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The Pre-Pottery Neolithic B (PPNB) of Jordan:
A First Step Towards Proto-Urbanism?

The extraordinary and outstanding cultural development which can be witnessed in the Late Pre-Pottery Neolithic B (LPPNB) in Jordan (second half of the seventh millenium BC) has been a focus of research in Jordan in the past two decades (Rollefson 1997a; 1997b; 1998; Rollefson et al. 1984; 1985; 1992; Nissen 1990; Nissen et al. 1987; 1991; Gebel et al. 1988; Simmons et al. 1989; Najjar 1994; Mahasneh 1996; 1997a; 1997b; Gebel, Bienert et al. 1997; Waheeb and Fino 1997; Bienert and Gebel 1998; Fino 1998a; 1998b; Simmons and Najjar 1998). A number of large settlements, up to 14 ha in size, have been located in the mountainous area running in north-south direction west of the Jordan Rift Valley. The size of the settlements, their architecture and artifacts initiated discussions on the terminology of how to define and name this type of settlement. This raises the question of whether a first step of development towards early urbanism can be seen in the LPPNB.

It was Kathleen Kenyon who first used the term "town" (Kenyon 1952: 73; 1957: 23; 1960: 98; see also Hachmann 1994: 38-39, 46) to describe the architectural and cultural features which she observed in the Pre-Pottery layers during her excavations on Tall as-Sulṭān (Jericho), Palestine (FIG. 1). In layers, dating to the Pre-Pottery Neolithic A (8,500-7,500 BC) a massive tower-like structure was found standing to a height of 8.25m and its diameter measured 9m at the base and 7m at the top (FIGS. 2 and 3). Inside the tower a passage and a stone staircase of which 20 steps were preserved provided access to the top of the tower (Kenyon 1957: 68-69; 1960: 93; Kenyon and Holland 1981: 19-20, pls. 5-11; Bar-Yosef 1992: 15-17, Fig. 2.1). Kenyon also excavated close to the tower's large walls (FIGS. 2 and 4), which — she believed — functioned as a "town wall" protecting the settlement (Kenyon and Holland 1981: 19). In front of the tower, which was erected behind the wall, unusual for a fortification purpose, Kenyon excavated a ditch which was "...cut into the solid rock, to a depth of c. 2 m., with a steep inner side and a more gradual outer one. Its maxi-
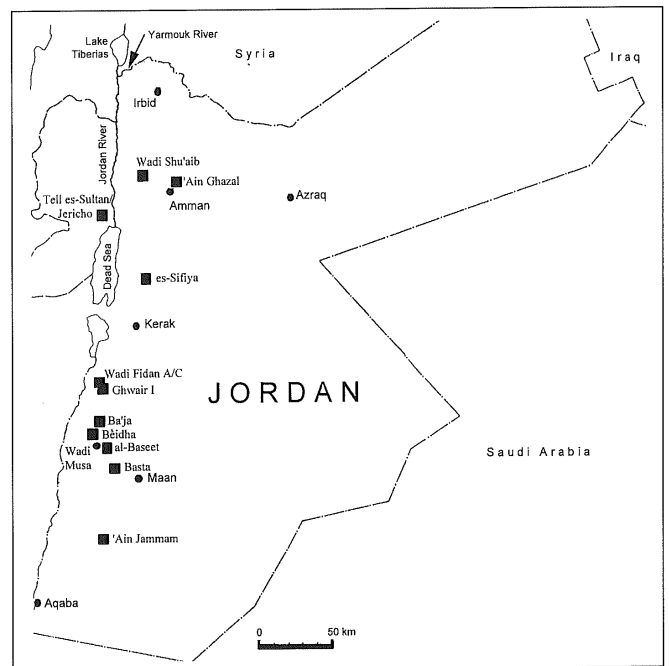

1. Map indicating sites mentioned in the text.

mum depth is 2.10 m. below the inner lip, and its over-all width 8.75 m" (Kenyon and Holland 1981: 26, Pl. 16b). While the tower had no continuation in the following PPNB (7,500-6,000 BC), a so-called "town wall" also existed in that period (Kenyon 1960: 91; Kenyon and Holland 1981: Fig. 2, Pl. 6). It can be understood why Kenyon was convinced of having found remains of a large fortification system (Kenyon 1960: 98, 100).

However, research undertaken by other scholars, points to a different interpretation of the walls running mainly along the western part of both the PPNA and PPNB settlement of Jericho (Bar-Yosef 1986; Hachmann 1994: 66-73; Herzog 1997: 20). In their understanding of the archaeological data these walls functioned as a protection against flash floods, as they were erected on the sloping western side which must have suffered from fre-
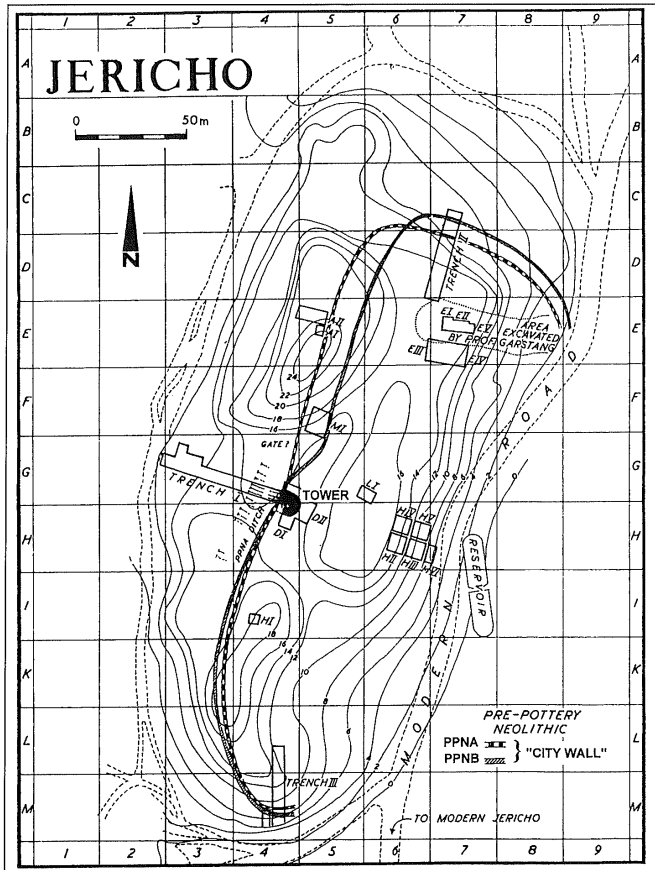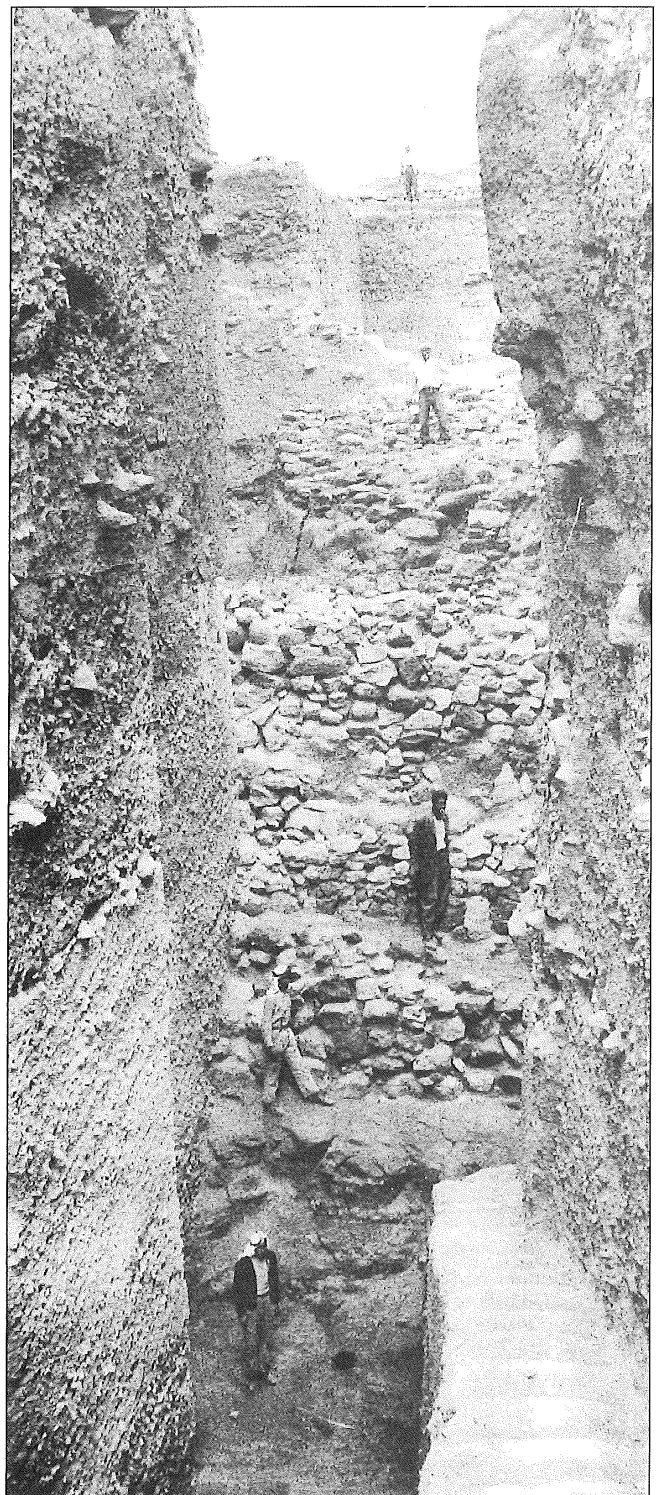
2. Plan of the PPNA/PPNB settlement at Tall as-Sulṭān / Jericho (after Kenyon and Holland 1981: Fig. 2).
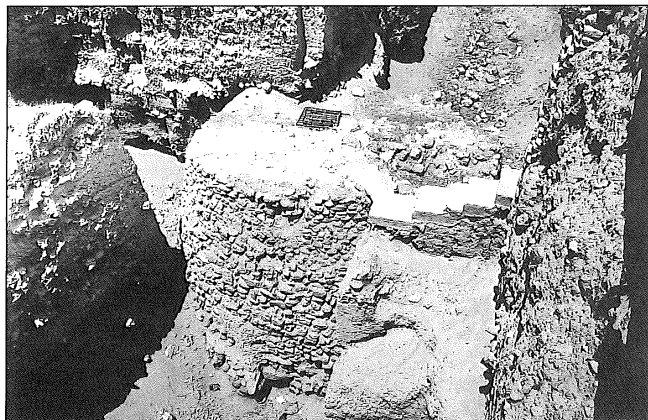
3. PPNA tower at Tall as-Sulṭān in Trench I.

4. View of the PPNA so-called "city wall" in Trench I (after Kenyon and Holland 1981: Pl. 4).

quent inundation by the near-by wadi stream and/or retaining walls — at least during the PPNB — or to prepare a proper place on the steep slope for further settlement activities (Hachmann 1994: 72).

There is still much debate related to the interpretation of the function of the tower, although most scholars now believe that it did not function as a fortification element. Its place inside the wall as well as the narrow staircase do not support any interpretation as a fortification (Bar-Yosef 1986; Hachmann 1994: 68-69; Herzog 1997: 20). It is more likely that it served as a raised podium for ritual cer-

emonies. Far later, tower-like structures could find analogies in raised rounded platforms in the Bronze Age cities of Khirbat az-Zayraqūn (Mittmann 1994) and Megiddo (Ben-Tor 1992: 103, Fig. 4.17, Pl. 19).

Despite the change in interpretation of the excavation results at Jericho, the size of the architecture and its monumentality "... indicate an impressive degree of communal and operative social organization" (Herzog 1997: 20). Also, if the tower functioned as a ritual structure, the walls and adjacent structures might also have been incorporated within this. The amount of work and time which was invested in building the structures is considerable (Bar-Yosef 1992: 16-17). The planning and building of such monuments indicates organizational structures, such as the division of labour and social hierarchies due to the manpower and scheduling. In addition, taking into consideration the elaborate burial customs such as plastered skulls (FIG. 5), which were found at Jericho (Bienert 1991: 10-11, Figs. 2-3) it can be discussed whether these elements anticipate some development elaborately shown in later urban centres. The size of PPN Jericho is estimated at approximately 2.5 hectares and Bar-Yosef estimates the population of the settlement to have been 375 to 1000 inhabitants (Bar-Yosef 1992: 16).

At the Middle PPNB (7,250-6,500 BC) site of Baydā (Kirkbride 1966a; 1966b; 1967; 1968a; 1968b) in southern Jordan (FIGS. 1 and 6), remains of a wall — far less massive than at Tall as-Sulṭān — were detected by Diane Kirkbride (Kirkbride 1968a: 92-93, Figs. 1-2, Pl. XXVA). Here too, it seems that the wall was built not as a fortification but as a protection of the site against wadi floods.

Since the excavations at Tall as-Sulṭān (1952-1958) and Baydā (1958-1967, 1983) a number of mostly large pre-pottery Neolithic settlements ('Ayn Ghazāl, Wādī
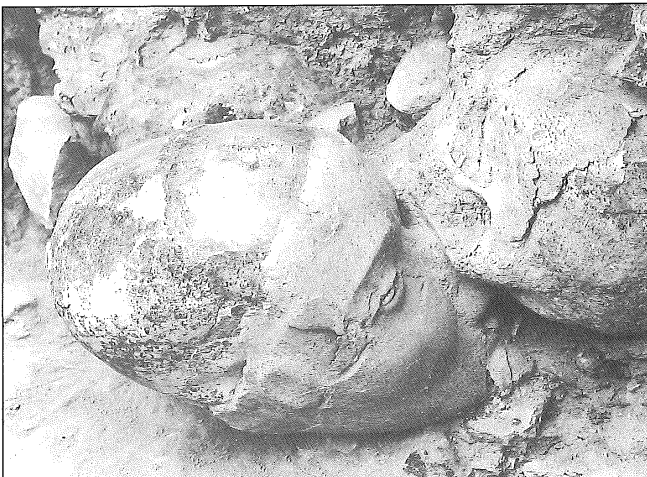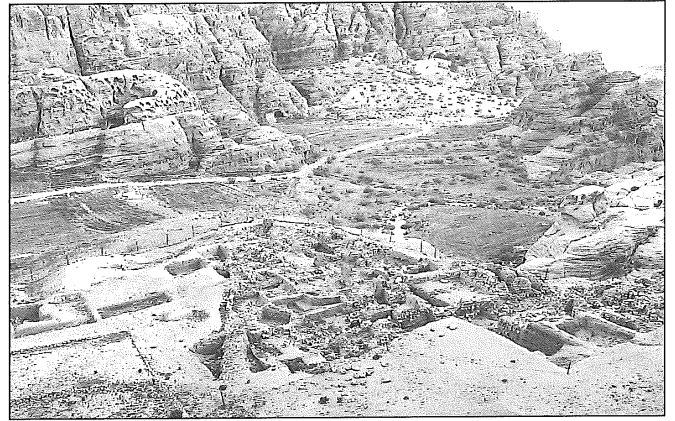
6. Overview of the Middle PPNB settlement of Baydā.

Shu'ayb, aṣ-Ṣifiya, al-Basīṭ, 'Ayn Jammām) most of them dating to the PPNB and in particular its latest phase — the LPPNB — have been discovered, surveyed and partly excavated. The large size of these settlements — some reaching up to 14 hectares, their elaborate architecture as well as the rich material culture, again initiated the discussion on whether traces of first steps towards early urbanism could already be seen in the LPPNB. Besides the large sites, also smaller settlements (e.g. Ghwayr I, Ba'ja) existed, showing, as it seems from the archaeological record, a similar architectural and — probably — social complexity as the large ones (Simmons and Najjar 1998; Gebel, Bienert et al. 1997).

Before looking further into the archaeological context, it is necessary to briefly list what are generally considered as elements defining urbanism and/or city. Definitions are numerous and, in the archaeological literature, the terms 'village', 'town', 'city' are often used interchangeably (Simmons 1995: 119; Frick 1997: 14). The following elements, however, have to be considered when defining a city (see Frick 1997):[1]
- permanent and compact — densely built up areas — settlement;
- particular (hierarchical) relationship to its surroundings (villages): creating a centre and its surroundings;
- populated by a comparable large number of people who show labour division, social ranking and the existence of specialized social groups (priesthood and other "specialists");
- existence of large communal buildings (temples, storage facilities, fortifications);
- production and regulation of agricultural surplus, as "the capacity to extract and invest this surplus was a principal function of cities and their administrative officials" (Frick: 1997: 15).

The interdependence between a city and its sur-

5. Plastered skull (D 112) from PPNB Jericho (photo: P. Dorrell).

[1] For further discussions concerning the development of urbanism and the terminology see e.g.: Falconer 1987 and contributions in Ucko et al. (eds.) 1972 and Aufrecht et al. (eds.) 1997.

rounding (normally unwalled) villages was generally organized as a two-level hierarchical system, consisting of a centre (city) and the periphery (villages). Later it developed into a three-tier system, in which a central city administrated an area which consisted of several town and village components (Frick 1997: 15, Figs. 1-2). The structured relationship between the different settlement types, in the sense of the formation of a hierarchical settlement system, was also a precondition for urbanization. The first "true" cities (Frick 1997: 16) were established in Mesopotamia (e.g. Ḥabūba Kabīra, Uruk) in the early Bronze Age, around the end of the fourth millennium BC and in Palestine (e.g. Jericho, Bāb adh-Dhrāʻ, Megiddo) towards the end of the Early Bronze Age I, around 3000 BC. Even if the PPNB settlements were larger than those, they differed from those cities, as they did not — as it seems — form the centre of a settlement system and they also seem to lack certain other required elements, such as a recognizable hierarchical social complexity of its inhabitants. However, this latter assumption may change due to new archaeological evidence.

Nevertheless, the large PPNB settlements were not ordinary villages. Frick suggests the term "protourban settlements" (Frick 1997: 15), which might still focus too strongly on the term 'urban'. The large PPNB settlements are called 'megasites' (see e.g. Gebel 1997: 1; Rollefson 1997c: 227) or 'central settlements'.[2] Rollefson also uses the term "site giganticism" (Rollefson 1997c: 241). However, while this terminology certainly stresses the large dimensions of the PPNB sites it does not take into consideration the other outstanding cultural achievements which can be witnessed in that period, as there are the special buildings, a great variety of interesting burial customs and a rich material cultural. So, correctly avoiding the use of terms like 'urbanism' or 'cities', we can nevertheless see elements which seem to anticipate some elements which can be found later in cities and which clearly differentiate those settlements from pure accumulations of houses or farms.

So it might be that beside the large PPNB settlements in Jordan, such as ʻAyn Ghazāl, Basṭa and aṣ-Ṣifiya, smaller ones — hamlets, small villages — might have existed in the vicinity of those sites. Then the large sites could have — at least partly — functioned as centres for the smaller ones. The settlement topography — at the present state of research — shows that smaller villages are far more common in western Palestine and small sites in the eastern steppe/desert, while the large sites can be found all along the north-south axis of the Jordanian highlands (Rollefson 1998: 110). Rollefson also suggests that

the collapse of "dispersed small villages and hamlets in the countryside" during the mid-seventh millennium BC in the central and southern Levant caused a great deal of population movement which resulted in the sudden expansion or foundation of the known huge LPPNB sites (Rollefson 1989). Further and thorough research (e.g. vicinity surveys) could provide detailed information on whether there is a two tier settlement pattern or regional differences in the size of settlement (see also Simmons 1995: 120).

Not much can be said about the number of people who lived at the large PPNB sites as in most cases only small parts of the settlements have been excavated. At ʻAyn Ghazāl approximately one percent of the possible settlement area of 15 hectares has been excavated (Rollefson 1997c: 241). Population estimates range from 500 people at the beginning of the MPPNB occupation to more than 1000 people in the LPPNB (Rollefson 1998: 110, 114). Despite the small area excavated, ʻAyn Ghazāl is the only PPNB site where detailed studies on the internal patterning and the subsistence economy have been undertaken.

Most striking are the architectural achievements in the LPPNB in Jordan. While houses during the MPPNB had large and open rooms for — most likely — one family, the number of rooms of the dwellings in the LPPNB not only increased rapidly while the size of the rooms decreased, but the concept of dwellings changed (Rollefson and Köhler-Rollefson 1992; Rollefson 1998: 111). Large, probably multi-family (clan?) compounds were built, as attested e.g. at the LPPNB site of Basṭa (FIG. 7), where a large compound, building unit I, consisted of 20 rooms, where the central room seems to have functioned as a larger (roofed or unroofed) courtyard. While the whole unit covered an area of 150m^2, single rooms varied between 1.5 x 1.5 and 3 x 2m (Nissen *et al.* 1991: 15-16, Fig. 1). The agglutination of rooms to larger units is also reflected at a number of other sites, such as aṣ-Ṣifiya (FIGS. 8 and 9) in Wādī al-Mūjib (Mahasneh 1996; 1997a; 1997b; Bienert and Mahasneh 1998), Ghwayr I (Najjar 1992; Simmons and Najjar 1998; 1999), ʻAyn Jammām (Abu Dayyeh *et al.* 1993; Gebel 1993; Waheeb 1996; Waheeb and Fino 1997) and Baʻja (FIGS. 10 and 11) (Bienert and Gebel 1997a; 1997b; 1998; Gebel and Bienert 1997a; 1997b; Gebel, Bienert *et al.* 1997). Recent work for waste-water pipelines in Wādī Mūsā revealed architectural remains of another large LPPNB site — al-Basīṭ — with similar architectural features (FIG. 12). Due to the restricted area excavated no building units could yet be unearthed. Besides the extension of building, evidence

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[2] In July 1997 an international symposium on that topic "Central Settlements in Neolithic Jordan" was jointly organized by the German Protestant Institute of Archaeology in Amman and ex oriente e.V., Berlin (Germany). Preliminary reports on that symposium are published in: *Neo-Lithics* (Newsletter of Southwest Asian Lithics Research) 2/97 and *Occident & Orient* (Newsletter of the German Protestant Institute of Archaeology in Amman) 2, 2, 1997:10-11.

BASTA AREA B 1988
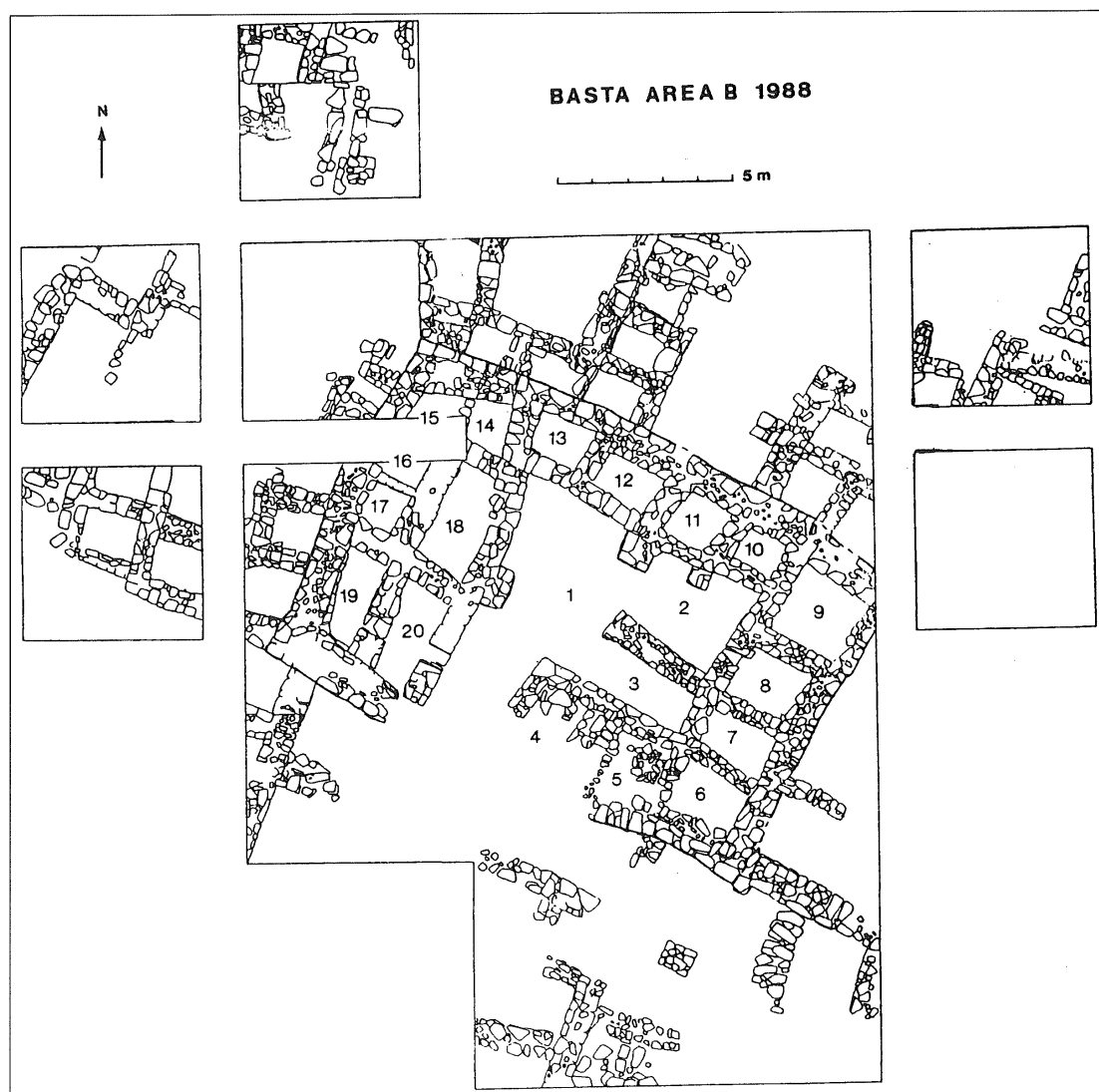
7. Excavated architecture in Area B at Basṭa (after Nissen *et al.* 1991: Fig. 1).

for the first two-storied building could be detected at 'Ayn Ghazāl (Rollefson 1998:111-112), Basṭa (Gebel, personal communication), aṣ-Ṣifiya (Mahasneh, personal communication), Ba'ja (Bienert and Gebel 1998: 82; Gebel, Bienert *et al.* 1997: 240-242, Fig. 7) and Ghwayr I (Simmons, personal communication).

The large size of buildings and the formation of building units, are not the only spectacular elements in the architectural remains uncovered in LPPNB sites. There is also archaeological evidence for communal buildings being used for activities such as ritual performances. At 'Ayn Ghazāl, Rollefson defined two different types: (a) cultic shrines and (b) temples (Rollefson 1998: 113-114). In the north field an LPPNB building (FIG. 13) with four detectable building phases is described as a cultic shrine (Kafafi and Rollefson 1997: 237-238, Fig. 2; Rollefson 1998: 113). In its latest phase it consisted of a circular

room of ca. 2.5m in diameter with a large central hole in the floor. Below the floor, four stone-lined channels of yet unknown purpose lead also pair-wise from the hole towards the exterior walls (Kafafi and Rollefson 1997: 237). Furthermore, "... repeated reflooring efforts conform to ritual reflooring of MPPNB houses following subfloor burial ..." leading to the conclusions that this building served some non-domestic purpose (Kafafi and Rollefson 1997: 238). A building described by Rollefson as a temple is situated in the north field at 'Ayn Ghazāl. Here a rectangular building of 4 x 5m consisted of a single room in which an "altar-like platform" and an associated "line of three 'standing stones'" are features which — according to Rollefson (Rollefson 1998: 114; see also Rollefson 1997d: 292, 294, Fig. 5, Pl. 1b) identify this building as a temple. At 'Ayn Ghazāl, the construction of special structures continued into the succeeding PPNC (6,000-5,500 BC),
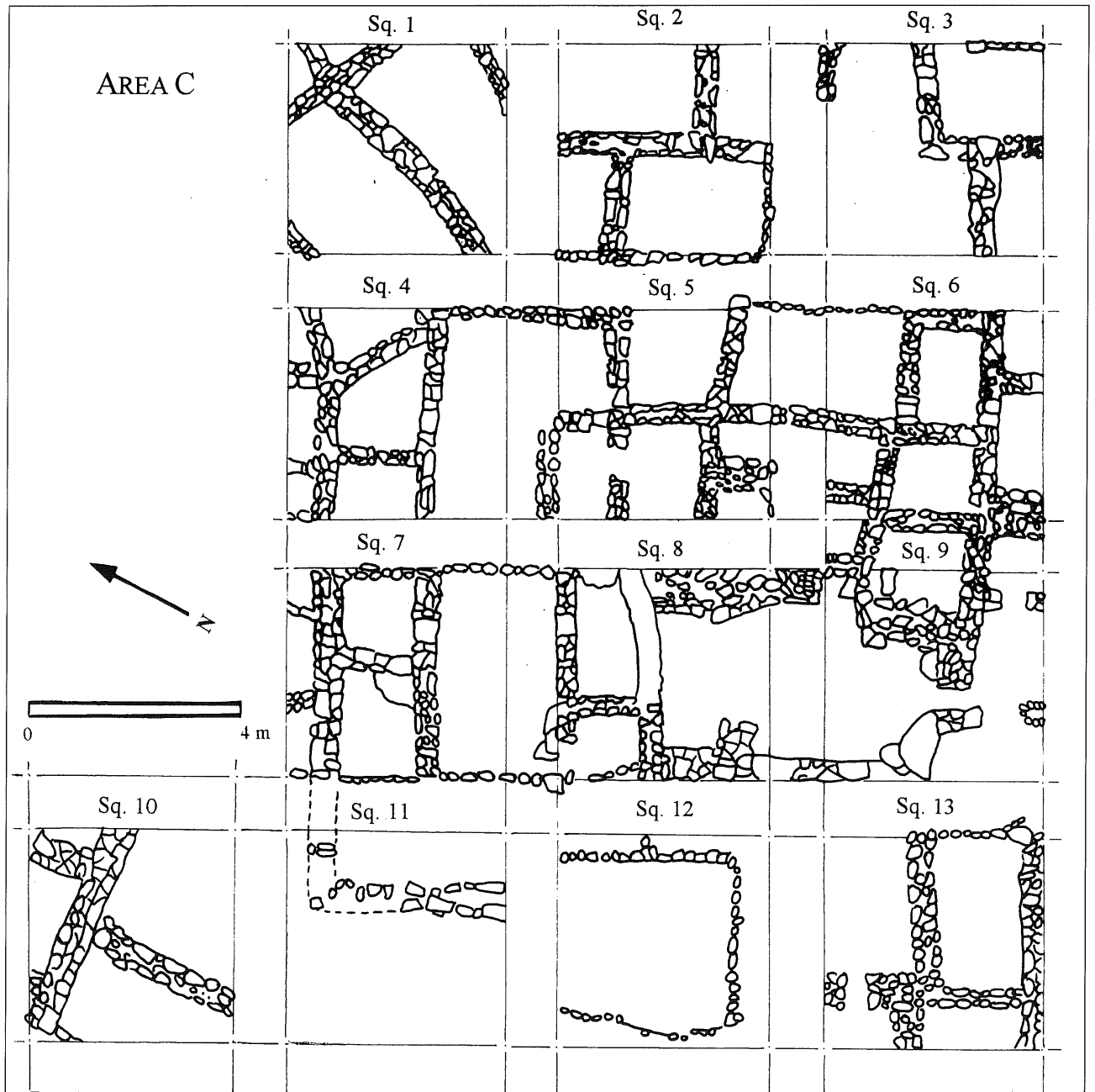
8. Architectural remains in Area C at aṣ-Ṣifiya.

where — also in the east field according to Rollefson — a temple existed (FIG. 14) (Rollefson 1997d: 294, 297-298, Fig. 7; 1998: 117). The preserved part of that building consists of a room of 3.5 x 6.5m, possibly adjacent to a western, now destroyed second room. To the east of the preserved room a small chamber — possibly used as a storage room — was attached. The fully preserved and excavated room is described by Rollefson (1998: 117) as follows: "Inside the room and against the middle of the eastern wall was an altar nearly 2 m long, consisting of

two large limestone slabs ... that had been set atop three pairs of shaped rectangular 'standing stones', ... In front (west) of the altar was a floor hearth of white (lime?) plaster surrounded by seven limestone slabs ... Adjacent to the center of the northern wall was a small ... square cubicle made of limestone slabs set onto the clay floor ... In the wall separating the eastern and damaged western room ... was a 1 m wide doorway walled by the thin screen of a single row of stones on the south that quickly ... made a right-angle turn to the north, effectively blocking off all

9. View of architecture in Area B at aṣ-Ṣifiya.

10. View of Baʻja II, showing the intramontane setting of the settlement area with excavations in Area C.

11. Baʻja II: Compound wall with attached reinforcement wall and buttresses.

12. Architectural remains at al-Basīṭ (photo: K. ʻAmr).

possibility of viewing activity in the east room. The situation implies an example of a 'Holy of Holies' much more ancient than ever before conceived" (see also Rollefson 1997d: 297-298).

Other, outstanding features of the PPNC period at ʻAyn Ghazāl pointing to communal planning activities and efforts are the so-called 'walled street' and the 'great wall' (FIG. 15). The 'walled street' in the central field is a passage about 2.5m wide, bordered on the north and south sides by a wall. It climbed up westwards in a series of steps which have been built of limestone slabs (Rollefson 1997d: 298, see also Kafafi and Rollefson 1997: Fig. 5). It was still in use in the Yarmoukian period (5,500-4,500 BC). The 'great wall' is also situated in the central field. The 1.4m wide wall — probably used as a compound wall — was exposed during the excavations on a length of 11m (Rollefson 1997d: 298). Both of these structures demonstrate again that there must have existed some kind of overall settlement planning at ʻAyn Ghazāl which points to the fact that not only communal efforts were undertaken for communal projects but also site management was practiced.

Other special buildings used for communal activities, such as rituals have been detected at other PPNB sites in Jordan. At Ghwayr I the excavators unearthed a room — room I in area I (FIG. 16), roughly 4 x 4m, with several niches, a plastered bench, and wall installations which might have functioned as vents (Simmons and Najjar 1998: 94-95; 1999). Another special room was found within the LPPNB occupation at ʻAyn Jammām. The room incorporated a free-standing pillar, small niches in the wall, one bearing remains of a goat skull, and a sub-floor burial (Waheeb and Fino 1997: Pl. 1c-d).
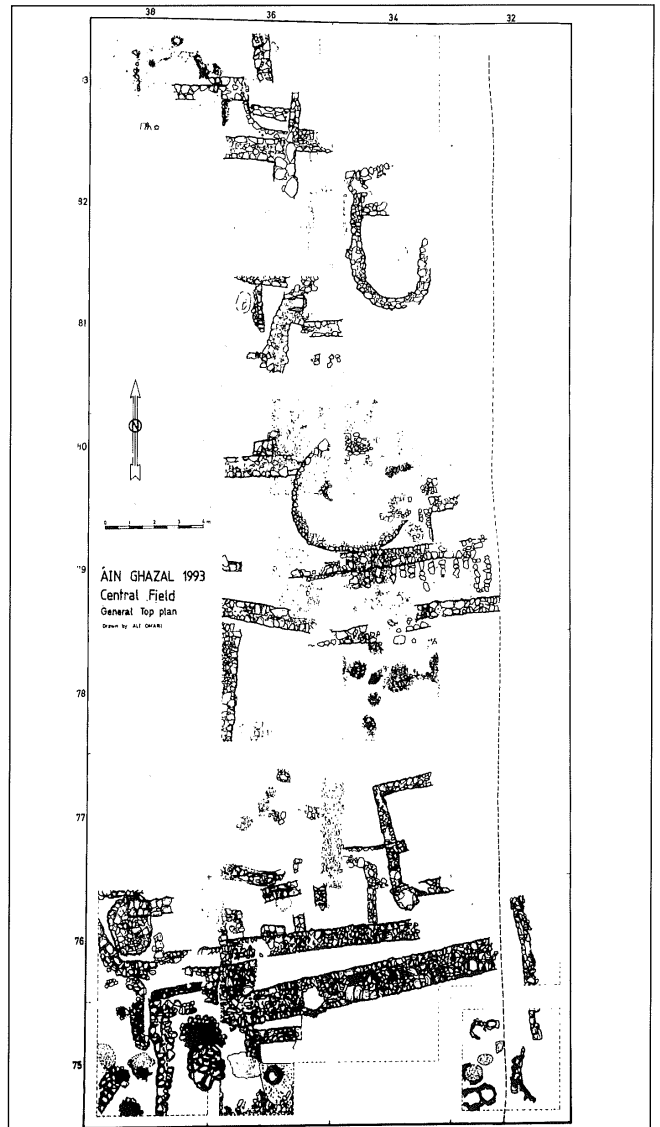
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13. The four-phase LPPNB circular shrine at 'Ayn Ghazāl (photo: Y. Zoubi).

14. The PPNC temple or communal building at 'Ayn Ghazāl. Remains of an earlier LPPNB house can be seen in the foreground (photo: B. Degedeh and Y. Zoubi).

15. Top plan of the Central Field at 'Ayn Ghazāl, showing the 'walled street' (drawing: A. Omari).

16. View of the Room 1 complex in excavation Area I at Ghwayr I.

Besides the extraordinary architectural features, the burial customs and art objects form another important part of the PPNB culture found in Jordan. Apart from primary burials at different sites secondary burials, especially human skull burials, occurred (Bienert 1991). The PPNB skull cult is best attested for at 'Ayn Ghazāl,

where different caches of skulls, some bearing three (FIG. 17) or even four skulls, were found (Rollefson 1986: 50, Pl. II:6). Separated buried skulls and/or headless skeletons were also excavated at Basṭa (Nissen *et al.* 1991:17-19), Baydā (Kirkbride 1962: 11; 1966b: 23-24; 1968b: 272), aṣ-Ṣifiya (Mahasneh: pers. communication) and Ghwayr I (Simmons: pers. communication).

A special feature within skull burials of the PPNB is the plastering of certain skulls. Best known are the plastered skulls from Tall as-Sulṭān/Jericho (Bienert 1991: 10-12; in press). Most of the ten plastered skulls were found by Kenyon below room floors. In each case the plaster was modelled into a human face. The eyes were indicated by bivalve or cowrie shells. The top and back of the skulls were never plastered. They may have had a cover made out of a different material, which was not preserved. Only one of the Jericho skulls had its mandible still attached to the skull. The sex of the skulls is still debated (see Bienert 1991: 11). The custom of plastering skulls has also been observed at sites outside Palestine, as at Tall Ramad in Syria (Bienert 1991: 13, 15, Figs. 7-9) and at 'Ayn Ghazāl in Jordan. At 'Ayn Ghazāl four adult skulls, deposited to-

gether in a shallow outdoor pit, were found in 1983. Two of these skulls bore plaster with traces of black pigment in the right eye-socket (Rollefson 1983: 35, Pls. IV.1-2). A further, partly damaged plastered skull of an adult male was found in 1988 (FIG. 18) (Rollefson *et al.* 1989:23; Simmons *et al.* 1990).
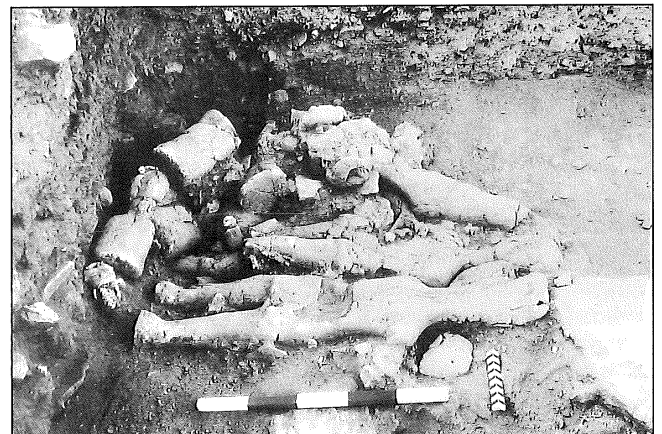
The most remarkable elements of Neolithic art are lime plaster statues (FIGS. 19 and 20) which have been recovered at 'Ayn Ghazāl in 1983 and 1985 (Walker Tubb and Grissom 1995; Grissom 1996; 2000; Schmandt-Besserat 1998).[3] The group of 25/26 statues — 13 full-figure statues and 12 busts — which was excavated in 1983 is stratigraphically older than the later one (Rollefson 1998: 109).[4] They are dated according to radiocarbon analysis to 8,660 ± 80 bp and 8,700 ± 80 bp (Rollefson 1998: 109). The cache which was found in 1985 was badly damaged by bulldozer work and only large fragments of 10 to 11 statues were recovered of which seven — 2


18. The damaged plastered skull found at 'Ayn Ghazāl in 1988 (photo: H. W.).

19. View of the 'Ayn Ghazāl statue cache of 1983 *in situ* (photo: H. Cowherd).

17. A subfloor cache of three human skulls in the corner of a room (photo: C. Blair).

[3] Similar remains of statues were found only at Tall as-Sulṭān, see e. g. Schmandt-Besserat 1998: 8-10.

[4] The statues of 1983 are restored at the Institute of Archaeology in London and at the British Museum.
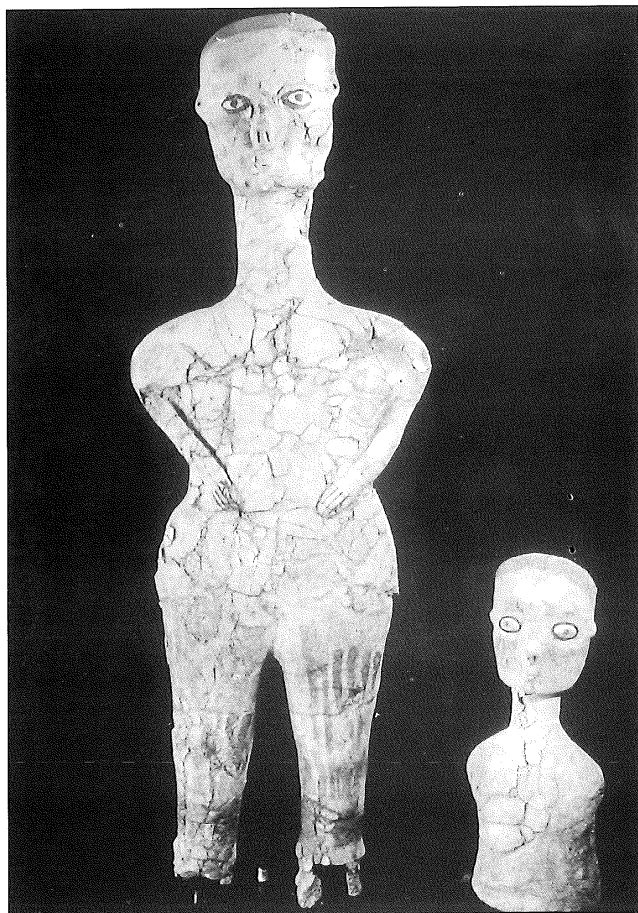
20. A full-figure statue and a bust, recovered from the cache in 1983
(photo: P. Dorrell and S. Laidlaw).

full-figure statues, 2 busts and 3 two-headed busts — have been restored at the Smithsonian Institute in Washington D.C.[5] Associated charcoal which is according to Rollefson stratigraphically older than theses statues dates to 8,520 ± 110 bp and therefore provides a *terminus ante quem* (Rollefson 1998: 109).

The statues vary in size and the tallest full-figure one reaches ca. 100cm, while the tallest bust measures 46cm in height (Grissom 1996: 71). As they vary in size they also vary in weight: the heaviest full-figure statue weighed nearly 18kg (Grissom 1996: 71). The statues and busts were made of water resistant plaster which consisted of calcium carbonate (89-90%), clay and quartz (Grissom 1996: 71; see also Walker Tubb and Grissom 1995: 438). The statues were made by modelling wet plaster on a reed or rush core, which served as a frame for them (Walker Tubb and Grissom 1995: 439, Fig. 3; see specially Grissom 2000). A black mastic was used to delineate eyes and irises/pupils. On some of the statues slight remains of

paint are visible. The statues and busts may also have been covered by additional material — e.g. clothes, hats, hair — as indicated on the surface of some of them.

Both caches "... were interred in pits specially dug for them ..." in abandoned houses of the settlement (Rollefson 1983: 30; Walker Tubb and Grissom 1995: 441-444; Schmandt-Besserat 1998: 14). The statues were also placed in their respective pits with much care suggesting ceremonial burial (Rollefson 1983: 30-32; 1986: 45-46). Interpretations of the statues vary. The most common one relates the plastered skulls as well as the statues to an ancestor cult (Kenyon 1956: 186; 1957: 84-85; Bienert 1991: 20; 1995: 79; in press). Skulls, *as pars pro toto*, symbolised the deceased members of a family or a clan whose 'power' and 'wisdom' should be preserved for the well-being of the respective family, clan or even the whole inhabitants of the settlement. This became certainly quite important in an situation when the society had changed from a mobile hunter-gatherer way of life to a society depending on agriculture and animal husbandry. The design and production of the above reflects a communal effort and some kind of communal ritual.

While the statues were part of ritual activities on a communal level, human and animal figurines (FIGS. 21 and 22) made of clay and which are found at most PPNB sites, were most likely used for ritual activities on a more personal level (Rollefson and Bienert 1994). Until now no figurines have been found at Ba'ja and al-Basīt and while they have been rather rare at Baydā, Ghwayr I, Wādī Shu'ayb, 'Ayn Jamman and Basta they have been recovered in greater quantities at 'Ayn Ghazāl (FIGS. 21-22) (McAdam 1997; Rollefson 1998: 109, 113; Bienert: in press) and at aṣ-Ṣifiya (Mahasneh and Bienert 1999).

The settlement size, the architectural remains, the burial customs and the material cultural of the above mentioned PPNB sites, especially within the LPPNB demonstrate a complexity and richness which has not been seen before and which has an almost sudden end within the PPNC. These elements certainly required an organizational concept beyond ordinary villages. The archaeological evidence shows that settlement planning, complex building units, communal buildings, social stratification, social and ritual/cultic activities must have often been practiced and often on a communal rather than on a family level. So a development can be witnessed which resembles elements of later proto-urban settlements. However, these elements did not continue into more complex systems, which would have finally led to urban societies; they did not survive into the following periods of the Neolithic and Chalcolithic (Nissen: pers. communication). These terms like "proto-urban" or "urban" have to be used

[5] For detailed information on both caches, their discovery, chemical analysis of the plaster, etc. see Walker Tubb and Grissom 1995; Grissom 1996; Schmandt-Besserat 1998.

21. Animal figurines, mainly depicting aurochs, from a cache found at 'Ayn Ghazāl (photo: C. Blair).
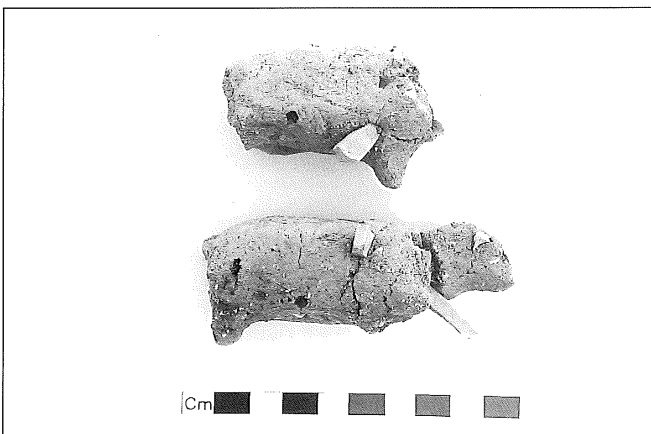
22. Two cattle figurines from 'Ayn Ghazāl. The flint baldelets in the bodies indicate 'ritual killing' (photo: C. Blair).

very cautiously and the latter one should be avoided totally.

Bibliography

Abu Dayyeh, A. S., Aslan, Z., Palumbo, G., Shwemat, M. and Waheeb, M. 1993. The Cultural Resources Management Project in Jordan. Cultural Resource Impact Assessments and CRM Projects in 1992-1993. *ADAJ* 37: 85-86.

Aufrecht, W. E., Mirau, N. A. and Gauley, S. W. (eds.) 1997.

Urbanism in Antiquity. From Mesopotamia to Crete. Sheffield.

Bar-Yosef, O. 1986. The walls of Jericho: An alternative interpretation. *Current Anthropology* 27: 157-162.

——1992. The Neolithic Period. Pp. 10-39 in A. Ben-Tor (ed.), *The Archaeology of Ancient Israel.* New Haven and London: Yale University Press.

Ben-Tor, A. 1992. The Early Bronze Age. Pp. 81-125 in A. Ben-Tor (ed.), *The Archaeology of Ancient Israel.* New Haven and London: Yale University Press.

Bienert, H.-D. 1991. Skull Cult in the Prehistoric Near East. *Journal of Prehistoric Religion* 5: 9-23.

——1995. The Human Image in the Natufian and Aceramic Neolithic Period of the Middle East. Pp. 75-103 in W. H. Waldren, J. A. Ensenyat and R. C. Kennard (eds.), *Ritual, Rites and Religion in Prehistory.* IIIrd Deya International Conference in Prehistory. Oxford: Tempus Reparatum - BAR Int. Ser. 611(i).

——in press. *Kult und Religion.* Eine Studie anhand von Fundmaterial epipaläolithischer und frühneolithischer Gesellschaften/Kulturen Südwestasiens (12.-6. Jt. v. u. Z.). Berlin.

Bienert, H.-D. and Gebel, H. G. K 1997a. Ba'ja - Investigations into One of the Earliest Settlements in Jordan. *Occident & Orient* 2,1: 13-14.

——1997b. Ba'ja - Early Neolithic Settlers in the Petra Mountains. *Occident & Orient* 2,2: 2-4.

——1998. Archaeological Excavations at Late PPNB Ba'ja. Preliminary Report on the 1997 Season. *ADAJ* 42: 75-90.

Bienert, H.-D. and Mahasneh, H. M. 1998. Es-Sifiya - eine Siedlung des frühen Neolithikums in Südjordanien. Pp. 9-21 in U. Hübner, E. A. Knauf and R. Wenning (eds.), *Nach Petra und ins Königreich der Nabatäer.* Notizen von Reisegefährten. Für Manfred Lindner zum 80. Geburtstag. Bodenheim.

Falconer, S. E. 1987. *Heartland of Villages: Reconsidering Early Urbanism in the Southern Levant.* Ann Arbor.

Fino, N. 1998a. Al-Basit Neolithic Site, Southern Jordan. *ADAJ* 42: 103-111.

——1998b. Al-Basset, A Newly Discovered PPNB Site in Wadi Musa. *Occident & Orient* 3,1: 22.

Frick, F. S. 1997: Cities. Pp. 14-19 in E. M. Meyers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East*, Vol. 1. New York and Oxford: Oxford University Press.

Gebel, H. G. 1993. *Neolithic 'Ain Jamam, Near Ras an-Naqb.* Observations on the Site Preservation Since 1986 and Field Operation in September 1992. Unpublished report to the Department of Antiquities of Jordan. Amman.

——1997. Preface. *Neo-Lithics* 2: 1-2.

Gebel, H. G. K. and Bienert, H.-D. 1997a. Excavating Ba'ja, Greater Petra Area, Southern Jordan. *Neo-Lithics* 1: 9-11.

——1997b. The 1997 Season at Ba'ja, Southern Jordan. *Neo-Lithics* 3: 14-18.

Gebel, H. G. K., Bienert H.-D with contributions by T. Krämer, B. Müller-Neuhof, R. Neef, J. Timm and K. Wright 1997.

Ba'ja, a LPPNB Regional Center Hidden in the Mountains North of Petra, Southern Jordan. Results from the 1997 Investigations. Pp. 221-262 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Gebel, H. G., Muheisen, M., Nissen, H. J., Qadi, N. and Starck, J. M. 1988. Preliminary Report on the First Season of Excavations at the Late Aceramic Neolithic Site of Basta. Pp. 101-134 in A. N. Garrard and H. G. Gebel (eds.), *The Prehistory of Jordan. The State of Research in 1986.* Oxford: BAR Int. Ser. 396(i).

Grissom, C. A. 1996. Conservation of Neolithic Lime Plaster Statues from 'Ain Ghazal. Pp. 70-75 in A. Roy and P. Smith (eds.), *Archaeological Conservation and its Consequences.* Reprints of the Contributions to the Copenhagen Congress, 26-30 August 1996. London.

——2000. Neolithic Statues from 'Ain Ghazal: Construction and Form. *AJA* 104: 25-45.

Hachmann, R. 1994. Die 'Befestigungen' des akeramischen Jericho. *Baghdader Mitteilungen* 25: 19-74.

Herzog, Z. 1997. *Archaeology of the City. Urban Planning in Ancient Israel and its Social Implications.* Tel Aviv.

Hovers, E. 1993. Basta. Pp. 149-152 in E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land*, Vol. 1. Jerusalem.

Kafafi, Z. and Rollefson, Z. 1997. Excavations at Neolithic 'Ayn Ghazal, 1993-1994. Pp. 235-240 in *SHAJ* VI. Amman.

Kenyon, K. M. 1952. Excavations at Jericho, 1952. *PEQ* 84: 62-80.

——1956. Jericho and its Setting in Near Eastern History. *Antiquity* 30: 184-197.

——1957. *Digging up Jericho.* London.

——1960. Excavations at Jericho, 1957-1960. *PEQ* 92: 88-108.

Kenyon, K. M. and Holland, T. A. (eds.) 1981: *Excavations at Jericho*, Vol. III. London.

Kirkbride, D. 1962. Excavation at the Pre-Pottery Neolithic Village at Seyl Aqlat, Beidha. *ADAJ* 6/7: 7-12.

——1966a. Beidha. An Early Neolithic Village in Jordan. *Archaeology* 19: 199-207.

——1966b. Five Seasons at the Pre-Pottery Neolithic Village of Beidha in Jordan. A Summary. *PEQ* 98: 8-72.

——1967. Beidha 1965: An Interim Report. *PEQ* 99: 5-13.

——1968a. Beidha 1967: An Interim Report. *PEQ* 100: 88-96.

——1968b. Beidha: Early Neolithic Village Life South of the Dead Sea. *Antiquity* 42: 263-274.

Lindner, M. 1989. Ba'ja. Pp. 184-190 in D. Homès-Fredericq and J. B. Hennessy (eds), *Archaeology of Jordan.* II.1 Field Reports, Surveys & Sites A-K. Leuven.

——1996. 9000 Jahre Siedlungsgeschichte der Ba'ja-Region in Jordanien - ein Forschungsgebiet der Naturhistorischen Gesellschaft Nürnberg. *Das Altertum* 41: 245-278.

McAdam, E. 1997. The Figurines from the 1982-5 Seasons of Excavations at Ain Ghazal. *Levant* 39: 115-145.

Mahasneh, H. M. 1996. Es-Sifiya: A Pre-Pottery Neolithic B

Site in Wadi El-Mujib, Jordan. *Dirasat* 23,1: 135-151.
——1997a. A PPNB Settlement at as-Sifiyya in Wadi al-Mujib. Pp. 227-234 in *SHAJ* VI. Amman.
——1997b. Es-Sifiya: A Pre-Pottery Neolithic B Site in the Wadi el-Mujib, Jordan. Pp. 203-214 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan II. Perspectives from 1997*. Berlin.
Mahasneh, H. M. and Bienert, H.-D. 1999. Anthropomorphic Figurines from the Early Neolithic Site of es-Sifiye (Jordan). *ZDPV* 115,2: 109-126.
Mittmann, S. 1994. Hirbet ez-Zeraqon. Eine Stadt der frühen Bronzezeit in Nordjordanien. *Archäologie in Deutschland* 2: 10-15.
Najjar, M. 1992. Tell Wadi Feinan/Wadi Araba: A New Pottery Neolithic Site from Jordan. Pp. 19-28 in S. Kerner (ed.), *The Near East in Antiquity*, Vol. III. Amman.
——1994. Ghwair I, A Neolithic Site in Wadi Feinan. Pp. 75-85 in S. Kerner (ed.), *The Near East in Antiquity*, Vol. IV. Amman.
Nissen, H. J. 1990. Basta: Excavations of 1986-89. Pp. 87-94 in S. Kerner (ed.), *The Near East in Antiquity*, Vol. I. Amman.
Nissen, H. J., Muheisen, M., Gebel, H. G., Becker, C., Neef, R., Pachur, H.-J., Qadi, N. and Schultz, M. 1987. Report on the First two Seasons of Excavations at Basta (1986-1987). *ADAJ* 31: 79-119.
Nissen, H. J., Muheisen, M., and Gebel, H. G. with contributions by C. Becker, B. D. Hermansen, W. Karasneh, N. Qadi, M. Schultz and A. Scherer 1991. Report on the Excavations at Basta 1988. *ADAJ* 35: 13-40.
Rollefson, G. O. 1983. Ritual and Ceremony at Neolithic 'Ain Ghazal (Jordan). *Paléorient* 9: 29-38.
——1984. 'Ain Ghazal: An Early Neolithic Community in Highland Jordan, Near Amman. *BASOR* 255: 3-13.
——1986. Neolithic 'Ain Ghazal (Jordan): Ritual and Ceremony, II. *Paléorient* 12: 45-52.
——1989. The Aceramic Neolithic of the Southern Levant: The View from 'Ain Ghazal. *Paléorient* 15,1: 135-140.
——1997a. 'Ain Ghazal. Pp. 36-38 in E. M. Meyers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East*, Vol. 1. New York and Oxford.
——1997b. Architectural Evidence at Neolithic Wadi Shu'eib. *Occident & Orient* 2,1: 4.
——1997c. Neolithic 'Ayn Ghazal in its Landscape. Pp. 241-244 in *SHAJ* VI. Amman.
——1997d. Changes in Architecture and Social Organization at 'Ain Ghazal. Pp. 287-307 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan, II. Perspectives from 1997*. Berlin.
——1998. The Aceramic Neolithic of Jordan. Pp. 102-126 in D. O. Henry (ed.), *The Prehistory of Jordan*. BAR International Series 705. Oxford.
Rollefson, G. O. and Bienert, H.-D. 1994. Aufstieg und Fall der Stadt 'Ain Ghazal. *Bild der Wissenschaft* 4: 18-22.
Rollefson, G. O., Banning, E., Byrd, B., Kafafi, Z., Köhler, I., Petocz, D., Rolston, S. and Villiers, L. 1984. The Pre-Pottery Neolithic B Village of Ain Ghazal (Jordan) - Preliminary Report of the 1982 Excavation Season. *Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin* 116: 139-183.
Rollefson, G. O., Kafafi, Z. and Simmons, A. H. 1989. The 1988 Season at 'Ain Ghazal, a Preliminary Report. *ADAJ* 33: 9-26.
Rollefson, G. O. and Köhler-Rollefson, I. 1992. Early Neolithic Exploitation Patterns in the Levant: Cultural Impact on the Environment. *Population and Environment* 13: 243-254.
Rollefson, G. O., Simmons, A. H., Donaldson, M. L., Gillespie, W., Kafafi, Z., Köhler-Rollefson, I., McAdam, E., Rolston, S. L. and Tubb, M. K. 1985. Excavation at the Pre-Pottery Neolithic B Village of 'Ain Ghazal (Jordan), 1983. *Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin* 117: 69-134.
Rollefson, G. O., Simmons, A. H., Kafafi, Z. 1992. Neolithic Cultures at 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 19,4: 443-470.
Schmandt-Besserat, D. 1998. 'Ain Ghazal "Monumental" Figures. *BASOR* 310: 1-17.
Simmons, A. H. 1995. Town Planning in the Neolithic - is 'Ayn Ghazal "Normal?". Pp. 119-122 in *SHAJ* V. Amman.
Simmons, A. H. and Najjar, M. 1998. Al-Ghuwayr I, A Pre-Pottery Neolithic Village in Wadi Faynan, Southern Jordan: A Preliminary Report of the 1996 and 1997/98 Seasons. *ADAJ* 42: 91-101.
——1999. Ghwair I, An Exceptionally Well Preserved Pre-Pottery Neolithic B Community in Wadi Feinan. *Occident & Orient* 4,1&2: 30-32.
Simmons, A. H., Kafafi, Z., Rollefson, G. O. and Moyer, K. 1989. Test Excavations at Wadi Shu'eib, A Major Neolithic Settlement in Central Jordan. *ADAJ* 33: 27-41.
Simmons, A. H., Boulton, A., Butler, C. R., Kafafi, Z. and Rollefson, G. O. 1990. A Plastered Human Skull from Neolithic 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 17: 107-110.
Ucko, P. J., Tringham, R. and Dimbleby, G. W. (eds.) 1972. *Man, Settlement and Urbanism*. London.
Waheeb, M. 1996. Archaeological Excavation at Ras an-Naqab-'Aqaba Road Alignment: Preliminary Report (1995). *ADAJ* 40: 339-348.
Waheeb, M. and Fino, N. 1997. 'Ayn el-Jammam: A Neolithic Site Near Ras en-Naqb, Southern Jordan. Pp. 215-219 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan, II. Perspectives from 1997*. Berlin.
Walker Tubb, K. and Grissom, C. A. 1995. 'Ayn Ghazal: A Comparative Study of the 1983 and 1985 Statuary Caches. Pp. 437-447 in *SHAJ* V. Amman.