THE EPIPALEOLITHIC SITE OF EL HUNA, NORTH-CENTRAL JORDAN

by
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Introduction

This site was located during Phase I of the 'Ajlun Mountain Iron Survey conducted during August-September 1981. It is situated on a remnant second terrace just above the Zarqa River below the King Talal Dam, between 20 m.a.s.l. and -20 m.b.s.l. The area has an unusual geomorphology: two ancient alluvial fans have been laid down directly opposite each other, by the Wadi el Huna and the Wadi el 'Azab as they meet the Zarqa (Fig.1). On the north side of the Zarqa remnants of three terraces are discernable, cut into the fan. They are only fragmentarily preserved, being subject to massive slope-slips, and down-slumping due to undercutting by the Zarqa. The Wadi el Ḥuna is now deeply incised through the sequence, and as it rarely flows, its bed is choked with debris and thick stands of oleander and bamboo. The whole fan area is bounded by a high scarp, part of the southern edge of the 'Ajlun dome anticline.

The area presently receives approximatly 0.0300 m. of rainfall per annum, and while the soils of the Zarqa region are generally classified as red Mediterranean (Bender, 1974), zones of yellow steppe soils and rendzinas of alluvial origin occur. The Zarqa River region encompasses the transition from the Irano-Turanian to Mediterranean plantgeographical territories (Zohary, 1962). In the el Huna area much of the remaining area of terraces is now under open and hothouse cultivation of peppers, eggplant, beans and cucumbers. An orchard of lemons, grapefruit and olives is located on an upper terrace, next to one of the many fresh-water springs that occur in this area. Above the scarp, remnants of the *Quercus calliprinos-pistacea palaestina* association can be seen.

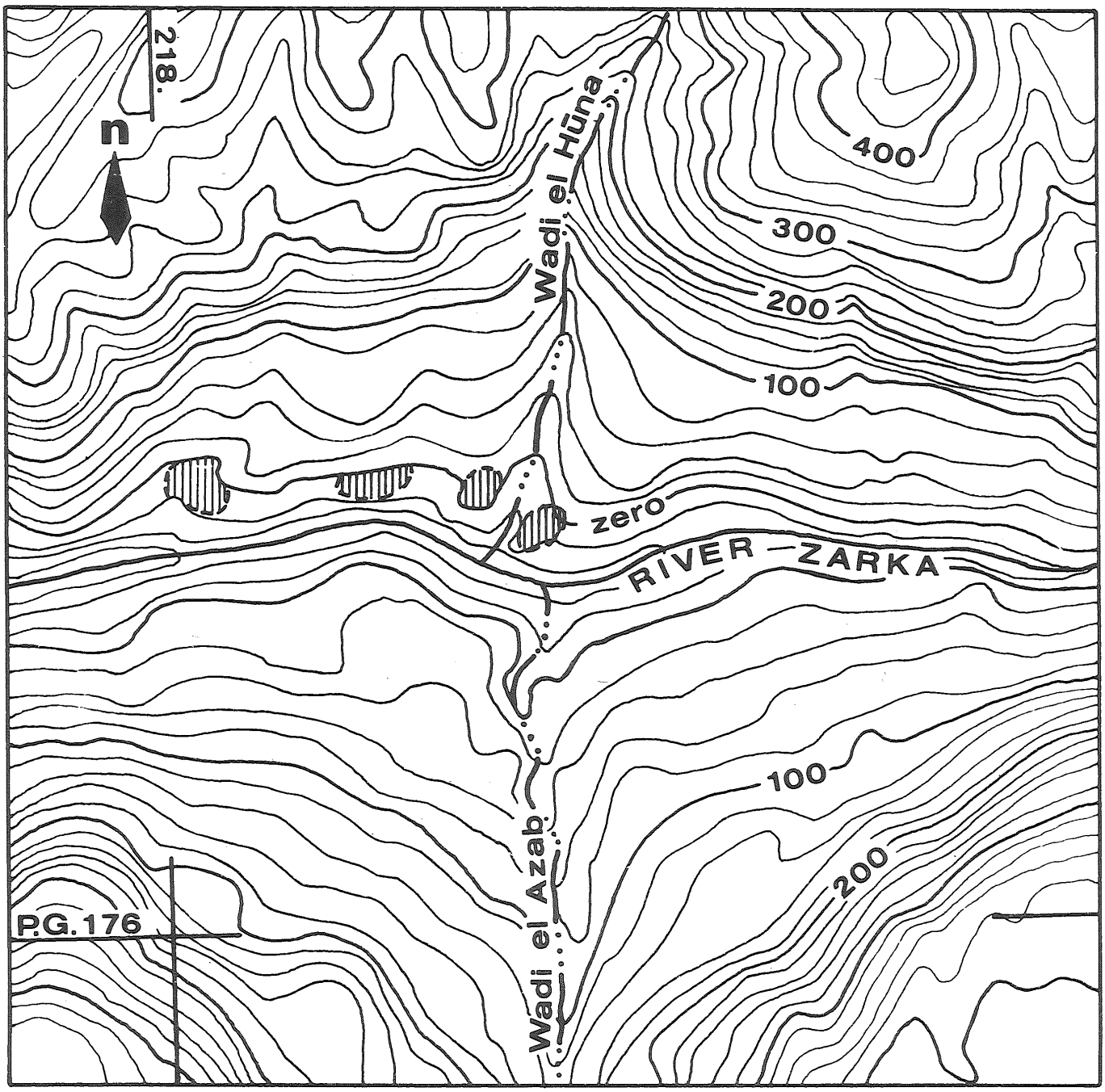
Artefactual material occurs on the remains of the second terrace, on both the east and west sides of the Wadi el Huna. This scatter is discontinuous, covering an area approximately 1,020 m. in length by 120.00 m. wide. Artefacts were collected in four areas (basically the only areas of the terrace left intact) which together totalled some 3460 m. sq. One of these areas on the east side of the Wadi el Huna showed a comparative concentration of artefacts, together with grinding stones, and attention was focused on this zone. A commpass-rose transect sample was taken here, as well as selective surface collections.

Artefact studies were carried out by specific collection area of the site, and since a high degree of homogeneity occurred in all collection arreas, the results were pooled for presentation. Detailed analysis of the technological and typological features of the assemblage were carried out and the information presented here is an abbreviated summary of the results of this analysis. The complete study will be published shortly.

The Artefacts

Flint of variable quality is readily available in the form of river pebbles and cobbles from the bed of the Zarqa. This resource was supplemented by importation of high quality, fine-grained coloured flint from some presently unknown source. This fine quality material was preferred for tool manufacture, with nearly half of the tools being made from it.

The el Ḥuna assemblage is characterized by a low proportional occurence of cores, core flaking debris, crested blades and primary flakes. Production of flakes exceeds that of blades, although blades were preferred for tool manufacture. Seventy-six bladelets are included in the blade class, comprising 24% of this category. The proportional occurrence of artefact classes indicates that secondary reduction and tool manufacture were carried out on site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EL HŪNA - artifact scatters

Fig. 1

(Table 1). The flake and blade to core ratio is intermediate at 17.2:1, while the primary flake to core ratio is low at 1:5. It is apparent that little primary reduction occurred on site and that the bulk of material was quarried and prepared elsewhere.

Table 1. Artefact Type

	n	%
Flakes	471	53.5
Blades	315	35.8
Crested blades	5	0.6
Cores	46	5.2
Core flaking debris	39	4.4
Natural/thermal flake	1	0.1
Chunk/cobble	1	0.1
Flake used as core	2	0.2
Subtotal	880	99.9
Debris	197	(17.8)
Indeterminate	18	(1.6)
Groundstone	6	(0.5)
Basalt fragments	4	(0.4)
Total	1105	

Reduced and exhausted cores formed 30% of all cores, suggesting a tendency towards core curation. Prismatic blade and bladelet cores (with all but one being single platform) predominate at 17%, followed by single face flake cores at 9%. Other core types present included multiple platform, globular, disc and radial flake cores; single platform blade and single-face flake and blade cores (Pl. III). Occasional, formless and indeterminate cores comprised 13% of core types.

The flaking technology utilised at el Ḥuna showed a clear difference between fake and blade production. Platform types indicative of direct percussion (Table 2, Class 1-2) account for 84% of the flake class. Of these approximately 10% were struck by hard hammer. About 16% of flakes showed evidence of indirect percussion (punch technique). In the blade class, nearly half were produced by the punch technique, with the remainder being struck by direct percussion. The rather high proportion of missing blade platforms is an anomaly and is discussed below.

When blade and flake forms were combined (including blade flakes showing prior blade removal on their exterior surface but failing to conform to true blade definition), for the purpose of distinguishing specific flaking technique trends, it was found that the blade technique slightly outweighed the normal, undifferentiated flake production technique (37% to 31% respectively). The punch technique accounts for 15%, prepared core for 13%, and disc/radial core methods for 4%.

Blade production was strongly uni-directional with only 16% showing bidirectionality. These bidirectional examples give an impression of poor technological control over bipolar blade production.

Flaking (skew) angles were measured for flakes and blades complete enough to determine platform orientation and termination morphology. The sample was small: 179 flakes and 75 blades. Flake to blade ratio was 2.3, similar enough to that at the PPNB site of 'Ain Ghazal, 2.5, to

Table 2. Platform Type Summary

	Flakes		*Blades*	
	n	%	*n*	%
1. Plain, dihedral, transverse, dihedral with 1 transverse facet	223	69.9	69	40.4
2. Facetted	46	14.4	18	10.5
3. Punch, crushed, point	50	15.7	84	49.9
Subtotal	319	100.0	171	100.0
4. Absent	152	(32.3)	149	(46.6)
Total	471		320	

allow some technological comparison.

The flake class at el Huna shows a bimodal pattern of distribution with two distinct peaks at Class 4 and Class 6 (Fig.1: A,B). This virtually mirrors the situation at 'Ain Ghazal, which was interpreted as resulting from the mixture of direct and indirect percussion techniques, with some possible connection with the cortical state (Villiers, n.d.). Skew angles of blades at 'Ain Ghazal were evenly distributed around the orthogonal class (Class 5) forming a normal distribution curve and reflecting a high degree of proficiency with the punch technique. At el Huna however the blade class shows a marked right-hand skew, with a peak at Class 6. This uneven distribution results from the mixture of direct and indirect percussion techniques, as well as the lack of skilled control in using the punch technique.

Of flake forms 24% were angular, indicating little attention to morphological regularity. Hinge terminations, interpreted as reflecting flaking error (i.e., the application of excess outward force; Cotterell, Kamminga, 1979) comprised 7% of the sample. About 13% of blade forms showed angularity, and hinge fractures accounted for 4%. Approximately 3% were overshot and 6% showed platform reduction, indicative of careful preparation of the striking platform for use of the punch technique. This figure is quite low, adding further weight to the observation that use of the punch technique had not yet reached a habitually proficient level.

An interesting feature emerged from monitoring the condition (i.e., wholeness) of artefacts. Of blades with absent platforms, fully 44% were tools. This preference for removing platforms of blanks selected as tools is also present among flakes: 31% of flakes without platforms were tools. Platforms do not normally break off as a result of flaking error, and usually being the most robust section of a flake are more resistant to post-depositional damage. As can be seen from Table 3, rates for absent platforms are generally low. At el Ḥuna, however, flakes and blades with absent platforms (Class 2 and 4 combined) comprise the absolute majority of tools: 61% of flake tools, 62% of blade tools. The similar rates suggest a non-functional (stylistic) reason for this phenomenon.

Observations on the cortical state of artefacts showed that flakes with cortical platforms accounted for 9% suggesting some limited initial reduction activity on site. However, as Table 4 shows, the rather low value for minimal cortex flakes and comparatively high value for partly cortical flakes appears to go against the expected trend in a site where only limited primary reduction is occurring. To check this apparent selection for partly cortical flakes, the cortical states of tools were included. The same pattern is repeated with 33% of flake tools being partly cortical. Clearly at el Ḥuna partly cortical flakes were selected for tool production at only a slightly lower rate than cortex fre flakes. Tool types do not appear to be an influencing factor, although this needs further investigation.

The blade class shows an expected progression of cortical states, from 70%

Table 3. Condition

	Fl.		*Fl. Tools*		*Bl.*		*Bl. Tools*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
1. Complete	182	38.6	15	30.6	72	22.5	13	18.3
2. Platform absent	59	12.5	18	36.7	32	10.0	14	19.7
3. Other edges absent	127	27.0	4	8.2	95	29.7	12	16.9
4 .Platform other edges absent	75	15.9	12	24.5	97	30.3	30	42.3
5. Burnt (incomplete)	28	5.9	—	—	24	7.5	2	2.8
Total	471	99.9	49	100.0	320	100.0	71	100.0

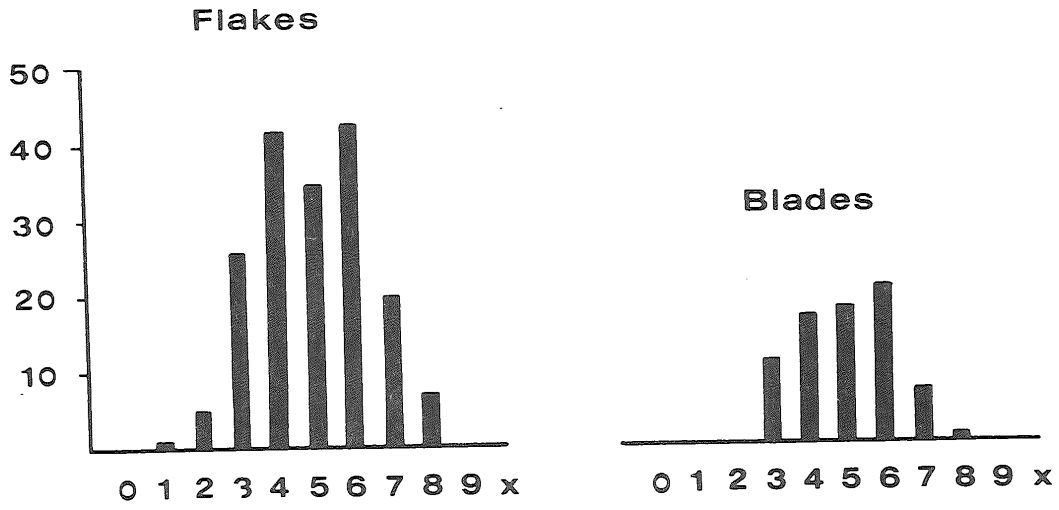

FIG. 1A: Histogram of Skew Angle Classes.
El Huna

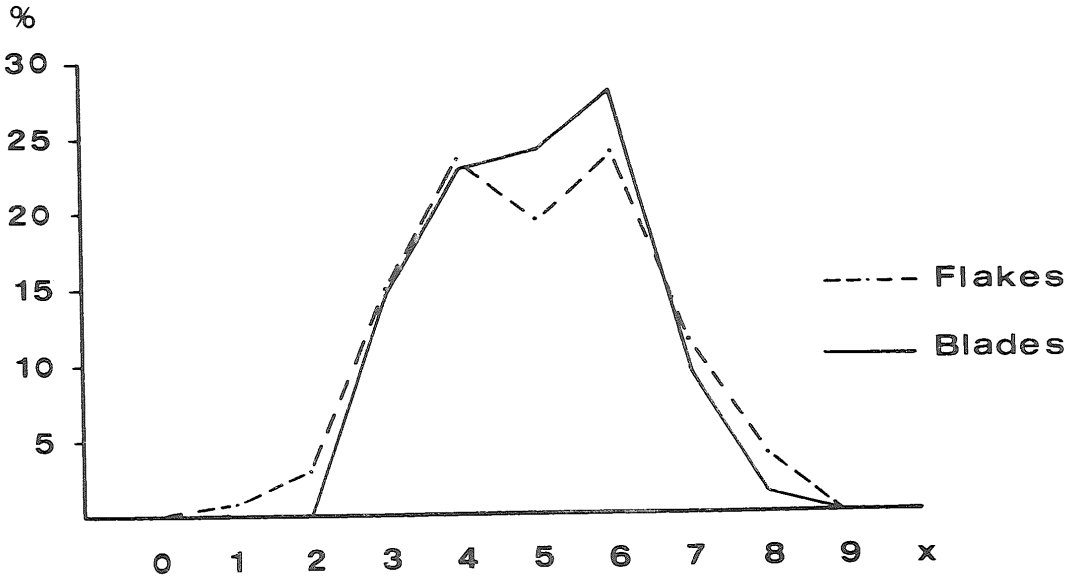

FIG. 1B: Graph of Skew Angle Percentages.
El Huna

Table 4. Cortex Categories

	Fl. *n*	%	*Fl. Tools* *n*	%	*Bl.* *n*	%	*Bl. Tools* *n*	%
Cortical (50%)	58	12.3	7	14.3	—	—	—	—
Partly cortical (10-50%)	109	23.1	16	32.7	16	5.0	2	2.8
Minimal cortex (1-10%)	49	10.4	5	10.2	46	14.4	12	16.9
No cortex (0%)	183	38.9	18	36.7	214	66.9	48	67.6
Natural back	29	6.2	3	6.1	31	9.7	9	12.7
Cortical cortical plat.	9	1.9	—	—	—	—	—	—
Partly corticalcort. plat.	8	1.7	—	—	1	0.3	—	—
Minimal cortexcort. plat.	3	0.6	—	—	2	0.6	—	—
No cortexcort. plat.	20	4.3	—	—	9	2.8	—	—
Natural backcort. plat.	3	0.6	—	—	1	0.3	—	—
Total	471	100.0	49	100.0	320	100.0	71	100.0

non-cortical to 6% partly cortical. Natural backing at 10% of blanks suggests a functional selectivity, and not simply the presence of primary reduction by-products. This is borne out in the tool class where 13% of blade tools are naturally backed.

The majority of flakes from el Ḥuna exhibit either a partial light patina or an overall white patina. The substantial proportion without patina (14% of flakes, 19% of blades) appears to indicate recently exposed material, and hence the likelihood of some subsurface material remaining on the site. The fresh, unabraded edges of 91% of flakes and 94% of blades further suggests that the assemblage has not been significantly affected by the redepositional agents of soil movement, wind or water action, and is essentially *in situ.*

Typology

There are already a number of type-lists in use for the Epipaleolithic period (Hours, 1974) all of which have been developed in areas surrounding Jordan. The el Ḥuna assemblage however does not fit easily into these standard typologies and certain accomodations had to be made. Typologies at best form a shorthand summary of a variable situation, and where there is an obvious "lack of fit" between defined types and actual tools much of the comparative value of typing is lost. Nevertheless, a standard type-list was used here as it enabled areas of similarity and difference to be pinpointed. Also no new list can be formulated on the basis of an uncontrolled surface sample and it remains to be seen if the situation at el Ḥuna is aberrant or is repeated at other Epipaleolithic sites elsewhere in Jordan.

At el Ḥuna tools were produced on blanks from most artefact classes, although blade forms account for over half the tools manufactured (Table 5).

Table 5. Artefact Classes Used In Tool Production

	n	*Tools*	%
Flakes	413	42	10.2
Blades	320	71	22.2
Primary elements	58	7	12.1
Cores	46	2	4.4
Core	39	1	2.6
Chunk/cobble	1	1	
Total	877	124	100.0

Flakes were converted into tools at an average of somewhat less than one out of ten, blades however were used intensively, with an average of over one in four being so modified. The rather high rate of use of primary flakes (as compared to some other

Kebaran sites; Marks & Simmons, 1977: 244) is curious. These tools include 3 notches, 3 burins, and a denticulate. The association between burins and cortex is unclear, although for notches its presence can provide a more robust working edge.

Tools made on bladelets comprise 27% of blade tools and 15% of all tools. Microliths (including geometrics) form only 12.4% of the tool group. This is a rather low proportion for Epipaleolithic sites, at least as they are presently understood.

Notes On The Typology

After notches and denticulates, burins are the second most common category of tools at el Huna. Six burins were made on flakes but the majority were on blades. Burins on natural pan and dihedral déjeté examples account for over 45% of burin types. A new sub-category was added to accommodate multiple blow, diverse burins. Both examples are double, opposing burins.

A second new sub-category was inserted in the retouched and backed blade group to include retouched sickle blades. These include truncated, backed and nibbled retouch examples (Pl. II: 14, 15).

All truncations were located distally, with retouch varying from nibbled to steep, and one concave, one straight, three convex and four canted (oblique) examples.

Most of the bladelet tools were made on fine quality coloured flint with nibbling retouch or steep sub-parallel backing. Only three geometric microliths were found at el Huna and their retouch was normal abrupt and carefully executed. The proto-lunate appears to be simply an incomplete lunate with partial retouch on the back. The one microburin found is best regarded as a by-product of abrupt retouch.

Notches and denticulates form the largest group of tools and show considerable morphological variety. Eighteen are on flakes, six are on blades and one is on a bladelet. About half of the notches were formed by exterior compound retouch, and the rest by compound interior or single-blow notching. Notched flakes exhibit variable amounts of cortex (nine are cortical or partly cortical) and retouch is irregularly placed. Denticulates are generally rough and irregular. The removal of the striking platform by notching on various other tools suggests the possibility that a number of notches may represent a phase of tool preparation and are simply incomplete tools.

The "varia" category is disproportionately large and the result of two factors. Firstly, a marked tendancy to re-use and re-modify tools, and secondly the occurrence of tools outside the standard typology, particularly wedges and compound tools. The "Unclassifiable" tools are all broken fragments of larger tools.

Typological Discussion

Table 7. Typological Indices

IG	Scrapers on flakes and blades	9.1
IB	Burin Index	18.2
IM	Microlith Index	9.9
IMG	Geometric Microlith Index	2.5
ITmb	Microburin Technique	0.8
Restricted Indices		
IBd^r	Dihedral burins	40.9
IBn^r	Burins on natural pan	22.7
IBt^r	Truncated burins	13.6
IMt^r	Backed & unbacked obliquely Truncated blades	28.6

The el Huna tool complement is composed primarily of notches and denticulates, burins and various tools. The index for notches and denticulates is very high and this may be due to either or both of the following:

— the possibility that notching represents an initial stage of tool manufacture here, and part of this group represents unfinished tools.
— the possibility that at el Huna woodworking activity was emphasized.

Comparison of the el Huna indices with the general ranges of Epipaleolithic cultures (Bar-Yosef, 1970: 179) shows that for all major tool groups its range is closest to that of the Natufian. However, the assemblage shows no sign of Ḥelwan retouch, the microburin technique is not established and lunates and geometrics are rare. The lack of these characteristic Natufian traits, together with the presence of features taken to be indicative of a late phase of the Kebaran (tools with inverse or alternate retouch, the broad micropoint, and numbers of awls, borers, notches and denticulates) suggests placement of the el Ḥuna industry in the Late Kebaran period, approximately 12,000 to 10,000 years ago.

Conclusions

The el Ḥuna assemblage may be seen as transitional in the sense that technological emphasis appears to be shifting from direct percussion, soft- hammer methods of blade production to increased use of the punch technique for producing blade and bladelet forms. As can be seen from the data on skew angles, directionality and platform preparation full mastery over this technique had not yet been achieved.

The inhabitants of el Huna showed two distinct traits in the preparation of their tool kit: a preference for removing the striking platforms of tools beford final retouch, and a preference for selecting partly cortical flake blanks for transformation into tools.

The large number of tool types present at el Ḥuna reflect an unspecialized tool kit and suggests that a wide range of activities were carried out there. The numerous notches, denticulates and burins indicate that woodworking and/or boneworking were important. Some harvesting or cutting of silicious plants such as wild grains or rushes is attested by the presence of sickle blades. The grinding stones found here further suggest the domestic activity of grinding seeds or grains. Scrapers, awls and borers may be seen as indicating skin-working tasks. The presence of some partly fossilized fragments of an indeterminate horn core and the first phalange of an immature *sus scrofa* (Dr. A. Garrard, pers. comm.) may be related to the occupation. Fresh water would have been readily available from the numerous springs in the area as well as the Zarqa River.

The el Ḥuna site appears to have functioned as a seasonal base camp, with a diffuse zone of activity stretching along the now mostly destroyed second terrace of the Zarqa. Despite the overall poor preservation of the site, a salvage excavation is certainly warranted as information from this period is still scarce in Jordan.

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