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Hans Georg K. Gebel
Gary O. Rollefson

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NEO-LITHICS

c/o Gary O. Rollefson

Department of Anthropology

Whitman College

Walla Walla, WA 99362, USA

e-mail: rollefgo@whitman.edu

Orders

ex oriente e.v.

attn: Bernd Müller-Neuhof

c/o Free University of Berlin

Bitterstr. 8-12, D-14195 Berlin

fax 0049 30 8314253

email: bemuneu@zedat.fu-berlin.de

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NEO-LITHICS 2/98

A Newsletter of Southwest Asian Lithics Research

Editorial

In the Introduction to his latest book, Don Henry (see "New Books" in this issue of *Neo-Lithics*) presents a startling illustration (his Fig. 1) of the recent acceleration of prehistoric research in the Jordan. Henry's specific example pertains strictly to a comparison of publications about Jordan in the first half of the 1980s decade compared to any time before that, and it also includes all prehistoric periods. Among the more than 100 publications between 1980 to 1986, a great proportion consists of Neolithic articles, perhaps even a majority.

The sudden intensity of prehistoric research is perhaps most noticeable in Jordan, but this is simply an exaggeration of a trend that characterizes a phenomenal growth of prehistoric research in Turkey, Syria, Israel, and areas outside the "core" Levantine area. And there is little doubt that the major thrust of fieldwork and consequent laboratory research centers on developments in the Late Neolithic and especially the processes of cultural change during the Neolithic period. We suggest that Henry's figures from the early 1980s *underestimate* the real impact of research publications of Neolithic projects over the past two decades.

In an era with such an increasing pace of Neolithic research, accentuated communication efficiency within the research community is necessary to keep colleagues current in a rapidly changing scenario. Word-of-mouth transfer of information (sometimes called "the rumor mill") leads to misinformation, and this can lead to serious errors on even superficial levels of understanding the Neolithic prehistory of the Near East. Furthermore, an increased research rate often reflects a growing input from new Ph.D.s who bring newly developed perspectives and research biases into an arena of scholarship that is already unstable due to the impact of newly sampled geographic and interdisciplinary areas.

It is precisely these circumstances that make the *Chipped Lithics Workshops*, initiated in 1993 in Berlin, so vital; regular, formal interaction among colleagues involved in lithics analysis (or any other aspect of Neolithic research) is required to ensure that the broad spectrum of research "schools" can agree to exchange information on a minimally acceptable definition of terms and concepts. In direct association with this view, it is essential that the Working Groups originally established in Berlin (*Neo-Lithics* 1/94) must be renovated and reinvigorated to maintain a "common level" of understanding.

And *Neo-Lithics* itself has played a major role in facilitating information exchange. We have received many flattering comments on the role that *Neo-Lithics* has played in communicating new and up-to-date information to its readers. We would like to take this opportunity to repeat our invitation for manuscripts that summarize research plans and results associated with *all* areas of late Epipaleolithic and Neolithic research. In a publishing scheme where it is usual for a delay of more than two years between the submission of a manuscript until its final appearance in print, *Neo-Lithics* can guarantee publication of a short (up to 5,000 words and 1-4 B&W photos or line-drawings) description of a research project. Please take advantage of us. You'll be pleased, and so will the rest of the late prehistoric community.

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

Please note a temporary change-of- address for submitting manuscripts after 20 August 1998 (and until 1st May 1999): Dr. Gary Rollefson, Department of Anthropology, Whitman College, Walla Walla, WA, 99362 USA; e-mail: <rollefgo@whitman.edu>. Illustrations should be sent separately to H.G.K. Gebel at the Berlin address (Free University of Berlin, Bitterstr. 8-12, D-14195 Berlin, e-mail: hggebel@zedat.fu-berlin.de).

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Beyond Daily Bread: Evidence of Early Neolithic Ritual from Göbekli Tepe

Klaus Schmidt, Heidelberg University

Recent outstanding finds from Göbekli Tepe have changed our appreciation of the early Neolithic archaeology of the Near East. Located on top of a huge limestone ridge overlooking the Harran Plain to the north, the usual survey strategies of looking for places with good access to water and farmland have been shown as misleading in some ways. At the latest GAP conference (Güneydoğu Anadolu Projesi) held June 1998 in Şanlıurfa, Turkey, there was a consensus that all of the areas flooded by the numerous dams on the Euphrates and Tigris Rivers probably entailed the loss of completely unexpected sites such as Göbekli Tepe, which had been overlooked or not really recognized in the former surveys.

The excavations at Göbekli Tepe, which still are in an initial stage, have already shown the importance of a specific place for specific activity (Schmidt 1995, 1996, 1997a-b; DAI 1996). So far the monumental limestone pillars with relief decoration and a number of fragments of life-size limestone sculptures of animals and humans have parallels only at Nevalı Çori, a site in a small valley east of the Euphrates in the Karababa region of Turkey (Hauptmann 1991-92, 1993, 1996, 1997a-b). But Nevalı Çori is a "normal site," with one excavated ritual building and normal domestic structures throughout the settlement. Water and land for agriculture were easily accessible, the nearby fords across the Euphrates to the Samsat Plain led to excellent hunting grounds. The erratic topographical setting of Göbekli Tepe, in contrast, cannot be explained in reference to subsistence strategies, but instead non-profan reasons seem applicable. Presently, the site is dated only by archaeological, seriation methods (e.g. lithics, including Byblos-, Nemrik-, Helwan-, Nevalı Çori- and Aswad-points; incised stone bowls; "scepters" [Hallan Çemi type]; and spacer beads [Çayönü type]) to the E/MPPNB, although there are several PPNA elements. A date later than PPNA can definitely be excluded for all of the structures of the mound. The sculptures and reliefs of Göbekli Tepe demand a reassessment of our interpretations of the ritual world of the Near East Early Neolithic.

We can expect that in every person's life, several rituals will occur that announce special events, including, for example, birth, initiation, marriage, pregnancy and birth giving, illness and death. But there may also have been specific rituals of unknown purpose. All these rites involved specific activity with or without specific instruments, and in some cases one can expect that the rites were conducted in special places (cf. Bienert 1995a,b). But ritual activity, aside from burials, is not normally an archaeologically predictable phenomenon, and evidence for such special events is certainly rare in the earlier prehistoric archaeological record. Göbekli Tepe, on the other hand, apparently was a special location devoted to very important specific rituals, at least for a certain time. The archaeological evidence is overwhelming, as the function of two partially excavated pillar buildings irrefutably prove. As the buildings were filled exactly in the way Mehmet Özdoğan's (1998) brilliant article outlined, the excavation process was easily accomplished.

Catalogue of Important Ritually Associated Finds/ Structures (1995-97 Campaigns)

Since a final publication for Göbekli Tepe will need more time, and since preliminary reports are limited in terms of illustrations, an initial catalogue of the determinable loci and finds is given below:

A) Limestone sculptures

Limestone sculptures, including high reliefs, were recovered from the surface and the fill of ritual buildings. Identifiable pieces are listed below:

1) *Stone mask*, surface of area L9-65 on eastern slope of southwestern mound above Schlangenfleigergebäude (Snake Pillar Building). H = 42cm. GT 96-0942, Inv. Nr. 96-069. (Schmidt 1996: Fig.1).

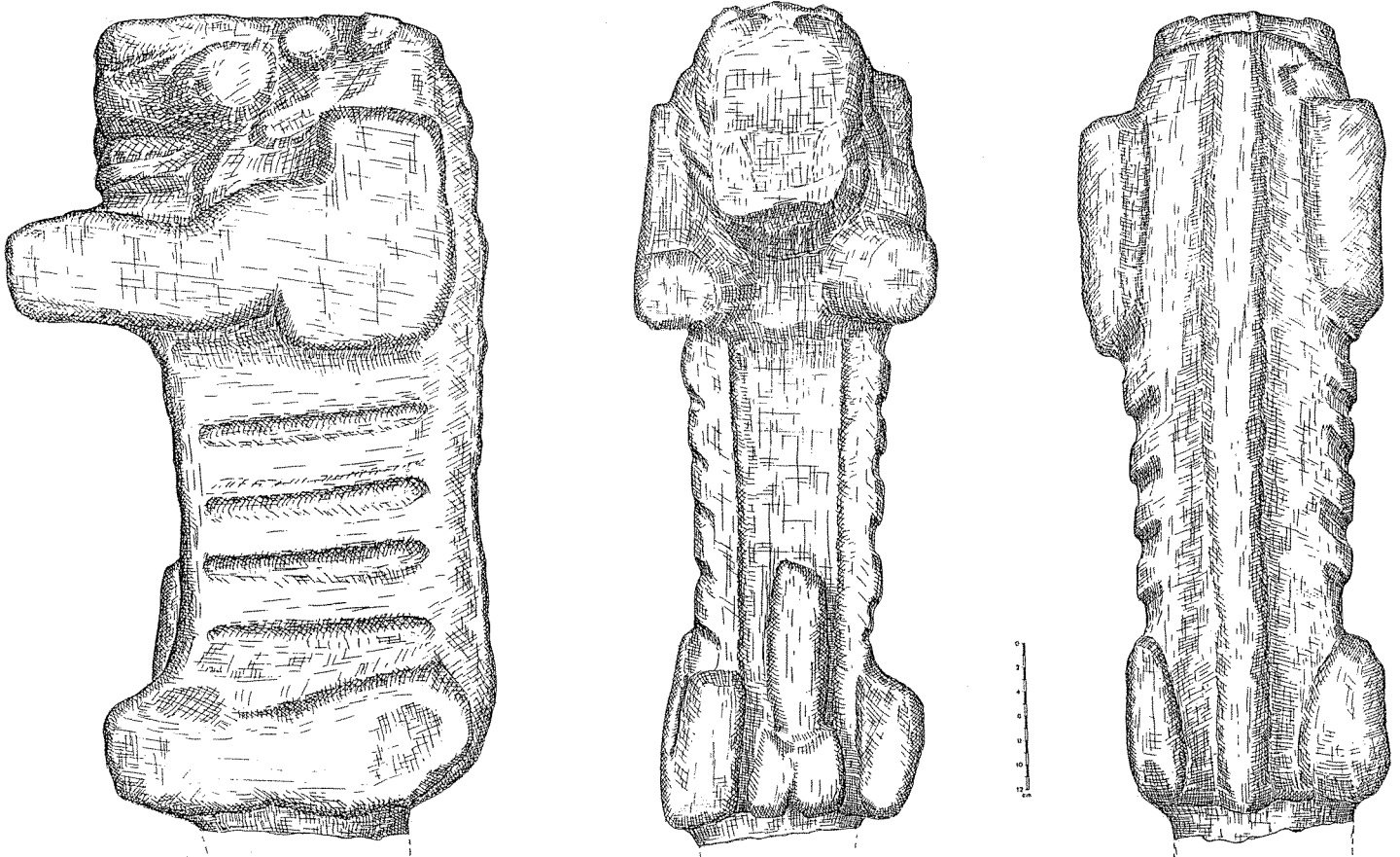


Fig. 2. "Lion", ithyphallic animal (in fallen wall of Schlangenpfeilergebäude; L= 68cm; catalogue No. A10). (Fig. 1 see next page)

2) *Ithyphallic person*; found by Savak Yildiz on surface, exact findspot unknown. H = 40.5cm. GT 95-0000. (Schmidt 1995: Fig.1,c; Harmankaya *et al.* 1997: Fig. 1-c; Beile-Bohn *et al.* 1998: Fig. 36).

3) *Seated person*; 1.10.97 surface of area L10-51, near "Löwenpfeilergebäude (Lion Pillar Building)". H=32.5cm. GT 97-3406, Inv. Nr. 97-022 (unpublished).

4) *"Bildpfeiler"*, animal with human head; atelier situation on western plateau (28.10.95 "S2", 4.1). H=1.20m. GT 95-1703, Inv. Nr. 95-066 (DAI 1996: Fig. 1; Schmidt 1997a: Fig. 6; Beile-Bohn *et al.* 1998: Fig. 32, Pl. 3,2).

5) *Bird on human head*, fragment; surface 9.10.95 loc. 2. H = 34cm. GT 95-0032, Inv. Nr. 95-061 (Beile-Bohn *et al.* 1998: Fig. 33). *cf.* Fig. 4.

6) *Animal on human head*; fill of Schlangenpfeilergebäude, area L9-75. H = 40.4cm. GT 96-1000, Inv. Nr. 96-68. (MDOG Fig. 1). *cf.* Fig. 1.

7) *"Wolf"*, head of a wild animal, surface, southeastern mound 7.10.95 loc. 2.; L = 32cm. GT 95-0002, Inv. 95-0058 (Schmidt 1995: Fig. 1-b; Harmankaya *et al.* 1997: Fig. 1-b; Beile-Bohn *et al.* 1998: Fig. 31).

8) *"Reptile"*-like animal, high relief, similar to Çatal Höyük "birth-giving goddess", surface, southeastern slope 7.10.95, loc 9. H = 81cm. GT 95-0003, Inv. Nr. 95-057. (Schmidt 1997a: Fig. 5; Beile-Bohn *et al.* 1998: Fig. 35).

9) *"Reptile"*-like animal in high relief, found by Savak Yildiz on surface, exact findspot unknown. L = 47cm. GT- 95-000 (Schmidt 1995: Fig. 1-a; 1997: Fig. 4; DAI 1996: Fig. 2; Harmankaya *et al.* 1997: Fig. 1-a; Beile-Bohn *et al.* 1998: Fig. 34).

10) *"Lion"* Ithyphallic animal, in fallen wall of Schlangenpfeilergebäude, area L9-75. L= 68cm. GT 96-0000 (DAI 1997: Fig. 3-4). *cf.* Fig. 2.

11) *"Boar"*, head of an animal (?); in fallen wall of Schlangenpfeilergebäude, 1.10.97, L9-75 loc. 34 qme 36. H = 68cm. GT 97-3407, Inv. Nr. 97-023 (unpublished).

12) *"Dog"*, bird-like animal, surface, southeastern mound 6.9.97 loc 5. H = 34cm. GT 97-0710, Inv. Nr. 97-021 (unpublished).

13) *"Dog"*, animal. H = 34cm. GT 97-0000 (unpublished).

14) *"Headless lion"*, animal with four legs, head missing, western slope near plateau (near container). L = 38cm. GT 97-0000 (unpublished).

Undetermined fragments

15) *"Gigantic scepter"*, animal head? 17.10.95 loc. 21. GT 95-0284, Inv. Nr. 95-062 (unpublished).

16) *"Mimo's Skulptur"*, surface in southern valley below southern slope of tepe, loc. 11. 17.10.95. H = 92 cm. GT 95-0285, Inv. Nr. 95-059 (unpublished).

17) *"Giant phallus"*, southern valley below southern slope of tepe, loc. 11. GT 96-0000, Inv. Nr. 96-057 (unpublished).

18) *"Turtle"*, surface at lower western slope of southwestern mound. L = 27.8cm; W = 15.0cm; H = 16.9cm. GT 94-0001 (unpublished).

19) *"Little bird"*. H = 30cm. GT 95-0001 (unpublished).

20) *Slab with engraving.*

21) *Slab with engraving.*

22) *Slab with tail-like engraving.*

B) Reliefs and incised figures on limestone slabs

1) *Incised snake* on flagstone; surface, slope of southeastern mound (28.10.95 loc. 5). L (snake) = 18cm. GT 95-1748, Inv. Nr. 95-068 (Beile-Bohn *et al.* 1998 Fig. 28,5).

2) *Snake relief*, fill of Schlangenpfeilergebäude; L = 31cm. GT 96-2095 (unpublished).

3) *Snake relief*, fill of Schlangenpfeilergebäude. L (snake) = 23cm. GT 97-31 (unpublished).

4) *Relief of uncertain motif*, still *in situ* in front of Pillar 2 of Schlangenpfeilergebäude (unpublished).

5) *Ornamental relief* in east wall of Löwenpfeilergebäude. L = 48.2cm (unpublished). *cf.* Fig. 3.

6) *Human*, body and left arm, 23.9.97, area L10-71 loc.2.2. H = 27cm. GT 97-1539, Inv. Nr. 97-02 (unpublished).

7) *Human arms on a pillar* fragment of Nevalı Çori type, in northern wall of Löwenpfeilergebäude (unpublished).

8) *Cravattes*, Nevalı Çori-like pillar fragment with two cravattes, 28.10.95, loc. 7. GT 95-1747, Inv. Nr. 95-067 (Beile-Bohn *et al.* 1998)

9) *Finger*. Nevalı Çori-like fragment of fingers, 7.10.95 loc. 11. GT 95-0000, Inv. Nr. (?) 95-0015 (Beile-Bohn *et al.* 1998).

C) Reliefs on bedrock or in caves

- 1) 3 *phalloi* on bedrock at eastern plateau (unpublished).
- 2) Relief of a bovid on wall of a small cave on western slope (unpublished).

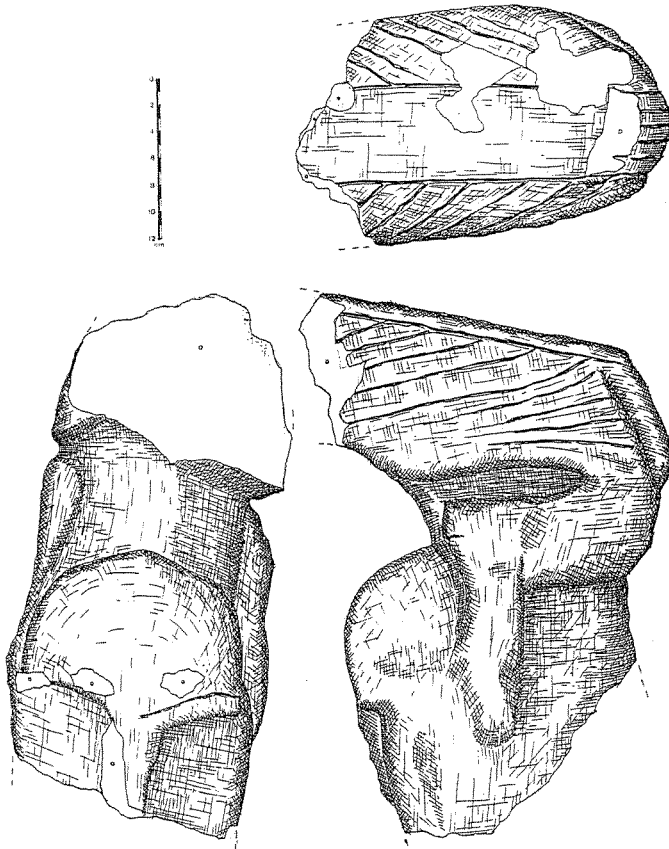


Fig. 1. Animal on human head (fill of Schlangenpfeilergebäude; H= 40.4cm; catalogue No. A6)

D) Ritual buildings

1) *Bedrock structure* on western plateau (DAI 1996: Fig. 3; Beile-Bohn *et al.* 1998: Fig. 22). A 9m diameter oval pit surrounded by a low bench was sunk into the bedrock. In the center of the oval there are two pillar bases. North of the oval there are two rooms in bedrock, the eastern one with a staircase and an altar-like pedestal in the center, both shaped from the bedrock.

2) "1995 S1" (Beile-Bohn *et al.* 1998: Pl. 3,1).

3) *Schlangenpfeilergebäude* (Snake Pillar Building, hereafter SPG) in the southern depression between the southwestern and southeastern mounds. So far we have found a row of four T-headed pillars in the SPG; the two pillars in the center have rich relief de-

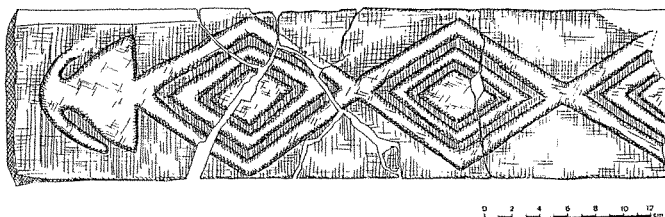


Fig. 3. Ornamental relief (in east wall of "Löwenpfeilergebäude; L= 48.2cm; catalogue No. B5)

coration below the T-head. On the inner face of Pillar 1 (height above bench 3.0m) there is a net-like object with 8 snake-like heads at the top and 9 similar heads at the bottom. Below this still enigmatic engraved relief there is another animal, perhaps a ram. On the front faces there are two bands and 5 snakes (Fig. 5). On Pillar 2 three animals occur in a vertical line on the inner face (from below: bird, canine, bovine). The front face is without reliefs, but the back has a bucranium. Pillar 5 in front of the row

of the four pillars has a snake on its front face. The structure of the complete building can not be determined yet, but it seems that it is a pillar building similar to but larger than the Nevalı Çori Terrazzo-building.

a) *Pillar 1*, H above bench = 3.15m (DAI 1997: Fig. 2). cf. Fig. 5.

b) *Pillar 2*, H above bench = 3.15m (SCHMIDT 1997: Fig. 1; *Der Spiegel* 1998).

c) *Pillar 3*

d) *Pillar 4*

e) *Pillar 5*, H above bench = 1.95 m.

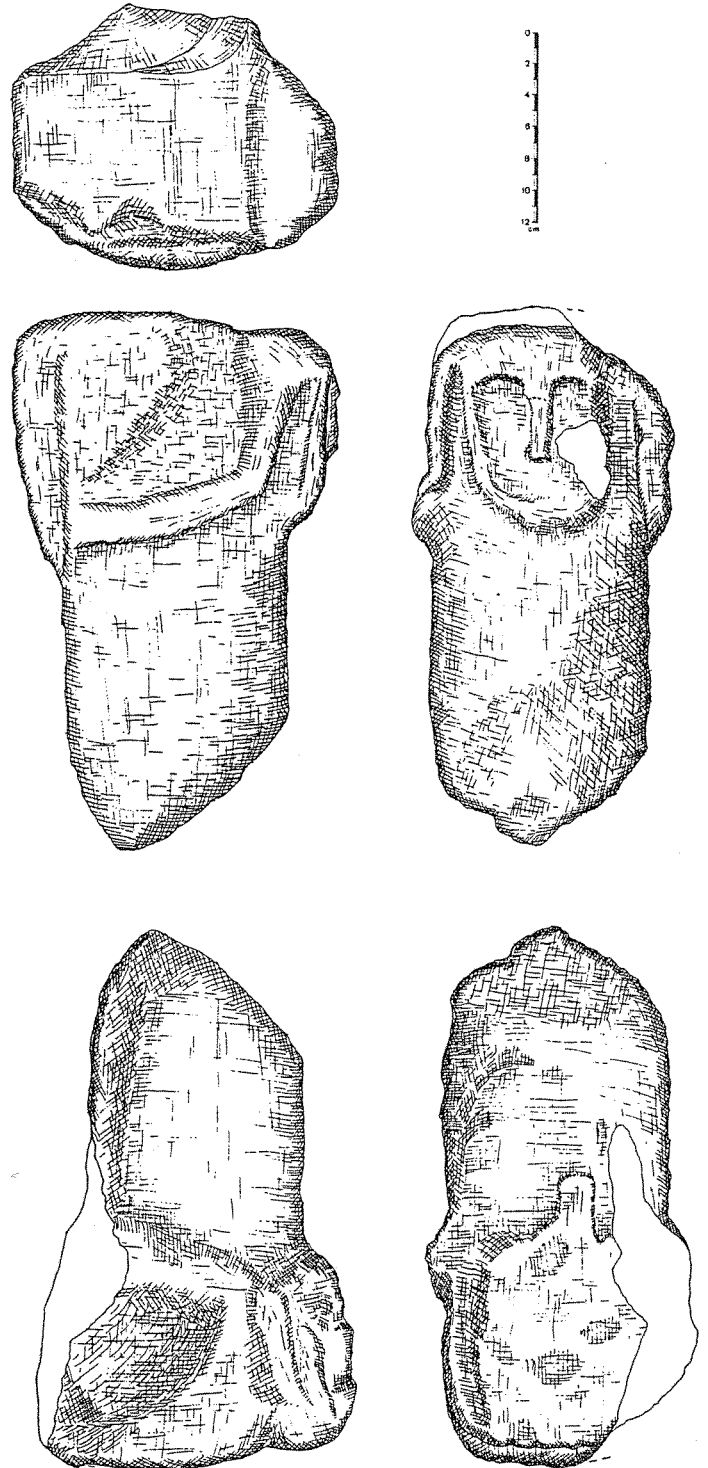


Fig. 4. Bird on human head, fragment (surface; H= 34cm; catalogue No. A5)

4) *Löwenpfeilergebäude* ("Lion Pillar Building," hereafter LPG) on top of the southeastern mound (unpublished). The topographical setting of the LPG is quite different. It is on top of the southeastern mound and of much smaller dimensions. The western,

northern and eastern walls have been excavated down to a layer of fallen stones on a terrazzo floor. The southern wall remains outside the excavated area. The pillars are quite small; the western pillars are without decoration, the two eastern pillars (1 and 2) have lion reliefs on the inner face (Fig. 6). These reliefs are more elaborate than the reliefs from the SPG, and they occur not on the pillars' trunks but at the T-shaped head.

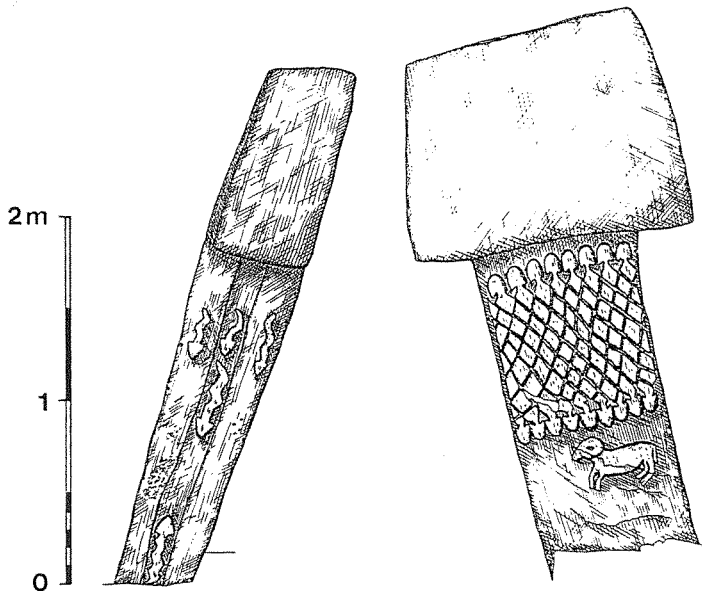


Fig. 5. Schlangenpfeilergebäude: Pillar 1 (H= 3.15m; catalogue No. D3-1)

- a) Pillar 1, H above 1997 excavation level = 1.60m. cf. Fig. 6 "right".
- b) Pillar 2, H above 1997 level = 1.45m. cf. Fig. 6 "left".
- c) Pillar 3, H above 1997 level = 1.84m
- d) Pillar 4, H above 1997 level = 1.72m
- 5) The observation of the "burial" of buildings (Özdoğan 1998) also led to the understanding of the three main depressions in the

mound of Göbekli Tepe, which should indicate the places of the important cult buildings, places which were never again used for building activities. This was proven in a sondage in the north-eastern area. Bedrock, reached with no archaeological structures in 4m of depth, was plain and artificially smoothed. A large pillar fragment was found directly on the bedrock, indicating a previous construction similar to the oval bedrock structure (a) at the western border of the mound.

E) Quarry sites on plateaus with important structures

Around the Neolithic mound of Göbekli Tepe several quarry areas were located that produced the architectural elements used in the buildings of the mound. Most important are a T-headed pillar with a length of 7m still in a quarry situation and a movable pillar base 3m in diameter. Although pillars or pillar bases of such dimensions have not been detected at the mound itself, these observations allow an impressive insight into the megalithic character of Göbekli architecture.

- 1) Enormous T-pillar on the northern plateau. Preserved H = 6.9m, reconstructed L = 7.8m (?) (DAI 1997: Fig. 1).
- 2) T-pillar on the southern plateau. H = 4.85m; W (T-head) = 1.70m; H (T-head) = 0.95m (unpublished).

F) Pillars and megalithic structures

- 1) T-pillar H = 55cm (unpublished).
- 2) T-pillar H = 1.30m (unpublished).
- 3) Pillar base in the eastern valley. L/W = 3m (unpublished).
- 4) Pillar base near Bildpfeiler. L/W = 3m (BEILE-BOHN *et al.* 1998: Pl. 3,2).

Conclusions

Beyond all the current uncertainties of the buildings at Göbekli Tepe, we nevertheless can make an important statement regarding the known iconographic finds of the early Near East and their interpretation. The former ideas, summarized excellently by Jaques Cauvin (1994), held that human clay and stone figurines of the PPN represented a shift from the animalistic transcendent world of the Natufian to a human-, especially female-, dominated religious sphere in the Early Neolithic, and that this development seemed to parallel the adoption of agriculture. This view must now be modified. Beyond the world of small figurines at specific sites,

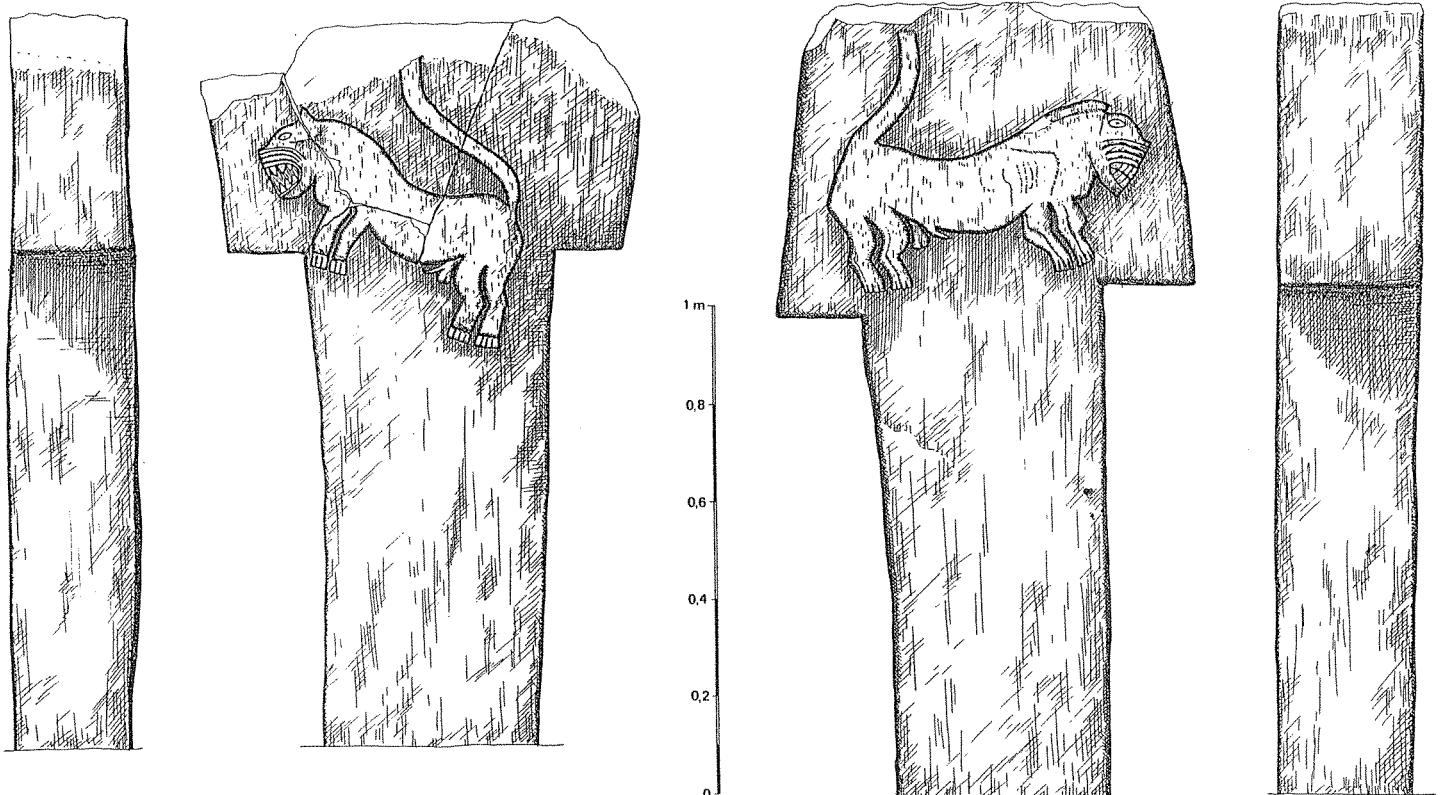


Fig. 6. Löwenpfeilergebäude: right Pillar 1 (H= 1.60cm; catalogue No. D4-1), left Pillar 2 (H= 1.45m; catalogue No. D4-2)

a totally unexpected monumental scenario of megalithic buildings with astonishing iconographic decoration is emerging, and this is diminishing the importance of the known figurines and their interpretations.

Table 1.

| Period/Site | Motif | Material | Size |
|-----------------------|------------------------|------------|------|
| Natufian | Animals | Bone/Stone | 1 |
| Khiamian | Women | Stone | 1 |
| Sultanian-Mureybetian | Women | Clay | 1 |
| Nevalı Çori | Women | Clay | 1 |
| | Men | Clay | 1 |
| | Men | Stone | 1-3 |
| | Animals | Stone | 1-3 |
| | Bird & human head | Stone | 3 |
| | T-pillars with arms | Stone | 1-4 |
| Göbekli Tepe | Animals | Stone | 1-3 |
| | Men/phallos | Stone | 2-3 |
| | Bird/animal/human head | Stone | 2-3 |
| Ain Ghazal | Animals | Clay | 1 |
| | Women | Clay | 1 |
| | Men, women | Plaster | 2 |

Size categories: 1- small; 2- medium; 3- life-size; 4- megalithic.

In this context it seems important to give a list of the most important known groups of iconographic finds of the early Near East, including the raw material that was used (Schmidt 1998).

With this list the importance of the connection of raw material, motif and size can be demonstrated. While the Natufian group of animal figurines is made mainly of bone, the Khiamian women are made of stone and restricted to the type of a standing woman with traces of intentional damage. In Sultanian/ Aswadian/ Mureybetian there is a group of women made of clay, and again there often are signs of intentional damage. In the PPNB the spectrum becomes much larger, but within each group a kind of standardization in raw material and in size is observable. An interpretation of the shift from stone to clay from Khiamian to Sultanian and again to stone in the large sized statues of PPNB should not only be regarded from a technological point of view. Such technological problems may be seen in the case with the 'Ain Ghazal and Jericho medium-sized statues made from plaster on a core of reeds. But the general grouping of bone, clay and stone figurines and their iconographic motifs seems to be more the result of standardized ritual equipment for distinctive purposes. I would like to propose that specific rituals used specific instruments, so that, for example, clay figurines of women were used for a specific kind of ritual. But that particular ritual is not entirely representative of the full range of religious concepts of the society.

The ritual world that can be seen at Göbekli Tepe again does not clearly indicate a specific religious concept, but it demonstrates clearly the *relatedness* of the find groups known so far. The pantheon of the Early Neolithic was much more complex than reflected by the figurines from normal settlement sites. There remains one main question: can we try to connect the mythology and known religious structures of the historical Near East with the Neolithic, an attempt made recently by Schmandt-Besserat (1997)? Such a bridge may exist, but how do we go about proving it? As we can not exclude possible alternative bridges leading outside the mythological world of the Near East, such a method of treating the evidence is of little consequence. The gods and goddesses of the religious world of the Early Neolithic remain in the darkness of our ignorance, and there seems to be little hope of change for the future. But the existence of monumental structures gives proof for a complex social system with powerful individuals who used religious imperatives to motivate the community to enormous efforts.

It seems quite clear that other important ritual places should exist, perhaps also on top of mountains but perhaps in other, unexpected topographical settings. The flooding of large areas in southeastern Turkey surely is destroying sites of high importance, as it was pointed out in several lectures in the GAP-conference. Finally, it is supposed that the complex social structure now evident for late hunter-gatherer societies in southeastern Turkey was one of the key factors for the development of agriculture, just as the collapse of that society (*cf.* Özdoğan 1995) is connected to the introduction of the domesticated animals; but this we have to

prove with further fieldwork. We will continue to count flints, bones and seeds, but starting with Nevalı Çori and now definitely with Göbekli Tepe, the perspectives of such routine work have made a quantum leap towards recognizing real historical events.

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The Third Season at Yutil al-Hasa (WHS 784), the Epipaleolithic Components

D.I. Olszewski¹, J.B. Cooper², and E. Richey³
¹Bishop Museum, Honolulu, ²LAAS, Seattle, and
³Arizona State University

The 1998 excavations represent the third season of testing at the site of Yutil al-Hasa. The site was initially recorded by MacDonald *et al.* (1983) during the survey of the south bank of the Wadi al-Hasa, and it was tested in 1984 and in 1993 by the Wadi Hasa Paleolithic Project, directed by G.A. Clark (Clark *et al.* 1988). The 1984 testing yielded a late Upper Paleolithic occupation in Areas A and B (Clark *et al.* 1988; Olszewski *et al.* 1990), while the 1993 season uncovered two Epipaleolithic occupations. These included an Early Epipaleolithic component (Areas C and E) and a Late Epipaleolithic component (Area D) (Olszewski *et al.* 1994). Renewed work at the site in 1998 re-opened Areas A, C, and D; only the results of the excavations in Areas C and D are reported here.

The site is a collapsed rockshelter situated about 10m above the wadi channel (Olszewski *et al.* 1990, 1994). The wadi narrows in this section of the drainage and is a contrast to the lake and marsh plain about 4 km to the southeast. The deposits are pre-

served by enormous boulders (rockshelter roof fall) that cover much of the slope. A spring tufa is located across the wadi from the site, indicating the presence of fresh water in the past. In addition, water seeps were present at the site, based on the presence of sulfur-permeated deposits.

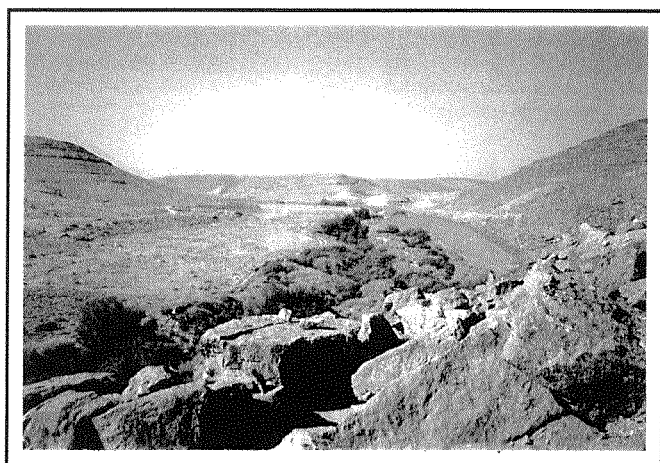


Fig. 1. View to S (toward eastern Hasa basin) from Yutil al-Hasa.

During the 1998 field season, the old units from the 1984 and 1993 seasons were emptied of backfill and excavations continued in remaining deposits. In addition, one new unit in each area, situated adjacent to each of the old units, was opened. In Area C (Early Epipaleolithic), Units C (1993) and C98-1 were investigated. Unit C98-1 is immediately west of Unit C. In Area D (Late Epipaleolithic), Units D (1993) and D98-1 were excavated. Unit D98-1 is immediately east of Unit D. Both of these units reached bedrock. Unless noted otherwise, all units are 1 x 1m in size. Discussion of the excavations will be presented chronologically.

The Early Epipaleolithic Component

It was not possible to excavate Unit C much below the limit reached in the 1993 season. Unit C98-1 was excavated to about 1.5m below ground surface. Bedrock was reached only in a portion of the northwest quad of Unit C98-1. Three natural strata were present in Area C.

Layer I is a brownish yellow, very loose silt with numerous gravel-sized rocks and cobbles. A few pottery sherds, as well as patinated lithics from upslope Late Epipaleolithic deposits, indicate that some mixture with later materials occurs in this layer. Fossil shark teeth are an additional constituent. Layer II is a moderately compact silty clay that is variable in color due to areas of heavy iron and magnesium staining. Colors range from a very pale brown to a strong brown to dark brown. Inclusions consist of abundant cobbles and gravel-sized stones, as well as some small boulders. The upper portion of this layer has relatively poor bone preservation, while the lower portion has exceptionally good bone preservation. Layer III is yellow, compact clay with some silt and sand. There are also gravel-sized rocks and some cobbles. The base of the stratum contains numerous small boulders.

The lithic assemblage is typical of the Early Epipaleolithic period. It is characterized by numerous very narrow backed microliths, including La Mouillah points, backed and truncated bladelets, and arched backed bladelets. There are also numerous microburins. Tools such as endscrapers, burins, notch/denticulates, and retouched pieces are rare. The lithic assemblage from the lowest levels is somewhat different in its tool configuration, which includes finely retouched bladelets (Ouchtata retouch) and inversely retouched bladelets (Dufour bladelets). These tool types are often considered to be Upper Paleolithic in age, and this may indicate that the deposits of Area C contain two distinct chronological periods. A total of 6,066 lithic artifacts were recovered from Area C this season. Combined with the assemblage from 1993, there are 12,183 lithic artifacts from Area C.

The below ground surface bottom depth of excavations in Area C (about 1.5 m) is approximately 50cm above the upper deposits of the Upper Paleolithic in Area A. It would be interesting

to know if continued excavations in Area C would have resulted in reaching a definitive Upper Paleolithic occupational deposit.

The Late Epipaleolithic Component

In 1993, an Early Natufian occupation was discovered in Area D (Olszewski *et al.* 1994). This area was reopened because Natufian sites are rare in the Hasa drainage, having been located previously only at Tabaqa (WHS 895) and WHS 1021 (BYRD and COLLEDGE 1990; Olszewski *et al.*, in press). Both units (Unit D and D98-1) were excavated to bedrock.

Four natural strata characterize Area D. Natural Layer I is a pale brown, fine, loose silt, with angular gravel-sized rock and some cobbles. Layer II is a series of discontinuous pockets of grayish brown, loose silt with gravel-sized rocks. Layer III is a light yellowish brown, slightly compact silt with angular gravel-sized stones. Some rodent activity was observed in this layer. Layer IV is a yellowish brown, moderately compact silt with clay that characteristically includes angular cobbles. A moderate amount of charcoal (Unit D98-1) was collected from a level within this layer, and a feature (Feature 4) was recorded close to the bottom of excavation in Unit D98-1.

Feature 4 is a small pit that measures 8cm in diameter and 5-7cm in depth. A small number of lithic artifacts and burned bone were recovered from its fill. Its dimensions are suggestive of a postmold rather than a firepit.

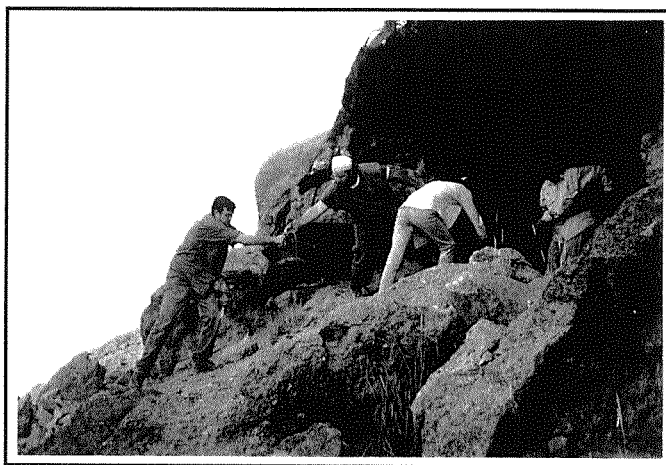


Fig. 2. Yutil al-Hasa, Area C: early Epipaleolithic (Madamaghan). Note test units in foreground.

Bone preservation in Units D and D98-1 was poor and most of the sample is small and fragmentary. A total of 2,704 lithic artifacts was recovered this season. Combined with the 1993 excavations, Area D yielded 3,548 lithic artifacts. Lithics were most common in the upper 20cm of the deposits, and they are characteristically Early Natufian, with Helwan lunates, Helwan retouched bladelets, and microburins. There is also a considerable number of abruptly backed lunates. Notch/denticulates and retouched pieces are the most common types of other tools, while endscrapers, burins, borers, and truncations are very rare. The Natufian lithics are heavily patinated, which contrasts with the small quantities of lithics recovered from the lowest deposits. The assemblage from the lowest deposits is too small to reliably assign to a separate component, but the tantalizing possibility remains that an earlier component is also present in Area D.

Analysis of the faunal, macrobotanical, and phytolith samples is underway.

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Renewed Excavations at Tor Sageer (WHNBS-242), an Early Epipaleolithic Site in the Wadi al-Hasa, Jordan

Deborah I. Olszewski¹, Maysoon al-Nahar², Jason B. Cooper³,
Kholood Abdo⁴, and Arlene Rosen⁵

¹Bishop Museum, Honolulu, ²Arizona State University, ³LAAS, Seattle, ⁴unaffiliated, ⁵Ben Gurion University

The second excavation season at Tor Sageer (WHNBS-242) occurred during the summer of 1998 (Coinman *et al.* n.d.). The rockshelter, first tested in 1997 (Olszewski and al-Nahar 1997; Olszewski *et al.* n.d.), is located in the Wadi al-Khasra, a major tributary of the Wadi al-Hasa. It is situated approximately 17m above the present Wadi al-Khasra drainage, and faces south-south-east.

Excavations began by re-opening the contiguous 1x1m units (C4 and D4) excavated to bedrock during the 1997 season. Four new 1x1m units (B3, B4, D3, and E4) were added this season to gain a broader horizontal exposure of the deposits. These four units were excavated to bedrock, about 70-75cm below ground surface. All are within the dripline of the rockshelter. A total of 8,574 Early Epipaleolithic lithic artifacts were recovered from the four units excavated this season, bringing the total number of lithic artifacts recovered from the site to 13,421. Moderately large quantities of bone also were recovered, including teeth, phalanges, proximal and distal shaft ends, and shaft midsections.

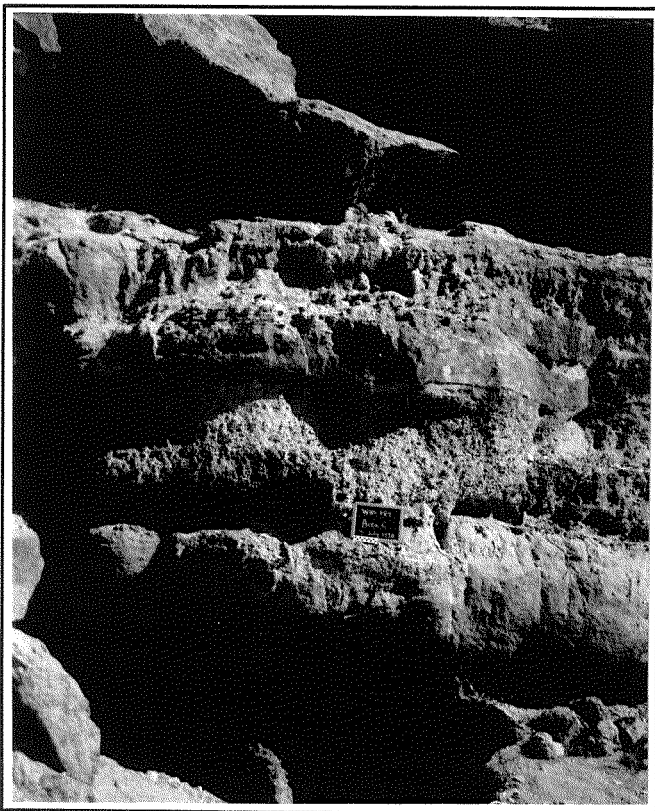


Fig. 1. Removing the 1997 backfill at Tor Sageer (WHNBS 242).

The site was subjected to vandalism following the first day of excavation. Vandals filled the open C4 and D4 units with large rocks. They also damaged a portion of the upper deposits of Units B4 and D3. Unit B4 suffered the most extensive harm, with the loss of the upper 35cm in a 1 by 0.50m area. The vandalized deposits were screened and cultural materials recovered; much of the vandalized deposits appear to have been disturbed by rodents and subjected to an unknown degree of mixing of artifacts and bone.

Three to five natural strata, as well as deposits of Feature 3 were identified in the four units. Rodent disturbance was noted, but it was much less extensive than in Unit C4 from the 1997 field season. Most rodent disturbance was confined to the upper 25-35cm of deposits, which as noted in previous reports (Olszewski *et al.* n.d.), also contained evidence of cultural disturbance.

Layer I ranges in color from very pale brown to light brownish yellow. It is a loose, dusty, silt to silty loam and includes abundant gravel-sized rocks, goat dung, rootlets, and twigs. Within Layer I in Unit B3 was a roof spall lens comprised of limestone fragments. Layer II varies from a loose, dusty silt to a slightly more compact silt; the color range is very pale brown to brownish yellow. This stratum is typified by large cobbles, as well as gravel-sized stones, goat dung, and twigs. In some units (e.g., Unit B3), the base of this layer is moister in composition compared to upper deposits. Layer III is quite variable from unit to unit; its color range is a very pale brown to brownish yellow. In Unit B3, Layer III is a loose, dusty, silt with abundant twigs, indicative of rodent disturbance; Unit B4 has a similar composition of a loose silt, with some gravel-sized rock, and a matting of twigs representative of rodent activity. Layer III in Unit D3 is a slightly compact, sandy silt with abundant gravel-sized rock, while Unit E4 has a loamy silt with a sand and gravel-sized stone content. Layer IV was present in Units B4, D3, and E4. It is a very pale brown to brownish yellow, relatively compact silty clay and silty sand with gravel-sized rock and limestone and ash flecking. The compaction of the sediment increases as proximity to bedrock increases. Red ochre flecking and staining also is present in the lowest portion of this layer immediately above bedrock. Layer V (Unit E4) is a very compact version of Layer IV.

In addition to these strata, Units B3 and B4 also contained deposits related to Feature 3. The Feature 3 area is a very pale brown, very compact silty clay with occasional cobbles. Other characteristics include burnt rock, pockets of compact ash, charcoal, and areas of loose ash. Finally, the excavation of Unit D3 exposed the back of the rockshelter and its articulation with the bedrock floor of the rockshelter. This has a relatively gentle, curved slope.

The discovery of Feature 3 (Units B3 and B4, as well as Unit C3 (unexcavated)) is especially interesting. It measures about 1 by 0.50m, and has a maximum thickness of 20cm. The pockets of very compact ash are white in color and suggest episodes of intense burning. Given the thickness of the feature and its characteristics, it is likely that it represents a series of hearths constructed over an unknown period of time. Charcoal was relatively abundant and was collected for radiocarbon dating. Fire-affected rock, burned lithics, and burned bone are additional characteristics. The base of the feature rests directly on bedrock, and there are small areas of ochre staining immediately above bedrock.

The "occupation zone," first reported in Olszewski *et al.* (n.d.), was again observed in the new excavations. The deposits immediately above bedrock in Units B3, D3, and E4 all yielded red ochre staining in small areas. These lower levels of the deposits from all units also contain a relatively sizable lithic and bone assemblage, much of which is flat-lying. Spatial differences in activities, noted in 1997, shown by more intensive core reduction and the presence of hammerstones in Unit D4, was augmented by the recovery of an additional hammerstone in Unit E4 (adjacent to Unit D4).

The Early Epipaleolithic lithic assemblage from Tor Sageer is characterized by the microburin technique. Segmented bladelets were fashioned into a variety of very narrow nongeometric forms. The principal types are La Mouillah points, arched backed bladelets, and backed and truncated bladelets. Of some interest is the presence of a very small number of finely retouched bladelets (Ouchtata retouch) and of a small number of Qalkan points. The "Tor Sageer point," identified during the 1997 season, was extremely rare in the assemblages from this season. Backed mi-

croliths comprise about 71% of the tool assemblage, while re-touched pieces are about 11% of the inventory. Other tools such as endscrapers and burins are less common.

There were no surprises in the excavations of the 1998 season, as trends observed during the 1997 season (Olszewski *et al.* n.d.) continue. Spatial differentiation in activities within a relatively small area exists; hammerstones and core reduction are typical of the eastern section of the rockshelter (Units D4 and E4). There is abundant large-sized debitage, perhaps representing less emphasis on the production of microliths. In contrast to the 1997 season, however, microburins were more numerous in the 1998 deposits. The Feature 3 hearth region indicates repeated and sustained use of the rockshelter during the Early Epipaleolithic, marking it as a favored locale for habitation. Charcoal recovered from this feature will be helpful in establishing the age and for establishing baselines for similar lithic assemblages from the sites of Yutil al-Hasa (WHS 784) (Olszewski *et al.* 1994) and Tor al-Tareeq (WHS 1065) (Neeley *et al.* n.d.).

Analysis of the faunal, macrobotanical, and phytolith samples is underway. Preliminary phytolith work on a sample from the Feature 2 hearth in Unit D4 has identified grass stem phytoliths, including both panicoid (C4 grasses) and pooid (C3 grasses) sub-families. There are also many dicot wood phytoliths. Finally, there were both stems and a couple of wild grass-husks; genera included *Phragmites* sp. (common reed) and *Cyperus* sp. (one of the rushes).

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Expanded Radiocarbon Chronology from 'Ain Ghazal

Gary O. Rollefson, Whitman College

Five seasons of excavation have been undertaken since the last publication of radiocarbon dates from 'Ain Ghazal, and from those campaigns many more radiocarbon samples have been processed to improve the chronological interpretation of events at the Neolithic settlement. Of particular importance are the dates from the greatly expanded investigations in the North Field (*e.g.* Rollefson and Kafafi 1996) and the East Field (Rollefson and Kafafi 1997), areas that were barely sampled by the time of the 1992 synthesis (Rollefson *et al.* 1992: Table 1).

Table 1 provides the latest compendium of dates from 'Ain Ghazal arranged by excavation field and chronological order. (In the "period" column of Table 1, the numbers after "MPPNB" refer to architectural phasing). One date from the North Field has not been calibrated, nor one from the Central Field; five dates from the East Field remain uncalibrated. A brief discussion of the chronology of 'Ain Ghazal follows, using uncalibrated bp dates.

Central Field

The oldest dates come from the MPPNB area on the lower bulldozer terrace in the Central Field. 'Ain Ghazal was founded at c. 9200 \pm 100 bp. The results for the MPPNB are generally consistent when the values are taken into account. Exceptions in-

clude GrN-12969, which is too old for its stratigraphic position, and UCR-1722, which is far too young; it is possible that activity by rodents or other burrowing animals may be responsible for the discrepancies.

The LPPNB dates are from excavation probes in the upper terrace of the Central Field, and their stratigraphic order is properly reflected in Table 1. Sample AA-25424 was a small sample taken from wall mortar in a Yarmoukian context, but the result of tandem accelerator dating shows that the wall was evidently constructed in late LPPNB or PPNC times and used by later Yarmoukian residents, who notoriously excavated into earlier deposits and occasionally used what architectural features were thus encountered (Rollefson 1997: 300-301). The PPNC stratigraphic-chronological correlations are strongly justifiable. As for the Yarmoukian period, despite our concentrated efforts we have not been able to recover datable material from soil or flotation samples from anywhere at 'Ain Ghazal.

South Field

The two oldest dates (8460 \pm 90 and 8310 \pm 250 bp) from the South Field come from an ash dump just above basal clay; they indicate that it was at the beginning of the LPPNB period that the occupation of 'Ain Ghazal expanded in this direction. Except for the acceptable date for Sample AA-1165, the results for the PPNC period show clear anomalies that are explainable in terms of the manner of use of the South Field. It is in this part of 'Ain Ghazal that the PPNC inhabitants constructed their "corridor buildings" by digging into earlier occupation layers, turning up LPPNB onto the PPNC habitation surface.

North Field

The occupational history of the North Field was truncated sometime in the PPNC period: no evidence of Yarmoukian use of this part of the former settlement has been found in five seasons of excavation. It is likely that some of the oldest buildings in the North Field are from the (late?) MPPNB period, although so far no radiocarbon dates support this assumption that at present is based on architectural criteria (Rollefson and Kafafi 1997: 37-38).

The dates in Table 1 reveal an LPPNB association with the apsidal/circular cult building ("shrine"; *cf.* Rollefson n.d.). The final use of a two-story building appears to have taken place at the very end of the LPPNB period (Samples KN-4879, 4881, 4884-4885; AA-5206), when the structure caught fire and collapsed, charring at least a quarter-million lentils in the process (Rollefson and Kafafi 1996: 14). Continued use of the area (indeed, of the wall stubs) is reflected by the youngish samples (KN-4880, 4882) that were likely brought down into earlier LPPNB deposits by rodents, whose burrows were often conspicuous in the North Field.

East Field

Until the 1995 season, our information about the East Field was based on surface collections and two small probes (c. 1x1.5m each) from 1984. Sample AA-1167 from that season (8570 \pm 180 bp) showed that a building constructed on basal clay dated to the late MPPNB or early LPPNB. This supported the notion that 'Ain Ghazal experienced a rapid growth near the middle of the 9th millennium bp. Work since 1995 now indicates that MPPNB presence in the East Field antedated the expansion into the South Field, as is shown by Sample AA-25037 (8775 \pm 75 bp, associated with an MPPNB naviform chipping floor). Preliminary study of the lithics from the 1998 season points to an MPPNB presence at the bottom of a 2+m probe in Square G-28 (Quintero, pers. comm.), which did not reach sterile deposits. Several samples rich in charcoal were recovered, which will add more crucial information to our understanding of the initial use of this part of 'Ain Ghazal.

The other samples are associated with LPPNB structures in the southernmost part of the East Field, and most of them come from the very end of the LPPNB period. Of particular note is Sample AA-25425, which came from the clay floor of the southern "temple" structure (*cf.* Rollefson n.d.). The stratigraphic relationship of this structure (above a clearly LPPNB house) and the construction methods used in the building led to the conclusion that the

Table 1. Radiocarbon dates from the various fields at 'Ain Ghazal. An asterisk (*) in the "Sample Type" column denotes an ASM assay.

| Lab Number | Standard Date BP | Cal BC | Period | Field & Trench | Locus Type | Sample Type | Comments |
|------------|------------------|------------|----------|-------------------|-----------------------|-------------|---|
| AA-1165 | 7820 ± 240 | 6712 ± 286 | PPNC | South, 4452.105 | Debris layer | Charcoal | |
| AA-5205 | 7895 ± 95 | 6746 ± 163 | PPNC | South, 4655.030 | Floor fill (float) | Charcoal* | PPNC/Yarm transition: too old |
| AA-5203 | 8200 ± 75 | 7162 ± 109 | PPNC | South, 4454.073 | Mud plaster (float) | Charcoal* | Too old; intrusive "old wood"? |
| AA-5201 | 8325 ± 70 | 7187 ± 122 | PPNC | South, 4453.130 | Stone wall mortar | Charcoal* | Too old, intrusive "old wood"? |
| AA-5202 | 8310 ± 70 | 7352 ± 98 | PPNC | South, 4453.153 | Soil over basal clay | Charcoal* | Too old, intrusive "old wood"? |
| AA-1166 | 8950 ± 390 | 7961 ± 437 | PPNC | South, 4452.024 | Debris layer | Charcoal | Far too old, intrusive "old wood" |
| GrN-12972 | 8165 ± 50 | 7131 ± 83 | LPPNB | South, 4452.110 | Ashy rubble layer | Charcoal | |
| GrN-14259 | 8310 ± 250 | 7283 ± 266 | LPPNB | South, 4048.004 | Ashy lens | Charcoal | Just above basal clay |
| GrN-12971 | 8460 ± 90 | 7486 ± 72 | LPPNB | South, 4048.004 | Ashy lens | Charcoal | Same locus as GrN-14259 |
| KN-4880 | 7726 ± 73 | 6510 ± 61 | LPPNB? | North, 5718.080 | Fill, ashly layer | Lentils | Too young: rodent activity? |
| KN-4882 | 7809 ± 74 | 6565 ± 95 | LPPNB? | North, 5717.070 | Fill, stony layer | Lentils | Too young: rodent activity? |
| KN-4884 | 7857 ± 74 | 6641 ± 132 | LB/PPNC | North, 5918.046 | Fill, ash | Lentils | |
| KN-4881 | 7880 ± 82 | 6715 ± 155 | LPPNB | North, 5718.111 | Room fill | Lentils | |
| KN-4885 | 7939 ± 87 | 6817 ± 148 | LPPNB | North, 5918.045 | Fill, ash | Charcoal | |
| KN-4879 | 7952 ± 77 | 6843 ± 137 | LPPNB? | North, 5718.074 | Room fill | Charcoal | |
| AA-25429 | 7980 ± 55 | | LPPNB | North, 5717.146 | Above Floor 147 | Lentils* | Above mud fill behind "shrine" |
| AA-5206 | 7990 ± 80 | 6861 ± 132 | LPPNB | North, 5518.007 | Floor deposit | Peas* | Float sample |
| KN-5055 | 8162 ± 62 | 7138 ± 90 | LPPNB | North, 5718.142 | Firepit | Charcoal | Assoc. with apse building/"shrine" |
| KN-4883 | 8230 ± 76 | 7179 ± 123 | LPPNB | North, 5718.013 | Firepit | Charcoal | |
| KN-5054 | 8236 ± 81 | 7188 ± 129 | LPPNB | North, 5717.149 | Firepit | Charcoal | Assoc. with apse building/"shrine" |
| AA-5196 | 7670 ± 100 | 6472 ± 90 | PPNC | Central, 3275.007 | Stone wall mortar | Charcoal* | Flotation sample |
| GrN-17494 | 7825 ± 65 | 6585 ± 94 | PPNC | Central, 3275.021 | Firepit | Charcoal | |
| GrN-17495 | 7915 ± 95 | 6771 ± 158 | PPNC | Central, 3275.023 | Firepit | Charcoal | |
| AA-5198 | 7960 ± 75 | 6842 ± 134 | PPNC | Central, 3276.009 | Fill | Charcoal* | Flotation sample |
| AA-25424 | 8030 ± 65 | | LB/PPNC | Central, 3876.128 | Wall mortar | Charcoal* | Should be Yarmoukian, contaminated? |
| AA-5197 | 8090 ± 75 | 7064 ± 170 | LPPNB | Central, 3275.022 | Firepit | Charcoal* | Flotation sample |
| KN-4877 | 8208 ± 77 | 7169 ± 113 | LPPNB | Central, 3275.029 | Firepit | Charcoal | |
| KN-4878 | 8253 ± 76 | 7268 ± 130 | LPPNB | Central, 3275.030 | Firepit | Charcoal | |
| AA-5199 | 8270 ± 75 | 7284 ± 126 | LPPNB | Central, 3300.047 | Ashy pit fill | Charcoal* | Flotation sample |
| Bta-19907 | 8520 ± 110 | 7580 ± 110 | MPPNB-4? | Central, 3282.088 | Fill beneath floor | Charcoal | <i>Terminus ante quem</i> , 1985 statues |
| AA-5200 | 8780 ± 70 | 7840 ± 70 | MPPNB-4 | Central, 3300.068 | Fill above floor | Charcoal* | Flotation sample |
| GrN-12969 | 8810 ± 80 | 7970 ± 80 | MPPNB-4? | Central, 3273.013 | Fill above floor | Charcoal | Too early for its strat position |
| UCR-1722 | 8070 ± 230 | 6950 ± 305 | MPPNB-3 | Central, 3074.029 | Outdoor ashly lens | Charcoal | Far too late: small sample, note |
| UCR-1721 | 8620 ± 320 | 7645 ± 343 | MPPNB-3 | Central, 3273.056 | Fill above floor | Charcoal | Note large |
| GrN-12970 | 8650 ± 200 | 7700 ± 195 | MPPNB-3 | Central, 3273.028 | Fill between floors | Charcoal | |
| OxA-1742 | 8660 ± 80 | 7654 ± 121 | MPPNB-3 | Central, 3076.051 | Statue pit | Charcoal* | Date for discard of 1983 statues |
| OxA-1743 | 8700 ± 80 | 7723 ± 122 | MPPNB-3 | Central, 3076.051 | Statue pit | Charcoal* | Date for discard of 1983 statues |
| GrN-14258 | 8810 ± 160 | 7818 ± 164 | MPPNB-3 | Central, 3273.036 | Floor deposit | Peas | |
| AA-1164 | 9100 ± 140 | 8119 ± 140 | MPPNB-3 | Central, 3273.036 | Floor deposit | Peas | Same sample as GrN-14258 |
| UCR-1718 | 8470 ± 650 | 7326 ± 747 | MPPNB-2 | Central, 3083.044 | Clayey room fill | Charcoal | Note large |
| GrN-12962 | 8680 ± 190 | 7720 ± 181 | MPPNB-2 | Central, 3080.223 | Ash pit | Charcoal | |
| GrN-12967 | 8930 ± 80 | 7978 ± 58 | MPPNB-2 | Central, 3083.142 | Burial | Charcoal | |
| GrN-12961 | 8930 ± 60 | 7978 ± 41 | MPPNB-2 | Central, 3080.010 | Fill between floors | Charcoal | |
| GrN-12964 | 8970 ± 80 | 7998 ± 54 | MPPNB-2 | Central, 3081.123 | Floor surface | Charcoal | |
| GrN-12968 | 8970 ± 110 | 7996 ± 89 | MPPNB-2 | Central, 3083.115 | Firepit/hearth | Charcoal | |
| GrN-12959 | 9000 ± 90 | 8016 ± 63 | MPPNB-2 | Central, 3076.061 | Burial | Charcoal | <i>Terminus post quem</i> for 1983 statues |
| GrN-12960 | 9030 ± 80 | 8030 ± 58 | MPPNB-2 | Central, 3080.066 | Ashy pit fill | Charcoal | |
| GrN-14257 | 8750 ± 80 | 7796 ± 113 | MPPNB-1 | Central, 3081.128 | Ashy pit fill | Charcoal | Late, same locus as GrN-12963 |
| GrN-12963 | 8970 ± 80 | 7998 ± 54 | MPPNB-1 | Central, 3081.128 | Ashy pit fill | Charcoal | Fits stratig. better than GrN-14257 |
| Bta-19906 | 8970 ± 150 | 7921 ± 176 | MPPNB-1 | Central, 3282.113 | Rocky room fill | Charcoal | |
| GrN-12965 | 9050 ± 80 | 8041 ± 65 | MPPNB-1 | Central, 3081.133 | Ashy pit fill | Charcoal | <i>Terminus ante quem</i> , 3 plaster masks |
| GrN-12966 | 9200 ± 110 | 8205 ± 115 | MPPNB-1 | Central, 3083.103 | Fill in posthole | Charcoal | Above basal clay |
| Bta-19905? | 10360 ± 1300 | | MPPNB-1? | Central, 3282.122 | Exterior ash layer | Charcoal* | Above basal clay: note large |
| AA-25427 | 7910 ± 60 | | LB/PPNC | East, G-28.020 | Ash, circular struct. | Charcoal* | Strat above/adjacent to AA-25428 |
| AA-25428 | 7910 ± 60 | | LB/PPNC | East, G-28.016 | Ash, circular struct. | Charcoal* | Strat below/adjacent to AA-25427 |
| AA-25425 | 8080 ± 65 | | LB/PPNC | East, E-13.032 | Floor | Charcoal* | On "temple" floor |
| KN-5056 | 8083 ± 47 | 7096 ± 118 | LPPNB | East, D-13.023 | Firepit | Charcoal | Stratigraphically beneath "temple" |
| AA-25426 | 8205 ± 65 | | LPPNB | East, F-12.037 | Firepit | Charcoal* | |
| AA-1167 | 8570 ± 180 | 7630 ± 180 | M/LPPNB | East, 8547.014 | Room fill | Charcoal | |
| AA-25037 | 8775 ± 75 | | MPPNB? | East, F-14.037 | Chipping floor | Charcoal | Earlier than expected |
| AA-25038 | 20,620 ± 160 | | ??? | East, E-14.044 | Against TerWall III | Charcoal | Intrusive, does not date wall |

temple was PPNC in age. But the radiocarbon date shows that the structure was abandoned near the end of the LPPNB period, and, in fact, we have no definite evidence that PPNC habitation structures were ever constructed in the East Field. There is also no indication that Yarmoukians resided in the East Field, although a Yarmoukian pit was excavated near the top of the East Field. The high density of potsherds and the intense reddening of the pit walls suggested that this was a primitive pottery kiln.

Closing Remarks

Although the wealth of radiocarbon dates in Table 1 provides a firm framework in which to reconstruct the directions and tem

pos of change at 'Ain Ghazal, we cannot rely on it as a reflection of the entire history of the settlement. One must especially keep in mind the circumstances of the discovery of 'Ain Ghazal. Highway construction destroyed a considerable amount of the settlement, and other work on the water treatment plant, the channeling of the river, the burial of water and sewage pipes, and even the construction of the Hijaz Railway at the turn of the century all removed the sectors of 'Ain Ghazal that would have been the oldest: the areas closest to the banks of the Zarqa River (Rollefson 1996). This might explain, for example, the otherwise anomalous date of more than 20,000 years (sample AA-25038) near the base of Terrace Wall III in the East Field; even the age of Sample Bta-

19905(?) in the Central Field might be an accurate reflection of a cultural episode at 'Ain Ghazal far older than the MPPNB.

Acknowledgments: Eight samples (AA-25037 – AA-25429) were processed at the NSF tandem accelerator facility at the University of Arizona. I would like to thank Dr. Douglas Donahue of the Department of Physics at the University of Arizona for his gracious help, as well as Dr. A.J. Jelinek of UA's Department of Anthropology for his assistance in the arrangements. Dating of all of the Köln samples (KN-4877 – 5056) was made possible by the enthusiastic support and participation of Dr. Bernhard Weninger, Director of the 14C Laboratory, Universität zur Köln, and I want to express my deepest gratitude to him. Funding for the radiocarbon assays was made possible by contributions to the Friends of 'Ain Ghazal, e.V. (Germany).

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A Grave Good from 'Ain Ghazal

Michelle Bonogofsky, University of California-Berkeley

Careful screening and cleaning of the human skeletal contents from a Late PPNB burial at 'Ain Ghazal revealed pieces of an object crafted from animal bone (Fig. 1). The bone object has shallow denticulation along one long side. One end is rounded, while the other appears to have been snapped off along an incision in the making. The entire object, which is 84mm long and 24mm wide, is highly polished, apparently from handling. What appear to be deliberate markings are scratched across both sides of the piece. The precise function of this object, which was included along with a cut shell pendant in a partially excavated burial containing adult and perinatal remains, is unclear. A suggestion has been made that it was used in weaving; another possibility is that it was a leather working tool. Any confirmation or alternative suggestions would be welcome, as well as information concerning similar artifacts from other sites. Please contact Michelle Bonogofsky, Near Eastern Studies Department, University of California, Berkeley, CA 94720-1940, e-mail: <<jshdr@uclink4.berkeley.edu>>.

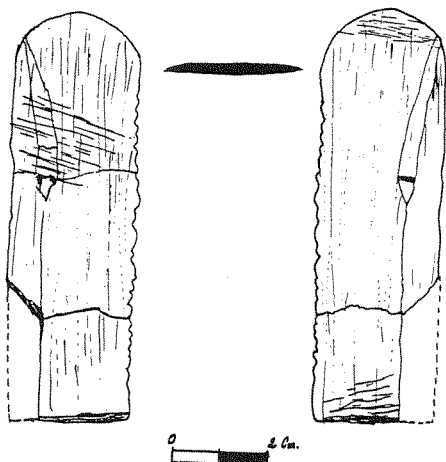


Fig. 1. LPPNB bone artifact from 'Ain Ghazal. (Drawing by Pierre Bikai).

Editorial Note: This issue became smaller than planned, due to an omitted contribution which had technical problems (to be published in 3/98).

"Jordan by the Millennia": Contributions on the Neolithic at the 7th International Conference on the History and Archaeology of Jordan, Copenhagen, June 14-19, 1998

Hans Georg K. Gebel (Freie Universität Berlin) and
Bo Dahl Hermansen (Carsten Niebuhr Institute, Copenhagen)

Organized by John Strange of Copenhagen University, and held under the patronage of HM Queen Margarethe of Denmark and HRH Crown Prince al-Hassan bin Talal of Jordan, the 7th Conference again was a spirited gathering with plenty of opportunity for corridor and private exchange. During the various Neolithic presentations, there was not much public discussion. Either colleagues had already settled discourses by email exchange, or this was due to time stress created by the necessity for many listeners to leave one session to rush to another: sessions that dealt with the same periods or millennia were organized parallel on the same day. On the whole, one can say that the general title of the conference "Jordan by the Millennia" triggered summary attitudes for the presentations on the Neolithic rather than concentrating on current problems and perspectives. Below we summarize and comment the conference presentations about or related to the Jordanian Neolithic.

Geoffrey A. Clark and M.P. Neeley - U.S.A.: *The 8th Millennium in Jordan*. (Plenary Session I)

Clark and Neeley discussed climatic and environmental changes that at the Pleistocene/Holocene boundary made the 8th millennium in Jordan "a key period in the transition from foraging to domestication economies", claiming that "the first true domestication economies appear in the archaeological record of the southern Levant". The lecture provided good arguments to continue an investigation of the peculiar conditions Jordan that time allowed only certain Neolithic adaptations to be established, which made the lands east of the Rift Valley part of a complex but polycentric process.

Hans Georg K. Gebel - Germany: *The 6th millennium BC in Southern Jordan: Evidence and Open Questions*. (Session IB)

After presenting the limited evidence for the Pottery Neolithic occupation in southern Jordan, Gebel tried to explain that the collapsed Late Pre-Pottery Neolithic mega-villages mostly disappeared as mobile food-producing economies (herders, with some reliance on mobile-niche agriculture and ungulate hunting) came to dominate the southern Jordanian Pottery Neolithic. While these groups generally remained aceramic, some favored locations in LPPNB corridor settings continued as pottery-using sites (or were newly founded in such settings). Gebel suggested a considerable PN demographic decline once the near-site pastures of the mega-villages of the late 7th millennium were destroyed, and permanent village life widely had to be given up.

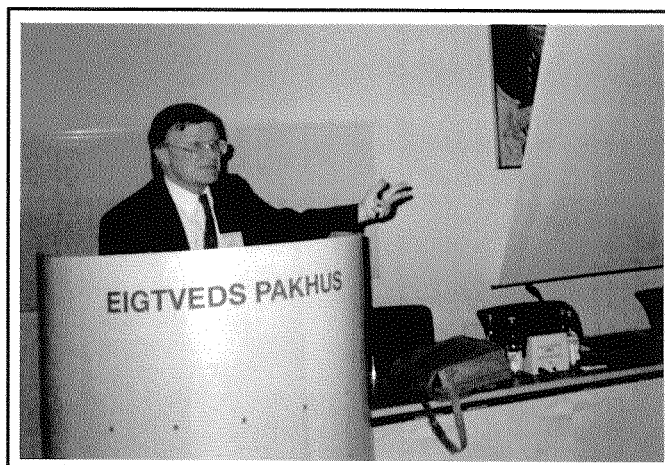


Fig. 1. Gary Rollefson giving his overview in Plenary Session II.

Gary O. Rollefson - U.S.A./ Germany: *Neolithic Jordan in the 7th and 6th Millennia BC*. (Plenary Session II)

After an excursion into research history, Rollefson presented an overview of the present knowledge and discussions of the Early

and Late Neolithic in Jordan, with special reference to fundamental changes that occurred in the relationships between human social groups and the altered environments. A "substantial rewriting" of the understanding of the Neolithic processes in Jordan - on the basis of this wealth of information - appears inevitable to Rollefson. For the early 7th millennium BC "a widely distributed system of relatively small farming communities" existed, "but after c. 6,500 BC population throughout Jordan expanded almost explosively with the sudden appearance of "mega-sites", or "towns". For the latter episode Rollefson used the terms "pre-" or "near-urban", terms that at least not conflict with the term "proto-urban" as it is understood for Ancient Near Eastern Archaeology. The term "town" for LPPNB 'Ain Ghazal, long used in Rollefson's publications, should have given opportunity for the audience to engage in an updated discussion of the mega-site phenomenon: the Oldest-Town-Debate of Braidwood and Kenyon. Continuing his lecture, Rollefson emphasized that in the second half of the 6th millennium bc, towns became villages again, some becoming established in previously unsettled areas; "in the 5th millennium population would be dispersed even more dramatically".

Hans-Dieter Bienert - Germany: The Pre-Pottery Neolithic B (PPNB) of Jordan: A First Step Towards Early Urbanism?

Hamzeh M. Mahasneh - Jordan: The Neolithic Burial Practices in Wadi el-Mujib during the Seventh Millennium B.C.

Mohammad Najjar - Jordan: The Beginning of the Pre-Pottery Neolithic B period in Jordan in the light of new excavations. (all Session IIA).

Unfortunately, due to organizational reasons, Bienert's topic was not presented in the framework of the parallel Session IIB, where much of his subject was discussed (see below). Bienert discussed the various LPPNB mega-sites "that seem to reflect some elements of early urban settlements", that "may define these local centers as proto-urban settlements" with a "hierarchical settlement system with at least two levels". He sees these sites distributed "along the Jordan Rift Valley, while smaller PPNB sites existed west of the Jordan River and in eastern Transjordan". Public buildings, burial customs, etc., were cited as reflecting a complex social organization that deserve intensive debate as possible "proto-urban" features. However, much of the problematics involved in using the concept of an Early Neolithic Proto-Urbanism in the Jordan were thought to have been already critically discussed in the symposium held in Petra in the summer of 1997 (cf. *Neo-Lithics* 2/97). The use of "proto-urban" to describe a phenomenon that did not result (proto-) urban societies does not promote understanding, especially as the term is defined for Greater Mesopotamia for a much different feature. It appears more advisable to treat the mega-site phenomenon -for the time being- as a feature of its own, about whose future we cannot judge with borrowed terms that hinder independent insights.

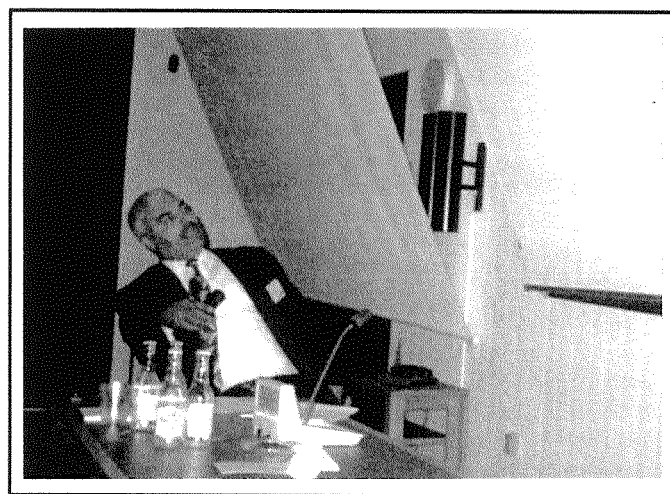


Fig. 2. Hamzeh Mahasneh describing the burials from his excavations at Es-Sifiya.

Mahasneh presented for the first time data on the burials from his excavations at LPPNB Es-Sifiya in Wadi Mujib. These data were embedded in a general summary of excavation results from this huge settlement in what today is a barren environment. The

burials and burial practices of Es-Sifiya have very close similarities with those from other Jordanian LPPNB sites, as well as with a "a wider pan-Levantine Early Neolithic mortuary cult that emphasized subfloor burials and decapitation". Some of the burial goods represent hitherto unknown artefact types (e.g., pendants made of subfossil Red Sea *Tridacna*, or a basalt polisher with a tetrafoil decoration on the handle).

M. Najjar presented new results from Ghwair I (cf. *Neo-Lithics* 1/98), which he excavates with Alan Simmons. Special concern was given to the nine radiocarbon dates and their chronological implications: all are very early for what culturally looks to be strictly LPPNB (c. 8900-8600 bp, 8300-7600 Cal BC). For M. Najjar, they make sense of the hitherto rejected early dates from Beidha. This example demonstrates that much work has to be done on the interpretation of LPPNB dates that fall -for the end of the PPNB- in some problematic areas of the present calibration curve. Ghwair I is a most promising site since its setting allows insights into PPN settlement patterns at the fringes of Wadi Araba, a supposed long-distance exchange route in the Early Neolithic of Jordan.

Allan Simmons - U.S.A.: Core and Periphery Relations During the Neolithic. Is the Model Appropriate?

Peder Mortensen - Denmark: Development and Changes in the 7th-6th Millennia Settlements in Jordan. (Session IIB).

E.B. Banning - Canada: Settlement and Economy in Wadi Ziqlab during the Late Neolithic.

(all Session IIB).

Simmons addressed the question whether the core-periphery model is an appropriate framework of investigation, considering the diversity of site types known from the PPNB. In Simmons' view, the main question is how, and to what degree, large sites such as 'Ain Ghazal and Wadi Shu'eib may have interacted with peripheral settlements like Ghwair I. Elements from world-systems theory were introduced into the discussion, especially that smaller, peripheral settlements may have been involved in exchange relations that ultimately served the need of elites in large, core settlements for highly valued materials or goods.

Mortensen explicitly denied the concept of "proto-urbanism" and proposed that the evidence be interpreted in terms of models developed by scholars working in the Zagros and Northern Mesopotamia. In particular, he proposed that the relationship between central and peripheral settlements in Jordan may be best understood in terms of Stage 3 in his own model of changing settlement patterns in the Zagros. Mortensen additionally addressed the problem of the dating of the corridor houses in Beidha; he argued that continuity in the chipped stone inventory throughout the levels still favors an early dating of that phase, and not PPNC, as Rollefson has suggested.

Banning summarized his work at Wadi Ziqlab. In combination with evidence from other Jordanian sites, Banning's field results indicate fundamental shifts in settlement systems during the Neolithic. From large agglomerated settlements during the PPNB, a more dispersed settlement pattern emerged in the later Neolithic. Through an integrated analysis of data from Wadi Ziqlab, Banning was able to correlate this shift with changed subsistence strategies: agriculture and pastoralism becoming increasingly important in the economy. The shift was accompanied by changes in social structure and religious outlook as well.

Common to all of the last three contributions was the explicit abandonment of the term "proto-urbanism". Simmons preferred to view the large sites as centers in a core-periphery relation, and Mortensen rejected the notion completely, viewing the large sites as villages that served as focal settlements in a radiating pattern of seasonal movement. Banning denied the implied failure inherent in that term: his research indicates that the so-called breakdown of the PPNB settlement system was coupled with a successful change in subsistence strategies.

In conclusion, it may be stated that the contributors to this session reacted to the challenge of the *Central Settlements in Neolithic Jordan* symposium held at Petra in the summer of 1997 by proposing more sophisticated frameworks of interpretation than have been applied so far. This will eventually enable us to understand better the changing dynamics of Neolithic societies in Jordan.

Susanne Kerner - Germany: *The Development of Specialization in the 5th and 4th mill. B. C. in the Southern Levant.* (Session IVA)

The presentation by S. Kerner on Chalcolithic craft specialization touched on certain questions of Late Neolithic specialization. Whereas "in the Chalcolithic period in the Southern Levant the organization of the production of pottery, stone tools, basalt items and objects made of precious materials all show a tendency towards specialization", the simply shaped "pottery of the Late Neolithic cultures was rather time consuming and often elaborately decorated". Good examples were provided for Chalcolithic craft specialization, for which a proper definition was offered. ("A differentiated, regularized, permanent, and perhaps institutionalized production system in which producers depend on extra-household exchange relationships at least in part for their livelihood, and consumers depend on them for acquisition of goods they do not produce themselves"). However, S. Kerner was aware that there is a clear need to differentiate between several factors ("context, concentration, scale, and intensity) involved in order to identify various types and degrees of specialization, especially when we deal with isolated finds of imported goods, regionalism in production chains, standardization in Late Chalcolithic pottery, etc. For us working in the Early Neolithic, we might comment here that Chalcolithic craft specialization was not the beginning of craft specialization in the Southern Levant: it was a continuation of a development that had stopped with the end of the LPPNB, when we had established technologically complex event trees in the production of chipped lithics, ground stone and ornament industries that only run with specialization, including the transfer of innovative knowledge, surplus management, and markets.

New Books

Coinman N. (ed.)

1998 *The Archaeology of the Wadi al-Hasa, West-Central Jordan, I: Surveys, Settlement Patterns and Paleoenvironments.* Anthropological Research Papers 50. Tempe, Arizona State University.

Gebel H.G.K., Kafafi 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. end of this issue of Neo-Lithics) (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.

Henry D.O. (ed.)

1998 *The Prehistoric Archaeology of Jordan.* British Archaeological Reports - International Series 705. Oxford, Archaeopress.
(good summary presentations of the individual periods, especially for teaching; 13 contrib., I-V + 207 p., 67 illustrations and tables)

Kozłowski 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. (contents list and order form see end of this issue)

Kozłowski S.K.

in press *The Eastern Wing of the Fertile Crescent. Late Prehistory of Greater Mesopotamian Lithic Industries.* (with chapters by A. Gopher and G. Korobkova, and a preface by O. Bar-Yosef). British Archaeological Reports - International Series. Oxford, Archaeopress with the Maison de l'Orient Méditerranéen. (194 p., 41 figs. 13 maps, 81 pls., 30 tables)

Contents

INTRODUCTION (A few words about this book, Book structure, Description of industries/groups of industries, Sampling, List of sites and Bibliography, "Sickles", The blade with "mirror-like" polishing: the myth or the reality, by Galina F. Korobkova, Acknowledgments)

EARLY "NEOLITHIC" CULTURE OF THE NEAR EAST (The Fertile Crescent and Beyond, Early "Neolithic" Culture - Homogeneity and Diversity, Stylistic

Differentiation, Industrial Provinces of the Near East, The Industries, Functional Differentiation of "Home" Flint Industries of the "Neolithic", Chronology, Lithic Industries vs. Ceramic Cultures)

IRAQI - IRANIAN PROVINCE (Introduction, Nemrikian Industry (Industries?), Mlefaat Industries, Late Industries of the Iraq-Iranian Province, Post-Mlefaat, Sawwan Industry, Post-Nemrikian Industry (Iraqi facies of BAI), Agro-Standard)

LEVANTINE PROVINCE (Introduction, Early Industries, Basic Division, First Stage: Khiamian Industries, Second Stage: Mureybetian Aswadian, Late Industries: Big Arrowheads Industries (BAI), Lithic Industries of the Neolithic period in the South-Central Levant: A Review by Avi Gopher)

CAUCASIAN-CASPIAN PROVINCE (Introduction, Trialetian, Late (Post-Trialetian) Industries of the Caucasian-Caspian, BAI Post-Trialetian Industry, Late Industries of Central Asia, Jeitunian, Kelteminarian, Late Industries of the Iranian Plateau)

FINAL REMARKS (Generalities, Stylistic differentiation, Regionalities, Iraqi-Iranian Province, Caucasian Province, Levantine Province, Chronological Table, Raw materials, Subindustries, Palaeohistory, A Breakthrough, Two Roads, New Order, Big Bang, Changes in the East)

Websites and Mailing Lists Related to the Near/ Middle Eastern Neolithic

<http://menic.utexas.edu/menic/ghazal>

'Ain Ghazal Excavation Reports 1: *Symbols at 'Ain Ghazal*, edited by D. Schmandt-Besserat, with contributions by P. Griffith, C. Grissom, H. Iceland, Z. Kafafi, L. King, E. McAdam, G. Rollefson, J. Rose and D. Schmandt-Besserat. The chapters treat geometric tokens, human and animal figurines, decorated skulls, plaster statuary, decorated floors and walls, and symbolism.

<http://web3.si.edu/asia/html/archae.htm>

This is a richly illustrated web site of the Smithsonian Institution that describes the recovery and conservation of the 1985 'Ain Ghazal statue cache; with links to other sites.

<http://bas-a.bcc.ac.uk/archaeology/research/profiles/ktubb/tubb.htm>

This British Museum web site summarizes the work currently under way under the direction of Kathy Tubb on the 1983 statue cache from 'Ain Ghazal; nice photos and links.

<http://catal.arch.cam.ac.uk>

The Çatal Höyük home page offers links to research reports (1996 and 1997), newsletters, the excavation database, micro-artifact distribution plots, and even discussions with the "Goddess community".

<http://208.213.168.238/ex-oriente>

Site of ex oriente (informations about ex oriente, book order and application form for membership; including an article on Ba'ja from *The Prehistory of Jordan II*)

<http://frantiq.mom.fr>

Site of Paléorient.

<http://www2.waikato.ac.nz/c14/webinfo/index.html>

Information on radiocarbon dating/ list references.

<http://tayproject.eies.itu.edu.tr/>

First archaeological site inventory on the net: TAY (The Archaeological Settlements of Turkey)
address: TAY Project, S.Harmankaya/O.Tanindi/M.Ozbasaran, Aslanyatagi Sok. Sedef Palas 35/2, 80060 Cihangir, TR- Istanbul, Fax/Voice: 90 (212) 249 0520, e.mail: TAYProject@prizma.net.tr.

Address Changes

Ted Banning is on a sabbatical in U.K.; he can be reached by: acztbl@hermes.nottingham.ac.uk .

Russell Adams has a new address, too: University of Bristol, 11 Woodland Road, Bristol BS8 1TB, United Kingdom, Direct phone: +44 (0)117 928 7626, Fax: +44 (0)117 930 0673, Email: r.b.adams@bristol.ac.uk .

Japanese Research Station, Hisaiko Wada, POB 577, Jordan-Jerash, Phone: 02 6350419 .

Nigel Goring-Morris is on sabbatical in the U.S. but can be still reached by: goring@h2.hum.huji.ac.il .

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Proceedings of the Second Workshop on PPN Chipped Lithic Industries, Warsaw 1995

edited by

Stefan Karol Kozłowski & Hans Georg K. Gebel

Studies in Early Near Eastern Production, Subsistence, and Environment 3

Berlin, *ex oriente* (1996)

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Contents of SENEPSE 3 (titles of contributions abbreviated):

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EPPNB- Problems *Gopher* : What Happend to the EPPNB? *Rollefson* : An EPPNB Settlement in the Wadi el-Hasa, Central Jorda.
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