

Field Reports

Peterson, Khirbet Hammam 2006

Fujii, Wadi Abu Tulayha and Wadi Ruweishid ash-Sharqi

Bocquentin, Khalaily, Samuelian, Barzilai, Le Dosseur, Kolska

Horwitz & Emery-Barbier, Beisamoun

Purschwitz & Kinzel, Ba'ja Room Fills

Contributions

Coşkunsu, Obsidian of Mezraa Teleilat

Lucke & Bäumlér, Soils and Paleosols at Ba'ja

Kinnaird, Sanderson, Burbidge & Peltenburg, OSL Dating of
Kissonerga-Mylouthkia

Short Note

Bartl, Foot-shaped Objects at Shir

Workshops, Conferences, Call for Papers

Obituary

Nabil Qadi

NEO-LITHICS 2/07

The Newsletter of
Southwest Asian Neolithic Research

Contents

Field Reports

Jane Peterson	
Khirbet Hammam 2006: Preliminary Report of Continued Test Excavations	3
Sumio Fujii	
Wadi Abu Tulayha and Wadi Ruweishid ash-Sharqi: An Investigation of PPNB Barrage Systems in the Jafr Basin	6
Fanny Bocquentin, Hamudi Khalaily, Nicolas Samuelian, Omry Barzilai, Gaelle Le Dosseur, Liora Kolska Horwitz and Aline Emery-Barbier	
Renewed Excavation of the PPNB Site of Beisamoun, Hula Basin	17
Christoph Purschwitz and Moritz Kinzel	
Ba'ja 2007. Two Room and Ground Floor Fills: Reconstructed House-life Scenarios	22

Contributions

Güner Coşkunsu	
Obsidian Assemblage of Mezraa Teleilat: Evidence of Cultural and Chronological Continuation from Late Pre-Pottery Neolithic to Pottery Neolithic	36
Bernhard Lucke and Rupert Bäumler	
Soils and Paleosols at Ba'ja	43
Tim Kinnaird, David C. Sanderson, Chris Burbidge and Edgar Peltenburg	
OSL Dating of Neolithic Kissonerga-Mylouthkia, Cyprus	51

Short Note

Karin Bartl	
Neolithic Foot-shaped Objects Found in Shir, Middle Orontes Region	57

Workshops, Conferences, Call for Papers

BANEA08 Conference, Liverpool, February-March 2008	59
6th PPN Conference: STEPS, Manchester, March 2008	60
Basta Final Symposium, Berlin, April 2008	60
Water Domestication Forum, Special Issue of <i>Neo-Lithics</i> : Call for Papers	60

Ongoing PhD Research

Janine Major	61
--------------	----

Obituary

Nabil Qadi	62
------------	----

Editorial

It is now almost 15 years since the first PPN chipped lithics workshop in Berlin, when, among other things, the publication of *Neo-Lithics* was established by acclaim among the scholars attending the meeting. Within all the verbiage of the one-page editorial of the first issue (*Neo-Lithics* 1/94), the central theme was the importance of communication among all of the people working on Neolithic and Late Epipaleolithic chipped lithic issues so that timely exchanges of views, criticisms, and agreements could be reached, and in retrospect, it would appear that this fundamental goal has been achieved.

How things have progressed! The initial issue had a total of 5 pages, and the following issue proudly displayed

a page 6 (although this included the title page, which was not counted in the first issue). In one sense, bigger was not necessarily better or desirable at the time, for postal costs were high and funds were low; readers might recall trying to cope with 9-pt font we used in order to reduce the number of pages and thus mailing costs. The printing format of the issues was also pretty cheap: merely photocopies on greenish paper.

The first couple of years admittedly faced challenges in terms of obtaining sufficient articles on chipped lithic topics for publication, and there were usually a few weeks

continued p. 64

Ba'ja 2007. Two Room and Ground Floor Fills: Reconstructed House-life Scenarios

Christoph Purschwitz¹ and Moritz Kinzel²

¹ Institute of Near Eastern Archaeology, Free University of Berlin <purschw@zedat.fu-berlin.de>

² Technical University of Berlin <moritzkinzel@web.de>

Introduction

Field observations made during the 7th season of excavations carried out under the directorship of H.G.K. Gebel in the LPPNB site of Ba'ja near Wadi Musa, Southern Jordan, brought us the insight that extensive large-scale exposures of the LPPNB architecture provide only a limited understanding of the use of its vertical space. Instead, the excellent preservation of the Ba'ja architecture (up to 4.5 m in height) and stratigraphy often reveal valuable contextual insights. The excavation of the deeper stratigraphies of two buildings in Area B-North (Unit of BNR17 and BNR22/23) provided unexpected information about the general settlement development and the history of house use in particular. In this article the combined analysis of architectural findings, stratigraphy, finds and other aspects from both buildings is presented in order to promote a better understanding of the two-storied LPPNB architecture and of the specific formation processes and scenarios of house-lives.

Architectural Findings (M.K.)

The architecture in Area B-North is characterized by (at least) two-storeyed buildings, already described elsewhere (Gebel 2006; Gebel, Hermansen and Kinzel 2006; Gebel and Kinzel 2007; *cf.* also for the definitions of terms used in this contribution). Hitherto it was impossible to isolate individual house units, if such existed at all architecturally in the later parts of occupation. However, by combining the general thoughts on passageway analyses provided in Kinzel 2004 and the recent findings in Ba'ja we are now able to describe single units (room associations) as a part of complex structures. The two examples featured in this article belong to two different house units, which have no recognisable connection. Both represent “central room” features with their ground floor structures. In Ba'ja, a ground floor could have had a very shallow elevation. Ground floors near the bedrock could be crawl or pit-like spaces established by substructure-type walls (Gebel and Kinzel 2007) which evened out the inclination of the bedrock and supported the first floor. The general layout in Area B-North is based on a cellular concept using “angled (or bent) walls”, “buttresses”, “tongue walls” and “modular units”.¹

This very flexible system allows for plenty building modifications in already existing structures.

Unit BNR17

Room 17 is approximately 3 x 3 m and signifies an upper “central room”. It is characterized by two opposed buttresses on the northern and southern walls (Fig. 1). These buttresses rest on the solid “supporting structure grid” of the ground floor (BNR17:105,113). The “supporting structure grid” was built on cultural deposits and abuts bluntly against Walls B22:10-11; B32:7,18; B33:5 and B23:3-5, confining Room 17; Walls B23:5 and B22:10 were founded directly on the bedrock. The “central room” and its ground floor structures belong to a building unit south of Room 17, at least with Rooms 7-10. The Wall Opening B32:13 in the southern part of Room 17 and next to the Buttress B32:7 was blocked later.

Room 17 is defined by the already existing walls of the surrounding structures. It seems that parts of the eastern Wall B22:10 and the southern Walls B32:7 and 18 were rebuilt at the same time as the “supporting structure grid” and the “central room” were inserted. The upper part of Wall B22:10 was built more irregularly than its lower parts. Even the stone material is more cobble-like and not well dressed. However, it could be also part of a later maintenance or repair of the wall.

The small ground floor Cells 17.1, 17.2 and 17.3 are isolated and only accessible from above. Unfortunately, the findings offered no hints on the question: were these accessible by (floor) openings, and how were they built and covered? The small ground floor cells are an example for the above-mentioned crawl or pit-like spaces. BNR17.1 and 17.3 are only 50 to 60 cm deep (Fig. 2a, 7).

The findings of Room 17 indicate that there were several building events, including building lot preparation, construction, changes of space and function, and several events of dilapidation and deconstruction (*cf.* below, “Stratigraphy” and “Reconstruction of House-life Scenarios”).

Unit BNR22/23

Room 22/23 measures some 2.5 x 3.0 m and represents part of a ground floor (Fig. 1). It is surrounded by the

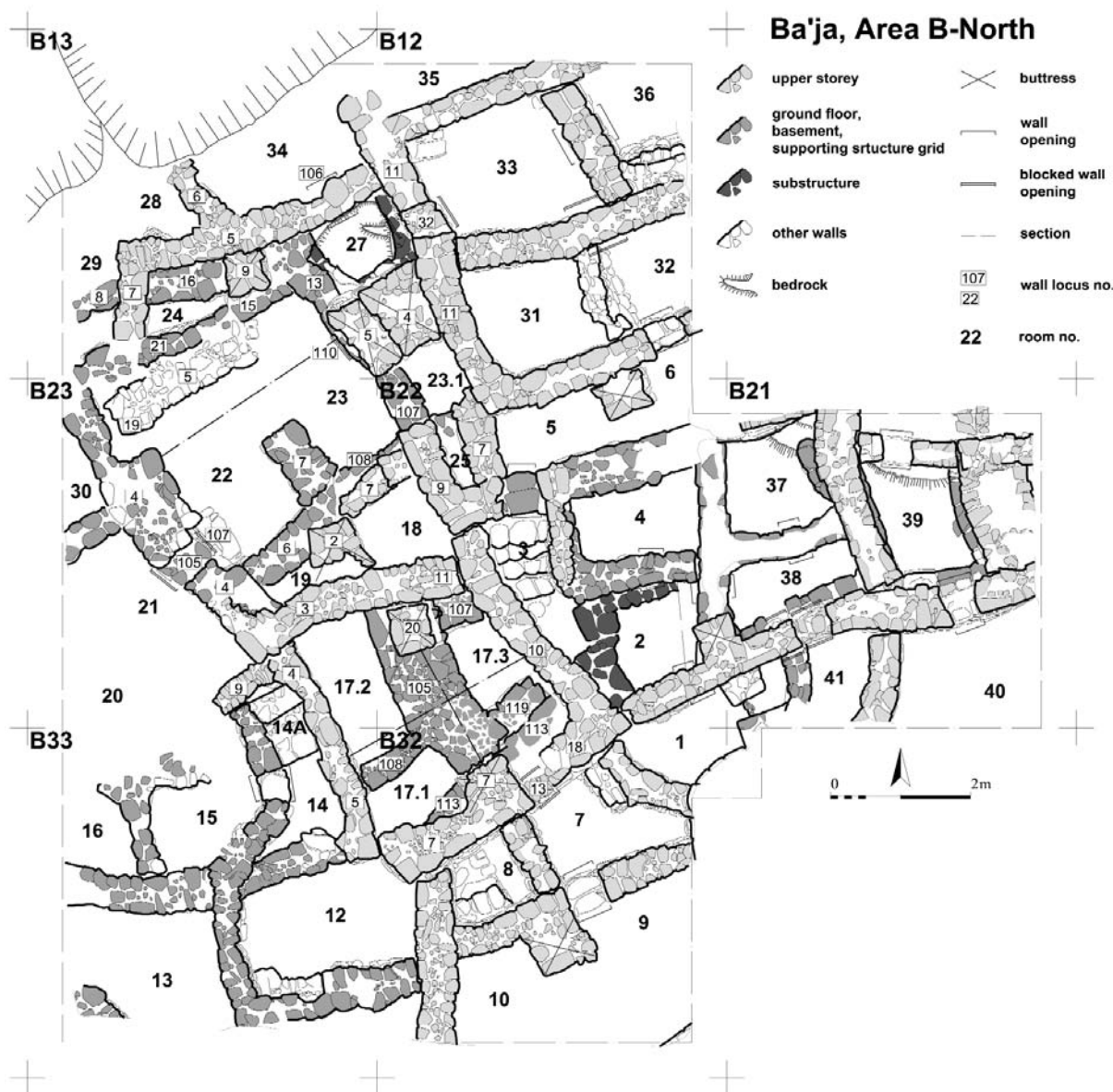


Fig. 1 Ba'ja, Area B-North: Ground plan. Scale 1:100 (M.K., C.P.).

following walls: in the west by Wall B23:4, in the south by Walls B23:6 and BNR23:108, in the east by Walls BNR23:109 and B13:13, and in the north by Wall B13:6. The space is divided by the tongue wall B23:7 into Rooms 22 and 23. The tongue wall abuts bluntly against Wall BNR23:108 but connects with Wall B23:6 in the west. In the ground floor, cobble-faced walls of undressed lime- and sandstones were used. Probably ground floor walls were not plastered in their lower wall parts. The ground floor walls (e.g. B23:6-7 and BNR23:108-109) supported the upper storey's ceiling. The maximum ground floor height was about 1.30 m.

The upper storey "central room" covers the ground floor Rooms 22/23, 27, 19, and 23.1, and measures approximately 3.8 x 5.5 m; it is characterized by two interior opposed (twin) buttresses (B13:9 and B23:2), and another pair of twin buttresses (B12/13:5-4 and B23:4) constructed more massively than the others. The

function of the latter buttresses isn't clear yet. From the "central room", Room BNR18 was separated by the small Wall B22/23:7, built on top of Wall BNR23:108. The walls of the "central room" were built of dressed sandstone slabs set irregularly with inserted wedge stones. Its walls were plastered with lime and mud plaster. Wall Opening BNR22:105 connected the Rooms 22 and 21 and was blocked later. Wall Opening BNR23:110 was also blocked when Buttress B12/13:4 was erected, which interrupted the connection to Room 23.1. Wall Opening BNR27:104 still connected the "central room" with Room 34 in the north. Via the Wall Opening B12:32 in Wall B12:11 (which seems to be partly blocked), the "central room" belonged to a room sequence which included Rooms 33 and 36. In an earlier stage, there was a connection to Rooms 31 and 32. In addition, they were connected to the "central room" which existed above the ground floor rooms BNR2-6 and 37-38. The function of

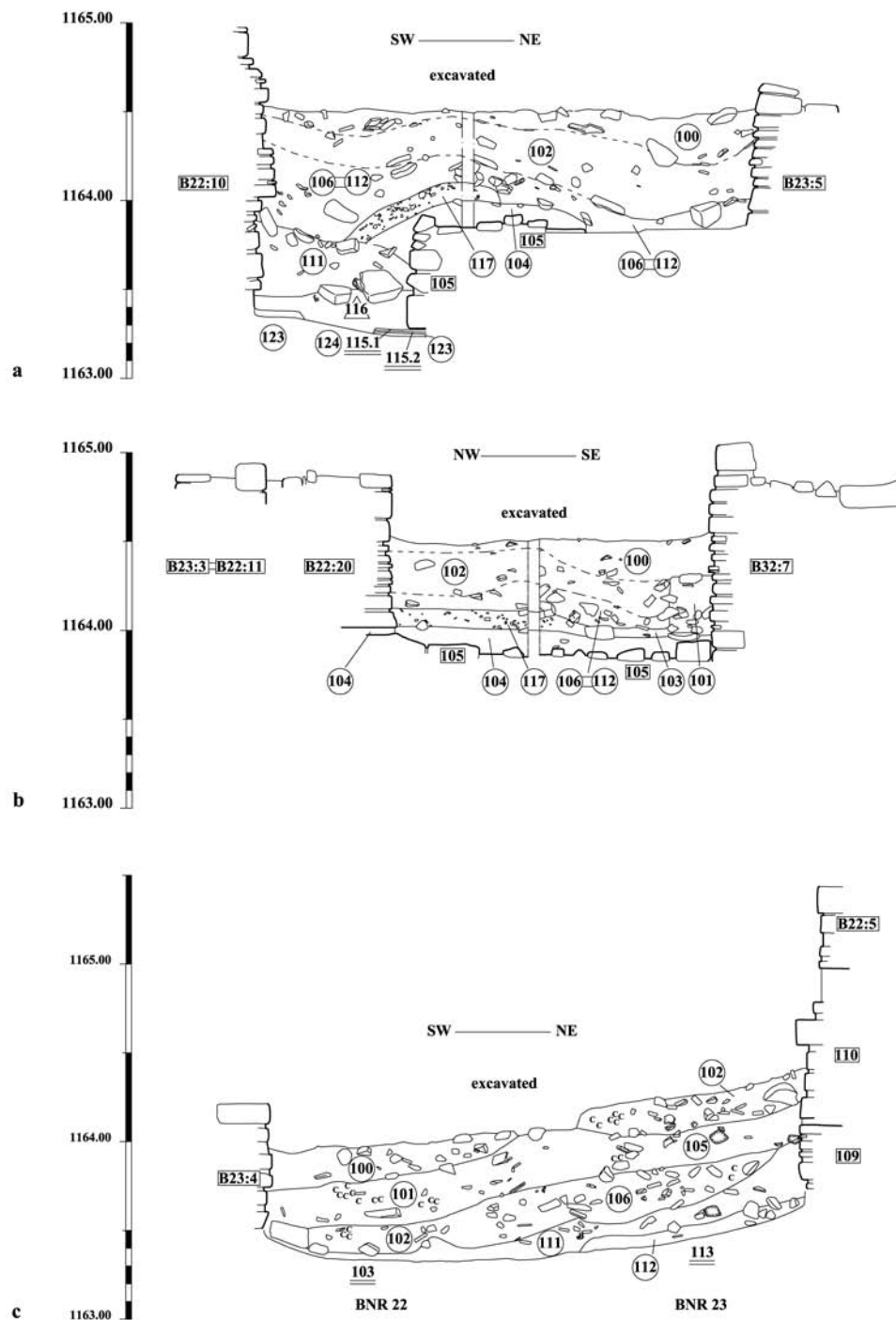


Fig. 2 Ba'ja , Area B-North:
Room fill sections of
Unit BNR17 (a-b) and
BNR22/23 (c), Scale
1:40 (C.P., A.M.H.).

structure B22:7,9 is unclear yet. Walls 7 and 9 run parallel N-S for 1.5 m at some 25 cm distance only. It could be the foundation for a wooden/ mud stair construction leading up to a second storey or the roof. The Room 22/23 situation shows clearly the use of two-storeys, and a complex re-arrangement during its use and after.

The Stratigraphy (C.P.)

Unit BNR17

The stratigraphy of BNR17 is clear (Figs. 2a-b and 3). Most of its confining walls are founded considerably deeper than the floors and the interior “supporting struc-

ture grid”. Where the foundation has been reached by the excavation, walls rested directly on the bedrock (B23:5 and the lower part of B22:10). The northern wall (B23:3=B23:4=B22:11) must also have had a bedrock foundation, as indicated by the stratigraphic sequence. Only the southern Wall B32:7 was founded upon cultural debris (BNR17:122=125).

After erecting the Walls B23:5, B23:3 and the lower part of B22:10, the space between – which later became Unit 17 – was an open space. Its sloping bedrock triggered the natural accumulation of gravel deposits (BNR17:126) against Wall B23:3. Above, cultural layers (BNR17:122=125) rich in charcoal and ash were deposited. These deposits either represent hearth dumps from the adja-

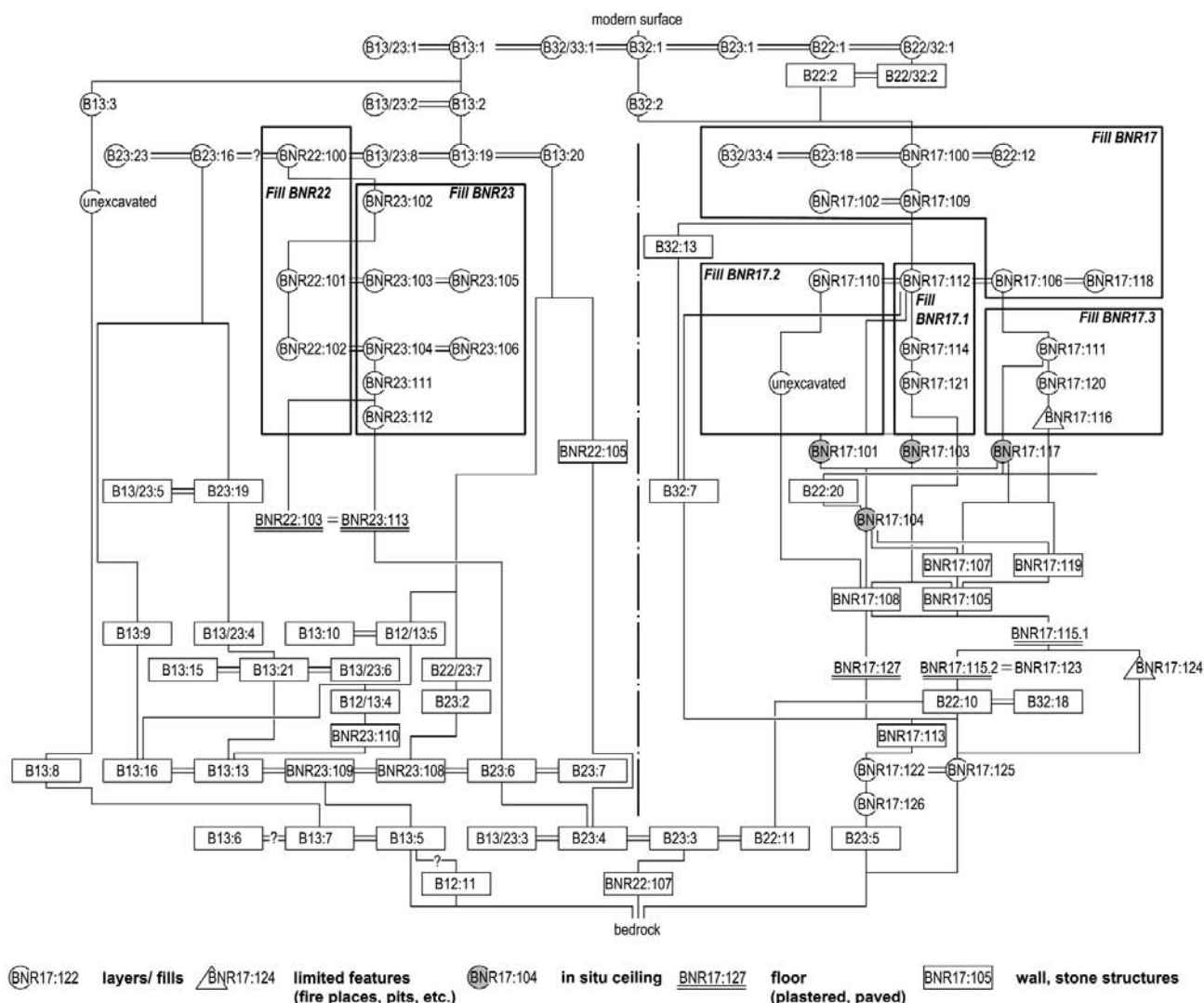


Fig. 3 Ba'ja , Area B-North: Stratigraphic chart for Unit BNR17 and Unit BNR22/23 (C.P.).

cent dwellings and/or have intentionally been inserted to create a levelled building area. After an unknown period of time, the southern adjacent building or at least its northern outer wall (BNR17:113) was built. Some time later the space of Unit 17 was integrated into the southern building. Interestingly, all preserved plaster floors (BNR17:127, 115.2, 115.1) extended onto the walls BNR17:113 and B22:10 but are stratigraphically clearly older than the interior “supporting structure grid” (BNR17:105, 107, 108 and 119). The plaster floor sequence consisted of two red stained plaster floors (BNR17:115.1 and 115.2) in Room 17.3, and only one in Room 17.1. Probably the stratigraphic sequence is more complex than illustrated in Fig. 3. It seems quite possible that further building events are hidden by the exceptionally massive Wall BNR17:105. Its original thickness might have been enlarged after the second plaster floor (BNR17:115.1) was inserted into Room 17.3. The upper storey was erected after this “supporting structure grid” had been constructed in the former open space. This is clearly demonstrated by the embedded ceiling

materials Locus BNR17:103, 104 and 117 upon which the Twin Buttress B22:20 was built.

From this point on Unit BNR17 served as part of a larger dwelling which extended further south. Both were connected by a small wall opening in the upper storey. It was blocked later by stones (B32:13) as a consequence of the abandonment of Unit 17. This abandonment was probably caused by a fire that caused the roof to collapse. This is indicated by the large quantities of ashes mixed with roof and wall collapse materials (BNR17:106), covering directly the *in situ* ceiling in the western part of Unit 17. This ashy material continued into the room fills of Room 17.1 (BNR17:112) and Room 17.2 (BNR17:110). In the eastern part of Unit 17 it gradually shifted into unburned dilapidated roof material (Fig. 4a). The roof ceiling material itself was sealed off by several layers (BNR17:102,100), mainly consisting of compact clayish material mixed with disintegrated lime/ plaster and wall stones. These may also represent collapsed roof material intermixed with the material of dilapidating walls. Even if there are no clear borders

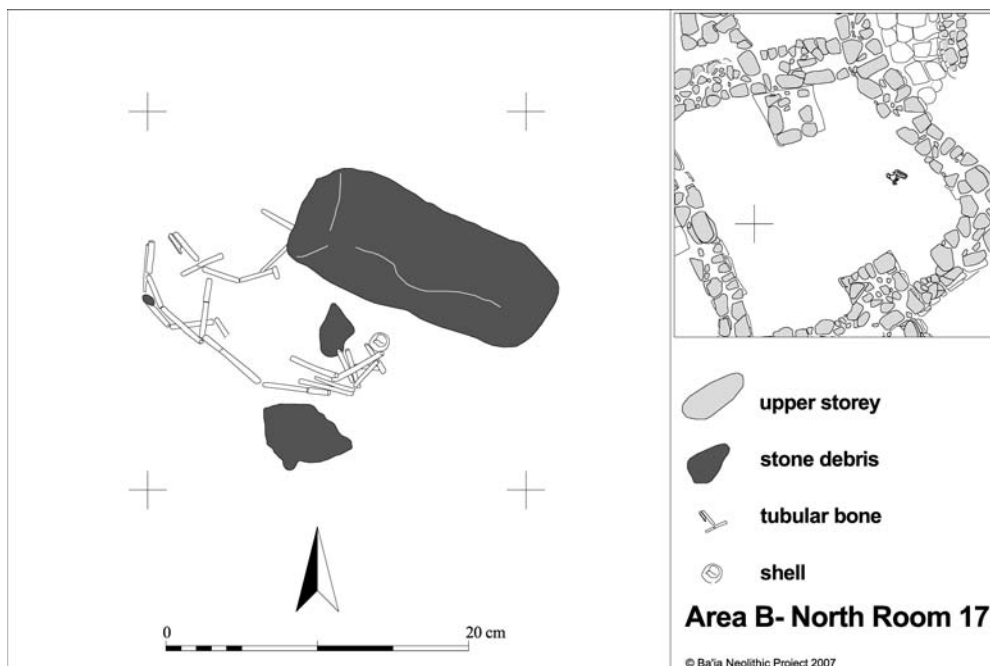


Fig. 4a Ba'ja, Area B-North.
Bone necklace *in situ*
(BNR17:118).
Scale 1:5 (C.P.)

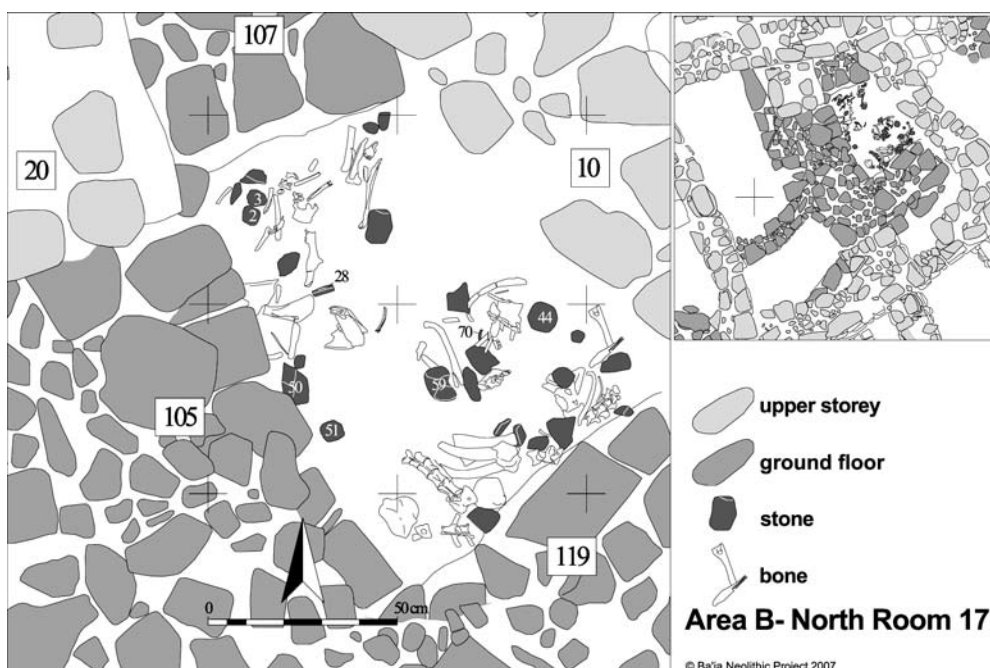


Fig. 4b Locus BNR17:116 in
Room BNR17.3.
Scale 1:20 (C.P.)

between Layers BNR17:100, 102, and the unburned part of BNR17:106, a roof collapse in several stages is suggested as an interpretation. However, the *in situ* find of an entire and articulated bone necklace (BNR17:118) near the border of BNR17:106 and BNR17:102 suggests a fast collapse of the roof after the terminated use of Room 17.

The stratigraphy of both Rooms/Spaces 17.1 and 17.3 provide a similar pattern. Above the plaster floors special find associations were attested, some of which still reflect their primary contexts; the finding BNR17:116 in Room/ Space 17.3 rested 3 cm above the floor, separated from it by a thin sediment layer (Fig. 2b and 4b). Above, it was followed by collapsed ceiling material (BNR17:111 and 114). Artefacts like grinding tools were

embedded particularly in its lower part, with a tendency to concentrate near the room/space corners.

Unit BNR22/23

(based on the field records by Anne Mette Harpelund)

The stratigraphy of the dwelling associated with the Rooms 22 and 23 is not finally clear yet (Fig. 2c and 3) since only the southern parts of the Rooms 22 and 23 have been excavated. Furthermore, the northern part of this building witnessed several modifications, difficult yet to interpret in terms of their stratigraphic sequence. The alteration of the original ground plan by the blockage of several wall openings (e.g. BNR22:105 to west, B12:32 to east) makes the stratigraphic understanding even more

Table 1 Fill assemblages of Unit BNR17 (artefacts of 2007 only).

Room: Locus	volume in m ²	Stone Industries										Bone Industries			Samples
		Grinders (complete/fragment)						Stone Rings				Chipped Stone	Worked Bones	Small Objects	
		grinding slabs/ saddle shaped	Grinding slabs with depression	handstones	pestles	handstones/ pestles	Stages 1-2	Stage 3	Stage 4a	Stage 4b	Stages 5-6				
17:100	1.289	1/1	0	2/4	0	0	2	0	0	5	24	unspecific workshop refuse 4 borer 1 celt 1 fanscraper 1 Byblos-point 1 Jericho-point 2 pyramidal cores	1 awl	1 Mother-of-Pearl (MOP) ring, fragm. 1 MOP fragm. undet. 1 bead-like limestone pendant 1 sandstone slab, fragm.	
17:101	0.027	0	0	0	0	0	0	0	0	0	1	unspecific workshop refuse			
17:102	2.276	2	0	5/5	0	0	9	0	2	12	55	specific workshop refuse 3 borer 1 knife/ spearhead 1 celt 1 scraper 1 sickle blade 1 serrated blade 1 Amuq-like point 2 Jericho points 3 celt preforms 2 pyramidal cores 1 bidirectional core	1 spatula 1 spatula, fragm. 2 awls 2 awls, fragm. 2 needle-like awls, fragm. 1 needle, fragm.	1 MOP ring, fragm. 1 grooved stone	1 piece of "greenstone" 1 fossil bivalve wall plaster (red)
17:106= 17:1:112	2.764	2/3	2/1	9/10	0/1	1	26	1	8	7	68	specific workshop refuse 2 borer 3 microborer 7 celts 2 endscraper 1 tanged knife 1 serrated blade 2 Amuq-like point 1 Byblos-point 3 Jericho-points 1 celt preform 3 pyramidal cores 2 bidirectional cores	1 necklace (=BNR17: 118) 2 rings, fragm. 1 awl 2 awls, fragm. 3 needle-like awls 1 needle-like awl, fragm. 1 needle, fragm. 1 raw form	1 MOP ring, fragm. 1 MOP pendant, fragm. 1 MOP fragm. undet. 1 stone weight 1 small stone weight, fragm. 1 limestone palette 1 stone spheroid	1 piece of haematite 1 fossil shell wall plaster (red)
17:1:109	0.346	0	0	0	0	0	2	0	1	0	7	unspecific workshop refuse 1 celt		1 MOP fragm. undet.	
17:3:111	0.294	0	0/1	0	0	0	0	0	0	2	4	unspecific workshop refuse 1 Amuq-like point		1 stone bowlet	1 fossil bivalve
17:3:116	0.170	1/3	0	2/5	0	0	3	0	0	0	1	unspecific workshop refuse 1 scraper 1 Amuq-like point		1 stone weight, fragm., (red pigment attached) 1 "greenstone" bead, fragm. 1 <i>Conus</i> sp. bead 1 <i>Nerita</i> sp. (?) bead	2 pieces of "greenstone" 1 piece of haematite 1 piece of azurite (?) wall plaster (red)
17:118													1 necklace (ca. 49 tubular bones, 1 shell bead)		
17:3:120	0.051	1	0	0	0	0	1	0	0	0	0	unspecific workshop refuse 2 borer			
17:1:121	0.209	0	0	0	2/1	1	2	0	1	3	7	specific workshop refuse 1 borer 1 multiple burin 1 cortical scraper 1 sickle blade 3 Amuq-like point 1 pyramidal blade core			
		7/7	2/2	18/24	2/2	2	45	1	12	29	176				

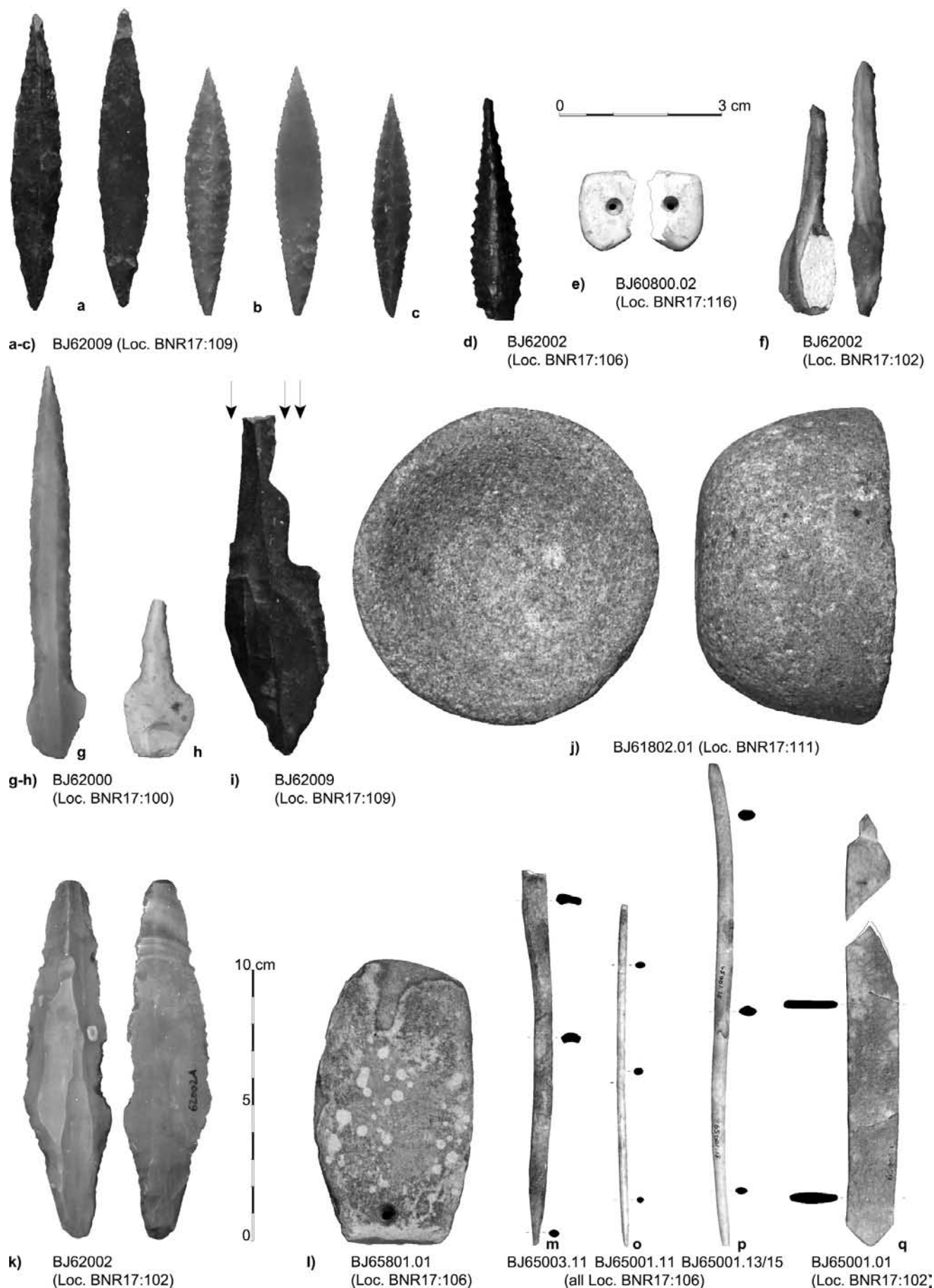


Fig. 5 Ba'ja , Area B-North: Selected artefacts from the fill assemblages of Unit BNR17. a-d: projectile points (arrowheads), e: cuboid "greenstone" bead, f-h: borers, i: burin, j: stone bowlet (limestone), k: knife/ projectile point?, l: perforated palette/ weight (limestone), m-p: needle-like bone awls, q: bone spatula (scales a-j: 1:1, k-q: 1:2) (C.P.).

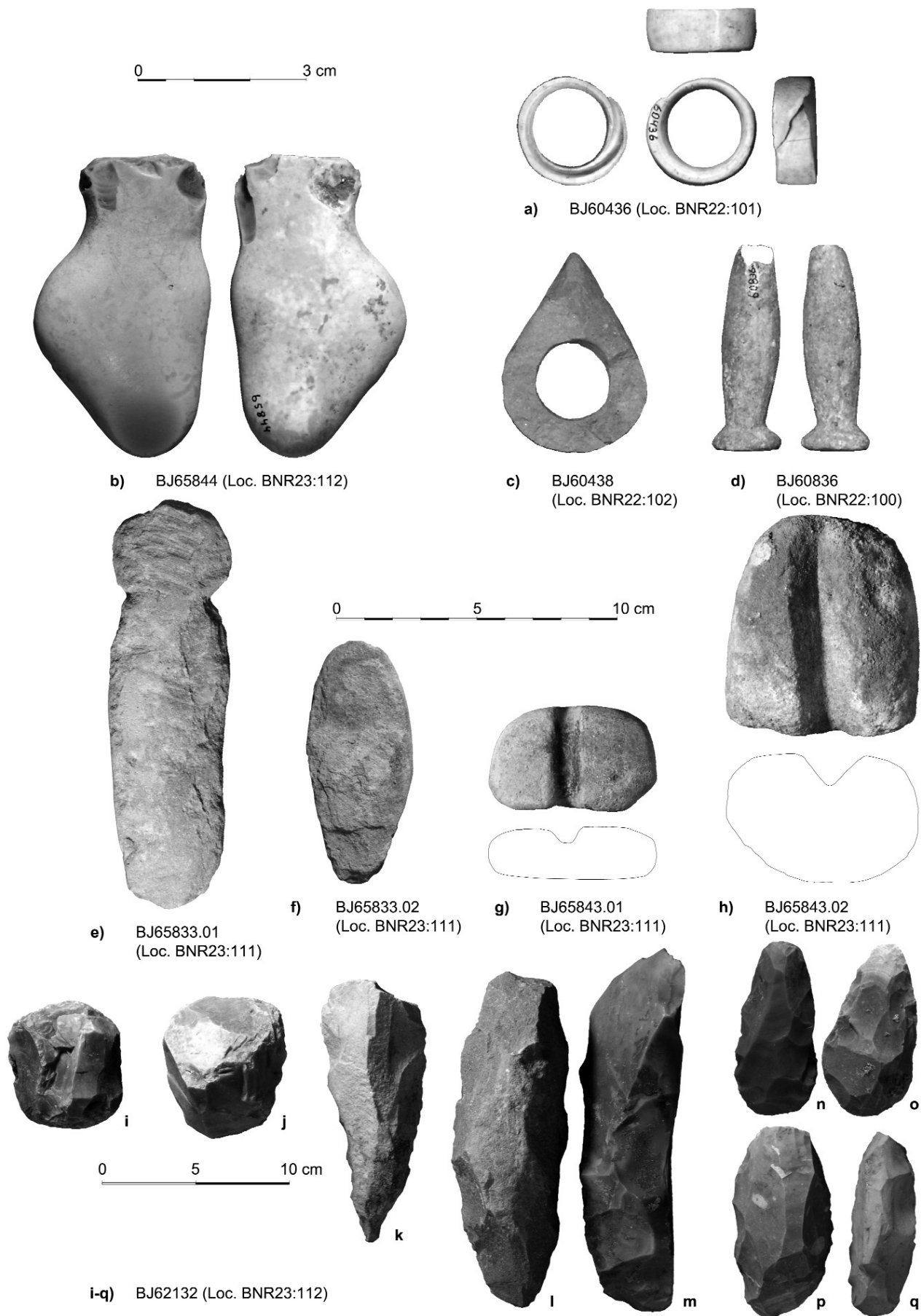


Fig. 6 Ba'ja , Area B-North: Selected artefacts from the fill assemblages of Unit BNR22/23. a: shell ring (*Conus* sp.), b: *Flintkind* with traces of red pigment, c: paillette or fastener? (sandstone), d: ear ornament? (soft limestone?), e-f: (waisted) sandstone palettes, g-h: "grooved stones" (limestone, white sandstone), i-j: knapping? stones/hammer-stones, k-m: heavy-duty tool performs, n-q: celts (scales a-d: 1:1, e-h: 1:2, i-q: 1:3) (C.P.).

complicated. Thus, the following description refers to the ground plan of the latest occupation and to Rooms 22 and 23 in particular.

The oldest architectural remains are represented in Wall BNR22:107 and must belong to a building extending further east. It served as a foundation for the western confining wall B23:4. Wall B23:4 joins with Wall B23:3 which already represents the southern confining wall of the upper storey. Even if we have no stratigraphic connection between Walls B23:4=3 and the northern limit of the building (B13:5=7), we assume that all signify one building incident. Most of the interior ground floor walls (B13:16, B13:13, BNR23:108, BNR23:108, B23:6) join each other and thus are contemporary.

Plaster floor BNR22:103=BNR23:113 extended onto the confining walls (B23:4) as well as against the initial ground floor walls (B23:6=BNR23:108=BNR23:109, B23:7). Its surface indicates an intensive use. It might have already belonged to the initial phase of building, but its relation with the later inserted Walls B13:21=15 and B23:19=B13/23:5 cannot be explained without excavating the northern halves of the rooms. Even the time of the construction of the easternmost Buttress B12/13:4 is difficult to determine. It seems to have been built on the ground floor Wall B13:13 and abuts against the eastern outer Wall B12:11. However, we assume that the blocking (BNR23:110) of the wall opening is contemporary with the erection of the buttress.

The construction of the northern Buttress B13:9 followed the insertion of Wall B13:21=15; we assume that the eastern Buttress B12/13:5=B13:10 in front of its predecessor (B12/13:4) was contemporaneous. The southern Buttress B23:4 either belongs to this stage or already existed in the initial phase.

The last modifications probably are the Wall Reinforcements B23:19=B13/23:5 for Wall B13:21=15, and the Blocking BNR22:105 of the wall opening in the west. The room fill material is less clear than in adjacent Unit BNR17, and consisted of a sequence of several layers, all slightly sloping to west. They show the gradual dilapidation of the roof, ceiling, wall plaster and of the walls as well (Fig. 2c).

After the Neolithic occupation an intensive (probably Nabatean) agricultural use is attested for the entire Ba'ja intramontane plateau. The site was terraced (*e.g.* B22:2=B22/32:2) by recycling Neolithic wall stones, and its topsoil cleared from stones.

Room and Ground Floor Fill Assemblages (C.P.)

According to LaMotta and Schiffer (1999: 20), house floor assemblages can be the result of different processes of accretion and depletion occurring during the "life history of a domestic structure". The life history of a structure is characterized by events of habitation or use, abandonment, and post-abandonment. House floor assem-

blages neither compellingly reflect room activities nor can it be expected to discover all activities once carried out to be represented in the assemblages.

Due to the excellent preservation in the Ba'ja architecture, primary function/use evidence from different activity levels (ground floor, upper storey, and roof) are locally preserved as secondary or even tertiary contexts, mostly represented by the fills in the room stratigraphy. In this sense, we must understand the Ba'ja fill assemblages as house floor assemblages in the above mentioned sense.

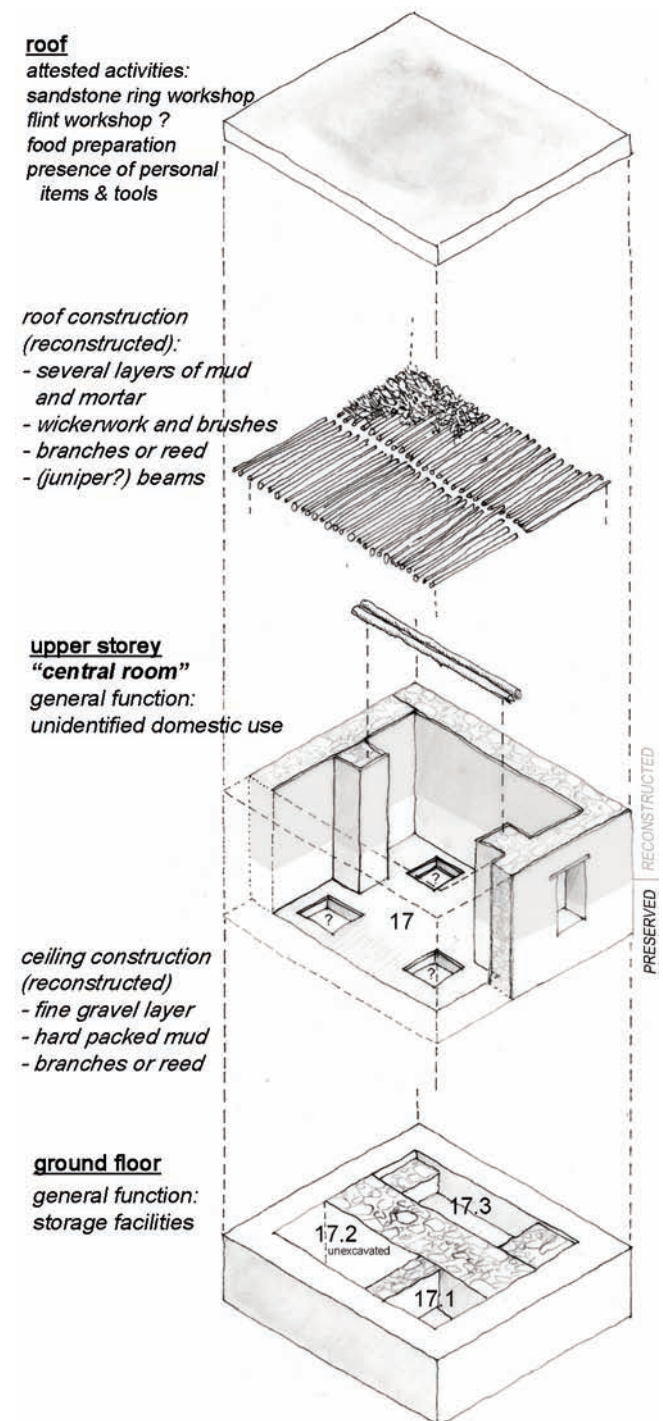


Fig. 7 Ba'ja , Area B-North: Reconstruction of Unit BNR17 (M.K.).

Unit BNR17

The room fills contained an unexpectedly high number of finds. In particular, two findings (BNR17:116 and BNR17:118) offer valuable information about the abandonment and the post-occupational formation processes occurring in Unit 17. BNR17:118 is a complete bone necklace that was embedded within collapsed roof and dilapidated wall material. Some 50 tubular (bird?) bones

and one shell bead were found *ca.* 0.30 m from the western confining wall (B22:10) (Fig. 4a). Most of the tubular segments of the necklace were found articulated, indicating its almost intact state at the time of deposition. We thus conclude that the roof collapse took place shortly after the room's abandonment.

The rapid abandonment of Unit BNR17 is supported by Locus 116 of Room 17.3 (Figs. 2b and 4b). Upon a red-stained plaster floor (BNR17:115.1), but separated

Table 2 Fill assemblages of Unit BNR22/23 (artefacts of 2007 only).

		Stone Industries										Bone Industries			
		Grinders (complete/fragment)					Stone Rings			Chipped Stone		Worked Bones	Small Objects	Samples	
Room: Locus	volume in m ²	grinding slabs/ saddle shaped	grinding slabs with depression	handstones	pestles	handstones/ pestles	Stages 1-2	Stage 3	Stage 4a	Stage 4b	Stages 5-6				
22:100	0.932	0	0	2/4	1	0	1	0	6	2	23	specific (?) workshop refuse 1 serrated blade 1 Jericho-point 1 undet. point		1 polisher 1 <i>Nerita</i> sp. bead 1 small <i>Conus</i> sp. bead 1 Mother-of-Pearl (MOP) fragm. 1 "ear ornament" 1 flint bowl, fragm.	1 fossil <i>Nautilus</i> (?) shell plaster
22:101	0.658	0	0	5/2	0	0	0	0	3	6	27	specific (?) workshop refuse 1 celt 1 pick/ adze 1 Amuq-like point 1 celt preform		4 polisher 2 MOP fragm. undet. 1 <i>Nerita</i> sp. bead 1 sandstone bead 1 stone vessel, fragm. 1 shaped limestone piece	1 stone with copper 1 piece of hæmatite
22:102	0.621	0	1	1/3	0	0	2	0	2	0	23	specific (?) workshop refuse 1 celt 5 celt preforms	1 needle fragm.	1 apex bead of small <i>Conus</i> sp. 1 <i>Nerita</i> sp. bead 1 sandstone paillette	1 piece of "greenstone" 1 clam, fragm.
23:100	0.442	0	0	0	0	0	0	1	1	3	2	unspecific workshop refuse		1 MOP fragm. undet. 1 cowrie-shell bead/ paillette	
23:101	0.104	0	0	0	0	0	0	0	1	3	0	unspecific workshop refuse		1 sling ball	plaster pigment mineral
23:102	0.152	0	0	3/4	0	0	1	0	1	8	2	unspecific workshop refuse 1 celt preform	1 awl 1 awl, fragm.	1 polisher (<i>Handschmeichler</i>) 2 MOP ring, fragm.	reddish pigment from sandstone?
23:103= 23:105	0.812	0	0/1	1/8	0	0	1	0	2	7	10	specific (?) workshop refuse 2 celts 1 pyramidal core	2 spatulae, fragm. 1 awl 1 awl, fragm.	1 ring made of <i>Conus</i> sp. 1 MOP fragm., moon shaped 1 cowrie-shell bead/ paillette 2 stone vessel, fragm. 5 sling balls 5 polisher	1 piece of "greenstone"
23:104= 23:106	0.568	0	1	2/4	1	0	0	0	2	3	5	unspecific workshop refuse 1 celt 1 projectile preform	1 spatula, fragm. 2 awls 1 awl, fragm. 1 needle, fragm.	1 MOP ring, fragm. 1 sandstone palette, fragm. 1 <i>Nerita</i> sp. bead 3 sling balls 1 polisher 1 polisher (<i>Handschmeichler</i>) 1 polisher (<i>Handschmeichler</i>) with red pigment	
23:111	0.657	0	0	6/2	0	0	1	1	3	1	21		1 spatula, fragm. 1 awl, fragm.	2 polishers 6 sling balls 2 grooved stones 2 sandstone palettes 1 <i>Nerita</i> sp. bead	1 fossil snail 1 marine shell, fragm.
23:112	0.615	0/1	0	2/3	1	0	1	1	2	1	7	specific workshop refuse 5 celts 3 celt preforms 1 bidirectional core 3 pyramidal cores	2 awl, fragm. 2 needle-like awl, fragm. 1 needle, fragm. 1 bone disc	1 polisher 4 sling balls 3 <i>Flintkinder</i> 1 <i>Flintkind</i> with red pigment 2 sandstone palettes 2 MOP ring, fragm.	plaster 1 bivalve 1 bivalve, fragm.
		0/1	2/1	22/30	3	0	7	3	23	34	120				

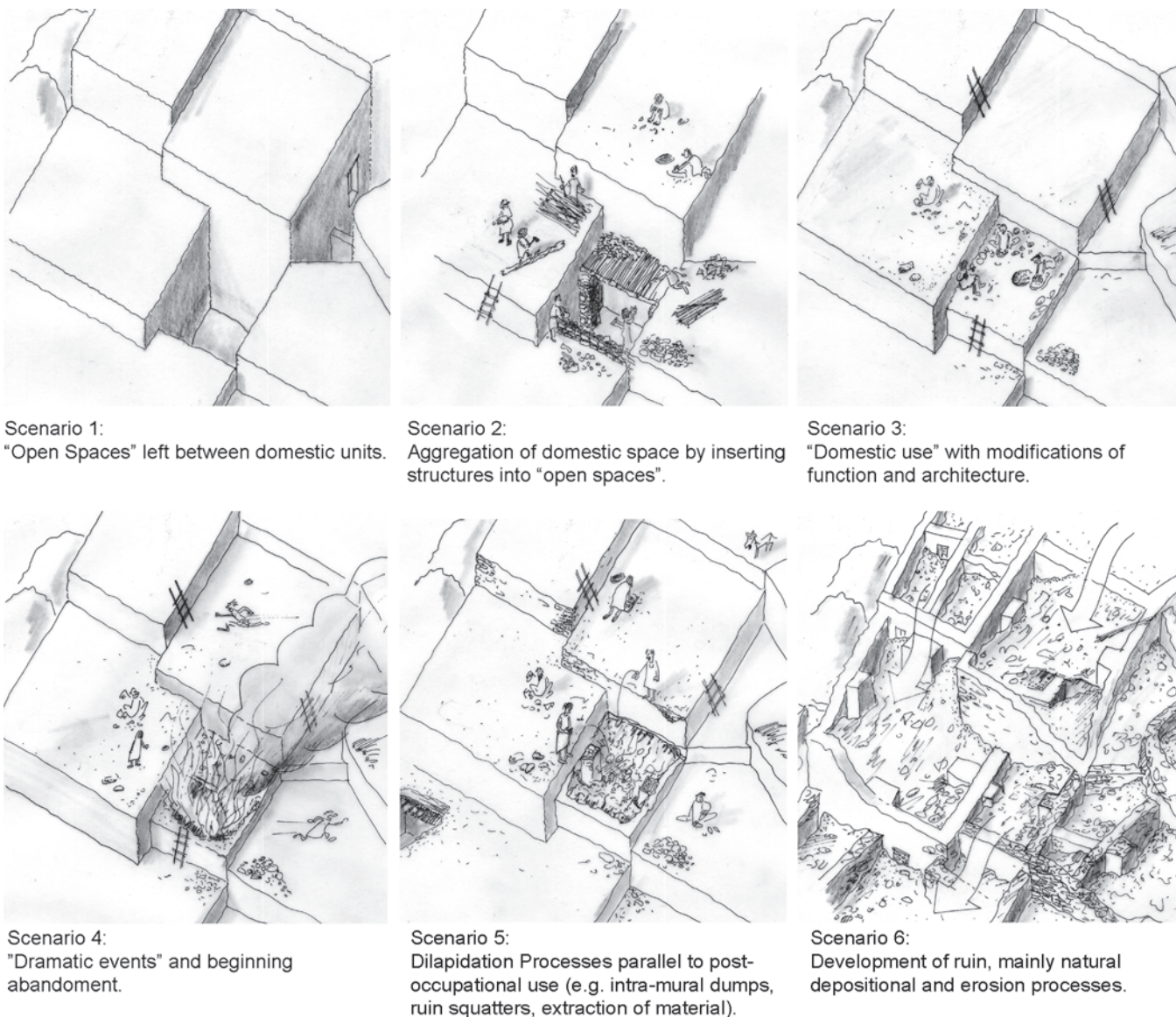


Fig. 8 Ba'ja, Area B North: General house-life scenarios (M.K.).

by some three cm of sediment, a large quantity of animal bones was found. In the southern third of the room, where the ceiling was preserved *in situ* (cf. Fig. 2b), vertebrates were found articulated while in the other parts the bones were randomly distributed and partly fragmented. Complete (Fig. 4b: 44 and 51) and fragmentary (Fig. 4b: 2 and 3) hammerstones; an exhausted bidirectional core (Fig. 4b: 50); a piece of haematite (Fig. 4b: 28), two of "greenstone", one of azurite (?); one almost complete sandstone ring (Fig. 4b: 70); a fragment of a "greenstone" bead (Fig. 5e); two shell beads; and the fragment of a perforated stone tool (stone weight?) (Fig. 4b: 59) were found in the bone accumulation. There was a tendency for size sorting, where smaller chipped stone debris was found between and underneath the bones. Furthermore, several heavier grinding tools (cf. Table 1) overlaid the bone accumulation. We consider this finding as the result of a collapsed organic shelf-like installation, which served for

different kinds of storage. The size-sorted artefacts let us assume that at least parts of them may have arrived from the upper floor level. We expect that during the collapse of the ceiling the smaller artefacts penetrated through small holes and air pockets and ended up underneath the bone material, while the larger grinding tools came to rest upon the bones.

In general, the finds of Unit 17 are well preserved and show a relatively low fragmentation (Table 1, Fig. 5). Damaged and complete ground stone tools are represented in nearly equal numbers. The highest numbers were found for handstones (18 complete/24 fragments) and saddle shaped grindings slabs (7/7). All other types are infrequently represented. The stone ring industry is classified according to production stages (Gebel and Bienert *et al.* 1997: 252 ff.). As expected, the most fragile Stages 5 and 6 (n=176) are most frequent. Interestingly, the most robust Stages 1 and 2 (pre-shaped sandstone raw disks) are represented by the second high-

Table 3 House-life scenarios of Units BNR17 and 22/23.

Scenarios	Unit BNR17 (incl. BNR17.1, 17.3)	Unit BNR22/23	Scenarios
1) Pre-occupation	a) Steep slope bedrock relief prevents soil formation and sediment accumulation, instead bedrock is shaped by fluvial and aeolic agents	Similar to Unit 17?	1) Pre-occupation
	b) Structures to the south, west and east created a sediment trap: Unit 17 served as open space (Fig. 8: Scenario 1), in which surfaces were levelled by mainly fluvial sediment accumulation against wall B23.5 containing few artefacts of secondary origin	a) Erection of outer walls and ground floor	2) Habitation
	c) Deposition of ashy and charcoal rich material, use as dump area for hearth refuse	b) Maintenance of architectural elements; modification of spaces, function and use	
2) Habitation	a) Construction of a ground floor and upper storey as an expansion of the building S of Unit 17 (Fig. 8: Scenario 2)		
	b) Maintenance of architecture; modification of spaces, function and use		
	c) At its final state: Use of Room 17.3, possible also Room 17.1, for storage; the upper storey as living (?) area; and the roof as workshop area (stone ring workshop, food processing activities, presence of personal items and tools) (Fig. 8: Scenario 3)		
3) Abandonment	a) No intentional abandonment: probably fire incident ends occupation as dwelling (Fig. 8: Scenario 4)	c) At its final use: Use of roof as workshop area (celt workshop? sandstone rings workshop?, food processing?); use of ground floor for storage?	
	b) Rapid collapse of roof, recycling of burned roof beams?		
	c) Ruin served after blocking of Wall Opening B32.13 as a dump area of mainly primary contexts (stone ring workshop refuse, food preparation, chipped stone refuse, dumping of broken personal items/ tools) (Fig. 8: Scenario 5)	a) More of an intentional abandonment: clearing of rooms by extracting personal items, tools of value; leaving of "low-value" and bulky artefacts (e.g. hammerstones, celt preforms and sling balls) and lost personal items	3) Abandonment
		b) Continuous decay and collapse of roof, ceiling, and wall tops, dilapidation of wall plaster, decay of organic remains, recycling of beams?	
		c) Contemporary to 3b?: Ruin served as a dump area of mainly primary contexts (stone ring workshop refuse, chipped stone/ bifacial refuse, food preparation, chipped stone refuse, dumping of broken personal items/tools)	
	Events parallel to 3c: tumbling of exposed wall tops, dilapidation and collapse of ceiling, decay of organic remains, disintegration of wall mortar and wall plaster		
4) Post-occupation	a) After general abandonment of the domestic area natural agents filled the ruin (erosion and redeposition of adjacent architecture and sediments until surface closure), a process interrupted by ruin squatters (Fig. 8: Scenario 6)		4) Post-occupation
	b) Nabatean agricultural use (terracing and field clearing from stones)		

est numbers (n=45). None of them was broken. The fragments of Stages 3 (n=1), 4a (n=12) and 4b (n=29) are infrequently or occasionally represented. During Stage 3, the craft person already started to engrave the raw disc in order to remove an interior disk: such fragments show the traces of engraving, but the interior disc is still connected. In Stage 4, the interior disc (Stage 4b) has already been removed, creating a stone ring preform (Stage 4a). Finally, the stone ring preform was thinned by grinding (Stage 5) and occasionally painted (Stage 6).

The chipped stone tools consist of a high number of projectile points (n=16), borers (n=15), and celts/ celt preforms (n=14). A moderate number of scraping tools (n=6) was found. Two serrated blades and one each for a burin, knife/spearhead, tanged knife, and sickle blade were also found. Beside the tools, a high number of cores (n=11) was present. Worked bones mainly consist of awls (4 complete/4 fragments), needle-like awls (3/3), needle fragments (2), bone spatulae (1/1), and two fragments of bone rings. Other finds are rare and are mainly fragmented items.

The distribution of finds in Room 22 and 23 provides a different pattern (Table 2, Fig. 6). The fragmentation rate of the artefacts is clearly higher. The assemblage of ground stone tool consists – as in Unit BNR17 – of predominantly complete ($n=22$) and fragmented ($n=30$) handstones. Other grinding tools are rarely attested (grinding slabs with depression, pestles, each $n=3$, and one fragment of a saddle shaped grinding slab) or absent. The most significant difference within the stone ring industry – as compared with BNR17 – is the considerably lower number of raw discs (Stages 1 and 2, $n=7$). The numbers of discarded products of Stage 3 ($n=3$), 4a ($n=23$), and 4b ($n=34$) are slightly higher, whereas the numbers for Stages 5 and 6 discards ($n=120$) are comparable with Unit BNR17. The chipped stone tools are dominated by celts, celt performs, and picks/adzes ($n=19$). Projectile points are limited in frequency ($n=4$), including one fragment and one preform. With the exception of one serrated blade, other tool classes/types are absent.

The most remarkable finds – beside the celts – are polishers ($n=16$) and small spheroids/pebbles ($n=19$). The latter are believed to represent sling ball collections (Gebel, in prep.). Apart from these, *Flintkinder* (small flattish flint nodules <5 cm) were found: they can bear traces of red pigments (Fig. 6b) and most likely functioned also as polishers. Worked bones mainly consist of fragmented items. Beside one bone disc, only the more robust smaller awls are represented as complete tools ($n=4$).

Some concentrations of finds/find categories are conspicuous. In Unit 17 ground stone tools, stone ring raw discs and refuse, most of the chipped stone tools and other complete personal items were mixed within the dilapidated roof material. The necklace was clearly deposited close to the upper edge of layer BNR17:106. Only a few tools were found on the preserved floors of the substructure. With some certainty the bone layer of BNR17:116 represents a primary deposition in Room 17.3 (Fig. 4b). Most of the small coloured/pigment minerals also come from this same layer, but there is some doubt about assigning them to the same context. Their presence may represent a similar phenomenon as proposed for the smaller chipped stone refuse (sorted in from a higher level). The celts, celt performs and grinding tool fragments in the find assemblages might also not represent exclusively earlier use contexts, but partly may derive from walls/wall caches as attested well in LPPNB architecture (cf. Gebel 2002).

The distribution patterns of BNR22 and 23 indicate a concentration of celts/celt preforms in the dilapidated ceiling/roof material (BNR23:103=105=BNR22:101, BNR23:104=106=BNR22:102), with one cluster directly on the Floor BNR23:112. The latter consists of fin-

ished celts and celt preforms associated with hammerstones (Fig. 6i-q). Sling balls are regularly distributed in all loci of Room 22 and 23, and polishers are predominant in BNR23:103=105=BNR22:101. All other artefact categories are distributed without a discernible patterning.

The quantity of items left during abandonment (or what Schiffer calls *de facto* refuse) depends on several factors. Amongst others, the “rate of abandonment, the portability and the replacement costs” (= remaining value of an artefact) are claimed to play a major role (e.g. Cameron 1993; Schiffer 1987: 89ff). It is assumed that a rapid and unplanned abandonment would leave more usable/repairable artefacts than a slow and planned one: valuable and more easily portable items are expected to be rarer in the latter case. Furthermore, it is suggested that activity-specific tools and items are more likely to be abandoned. This might explain the concentration of stone ring raw discs in Unit 17, the cluster of celts on the floor in BNR23, and partly the grinding stones in both units. The higher artefact density and their lower fragmentation degree in Unit 17 are interpreted as manifesting rapid and unplanned abandonment.

Reconstruction of House-life Scenarios (C.P., M.K.)

The combined information from Units BNR17 and BNR22/23 offers many insights into their house-life history. However, we must be aware that any reconstruction – whether architectural or behavioural – cannot be more than a snapshot of one moment in a living house. As far as they are attested, the scenarios of Units BNR17 and 22/23 are presented in Table 3.

Based on the analysis of Units BNR17 and BNR22/23 and on the site’s general stratigraphical events (cf. Gebel and Bienert *et al.* 1997: Table 2) we were able to reconstruct some general house life scenarios (Fig. 8 illustrates only those scenarios for which evidence was found):

- The occupation of B-North took place gradually, and in its beginning open spaces were still left between the domestic units (Scenario 1).
- Various (demographic, social, and economic) processes may have resulted in a horizontal and vertical aggregation of the domestic space, by inserting structures into the open spaces so that the entire settlement area became occupied by domestic units without leaving space for passages etc. between the houses (Scenario 2).
- The living structures became subjects of permanent modification of function and layout (e.g. alteration of ground plans by blocking of wall openings). Furthermore, the living space underwent spatial re-organization by large-scale in-filling and natural impacts (e.g. Gebel and Kinzel 2007: 29-30) (Scenario 3).
- Likewise, the termination of occupation was a slow process: attested are dramatic events (like fire), but we

also must assume intentional abandonment as well (Scenario 4).

- However, the missing re-occupation is interpreted as part of the general decline process specific to Ba'ja, or even the regional "collapse" of the permanent LPPNB occupation. Dilapidation processes took place parallel to progressive abandonment. Post-occupational uses (intra-mural dumps, ruin squatters, extraction of materials) are well attested within the abandoned buildings (Scenario 5).

- After the entire abandonment of the settlement, mainly natural depositional and erosional processes covered and levelled the ruin (Scenario 6), before surfaces became subject of deflation, agricultural activity, or of excavation.

Perspectives

With our progressive understanding, the recent discoveries at Ba'ja allow us to recognize a greater complexity of house-life and post-occupational processes. The excellent preservation of the two-storeyed Ba'ja architecture is a continuously promising source for the reconstruction of the various house-life scenarios, and for a practical understanding of Early Neolithic village life. Excavation results such as those from Units BNR17 and BNR22/23 provide snapshots of individual house life events (stages of use/habitation, abandonment and post-occupation) to be found mainly in Ba'ja's lower stratigraphy. They let us explore the architecture and its use in four-dimensional terms, an approach otherwise rarely applied due to poorer conditions of preservation. The fine-scale understanding of the LPPNB architectural and spatial formation processes, connected with contextual analysis, will help to reconstruct also the use of its vertical space (ground floor, upper floors, roof), a dimension for which Ba'ja more and more turns out to be an essential site.

Acknowledgements. We particularly thank Hans Georg K. Gebel for stimulating this article by fruitful discussions and sharing his ideas. Likewise, we are grateful to Anne Mette Harpelund (A.M.H.): this contribution benefited much from her fine-scale infield observations and discussion on BNR22/23.

Note

¹ In contrast, in steep-sloped Area F bulkhead-structures were chosen: Long parallel walls run downslope, with cross-walls inserted between them to create a cellular ground plan layout which follows the slope inclination (*cf.* also Bienert and Gebel 2004: 124 for Area D). For steep slopes this bulkhead-system is more appropriate than the concept of "angled/bent walls" as used in Area B-North.

References

- Bienert H.D. and Gebel H.G.K.
 2004 Summary on Ba'ja 1997, and Insights From the Later Seasons. In H.D. Bienert, H.G.K. Gebel and R. Neef (eds.), *Central Settlements in Neolithic Jordan*. Studies in Early Near Eastern Production, Subsistence, and Environment 5: 119-144. Berlin: ex oriente.
- Cameron C.M.
 1993 Abandonment and Archaeological Interpretation. In C.M. Cameron and S.A. Tomka (eds.), *Abandonment of Settlements and Regions: Ethnoarchaeological and Archaeological Approaches*: 3-10. Cambridge: University Press.
- Gebel H.G.K.
 2002 Walls, Loci of Forces. In H.G.K. Gebel, B. Dahl Hermansen and C. Hoffmann Jensen (eds.), *Magic Practices and Ritual in the Near Eastern Neolithic*. Studies in Early Near Eastern Production, Subsistence, and Environment 8: 119-132. Berlin: ex oriente.
- 2006 The Domestication of Vertical Space: The Case of Steep-Slope LPPNB Architecture in Southern Jordan. In E.B. Banning and M. Chazan (eds.), *Domesticating Space: Construction, Community, and Cosmology in the Late Prehistoric Near East*. Studies in Early Near Eastern Production, Subsistence, and Environment 12: 65-73. Berlin: ex oriente.
- in prep. Sling balls from Ba'ja. *Neo-Lithics* 1/08.
- Gebel H.G.K. and Bienert H.D. with contributions by Krämer T., Müller-Neuhof B., Neef R., Timm J. and Wright K.I.
 1997 Ba'ja Hidden in the Petra Mountains: Preliminary Results of the 1997 Investigations. In H.G.K. Gebel, Z. Kafafi and G.O. Rollefson (eds.), *The Prehistory of Jordan II: Perspectives from 1997*. Studies in Early Near Eastern Production, Subsistence, and Environment 4: 221-262. Berlin: ex oriente.
- Gebel H.G.K. and Kinzel M.
 2007 Ba'ja 2007: Crawl Spaces, Rich Room Dumps, and High Energy Events. Results on the 7th Season of Excavations. *Neo-Lithics* 1/07: 24-33.
- Gebel H.G.K., Hermansen B. Dahl and Kinzel M.
 2006 Ba'ja 2005: A Two-Storeyed Building and Collective Burials. Results on the 6th Season of Excavations. *Neo-Lithics* 1/06: 12-19.
- Kinzel M.
 2004 Some Notes on the Reconstruction of PPNB Architecture. *Neo-Lithics* 2/04: 18-22.
- LaMotta V.M. and Schiffer M.B.
 1999 Formation Processes of House Floor Assemblages. In P.M. Allison (ed.), *The Archaeology of Household Activities*: 19-29. London and New York: Routledge.
- Schiffer M.B.
 1987 *Formation Processes of the Archaeological Record*. Albuquerque: University of Mexico Press.

Editorial Board

Co-Editors:

Gary O. Rollefson, Whitman College, Walla Walla
Hans Georg K. Gebel, Free University of Berlin

Managing Editor:

Jürgen Baumgarten, Berlin

Advisory Board

Ofer Bar-Yosef, Harvard University
Didier Binder, CNRS, Valbonne
Frank Hole, Yale University
Peder Mortensen, Copenhagen University
Hans J. Nissen, Free University of Berlin
Mehmet Özdoğan, University of Istanbul
Danielle Stordeur, Archéorient, CNRS-Jalès

Addresses of Neo-Lithics

- Submissions** NEO-LITHICS, Prof. Dr. Gary O. Rollefson, Department of Anthropology, Whitman College, Walla Walla, WA 99362, USA. Email: rollefgo@whitman.edu
NEO-LITHICS, Dr. Hans Georg K. Gebel, Dr. Jürgen Baumgarten, ex oriente e.V., c/o Free University of Berlin, Hüttenweg 7, 14195 Berlin, Germany. Fax 0049 30 98 311 246 or 0049 30 83852106
Emails: baumgarten.jurgen@googlemail.com · hggebel@zedat.fu-berlin.de
- Orders** ex oriente e.V., c/o Free University of Berlin, Hüttenweg 7, 14195 Berlin, Germany
Fax 0049 30 98 311 246 or 0049 30 83852106 · Email: ex-oriente@gmx.net
- Subscription** minimum subscription of three years = 6 issues, c. 40 pages each – 55 Euro for 6 issues, postage included; back issues available; members of ex oriente receive *Neo-Lithics* free of charge (ex oriente annual membership fee: 40 Euro for employed members, 15 Euro for students/unemployed members)
- Deadlines** twice a year: 15th of May and 15th of November

Submission Guidelines

Text formats: in WORD; text, bibliography and caption styles: *cf.* current issue of *Neo-Lithics*; illustration formats: high resolution eps or tif.files – no illustrations embedded in the WORD text –, originals preferred (illustrations are required to the Berlin addresses, as well as hard copies of texts); please, keep bibliographic references to the utmost minimum necessary.

Subscription Information

In the upper right part of the address field (envelope) you will find the issue mentioned until which (included) you paid your subscription. If you find an invoice with this issue, a renewal of subscription is necessary for the next three years / 6 issues. If the invoice is not paid after two months it is understood that a prolongation of the subscription is not desired, and no further issues will be sent.

Neo-Lithics is published and distributed by ex oriente, Berlin, Germany
© ex oriente e.V., Berlin - ISSN 1434-6990

Printing House: digital business and printing gmbh, Berlin

continued from p. 2

just as deadlines approached when we as co-editors were feverishly striving to get people to submit copy. Remember the desperate efforts at the beginning to rely on lithic topics only (*e.g.* reprinting “How the Rabbit Killed Flint” from AAA 3, 1910, in NL 1/96). But by 1996, we were pleased that more and more manuscripts were submitted. We found that we cannot maintain the newsletter with just lithic topics, and that a forum of quickly published excavation news was much appreciated. The content of *Neo-Lithics* grew accordingly. So did the number of subscriptions, and consequently more money was available for the production of *Neo-Lithics*. In 2003 we were pleased to present the newsletter in a new and much more professional format, one that included illustration with a much higher degree of reproductive quality. This professionalism is owed to Jurgen Baumgarten, joining in as managing editor of *Neo-Lithics*. In addition, the newsletter by then became a membership bonus to ex oriente members, helping to secure its financial basis. Still, its production is a true non-profit enterprise. With the current issue, we now have 64 pages (116 pages for both issues from 2007), the largest issue ever.

The year 2004 included a new concept for *Neo-Lithics*: theme-based issues that would appear occasionally, such as *Neo-Lithics* 1/04, when the Cyprus Neolithization was a major theme, as well as another section devoted to supra-regional approaches to Neolithization in the Near East. Another “dialogue” appeared in 2005 (early Neolithic ritual centers), and two more are planned in the near future.

In the last issue of 2004 (*Neo-Lithics* 2/04), after 11 years of publication, an index was published by J. Baumgarten with A. Collo that included the tabulation of articles according to several topics (site, author, and subject). Within the subject index, articles were counted according to geographic location, and there was a clear

bias in terms of representation, with the southern Levant more frequently the focus of reports than any other part of the eastern Mediterranean. Including all of the issues except this one (2/07), the table shows that of the 113 field reports that have appeared in *Neo-Lithics*, 63 (56%) are from the southern Levant (and of these, 50 [44%] from Jordan alone).

In part, these data reflect the relative intensity of Late Epipaleolithic/Neolithic research in the various regions, but on the other hand there are probably other elements in play. For example, although *Neo-Lithics* publishes English and French articles, not everyone in areas outside of the southern Levant is fluent in these two languages. There is also a high likelihood that *Neo-Lithics* is not reaching audiences outside the southern Levant, and we hope this can be changed. We appeal to everyone working in the greater eastern Mediterranean region, including the Caucasus, the Arabian peninsula, Egypt and North Africa in general, and southeastern Europe to consider providing the Neolithic archaeological community with more information about what has been learned/is to be learned about the Late Epipaleolithic and Neolithic in these areas outside the Levant by submitting manuscripts to *Neo-Lithics*. With a turn-around time of only several weeks, *Neo-Lithics* is one of the quickest ways to let colleagues in the greater Neolithic community know what is developing.

Since 1994, *Neo-Lithics* promotes the idea of the “Neolithic family” active in the Near and Middle East, meaning that Neolithic research should bring colleagues together and should integrate research agendas by crossing borders in minds and research territories. It is a long way, however, but weren’t these policies since Berlin 1994 helping the spirit? In this sense, good luck to the 6th Conference on PPN Chipped and Ground Stone Industries of the Fertile Crescent, to take place in Manchester, March 3-5, 2008.

Gary O. Rollefson and Hans Georg K. Gebel

Table. Contributions to *Neo-Lithics* according to regions.

	A	C	E	G	Ir	Is/P	J	L	S	T	U	Y	Total
n	1	3	1	1	3	13	50	2	13	24	1	1	113
%	1	3	1	1	3	11	44	2	11	21	1	1	100%

Abbreviations: A=Aegean; C=Cyprus; E=Egypt; G=Georgia; Ir=Iran; Is/P=Israel/Palestine; J=Jordan; L=Lebanon; S=Syria; T=Turkey; U=Uzbekistan; Y=Yemen