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The Chipped Lithic Artefacts from the Neolithic Settlement of al-Ḥusayyah. A Preliminary Assessment

Introduction

The Neolithic site of al-Ḥusayyah is located south-east of the ‘Ajlūn Mountains and ca. 8km north-north-west of the city of az-Zarqā’, next to the water bearing Wādī az-Zarqā’ (FIG. 1).

The site was discovered in 1993 during the Wādī az-Zarqā’ / Wādī aḍ-Ḍulayl Survey by Palumbo and colleagues (Palumbo *et al.* 1996). Excavations in 1997 and 1999 established an occupational sequence dating from the 8th to

the 6th Millennium cal. BC (Kafafi and Palumbo 1997; Caneva *et al.* 2001; Bartl and Kafafi 2015b, with references therein).

The site has since then been heavily disturbed by the construction of the road between Zarqā’ and Jarash and recent agricultural activities. The Neolithic settlement is located on a relatively steep slope, and covers an area of about 400 by 200 m on the northern bank of Wādī az-Zarqā’. The topography of the settle-



1. Neolithic sites in the Wādī az-Zarqā’ catchment area (map: DAI, Orient Department, Th. Urban, using SRTM data V2 CGIAR-CSI 9 m Database).

ment is characterized by two wadis running in a north to south direction into the Wādī az-Zarqā' that divides the site into three parts – one western, one eastern and one central part.

The site size is estimated to cover more than 10 hectares (Kafafi *et al.* 2000: 703), although the entire area might not have been permanently settled (Bartl and Kafafi 2015b: 20). The size and the long chronological sequence, covering the LPPNB, PPNC, Yarmoukian and probably Chalcolithic, provides an opportunity to investigate the intra-site developments and stratigraphic-chronological questions, and in particular the transition from the early to the late Neolithic.

This potential led to a reopening of excavations in 2013 by the Orient Department of the German Archaeological Institute and the Queen Rania Institute of Tourism and Cultural Heritage of the Hashemite University in Zarqa', and later the Institute of Archaeology and Anthropology of the Yarmouk University in Irbid. The renewed excavations were directed by Karin Bartl and Zeidan Kafafi in close cooperation with the Department of Antiquities of Jordan (Bartl and Kafafi 2014, 2015a, 2015b, 2016). 13 Trenches of various sizes were opened during three seasons of fieldwork between 2013 and 2015 (FIG. 2).

Architecture and Stratigraphy

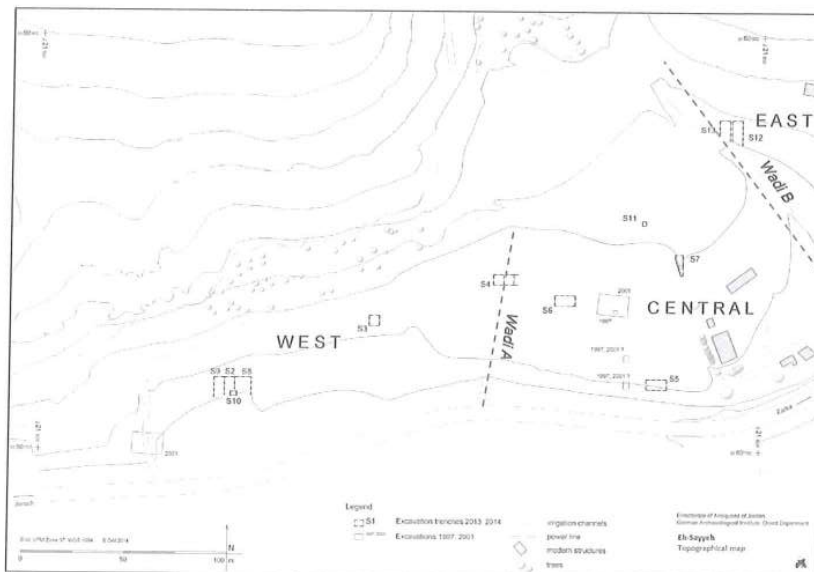
In the western area, five trenches (S1, S2, S8, S9 and S10) were excavated and three levels of occupation phases have been identified.

Phase I (upper level) comprises substantial architecture with curvilinear walls and a lime plaster surface (Bartl and Kafafi 2015b: 22). In the second phase (middle level), a rubble layer was uncovered below the lime plaster surface, and architectural remains in this phase differ completely to that found in Phase I. Here an elliptical structure measuring approximately 2.60 by 1.50 m, which was built of large and medium unhewn boulders, was found with a small opening in the eastern wall. This structure also has indications of a corbelled ceiling. A fire-place full of charcoal, two pits and a silo also belong to this phase (Bartl and Kafafi 2015b: 22-23).

A few Yarmoukian pottery sherds were found in deposits outside of the building that are also believed to belong to Phase II.

The lowest Level III has been excavated in a small sounding at the southern end of the Western area down to virgin soil (S10). Shallow pits dug into a plaster floor were found in the upper part of this sounding (Bartl and Kafafi 2015b: 24).

Comparisons for the structures in the western area, and in particular the elliptical building, can



2. al-Husayyah, topographical map with excavation areas (map: DAI, Orient Department, Th. Urban).

be found in the vicinity of the site, *e.g.* at ‘Ayn Ghazāl (Rollefson and Kafafi 2013). However, very similar structures are also known at various settlements in the eastern basalt desert, including at Wisād pools about 200km to the east of al-Ḥusayyah. Here buildings that are accessible through “creeping holes” are designated either as residential buildings (ghura huts) or as graves (*nawamis*) (Rowan *et al.* 2015: 178-179).

In the eastern area, Squares 12 and 13, which were adjacent to each other and located immediately east of the Wadi, were excavated. Square 12 contained no substantial architecture or installations, but remains of a hearth and a possible plaster floor that had been heavily disturbed.

Square 13 contained a possible wall (?) running north-west to south-east. The wall was only preserved in two rows and most of it had collapsed.

In the southern part of Square 13, some larger stones covering an elliptical structure that was 2.50 m long, 1.80 m wide and 50 cm high were excavated. The structure was completely preserved and had not been disturbed. It was constructed within a pit, which was clearly visible in section. The walls consisted of two courses of large stones that had been carefully placed on top of each other. It had a small niche at the south-eastern edge but no entrance. The interior was well made in contrast to the rougher outer surface of the stones, which was probably due to its construction within a pit. The top of the structure had been completely covered by closely laid large stones. The interior did not reveal any individual layers or depositions. Instead the excavated fill might be interpreted as intrusive since it was very loose and contained only a few small stones and lithics (Bartl and Kafafi 2015b: 25-26).

The function of this installation is rather difficult to interpret. Its size and shape could be indicative of a storage facility. However, comparisons can be found at Neve Yam near Haifa,

which dates to the Wadi Rabah period of the 6th/5th millennium BC. There individuals have been found within the structures and they thus served as graves (Galili *et al.* 2009: fig. 8, Bartl and Kafafi 2015b: 26).

Finds

Pottery

Pottery was found in almost all areas, covering the periods between the Neolithic and the Islamic periods. This points to the occasional use of the site even in the post-Neolithic periods, particularly in the Chalcolithic and Early Bronze Age. Pottery typical of the Yarmoukian period derive predominantly from Square 4, and a very small percentage was also found in the western excavation area. Characteristic decorations are red-slipped surfaces and incisions of herringbone patterns. The simple spectrum of shapes includes pots, bowls and cups (Bartl and Kafafi 2015b: 26, fig. 13-14).

Small finds

Further findings include various objects for everyday needs, including numerous bone tools for processing leather or textiles, such as awls, needles, and spatulas, and heavy duty tools such as grinding stones and pestles for processing plant foods. Some rare finds include a pierced ornament made of mother-of-pearl and a bead made of bone.

Chipped stones

The majority of the finds are chipped lithics (TABLE 1); more than 8000 lithic artefacts were found during the excavation. The preliminary analysis of primary production focuses on one sounding (Sounding 4), while the secondary products are presented in more detail.

Table 1. The lithic assemblage from al-Ḥusayyah from 2013–2015.

Saison	2013	2014	2015	Total
Tools n	1976	1981	1233	5190
Total n	5450	1996	1306	8752

Raw Materials

The raw material supply in that area is known through geological maps, as well as a survey conducted in 1996 (Palumbo *et al.* 1996: 383). A recent short raw material survey conducted in the vicinity of the site and the observation of the material near Jabal al-Qal'ama al-Gharbi, south-east of al-Ḥusayyah, have shown that the material used at the site is mostly of local and regional origin. The flint nodules and pebbles are mostly fist-size, sometimes up to 20 cm in diameter.

Dark brown and light brown fine grained flints are the dominant raw materials used in all excavated trenches. Coarse grained flint is only very rarely used as is pinkish flint. 17 raw material variabilities have been distinguished (TABLE 2). Only one piece of obsidian has been found (Square 10, Season 2014).

Table 2. Raw material variability at al-Ḥusayyah

1. Dark brown, fine-grained flint.	10. Dark grey, fine-grained flint.
2. Dark brown, medium-grained flint.	11. Dark grey, medium-grained flint.
3. Light brown, fine-grained flint.	12. Whitish, coarse-grained flint.
4. Light brown, medium-grained flint.	13. Whitish, fine-grained flint.
5. Brown, fine-grained translucent flint.	14. Red, fine-grained flint.
6. Pink (Huweyjir?) flint.	15. Red, coarse-grained flint.
7. Grey, fine-grained flint.	16. Reddish-brown, fine-grained flint.
8. Grey, medium-grained flint.	17. Purple, fine-grained flint.
9. Light brown, coarse-grained flint.	

Primary Production

The analysis of primary products comprises the chipped lithics from Sounding 4, which can be dated to *ca.* 6,300 *cal.* BC. Debitage products are dominated by flakes and blades. Bladelets occur infrequently and the tool: debris ratio is 6:1 (TABLE 4).

The composition of primary products shows that all major stages of core reduction were car-

ried out on-site, which is true for all Soundings.

Nearly all stages of core reduction, maintenance, and core abandonment have been attested (TABLE 3); these are crested blades and core tablets, core trimming elements, and exhausted and transformed cores.

Single striking platform cores, naviform cores, bidirectional blade cores, cores with more than two striking platforms, change of orientation (90°) blade and flake cores, blade cores, and amorphous cores occur.

Table 3. Attested *chaîne opératoires* at al-Ḥusayyah (grey=attested, white=not attested).

	Unidirectional and Bidirectional Blade production Tabular flint	Blade/Flake production on Tabular/nodular flint	Flake/Blade production on Nodular flint
Raw material procurement			
- chunks/wadi pebbles			
Core preparation			
- primary elements			
Core reduction			
- crested blades			
- primary core tablets			
- core trimming flakes			
- debitage (bidir.) lades)			
Core maintenance			
- core tablets			
- plunging blades			
Core abandonment			
- exhausted cores			
- transformed cores			
Secondary production			

Flakes constitute the most prominent category of debitage in all squares, followed by blades, chips and bladelets (TABLE. 4). Twisted blades from bidirectional knapping are also found. Bidirectional blade technology is well attested by the frequent occurrence of Y-blades

and bidirectional blades. Three reduction sequences are attested: the main reduction sequence produced flakes from single-platform and amorphous cores, while a second sequence produced blades from small, single-platform (and some of them even prismatic) cores, and the third producing bidirectional blades from naviform or opposed platform cores. These cores were exploited intensively and some of them were reused for the production of bladelets or as heavy duty tools like hammers. The presence of an additional sequence for bifacial tools is attested by the presence of large thin flakes together with bifacial spalls.

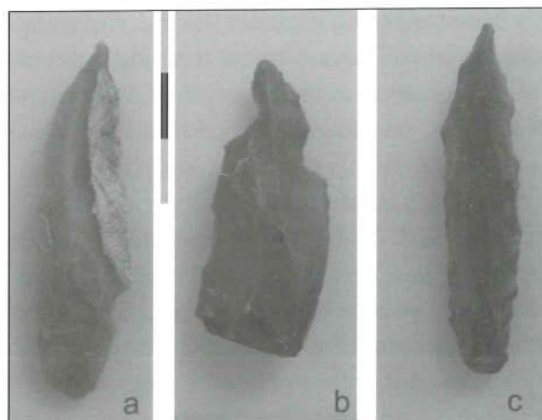
Table 4. Primary product tabulation of Sounding 4.

Primary products	N	%
Flakes	1866	44%
Blades	276	6%
Bladelets	88	2%
Chips	776	18%
Burin spalls	6	0%
Core-trimming Elements	528	12%
Cores	34	1%
Debris:Tool Ratio	6:1	
Total	4252	100%

Secondary Production

More than 3800 tools were analyzed. In all soundings non-formal tools dominate (see TABLE 5), making up at least 33% and at the most 68% of the assemblage. Especially retouched flakes and retouched blades have to be mentioned (20-50%), while notches are present with between 3 and 10%.

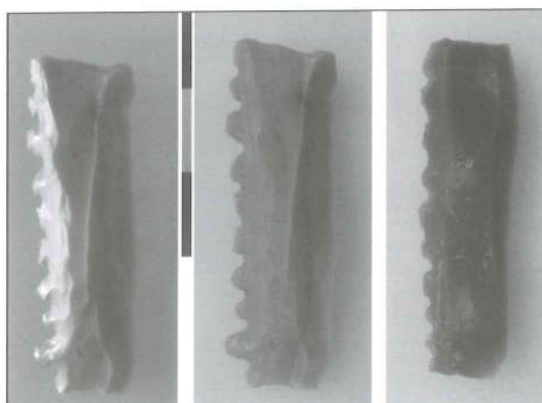
Following the non-formal tools, perforators dominate the formal tools category with 16-50%. A total of 1,480 perforators have been found (S1-S10). They show a lot of variances, including simple, double and multiple, fine and coarse, long borers, and awls. The most common tool is the awl with a short tip made on small chips and flakes fashioned by mostly unifacial direct retouch, rarely with alternating retouch and sometimes by burin-like facets (FIG. 3).



3. Drills from al-Ḥusayyah.

Sickles are rare at es-Sayyeh. 41 sickles (1.1%) were found and are predominantly of Yarmoukian type, *i.e.* deeply serrated blade implements (FIG. 4). Heavy sickle gloss is visible along the working edges, sometimes only attested on small areas since the blades had been re-sharpened. (Caneva *et al.* 2001: 107) mention the occurrence of black spots of mastic on the surface of sickle implements from the late 1990 excavation. However, the sickle implements of the recent excavations did not show black spots but chalky/plaster (?) remains, hinting at the use as elements to be inserted in a shaft.

Some tabular and cortical knives and dagger fragments have also been found. The tabular flint knives are probably made of imported raw material, from thin tabular flint with cortex on both sides. Most of the items are broken, either naturally or on purpose. The cutting edge



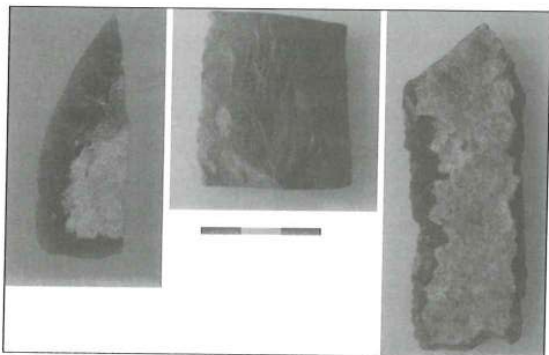
4. Sickles from al-Ḥusayyah.

has been shaped by pressure flaking, and sometimes even polished. Cortical thinning is a typical phenomenon at al-Ḥusayyah. Another type of knife is long blades shaped to a lens cross-section by bifacial pressure flaking (FIG. 5).

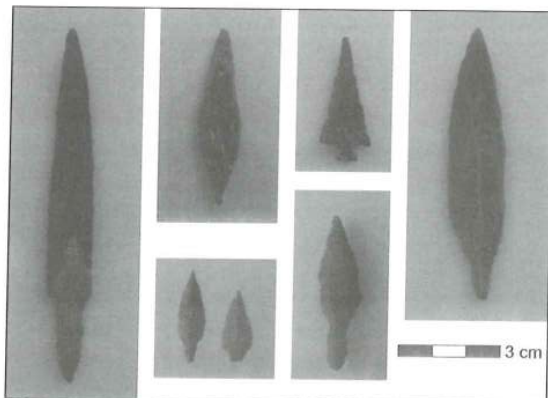
Arrowheads are rare and form only 2.2% of the toolkit. Al-Ḥusayyah projectiles include ‘Amuq points, Byblos points, Nizzanim points, Herzliyah points, HaParsa-points, and transverse projectiles (FIG. 6).

The majority of the projectiles are small with a weigh of less than 3 g, though some larger ‘Amuq points are also present. The points were shaped by a very elaborate pressure retouch on the dorsal face, while the ventral face has usually been left unretouched.

Transverse arrowheads occur infrequently, while a special kind of triangular fragment is attested in 50 items. The majority had been



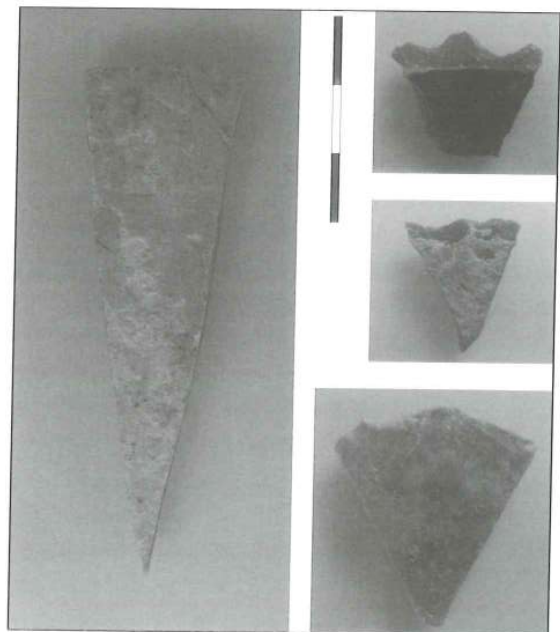
5. Cortical knives and dagger fragment from al-Ḥusayyah.



6. Arrowheads from al-Ḥusayyah.

snapped from a blade, though triangular fragments of cortical knives and flakes are also found (FIG. 7)¹. The technique used is comparable to that of the side-blow blade-flakes of the northern Levantine Late Neolithic (e.g. Nishiaki 2000), but there these pieces are usually made of obsidian². Two side-blow blade-flakes of flint have been found at al-Ḥusayyah and fit well within this interpretation. However, it is still unclear if side-blow blade-flakes are tools or blanks. Some authors argue for multifunctional purposes³, others for them being debris from the production of sickle segments (Vardi and Gilead 2011: 354, with references). However, since some pieces have been snapped deliberately from cortical knives⁴, or even broken into triangles without any sharp edge they might have been for a still unknown special purpose.

Bifaces are rare at al-Ḥusayyah; only three items have been found so far. They were produced from local material, carefully flaked and have remnants of polish, which attests to re-



7. Triangular and trapezoidal blade sections from al-Ḥusayyah.

1. Similar pieces are also known from the PPNB and Late Neolithic site of Mushash 163 (Rokitta-Krumnow in prep.).

2. Recent investigations have shown that these items are also found at the PPNB site Abu Gosh (Khalailiy *et al.* 2003) and at some Chal-

colithic sites (Vardi and Gilead 2011) in high numbers.

3. Crabtree 1974 (cited in Braidwood 1983: 264, Ann. 10).

4. Triangular fragments of bifacial knives are also known from Shaar HaGolan (Matskevich 2011: fig. 8.6).

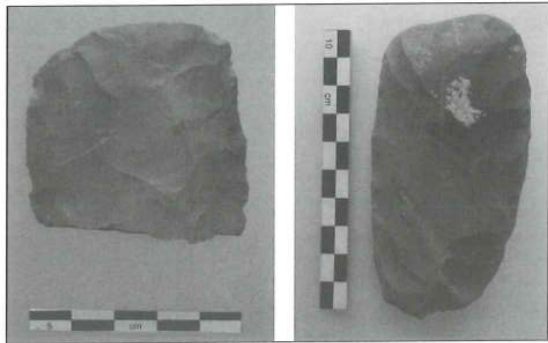
sharpening (FIG. 8).

Burins occur infrequently at al-Ḥusayyah (*cf.* also Caneva *et al.* 2001: 108). They were made on natural surfaces or breaks, on truncations, and some dihedral burins and transverse burins are also present.

Scrapers were all manufactured from local raw material. Double patina appears on several artefacts and shows recycling of older artefacts. End-scrapers on blades are common, though side scrapers on flakes occur more frequently. Some thumbnail scrapers have been found as well.

Discussion

The techno-typological analysis of the flint assemblage from all squares at al-Ḥusayyah



8. Bifaces with polished working edge from al-Ḥusayyah.

shows that the major categories of the very late PPN (FPPNB/PPNC) and early Pottery Neolithic are represented at the site. The evidence for complete reduction sequences indicates a house-hold based *ad hoc* flint industry. The dominance of flakes and flake cores, as well as the decline of the naviform core-and-blade technology shows the shift from blade to flake technology. But it also shows, however, that bi-directional technologies are still in use in Pottery Neolithic assemblages⁵.

Opportunistic handling was invested in the shaping of cores and many nodules were knapped without any preparation. This is also true for the majority of the tools, which were simple expedient types, produced mainly on flakes and most probably based on local household production. Nevertheless, arrowheads, daggers, and sickle blades continued to be shaped on standardized blades as in previous periods. Standardized blades from bidirectional knapping, combined with the use of elaborate pressure retouch, may hint at a certain degree of craft specialization or at itinerant craftsmen⁶. The extraordinarily high number of drills and perforators without hardly any evidence of what material was perforated (only two beads

Table 5. Tools at al-Ḥusayyah according to squares (without Squares 11-13).

	Sounding 1		Sounding 2		Sounding 3		Sounding 4		Sounding 5		Sounding 6		Sounding 7		Sounding 8		Sounding 9		Sounding 10		Total			
Tool class	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Non-Formal-Tools	retouched blade	74	15	102	23	79	27	77	12	17	39	61	26	41	20	244	23	106	26	25	33	826	21.3%	
	retouched flake	74	15	93	21	49	17	72	12	8	18	25	11	18	8.7	221	21	91	23	8	10	659	17.0%	
	notched blade	25	5.1	5	1.1	9	3	8	1.3	3	6.8	10	4.3	5	2.4	53	5	18	4.4	1	1.3	137	3.5%	
	notched flake	22	4.5	21	4.7	12	4.1	14	2.3	2	4.5	10	4.3	7	3.4	58	5.5	23	5.7	2	2.6	171	4.4%	
	multiple tools	20	4.1	7	1.6	4	1.4	33	5.3	0	0	6	2.6	3	1.5	32	3	18	4.4	1	1.3	124	3.2%	
	Subtotal	215	44	228	51	153	52	204	33	30	68	112	48	74	36	608	58	256	63	37	48	1917	49.5%	
Formal Tools	heavy duty tools	8	1.6	5	1.1	3	1	5	0.8	0	0	2	0.9	2	1	10	0.9	1	0.2	0	0	32	0.8%	
	arrowheads	2	0.4	5	1.1	1	0.3	9	1.4	1	2.3	2	0.9	2	1	10	0.9	0	0	0	0	36	0.9%	
	dagger	1	0.2	4	0.9	1	0.3	3	0.5	0	0	0	0	2	1	4	0.4	4	1	0	0	19	0.5%	
	transverse arrowheads/TBS	0	0	5	1.1	4	1.4	15	2.4	0	0	1	0.4	5	2.4	19	1.8	5	1.2	0	0	54	1.4%	
	sickle	0	0	3	0.7	8	2.7	4	0.6	0	0	3	1.3	6	2.9	14	1.3	2	0.5	1	1.3	41	1.1%	
	burin	6	1.2	6	1.3	6	2	17	2.7	2	4.5	3	1.3	7	3.4	34	3.2	6	1.5	1	1.3	88	2.3%	
	scraper	18	3.7	23	5.2	9	3	32	5.2	1	2.3	8	3.4	13	6.3	39	3.7	9	2.2	3	3.9	155	4.0%	
	perforators/awls	225	46	162	36	104	35	319	51	7	16	103	44	91	44	313	30	121	30	35	46	1480	38.3%	
	picks	10	2.1	3	0.7	7	2.4	10	1.6	3	6.8	1	0.4	3	1.5	1	0.1	1	0.2	0	0	39	1.0%	
	bifacials	1	0.2	2	0.4	0	0	3	0.5	0	0	0	0	1	0.5	1	0.1	0	0	0	0	8	0.2%	
Total	486	100	446	100	296	100	621	100	44	100	235	100	206	100	1053	100	405	100	77	100	3869	100.0%		

5. As has been already observed from other sites like Sha'ar Hagan (Barzilai and Garfinkel 2006; Barzilai 2010: 287), or in north Syria at Shir (Rokitta-Krumnow 2010).

6. Whether or not conducted by part-time, full-time, or itinerant craft-specialists (see *e.g.* Quintero 2010, 97; Quintero – Wilke 1995; Rokitta-Krumnow 2013; Barzilai and Khalaily 2016) cannot be discussed here.

have been found) is quite puzzling⁷. Maybe perishable materials like wood, leather or bone had been worked with these tools. However, perforating seems to have been a daily practice at al-Ḥusayyah.

Comparisons for the flint industry (especially concerning tile knives, dagger, and projectiles) can be found in a wide area covering the Levantine coast (e.g. Ziqim, Garfinkel *et al.* 2002; 'Asqalan (Ashkelon), Perrot and Gopher 1996; Wadi Karkara (Nahal Betzet) II in the Akko plain, Getzov *et al.* 2009) and the Negev (e.g. Hamifgash, Goring-Morris 1993; Kvish Harif, Rosen 1984), the Hula valley (e.g. Beisamoun, Khalaily *et al.* 2015), the Bādiyāh (e.g. Wisād Pools, Rollefson *et al.* 2013; aḍ-Ḍuwaylah, McCartney and Betts 1998) and the Zarqa Valley (e.g. Abu Sawwan, al-Nahar 2013; 'Ayn Ghazāl, Rollefson 1990). However, the best comparisons are found at coastal sites like Ziqim (Garfinkel *et al.* 2009) and 'Asqalan (Ashkelon) (Dag 2008, Tab. 15) and may reflect similar toolkits for similar needs. Further investigations are needed here (see also Rokitta-Krumnow, in prep.).

With regards to lithic and pottery finds, the main settlement periods of the site are probably the PPNC and the Yarmoukian. This is substantiated by several C₁₄-dates dating between ca. 6900 to 6400 cal. BC, which points to the beginning of the appearance of pottery in the Southern Levant. The lithic finds exhibit several comparisons with contemporaneous settlements over a wide area, although local adaptations and traditions make the differences between these settlements. This is also true for the architectural structures discovered during the new excavations; local elements with links to neighbouring areas have been attested (Bartl and Kafafi 2015: 28).

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Bibliography

- Barzilai, O. 2010. Social Complexity in the Southern Levantine PPNB as Reflected through Lithic Studies: the Bidirectional Blade Industries. *BAR International Series* 2180. Oxford: Archaeopress.
- 2013. The Bidirectional Blade Industries of the southern Levant, Pp. 59-72 in F. Borrell, J.J. Ibañez and M. Molist (eds.), *Stone Tools in Transition: From Hunter-Gatherers to Farming Societies in the Near East*. Papers Presented to the 7th Conference on PPN Chipped and Ground Stone Industries of the Fertile Crescent. Universitat Autònoma de Barcelona: Servei de Publicacions Bellaterra.
- Barzilai, O. and Khalaily, H. 2016. Itinerant Flint Knapping Specialists in the Pre-Pottery Neolithic B Period in the Southern Levant. Paper Presented at the 8th International Conference on PPN Chipped and Ground Stone Industries of the Near East Nicosia, November 23rd-27th 2016, *Near Eastern Lithic technologies on the move. Interactions and Contexts in the Neolithic Traditions*.
- Barzilai, O. and Garfinkel, Y. 2006. Bidirectional Blade Technology after the PPN: New Evidence from Shaar HaGolan, Israel. *Neo-Lithics* 1/06: 27-31.
- Bennallack, K., Najjar, M. and Levy, T.E. 2016. Regional Connections among PPNC/PN Assemblages: Preliminary Evidence from the Faynan Copper Region of Southern Jordan, Paper Presented at the 8th International Conference on PPN Chipped and Ground Stone Industries of the Near East Nicosia, November 23rd-27th 2016, *Near Eastern Lithic technologies on the move. Interactions and Contexts in the Neolithic Traditions*.
- Bartl, K. and Kafafi, Z. 2014. eh-Sayyeh. Die Arbeiten des Jahres 2013, *e-Forschungsberichte 2015 des Deutschen Archäologischen Instituts* 2: 68-72.
- 2015a. eh-Sayyeh. Die Arbeiten des Jahres 2014, *e-Forschungsberichte 2015 des Deutschen Archäologischen Instituts* 2: 31-35.
- 2015b. The Neolithic Site of eh-Sayyeh near Zarqa. Archaeological Fieldwork 2013-2015, *Neo-Lithics* 2/15: 20-29.
- 2016. eh-Sayyeh. Die Arbeiten des Jahres 2015. *e-Forschungsberichte 2016 des Deutschen Archäologischen Instituts* 2: 74-77.
- Braidwood, L.S. 1983. The Jarmo Chipped Stone, Pp. 233-284 in L.S. Braidwood, R.J. Braidwood, B.

7. The same phenomenon has been observed at al-Basit (Rollefson and Parker 2002) and PPNC/PN assemblages from Wadi Fidan

51/61 (Bennallack, Najjar and Levy 2016).

THE CHIPPED LITHIC ARTEFACTS FROM THE NEOLITHIC SETTLEMENT OF AL-ḤUSAYYAH

- Howe, C. Reed and P.J. Watson (eds.), Prehistoric Archaeology along the Zagros Flanks, *OIP* 105:
- Caneva, I., Hatamleh, M., Kafafi, Z., Munzi, M., Palumbo, G., Parenti, F., al-Shiyab, A.H., Wilson, M., Bianchi, B., Conti, P. and Qadi, N. 2001. The Wadi az-Zarqa/Wadi ad-Dulayl Archaeological Project. Reprt on the 1997 and 1999 Fieldwork seasons. *ADAJ* 41:9-26.
- Dag, D. 2008. Comparative Analysis of the Flint Industry. Y. Garfinkel and D. Dag (eds.), Neolithic Ashkelon, *Qedem* 47: 173-179.
- Galili, E., Eshed, V., Rosen, B., Kislev, M.E., Simchoni, O., Hershkovitz, I. and Gopher, A. 2009. Evidence for a Separate Burial Ground at the Submerged Pottery Neolithic Site at Neve-Yam, Israel. *Paléorient* 35/1: 35-46.
- Garfinkel, Y., Dag, D., Horwitz, L.K., Lernau, O. and Mienis, H.K. 2002. Ziqim, a Pottery Neolithic site in the southern coastal plain of Israel. A final report, Mitekufat Haeven. *Journal of the Israel Prehistoric Society* 32: 73-145.
- Getzov, N., Barzilai, O., Le Dosseur, G., Eirikh-Rose, A., Ktalav, I., Marder, O., Marom, N. and Milevski, I. 2009. Nahal Betzet II and Ard el Samra: Two Late Prehistoric Sites and Settlement Patterns in the Akko Plain. *Journal of the Israel Prehistoric Society* 39: 81-158.
- Goring-Morris, N. 1993. From Foraging to Herding in the Negev and Sinai: the Early to Late Neolithic Transition, *Paléorient* 19.1: 65-89.
- Kafafi, Z., Matthiae, P., al-Shiyab, A.H., Parenti, F., Santucci, E., Benedettucci, F., al-Qadi, N., Munzi, M., Palumbo, G., Peruzzetto, A. and Wilson, M. 2000. The Zarqa Valley in Jordan from Lower Paleolithic to Recent Times: Results of the 1993-1997 Campaigns. Pp. 699-708 in P. Matthiae, A. Enea, L. Peyronel and F. Pinnock (eds.), *Proceedings of the First International Congress on the Archaeology of the Ancient Near East*, Rome, May 18th-23rd 1998.
- Kafafi, Z., Caneva, I. and Palumbo, G. 1999. The Neolithic Site of eh-Sayyeh: Preliminary Report on the 1999 Season. *Neo-Lithics* 3: 10-12.
- Kafafi, Z. and Palumbo, G. 1997. The 1996 Wadi az-Zarqa/Wadi-Dhulayl Survey Project, *Newsletter of the Institute of Archaeology and Anthropology*, Yarmouk University: 20-23.
- Kafafi, Z., Palumbo, G., al-Shiyab, A.H., Parenti, F., Santucci, E., Hatamleh, M., Sunnaq, M. and Wilson, M. 1997. The Wadi az-Zarqa/Wadi ad-Dulayl Archaeological Project, Report on the 1996 Fieldwork Season. *ADAJ* 41: 9-24.
- Khalaily, H., Kuperman, T., Marom, N., Milevski, I. and Yegorv, D. 2015. Beisamun: An Early Pottery Neolithic Site in the Hula Basin. *Atiqot* 82: 1-60.
- Khalaily, H., Marder, O. and Bankirer, R. 2003. The Lithic Assemblage, The Neolithic Site of Abu Gosh: The 1995 Excavations. *IAA Reports* 19: 23-47. Jerusalem.
- Matskevich, Z. 2011. The Lithic Assemblage of Sha'ar Hagolan: PPN/PN Continuity?, Pp. 227-241 in E. Healey, S. Campbell and O. Maeda (eds.), *Studies in Early Near Eastern Production, Subsistence, and Environment* 13. Berlin: Ex Oriente.
- McCartney, C. and Betts, A.V.G. 1998. Dhuweila: Chipped Stone. Pp. 59-119 in A.V.G. Betts (ed.), *The Harra and the Hamad. Excavations and Surveys in Eastern Jordan*, Volume 1. Sheffield Archaeological Monographs 9. Sheffield: Sheffield Academic Press.
- Al-Nahar, M. 2013. A Typo-Chronological and Analytical Lithic Study of the Neolithic Period in Jordan. A Case Study of Tell Abu Suwwan, *Jordan Journal for History and Archaeology* VII/II-III: 119-142.
- Nishiaki, Y. 2000. *Lithic Technology of Neolithic Syria*. Oxford: BAR International Series 840.
- Palumbo, G., Munzi, M., Collins, S., Hourani, F., Peruzzetto, A. and Wilson, M.D. 1996. The Wadi az-Zarqa/Wadi adDulayl Excavations and Survey Project: Report on the October-November 1993 Fieldwork Season. *ADAJ* 40: 375-427.
- Perrot, J. and Gopher, A. 1996. A Late Neolithic Site near Ashkelon. *Israel Exploration Journal* 46.3/4: 145-166.
- Quintero L.A. 2010. *Evolution of Lithic Economies in the Levantine Neolithic: Development and Demise of Naviform Core Technology as Seen from 'Ain Ghazal*. 'Ain Ghazal Excavation Reports. Volume 2. Berlin: ex oriente.
- Quintero, L.A. and Wilke, P.J. 1995. Evolution and Economic Significance of Naviform Core-and-Blade Technology in the Southern Levant. *Paléorient* 21/1: 17-33.
- Rokitta-Krumnow, D. 2010. Lithikfunde des 7. Jahrtausends v. Chr. in der Nördlichen Levante. Die Entwicklung der Steingeräteindustrie der Spätneolithischen Siedlung Shir/Syrien. Unpublished dissertation at Free University of Berlin. http://www.diss.fu-berlin.de/diss/receive/FUDISS_thesis_000000036609
- 2013. The Significance of Long Blade Caches and Deposits at Late Neolithic Shir, Syria. Pp. 231-245 in F. Borrell, J.J. Ibáñez and M. Molist (eds.), *Stone Tools in Transition: From Hunter-Gatherers to Farming Societies in the Near East*. Bellaterra (Barcelona): Universitat Autònoma de Barcelona: Servei de Publicacions.
- in prep. *The Lithic Finds of Mushash* 163.
- Rollefson, G. and Kafafi, Z. 2013. The Town of 'Ain Ghazal, Pp. 3-30 in D. Schmandt-Besserat (ed.), *Symbols at 'Ain Ghazal*. 'Ain Ghazal Excavation Reports, Vol. 3. Berlin: ex oriente.
- Rollefson, G.O. and Parker, M.C. 2002. Craft Specialization at al-Basit, Wadi Musa, Southern Jordan. *Neo-Lithics* 1/02: 21-23.

ROKITTA KRUMNOW

- Rollefson, G. O., Rowan, Y. and Wasse, A. 2013. Neolithic Settlement at Wisad Pools, Black Desert. *Neolithics* 1/13: 11-23.
- Rollefson, G.O. 1990. Neolithic Chipped Stone Technology at 'Ain Ghazal, Jordan: The Status of the PPNC Phase. *Paléorient* 16/1: 119-124.
- Rosen, S.A. 1984. Kvish Harif: Preliminary Investigations at a Late Neolithic Site in the Central Negev. *Paléorient* 10(2): 111-121.
- Rowan, Y.M., Rollefson, G.O., Wasse, A., Abu-Azizeh, W., Hill, A.C. and Kersel, M.M. 2015. The Land of Conjecture": New Late Prehistoric Discoveries at Maitland's Mesa and Wisad Pools, Jordan. *Journal of Field Archaeology* 40.2: 176-189.
- Vardi, J. and Gilead, I. 2011. Side-Blow Blade-Flakes from the Ghassulian Sickle Blade Workshop of Beit Eshel: a Chalcolithic Solution to a Neolithic riddle, Pp. 343-356 in E. Healey, S. Campbell and O. Maeda (eds.), *The State of the Stone. Terminologies, Continuities and Contexts in Near Eastern Lithics. Studies in Early Near Eastern Production, Subsistence, and Environment 13 (2011)*. Berlin: Ex Oriente.
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