.

Lithics: Klaus Schmidt (*points*) and Manuela Beile Bohn (*sickle blades*) (Heidelberg)

BEILE-BOHN M.

1997 Die Erntegeräte von Nevalı Çori. Heidelberg, unpubl. M.A.- thesis. *Archaeologica Euphratica*. (in press)

Grinding tools: Michael Morsch (Heidelberg)

MORSCH M.

n.d. Die Kleinplastik und die übrigen Felssteinartefakte der akeramischen Siedlung von Nevalı Çori". Heidelberg, PhD-thesis. in prep.)

Sculptures: Harald Hauptmann (in prep.) (cf. also: *Architecture* Hauptmann H. 1991)

Stone figurines / lay objects: Michael Morsch (Heidelberg)

MORSCH M.

1997 Die Tonobjekte der Akeramischen Siedlung von Nevalı Çori. *Archaeologica Euphratica*. (in press)

Archaeobotany: Rainer Pasternack (Kiel)

PASTERNAK R.

1995 Die botanischen Funde aus Nevalı Çori, Türkei (Akeramisches Neolithikum), in: H. KROLL and R. PASTERNAK (eds.), *Res archaeobotanica. 9th Symposium IWGP Kiel* (1995): 247-248.

1997 Investigations on botanical remains from Nevalı Çori PPNB, Turkey. (unpubl. ms.)

Archaeozoology: A. von den Driesch (München)

Physical Anthropology: Michael Schultz (Göttingen) and U. Wittwer-Backofen

WITTWER-BACKOFEN U.

1987 Anthropological Study of the Skeleton Material from Lidar. *AST* 5.2: 191-201. (including some anthropological remains from Nevalı Çori)

Settlement patterns and architecture: Harald Hauptmann (Istanbul)

HAUPTMANN H.

1988 Nevalı Çori: Architektur. *Anatolica* 15: 99-110.

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

1993 Ein Kultgebäude in Nevalı Çori. In: M. FRANGIPANE, H. HAUPTMANN, M. LIVERANI P. MATTHIAE M. MELLINK *Between the Rivers and Over the Mountains. Archaeologica Anatolica et Mesopotamica Alba Palieri dedicat:* 37-69.

Yemen

Wadi Dhahr Project

Director: Heiko Kallweit

Institutions: German Archaeological Institute, Sana'a & Institut für Ur- und Frühgeschichte, University of Freiburg (Germany).

Activities / Period: three seasons of survey and excavations in 1993-1995: excavations in Al 'Akiya-1 (Rub' al-Khali-Neolithic and Bronze-Age, one C-14 date by J. Görtsdorf, German Archaeological Institute, Berlin: 4950±47 BP) - survey in the region of the Wadi Dhahr (two lithic surface collections (Rub' al-Khali-Neolithic) - architectural remains (Jabal-Maswar-A; Rub' al-Khali-Neolithic).

Lithics: H. Kallweit (Freiburg) (in prep.)

Grinding tools: H. Kallweit (in prep.)

Archaeozoology: Angela van den Driesch (München) (in prep.)

Physical Anthropology: Sandra Pichler (Freiburg) (in prep.)

Preliminary Reports

KALLWEIT H.

1997 New lithic sites in Wadi Dhahr, Republic of Yemen, *Neo-Lithics. A Newsletter of Southwest Asian Lithic Research* 1/97: 1997.

n.d. *Neolithische und bronzezeitliche Besiedlung in Wadi Dhahr, Republic Jemen*. Abady, Zeitschrift des DAI Station Sana'a. (in prep.)

1997 Wadi Dhar. *Das Altertum* 43.3. (in prep.)

U . A . E .

Mazyad I-XIV

Director: Hans Georg K. Gebel

Institutions: Dept. of Antiquities, Al Ain & Tübinger Atlas des Vorderen Orients (SFB 19), in collaboration with the French Archaeological Mission to Hili

Activities / Period: survey and soundings at the Late Stone Age flint mining and manufacturing sites near Mazyad (5-4th mill BC.), southern Al Ain Oasis, Abu Dhabi Emirate, 1979-81.

Geomorphology: C. Hannß (Tübingen), Paul Sanlaville (Maison de l'Orient).

Structures: H.G.K. Gebel

Lithics: H.G.K. Gebel

Last publications:

GEBEL H.G.

1988 *Südosstarabien. Prähistorische Besiedlung <South-East Arabia. Prehistoric Settlements>*. Map of the Tübinger Atlas des Vorderen Orients B I 8.3. Wiesbaden, Ludwig Reichert. <3-88 226-931-6>.

GEBEL H.G., HANNSS C., LIEBAU A., and RÄHLE W.

1989 The late Quaternary environments of 'Ain al- Faidha / Al- 'Ain, Abu Dhabi Emirate. *Archaeology in the United Arab Emirates* 5: 9-48. Al-Ain, Dept. of Antiquities and Tourism.

C. Various Specialist Research

Lithics:

Hans-Georg K. Gebel: materials from Ras al-Hamra 4/5 and 6 (with Roberto Maggi), Tawi Arja, Lizq 2, Habshan, and others (Late Stone Age of the Lower Gif); replicative system analysis for the "Hamrian Chisels"

Figurines:

Svend Hansen: Neolithic and Chalcolithic figurines (southeastern Europe and the Near East).

Archaeobotany:

Reinder Neef: materials from 'Ain Ghazal, 'Ain Rahub, Ba'ja, Basta, ad-Dhaman, Ghwair, Sabra, Shaqarat Musai'id (Jordan)

Ethnoarchaeology & Archaeozoology : Ilse Köhler-Rollefson

Archaeozoology:

BECKER C.

- 1991 Die Tierknochenfunde von der Platia Margoula Zarkou - neue Untersuchungen zu Haustierhaltung, Jagd und Rohstoffgewinnung im neolithisch-bronzezeitlichen Thessalien. *Prähistorische Zeitschrift* 66/1: 14-78. (Greece)
- 1998 Zur nachsaiszeitlichen Verbreitung des Damhirsches *Cervus dama* in Südosteuropa - eine kritische Zwischenbilanz. In: C.BECKER *et al.* (eds.), *Chronos. Beiträge zur Prähistorischen Archäologie zwischen Nord- und Südeuropa. Festschrift für Bernhard Hänsel*. Internationale Archäologie, Studia Honoraria I: 67-82. Espelkamp, Marie Leidorf. (Greece)
- 1998 Domesticated and wild animals as evidenced in the Cotofeni and Monteoru cultures, an Eneolithic/Bronze Age period of the Carpathian prehistory. In: N. BENECKE *et al.* (eds.), *The Holocene History of the European Vertebrate Fauna - Modern Aspects of Research*. Kolloquien zur Vor- und Frühgeschichte 3. (in press)

WODTKE U.

- 1998 *Die Tierknochenfunde aus der frühneolithischen Siedlung von 'Ain Ghazal in Jordanien*. München, Ludwig-Maximilians- Univ.: unpubl. Vet. Diss. thesis.

SÖFFNER W.

- 1996 *Morphometrische Untersuchungen an Caprinen- und Gazellenresten aus prähistorischen Fundorten im Vorderen Orient. Paläoökologie im Spiegel morphologischer Veränderungen am Säugerskelett*. Tübingen, Universität Tübingen, Geowissenschaftliche Fakultät: unpubl. Dissertation.

Architecture:

SCHACHNER A.

- 1997 *Von der Rundhütte zum Kaufmannshaus*. München, Ludwig-Maximilians- Univ.: unpubl. Ph. Diss.

D. Recent Overviews and Theoretical Issues of the Neolithic in the Near East

BENZ M.

- 1998 "Why should we plant...?" *Theorien, Daten und ein ethnologisches Modell zur Neolithisierung im Vorderen Orient*. Freiburg, University of Freiburg: unpubl. Ph.D. thesis.

GEBEL H.G.K.

- n.d. The 6th millennium BC in Southern Jordan. Problems and open questions. Paper presented at the Copenhagen Conference on the History and Archaeology of Jordan, June 1998.

NISSEN H.J.

- 1998 Hierarchies in action: who benefits? In: M. DIEHL (ed.), *Hierarchies in Action: Who Benefits?* Carbondale, Southern Illinois University Press. (in press)

SCHMIDT K.

- 1997 "News from the Hilly Flanks". Zum Forschungsstand des obermesopotamischen Frühneolithikums. *Archäologisches Nachrichtenblatt* 2.1: 70-79.
- 1998 *Das Nevalicorien. Materielle Kultur und rituelle Welt einer obermesopotamischen Fazies des akeramischen Neolithikums*. Heidelberg, Habilitation Thesis. (in prep.)

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⇒ Harald Hauptmann, Deutsches Archäologisches Institut, Abteilung Istanbul, Ayazpasa Camii sok. 48, TR-80030 Istanbul-Gümüssuyu, tel. 0090 212 2523590, fax 0090 212 2523491

⇒ Heiko Kallweit, Villinger Str. 23, D-78147 Vöhrenbach, tel./ fax 0049-7727-321

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⇒ Hermann Parzinger, Deutsches Archäologisches Institut, Eurasien Abteilung, Im Dol 2-6, D-14195 Berlin, 0049-30-8300313, email: eurasion@zedat.fu-berlin.de

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⇒ Klaus Schmidt, archeonova e.V., Gerhard-Hauptmann-Str. 34, D-69120 Heidelberg, email: 106656.3644@compuserve.com

⇒ Michael Schultz, Zentrum Anatomie, Universität Göttingen, Kreuzberggring 36, D-37075 Göttingen, tel. 0049 551 397028 or 397000, fax 0049 551 397995

⇒ Hans-Peter Uerpmann, Institut für Ur- und Frühgeschichte, Eugenstraße 40, D-72072Tübingen, tel. 0049 7071 2974391, fax 0049 7071 360367, Hans-Peter.Uerpmann@uni-tuebingen.de

⇒ Ursula Wodtke, Institut für Paläoanatomie, Ludwig-Maximilians Universität München, Feldmochinger Str. 7, D-80992 München, tel. 0049-89-14980138

New Books

Shua Amorai-Stark

1998 *Wolfe Family Collection of Near Eastern Prehistoric Stamp Seals*. Orbis biblicus et orientalis 16. <206 pages, 466 items with photographs. ISBN 3-7278-1136-6. SFr. 75.-, c. DEM 90> (orders via: C. Uehlinger <christoph.uehlinger@unifr.ch>)

The book surveys stamp seals from the earliest Late Aceramic Neolithic to the Early Bronze Age. The large majority of the seals originate from Syria, south-eastern Anatolia, and northern Mesopotamia. A smaller number comes from present-day Lebanon and Israel, while a few specimens may have originated in southern Mesopotamia and south-western Iran. The book analyses the various types of prehistoric stamp seals and the prototypes of cylinder seals. The criteria employed for typology are those of material, size, shape, cutting and engraving techniques, as well as composition and iconography. Concerning the latter and the layout of motifs, this book builds upon terminology used by A. von Wickede. As a result of the paucity of published material, many specimen published here either constitute a missing link between various areas and periods; broaden the corpus of iconographic motifs; or advance our understanding of the material and technical procedures in use.

GEBEL H.G.K., KAFABI Z., and ROLLEFSON G.O. (eds.)

1997 *The Prehistory of Jordan, II: Perspectives from 1997. Studies in Early Near Eastern Production, Subsistence, and Environment* 4. (just appeared, cf. below - page 17)

(49 contributions, III + 662 pages, 207 figures, 46 plates, 153 tables, softcover) [ISBN 3-9804241-3-8]

23 contributions of this publication are related to the Neolithic.

KOZLOWSKI S.K. and GEBEL H.G.K. (eds.)

1996 *Neolithic Chipped Stone Industries of the Fertile Crescent, and Their Contemporaries in Adjacent Regions*. Studies in Early Near Eastern Production, Subsistence, and Environment 3. (in press; appears

Oct. 1998, will be presented at the Third Workshop on PPN Chipped Lithic Industries, Venice)

(38 contrib., III+ c. 430 pages, c. 214 figs., 21 plates, 52 tables, softcover) [ISBN 3-9804241-2-X]

3rd Workshop on PPN Chipped Lithic Industries

Venice: November 2nd to 5th, 1998

2nd Circular

Dear colleague,

We are glad to confirm that the next Workshop on PPN lithics will be held in Venice, from November 2nd to 5th. These dates were proposed in order to allow as many scholars as possible to attend following the summer excavations.

Registration will take place on November 1st. There will be an informal organisational meeting for the sub-groups that afternoon.

The provisional programme includes 3 full days, each devoted to a specific theme:

- 1 - The "grammar" of a lithic assemblage
 - 1a: technology
 - 1b: documentation
- 2 - The functional interpretation of tools
 - 2a: use-wear analysis
 - 2b: contextual analysis
- 3 - Tool classification and comparison
 - 3a: typology
 - 3b: chronology

Papers should not exceed 20 minutes. We strongly recommend that the number of slides be proportional to the length of the speech (approx. 20 minutes). Participants can use posters with additional illustrations, graphs, text, etc., to support the papers. Posters will be included in the themes and discussed at the end of the session to which they belong. Please, confirm title and theme of your contribution as soon as possible.

We plan to devote 6 hours each day - for 3 days - to papers and posters. Two more hours will be set aside every day to the meetings of the sub-groups, which will allow all sub-groups to discuss their subject according to the specific themes of the day. There will be time for technological experiments, including both knapping and microscopic observations.

The morning of the last day, Saturday 7th, will be devoted to a general discussion and conclusions.

There will be a registration fee of 100 US\$ (60 US\$ for students), providing access to the meetings and to a free lunch during the Workshop.

sgd. Isabella Caneva *et al.*
email: caneva@uniroma1.it

Workshops on PPN Chipped Lithic Industries Third General Gathering Venice: November 2nd to 5th, 1998

Preliminary program

Day I: The "grammar" of a lithic assemblage

Theme 1a: Technology (raw material, knapping strategy, tool and core curation)

- Philip Wilke: *Identification of Neolithic millstone production loci and débitage.*
Leslie Quintero: *Interpreting waste disposal, tool production and core reduction through débitage analysis.*
Nirit Etzion: *Manufacture of axes in a PPN Workshop on Mount Carmel*
Nur Balkan-Atli, Didier Binder, M-Claire Cauvin: *Obsidian and blade technology at Kömürcü-Kaletepe (central Anatolia)*

Avi Gopher, Ofer Mander, Ran Barkai: *Obsidian technology in the southern Levant*

Avi Gopher: *PPNC flint typology and technology in northern Israel*

Ran Barkai: *Raw material economics in the Neolithic of southern Levant*

Cecilia Conati: *Analisi tecnologica e funzionale dell'industria PPNB di er Rahib (Giordania sett.)*

Frédéric Abbès, Marie-Claire Cauvin: *n.d.*

FerrerArnau, Jesús Emilio González Urquijo, Juan José Ibáñez Estévez, Miquel Molist Montaña, Antonio Palomo: *The elaboration and use of tone tools at Tell Halula (N. Syrie), from 8,700 to 7,500 BP*

Theme 1b: Documentation (illustration, sampling and recording systems)

Gérard Deraprahamian: *Dessin du matériel lithique (poster.)*

Yoshihiro Nishiaki: *Lithic illustration (poster).*

Day II: The functional interpretation of tools

Theme 2a: trace analysis

- Patricia Anderson: *Stone tool function and reconstruction of whole instruments*
Galina Korobkova: *Use-wear analysis of lithic assemblages from Kebara B, Abu Hureyra and Nahal Oren*
Hara Procopiou: *A methodological approach to grinding stones: the example of Jerf el Ahmar*
Laurence Astruc: *Definition of lithic tools via use-wear analysis: the case of Khirokitia (Aceramic Neolithic, Cyprus)*
Cristina Lemorini, Maria Rosa Iovino: *Stone working chaîne opératoire: the functional perspective.*
Cristina Lemorini, Güner Koskunsu: *The functional meaning of point types. The restrictions of analogy.*
Shoh Yamada, Nigel Goring-Morris, Avi Gopher: *Analysis of faintly glossed blades from Pre-Pottery Neolithic Nahal Issaron (Israel)*
Frank Hole: *n.d.*
Jésus Emilio González Urquijo, Juan José Ibáñez Estévez: *The contribution of microwear analysis to the definition of instruments. Examples from Tell Mureybit, Jerf el Ahmar and Tell Halula (N. Syrie; 10.000-7.500 BP)*
Cristina Lemorini, Aşlı Özdoğan, Güner Koskunsu, Yüksel Dede: *Drills in use: a combination of use-wear, experimental and ethnographical approach (poster).*
Maria Rosa Iovino, Ciler Altınbilek: *From the shape to the function: notes about some end-scraper tools from Çayönü (poster).*

Theme 2b: Contextual analysis (spatial distribution; excavation techniques)

- Isabella Caneva, Daniela Zampetti, Aşlı Özdoğan, Cristina Lemorini, M. Rosa Iovino: *A combined analysis of lithic assemblages from Çayönü.*
Michael Rosenberg: *Lithics and the definition of cultural entities along the Upper Tigris during the Aceramic Round House Horizon*
Nigel Goring-Morris: *Pre-Pottery Neolithic B blade caches.*
Anna Belfer-Cohen, Nigel Goring-Morris: *Definition of culture: the weight of lithics in the late Quaternary*

Day III: Tool classification and comparison

Theme 3a.: Typology (theory, terminology, use)

- Hans Georg K. Gebel: *Traditions in lithic analysis between schools and research initiatives.*
Marie Louise Inizan: *Relation entre le débitage et la retouche par pression. Origine et diffusion.*
Khalaily Hamoudi: *Terminal PPNB from Hagoshrim (north Israel).*
Yosef Garfinkel: *The flint assemblages of the 6th mill.bc from the southern coastal plain of Israel.*
Stefan Karol Kozłowski: *Pre-big arrow heads industries in Anatolia and Mesopotamia.*

François Valla: *Problèmes posés per l'industrie de la couche Ib (Natoufien final) de Mallaha (Eynan), Israel.*
 Deborah Olszewski: *Creating terminology: tool type examples from the Levantine Epipalaeolithic.*
 Douglas Baird: *The chipped stone from Pinarbaşı: insighta into the 8th-6th mill. bc(uncalibrated) on the Konya plain (Turkey)*
 Eileen Clegg: *The chipped stone from Wadi Fidan*

Theme 3b: Chronology (seriation, cultural comparison).

Eric Coqueugniot: *Le Natoufien de Jayroud*
 Frédéric Abbès, Marie-Claire Cauvin: *Les phases II et III de Mureybet (PPNA)*
 Khalaily Hamoudi: *Terminal PPNB from Hagoshrin, north Israel*
 Ofer Bar Yosef: *Some cultural implications of the calibrated radiocarbonchronologies of the Neolithic of the Near East*
 Klaus Schmidt: *The points from Gürcütepe and Göbekli Tepe (Turkey) and theirchronological implications*

Day IV: general discussion

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Appeared June 1998:

The Prehistory of Jordan, II. Perspectives from 1997.

edited by

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Studies in Early Near Eastern Production, Subsistence, and Environment 4

Berlin, *ex oriente* (1997)

ISBN 3-9804241-3-8
 ISSN 0947-0549

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