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NEO- LITHICS 2/96

A Newsletter of Southwest Asian Lithics Research

Editorial Note

As this issue of *Neo-Lithics* shows once again, the newsletter has become a small publication of notes of recent excavations and other research activities dealing with the Near Eastern Neolithic and its immediate antecedents. While the information on non-lithics topics is very interesting and even exciting (cf. STORDEUR *et al.*, this issue), the forum for the promotion of interaction among lithic analysts, originally intended for the newsletter, has regrettably receded to become background matter for this publication. Joint action in chipped lithic analysis, through announcements of problems (cf. COQUEGNIOT'S request for assistance, this issue), questions, and progress (e.g. SCHMIDT and BEILE-BOHN; PETERSON, this issue) in resolutions, is evidently still at a hesitant stage and thus has to be accepted as the present condition of research. But the editors will continue to encourage such cooperation by maintaining this forum: No other way!

Season's greetings to all our colleagues!

Gary O. Rollefson, Hans Georg Gebel, Stefan K. Kozłowski

Jerf el-Ahmar: a New Mureybetian Site (PPNA) on the Middle Euphrates

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Discovered by T. McClellan and M. Mottram in 1989, Jerf el-Ahmar, 2 km north of the Tichrine Dam, has been excavated by a Franco-Syrian team since 1995¹. The site, which will be flooded in 1998, lies on two natural hillocks separated by a small wadi. An area excavation covering some 350 m², together with a number of small soundings covering a wide area, indicate that the occupation of the west mound succeeds that of the east. Two carbon 14 dates (9680 ± 90 and 9790 ± 80 bp: 8525 to 9052 [maximum probability 8987] and 8731 to 9345 [maximum probability 9038] BC, calibrated) indicate an occupation during the first half of the tenth millennium BP².

Architecture

The architecture shows strong similarities to that of sites of the same period such as Mureybet (Period III) and Netiv Hagdud (BAR-YOSEF *et al.* 1991). In addition, the transition between round houses (Fig. 1), rectangular houses with rounded corners and fully rectangular houses is in evidence. The latter only occur on the more recent (west) tell. Some houses are connected, others are separated by passages or by courtyards, which in some areas are paved. Hearths found in these exterior areas are of three types: pit-hearths with pebbles, small shallow round hearths and surface hearths. In one area of the eastern tell it was discovered that the slope had been occupied. Three contemporary houses excavated in this area were found to be stepped. Of these houses, the upper house was set on the level surface, the lower second house was slightly excavated into the slope and the third and lowest was half sunken (Fig. 1).

Knapped local chalk was used as a base for the floors, while the bottom of the walls were built with a double row of stones which were superimposed by a single row of carefully knapped 'cigar-' or 'loaf-' shaped stones. These structures were finished with daub tempered with cereal chaff (mainly wild barley). Roof fragments were found in several houses that had been destroyed by fire. Impressions left by the rafters show that trunks, some split, were placed close together to support the roof (S. MARTINEZ, pers. comm.).

The Finds

The lithics are comparable to the Mureybetian tradition (J. CAUVIN, pers. comm.; 1994) with adzes, numerous scrapers of variable shapes, borers, drills, glossed blades and arrow heads. Among the latter were El Khiam, Helwan and Mureybet type projectile points and others were truncated or notched in form. The method of débitage poses a problem for the definition of the bipolar core. The cores definitely have two striking platforms at the opposite ends of the flaked surface. However the extraction of blades is essentially unipolar from a single striking platform. The function of the second striking platform is only to correct the distal extremity of the core (F. ABBÈS, pers. comm.). A microscopic examination of a preliminary sample of stone tools

for traces of wear use (100-200X) indicates that they were used to harvest plants (cereals, grasses and reeds) and to prepare objects in wood, stone and skin (P. ANDERSON, pers. comm.). Traces of processing of ochre were also noted on several tools.

The bone industry resembles that of Mureybet, with, for example, combs with short teeth, double pointed needles with sawn perforations, and knapped bone.

Basketwork and weaving were attested thanks to impressions left in burnt building material. The impressions show clearly that spiral basketry was in use at this date. In addition an impression of a coarse woven material was identified.

Art, symbols and funerary practices. In 1995 a small pit hearth with pebbles, covered by a stone, was found containing three skulls. These skulls were burnt at the base indicating that they were deposited while the hearth was functioning (J. ANFRUNS, pers. comm.).

Polished stone "sticks" and ornaments are similar to Mureybet.

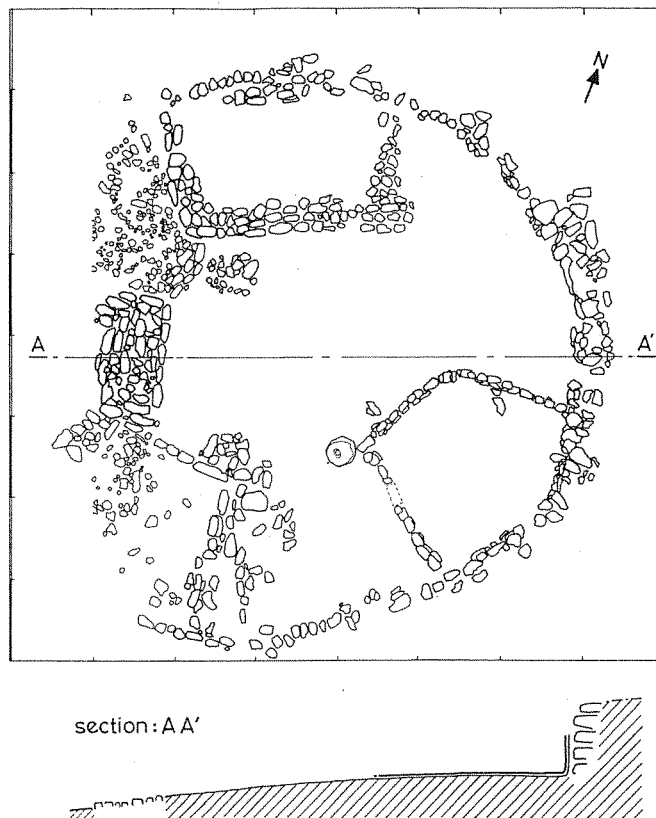


Fig. 1. Half sunken semi-round house with internal dividing walls from Jerf el Ahmar.

The most outstanding finds at Jerf el-Ahmar are some richly engraved and carved stone objects. Several fragments of stone vases and one almost complete vase (in chlorite: D. SANTALLIER, pers. comm.) with intricately engraved geometric decoration were recovered. In addition, there are two animal figurines representing birds of prey: one would seem to be an eagle as seen in profile, the other in chalk could be an owl when viewed from the front. Grooved stones (so-called arrow straighteners) were common (cf. STORDEUR and JAMMOUS 1995). Some have the geometric decoration found commonly on PPNA sites. However, two which came from the same house have figurative representations that combine animal representations such as birds of prey, snakes and four-legged animals with some abstract signs (Fig. 2:a-b). Finally, two small flat oval stones engraved on both sides were found. One of them (Fig. 2:c) depicts a figure with round eyes suggesting an owl, which is connected with what could be interpreted as a large insect. The other side is covered by 34 horn-shaped signs with dots. The other flat stone (Fig. 2:d) depicts an association of representations including an arrow shape, zigzag lines, a snake, and other signs. On the other side a carefully engraved grid is to be found associated with a snake.

To our knowledge this type of evidence has not been found for the PPNA period. It is of great interest to our understanding of the symbolism of the period and is perhaps a kind of sign

language. On the grooved stones, one finds an association of figures, more or less schematic, with abstract signs, which suggests they carry a message. Even more intriguing are the flat engraved stones, which on one side have an association of abstract signs and on the other a multiplication of one type of sign. This evokes some kind of record. However, in order to understand the significance one would need a large sample, and to understand the meaning would appear to be out of the question.

This is not the first time that the idea of "pictograms" have been suggested for the prehistoric period. A number of authors have reported signs engraved on finds or in cave paintings from the Upper Paleolithic period. The finds from Jerf el-Ahmar should not be considered in isolation from these, as indeed they should not be set apart from the earliest known ideograms or even the earliest writing. There is here the possibility of a vast research programme; for the moment we will concentrate on increasing the collection.

Environment

Archaeozoology.

Twenty-four taxa were identified: Badger, Fox (*Vulpes vulpes*, *V. cana*), Wild Cat, Jungle Cat (*Felis chaus*), Marbled Polecat (*Vormela peregusna*), Dog, Wild Boar, Wild Ass, Onager, Auroch, Asiatic Mouflon, Goitered Gazelle (*Gazella subgutturosa*, *G. s. subgutturosa*, *G. s. marica*), Mesopotamian Fallow Deer (*Dama mesopotamica*), Cape Hare (*Lepus capensis syriacus*), East European Hedgehog (*Erinaceus concolor*), Long-eared Hedgehog (*Hemiechinus auritus*), Beaver, Indian Gerbil (*Tatera indica*), Short-Tailed Bandicoot Rat (*Nesokia indica*), Tristram's Jird (*Meriones tristrami*), Mouse (*Mus sp.*), Asian Garden Dormouse (*Eliomys melanurus*) and Social Vole (*Microtus socialis*). The most abundant are the gazelles followed by the equids and the aurochs, as was the case for Mureybet. The dog is the only domestic animal. The gazelles, asses, foxes and hares are bigger in size than those found at Mureybet. This could be explained by environmental differences between the two sites. This is confirmed by the small mammals; for example *Eliomys*, *Microtus socialis*, and *Erinaceus concolor* are present at Jerf el-Ahmar and absent at Mureybet. These animals are found in areas with an annual rainfall of more than 300 mm.

Archaeobotany (cf. WILLCOX 1996). The most common finds are the grains of wild barley *Hordeum spontaneum* (confirmed by the presence of 90 rachis fragments). This species is accompanied by *H. murinum* type, a smaller-grained taxon. Wild einkorn is very rare. These two types of barley are common in the area today. Of the pulses, lentils are by far the most common, but bitter vetch and pea are also present, although they do not occur as part of the vegetation today. Another group of

plants could be interpreted as weeds of arable fields. This would indicate predomestic cultivation of pulses and/or cereals. A more representative sample (1996) is now being analysed which may throw light on this problem. Identifications of wood charcoal and fruits indicate that the surrounding steppe was much richer in ligneous species, the most common being almond, *Pistacia cf. atlantica*, *Prunus microcarpa*, hawthorn and *Rhamnus*. This association is to be found today at much higher altitudes in areas with

a higher rainfall. Oak is present but at low frequencies. The gallery forest contained alder, ash, wild vine, plane as well as willow, poplar and tamarisk, which occur today.

The environmental evidence as a whole indicates that during the occupation of the sites there was slightly more available moisture in the area than today.

Conclusion

The two campaigns at Jerf al-Ahmar have reinforced our knowledge of the Mureybetian and its cultural and regional cohesion. The area excavation is providing a plan of the juxtaposition and evolution of several houses. Deep soundings are providing a rich sample for environmental work. New finds such as the engraved stone objects offer new insights into cultural developments for the period. It is hoped that the 1997 (final) campaign will provide an equally rich array of data for this important but still little-known period.

1) This is part of the Mission Permanente El Kowm-Mureybet (Ministère des Affaires Etrangères Français), co-directors D. Stordeur and B. Jammous.

2) Ly 7489 and Ly 275 (OxA) from the Centre de Datation, Lyon (J. Evin), and accelerator date Oxford.

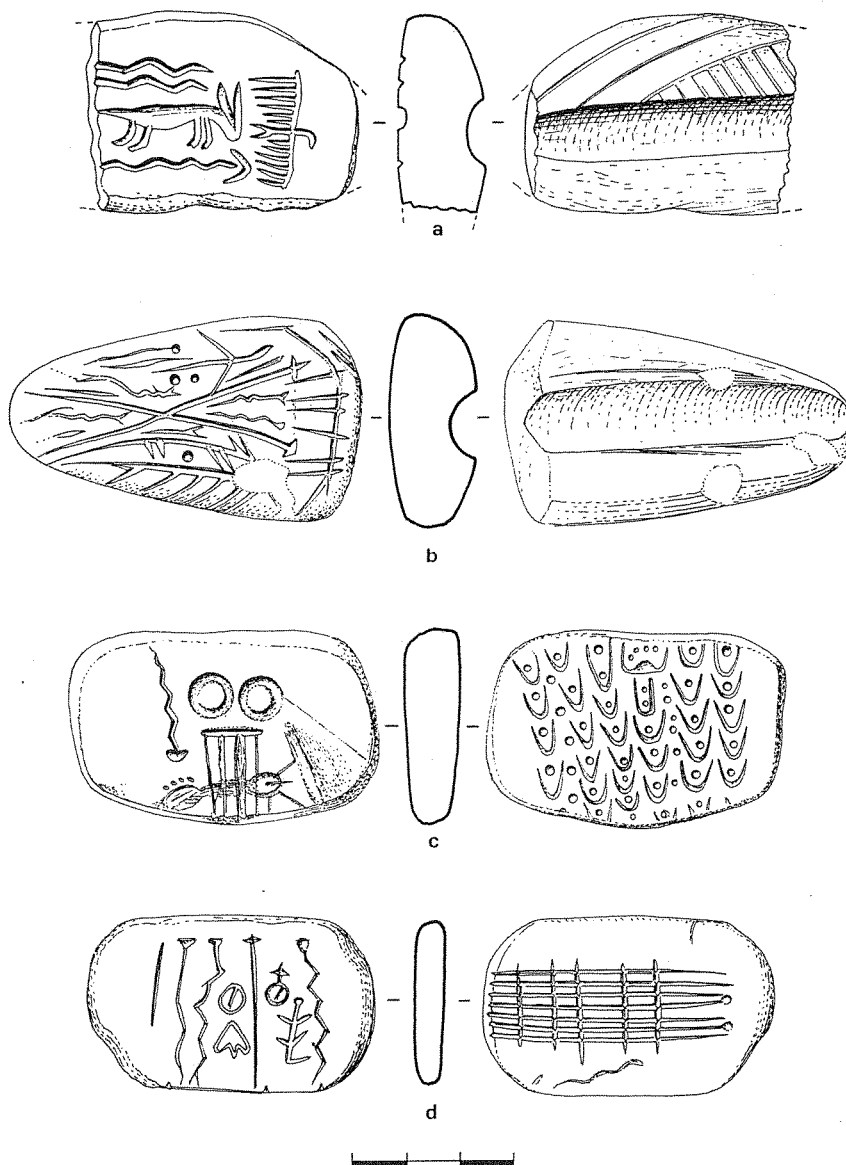


Fig. 2. Grooved stones (a and b) and flat engraved stones (c and d) from Jerf el Ahmar.

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The Urfa-Project 1996

Klaus Schmidt, University of Heidelberg

Field work at Gürcütepe and Göbekli Tepe, two PPN sites not far from Şanlıurfa/Southeastern Turkey could be continued in autumn 1996; the project started in 1995 under the direction of the Museum of Şanlıurfa and the German Archaeological Institute at Istanbul.

At Gürcütepe excavations proceeded in the working area opened in 1995 on the northern slope of the main mound by opening 5 trenches, uncovering the uppermost PPN layer (see also SCHMIDT and BEILE-BOHN, this issue, with bibliography for both sites). Field work in the 1996 season at Göbekli Tepe included the mapping of the large limestone plateaus around the tell, which are covered nearly completely with Neolithic quarries.

Several in situ architectural elements could be recognized in the quarries; the largest one – still in a quarry condition – is a T-shaped pillar of limestone, a type known from the Nevalı Çori terrazzo-building. Its dimensions are about 7 x 3 x 1 m, but an original length of nearly 9 m can be reconstructed. A moveable limestone pillar base with a size of about 3 x 3 x 1 m was found on the slope of the southeast plateau. One pit-like structure in the bedrock is not completely understood yet, but it seems certain that its cistern-like form is not associated with such a function, nor is it related to the quarrying activities. It must represent some unknown technical installation.

Continued excavation in the area where the so-called "lion" pillar was found in 1995 confirmed the interpretation of existing structures directly on bedrock as those of an atelier site. On the southern plateau the reliefs of three *phallos* had been found in the bedrock. On the southern slope of the tell two trenches were opened in order to protect an *in situ* pair of large T-shaped pillars that were partly dug out by farming activities and which were in immediate danger of being destroyed. Near these pillars in a stone pile made by farmers clearing large stones from the field, a larger-than-life-sized human face was found (Fig. 1).

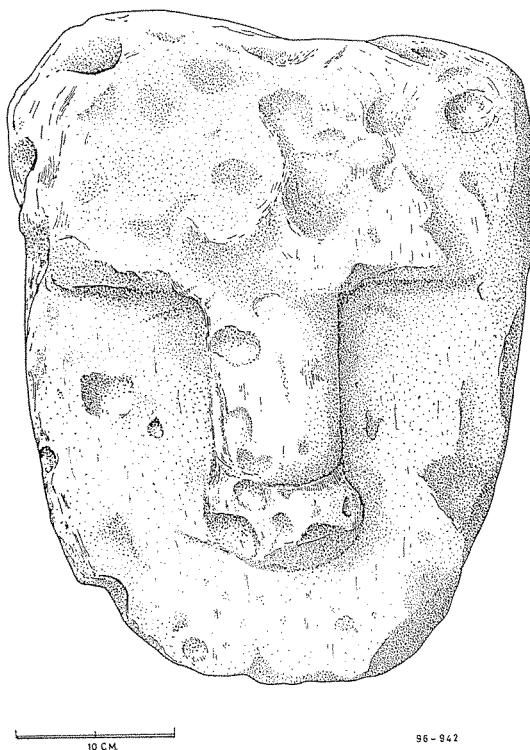


Fig. 1. Göbekli Tepe: human face from a larger-than-life sculpture found in a pile of field stones (limestone; drawing by B. Coockson).

In the trenches around the two pillars whose upper parts were exposed in 1995, several Neolithic stone walls appeared that belong to younger building phases than the pillars. The lithic industry is mainly of PPNB type, but it includes also Helwan and Nemrik points. Since only the uppermost fill could be excavated so far, an exact dating of the architectural structures is not yet possible. Some limestone figures, including a lion-like animal and a bird-like form on top of a human head, were found in the fill. Unexpected was the appearance of two more pillars, one clearly *in situ*. The four pillars seem to be set at equal distances of 2.5 m in a southwest-northeast line. One pillar, which was excavated nearly 1 m below the T-head, shows snake reliefs instead of the arms in the Nevalı Çori examples. A detailed preliminary report of the 1996 season will be published in one of the forthcoming issues of *Istanbul Mitteilungen des Deutschen Archäologischen Instituts*.

Domuztepe: A Late Pottery Neolithic Site in Southeast Turkey

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The Site (S.C.)

Domuztepe lies some 30 km south of Kahramanmaraş, approximately the same distance north of Sakçe Gözü. It was located by Elizabeth Carter in 1993 during the Kahramanmaraş regional survey carried out by UCLA. Systematic surface collections and limited soundings were made in summer 1995 and the first season of a programme of excavations was undertaken between July and September 1996 by a joint UCLA/University of Manchester team, directed by Elizabeth Carter and Stuart Campbell.

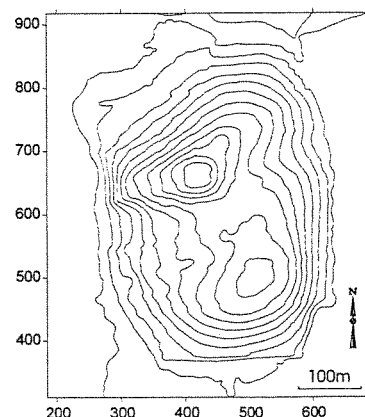


Fig. 1. Domuztepe (1 m - contours)

The site covers approximately 18 ha with a maximum height of about 12 m. Most of the occupation at the site is prehistoric, although later material was present on approximately a third of the site, mainly dating from late Roman to Islamic. The bulk of the surface pottery is Halaf and it seems that the entire area of the site was occupied, at least in the latter part of that period. Early Halaf and Samarran pottery also appears in small quantities as does typical local 6th millennium pottery, although the extent of the occupation in these periods cannot be established at present. Ubaid related pottery also occurs over much of the surface but at some point in the late 5th millennium the site was abandoned.

Three areas have been excavated, Operations I to III. Operation I, on the summit of the southern part of the site, is the most extensive, ca. 140 m². Two levels of rectilinear architecture, mainly preserved as stone foundations, were situated immediately below the surface. The lower level evolved through several phases and some structures are very substantial, with foundations up to 1.2 m thick, although the buildings themselves do not seem particularly large. The levels date from an immediately "post-Halaf" phase. The term "post-Halaf" is used deliberately rather than Ubaid. Much of the pottery is Halaf in technique and style but rare elements have clear Ubaid parallels. However, whether this is in any way equivalent to the so-called Halaf-Ubaid transitional further south and east is not yet clear – it may equally be a specifically local development. Alongside the Halaf pottery is a substantial proportion of burnished pottery of a clearly different tradition. In these upper levels several very fine small stone vessels were found, in three cases with spouts. Indeed, there is a surprisingly large number of stone vessels from all areas of the site. A fragment of an exceptionally fine obsidian vessel was associated with the second level, of a quality unparalleled at contemporary sites. A small sounding suggests that the underlying layers may date from the full Halaf and portions of them may be burnt.

Operation II exploits a cut made into the side of the tepe to enlarge an adjacent field and has provided a compressed stratigraphy of at least 8 distinct levels in an area of 85 m². The architecture, a single level of which was never exposed in the entire trench, varies between rectilinear and circular, at least two examples of classic Halaf tholoi being found. The pottery from all

these levels is late Halaf, perhaps dating to the second quarter of the 5th millennium, but, like Operation I, contains a significant proportion of non-Halaf burnished sherds. Operation III is a sounding in the north west of the site which exposed levels that are probably broadly contemporary with the post-Halaf levels of Operation I; the most notable context is a series of dense deposits of cattle bones, possibly a butchery area.

Domuztepe lies on the very edge of the Halaf distribution and its excavation may well cast light of the mechanisms which underlie the adoption of Halaf traits over a huge area of the Near East from the end of the 6th to the mid-5th millennium (not only ceramic but architectural and possibly connected to changes in obsidian distribution). We know, in general terms, that the ceramics of the area belong in the local tradition during the 6th millennium. This local tradition was largely replaced by Halaf pottery, from dates from other sites this took place around 5,200 bc (uncal.). This appears to reflect a wider range of cultural links tying Domuztepe, and the surrounding area, to the south-east. A change in alignment occurs in the mid-5th millennium when, in pottery at least, the links seem to be less to the south-east and more to the south, towards the Amuq. Whether these changes in cultural orientation are connected with the growth of Domuztepe to its maximum size and subsequent decline and abandonment remains to be seen.

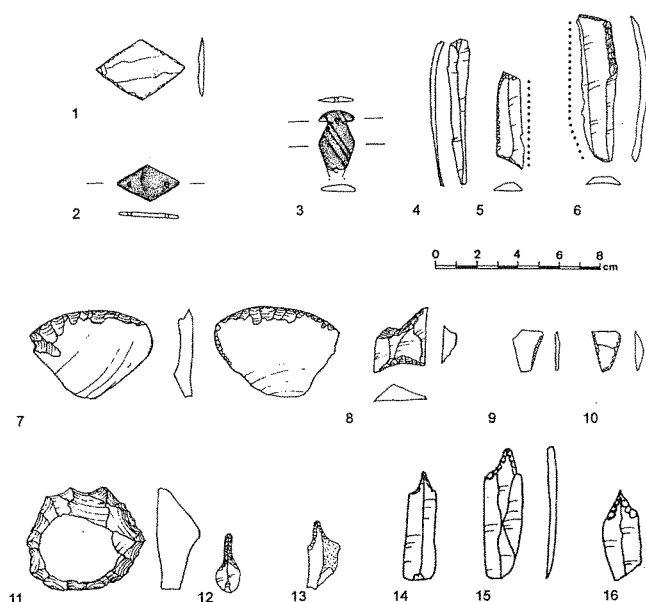


Fig. 2. Late Neolithic obsidian and flint artefacts from Domuztepe: 1 lozenge blank (obsidian); 2 ground and perforated lozenge (obsidian); 3 ground bead (obsidian); 4 blade (obsidian); 5-6 sickle element; 7 bifacially worked flake (obsidian); 8 retouched blade segment (obsidian); 9-10 trapezes -transverse arrowheads; 11 scraper; 12-16 drills and perforators.

Domuztepe is much larger than most other Halaf sites, although not unique as Khazane on the outskirts of Urfa seems to be of a similar order. Its excavation provides the opportunity to examine the nature of society and economy at a large and, presumably, central site. Although any conclusions at this stage are premature, there are some hints of a comparatively rich material culture. Among the more notable finds were several Halaf stamp seals. A considerable number have now been discovered from the site, including 10 from the surface, two in a pit in Operation I, one from Operation III and six from stratified contexts in Operation II; in addition a fragmentary seal impression came from the sounding in Operation I. This is an exceptionally high number given the very limited excavation and may correlate with a greater complexity of interaction within the settlement and with neighbouring settlements.

The Lithics (E.H.)

Lithic artefacts though found regularly with Halaf ceramics are often described as "banal" or "impoverished" and are alleged to occur in reduced quantities compared to earlier periods (COPELAND 1989: 267, AKKERMANS 1993: 272). The regular but varying presence of obsidian has given rise to a certain amount of discussion (CAMPBELL 1992, AKKERMANS 1993: 273) but on the whole the industries are poorly understood (COPELAND 1995). The lithics collected during the survey and

subsequent excavation of Domuztepe provide an excellent opportunity to initiate a detailed study of lithics at one site of predominantly Halaf date.

Some 8,000 lithics were recovered during surface survey in 1995 and a further 10,000 from excavation in 1995 and 1996. Our first priority was to establish the broad parameters of the lithics collected in order to formulate our strategies both of excavation and analysis. We wanted to get a general picture of the quantities and the main categories of artefact present, to look at their distribution to see if we could identify any variation across the site. To date all of the surface material and about 75% of the excavated material have already been catalogued.

In our approach to and examination of the lithic material we were anxious to follow the standards already discussed in *Neo-Lithics* (e.g. BAIRD *et al.* 1995), although we have used a more generalised relational database model and have sought to link the technological and retouch categories more specifically. The preliminary cataloguing of the material involved sorting the artefacts into general categories of cores, core trimming elements, flakes and blades, and presence and general form of retouch; flakes and blades were also sorted by size groups and by presence of cortex. The second stage of investigation will involve targeting the material from key contexts to establish technological and other details. We also intend to investigate the flint outcrops in the neighbouring hills for exploitation sites.

Even from the initial results we can suggest that different processes are present. For example, blades are the predominant blank type used for retouch, but, though there is evidence of secondary stages of production, there is little evidence of the preliminary stages of production. On the other hand all stages of flake production are represented on site and flakes are less commonly retouched, except as scrapers. The main retouched forms are small drills, backed and truncated blades, some with sickle gloss and scrapers, burins, one foliate and a few transverse arrowheads. There is also an Amuq point from the surface, one of the rare indications among the lithics of the pre-Halaf occupation. Groundstone is present in a variety of types and stones including small serpentine axes.

Obsidian of various colours (including both grey and green) is present in all contexts. Long narrow blades and blade segments predominate, but there are also flakes and chips and some retouched pieces as well as cores and core trimming elements. Some of the cores have ground striking platforms and some blades have features suggestive of pressure flaking. In addition to the tool component, it is particularly interesting that obsidian blades were shaped, ground and bored for beads, pendants, lozenge shaped plaques and vessels; there is evidence that some of these were being manufactured on site.

By comparison with earlier, contemporary and later assemblages, we hope to establish to what extent the Domuztepe assemblage represents a continuing local tradition or whether it is strongly influenced by developments elsewhere, as occurs with other areas of material culture. It is only by integrating the study of the lithics with other aspects of the site, perhaps particularly its wider social context, that we can hope to understand the processes involved.

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Excavations of Halaf Levels at Kazane, SE Turkey

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In the summer of 1996, a preliminary investigation of the Late Halaf levels at the site of Kazane was conducted. Kazane has

occupational levels dating from the 6th to the early second millennium bc. The excavation of the extensive post-Halaf remains is being undertaken by Dr. Patricia Wattenmaker (U. of Virginia). Our project is concerned with the Halaf period which is estimated to cover more than 10 ha. Three small soundings produced the following results:

1. One trench contained ceramic material roughly comparable to Akkermans' "Transitional Halaf" stage from the "Burnt Village" at Sabi Abyad. This sounding is located near an ancient watercourse. Thick alluvial deposits alternate with sherd layers. Architecture was only found at considerable depth.
2. Two trenches in the southeastern part of the site contained Late Halaf remains. One trench contained the ruins of a tholos, built of hand-formed mud brick. In the other trench, a pisé wall was discovered. Only a small part of the ceramics are comparable to the finely made vessels with "*Glanztonmalerei*" known from Tell Halaf, Arpachiyah and other earlier sites.
3. The most astonishing aspect of the Late Halaf material culture is the chipped stone industry. We did not find a single sickle blade. However, through careful sieving of all primary and secondary contexts, a substantial number of perforators, burins, and burin spalls was recovered. Obsidian is rare, and a variety of different cherts are attested. We noted a differential distribution of tools, including perforators and burin spalls in the two Late Halaf trenches.

We hope to return to the field in the summer of 1997.

'Ain Ghazal Excavations 1996

Gary Rollefson

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An eight week season of excavations at 'Ain Ghazal continued a major expansion of investigations of LPPNB and early PPNC deposits, as well as a concerted effort to clarify aspects of Yarmoukian housing density and courtyard arrangements. Part of the season's major objectives was a greater exploration of the East Field, across the Zarqa River from the main settlement, where in 1995 a temple was partially exposed. Altogether the season exposed 200 m² in the East Field, 100 m² in the North Field and 100 m² in the Central Field.

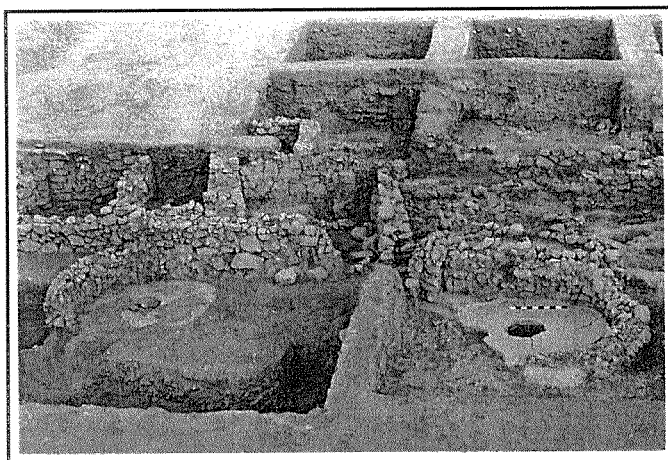


Fig. 1. Two shrines in the North Field. The one on the left was exposed in 1996 and is evidently a short-lived successor of the earlier one to the right <scale: 1 m>.

Work in the North Field contributed greatly to unraveling the complex use of the area around the four-phase cult building located in 1993 (ROLLEFSON and KAFABI 1994). Phase 1, like its successor, consisted of an apsidal building. All of the phases utilized a courtyard behind (west) the building, which originally was an abandoned MPPNB house with a lime plaster floor and walls modified by the LPPNB inheritors. Five meters to the south of this (ultimately) circular shrine, a virtual twin circular shrine was exposed, presumably the successor to the original circular building after it was abandoned; the more recent shrine was quickly erected and lasted for only a short time (Fig. 1). PPNC exposures in the North Field showed considerable re-use of earlier LPPNB structures, but severe post-depositional damage

(especially by 20th century agriculture) make reconstruction of the PPNC situation very difficult.



Fig. 2. View to the west of the LPPNB temple. The red-painted plaster hearth is near the center, the three standing stones at top center, the floor-altar at upper left and the low platform at upper right. At the center of the wall at bottom is the knobby top of the orthostat.

The Central Field excavations centered around the western, southern and eastern areas of the large Yarmoukian house exposed in 1994 (KAFABI and ROLLEFSON 1995). The work showed that the Yarmoukian inhabitants were very industrious in terms of construction, destruction and rebuilding: the stratigraphic sequence is bewildering in the micro-reuse of the area during Yarmoukian times. Nevertheless, it is also clear that there were clear architectural terraces, and that population density during the Yarmoukian period was considerably lower than in the MPPNB and LPPNB periods. PPNC layers were reached in two trenches, but deeper excavation into these earlier contexts was not possible.

The East Field was certainly the focus of excitement during the 1996 season;

- A "step trench" 2 m wide and 45 m long was placed along an uphill orientation near the center of the East Field, approximately 70 m north of the trenches excavated in 1995 (ROLLEFSON and KAFABI 1996). The aims were to determine how far upslope the architectural evidence continued, as well as to see how "deep" chronologically the deposits were at the base and at the top of the incline; these aims were only partially successful, although the results were nevertheless satisfying. At the base of the Step Trench, two rooms of an LPPNB multi-level house were completely exposed in addition to a minor exposure of a third room; the house had a considerable history of renovation, for there was a blocked doorway between two rooms, as well as an oven-like stone construction in the corner of one room that post-dated the doorway blockage. Uphill from this house was a confused sequence of house (?) and (?) terrace (?) walls, as well as massive walls that were associated with dense ashy deposits that indicate some industrial use of this area. Part of this sequence is clearly LPPNB, but it is also possible that there is some PPNC presence in the area.
- At the top of the test trench a 2x5 m probe exposed part of an LPPNB temple (Fig. 2), and this probe was expanded to 5x5 m to document as much of the temple as possible. The western edge of the single-room structure was eroded away but it was clear that the temple was originally at least 4 m (NS) by 5 (EW) in extent. The internal "furniture" included three standing stone in the center of the room (aligned N-S), a floor-level altar along the south wall (a slab-lined clay deposit burned to a brick-red color and texture), a floor hearth of red-painted lime plaster surrounded by seven limestone slabs, and an orthostat of brilliant white limestone, 80 cm high and 40 cm thick, built into the eastern wall; the rounded shape of the orthostat indicates an anthropomorphic shape.
- Back in the area first investigated in 1995, a large domestic LPPNB complex was partially exposed, although the building had suffered major damage due to waterworks construction in the 1980s.
- But most important, despite the recent disturbance, was the stratigraphic relationship between the LPPNB building (with

its more recent modification using non-LPPNB construction methods [i.e., the PPNC use of undressed stone blocks]) and the temple partially uncovered in 1995. Since the LPPNB building and the early PPNC remodeling walls continue *under* the temple floor, it is plain that the temple itself was PPNC in age. Removal of the post-abandonment terrace walls over the PPNC altar in the terrace revealed the construction technique of the temple, and this was undoubtedly a PPNC endeavor in terms of the building style (Fig. 3).



Fig. 3. View towards the east of the PPNC temple. At the top of the photo is the Terrace Wall; the altar is in the middle against the back wall of the temple, and the right-angled screen wall is just below it. At the bottom of the photo is an earlier LPPNB house.

- The PPNC temple turns out to be a relatively large multi-roomed structure, although erosion and recent bulldozer damage have destroyed the western end of the building. It once consisted of at least two major rooms and an adjunct storage (?) chamber dug into the sterile basal clay to the east of the east wall of the building. The eastern room was relatively small (6.5 m N-S, 3.5 m E-W), but the western room was preserved only to 6.5x2.5 m. The Eastern Room had an altar nearly 2 m long and 60 cm wide, made of two thick limestone slabs set on three pairs of shaped upright stone slabs about 70 cm high and roughly 40-45 cm in width and thickness. In front of the central upright pair there was a floor hearth of white lime (?) plaster surrounded by seven limestone slabs, recalling the situation for the LPPNB temple. A small "cubicle" of limestone slabs, forming an area about 45 cm on a side, was constructed against the north wall; the function of this feature is unknown. A doorway in the wall between the East and West Rooms permitted restricted access: from the doorway a short wall led westwards for 60 cm before making a right-angle turn to the north, and the wall effectively cut off all vision into the East Room. In effect, this implies that activities taking place in the East Room were not for public enjoyment, and that the East Room was an early example of the "Holy of Holies".

Through the mercy and concern of the Municipality of Amman, the Department of Antiquities of Jordan will purchase a major portion of the western part of 'Ain Ghazal, ending finally a persistent threat to the existence of the site. While almost two-thirds or more still face destruction in the future, at least the core of the site has been preserved, *al humdullilah*.

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Current Investigations at Ghwair I, A Neolithic Settlement in Southern Jordan

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conducted a brief (mid-October-early November, 1996) joint excavation at the Pre-Pottery Neolithic B settlement of Ghwair I in southern Jordan. The small settlement sits on a hillslope at the junction of Wadi Ghwair and Wadi Feinan. It had previously been tested by Najjar (1994), who documented the presence of exceptionally well-preserved architecture, some of it standing over 2.5 meters high. The objective of the current study was to further assess the site's significance and suitability for major interdisciplinary investigation. In particular, we wished to determine the settlement's boundaries, investigate a large ash pit on the eastern side of the site, and determine if large structures were present in addition to the numerous small rooms previously exposed.

To achieve these objectives, we excavated at four areas of the site. We also mapped the site with a Total Distance Station. The four areas studied included:

1. The upper terrace, where the earlier excavations concentrated on rooms exposed by wadi erosion. This portion of the site contains the best preserved architecture, exhibiting at least three major building phases. Many of the rooms exhibit curving walls and do not appear to conform to expected PPNB patterns. Most of the rooms previously excavated are also quite small. In 1996 we opened up one 5x5 m unit and were fortunate to expose part of a very large room more substantial than others, and it may have a cult status, although this is a tentative conclusion. The excavated portion contains a series of three well-constructed wall niches and a floor-level opening that may have functioned as a drain. There also appear to be floor features, but only half of the room was excavated, and we did not remove the plastered floor at this stage. In addition to this room, portions of two other rooms also were exposed. One of these was excavated to a depth of ca. 3 m below present ground level. We further exposed a room first excavated during the initial season. This was a small "D" shaped structure with a niche reminiscent of an "altar". Immediately in front of this niche is a burnt area.

2. The southern edge of the site. Two units were excavated here in hopes of documenting the southern boundary of the settlement. The first was a small testing near the beginning of the rock hill at the southern edge of the site. No cultural materials were present here. The second areas was a 5x5 m unit. Here, a series of roughly parallel walls was exposed, each deeper than the other. The function of these is presently unclear, but they are thick and may have formed successive retaining walls to protect the settlement from erosion or to channel rain water.

3. The eastern ash pit. During the previous excavation, ash lenses were exposed at the eastern boundary of the site. We expanded investigation in this sector, excavating a roughly 2x2 m area. The results from this small exposure are intriguing. The ash deposit is roughly 1 m thick, and near its bottom is a series of small pits. These may represent the basal level of the site, perhaps reflective of the original settlement's foundation. One PPNA-like projectile point (similar to an El-Khiam point) was recovered. This, along with a large number of bladelets, could indicate a substantial antiquity to the site.

4. The lower terrace. A very small area at the previous excavations on the lower terrace also was excavated, removing a plastered floor. There were no features beneath this portion of the floor, although it was rich in artifactual materials.

Although of limited duration, the 1996 season also focused on systematic techno-typological lithic analysis. While the nature of this analysis is still preliminary, the assemblage is interesting in several ways. First, the relatively large number of bladelets (as well as the previously mentioned PPNA-like point) suggests an early occupation. If Ghwair I was initially settled during the PPNA, it would represent one of the few such sites known in Jordan. Of interest is the presence of PPNA Dhra, some 75 km to the north. Also of interest in the chipped stone assemblage is the abundance of projectile points. These appear to be the principal tool type present, at least in the areas excavated. This seems rather specialized, given the nature of the site (that is, a substantial settlement). Overall, the assemblage fits quite well within a relatively early PPNB affiliation, but the possible addition of an earlier component is tantalizing. Analysis of these materials is, at the present time, in a very preliminary stage.

Ground stone is very abundant at the site. Small finds also are numerous, including an animal figurine and two small token-

like items, both of which are incised.

Paleoeconomy is a major focus of the study. Paleobotanical samples were taken and are presently under analysis by R. Neef. Fauna is being studied by P. Croft, and includes caprine, cattle, small carnivores, pig, and one or more species of bird.

Chronology clearly is important to this site. Several radiocarbon samples are presently under analysis. There are three determinations from the previous excavation. These are: 8812 ± 61 BP, or 7950-7870/7815-7705 BC-calibrated (Hd 17219-17541); 8627 ± 46 BP, or 7690-7660/7635-7540 BC-calibrated (Hd 17220-17550), and 8528 ± 89 BP, or 7575-7485 BC-calibrated (Hd 17221-17359). The first two determinations are from the upper terrace, and the last is from the lower terrace.

In summary, our brief investigation of Ghwair I has further documented the settlement's significance. Of particular interest is the possible PPNA component. We hope to be able to expand our studies in the near future, examining the relationship of a possibly periphery function to the site in relation to larger core settlements.

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Where are the Microlithics? Lithic Technology and Neolithic Chronology as seen from the PPNA occupation at Dhra', Jordan

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Introduction

Although identified in the late 1970s as an extensive aceramic Neolithic site, Bennett's (1980) limited test excavations at the site of Dhra' did not lead to a clear understanding of site chronology or the scale of past occupation. Based on excavations conducted in 1994 (KUIJT and MAHASNEH 1995) and subsequent laboratory analysis of materials, it is now clear that there was a major PPNA period village settlement at Dhra' roughly contemporaneous with the Pre-Pottery Neolithic A period occupations at Jericho, Netiv Hagdud, Gilgal, and 'Iraq ed-Dubb. Situated on an alluvial terrace on the south side of the Wadi 'Ain Waida', across from the Pottery Neolithic settlement of 'Ain Waida', the settlement covered an area of approximately 80×50 m with oval or circular stone and mud structures visible on the surface and exposed by excavations (KUIJT 1994a, KUIJT and MAHASNEH 1995; n.d.). This report discusses the results of the 1994 excavation results at Dhra' and comments upon the implication of these results in understanding the chronological framework of the PPNA in the south-central Levant.

Excavation at Area I and Excavation Unit One

The 1994 excavations at Dhra' focused on Area I, previously sounded by Bennett (1980), and Excavation Unit One placed in a previously unsampled area of the settlement. Work at Area I focused on 1) removing earlier slumped material from the base of the trench with a bulldozer to a depth of 4 m; 2) cleaning and drawing a 9 m profile of the trench down to sterile sediments; and 3) excavating a 0.5 m section of the entire profile for the collection of artifacts, radiocarbon samples, paleobotanical samples and faunal remains. This excavation employed units of 1×0.5 m excavated in 15 cm levels. All sediments were screened through 2 mm mesh and all cultural materials were collected.

Excavation of the upper meter in Area I revealed intact architectural and ceramic evidence for an Early Bronze Age I (EBI) period occupation but no ceramics from the Pottery Neolithic period. Excavation of sediments below the EBI horizon provided evidence for an extensive PPNA occupation, including several semisubterranean oval residential structures cut into sterile colluvium reoccupied several times around 10,000 b.p., and covered by at least 2 m of later cultural deposits.

Similar to the earliest PPNA period semisubterranean structures at Jericho, Structure II was originally constructed by removing a large volume of sterile sediments to form a circular or oval pit, lining the edge of the structure with mudbricks and stones, and laying down a rough mud floor. A radiocarbon date of $9,940 \pm 180$ bp (ISGS-3278) from floor deposits associated with one of several early occupations of Structure II, as well as a radiocarbon date of $9,960 \pm 110$ bp (ISGS-2898) from an extramu-

ral context, indicate that this structure was abandoned, destroyed, and reoccupied several times during the Early Neolithic period. Objects recovered from the multiple floors of Structure II include several limestone cylindrical pestles, bone tool fragments, and many chipped stone projectile points. Although analysis is still on-going, preliminary examination of animal bone material indicates strong similarities to the fauna from Netiv Hagdud, with a predominance of gazelle hunting and the trapping of migratory waterfowl (T. WAKE, pers. comm.). Despite good sample sizes and preservation conditions, preliminary examination of carbonized materials recovered in excavation has provided no evidence for domesticated seeds.

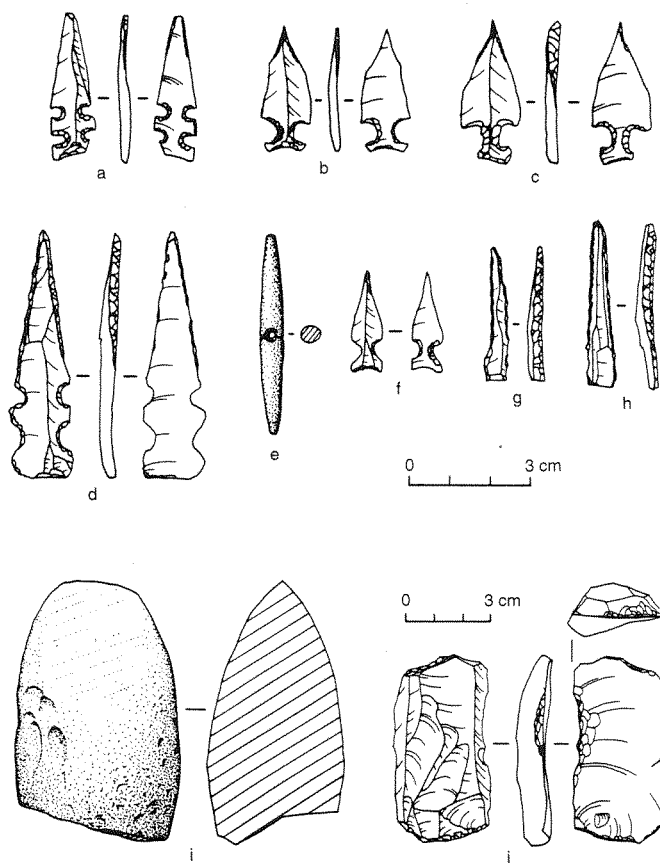


Fig. 1. Chipped and ground stone tools from Excavation Unit One, Dhra', Jordan. a,d multi-notch El-Khiam points; b,c,f single notch El-Khiam points; e ground slate gorget; g-h borers; i ground stone axe; j endscraper/sidescraper.

Excavation Unit One, 4.5×1.5 m in area, was placed in the previously unexplored south side of the settlement. Only 20% of the excavated sediment from this unit was sieved through 2 mm mesh for later analysis. Excavation of the upper 10 cm of cultural deposits resulted in the recovery of a few EB ceramics, a single sickle blade from the Pottery Neolithic, and considerable PPNA lithic material. Only PPNA period diagnostic chipped stone tools were recovered below the upper 10 cm of deposits. Excavation of Unit One led to the discovery of part of a well preserved circular stone structure designated as Structure I. It appears to have been approximately 3 m in diameter with well constructed stone walls preserved to a height of 85 cm. Wall construction employed cobblestones 20-30 cm in size, and intact and dissolved mud brick was found on top. At the base of the wall was a possible bench, constructed of large flat stones placed on top of each other and radiocarbon dated to $9,610 \pm 170$ b.p. (ISGS-3277). Although excavations in this area were halted before reaching sterile deposits, eroding cultural deposits 5 m to the south of the site suggests that at least 1 to 1.5 m of earlier PPNA cultural deposits underlie Structure I.

Lithic Industry

Excavations at Area I and Excavation Unit One recovered an extensive collection of ground and chipped stone tools. In Area I, chipped stone tools recovered within and outside of Structure II include El-Khiam points, numerous awls/borers on flakes and bladelets, multiple adzes/chisels, and two large limestone picks. Other materials include conical and pyramidal bladelet cores,

basalt pestles and other ground stone objects, a small piece of coral, and pieces of a polished bone awl. Detailed analysis of these materials is still in process. Excavation Unit One produced an extensive lithic assemblage dating to the PPNA (Table 1). In descending order of frequency, formed tools include El-Khiam points (Fig. 1:a-d,f), borers (Fig. 1:g-h), retouched flint pieces, several complete or fragmentary bifacial chisels, scrapers (Fig. 1:j) and sickle blades. Other items included two large picks, a portion of a ground-stone adze (Fig. 1:i), multiple basalt pestles, basalt grinding stones, and several hammerstones. A single polished greenstone bead and a ground stone slate gorget (Fig. 1:e) were recovered inside Structure I.

Table 1. Frequency of tool types from Excavation Unit 1 (4.5x1.5 m), Structure I, Dhra', Jordan.

Type	Upper 10 cm	Above Structure I	Inside Structure I	Total
El-Khiam point	4	32	20	56 (33.9%)
Salibiya point	1	2	3	6 (3.6%)
Multi-knotch point	-	0	3	3 (1.8%)
Undiagn. point fragm.	1	11	11	23 (13.9%)
Borer	7	8	15	30 (18.2%)
Sickle blade	1	1	-	2 (1.2%)
Scraper	-	2	1	3 (1.8%)
Retouched blade	4	6	14	24 (14.5%)
Retouched fragment	6	1	4	11 (6.6%)
Notche	-	-	1	1 (0.6%)
Double tool	-	1	2	3 (1.8%)
Bifacial tool	-	1	2	3 (1.8%)
Total	24	65	76	165

Analysis of the chipped stone industry at Dhra' provides important new insights into the chronology and stone tool technology for PPNA period village occupations in the southern Levant. Based partially on the presence or absence of microlithic tools, specifically lunates, from Salibiya IX, Jericho, and El-Khiam, Crowfoot Payne (1983) argues that the PPNA of the south-central Levant should be divided into two facies: an earlier phase with microlithic tools, termed the Khiamian, followed by the Sultanian period when microliths had effectively disappeared. Paradoxically, this interpretation now appears to be contradicted by data from other sites, as lunates are absent at some PPNA settlements radiocarbon dated to the earliest stages of the PPNA (e.g., Gilgal I and Gesher) while lunates are present at other PPNA settlements dated to the later stage of the PPNA (e.g., Netiv Hagdud). In addressing this interpretive quandary and the soundness of the chronological subdivision of the PPNA, Nadel and Garfinkel note that typological variation among flint assemblages is open to diverse interpretation, and that the presence and absence of lunates and microlithics at PPNA settlements are the result of interassemblage variability and differential sampling of roughly contemporaneous PPNA settlements (GARFINKEL and NADEL 1989, NADEL 1990). I have recently argued on the basis of data from the excavations of 'Iraq ed-Dubb that the presence of lunates at some PPNA settlements and not others is due to the mixing of derived Late Natufian materials with those from the PPNA. Modifying the preliminary pre-laboratory analysis of chipped stone materials of 'Iraq ed-Dubb (KUIJT *et al.* 1991), detailed study of the spatial distribution of diagnostic artifacts indicates that Hagdud truncations (see BAR-YOSEF *et al.* 1987 for a detailed definition) and Khiam points come from PPNA occupational levels (dated to c. 9,950 bp) while the lunates are associated with the Late Natufian occupation radiocarbon dated between c. 11,300 to 10,500 bp (KUIJT 1994a; 1994b; n.d.). Recent field work at 'Ain Darat (GOPHER 1995) reiterates this patterning, in which lunates are absent from settlements dated only to the PPNA but are found at settlements with both PPNA and Late Natufian occupations. Excavations at Dhra', as well as an examination of the collective regional patterning, provide further support for arguments that lunates were not produced in the PPNA.

It should also be noted that the 1994 excavations at Dhra', in which over 18 m³ of PPNA period deposits were screened through 2 mm mesh, no Hagdud truncations were recovered. It is not at all clear how, or if, this is linked to the absence of lunates. It is possible that variation in the distribution of Hagdud truncations was the result of differential functional activities at some settle-

ments, archaeological sampling, or perhaps technological adaptations at settlements situated in marginal environmental areas. Whatever the underlying reason for this variability, the absence of lunates and Hagdud truncations from Dhra', with dated PPNA primary contexts associated with intact architecture and a large sample size of the chipped stone assemblage, underline the argument that there is need to reexamine the validity of the chronological and cultural subdivision of the PPNA into the Khiamian and Sultanian phases proposed by Crowfoot Payne (1983).

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The "Other" Lithics: Ground Stone from Tor al-Tareeq, Jordan

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Variability in Levantine ground stone assemblages has often been linked with significant adaptive changes, both in terms of the increasingly intensive use of plant foods and as a criterion for inferring more sedentary occupations. Despite their utility in both structural and behavioral inferences, ground stone assemblages continue to be some of the most unevenly reported, loosely classified, and under-analyzed aspects of material culture. An example from the Epipaleolithic site of Tor al-Tareeq in west central Jordan demonstrates that more comprehensive and standardized treatments of early Epipaleolithic ground stone assemblages, despite their small size and sporadic distribution, can yield important results.

Tor al-Tareeq (WHS 1065)

Excavations at Tor al-Tareeq were undertaken in 1984 as part of the Wadi Hasa Paleolithic Project (CLARK *et al.* 1988; NEELEY *et al.* n.d.). A cluster of six radiocarbon dates firmly dates the major portion of the deposit to the early Epipaleolithic phase (c. 20,000-14,500 bp). The site appears to have been the locus of intensive reoccupation episodes during the early Epipaleolithic by virtue of its setting, exposure, density of deposits, hearth features, and midden accumulations (NEELEY *et al.* n.d.). The presence of a Pleistocene lake and numerous freshwater springs in the vicinity were most certainly environmental features that made the site locale attractive.

During two field seasons in 1984 and 1992, excavations and surface collections at Tor al-Tareeq recovered 13 ground stone implements. A series of five bedrock grinding features, heavily

desert-varnished, were also discovered in the rocky escarpment northeast of the archaeological deposits. The majority of the excavated specimens can be associated with Early Epipaleolithic strata, and I assume that surface and bedrock specimens also correspond to this time frame.

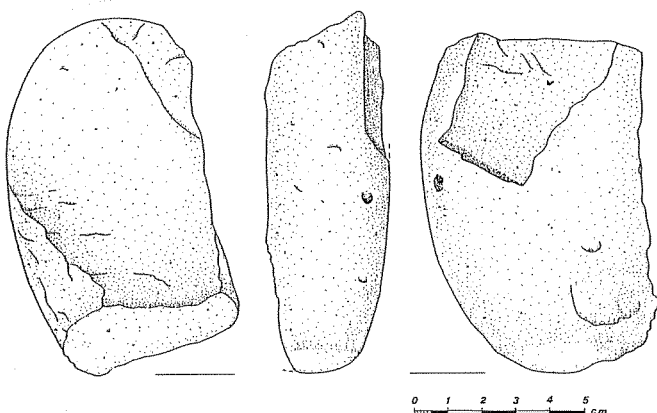


Fig. 1. Ground stone pestle (Specimen 112) from Tor al-Tareeq (by M. NEELEY).

Ground Stone Assemblage

All tools can accurately be described as expedient. The pestles and hand stones were formed on cobbles, available in the nearby wadi, and were not formally shaped by chipping, pecking and grinding, but reduced only by use (Fig. 1). The same is true of the single free-standing mortar that was formed on an unmodified limestone boulder.

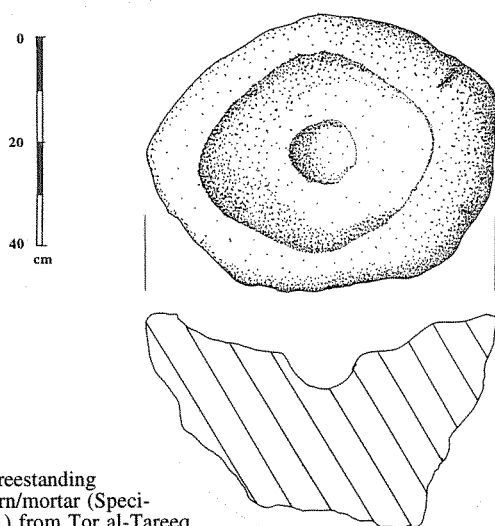


Fig. 2. Freestanding basin quern/mortar (Specimen GS-1) from Tor al-Tareeq.

Tool flexibility is another description that comes to mind in characterizing the assemblage. None of the tools represent specialized forms, unlike the deep vessel mortars and carved pestles reported from sites within the Mediterranean vegetational belt. Among the mortars, several specimens can be described as composite tools (*sensu* WRIGHT 1992) by virtue of two distinct use surfaces (Fig. 2). One use surface consists of a relatively large but shallow elliptical depression with traces of continuous circular striations that suggest rotary grinding motions. A smaller cupmark depression with signs of battering is centered within the larger ground surface. These expedient quern/mortars may represent multifunctional tools used for multi-stage processing or tools that were reused/recycled over time. The pestles, hand stones, mortars, and composite tools comprise a ground stone tool kit that could have been used to accomplish a wide range of unspecialized processing tasks.

Elsewhere I have suggested that the lack of specialization may reflect a mixed season occupation model in which groups returned to productive locations repeatedly, but not always at the same time of year (PETERSON n.d.). Unspecialized tools could be used to process whatever plant foods happened to be available: nuts, chenopod and amaranth seeds, or hydrophytic roots and tubers. These resources were all represented in the pollen samples from the site (NEELEY *et al.* n.d.). A model incorporat-

ing less seasonally restrictive movements in certain Epipaleolithic contexts is supported by these data.

Few early Epipaleolithic sites contain ground stone (18% according to WRIGHT 1992). This indicates that plant processing was a feature of a select group of sites. Furthermore, assemblages appear to consist of few tools. Attempts to quantify the density of ground stone tools among Epipaleolithic sites are hampered by severe reporting problems (PETERSON n.d.). For the few sites that report ground stone and volume of excavation fill adequately, several sites in more arid, steppic environments stand out as having high ground stone densities: Tor al-Tareeq, Jilat 6, and Uwaynid 18 (PETERSON n.d.). It would appear that processed plant resources played an important role in areas outside the Mediterranean vegetational zone. These findings need to be incorporated into settlement models, which in the past have emphasized animal resources.

Bedrock grinding features seem ideal for relatively mobile plant-using groups where site reoccupation is anticipated. The two groups of bedrock mortars at Tor al-Tareeq provide interesting spatial data. First, they are located approximately 100 m east of the main habitation loci rather than on the escarpment directly to the north. This reflects a degree of spatial segregation of processing activities at the site (cf. JACKSON 1991). One set of three cupmark mortars suggests a task group of three individuals working side by side. The second cluster of two distinctive mortars (one cupmark and one mortar/quern) may indicate multi-stage processing by a single individual or two individuals dividing processing tasks. As data relevant to group composition and task organization are rare, these bedrock features are important and need to be examined carefully.

Concluding Remarks

As Epipaleolithic sites in the Levant are discovered, our archaeological map becomes more complex, reflecting both regional and settlement system variability. In the past, researchers have emphasized chipped stone assemblages as monitors of this variability. But the Tor al-Tareeq example indicates that ground stone tools can provide complementary information germane to discussions of seasonality, mobility, and the social units of production. This conclusion reinforces the need to report and analyze treat ground stone implements more thoroughly.

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A LPPNB-Variant of Byblos Points from Gürcütepe II – "Palmyra Points"?

Klaus Schmidt and Manuela Beile-Bohn
University of Heidelberg

In 1994 the Turkish-American excavation team at Kazane Höyük (e.g. WATTENMAKER and MISIR 1993) identified near Kazane, a few kilometers east of the centre of Şanlıurfa (Southeastern Turkey), a west-east alignment of four PPN/PN settlement mounds, the largest one called Gürcütepe. A water pumping station and the booming development of the town started to destroy these important sites. Under the direction of the Museum of Şanlıurfa and the German Archaeological Institute in Istanbul, salvage excavations began in 1995 and 1996 at the highest

mound, now called Gürcütepe II. During the 1995 field season the tells had been numbered from east to west as Gürcütepe I–IV. Only the surface material of Gürcütepe I includes some neolithic pottery of the Balikh type; Gürcütepe II–IV are PPN mounds (SCHMIDT 1995, 1997; GERBER 1996; BEILE-BOHN *et al.* 1997).

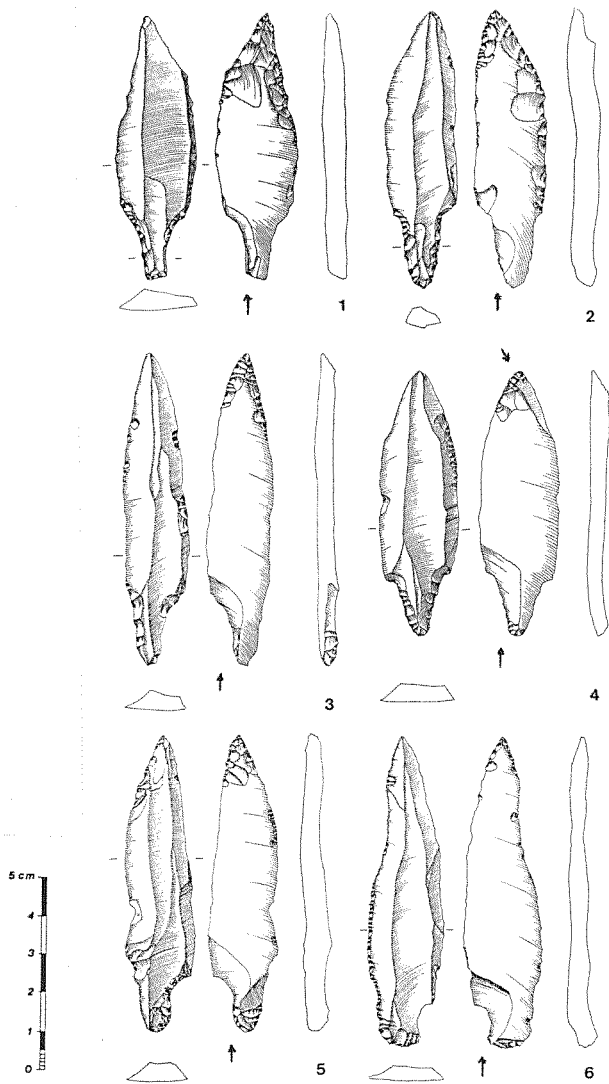


Fig. 1. Gürcütepe II: Palmyra points, all silex.

At Gürcütepe II in the uppermost building layer, parts of three large rectangular houses with stone foundations and tauf walls, as well as one tauf building without stone foundations, were exposed. The small finds include many ground stone artefacts, borers for stone bowl production and clay and limestone figurines. The main characteristics of the lithic industry are Byblos points, usually of silex, and obsidian Çayönü-tools. Until now no ^{14}C dates are available, but the architectural remains and the lithics tentatively allow us to date this layer to Çayönü's Large Room phase (e.g. ÖZDOĞAN 1995).

Within the group of the Byblos points, many pieces with an unusual proximal burin blow at the ventral face had been observed (35% of Byblos points). As the retouch of the tang often cut the burin scar, these burins clearly can be determined as a part of the fabrication process of these points and not as a reuse of points as burins. It is clear that the shaping of the tang starts with a longitudinal burin blow, which removed part of the bulb. The position of this burin scar is always at the left basal corner of the blade, seen from ventral face (Figs. 1-2).

It is exactly this kind of the shaping of the tang that has been described as "Palmyran Retouch" by S. Fujii (1986), who emphasised that the Palmyran retouch seems to be restricted to the production of tanged points. Fujii mapped about ten sites with Palmyran retouch (FUJII 1986: Fig.1), which are chronologically restricted to a late Syrian facies of the PPNB. A similar use of burin blows to shape a thinning of the artefact has been described by Y. Nishiaki with the "corner-thinned blades" from Tell Kashkashok II (NISHIAKI 1990).

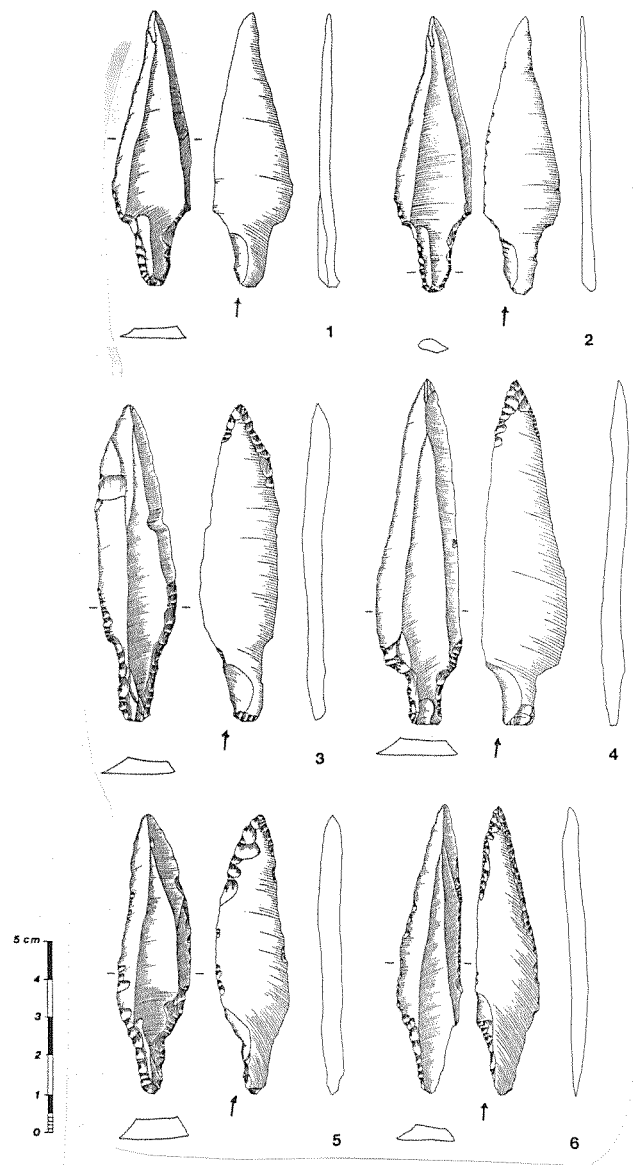


Fig. 2. Gürcütepe II: Palmyra points, all silex.

Further attributes are observable within the group of Byblos points with Palmyran retouch from Gürcütepe II. The blank usually exhibits a strong twisting or torsion viewed from the bulbar end. A similar phenomenon also is characteristic for the Chalcolithic lithic industry of Egypt (e.g. RIZKANA and SEEHER 1988; SCHMIDT 1986). This torsion seems to be the result of a specific kind of core orientation during the blank production, as the (removed) striking platform and the bulb are in an oblique position to the longitudinal axis of the blade (cf. FUJII 1986: Note 1). The position of the bulb is always acentric in the left part of the ventral face. This explains why the burin blows, which remove part of the bulb, are never at the right ventral edge. The degree of this torsion, i.e., the angle between the plane of the distal and the proximal end, which has been called d (SCHMIDT 1986), is mostly around 20° , though extreme examples reach more than 45° . As this kind of primary industry seems to be used only for blank production for these points, the twist should be an attribute in close connection with the use of these points.

Some further observations can be made. In some examples the tip of the point is not retouched at all (Fig. 2:1–2). Often the tip of the blade is slightly curved to left. Several examples show at the same position as the Palmyran retouch a dorsal scar like a second burin facet, but it could also be part of the blank processing (Fig. 2:1–5). The comparison of the length/width and length/weight diagrams of all (complete) Byblos points (Fig. 3a) and the points with Palmyran retouch from Gürcütepe II (Fig. 3b) demonstrates that the values for this variant are clustered close together. The use of a specific blank type and the unusual way of shaping the tang are not used for a wide spectrum of points but for a specific type. As the weights are clustered around 8gr, these points should be arrowheads (cf. SCHMIDT 1996).

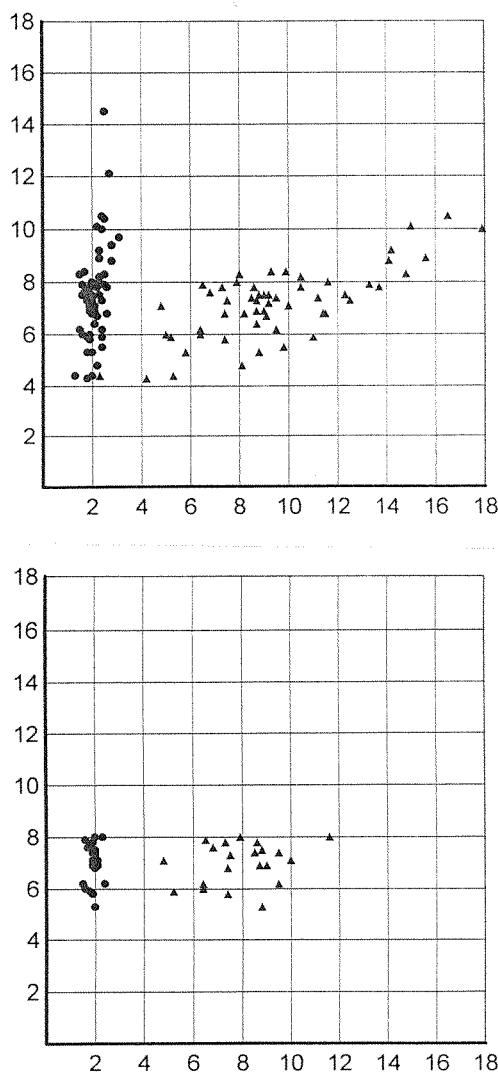


Fig. 3. Gürcütepe II: a Byblos points, including Palmyra points; b Palmyra points <dots: x = width in cm, y = length in cm; triangles: x = weight in gr, y = length in cm>.

As all the observations made within this group of Byblos points from Gürcütepe II seem to be true also for most of the other Byblos points with Palmyran retouch, the separation of that group under the name "Palmyra points" is proposed. Their characteristics are, as described, a proximal burin blow partly removing the acentric bulb at the left ventral edge and a torsion of the blade. As Palmyran retouch was already dated to the final Syrian PPNB by Fujii, and since the Palmyra points from Gürcütepe II can be attributed to a building layer which seems to be parallel in date with Çayönü Large Room phase, a new *fossile directeur* for Upper Mesopotamian-North Syrian LPPNB industries might be established. So far the Palmyra points are completely absent at Göbekli Tepe, a PPN site several kilometers northeast of Gürcütepe, where LPPNB does not seem to exist (SCHMIDT 1995, 1997; GERBER 1996; BEILE-BOHN *et al.* 1997).

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More "Pillow-Shaped Pieces" from LPPNB Basta

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Seminar für Vorderasien. Altertumskunde, Free University of Berlin

The outstanding pieces published in this issue from PPNB Jerf el-Ahmar encourage us to present similar but later examples from Late PPNB Basta. The few pieces from Basta, of which we illustrate two from the 1992 season, certainly represent a distinctive but rarely attested PPNB artefact class that we expect is imperfectly described as a "shaft straightener". Most (but not all) of these tablet or "pillow"-shaped pieces, made of what looks like chlorite (no mineralogical identifications have been made yet), show the grooves typical of "shaft straighteners".

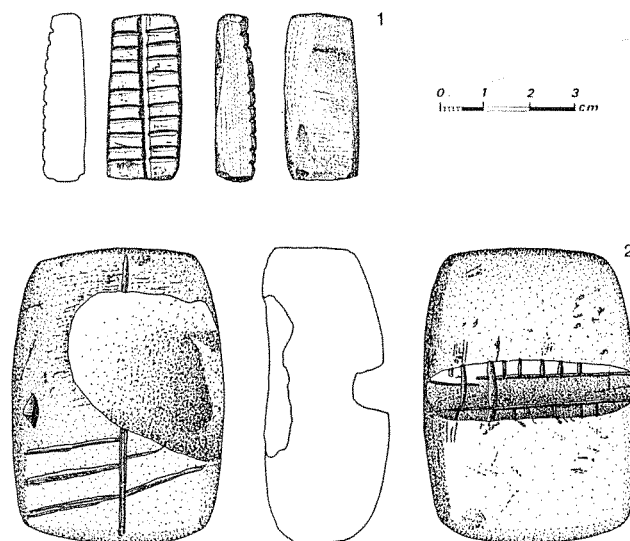


Fig. 1. Basta: 1-2 "Pillow-shaped pieces" from Late PPNB levels <Piece 2 was found damaged on the side opposite the groove.>.

They appear in three ways: 1) only grooved, 2) with grooves plus a distinctive pattern of geometrical engraving (e.g. Fig. 1:2), or 3) with the engraved pattern without the grooves (e.g. Fig. 1:1). We originally thought (HERMANSEN n.d.) that a piece such as Fig. 1:2 represented a "shaft straightener" that was later modified and re-used for ornamental or symbolic purposes (Please note that the engraved decoration occurs twice inside the groove and repeats roughly the design from the other side!). The piece Fig. 1:1 must represent a subclass of pieces that from the beginning were designed for reasons unassociated directly with the purposes of the grooves. (The dimensions of this piece are outstanding small and not repeated in any other piece found.). It appears doubtful that these engravings are meaningless decorations in a soft but durable material. If the interpretation of "shaft straightener" is correct at all, any meaning has to be sought in the context of hunting and symbolism, leading us into the cognitive spheres of hunting magic.

DAHL HERMANSEN B.
n.d. In: H.G. GEBEL and N. QADI, Report on the 1992 ex-cavations at Neolithic Basta. (unpubl. manuscript)

Notes and News from Excavations

Çatal Höyük 1996, Anatolia

A fourth season of fieldwork at Çatal Höyük on the Konya Plain took place during August and September 1996. The project is directed by Prof. Ian Hodder (University of Cambridge), and field directed by Dr. Roger Matthews (British Institute of Archaeology at Ankara). During the 1996 season excavation continued in two areas of the site. At the base of the area excavated by Prof. Mellaart in the 1960s a 20x20 m square was cleared and opened, with the aim of long-term exploration of the earliest levels of occupation. In the North Area a single Neolithic building was almost completely excavated. The building had three main phases, starting its life with a classic "shrine" plan, similar in many respects to shrines excavated in the 1960s, with platforms, red-painted walls and other decorative features. After some alterations, the south half of the building was deliberately destroyed by fire and only the north half continued in occupation until final abandonment. At least 37 individuals were buried under the floors of the building, including many children. The last burial in the building had its head missing. Excavations will continue in 1997. (communicated by Roger J. Matthews)

Dja'de 1996, Syria

The field season in Dja'de this year was limited due to financial restrictions, but the work carried out was quite impressive: study of materials, completion of the excavation of a multiple tomb under an early PPNB house (with at least two burial phases and 15 individuals) and some work in the deep sounding. (communicated by Eric Coqueugniot)

es-Seyyeh 1996, Central Jordan

A new Jordanian Neolithic site was sounded by the Wadi az-Zarqa/ Wadi adh-Dhulayil Survey Project, 1996 (Universities of Rome, and Yarmouk University, Irbid; co-directors: Zeidan Kafafi and Gaetano Palumbo). The survey area covers the lands between the northern periphery of Zarqa near Amman, the village of Hashemiyyeh, and the confluence between the Wadi az-Zarqa and the Wadi adh-Dhulayil. This year's work concentrated on the survey of Pleistocene river terraces, the soundings at a Neolithic site, and the detailed survey of an Early and Middle Islamic site. An Epipaleolithic and a Bronze Age site threatened by expanding agricultural activities were also studied in detail.

The soundings at the Neolithic site of es-Seyyeh, on the right banks of the Zarqa river, near the village of Sukhne, have revealed at least two layers of occupation, dated to the Pre-Pottery Neolithic C (PPNC) and to the Pottery Neolithic (Yarmoukian) period. The soundings revealed the deposit to be of great archaeological potential, with well stratified deposits reaching a depth of over 3 m despite the heavy disturbances suffered by the site due to road works and agricultural activities. Beaten earth floors, remains of structures, and a plethora of artefacts were recovered, allowing establishment of a provisional chronostratigraphic sequence for the transition between Pre-Pottery and Pottery Neolithic in this region of Jordan.

Future campaigns will develop the research initiated this year along the lines of the inter-disciplinary collaboration between Yarmouk and Rome Universities. (communicated by Zeidan Kafafi and Gaetano Palumbo)

Choga Bonut 1996, Khuzestan

The joint Iranian Cultural Heritage Organization - Oriental Institute of the University of Chicago expedition to Choga Bonut excavated below Archaic Susiana I deposits and reached the so-called "Formative Susiana" remains under which there were occupational debris with some classes of pottery that should be Formative. Below this there is a class of coarse ware that is apparently the earliest class of pottery. Therefore, Ms. Kantor's Formative will have to be "Archaic 0". We also have some 3 m of aceramic deposit with typical round fire pits, paved with pebbles, many blades and microliths, some obsidian, stalk and T-shape figurines, many small geometric tokens, etc. We have collected seeds and bones for analyses. Although we did not find architecture, the presence of lumps of straw-tempered mudbricks indicate that the aceramic level had some kind of solid architecture. (communicated by Abbas Alizadeh)

Request for Cooperation in Research

(from Eric Coqueugniot): I am currently working on the use of obsidian during the late periods (Bronze and Iron Ages, Roman period etc.), and I am interested in all archaeological and bibliographical information concerning obsidian objects other than tools and weapons. Please reply to Eric Coqueugniot, Maison de l'Orient Méditerranéen, CNRS/Université Lyon 2, UPR 7537 - Equipe n° 17 du C.R.A., 7 rue Raulin, F- 69365 LYON Cedex 07, fax (33) (0)4 72 72 08 65, email: Eric.Coqueugniot@mom.fr.

New Dissertations and Theses

QUINTERO, LESLIE A.

1997 *Evolution of Lithic Economies in the Levantine Neolithic: The Development and Demise of the Naviform Core-and- Blade Technique*. Riverside, University of California: unpubl. Ph.D. Dissertation. Ann Arbor, University Microfilms.

SÖFFNER, WALTER

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.

This dissertation contains a morphometric discussion of Neolithic gazelles and caprines from: Sabra 1 (Natufian, PPN-A-EPPNB), Shaqarat Musai'id (MPPNB), adh-Dhaman (MPPNB), Basta (1984-sounding, LPPNB), Ba'ja 1 (1984-sounding, LPPNB) (all soundings by H.G. Gebel; adh-Dhaman: H.P. Uerpmann).

MÜLLER-NEUHOF, BERND

1996 *Die yarmoukienzeitliche Silexindustrie aus Abu Sneshleh, Jordanien*. Berlin, Freie Universität Berlin, Seminar für Vorderasiatische Altertumskunde: unpubl. M.A. Thesis.

This thesis analyzed the chipped lithics materials from a sounding into the Yarmoukian layers of Abu Sneshleh, southeast of Amman (excavations by R. Bernbeck, S. Kerner, and R. Lamprichs).

RASSMANN, P.

1996 *Reciprocal Frontiers in the Halaf: Searching for Material Cultural Correlates*. Stony Brook, State University of New York: Unpublished M.A. Thesis.

New and Forthcoming Books

MOLIST MONTAÑA M.

1996 *Tell Halula (Siria). Un Yacimiento Neolítico del Valle Medio del Éufrates. Campañas de 1991 y 1992*. Madrid, Ministerio de Educacion y Cultura.

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

1997 *The Prehistory of Jordan II. Perspectives from 1966*. Studies in Early Near Eastern Production, Subsistence and Environment 4. Berlin, ex oriente (in prep.).

A monograph on Yiftahel, edited by Eliot Braun, will appear after some 6 months in the Israel Antiquities Authority Monograph Series, containing also contributions by Pat Smith, Liora Kolska-Horwitz, and Steve Rosen, and others. (communicated by Eliot Braun, 3/11/96).

Forthcoming Warsaw Proceedings

Hans Georg Gebel and Stefan K. Kozłowski

Seminar für Vorderasiatische Altertumskunde of Free University of Berlin, and Institute of Archaeology, Warsaw University

At last, some 38 contributions are expected for the Proceedings of the Second Workshop on PPN Chipped Lithic Industries, to be published in mid-1997 as:

Stefan Karol Kozłowski and Hans Georg Gebel (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. Berlin, ex oriente.

Five expected contributions still have not been received. An even more serious reason of publication delay is that most of the articles were submitted in a rather inconsiderate way, especially concerning the format rules of the series. Considerable editing efforts also had to be invested into many of the illustrations, and substantial work was necessary for language editing of about a fourth of the contributions, for which we editors dearly thank our colleagues Gary Rollefson, Deborah Olszewski, Elizabeth Hildebrand, Eric Coqueugniot, Lorraine Copeland, and Remy Boucharal. At the moment we have begun sending out of proofs.

As a pre-view, the proceedings will contain:

Stefan K. Kozłowski and Hans Georg Gebel: Preface

Adjacent Interaction Spheres and Taxa Discussions

Frank Hole: A Syrian Bridge Between the Levant and the Zagros?

Josef Garfinkel: Critical Observations on the So-called Khiamian Flint Industry

Michał Kobusiewicz: Early Holocene Lithic Industries of Northeastern Africa

Galina F. Korobkova: The Djeitunian Industry of Southern Turkmenistan

Galina F. Korobkova: The Neolithic Stone Industries of Southern Caucasus

Vadim Masson: The Cultural Zones of Central Asia and the Variations of the Late Chipped Stone Industries

Karol Szymczak and Tatiana Gretchkina: The Perspectives of the Studies on the Early Neolithic of the Kyzylkum Desert. Ayakagytma "The Site" and Other New Collections

Klaus Schmidt: Helwan in Egypt: A PPN Site?

Janusz Kozłowski: Techno-Morphological Changes in the Early Holocene Lithic Industries in South-Eastern Europe

Karol Szymczak: PPN Flint Assemblages with Microliths: What Do We find, What Do We Lose?

EPPNB- Problems

Avi Gopher: What Happend to the EPPNB? An Introduction

Gary O. Rollefson: An EPPNB Settlement in the Wadi el-Hasa, Central Jordan

Pre-PPN Traditions

Stefan Karol Kozłowski: The Trialetian "Mesolithic" Industry of the Caucasus, Transcaspiya, Eastern Anatolia, and the Iranian Plateau

Ivan Gatsov: Epipalaeolithic Sites from NW- Turkey

Stefan Karol Kozłowski: From Zawi Chemi to M'lefaat

Deborah Olszewski: The Lithic Transition To the Early Neolithic in the Zagros Region: Zarzian and M'lefaatian Industries

Elisabeth Hildebrand: Changes in Methods and Techniques of Blade Production during the Epipalaeolithic and Early Neolithic in the Eastern Fertile Crescent

Ofer Bar-Yosef: Late Pleistocene Lithic Traditions in the Near East and Their Expression in Early Neolithic Assemblages

Anna Belfer-Cohen and Nigel Goring-Morris: The Late Epipalaeolithic as the Precursor of the Neolithic: the Lithic Evidence

Specializations in Raw materials, Industries, and Tool Kits

Galina F. Korobkova: The Blades with "Mirror-Like" Polishing: Myth or the Reality?

Leslie A. Quintero: Flint Mining in the Pre-Pottery Neolithic: Preliminary Report on the Exploitation of Flint at Neolithic 'Ain Ghazal in Highland Jordan

Philip J. Wilke and Leslie Quintero: Neolithic Millstone Production: Insights from Research in the Arid Southwestern United States

Hans Georg Gebel: Chipped Lithics Production in the Basta Crafts System

Tamar Noy and Stefan K. Kozłowski: A Basket of Flint Artefacts from House 11, Gilgal I

Phil J. Wilke: Bullet-Shaped Microblade Cores of the Near Eastern Neolithic: Experimental Replicative Studies

Yoshihiro Nishiyaki: Side-Blow Blade-Flakes from Tell Kashkashok II, Syria: a Technological Study

Lorraine Copeland and Marc Verhoeven: Bitumen-Coated Sickle-Blade Elements at Tell Sabi Abyad II, Northern Syria

Manuela Beile: The Glossed Blades from Nevalı Çori: Preliminary Results

Patricia Anderson and François Valla: Insights into Activities of Hayonim Terrace Natufian / Les pieces lustrées de la Terrasse de Hayonim (Natufien évolué), des faucilles?

Klaus Schmidt: Nevalı Çori: Chronology and Intrasite Distribution of Lithic Tool Classes. Preliminary Results

Tamar Noy: Long Sickle Blades. A Case of Cultural Change in the PPN in the Southern Levant

Industries Reconsidered/ New Industries

Isabella Caneva, Cristina Lemorini, and Daniela Zampetti: Lithic Technology and Functionality Through Time and Space at Çayönü

Jalal Raffar: Remarques sur l'industrie lithique Néolithique de l'Iran (10.000-6.000 av. J.-C.)

Eric Coqueugniot et Patricia Anderson: L'industrie lithique d'El Aoui Safa, un nouveau site Khiamien à l'Est du Jebel el 'Arab (Désert Noir, Syrie du sud)

Miquel Molist and Acnau Ferrer: Industries lithiques pendant la période 8000-7500 B.P. à Tell Halula dans le cadre d' Euphrate moyen Syrien

Avi Gopher: ('Ain Darat. A PPN Site in the Judean Desert. Lithic Assemblage of the 1994 Season)

Abstracts of Contributions

Summary Issues

Hans Georg Gebel and Stefan Karol Kozłowski : The Fertile Crescent in the Southwest Asian Chipped Lithics Interaction Spheres

Conferences

Neolithic Issues at the BANE Conference Held at Oxford

The British Association for Near East Archaeology (BANE) held its 1996 meetings at Oxford University from 12 - 14 December 1996. Of the 17 papers presented at the conference, only one dealt with prehistory: "Cultural Diversity in the Early Neolithic - The Case of Jericho ('Ain es-Sultan)", by Hans-Dieter Bienert (Head, German Protestant Institute for Archaeology - Amman). Among the ca. 10 posters presented were three that treated Neolithic themes. These included "The Changing Role of Obsidian in the Late Pottery Neolithic" by Elizabeth Healey (Manchester University), "Domuztepe" by Stuart Campbell (Manchester University), and "Jordan: Early Neolithic Experiments in Proto-Urban Life" by Hans-Dieter Bienert (GPIA-Amman), Hans Georg Gebel (Freie Universität Berlin), and Gary Rollefson ('Ain Ghazal Research Institute). The next BANE conference is scheduled for mid-December 1997 at the University of Durham. (communicated by Gary O. Rollefson)

**Upcoming Conference: The Origins Of Agriculture
And Domestication of Crop Plants in the Near East**
an International Symposium of Plant Biologists and
Archaeologists to be held in Aleppo, Syria,
10-14 May 1997

Preliminary replies and further information: Dr. Jan Valkoun, ICARDA, POB 5466, Aleppo, Syria, email: J.Valkoun@egnet.com
Contact in Europe: George Willcox, CNRS, Institut Préhistoire Orientale, Berrias, F- Jalès 07460, Fax 0033 75393161
Leaflet with further information available. Preliminary replies expected until 31st of Dec.

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