Salibiya XII and Fazael VI: Two Natufian Sites in the Lower Jordan Valley within Their Contexts

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Abstract

This paper presents the results of brief salvage investigations of two Early Natufian occupations on the western side of the Lower Jordan Valley. Both sites were located adjacent to major water sources at a time when the latest Pleistocene Lake Lisan was shrinking rapidly. This occurred towards the end of the drier Bolling/Allerod and immediately preceding the onset of wetter conditions at the beginning of the Younger Dryas. While Fazael VI was located within the eponymous wadi adjacent to a major spring, Salibiya XII was located within the Rift Valley floor itself, in close proximity to springs and seeps forming the Salibiya depression marsh and ponds. The extents and depths of both occupations indicate they were significant basecamps, whether permanent or seasonal. These features include the presence of bedrock mortars, high chipped stone artifact densities, characteristic ground stone tool assemblages (especially notable are the capstones), and artistic or symbolic items. The absence of architectural remains likely relates to the limited nature of the investigations. Faunal remains, especially the relatively abundant and heterogeneous avifauna from Fazael VI, indicate that the majority are present in the region only during the cooler months.

Keywords: Rift Valley; Late Epipalaeolithic; Natufian; wetlands; capstones

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1. Introduction

The Rift Valley constituted a pivotal location in the southern Levant throughout the prehistoric sequence, including the Epipaleolithic period (Bar-Yosef 1987). To date, numerous Late Epipaleolithic, Natufian sites have been documented in greater or lesser detail from the central and lower reaches of the Jordan Valley, including Wadi Hammeh 27, Wadi Khawwan 1 (Edwards, Head, and Macumber 1999; Edwards 2013), and Ala Safat (Waechter 1948) in the northeast, Tahunat el-Sukkar (Malinsky-Buller et al. 2025), Iraq el-Hamra (Winter 1997: Site 189; see also Rosenberg and Bar 2022), Khirbet el-Mite (Winter 1997: Site 90; see also Rosenberg and Bar 2022), and Huzuk Musa in the northwest (Rosenberg et al. 2010), and Salibiya I (Crabtree et al. 1991), Gilgal II (Dag and Goring-Morris 2010), and Fazael IV (Grosman, Belfer-Cohen, and Bar-Yosef 1999) further south (Fig. 1). There are also brief mentions of Natufian remains in Wadi Hisban 6 (Edwards, Head, and Macumber 1999; Edwards 2015) and Jericho (Crowfoot-Payne 1983) to the southeast and south, respectively. Notably, while earlier Upper Palaeolithic-Epipaleolithic and later Late Natufian-early Neolithic sites are relatively widely reported, Early Natufian sites are underrepresented (Bar-Yosef, Goldberg, and Leveson 1974; Bar-Yosef, Gopher, and Goring-Morris 1980; Goring-Morris 1980a; 1980b; Schuldenrein and Goldberg 1981; Bar-Yosef and Gopher 1997; Bar-Yosef, Goring-Morris, and Gopher 2010).

In this paper, we address this gap by describing two Early Natufian sites, Fazael VI and Salibiya XII, which are located in the then well-watered settings of the Fazael-Salibiya area (Levy et al. 2019), the former in the Samarian hills just west of, and the latter within the lower Jordan Valley floor (Bar-Yosef, Goldberg, and Leveson 1974; Goring-Morris 1980a; 1980b; Schuldenrein and Goldberg 1981; Stein et al. 2025). Located in the West Bank (Area C), the sites underwent salvage investigations conducted under the auspices of the Judea and Samaria military government Archaeological Staff Officer and the Hebrew University of Jerusalem. They were directed and supervised by Prof. Ofer Bar-Yosef and one of the authors (A. N. G-M).

The Fazael-Salibiya area spans the flat expanses in the Rift Valley graben and the Samarian hills flanking the valley to the west. The latter comprises a series of steep structural steps of Senonian, Upper Cenomanian/Turonian, and Lower Cenomanian ages, dissected by eastward-flowing wadis. Eocene outcrops occur immediately to the north. Today, the area's climate is arid or semi-arid with mean annual precipitation on the order of 100–200 mm, largely due to the Samarian hills' orographic (rain shadow) effect. However, a significant floral shift occurs along a 10 km east-west transect, transitioning from Saharo-Sindian vegetation to Irano-Turanian shrub steppe, and finally to a Mediterranean Batha-Garrigue

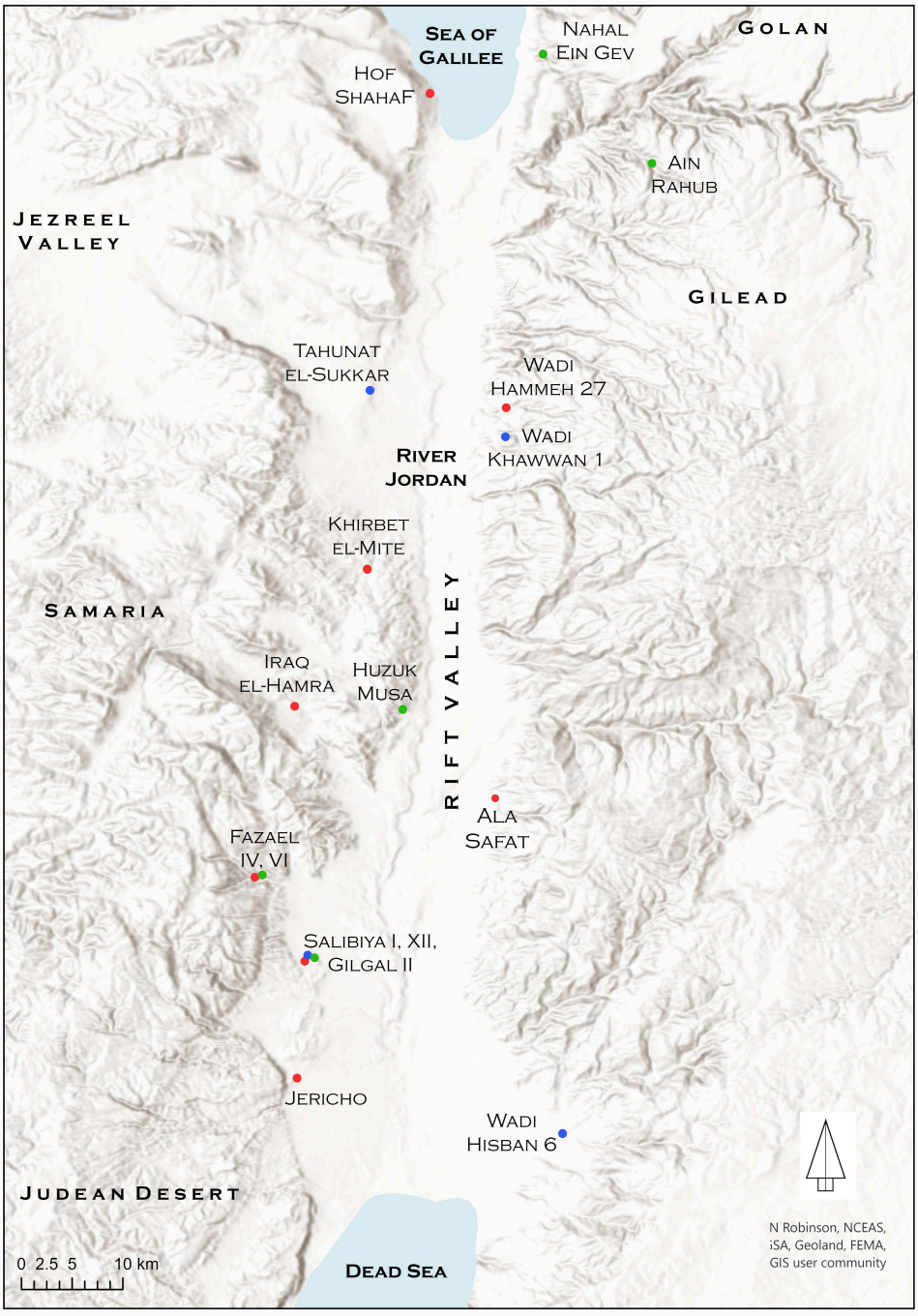

Fig. 1. Location map of the Lower Jordan Valley, showing the locations of Early (red), Late (blue), and Final (green) Natufian sites.

(Zohary 1973). This transect spans the distance between the Rift Valley at 200 m below sea level (mbsl) and the Samarian hills at ca. 800 m above sea level (masl).

The regional climate during the last stages of the Pleistocene included an arid spell at ~17.5–15.5 ka (Heinrich 1, Middle Epipaleolithic, Geometric Kebaran), the arid Bolling/Allerod at ~14 ka (Late Epipaleolithic, Early Natufian), and a brief resumption of wet conditions during the first part of the Younger Dryas (YD) at ~12.9–11.7 ka (Late Epipaleolithic, Late and Final Natufian) (Stein et al. 2010; Torfstein 2024; Stein et al. 2025). Concerning Lisan Lake's contraction to the Dead Sea, within less than 2 thousand years, beginning at ca. 15 ka BP, it receded by ca. 200 m, from ca. 250 mbsl to close to its Holocene levels at ca. 400 mbsl. This would have exposed the valley floor, significantly facilitating north-south movements along its margins. Still, the Dead Sea at that time would have extended much further north than the Fazael-Salibiya/Gilgal area.

2. Salibiya XII

The Natufian site of Salibiya XII (UTM 0731267 3540831; ITM 213267 654083) is located in terminal Pleistocene-early Holocene aggradation deposits at the edge of the Salibiya depression (Figs. 2, 3). The basin was exposed following the retreat of Lake Lisan, where the uplifted north-south trending Gilgal ridge blocked drainage eastwards. Springs and seeps produced ponds with open water and marshy alluvial fan sediments accumulating within them (Schuldenrein and Goldberg 1981). A series of largely discrete occupations were surveyed and investigated around the wetland edges, including (from earliest to latest): Salibiya XII (Early Natufian), Salibiya I (Late Natufian), Gilgal II (Final Natufian), Salibiya IX ("Khiamian"), Gilgal I, III, and IV (Early Pre-Pottery Neolithic A [PPNA]), and Netiv Hagdud (Late PPNA) (Schuldenrein and Goldberg 1981; Crabtree et al. 1991; Tchernov 1994; Bar-Yosef and Gopher 1997; Belfer-Cohen and Grosman 1997; Enoch-Shiloh and Bar-Yosef 1997; Bar-Yosef, Goring-Morris, and Gopher 2010; Dag and Goring-Morris 2010).

More specifically, Salibiya XII was located adjacent to and on the northeast slope of a low bedrock rise at the northwest edge of the wetland at an elevation of ca. 211 mbsl. During and after the early Holocene (post-PPNA), the basin filled, and the Gilgal ridge sill was breached by Wadi el-Baqqar, producing deep east-to-west back-cutting, gullying, and badlands formation (Schuldenrein and Goldberg 1981). This process split the Salibiya XII occupation into two areas astride one of the principal gullies in the region (Fig. 3).

Pollen analysis indicated that at the time of the Early Natufian Salibiya XII, the area was relatively humid, whereas samples from nearby Salibiya I indicated

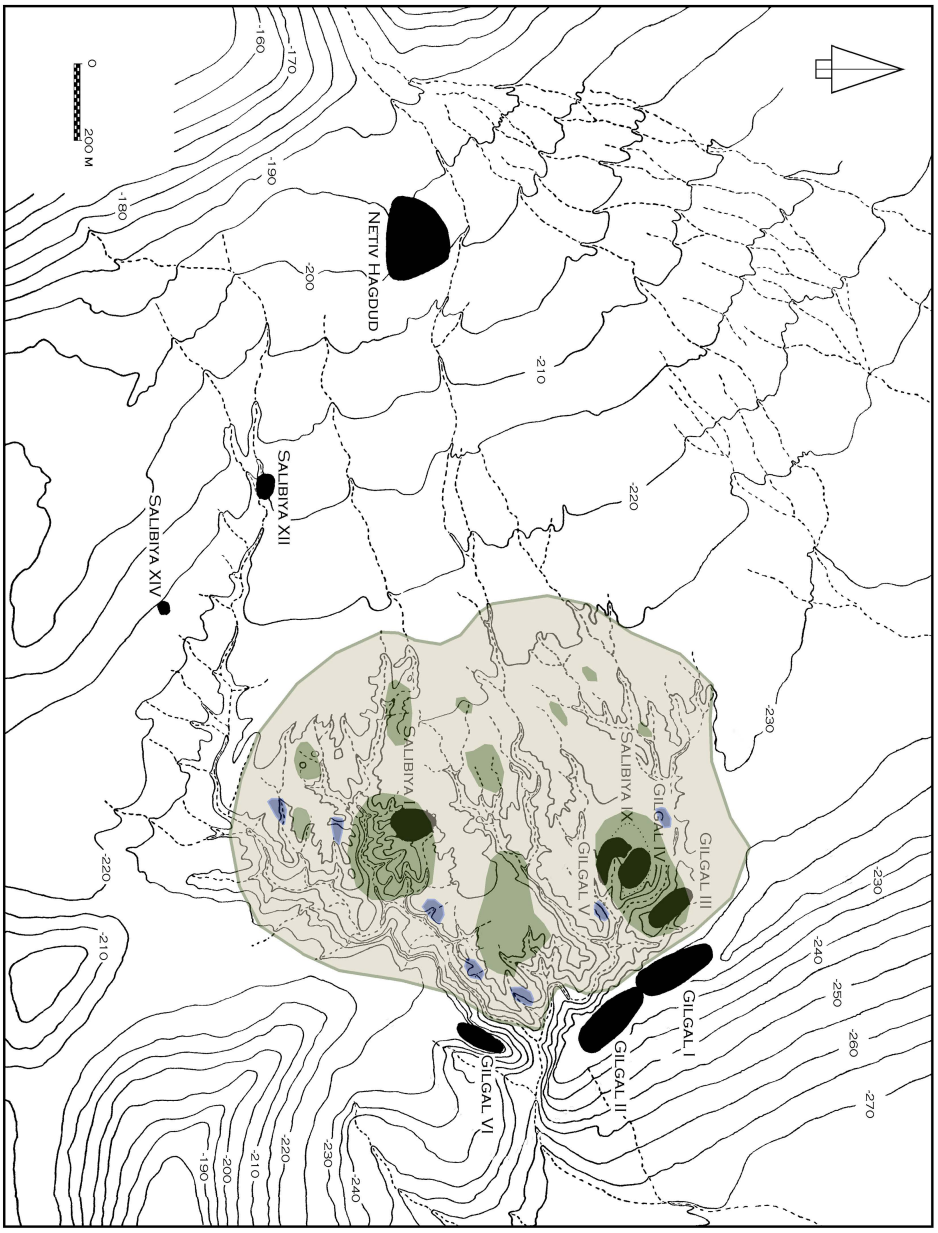

Fig. 2. Map of the Salibiya Basin showing the locations of sites, springs and seeps (blue), and swamps and marshes (green).

Fig. 3. Salibiya XII: (A) view to the west (Samarian hills) showing the mechanically excavated trench and the gully in the foreground, and (B) view to the north (Mt. Sartaba in the background). The site extends from the bedrock mortar in the foreground across the gully to the mechanically excavated trench area in front of the vehicles.

increasing desiccation during the Late Natufian (Darmon 1987; 1988; 1996). At Salibiya XII, 8% of the pollen was arboreal, comprising *Pinus halepenis* (Aleppo pine), *Olea* (olive), *Phillyrea* (phyllaria), *Quercus calliprinos* (Palestine oak), *Alnus* (alder), *Ulmus* (elm), *Tamarix* (tamarisk) and *Salix* (willow), the last two indicating nearby standing water. The herbaceous vegetation was diverse and mostly reflected Mediterranean conditions, while chenopods and flowering annuals indicated a mixture of steppic Mediterranean elements. The presence of freshwater molluscs (*Melanopsis* sp.) indicates the nearby presence of flowing water.

In 1993, a trench was mechanically excavated for the construction of hothouses north of the gully, exposing a 30 cm-thick *in situ* occupation layer. This layer was located ca. 1 m below the surface and was traced over a distance of at least 25 m. Having been notified by the Archaeology Staff Officer of Judea and Samaria, a team from the Hebrew University visited the site under the direction of Prof. Ofer Bar-Yosef. All artifacts visible on the surface and in the dirt extracted from the trench were manually collected; no further fieldwork was conducted. No architectural features were noted in the sections. The occupation horizon comprised a dark, organic-rich sediment, with numerous freshwater molluscs and fewer stones than the overlying sediment; this likely represents a marshy type environment with seeps and springs. One small V-shaped and two deep bedrock mortars were noted on the surface at the fork of the gullies at the site's southwest extremity (Fig. 3B). Closer to the trench, a couple of smaller bedrock cup-mortars were recorded. It seems the site originally extended over ca. 0.1 ha. Most finds were flint artifacts and ground stone items. Other finds included a few unidentifiable bone fragments, mostly burnt, some bone tools, and several lumps of ochre (see below).

2.1. The chipped stone assemblage

A total of 2,782 chipped stone artifacts were recovered (Tables 1, 2; Fig. 4). The raw materials include mostly bluish gray glossy flint, as well as cherty tan flint, some of which was burnt. The material is fresh but not in pristine condition. The relative frequencies of the different flaked stone categories reflect collection

biases since they derive from a "grab" sample (i.e., without sieving), and debris comprises a mere 33% of the total.

2.1.1. Cores and debitage

Cores (Table 3; Fig. 4: 1–18) comprise 1.3% of the sample. They are generally coarse and crude; many are hinged and burnt, featuring numerous internal fracture planes. More than half of the cores are pyramidal or subpyramidal, and some still bear cortical cover (though on less than one-third of their

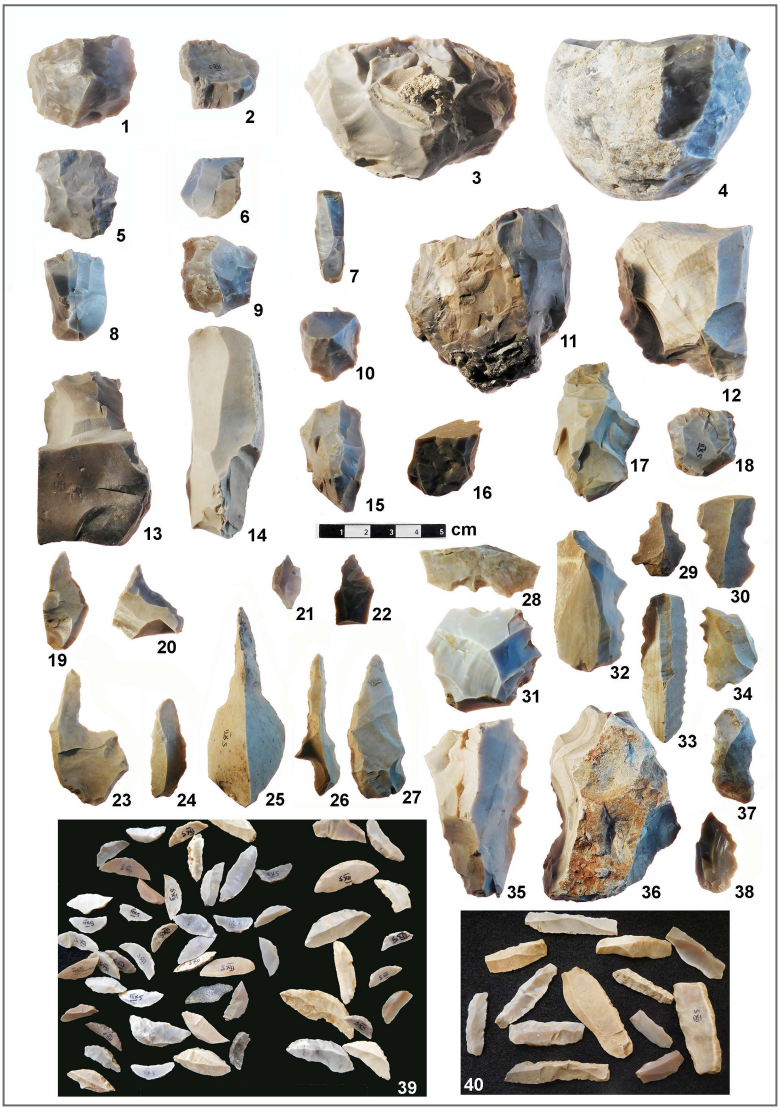

Fig. 4. Salibiya XII chipped stone artifacts: cores (1–18), perforators and awls (19–27), notches and denticulates (28–38), lunates (39), retouched blades and sickles (40). The scale measures 5 cm.

Table 1. Lithic counts and frequencies from Salibiya XII and Fazael VI by category. Note that the sample from Salibiya is a "grab" sample.

	Salibiya XII		Fazael VI	
	n	%	n	%
Cores	35	1.3	95	0.2
Debitage	1536	55.2	8214	20.3
Debris	921	33.1	30957	76.6
Tools	290	10.4	1156	2.8
Total	**2782**	**100**	**40411**	**99.9**

Table 2. Debitage and debris counts and frequencies from Salibiya XII and Fazael VI. Note that the sample from Salibiya is a "grab" sample.

	Salibiya XII		Fazael VI	
Debitage	n	%	n	%
Primary elements	161	10.5	1116	13.6
Flakes	894	58.2	4567	55.6
Blade/lets	301	19.6	2164	26.3
Core tablets	1	0.07	7	0.1
Ridge blades	14	0.9	53	0.6
Core trimming elements	101	6.6	91	1.1
Tranchets	10	0.65	0	0
Burin spalls	54	3.5	216	2.6
Microburin technique	0	0	2	0.02
Total Debitage	**1536**		**8214**	
Debris	**n**		**n**	
Chips	564	61.2	26946	87.0
Chunks	357	38.8	4011	13.0
Total Debris	**921**		**30957**	
Cores	**35**		**95**	

Table 3. Core types and frequencies from Salibiya XII and Fazael VI. Note that the sample from Salibiya is a "grab" sample.

Cores	Salibiya XII		Fazael VI	
	n	%	n	%
Nodules	2	5.7	2	2.1
Pyramidal and subpyramidal	19	54.3	23	24.2
Opposed platform	1	2.9	9	9.8
90 degree	0	0	8	8.4
Multiple platform	0	0	1	1.1
Radial	0	0	8	8.4
Amorphous	4	11.4	24	25.2
Exhausted	2	5.7	4	4.2
Broken	7	20	16	16.8
Total	**35**		**95**	

circumference). Nearly all of the other cores are either amorphous, broken, or exhausted. A single item is a well-defined opposed-platform core, and two items are tested nodules. None of the items can be classified as true blade or bladelet cores, and there is no evidence for striking platform preparation.

Amongst the debitage (55.2% of the total assemblage), flakes comprise 58.2%, while blades and bladelets account for a mere 19.6% (Table 2). Primary elements are quite frequent (10.5%). Core rejuvenation in the form of core trimming elements accounts for 7.6%, mostly comprising ridge blades. Burin spalls are quite well-represented (4.2%) and include items that appear as *tranchet*-like removals. The microburin technique is absent.

2.1.2. Tools

A total of 290 tools were recovered (Table 4; Fig. 4:19–40). The majority seems to represent intensive use with types morphing from one form into another (e.g., from notches to denticulates to borers and awls). Attempting strict separation into discrete types is thus somewhat arbitrary.

Endscrapers (n=12) are diverse but few, including three scrapers on flake, three that were produced on blades (one on a retouched blade), three denticulated scrapers, a core massive scraper, a laterally carinated scraper, and one varia.

Burins (n=28) are quite common; 13 items are dihedral, one is an *en face plan*, seven were formed on truncations, and four are carinated variants. One

Table 4. Tool counts and frequencies by class from Salibiya XII and Fazael VI. Note that the sample from Salibiya is a "grab" sample.

Tools	Salibiya XII		Fazael VI	
	n	%	n	%
Endscrapers	12	4.1	22	1.9
Burins	28	9.7	100	8.6
Multiple tools	5	1.7	16	1.4
Retouched/backed blades	7	2.4	59	5.1
Sickle blades	6	2.1	15	1.3
Truncations	3	1.0	40	3.4
Retouched/backed bladelets	28	9.7	268	23.0
Geometric: lunates	51	17.6	234	20.1
Geometric: rectangles	0	0.0	54	4.6
Perforators	41	14.1	99	8.5
Notches and denticulates	75	25.9	176	15.1
Heavy duty	13	4.5	5	0.4
Varia	21	7.2	76	6.5
Total	**290**	**100.0**	**1164**	**100.0**

burin is double mixed, and two are *varia*. Six are on blades, while the rest are on flakes or indeterminate blanks.

Multiple tools (n=5). One was produced on a blade, three on flakes, and one on a bladelet. All but one are a combination with burins.

Backed and retouched blades (n=7). Two blades are backed, and five are retouched.

Sickle blades (n=6). Two items are complete; both are convexly backed and bitruncated by oblique truncations. The remaining sickle blades are broken; three were produced on blades and one on a bladelet.

Truncations (n=3) include one inverse and one oblique example. One is on a blade, and two are on flakes.

Microliths (n=28). Sixteen microliths are backed bladelets, 12 of which are complete. The remainder consists of nine backed and bitruncated bladelets, two backed and truncated bladelets, and one alternately retouched bladelet.

Geometrics (n=51; Tables 5, 6, Fig. 4:39). All are lunates: Thirteen are Helwan backed, 15 display semi-abrupt retouch, and 23 are backed.

Perforators (n=41; Fig. 4:19–37). Although relatively numerous, the counts presented here should be considered minimal. Nine perforators are

Table 5. Counts and frequencies of geometric item types from Salibiya XII and Fazael VI.

	Salibiya XII		Fazael VI	
Geometrics	**n**	**%**	**n**	**%**
Rectangles, broken	-	0.0	43	14.9
Rectangles, complete	-	0.0	11	3.8
Lunate, backed	23	45.1	174	60.4
Lunate, retouched	15	29.4	12	4.2
Helwan lunates	13	25.5	48	16.7
Total Geometrics	**51**	**100.0**	**288**	**100.0**

Table 6. Lunate retouch types from Salibiya XII and Fazael VI.

	Salibiya XII		Fazael VI	
Lunates	**n**	**%**	**n**	**%**
Backed lunate, complete	23	45.1	123*	52.6
Backed lunate, broken	-	0	51**	21.8
Retouched lunate, broken	15	29.4	12	5.1
Helwan lunate, complete	13	25.4	30	12.8
Helwan lunate, broken	-	-	18	7.7
Total	**51**		**234**	

* Including 14 bipolar.

** Including six bipolar.

defined as borers, of which six have been produced on blades. Eleven items are massive borers; they were produced on flakes and feature dorsal and ventral flaking and could be included in the massive tool category. Six items are becs: five were formed on flakes and one on a primary fragment. Eleven items are classified as single spikes: five were shaped on flakes, two on blades, and one on a bladelet; three items are fragments. Three perforators are multiple spikes, which were fashioned on flakes, and one item is defined as varia and was formed on a flake.

Notches and Denticulates (n=75; Fig. 4:28–38). This abundant class comprises 49 notches, including 19 single notches and 30 multiple notches. Of the single notches, eight were shaped on flakes, six on blades, one on a bladelet, and four on fragments. Of the 30 multiple notches, 11 were produced on flakes (six spokeshave variants), 11 on blades, two on bladelets, and six on fragments (one is a spokeshave variant). The remainder of this class

consists of 26 denticulates, many of which could also be classified as borers, *grosso modo*, as noted above. Fifteen denticulates were formed on flakes, three were of the spokeshave variety, four were produced on blades, two on bladelets, one was a fragment, and one was varia. Altogether, 10 items in this class are spokeshave (all on flakes).

Heavy-duty tools (n=13) include three cortical, battered blades, six heavy-duty scrapers on flakes, and four heavy-duty scrapers on chunks.

Varia (n=21). This category includes seven retouched flakes and 14 unique specimens that could not be assigned to a category or a tool type.

2.2. The ground stone tools

The ground stone tools assemblage comprises 35 limestone, basalt, and sandstone items (Table 7). They include three vessel fragments: two V-shaped mortars and a U-shaped bowl (Fig. 5:1–3). Smaller items include three symmetrical bowlets (or "thimbles"; maximum circumference not exceeding 4.2 cm; Fig. 6:7, 9, 10). Of particular interest are 11 circular symmetrical capstones with small *omphaloi* in their center; one is made of basalt, and the rest of limestone (Fig. 6:1–6, 8, 11, 12). Several items almost constitute perforated discs and were perhaps used as handguards for bow drills. They range in diameter from 3.5 cm to over 13.0 cm and in thickness between 1.1 and 1.8 cm.

Also notable are fragments of six pestles (Fig. 5:4–8), of which four are massive, a complete handstone on a basalt(?) cobble, and three mullers (one also used as a hammerstone). A unique find is a soft sandstone item with multiple incisions. There is also a possible art item with a reversed L-shaped groove or incision, and four items defined as *varia*.

2.3. Other finds

Additional finds include three bone point fragments, one of which is flat, and two polished medial fragments. Of particular interest is a broken oval 3.4 cm-long plano-convex bone pendant (Fig. 7:6). It features two perforations: one latitudinal and one longitudinal. The rest of the finds comprise a translucent conical marine mollusc fossil and four lumps of ochre, three red and one yellow (Fig. 7:1–4).

Table 7. Counts and raw materials of the ground stone tools and artistic items from Salibiya XII and Fazael VI (B=basalt; C=chalk; L=limestone; M=metamorphic; P=phosphorite?; S=sandstone; T=travertine).

Ground stone tools	Salibiya XII	Raw material	Fazael VI	Raw material
Mortar/bowl	3	B	8	5B, 2L, 1M
Anvil/bowl	0		2	1L, 1S
Workslab	0		2	1B, 1L
Handstone	1	?	0	
Muller	1	B	0	
Muller/abrader	1	L	0	
Muller/hammerstone	1	B	0	
Abrader	0		1	1S
Pestle	6	B	25	22B, 3L
Pounder	0		4	1B, 3L
Shaft straightener	0		5	4B, 1S
Capstone	11	1B, 10L	6	4L, 2B
Plaque/plate	0		1	L
Bowlet	3	B	1	B
Grooved pebble	0		1	C
Multi-grooved item	1	S	0	
Chopping tool	0		1	L
Hammerstone	2	L	3	L
Varia (including art)	5	4L, 1B	7	1P, 2C, 2L, 2T
Total	**35**		**67**	

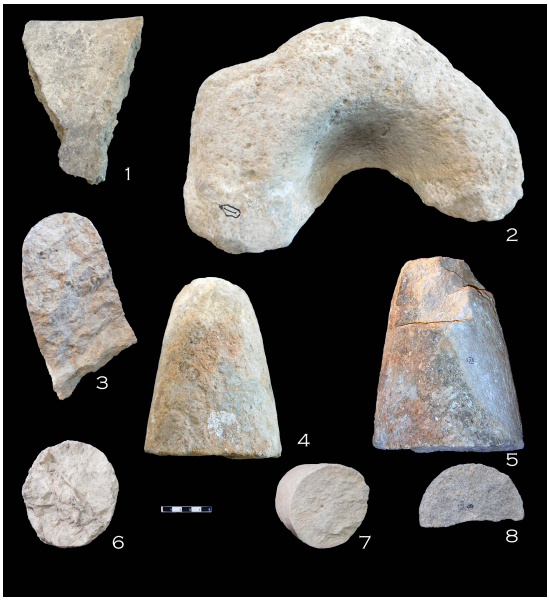

Fig. 5. Salibiya XII, ground stone tools: mortar fragments (1, 2), broken bowl or mortar (3), pestle fragments (4–8). The scale measures 5 cm.

Fig. 6. Salibiya XII, ground stone tools: handguards (note the *omphaloi*) (1–8, 11–13), bowlet fragments (9, 10). The scale measures 5 cm.

Fig. 7. Salibiya XII, *varia*: lumps of ochre (1–4), sandstone worked fragment (5), bone pendant (note the two perforations at right angles to one another) (6). The scale measures 5 cm.

3. Fazael VI

Fazael VI (UTM 0727118 3548892; ITM 203119 649013) was discovered during a salvage survey of the Lower Jordan Valley in the early 1970s (Bar-Yosef, Goldberg, and Leveson 1974).[1] It is located adjacent to the eponymous major spring (Levy et al. 2019) at the confluence of Wadi Fazael and Wadi Habala, 70 mbsl and ca. 2.5 km upstream (west) of its alluvial fan that flows into the Jordan Valley (Figs. 1, 8).

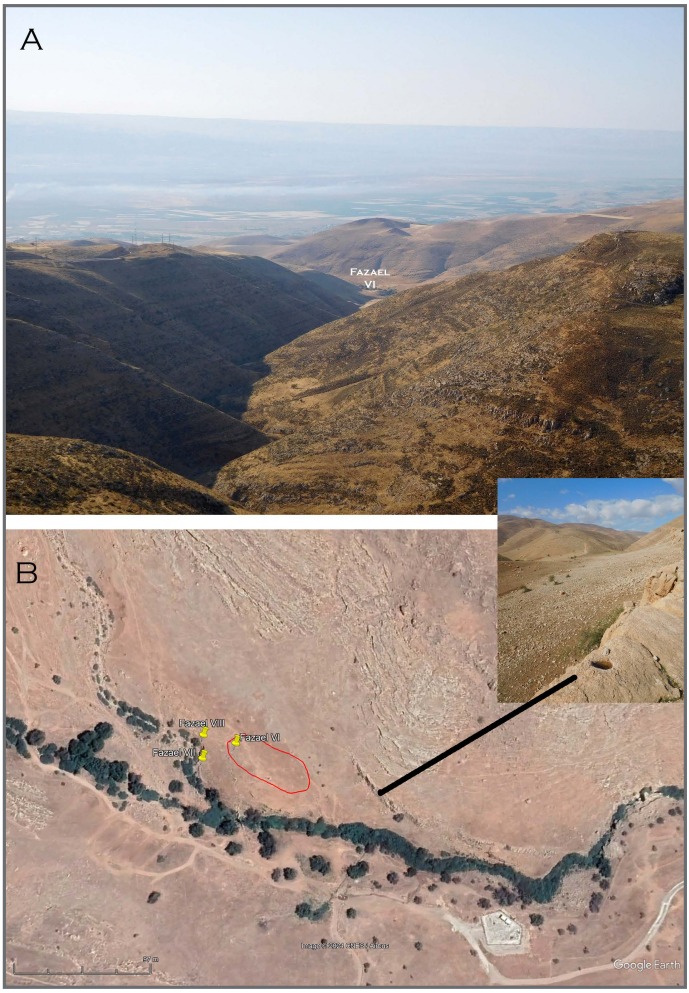

Fig. 8. (A) A view to the east onto the Rift Valley and Transjordan from the Samarian hills, showing the location of Fazael VI, adjacent to the copious spring; (B) a Google Earth view of Fazael VI and adjacent Epipaleolithic sites; (C) a mortar on the bedrock escarpment.

[1] Earlier *in situ* Epipaleolithic sites—Kebaran Fazael V and VII and Geometric Kebaran Fazael VIII—were found in wadi sections at the western edge of the terrace, while Fazael IX, a late Upper Paleolithic *in situ* Atlitian site, was located within a colluvial deposit between the escarpment and another large accumulation of travertine (Goring-Morris 1980a; 1980b).

Travertine spring deposits and a terminal Pleistocene fluvial terrace flank the site to the west. Notably, the bedrock escarpment to the southeast features a couple of V-shaped bedrock mortars that likely belonged to the occupation (Fig. 8). The site is nestled within the gently sloping saddle of a colluvial capping deposit between the southeast-trending escarpment and the travertine/fluvial terrace. Artifacts were found over an area of ca. 0.2 ha. They occurred in high densities and comprised chipped stone artifacts, numerous ground stone tool fragments (mostly basalt), and many angular limestone cobbles, many of which were burnt. It should be mentioned that occasional Late Neolithic, Yarmukian ceramics and lithics were also found on the terrace surface.

The site was identified based on artifacts visible on the surface, and in 1978, a 3 m^2 test pit was excavated by a team from the Hebrew University. These operations were conducted under the authorization of the Archaeology Staff Officer of Judea and Samaria and the direction of Prof. Ofer Bar-Yosef. While the site's surface was partially reworked and eroded, the test pit revealed a 0.4 m-thick occupation layer (Fig. 9). The pit was excavated using a 0.5 × 0.5 m grid and 5 cm-thick spits; all sediments were wet sieved through a 5 mm mesh. The sediment comprised a dark brown silty clay and stones at least 1 m thick, in which thinly laminated clays at a depth of ca. 30 cm below the surface appear to indicate local ponding. The matrix was accompanied by numerous 5–8 cm-sized angular fire-cracked stones, at depths from ca. 45–55 cm. Below these stones, the sediment became more grainy and gray colored. Sterile sediments were not reached, and no architectural or other features were noted.

Fig. 9. Fazael VI: (A) View to the west showing the location of the test trench, and (B) the northwest section of the test trench.

This may reflect the limited nature of the probe, and further testing is required to provide a definitive answer. Although

certain elements are still lacking, the findings suggest at least a seasonal base camp. There is persuasive evidence to indicate that the recovered artifacts are not in primary context and include significant quantities of earlier (probably Geometric Kebaran and, perhaps, also Kebaran) and some later (Neolithic, probably Yarmukian) intrusive elements.[2] There were also some red and yellow lumps of ochre. No botanical materials were recovered, but a limited pollen sample (n=44) featured a predominance of Graminae (54%) and Compositae (32%), alongside arboreal pollen (14%) that included Olea europea and Acacia (Alon 1976).[3]

3.1. Fauna

The faunal assemblage comprised 30 poorly-preserved identified elements, including 23 *Gazella* sp., a single *Dama* sp., three *Capra* sp., and one *Bos* sp., as well as a single *Lepus* sp. element and a *Potamon fluviatilis* claw (Simon Davis, personal communication; see also Goring-Morris 1980a). In addition, a small (n=31) but varied assemblage of avifauna was recovered, representing birds from nine families and some 21 different species in a wide range of sizes (Tal Simmons, personal communication). They included eight species of Anatidae (ducks, geese, and swans) and five species of Accipitridae (diurnal raptors). Ardeidae (herons and bitterns), Ciconidae (storks), Phasianidae (pheasants and partridges), Otididae (bustards), Rallidae (rails and crakes), Laridae (gulls), and Corvidae (crows) are also present.

In terms of habitat and seasonality, 10 of the 21 bird species present in the assemblage predominantly reside in open treeless fields, and another eight habitually congregate in ponds or lakes. Of the remainder, one prefers river banks, one favors settled areas, and one (*Larus leucopthalmus*) occurs today in the southern Levant only in the Red Sea region, near Eilat. The vast majority of bird species at Fazael VI are present in the region mainly during the cooler months; their numbers peak between October and March. By contrast and notwithstanding potential methodological problems (see Stutz 2002), cementum analysis of three gazelle teeth suggests a spring-summer occupation (Lieberman 1993).

Molluscs included 11 scaphopod (*Antalis* sp.) beads, a single Nassa sp., as well as some freshwater species, 25 *Melanopsis* sp. specimens, and two *Theodoxus* sp. specimens.

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[2] The Kebaran site of Fazael VII and the Geometric Kebaran site of Fazael VIII are located ca. 50 m to the northwest in the section of the wadi terrace (Bar-Yosef, Goldberg, and Leveson 1974; Goring-Morris 1980a; 1980b; and see Fig. 8B). In addition, a few ceramic fragments with characteristic herringbone incisions were recovered, as were a couple of bifacially thinned axes.

[3] Collected from Square O11b at 70–72 cm depth.

3.2. The chipped stone assemblage

The lithic assemblage described here derives from the test pit's lowermost 40 cm (Table 1, 2; Figs. 10, 11). As noted above, it seems that the assemblage is not entirely archaeologically *in situ*. Chipped stone artifact densities were high throughout. While the artifacts are not in pristine condition, they are relatively fresh, with several burnt items, debitage and tools. Raw materials vary from beige cherty, through brown flint and blue-gray chalcedony, the sources of which are uncertain but probably not too distant.

Fig. 10. Fazael VI chipped stone artifacts: cores (Rows 1–3), perforators and awls (Rows 4, 5), notches and denticulates (Row 6). The scale measures 5 cm.

Fig. 11. Fazael VI, chipped stone artifacts: backed and truncated blades, bladelets, and sickles (top panel); lunates (central panel); trapezes and rectangles (probably intrusive Middle Epipaleolithic; bottom panel). The scale measures 5 cm.

3.2.1. Cores, debris, and debitage

Cores (n=95; Table 3, Fig. 10). Nearly half of the cores are amorphous (25.2%), exhausted (4.2%), or broken (16.8%). Hinging is common, and many items display internal fracture planes. Pyramidal and subpyramidal varieties are the most common well-defined core type (24.2%), and only a few bear negatives of blade or bladelet removal.

Debris (n=30,957) comprises 87.0% chips and 13.0% chunks.

Debitage (n=8,214). Given that the assemblage is not archaeologically *in situ*, the general proportions of the different categories should be treated with some caution. As can be seen in Table 2, the debitage is dominated by flakes (55.6%), while blades and bladelets only account for 26.3%. Primary elements occur

in quite significant numbers (13.6%). Burin spalls are also relatively common (2.6%). Microburins (n=2) are almost absent.

3.2.2. Tools

The sampled material includes 1,164 tools (Table 4).

Endscrapers (n=22). Nine items were shaped on flakes, 10 on blades, one on a bladelet, and two on indeterminate blanks. Two of the nine simple endscrapers are on retouched blades. There is but a single flake endscraper, four are denticulated endscrapers on flakes, and three are frontally carinated, two of them are on flakes, and one is too broken to identify. Two items are double patinated. One item is just the bit of the scraper, and three items are varia.

Burins (n=100). This is one of the most common tool types in the assemblage, as it is among the multiple tools, where ten of 16 items feature burins (see below). Many burins are almost *pièces esquillées*. Burins on truncation (n=42) outnumber the dihedral variants (n=31), with an additional eleven items being double mixed. Interestingly, nine items are laterally carinated, and two are nucleiform. Only five burins were assigned to the varia category. Six items are double patinated.

Multiple tools (n=16). The most frequent combination comprises a burin (n=10) with one or more notches (n=4), some perforator variety (n=3), truncation (n=1), endscraper (n=1), and *pièce esquillée* (n=1). The second common combination consists of one or several notches and a perforator variety (n=4). Interestingly, only two items comprise endscrapers (one with a burin and one with a notch).

Retouched and backed blades (n=59). Thirteen items bear the morphological features of sickle blades but lack the typical sickle gloss (Fig. 11). Two specimens are bilaterally backed, and two feature Helwan retouch. With the exception of three, all other specimens are broken.

Sickle blades (n=15; Fig. 11). There are three backed, three retouched and nine retouched and truncated items. Most of them are broken; only four are complete items, laterally backed with double convex truncations, and one is a bladelet. Two more broken items are shaped on bladelets. Three items have bipolar backing, and one item is backed by Helwan retouch and, while broken, differs by having a straight truncation.

Truncations (n=40; Fig. 11). Only six items are on flakes, and two are too broken to identify the blank. Thirteen items are complete, of which five are bitruncated and backed by bipolar retouch; the truncations are usually

straight and/or slightly convex. Eight items have an oblique truncation, while 10 feature a straight truncation. There are five blades with Helwan retouch and an arched, inverse truncation.

Microliths (n=268; Fig. 11). Only 11 microliths are complete; the rest are broken. Seventeen are arch-backed, one of which is bipolarly backed. Two complete items are Helwan retouched and bitruncated, one with inverse and one with obverse truncations. Forty items are backed and truncated bladelets, one of which is complete. Nine bladelets are obliquely truncated, four of which are complete; one bladelet features a straight truncation. Twenty-eight items are backed fragments, four of which have bipolar retouch. Of the retouched variety, there are 108 items; all but one are broken and are mostly medial fragments. Seven items are finely retouched, Ouchtata-like bladelets; all are fragments, except for one. Thirteen broken items are inversely retouched. Eleven items bear Helwan retouch and are truncated; three have an inverse truncation. Of the 32 varia specimens (all broken), two are Helwan retouched items, three are inversely retouched, and two are seemingly micrograveттes.

Geometrics (n=288). This category comprises 234 backed lunates and 54 rectangles. Among the lunates, 13 have bipolar backing, 48 feature Helwan retouch, and 12 are semi-abruptly retouched. Among the rectangles, 14 are complete (three of which are atypical), and the rest are broken (Fig. 11: bottom panel). The broken items are assigned to this tool type as they retain one straight truncation, and the breakage angle suggests another straight truncation at the opposite, missing end. The mean length of the 11 complete examples is 18.6 mm, while the average width (n=54) is 5.6 mm.

Perforators (n=99; Fig. 10: Rows 4, 5). This abundant category comprises 26 awls, 28 single becs, six multiple becs, 19 borers, and 20 spikes. Seventeen of the awls are complete. Three of the awls were shaped on blades, one on a bladelet, 20 on flakes, and two are too fragmentary to determine the blank. Three awls were shaped on core trimming element (CTE) blanks. Among the single becs, eight were fashioned on blades, one on a bladelet, one on a chunk, four on blanks too broken to identify, and the rest on flakes. All in all, 15 single becs are complete, including four formed on CTEs. The multiple becs were all produced on flakes, one of which is a CTE; four are complete items. Of the borers, 12 were made on blades, two on bladelets, and five on flakes; two blanks are actually CTEs. Eight borers are broken, while 11 are complete. Lastly, spikes comprise 11 complete and nine broken items. The blanks include 12 flakes, two blades, two bladelets, and four indeterminate; one flake is actually a CTE.

Notches and denticulates (n=176; Fig. 10: Row 6). This category consists of 37 denticulates, 73 single notches, 58 multiple notches, and eight spokeshave

items. Six denticulates are complete; one was fashioned on a chunk, 20 on blades, two on bladelets, and 14 on flakes. One of the latter bears double patina.

Of the single notches, seven are ventral; 18 are complete, and 55 are broken. Twenty-five single notches were fashioned on flakes, 14 on blades, two on bladelets, and 32 are indeterminate; three blanks are actually CTEs. Among the multiple notched items, five are alternately notched; 39 are broken, and 19 are complete. Twenty-three multiple notches were shaped on flakes, 17 on blades, five on bladelets, and 13 on indeterminate blanks; seven blanks are actually CTEs. Lastly, the spokeshave items, a characteristic tool type of the southern Natufian, comprise five complete and three broken specimens; three were shaped on flakes, four on blades, and one on a bladelet. One of the items features double patina.

Heavy-duty tools (n=5). Four are complete and one is broken. Four were fashioned on flakes and one on a chunk. One can be described as a denticulate, another as a scraper, and yet another as a hammerstone or a chopper. The remaining two are too amorphous to be defined as a specific tool type.

Varia (n=76). This category includes 16 retouched flakes, six of which are complete, one featuring inverse and another alternate retouch. Twenty-one items are retouched fragments, four of which are retouched inversely and one alternately. There are also five backed fragments. The rest include two, probably intrusive, transverse arrowheads with oblique truncations, one backed, while the other is not. There are also four *pièces esquillées* on flakes, one hammerstone, one raclette, and 26 unique items that cannot be assigned to any definable tool type.

3.3. Ground stone tools

The ground stone tools comprise a relatively large assemblage of 67 items, 11 of which derive from the test pit (Figs. 12, 13; Table 7). We treat them as a single assemblage since most types were found both in the test pit and on the surface. The only exceptions are a single chopping tool from the test pit and two workslabs from the surface. The vast majority of ground stone tools are broken.

Raw materials include basalt, limestone, and sandstone, as well as isolated instances of phosphorite(?), a metamorphic rock, chalk, and travertine (Table 7). While most tool types are similar to those observed in Salibiya XII (i.e., pestles, mortars, capstones, bowlets, etc.), five shaft straighteners are a notable exception (Fig. 12). Also remarkable are a mortar rim with decorative notches and two pestles: One is a basalt pestle fragment with a widening working tip (Fig. 13:10),

Fig. 12. Fazael VI ground stone tools: bowlets (1, 2), handguards (3–6); shaft-straightener fragments (7–11), grooved pebble (12). Note the different scales.

Fig. 13. Fazael VI ground stone tools: broken bowls (1–3), pestle fragments (4–7, 8, 10), abrader (9). The scale measures 5 cm.

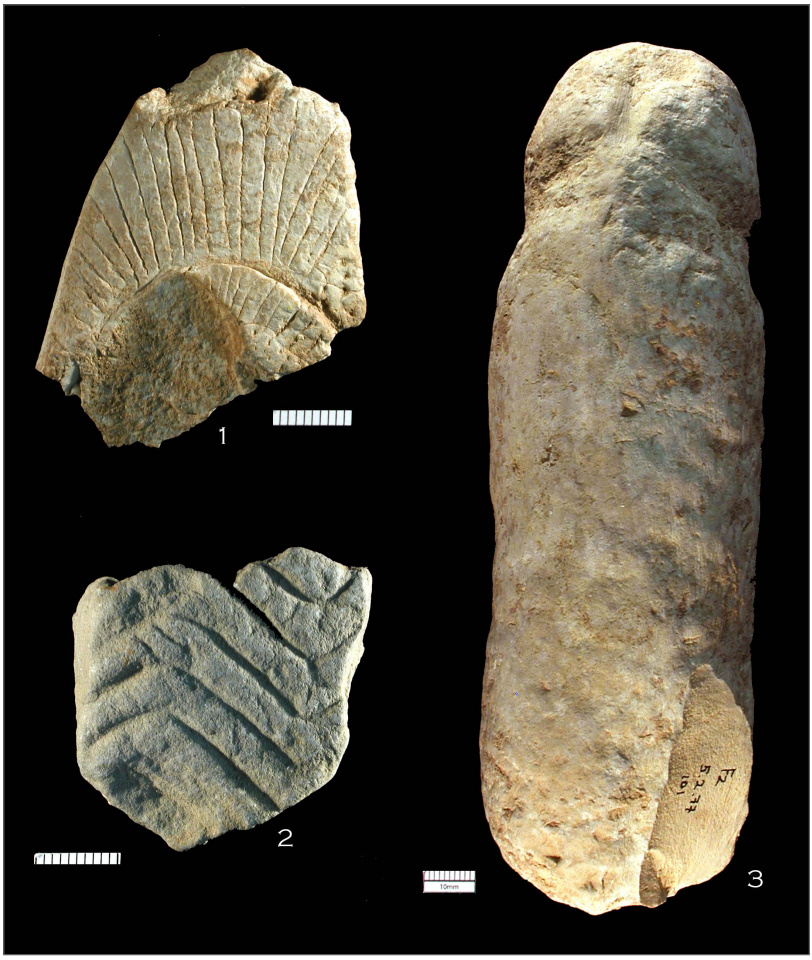

Fig. 14. Fazael VI, various artistic elements. Scales measure 1 cm.

whereas the other is a complete limestone item naturalistically shaped as a life-sized erect phallus (Fig. 14:3; see also Marshack 1997: Fig. 22). An ochre covered limestone plaque from the test pit is also of note (Fig. 12:3).

The artistic items (Table 7; Figs. 14, 15) merit a detailed study, which is currently underway. They include seven fragments of incised items and feature both hard and soft raw materials (limestone, phosphorite, travertine), while their incisions vary in clarity, complexity, and intensity. Similar items were reported from many presumably permanent or semi-permanent Natufian camp sites, such as the open-air sites of Eynan and Wadi Hammeh 27 and the cave sites of el-Wad and Hayonim (Garrod and Bate 1937; Perrot 1966; Belfer-Cohen 1991; Edwards 2013). Most of these parallels derive from Early Natufian contexts (for a detailed comparative inventory, see Major 2018).

Fig. 15. Fazael VI, artistic elements: Incised plaques.

3.4. Bone tools

The Fazael VI bone tool assemblage comprises 18 poorly preserved and mostly burnt items, all from the test pit. They include 13 polished fragments; one may have been a point, while another has two incisions; seven items are apparently burnt. The bone assemblage also includes four fragmentary pendants (Fig. 16). Two are plano-convex, burnt, and shaped from gazelle metacarpals; one is broken near the perforation. Another pendant was made from an artodactyl limb bone. Particularly interesting is an almost complete bird wing pendant (Fig. 16:1; Belfer-Cohen and Goring-Morris 2013: Fig. 3.5; see also Major 2018: Figs. 5.5, 5.6, 7.45). There is also a single stone bead of unknown material. A unique item is a gazelle first phalanx bearing seven cut marks that were made before it was cut and polished (Fig. 16:2).

Fig. 16. Fazael VI, artistic elements: Perforated bone "bird-wing" pendant (1), incised bone (2), fragmentary perforated bone pendant (3), burnt fragment of perforated plano-convex bone pendant (4).

4. Discussion

Both Salibiya XII and Fazael VI appear to represent substantial occupations in the immediate vicinity of what were at the time relatively significant springs or seeps. Salibiya XII in particular is of interest in that it represents the earliest Terminal Pleistocene site *within* the Lower Jordan Valley, following the retreat of Lake Lisan (see above).

Although there are no dates from either site, their lithic properties suggest that they belong to the later part of the Early Natufian (ca. 15–13.5 cal. BP) and that the occupation of Salibiya XII was briefer than that of Fazael VI. If this is a valid hypothesis, one could argue that the sites were occupied when the wet conditions were resumed at the beginning of the Younger Dryas (Stein et al. 2025; see also above).

The site of Fazael VI was clearly quite substantial, as suggested by the artifacts' extensive surface distribution and the depth of deposits in the test pit. However, there are also indications for a significant degree of admixture with earlier, Middle Epipaleolithic, Geometric Kebaran (based on typological considerations and raw materials; see Fig. 11: bottom panel), and later, Late Neolithic, Yarmukian elements. By contrast, according to the mechanically excavated trench, Salibiya XII features an occupation horizon in primary context. The site was clearly substantial, although it seems likely that the occupation was seasonal, presumably alternating with other seasonal locations somewhere in or over the Samarian hills to the west. Ultimately, neither site provides evidence

for permanent occupation in the form of durable architecture or burials, though this may be fortuitous given the small scale of investigations at both sites.

The faunal assemblages recovered from both sites are quite meager, save for the birds (and especially the waterfowl) at Fazael VI, which appear to indicate a primarily wintry occupation, which reflects, to a degree, the fact that the Rift Valley is a major highway for annual bird migrations. Indeed, the evidence from Fazael VI complements the situation observed in other, slightly later sites within the Salibiya basin wetland—Salibiya I (Late Natufian), Gilgal II (Final Natufian), Salibiya IX (Khiamian), Gilgal I (PPNA), and Netiv Hagdud (PPNA)—where birds and especially waterfowl comprise a major component of the faunal assemblages with an emphasis on winter visitors (Kolska Horwitz et al. 2010).

Both chipped stone assemblages display a wide range of raw materials, from cherty flint (characteristic of local Upper Paleolithic and earlier Epipaleolithic assemblages), through brown and blue-gray flint, to translucent chalcedony. In both assemblages, there is much edge damage, and many items are burnt. While diverse, most raw materials are of poor quality, especially compared to earlier local Epipaleolithic assemblages. The knapping technology is very poor with considerable "hinging," mostly for flake production, although blades and bladelets were clearly the favored blanks. The cores are quite crude, and there is almost no systematic core rejuvenation. The microburin technique is absent, while Helwan retouch occurs in low frequencies. These patterns are similar to those observed in other sites and assemblages along the Middle and Lower Jordan Valley, especially WH 27 (Edwards 2013), Wadi Khawwan 1 (Edwards 2015) and Ala Safat (Waechter 1948: Fig. 2). Unfortunately, little information is available for basal Jericho to the south (Kenyon and Holland 1983) or Wadi Hisban 6 on the eastern side of the rift (Edwards, Head, and Macumber 1999; Edwards 2015).

Both assemblages described herein include relatively large Helwan lunates and blades. At Salibiya XII, complete Helwan lunates (n=13) average 23.1 × 8.8 mm, whereas at Fazael VI (n=30), they average 18.6 × 7.0 mm (Table 8). For comparison, at WH 27, Helwan lunates (n=57) average 21.5 × 8.0 mm. Interestingly, also at WH 27, the use of the mbt is very low. Of the 174 backed lunates from Fazael VI, 18 bear bipolar retouch, while no bipolar retouch is observed on the backed lunates from Salibiya XII, possibly indicating the former locality was used for an extended period. As pointed out previously (Valla 1984), lunate sizes decrease in length and width from Early to Late and Final Natufian assemblages. Furthermore, Natufian assemblages in the Mediterranean core area generally tend to feature somewhat shorter and squatter lunates than in the Negev (see Goring-Morris 1987: Fig. VIII-21). The Jordan Valley sites seem to occupy an intermediate position as regards the lunate dimensions.

Table 8. Lunate dimensions.

	Mean length	Mean width
Salibiya XII		
Helwan (n=13)	23.1	8.8
Helwan and semi- (n=28)	20.8	8
Semi (n=15)	17.1	6.7
Backed and semi- (n=38)	18.6	7.2
Backed (n=23)	18.4	7.2
Fazael VI		
Helwan lunates (n=30)	18.6	7
Abrupt lunates (n=123)	17.6	6.8

Perforating tools are relatively common, and there are quantities of typical Natufian spokeshave notches. Scrapers and burins are uncommon, as are the sickle blades. Overall, the chipped stone tools of both sites display traits particular to the Jordan Valley Natufian: low sickle blade frequencies, high percentages of drilling artifacts, and, perhaps, some continuity of geometrics other than lunates (Belfer-Cohen and Goring-Morris 1996).

The ground stone tool assemblages from both sites display a typical early Natufian repertoire (e.g., the V-shaped mortar), though the assemblage from Fazael VI is nearly twice the size of that from Salibiya XII (Table 7). Both assemblages feature a range of common Natufian raw materials, including basalt, limestone, and sandstone, while the Fazael VI assemblage also included rarer metamorphic rock, phosphorite, chalk, and travertine.

Another feature of Salibiya XII and Fazael VI, which they share with other Natufian Jordan Valley sites (i.e., Eynan, WH 27, and Wadi Hisban 6), is the circular, flat, or conical basalt or limetone capstone ("thimble") handguards, which may have been components of hand-pump drills (Perrot 1966; Wright 1992; Edwards 2013: Figs. 8.22, 9.9–9.12; 2015). The presence of shaft-straighteners at Fazael VI and their absence at Salibiya XII is intriguing.

The worked bone repertoire is also typical of Natufian assemblages, although the number of finds from Fazael VI is significantly larger than that from Salibiya XII. Most items are broken and fragmentary (see above), but both assemblages include the typical Natufian plano-convex pendants made on gazelle metapodia. The bird-wing pendant from Fazael VI is similar to that from WH 27, maybe reflecting a unique Jordan Valley style. Indeed, the appearance of decorated items at Fazael VI accords with an Early Natufian attribution and, again, merits comparisons with WH 27.

To summarize, the Lower Jordan Valley Natufian sites presented here appear to reflect an intermediate facies between the (almost) permanently occupied Natufian "hamlets" of the Mediterranean woodland zone and the more mobile occurrences in the arid zones (i.e., the Negev and southern Jordan). Nevertheless, they are clearly part of the mainstream Natufian "world," as reflected in the overall nature of the material culture remains.

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