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KABAZI V: INTERSTRATIFICATION OF MICOQUIAN & LEVALLOIS-MOUSTERIAN CAMP SITES

Edited by
Victor Chabai, Jürgen Richter and Thorsten Uthmeier

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Chapter
14

Kabazi V, Unit IV: Western Crimean Mousterian

Victor P. Chabai

Kabazi V, Unit IV has been subdivided into three different archaeological levels: IV/1, IV/2 and IV/3. Excavations of level IV/1, which concentrated on an area of about 20 m², yielded an artefact density of some 1397.5 items per m³. Levels IV/2 and IV/3 were each excavated in areas of roughly 15 m²; artefact densities in these levels were recorded at 870.8 and 427.8 artefacts per m³, respectively. It is of particular note that these artefact densities are among the highest ever recorded for Western Crimean Mousterian (WCM) occupations.

Artefact Assemblage Structure

The total number of artefacts recovered from Kabazi V, Unit IV lies at 21,563 pieces. The majority of these are chips, which make up 95.5 – 97.5 % of the total number of flint artefacts (Table 14-1). Although none of the Unit IV levels yielded a statistically valuable collection of tools or cores, levels IV/1 and IV/2 have provided a reliable quantity of debitage (flakes and blades). Attribute analyses of these assemblages are presented below.

The structure of the flint artefact assemblage from Kabazi V, Unit IV is characteristic of the so called "site-workshop" model of raw material exploitation (Table 14-1). This model is linked with both on-site core reduction and tool production. Whereas the WCM site-workshop model has been associated, for example, with Kabazi II, Unit II assemblages, WCM levels II/2 and III at Karabi Tamchin have instead been assigned to the so called "tool-users" model (Chabai 2004c). In these latter assemblages, flakes and blades clearly dominate (in essential counts without chunks and chips) over other categories of artefacts, and the percentages of tools and cores are among the lowest recorded in WCM assemblages.

In Kabazi V, levels IV/1, IV/2, IV/3 the tool to core ratios lie at 3.6 : 1; 6.5 : 1; and 9 : 1, respectively. Blank to core ratios are as follows: 39.4 : 1 (level IV/1); 42.5 : 1 (level IV/2); 24.5 : 1 (level IV/3). Such ratios are among the highest noted for WCM assemblages, and closely resemble those from Kabazi II, levels II/1A – II/7, and Kabazi V, sub-unit III/3 (Chabai 1998b; Chapter 9, this volume). The percentages of tools in Kabazi V, Unit IV levels lie within the ranges already observed at Kabazi II, Unit II and at Kabazi V, sub-unit III/3, where they vary from 5 % to 14 %, and 12 % to 24 %, respectively. On the other hand, they are much lower than at Karabi Tamchin,

	Level IV/1			Level IV/2			Level IV/3		
	#	%	esse %	#	%	esse %	#	%	esse %
Chips, <2,99 cm	12,402	95.56	·	5,337	96.23	·	2,959	97.50	·
Chunks	44	0.33	·	9	0.16	·	7	0.23	·
Preforms	2	0.02	0.37	·	·	·	·	·	·
Cores	12	0.09	2.25	4	0.07	2.00	2	0.07	2.90
Flakes	357	2.75	66.85	131	2.36	65.50	40	1.32	57.97
Blades	116	0.89	21.72	39	0.71	19.50	9	0.29	13.04
Tools	47	0.36	8.81	26	0.47	13.00	18	0.59	26.09
Total:	**12,980**	**100.00**	**100.00**	**5,546**	**100.00**	**100.00**	**3,035**	**100.00**	**100.00**
Bone retouchers	·			1			1		

Table 14-1 Kabazi V, Unit IV: artefact totals.

layers 2 and 3 (ca. 50%) (Chabai 1998b; Chapter 9, this volume; Yevtushenko 2004). On the other hand, core ratios from Kabazi V, Unit IV are lower than observed at Kabazi II, Unit II, where they range from between 4.2% and 7.5%. In all, the percentage of tools is much lower, and the percentage of cores much higher, than are characteristic of Micoquian assemblages (Chabai 2004c; Chapters, 7, 8, 11, this volume). Thus, generally speaking, the structures of artefact assemblages from Kabazi V, Unit IV are more reminiscent of Kabazi II, Unit II, than of any other Crimean Middle Palaeolithic assemblages. The only important difference is the somewhat lower ratio of cores in the former.

Chunks

The majority of chunks are small pieces of flint lacking any obvious traces of knapping. The average dimensions of chunks are as follows: length – 34.29 mm; width – 22.10 mm; and thickness – 11.97 mm. Only five chunks from level IV/1 are larger than 5 cm. These "big" chunks might be interpreted as raw material supplies; average dimensions of these latter pieces are: length – 51.6 mm; width – 30.18 mm; and thickness – 21.18 mm. It would appear that both "small" and "big" chunks broke off from larger nodules.

Preforms

Two preforms were discovered in level IV/1. The dimensions of these plaquettes, which had been tested by several blows, are: length – 53.02 and 64.85 mm; width – 39.52 and 45.70 mm; and thickness – 25.79 and 17.27 mm, respectively. The longer and wider preform was broken during testing. These are most probably preforms of cores.

Cores

Cores are represented in all levels of Unit IV. The highest number of cores was observed in level IV/1 (12 pieces), four cores were found in level IV/2, and two further cores in level IV/3.

Level IV/1

The core assemblage from level IV/1 comprises one unsystematic core, one discoid core, two radial cores (Fig. 14-1, *7*), one Levallois Tortoise core, two unidirectional core, one bidirectional core (Fig. 14-2, *4*), and 4 unidentifiable core fragments. Only four cores (the discoid core, both radial cores and the bidirectional core) are complete.

All cores exhibit faceted platforms, except the unsystematic core. This latter piece is a multi-platform core of cubic shape. It is 48.22 mm long, 48.22 mm wide, and 40.84 mm thick; all its platforms are plain. Three short flakes (max dimensions <40 mm) were refitted to this core.

The discoid core is ovoid in shape (55.26 mm long; 47.71 mm wide; and 20.22 mm thick). This core exhibits a combination of polyhedral, faceted and plain platforms. The maximum dimensions of the negatives on its flaking surface are: length – 22.67 mm; and width – 31.65 mm.

Both radial cores are relatively large ovoid shaped items. These two cores are 46.51 and 53.30

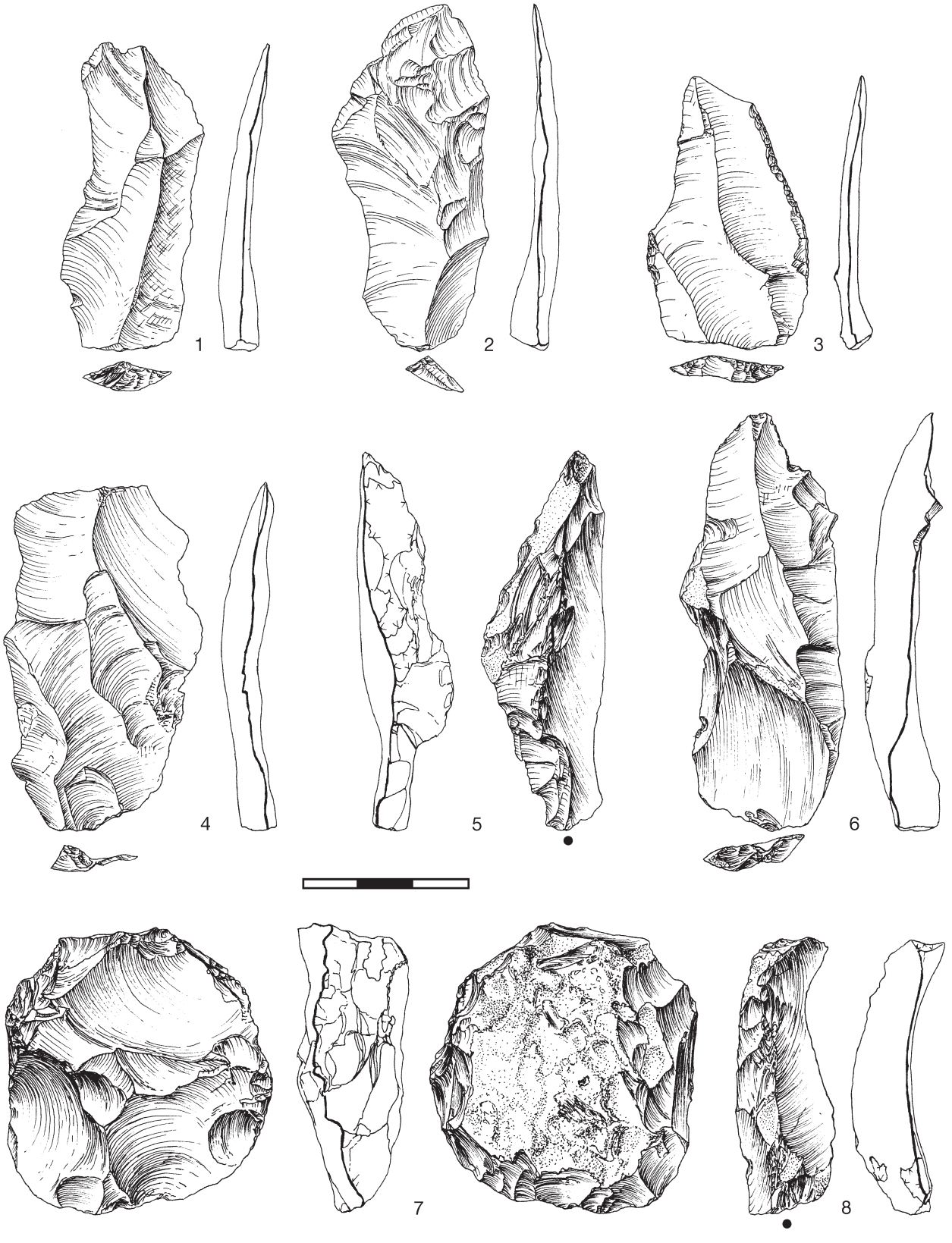


Fig. 14-1 Kabazi V, level IV/1. Debitage: 1 and 6 – Levallois blades; 2 – *enlèvement deux*, on blade; 3 – retouched piece, bilateral, made on flake; 4 – Levallois flake; 5 and 8 – *débordantes*, on blades; 7 – core, radial.

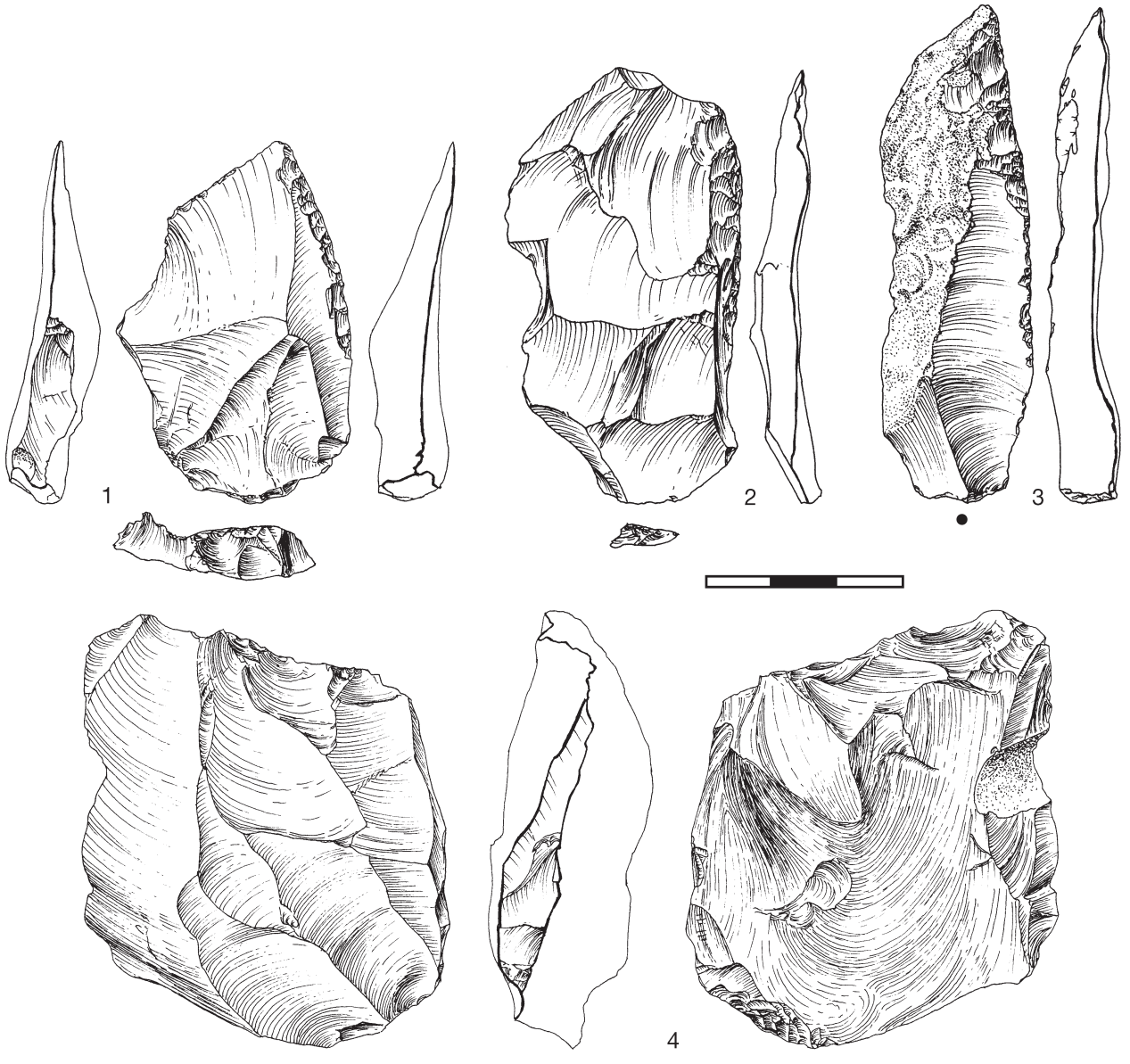


Fig. 14-2 Kabazi V, levels IV/1 (1, 2, 4) and IV/3 (3). Tools: 1 – the retouched piece, lateral, made on *débordantes* flake; 2 – scraper, straight, made on Levallois/*débordantes* flake; 3 – scraper, convex, made on blade; 4 – core, bidirectional.

long, 39.57 and 47.82 wide, and 17.05 and 16.27 mm thick, respectively. They exhibit combinations of faceted, polyhedral and plain platforms (Fig. 14-1, 7); maximum dimensions of negatives found on their flaking surfaces range from 22.77 mm to 40.54 mm.

The Levallois Tortoise core is represented by a relatively large fragment from which not only the distal, but also some lateral parts are missing. It is >59.40 mm long, 54.94 mm wide, and 21.19 mm thick. Both its main striking platform as well as one of its supplementary platforms are faceted. The proximal fragment of a flake (*enlèvement deux*, length: >23.93 mm, width: 33.07 mm) was refitted to the flaking surface of this core. The dimensions of a negative on its flaking surface are: length: >31.22; width: 31.24 mm.

The bidirectional core is a rectangular item (58.64 mm long; 55.40 mm wide; and 18.99 mm thick). Both the main platform and its opposing platform are faceted. The supplementary striking platforms are polyhedral. The two main platforms are situated not

strictly opposite each other, but at an angle to one another (Fig. 14-2, *4*). This angle apparently formed an area of convergence for negatives removed from both these platforms. The largest identifiable negative exhibits the following parameters: length: 56.48 mm; and width: 26.99 mm.

There are two broken unidirectional cores. These are >47.29 and >32.94 mm long, 60.13 and >54.52 mm wide, and 19.99 and 11.09 mm thick, respectively. Both cores exhibit faceted main striking platforms and faceted / polyhedral lateral supplementary platforms. The largest existing negative slightly exceeds 40 mm in length.

The unidentifiable cores comprise parts of striking platforms and flaking surfaces. The striking platforms are faceted.

Level IV/2

The cores from this level are represented by four pieces: one discoid core, one unidirectional core, and two unidentifiable fragments of cores.

The discoid core is partly fragmented; the striking platform is only minimally preserved. It is likely that this core was originally ovoid in shape. It is >48.83 mm long, >45.85 mm wide; and 20.26 mm thick. The last flake removed from this core may have had near equal width/length dimensions.

The unidirectional core was made on a flint plaquette. There are two facetted supplementary platforms on both its lateral sides. The main platform is plain and at a right angle to the flaking surface. This core is 36.65 mm long, 40.22 mm wide, and 21.06 mm thick. The last flake removed from this core was clearly smaller then 40 mm.

One of the unidentifiable cores exhibits a faceted striking platform and part of a flaking surface bearing unidirectional negatives. This core is >26.25 mm long, 42.10 mm wide, and 20.83 mm thick. Another unidentifiable core consists of a fragment of a flaking surface (>33.51 mm long; >20.92 mm wide; and >7.94 mm thick).

Level IV/3

There are two cores in this level, a radial core and an unidentifiable core fragment. The radial core is ovoid in shape and exhibits a polyhedral platform. It is 43.38 mm long, 41.87 mm wide, and 15.84 mm thick.

To sum up, there are three main characteristic features of the core assemblage from Kabazi V, Unit IV. First, nearly all cores exhibit faceted and/or polyhedral striking platforms, except for one unsystematic core and one unidirectional core. Second, the Levallois, bidirectional, and unidirectional cores exhibit both main and supplementary striking platforms. Third, all cores are heavily exhausted or broken. The first two features, as well as the typology of the cores, are all characteristic for WCM assemblages from Kabazi II, Unit II, and correspond well with such blanks as Levallois, *débordantes* and *enlèvement deux*, all of which were found among the debitage in level IV/1 (Fig. 14-1, *1, 2, 3, 4, 5, 6, 8*; 14-2, *1, 2*). Finally, the combination of Levallois Tortoise, bi-/unidirectional and radial cores; *débordantes* and *enlèvement deux* blanks, as well as Levallois centripetal flakes and blades all suggest the Biache method of flaking, as previously described for Kabazi II, Unit II assemblage (Chabai 1998b).

Debitage Structure

As might be expected, chips dominate the debitage assemblage (Table 14-2). In contrast to Micoquian assemblages, the percentage of "bifacial thinning" chips are very low, and the same is also true for "bifacial thinning" flakes and blades. Whereas in level III/2 the "bifacial thinning" debitage makes up more than 40% of the totality of identifiable blanks, in sub-unit IV only 6-10% of blanks might be connected with bifacial tool production. Further, whereas in Unit IV, bifacial debitage makes up 1.5-4.5 % of all flakes and blades, in level III/2 this applies to 20% of this material. This clearly suggests that on-site bifacial tool production and/or rejuvenation was not carried out within the excavated areas assigned to Unit IV. Another distinctive feature of Unit IV debitage composition is the high blade ratio; blades comprise 21.6-26.9% of the sum of flakes and blades (including tools). In the tool assemblage the blade ratio is even higher, at 30.2%.

Finally, in contrast to Micoquian assemblages, Levallois blanks (with centripetal dorsal scars), as well as *débordantes* and *enlèvement deux* flakes and blades were also found in Unit IV. In total, two Levallois flakes (Fig. 14-1, *4*) one Levallois/*débordantes* flake (Fig. 14-2, 7), ten *débordantes* flakes (Fig. 14-2, 1), and one *enlèvement deux* on a flake were identified. There are also four Levallois blades (Fig. 14-1, *1, 6*), four *débordantes* blades (Fig. 14-1, *5, 8*), and two *enlèvement deux* on blades (Fig. 14-1, *2*). All in all, 24 blanks stem from Levallois flaking. Such a ratio of debitage linked with Levallois technology, i.e. a little more than 3% of the total number of flakes and blades, was also a common feature among WCM assemblages in Unit II at Kabazi II (Chabai 1998b).

		Level IV/1			Level IV/2		
		#	%	esse %	#	%	esse %
Chips	"regular", 2.0-2.9 cm	337	2.61	23.48	291	5.26	30.73
	"regular", 2.0-2.9 cm, modified into tools	·	·	·	1	0.02	0.11
	"regular", 0.1-1.9 cm	693	5.37	48.29	445	8.04	46.99
	"bifacial thinning", 2.0-2.9 cm	17	0.13	1.19	35	0.63	3.69
	"bifacial thinning", 0.1-1.9 cm	64	0.49	4.46	50	0.90	5.28
	"bifacial rejuvenating", 2.0-2.9 cm	·	·	·	1	0.02	0.11
	"bifacial rejuvenating", 0.1-1.9 cm	4	0.03	0.28	2	0.04	0.21
	unidentifiable	11,287	87.37	·	4,513	81.58	·
Flakes	"regular"	223	1.73	15.54	81	1.46	8.55
	"regular", modified into tools	17	0.13	1.19	12	0.22	1.27
	"bifacial thinning"	4	0.03	0.28	4	0.07	0.42
	unidentifiable	128	0.99	·	46	0.83	·
	unidentifiable, modified into tools	13	0.10	·	9	0.16	·
	natural	2	0.02	·	·	·	·
Blades	"regular"	67	0.52	4.67	23	0.41	2.43
	"regular", modified into tools	8	0.06	0.56	2	0.04	0.21
	"bifacial thinning"	1	0.01	0.06	·	·	·
	unidentifiable	48	0.37	·	16	0.30	·
	unidentifiable, modified into tools	5	0.04	·	1	0.02	·
	Total:	**12,918**	**100.00**	**100.00**	**5,532**	**100.00**	**100.00**

Table 14-2 Kabazi V, Unit IV: composition of blank assemblage.

On the other hand, three bifacial tools, 10 "bifacial thinning" flakes, and two "bifacial thinning" blades were also found in Unit IV. Is this then sufficient evidence to assume an on-site bifacial tool production?

Chips

Chips are subdivided into "regular" chips, "bifacial thinning" chips, as well as items with broken butts (Table 14-2). As mentioned above, "bifacial thinning" chips cannot necessarily be taken as direct evidence for on-site bifacial tool production and/or rejuvenation. It is likely that chips with lips and obtuse platforms originated from supplementary striking platforms during the preparation of flaking surface convexity on Levallois Tortoise, bidirectional, unidirectional and radial cores.

Flakes and blades

Although the relatively high Blade Index (Ilam=21.6-26.9), as well as the occurrence of three bi- and unidirectional cores, are all suggestive of a purposeful production of blades on-site, this assumption finds no direct substantiation in the core typology, i.e. there are no real blade cores. Such a discrepancy between cores and blank assemblages is a characteristic feature of the WCM. The reason for this lies in the transformation of core shapes during the flaking process. Obviously, the initial stages of core utilisation produced relatively high number of blades and/or elongated flakes, while the late stages of core reduction delivered short, often transversal proportions, among blank. Finally, such a high Blade Index is uncommon for Micoquian assemblages.

Level IV/3		
#	%	esse %
84	2.78	18.67
.	.	.
257	8.49	57.11
4	0.13	0.89
37	1.22	8.22
.	.	.
2	0.07	0.44
2,575	85.09	.
37	1.22	8.22
9	0.30	2.00
2	0.07	0.44
.	.	.
.	.	.
1	0.03	.
8	0.27	1.78
9	0.30	2.00
1	0.03	0.23
.	.	.
.	.	.
3,026	**100.00**	**100.00**

Table 14-2 Continued.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
0 %	143	37.14	53	41.08	196	38.13	Level IV/1
1-25 %	110	28.57	36	27.90	146	28.41	
26-50 %	65	16.88	26	20.16	91	17.70	
51-75 %	36	9.36	11	8.53	47	9.14	
>76 %	31	8.05	3	2.33	34	6.62	
Total:	**385**	**100.00**	**129**	**100.00**	**514**	**100.00**	
0 %	57	37.50	19	45.24	76	39.18	Level IV/2
1-25 %	37	24.34	14	33.33	51	26.29	
26-50 %	24	15.79	8	19.05	32	16.49	
51-75 %	18	11.84	.	.	18	9.28	
>76 %	16	10.53	1	2.38	17	8.76	
Total:	**152**	**100.00**	**42**	**100.00**	**194**	**100.00**	
0 %	18	36.74	9	50.00	27	40.29	Level IV/3
1-25 %	15	30.61	3	16.67	18	26.87	
26-50 %	5	10.20	3	16.67	8	11.94	
51-75 %	4	8.16	2	11.11	6	8.96	
>76 %	7	14.29	1	5.55	8	11.94	
Total:	**49**	**100.00**	**18**	**100.00**	**67**	**100.00**	

Table 14-3 Kabazi V, Unit IV: cortex percentages, by blank types.

Cortex

The flake and blade assemblages show some differences in the amount of dorsal cortex and cortex placement (Tables 14-3 and 14-4). About 60 % of both flakes and blades exhibit some dorsal cortex. However, blades are – on average – less corticated than flakes (Table 14-3), and there is a higher percentage of blades completely lacking cortex. Therefore, and it follows, that the percentage of flakes completely covered by cortex is also higher. Laterally and distally corticated items comprise about one-third of the available cortex variations among flakes. The lateral placement of cortex is dominant in the blade assemblage, but distally corticated blades are less significant. The difference in cortex placement between flakes and blades might reflect their different positions in the core reduction sequence.

Below, correlations between debitage size and cortex area/position are based on studies of the flake and blade assemblages recovered from level IV/1, the samples of unbroken flakes and blades from levels IV/2 and IV/3 being statistically insignificant. In the debitage assemblage from level IV/1 real primary flakes – longer than 50 mm and completely covered by cortex – are represented by a total of 7 pieces. The smallest non-corticated flakes also occur in the level IV/1 assemblage, measuring on average 34.82 mm long and 33.06 mm wide. However, among the non-corticated flakes a number of relatively large items (>60 mm), including Levallois ones, were also found. The average dimensions of heavily corticated flakes with transversal proportions are as follows:

Flakes with >76 % surface cortex are 36.03 mm long, and 43.69 mm wide.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
None	143	37.14	53	41.09	196	38.14	Level IV/1
Proximal	8	2.08	3	2.32	11	2.14	
Lateral-proximal	8	2.08	1	0.78	9	1.75	
Central	7	1.82	4	3.10	11	2.14	
Lateral	73	18.96	40	31.01	113	21.98	
Bilateral	10	2.59	4	3.10	14	2.72	
Lateral-distal	37	9.61	9	6.98	46	8.95	
Distal	55	14.29	9	6.98	64	12.45	
Distal-proximal	13	3.38	3	2.32	16	3.11	
>76 %	31	8.05	3	2.32	34	6.62	
Total:	**385**	**100.00**	**129**	**100.00**	**514**	**100.00**	
None	57	37.50	19	45.24	76	39.18	Level IV/2
Proximal	3	1.97	1	2.38	4	2.06	
Lateral-proximal	4	2.63	·	·	4	2.06	
Central	6	3.95	1	2.38	7	3.61	
Lateral	21	13.82	11	26.20	32	16.49	
Bilateral	4	2.63	1	2.38	5	2.58	
Lateral-distal	20	13.16	4	9.52	24	12.37	
Distal	19	12.50	4	9.52	23	11.86	
Distal-proximal	2	1.32	·	·	2	1.03	
>76 %	16	10.52	1	2.38	17	8.76	
Total:	**152**	**100.00**	**42**	**100.00**	**194**	**100.00**	
None	18	36.74	9	50.00	27	40.30	Level IV/3
Proximal	4	8.16	·	·	4	5.97	
Central	1	2.04	·	·	1	1.49	
Lateral	6	12.25	6	33.32	12	17.91	
Bilateral	2	4.08	1	5.56	3	4.48	
Lateral-distal	3	6.12	·	·	3	4.48	
Distal	5	10.20	1	5.56	6	8.95	
Distal-proximal	3	6.12	·	·	3	4.48	
>76 %	7	14.29	1	5.56	8	11.94	
Total:	**49**	**100.00**	**18**	**100.00**	**67**	**100.00**	

Table 14-4 Kabazi V, Unit IV: cortex placement, by blank types.

Flakes with 51-75 % surface cortex are 38.42 mm long, and 39.05 mm wide.

Flakes with 26-50 % surface cortex are 34.04 mm long, and 35.51 mm wide.

Finally, flakes with 1-25 % surface cortex display the most elongated proportions; these pieces are on average 38.69 mm long, and 34.69 mm wide.

To conclude, whereas non-corticated flakes are generally small, heavily corticated flakes are usually short and wide, and flakes with 1-25 % cortex coverage display the most elongated forms.

In the blade assemblage correlations between dimensions and surface cortex is much more complicated. The only blade with in excess of 76 % surface cortex is 64.04 mm long and 20.04 mm wide. The average dimensions of blades with cortex coverage are as follows: blades with 51-75 % surface cortex are 54.25 mm long, and 22.79 mm wide; blades with 26-50 % surface cortex are 54.34 mm long, and 23.58 mm wide; finally, blades with 1-25 % surface cortex are 50.38 mm long, and 20.65 mm wide.

In consideration of these above dimensions of blades with cortex coverage, it becomes apparent that non-corticated blades are in fact the smallest of all blades, they being on average 47.55 mm long, and 19.91 mm wide. The largest blades are those with 26-50 % lateral cortex, being on average 55.09 mm long, and 22.56 mm wide. At the same time, the biggest blade in level IV/1 assemblage (87.4 mm long; 35.71 mm wide) exhibits no surface cortex whatsoever. Further, no cortex was found on the dorsal surfaces of Levallois and *enlèvement deux* blades longer than 60 mm. *Débordantes* blades display lateral cortex, which is, in fact, associated with partly corticated supplementary platforms on the back side of cores.

To conclude, there are no apparent direct correlations between surface cortex and the size of both flakes and blades. This would suggest the implication of complicated methods of flint knapping. Probably, the relatively large amount of flakes resulted from permanent and repeated core shaping processes. The reshaping of flaking surfaces on cores was realised via both main and supplementary striking platforms, and often included the reshaping of the back side of cores, which were usually covered by cortex. The blades, as well as the non-corticated flakes, were removed preferentially from the main striking platform(s). Thus, different stages of core exploitation were responsible for both corticated and non-corticated blanks.

All in all, the high amount of blanks partly covered by cortex, as well as the occurrence of primary flakes, are suggestive of intensive on-site flaking.

To some extent, the cortex placement on flakes from level IV/1, and on all kinds of debitage from level III/2 assemblages, are similar. Both show the dominant role played by blanks with lateral-distal and distal cortex (Chapter 8, Table 8-4, this volume). On the other hand, the clear dominance of laterally corticated pieces in the level IV/1 blade assemblage has no analogy in Micoquian complexes.

Dorsal scar pattern

There are no significant differences among the dorsal scar patterns observed on both flakes and blades (Table 14-5). Blanks with unidirectional and unidirectional-crossed scars are dominant in both flake and blade assemblages. It is of note, however, that whereas bidirectional, bidirectional-crossed and crested types of dorsal scars are more common in the blade assemblage, in the flake assemblage, radial and cortex covered blanks are more frequent. One of the specific features in the Unit IV assemblage is the somewhat low ratios (particularly with regard to the WCM) of bidirectional and bidirectional-crossed blanks. Although these are the lowest recorded for a WCM assemblage so far, similar values were also observed for WCM assemblages at Kabazi II, levels II/7C (for flakes) and II/7E (for blades) (Chabai 1998b). This feature finds some substantiation in the observed dominance of unidirectional core types.

The Levallois blanks have radial, bilateral and three directional dorsal scars. Most of the *débordantes* display a secondary crested scar pattern. The *enlèvement deux* blanks are characterised by unidirectional crossed scar patterns.

Shapes & axes

Most flakes are of trapezoidal, rectangular, or irregular shape (Table 14-6), and flakes removed on- and off-axis are represented by roughly equal amounts (Table 14-7). On the other hand, rectangular shaped blades dominate, and nearly all were detached symmetrically to the axis.

There is an equal number of on- and off-axis *débordantes*. The shape of *débordantes* is mostly irregular. The shape of Levallois blanks is rectangular, and all are on-axis.

Blank profiles and cross-sections

There are two important types of lateral profiles among flakes, these being flat and incurvate medial, whereby the former dominates. Blades demonstrate quite different patterns of lateral profiles. Among the latter, twisted profiles are dominant, followed by incurvate medial and flat profiles (Table 14-8). On the other hand, there are no significant differences between distal profiles observed on blades and flakes; about half of all distal profiles are feathering for both

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Cortex	31	8.18	3	2.34	34	6.71	Level IV/1
Lateral	23	6.06	5	3.91	28	5.52	
Bilateral	10	2.64	2	1.56	12	2.37	
Radial	13	3.43	2	1.56	15	2.96	
Converging	41	10.82	14	10.94	55	10.85	
Unidirectional	106	27.97	35	27.34	141	27.81	
Unidirectional-crossed	104	27.44	34	26.56	138	27.22	
Bidirectional	26	6.86	13	10.16	39	7.69	
Bidirectional-crossed	17	4.49	8	6.25	25	4.93	
Crested	7	1.85	12	9.38	19	3.75	
Plain (Yanus flake)	1	0.26	·	·	1	0.19	
Total:	**379**	**100.00**	**128**	**100.00**	**507**	**100.00**	
Unidentifiable	6		1		7		
Cortex	15	10.14	1	2.38	16	8.42	Level IV/2
Lateral	7	4.73	2	4.76	9	4.74	
Bilateral	3	2.03	1	2.38	4	2.11	
Radial	2	1.35	·	·	2	1.05	
Converging	8	5.41	8	19.05	16	8.42	
Unidirectional	50	33.78	14	33.33	64	33.68	
Unidirectional-crossed	37	25.00	5	11.91	42	22.11	
Bidirectional	15	10.14	6	14.29	21	11.05	
Bidirectional-crossed	6	4.05	2	4.76	8	4.21	
Crested	5	3.37	3	7.14	8	4.21	
Total:	**148**	**100.00**	**42**	**100.00**	**190**	**100.00**	
Unidentifiable	4		·		4		
Cortex	7	14.89	1	5.88	8	12.50	Level IV/3
Lateral	1	2.13	2	11.77	3	4.69	
Bilateral	·	·	1	5.88	1	1.56	
Radial	1	2.13	·	·	1	1.56	
Converging	·	·	·	·	·	·	
Unidirectional	18	38.29	5	29.41	23	35.94	
Unidirectional-crossed	17	36.17	5	29.41	22	34.38	
Bidirectional	1	2.13	·	·	1	1.56	
Bidirectional-crossed	2	4.26	3	17.65	5	7.81	
Crested	·	·	·	·	·	·	
Plain (Yanus flake)	·	·	·	·	·	·	
Total:	**47**	**100.00**	**17**	**100.00**	**64**	**100.00**	
Unidentifiable	2		1		3		

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Rectangular	76	26.21	59	47.97	135	32.69	Level IV/1
Triangular	16	5.52	9	7.32	25	6.05	
Trapezoidal	81	27.93	·	·	81	19.61	
Trapezoidal elongated	28	9.66	33	26.83	61	14.77	
Ovoid	20	6.90	·	·	20	4.84	
Leaf-shaped	4	1.37	7	5.69	11	2.67	
Crescent	20	6.90	8	6.50	28	6.78	
Irregular	45	15.51	7	5.69	52	12.59	
Total:	**290**	**100.00**	**123**	**100.00**	**413**	**100.00**	
Unidentifiable	95		6		101		
Rectangular	30	26.55	15	42.86	45	30.41	LevelIV/2
Triangular	5	4.43	10	28.57	15	10.14	
Trapezoidal	34	30.09	·	·	34	22.97	
Trapezoidal elongated	13	11.50	4	11.43	17	11.49	
Ovoid	2	1.77	·	·	2	1.35	
Leaf-shaped	1	0.88	·	·	1	0.67	
Crescent	5	4.43	4	11.43	9	6.08	
Irregular	23	20.35	2	5.71	25	16.89	
Total:	**113**	**100.00**	**35**	**100.00**	**148**	**100.00**	
Unidentifiable	39		7		46		
Rectangular	12	35.30	5	38.46	17	36.17	Level IV/3
Triangular	4	11.77	3	23.08	7	14.89	
Trapezoidal	5	14.71	·	·	5	10.64	
Trapezoidal elongated	3	8.82	3	23.08	6	12.77	
Ovoid	2	5.88	·	·	2	4.26	
Leaf-shaped	3	8.82	·	·	3	6.38	
Crescent	2	5.88	1	7.69	3	6.38	
Irregular	3	8.82	1	7.69	4	8.51	
Total:	**34**	**100.00**	**13**	**100.00**	**47**	**100.00**	
Unidentifiable	15		5		20		

Table 14-6 Kabazi V, Unit IV: shapes, by blank types.

◀ **Table 14-5** Kabazi V, Unit IV: dorsal scar pattern, by blank types.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
On-axis	153	52.22	113	87.60	266	63.03	Level IV/1
Off-axis	140	47.78	16	12.40	156	36.97	
Total:	**293**	**100.00**	**129**	**100.00**	**422**	**100.00**	
Unidentifiable	92				92		
On-axis	59	49.58	32	80.00	91	57.23	Level IV/2
Off-axis	60	50.42	8	20.00	68	42.77	
Total:	**119**	**100.00**	**40**	**100.00**	**159**	**100.00**	
Unidentifiable	33		2		35		
On-axis	20	58.82	11	78.57	31	64.58	Level IV/3
Off-axis	14	41.18	3	21.43	17	35.42	
Total:	**34**	**100.00**	**14**	**100.00**	**48**	**100.00**	
Unidentifiable	15		4		19		

Table 14-7 Kabazi V, Unit IV: axes, by blank types.

assemblages (Table 14-9). Triangular and trapezoidal types of mid-point cross-sections dominate in both flake and blade assemblages (Table 14-10).

Platform preparation

An intentional production of blades is reflected in platform preparation. Faceted platforms are more common for blades than for flakes (Table 14-11). On the other hand, plain, dihedral, and polyhedral platforms are more common for flakes than blades.

In level IV/1 the faceting indexes for blades are as follows: Ifl=75.00; Ifs=64.47. The same indexes for flakes are significantly lower: Ifl=62.30; Ifs=38.12. The joint indexes for all kinds of blanks lie between these aforementioned values: Ifl=65.31; Ifs=44.37.

In level IV/2 the faceting indexes for blades are as follows: Ifl=68.00; Ifs=56.00. The same indexes for flakes are lower, especially the index of fine faceting: Ifl=58.76; Ifs=28.87. The joint indexes for all kinds of blanks are: Ifl=60.67; Ifs=34.43.

Due to the statistical incompleteness of the debitage assemblage from level IV/3, faceting indexes for flakes and blades have not been calculated (Table 14-11). At the same time, it is of note that dihedral, polyhedral, and faceted platforms represent a pronounced component of platform preparation in this level. With regard to platform preparation, material most closely resembling Kabazi V, levels IV/1 and IV/2 is found in the WCM assemblages at Kabazi II, levels II/5, II/6 and II/7 (Chabai 2004c).

The semi-lipped and unlipped platforms with obtuse and right angles are the most frequent in both the flake and blade assemblages (Table 14-12 and 14-13). Semi-lipped right angle platforms are a little more common among blades. In fact, the blade platform dimensions are comparable to those of flakes (Fig. 14-3). At the same time, the average width and thickness of blade platforms are smaller than observed for flakes (Table 14-14). On the other hand, such clustering indicates that the numbers of flakes display the same platform parameters as blades.

The preparation of debitage platforms (faceting, angles, lipping) in Kabazi V, Unit IV has absolutely nothing in common with the platform preparation observed in Kabazi V, level III/2, nor with the material from any other Micoquian occupations.

Blank dimensions

As to be expected, blades are longer, narrower, and thinner than flakes (Table 14-14). At the same time, however, on the basis of length/width dimensions, flakes and blades compose a joint cluster of values (Fig. 14-4), i.e. a number of flakes display length/

width attributes similar to those of blades. The Levallois, *enlèvement deux* and *débordantes* were found among both flake and blade assemblages, and there are elongated flakes with short to transversal proportions. This variety of debitage sizes and proportions once again suggests a complicated core reduction strategy, which included the detachment of blanks from the main and supplementary striking platforms of cores. As a rule, blanks removed from main platforms tend to be more elongated than core shaping blanks detached from supplementary platforms. Indeed, to some extent, it may be stated that blades and elongated flakes were a "desired product" of Unit IV core reduction technology.

Debitage dimensions for Kabazi V, Unit IV prove larger than for Kabazi V, level III/2 (compare Tables 14-14 and 8-15).

Summary of attribute analysis

The differences between blade and flake attributes might be viewed as those separating "desired products" from "waste products". Whereas the "desired products" are blades and elongated flakes removed from main platform(s), "waste products" comprise primary blanks and flakes detached from supplementary platforms during core reshaping processes. The transition between these two product types is, however, more or less continuous. Obviously, Levallois blanks, as well as the most part of blades and a number of elongated flakes, were desired results from flaking. The majority of attributes associated with the "desired" debitage are similar to those of the blade assemblage, i.e. elongated proportions, whereby the length of the blank does not exceed 50 mm; faceted platforms; flat or slightly

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Flat	104	29.55	27	21.09	131	27.29	Level IV/1
Incurvate medial	96	27.27	44	34.38	140	29.17	
Incurvate distal	69	19.60	10	7.81	79	16.46	
Twisted	53	15.06	45	35.16	98	20.42	
Convex	30	8.52	2	1.56	32	6.66	
Total:	**352**	**100.00**	**128**	**100.00**	**480**	**100.00**	
Unidentifiable	33		1		34		
Flat	45	31.47	12	28.57	57	30.81	Level IV/2
Incurvate medial	34	23.78	7	16.67	41	22.16	
Incurvate distal	28	19.58	4	9.52	32	17.30	
Twisted	28	19.58	19	45.24	47	25.41	
Convex	8	5.59	·	·	8	4.32	
Total:	**143**	**100.00**	**42**	**100.00**	**185**	**100.00**	
Unidentifiable	9		·		9		
Flat	17	37.78	4	22.22	21	33.33	Level IV/3
Incurvate medial	5	11.11	4	22.22	9	14.29	
Incurvate distal	4	8.89	1	5.56	5	7.94	
Twisted	14	31.11	9	50.00	23	36.50	
Convex	5	11.11	·	·	5	7.94	
Total:	**45**	**100.00**	**18**	**100.00**	**63**	**100.00**	
Unidentifiable	4		·		4		

Table 14-8 Kabazi V, Unit IV: lateral profiles, by blank types.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Feathering	176	56.22	46	50.55	222	54.95	Level IV/1
Hinged	58	18.53	18	19.78	76	18.81	
Overpassed	7	2.24	5	5.49	12	2.97	
Blunt	72	23.01	22	24.18	94	23.27	
Total:	**313**	**100.00**	**91**	**100.00**	**404**	**100.00**	
Retouched	7		4		11		
Missing	65		34		99		
Feathering	56	46.67	17	56.67	73	48.67	Level IV/2
Hinged	30	25.00	4	13.33	34	22.67	
Overpassed	1	0.83	1	3.33	2	1.33	
Blunt	33	27.50	8	26.67	41	27.33	
Total:	**120**	**100.00**	**30**	**100.00**	**150**	**100.00**	
Retouched	6		·		6		
Missing	26		12		38		
Feathering	9	29.03	5	45.46	14	33.33	Level IV/3
Hinged	14	45.16	3	27.27	17	40.48	
Overpassed	2	6.45	·	·	2	4.76	
Blunt	6	19.36	3	27.27	9	21.43	
Total:	**31**	**100.00**	**11**	**100.00**	**42**	**100.00**	
Retouched	5		1		6		
Missing	13		6		19		

Table 14-9 Kabazi V, Unit IV: distal end profiles, by blank types.

incurvate lateral profile and feathering distal end; and rectangular symmetrical or trapezoidal-elongated slightly asymmetrical shapes. The attributes associated with the "waste products" closely resemble those of the flake assemblage, i.e. short, sometime transverse blank proportions; plain or dihedral/polyhedral platforms; mainly incurvate lateral profile, but feathering distal extremity; and a mainly trapezoidal asymmetrical shape.

Evidence for an intensive on-site core reduction and tool production are the occurrence of a raw material reserve in the form of flint chunks, precores, exhausted and fragmented cores, *débordantes*, primary blanks, as well as a relatively high ratio of blanks with dorsal cortex. There is no reliable evidence for on-site bifacial tool production, or for bifacial tool rejuvenation. Ten flakes and two blades with obtuse lipped platforms are not from the same flint as bifacial tools, and these "bifacial thinning" blanks might have actually resulted from the reshaping of cores.

One of the ways to evaluate the plausibility of on-site bifacial tool production is to compare debitage from Kabazi V, level IV/1 with that from Kabazi V, level III/2; the latter is thought to be the best example of the predominant, if not exclusive, implication of bifacial plano-convex flaking. The comparison of debitage from levels IV/1 and III/2 shows more differences than similarities. Each debitage assemblage comprises two parts; in level IV/1 the aforementioned "desired" blades and "waste" flakes, in level III/2 "regular" and "bifacial thinning" flakes and blades. In the case of level III/2 both "regular" and "bifacial thinning" debitage resulted from bifacial plano-convex flaking (Chapter 8, this volume).

In the case of level IV/1 both "desired" and "waste" blanks are believed to have resulted from the prevailing core reduction strategy, i.e. core exploitation with supplementary striking platforms. To some extent, the technological meaning of "waste" and "regular" blanks are similar, that is to say, the preliminary shaping of cores and bifacial tool preforms, respectively. Such attributes as cortex placement, dorsal scar pattern, lateral and distal profiles, butt angle and lipping are very similar for both "waste" and "regular" blanks (compare Tables 14-4 and 8-4; 14-5 and 8-5; 14-8 and 8-8; 14-9 and 8-9; 14-12 and 8-12; 14-13 and 8-13). However, there are no similarities between the techno-typological attributes of "desired" and "bifacial thinning" blanks, and there are very few common features among "desired" blanks on the one hand, and "regular" and "waste" blanks on the other (compare the Tables 14-4 and 8-4;

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Flat	5	1.41	·	·	5	1.03	Level IV/1
Triangular	128	35.96	59	45.74	187	38.56	
Lateral steep	46	12.92	18	13.95	64	13.19	
Trapezoidal	98	27.53	41	31.78	139	28.66	
Polyhedral	38	10.67	4	3.10	42	8.66	
Convex	12	3.37	5	3.88	17	3.51	
Irregular	29	8.14	2	1.55	31	6.39	
Total:	**356**	**100.00**	**129**	**100.00**	**485**	**100.00**	
Unidentifiable	29		·		29		
Flat	1	0.70	·	·	1	0.55	Level IV/2
Triangular	43	30.28	15	36.59	58	31.69	
Lateral steep	22	15.49	9	21.94	31	16.94	
Trapezoidal	48	33.81	15	36.59	63	34.43	
Polyhedral	5	3.52	1	2.44	6	3.27	
Convex	11	7.75	1	2.44	12	6.56	
Irregular	12	8.45	·	·	12	6.56	
Total:	**142**	**100.00**	**41**	**100.00**	**183**	**100.00**	
Unidentifiable	10		1		11		
Flat	·	·	·	·	·	·	Level IV/3
Triangular	15	34.09	6	33.33	21	33.87	
Lateral steep	3	6.82	3	16.67	6	9.68	
Trapezoidal	14	31.82	7	38.88	21	33.87	
Polyhedral	2	4.54	1	5.56	3	4.84	
Convex	6	13.64	1	5.56	7	11.29	
Irregular	4	9.09	·	·	4	6.45	
Total:	**44**	**100.00**	**18**	**100.00**	**62**	**100.00**	
Unidentifiable	5		·		5		

Table 14-10 Kabazi V, Unit IV: cross-sections, by blank types.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Cortex	21	8.61	5	6.58	26	8.13	Level IV/1
Plain	71	29.10	14	18.42	85	26.56	
Dihedral	35	14.34	7	9.21	42	13.13	
Polyhedral	24	9.84	1	1.32	25	7.81	
Faceted straight	36	14.75	17	22.37	53	16.56	
Faceted convex	46	18.85	18	23.68	64	20.00	
Faceted lateral	11	4.51	14	18.42	25	7.81	
Total:	**244**	**100.00**	**76**	**100.00**	**320**	**100.00**	
Crushed	38		6		44		
Missing	103		47		150		
Cortex	8	8.25	1	4.00	9	7.37	Level IV/2
Plain	32	32.99	7	28.00	39	31.96	
Dihedral	14	14.43	2	8.00	16	13.12	
Polyhedral	15	15.46	1	4.00	16	13.12	
Faceted straight	13	13.41	4	16.00	17	13.93	
Faceted convex	10	10.31	6	24.00	16	13.12	
Faceted concave	2	2.06	1	4.00	3	2.46	
Faceted lateral	3	3.09	3	12.00	6	4.92	
Total:	**97**	**100.00**	**25**	**100.00**	**122**	**100.00**	
Crushed	16		1		17		
Missing	39		16		55		
Cortex	5	19.23	·	·	5	13.51	Level IV/3
Plain	7	26.92	3	27.27	10	27.03	
Dihedral	3	11.54	1	9.09	4	10.81	
Polyhedral	6	23.08	1	9.09	7	18.92	
Faceted straight	3	11.54	5	45.46	8	21.62	
Faceted convex	2	7.69	·	·	2	5.41	
Faceted lateral	·	·	1	9.09	1	2.70	
Total:	**26**	**100.00**	**11**	**100.00**	**37**	**100.00**	
Crushed	5		1		6		
Retouched	2		1		3		
Missing	16		5		21		

Table 14-11 Kabazi V, Unit IV: platform types, by blank types.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Lipped	42	17.21	8	10.53	50	15.63	**Level IV/1**
Semi-lipped	113	46.31	43	56.58	156	48.75	
Unlipped	89	36.48	25	32.89	114	35.62	
Total:	**244**	**100.00**	**76**	**100.00**	**320**	**100.00**	
Unidentifiable	141		53		194		
Lipped	17	17.00	7	28.00	24	19.20	**Level IV/2**
Semi-lipped	41	41.00	7	28.00	48	38.40	
Unlipped	42	42.00	11	44.00	53	42.40	
Total:	**100**	**100.00**	**25**	**100.00**	**125**	**100.00**	
Unidentifiable	52		17		69		
Lipped	3	11.54	2	18.18	5	13.51	**Level IV/3**
Semi-lipped	4	15.39	4	36.36	8	21.62	
Unlipped	19	73.07	5	45.46	24	64.87	
Total:	**26**	**100.00**	**11**	**100.00**	**37**	**100.00**	
Unidentifiable	23		7		30		

Table 14-12 Kabazi V, Unit IV: lipping, by blank types.

	Flakes		Blades		Total		
	#	%	#	%	#	%	
Acute	3	1.23	·	·	3	0.94	**Level IV/1**
Obtuse	105	43.03	27	35.53	132	41.25	
Right	136	55.74	49	64.47	185	57.81	
Total:	**244**	**100.00**	**76**	**100.00**	**320**	**100.00**	
Unidentifiable	141		53		194		
Acute	·	·	2	8.00	2	1.63	**Level IV/2**
Obtuse	52	53.06	12	48.00	64	52.03	
Right	46	46.94	11	44.00	57	46.34	
Total:	**98**	**100.00**	**25**	**100.00**	**123**	**100.00**	
Unidentifiable	54		17		71		
Acute	·	·	·	·	·	·	**Level IV/3**
Obtuse	11	42.31	6	54.55	17	45.95	
Right	15	57.69	5	45.45	20	54.05	
Total:	**26**	**100.00**	**11**	**100.00**	**37**	**100.00**	
Unidentifiable	23		7		30		

Table 14-13 Kabazi V, Unit IV: platform angles, by blank types.

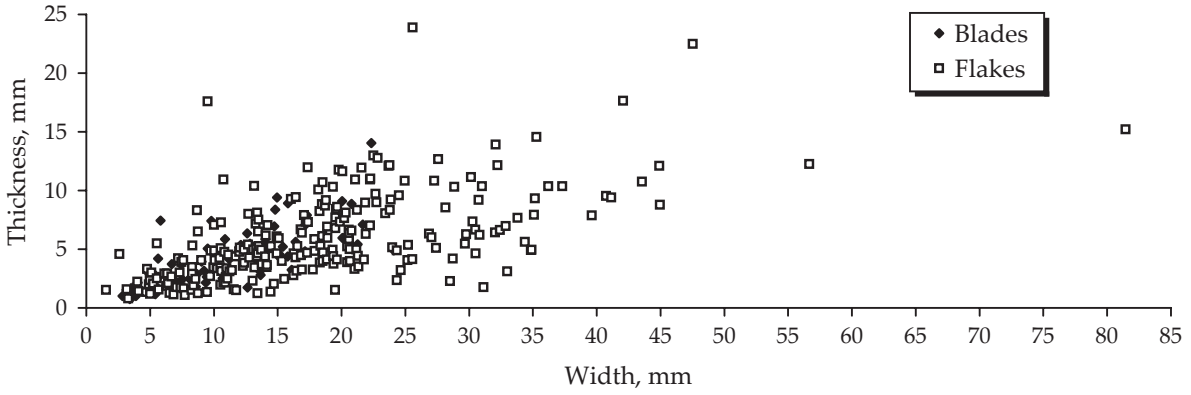


Fig. 14-3 Kabazi V, level IV/1. Width/thickness scatterplot with striking platforms of blades and flakes.

	Blank types	IV/1	IV/2	IV/3
Length	flakes including tools	36.26	34.82	35.41
	blades including tools	50.60	43.17	58.64
	blanks (flakes & blades)	39.24	34.82	33.12
	tools	54.11	45.48	64.82
Width	flakes including tools	34.43	32.82	29.21
	blades including tools	20.13	19.04	20.78
	blanks (flakes & blades)	30.64	28.92	26.48
	tools	36.38	34.78	27.57
Thickness	flakes including tools	6.09	6.22	5.39
	blades including tools	5.76	5.47	4.87
	blanks (flakes & blades)	5.99	5.85	4.65
	tools	7.96	7.66	6.86
Platform width	flakes including tools	18.19	16.79	15.34
	blades including tools	11.44	10.12	10.56
	blanks (flakes & blades)	16.57	15.58	13.80
	tools	19.95	13.91	14.40
Platform thickness	flakes including tools	5.90	5.25	5.09
	blades including tools	4.25	4.54	4.02
	blanks (flakes & blades)	5.51	5.20	4.75
	tools	6.99	4.29	4.89

Table 14-14 Kabazi V, Unit IV: average dimensions, in mm.

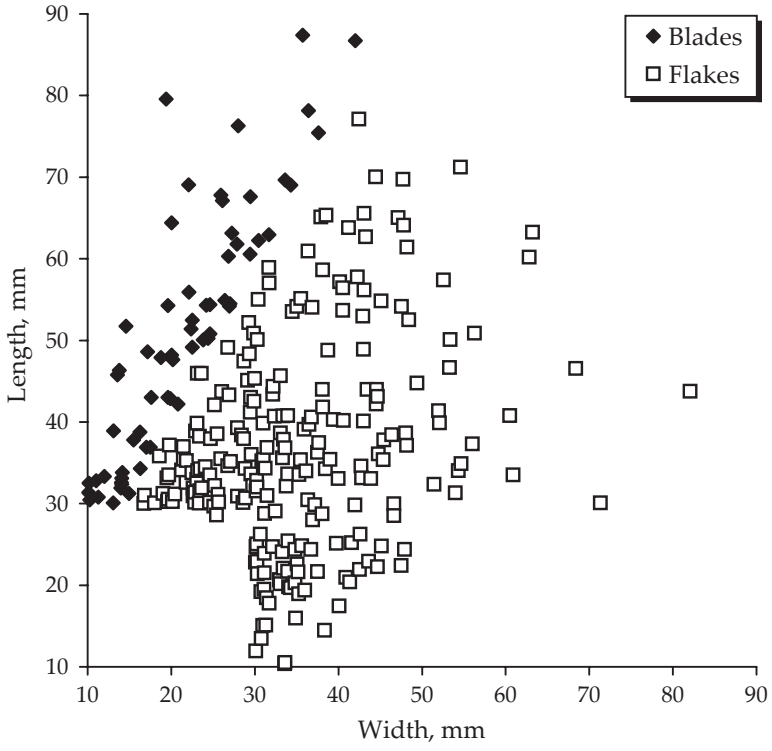


Fig. 14-4 Kabazi V, level IV/1. Width/length scatterplot for blades and flakes.

14-5 and 8-5; 14-8 and 8-8; 14-9 and 8-9; 14-12 and 8-12; 14-13 and 8-13).

Together with the differences regarding technological and morphological attributes, all above mentioned debitage groups also differ with respect to their sizes, e.g. maximum size of artefacts, and width/thickness of platforms. Indeed, there are three observable patterns in artefact dimension distribution, and these can be termed "plateau", "gradual" and "sharp peak". All studied dimensions of "desired blanks" can be assigned to the plateau pattern (Fig. 14-5; 14-6; 14-7); about 60% of maximum dimensions among "desired" blanks fall into the metrical interval 40 mm to 60.99 mm (Fig. 14-5). As such, the maximum dimensions of "desired blanks" correspond well with the parameters of their platforms. A similar plateau situation can also be observed with regard to platform width and thickness values with about 70% of "desired" blanks falling into metrical intervals 4-15.99 mm and 2-5.99 mm, respectively (Fig. 14-6; 14-7). Such a pattern might be viewed as evidence of at least an attempt to standardize the relative size of "desired" blanks.

The distribution of maximum dimensions of "waste" blanks shows a gradual pattern (Fig. 14-5). The distribution of platform dimensions among "waste" blanks can also be termed plateau-like (Fig. 14-6; 14-7).

Unlike "desired" and "waste" blanks, "regular" and "bifacial thinning" blanks are the only artefacts characterised by the "sharp peak" pattern (Fig. 14-5; 14-6; 14-7). Moreover, in all cases these peaks are either on the periphery, or even beyond the plateaus, of "desired" and "waste" blanks.

All in all, the contrast between blanks from levels III/2 and IV/1 might be interpreted as the difference between bifacial *façonage* ("regular" and "bifacial thinning" blanks) and core debitage ("desired" and "waste" blanks). Features of the Kabazi V, level IV/1 flint assemblage, such as Levallois, radial, bi- and unidirectional cores, Levallois blanks with lateral and centripetal dorsal scar pattern, *débordantes* and *enlèvement deux* blanks, and blades with bi- and unidirectional dorsal scars, are consistent with the Biache method of core flaking, as previously described for Biache-Saint-Vaast, niveau IIa, and Kabazi II, Unit II (Boëda 1988, Chabai 1998b)

Thus, the blank assemblage from Kabazi V, level IV/1 resulted from the application of the Biache *uni-polaire* method of core reduction. Evidences of bifacial technologies are lacking, and there are no reasons to suggest that on-site bifacial tool production occurred during the level IV/1 occupation.

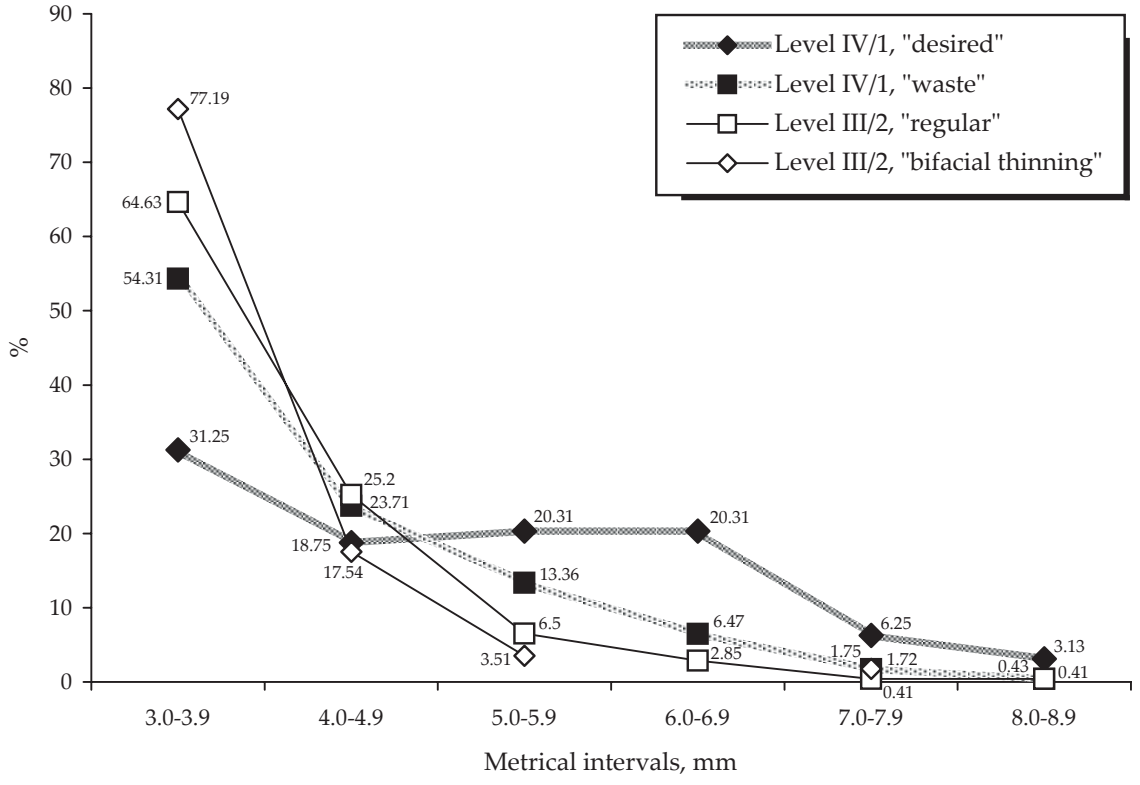


Fig. 14-5 Kabazi V, levels III/2 and IV/1. Maximum dimensions of "desired", "waste", "regular" and "bifacial thinning" blanks, by metrical intervals.

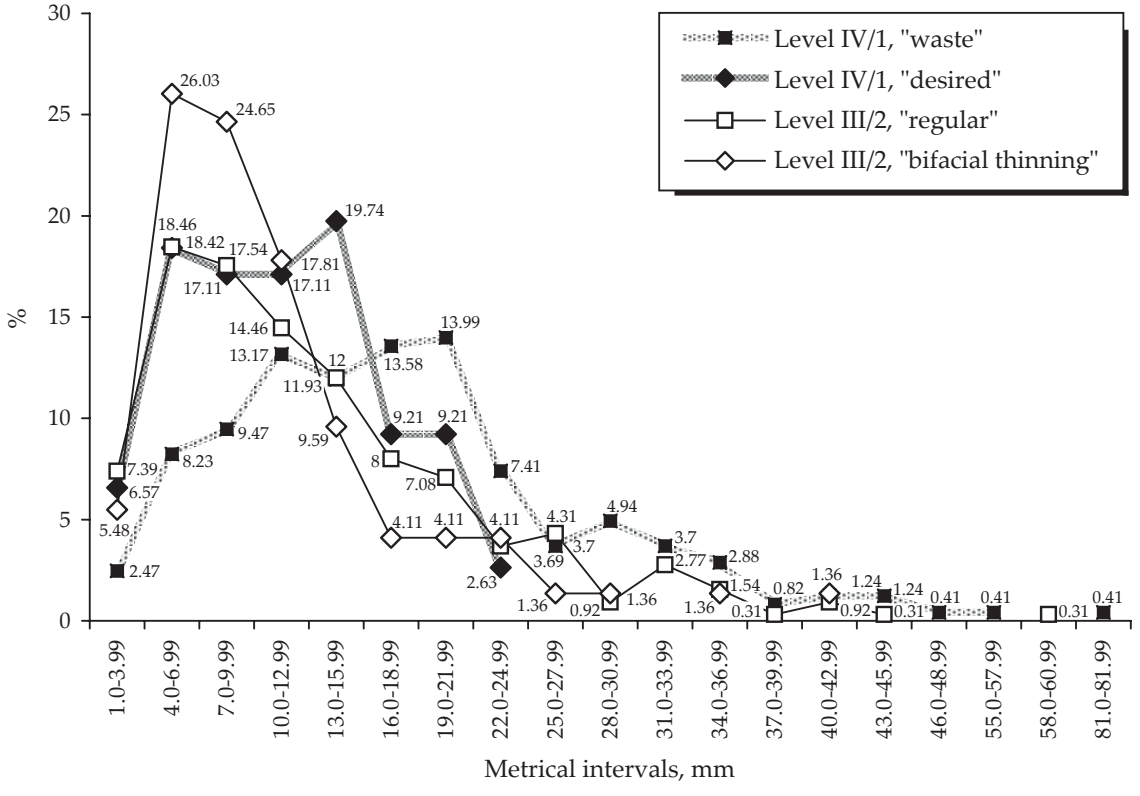


Fig. 14-6 Kabazi V, levels III/2 and IV/1. Striking platform widths of "desired", "waste", "regular" and "bifacial thinning" blanks, by metrical intervals.

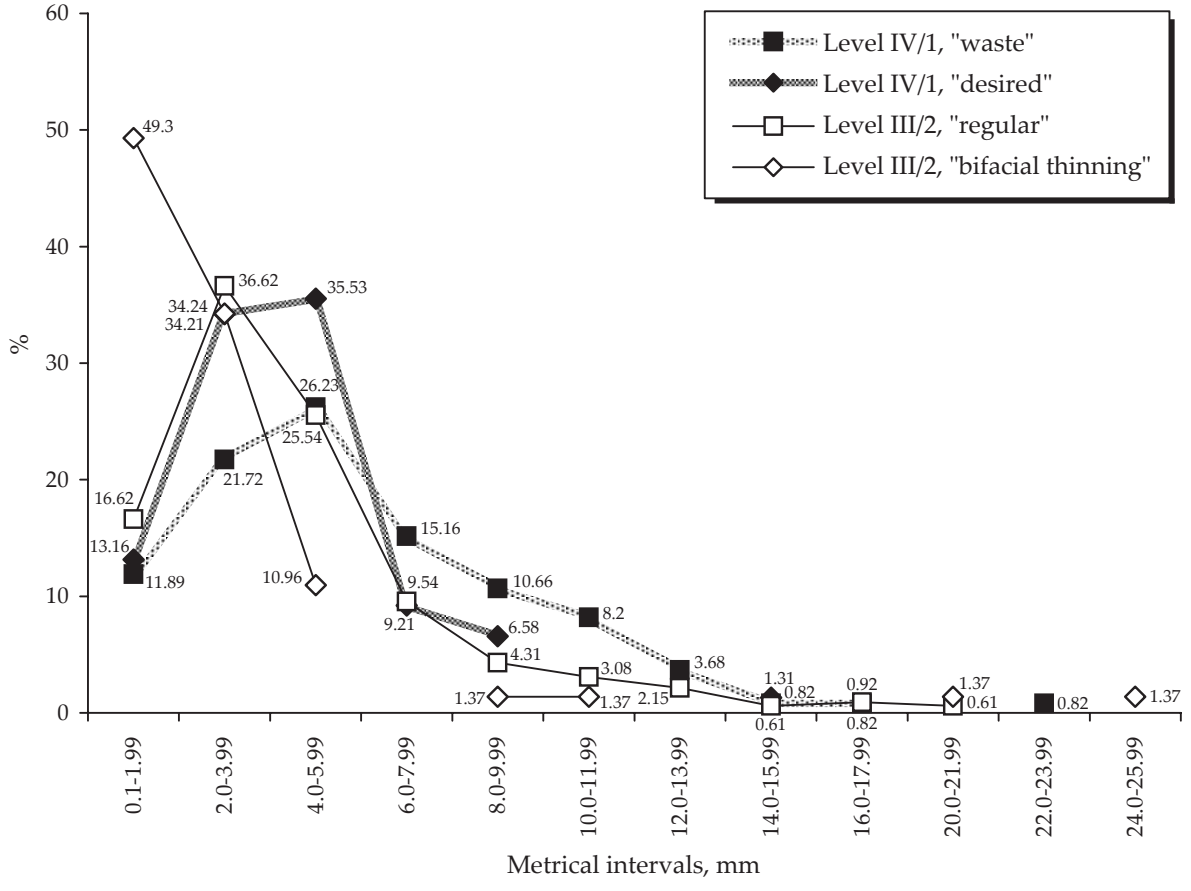


Fig. 14-7 Kabazi V, levels III/2 and IV/1. Striking platforms thicknesses of "desired", "waste", "regular" and "bifacial thinning" blanks, by metrical intervals.

Tools

The largest collection of tools was recovered from level IV/1, with smaller amounts from levels IV/2 and IV/3. Unit IV has yielded a total of 91 tools which includes 87 unifacial and 4 bifacial tools (Table 14-15). Unifacial tools were made on a chip (1 item), on flakes (60 items), on blades (25 items) and on a chunk (1 item). The four bifacial tools were made on a flake, a natural flake, a flint plaquette and on an unidentifiable piece of flint, respectively. The most common tool class is the scraper (29 items), followed by retouched pieces (28 items), points (12 items), bifacial scrapers (3 items), thinned pieces (2 items), a bifacial reutilized tool (1 item), a notched tool (1 item), a truncated-faceted piece (1 item), and a burin (1 item). Unidentifiable unifacial tools comprise 13 retouched fragments of debitage. Two kinds of retouch combinations dominate, these are obverse scalar flat and obverse scalar semi-abrupt (Table 14-16). Tools are relatively large; in level IV/1, 20 of the 28 complete tools are longer than 5 cm; in level IV/2, five of 13 unbroken tools are longer than 5 cm; and in level IV/3, seven of ten complete tools are longer than 5 cm. At the same time, a significant number of good size and good quality blanks were not used for tool production (Fig. 14-8).

Points

Five of twelve points are of distal types (Fig. 14-9, *2*, *3*, *7*, *8*, *9*). One of the distal points exhibits a ventral thinning of its tip. Ventral thinning was applied via a flat burin facet. Two more points display lateral thinning (Fig. 14-9, *1*, *3*). Sub-crescent (Fig. 14-9, *4*), hook-like (Fig. 14-9, *5*), sub-leaf (Fig. 14-9, *6*) and amorphous point types all occur with one artefact each. Distal points were produced using scalar/sub-parallel, and flat/semi-abrupt retouch. Scalar flat/semi-abrupt retouch was used for the elaboration of lateral, sub-crescent, hook-like, sub-leaf, and amorphous points. Seven of the twelve points were made on blades. Points vary in length from between 50 and 100 mm, their width ranges from 25 to 49 mm.

	Level IV/1	Level IV/2	Level IV/3	Total:	
	#	#	#	#	%
Points					
Distal, dorsal	3	·	1	4	8.34
Distal, dorsal, distally thinned	·	·	1	1	2.08
Lateral, dorsal	1	·	1	2	4.18
Sub-crescent, dorsal	·	1	·	1	2.08
Sub-crescent, dorsal, distally thinned	1	·	·	1	2.08
Hook-like, dorsal, distally thinned	·	·	1	1	2.08
Sub-leaf, dorsal	·	1	·	1	2.08
Amorphous, thinned base	1	·	·	1	2.08
Scrapers					
Transverse-straight, dorsal	1	1	·	2	4.18
Transverse-convex, dorsal	1	2	·	3	6.25
Transverse-wavy, dorsal	1	·	·	1	2.08
Diagonal-convex, dorsal	2	2	·	4	8.34
Straight, dorsal	1	·	·	1	2.08
Straight, dorsal, backed	1	1	·	2	4.18
Straight, dorsal, truncated-faceted base	·	1	·	1	2.08
Convex, dorsal	2	·	1	3	6.25
Convex, dorsal, thinned base	·	1	·	1	2.08
Wavy, dorsal	2	·	·	2	4.18
Straight-convex, dorsal	2	1	·	3	6.25
Double-convex, dorsal	·	1	·	1	2.08
Convex-concave, dorsal	1	·	·	1	2.08
Triangular, dorsal, thinned base	·	·	1	1	2.08
Semi-trapezoidal, dorsal	1	·	·	1	2.08
Semi-trapezoidal, dorsal, distally thinned	·	·	1	1	2.08
Semi-rectangular, dorsal	1	·	·	1	2.08
Notches					
Lateral, dorsal	·	1	·	1	2.08
Burins					
Dihedral, on chunk	1	·	·	1	2.08
Truncated-faceted pieces					
Proximal	·	1	·	1	2.08
Bifacial scrapers					
Semi-crescent, backed	1	·	·	1	2.08
Sub-crescent	1	·	·	1	2.08
Leaf-shaped	1	·	·	1	2.08
Bifacial reutilized					
Leaf-shaped, tip fragment	·	1	·	1	2.08
Sub-total:	**26**	**15**	**7**	**48**	**100.00**

Table 14-15 Kabazi V, Unit IV: tools.

	Level IV/1	Level IV/2	Level IV/3	Total:
	#	#	#	#
Retouched Pieces				
Distal, dorsal	·	·	1	1
Distal, dorsal, thinned base	1	·	·	1
Lateral, dorsal	9	7	4	20
Lateral, ventral	1	·	·	1
Bilateral, dorsal	2	·	·	2
Bilateral, alternate	1	·	·	1
Lateral-distal, dorsal	1	1	·	2
Thinned pieces				
Proximal, ventral	1	·	·	1
Proximal, bifacial	1	·	·	1
Unidentifiable				
Dorsal	4	3	6	13
Total:	**47**	**26**	**18**	**91**

Table 14-15 Continued.

Scrapers

The Unit IV tool assemblage comprises 20 single-edge, 5 double-edge and 4 convergent scrapers (Table 14-15). Among the single-edge scrapers six are classified as transverse, four as diagonal, and ten as longitudinal. Transverse scrapers are represented by straight, convex (Fig. 14-10, *2*), and wavy (Fig. 14-10, *1*) items. These were made using scalar abrupt, stepped abrupt (Fig. 14-10, *1*), and scalar semi-abrupt retouch (Fig. 14-10, *2*). All were obversely retouched and made on flakes. Transverse single scrapers range in length from 30 to 56 mm, with a width of between 37 and 73 mm.

Both diagonal scrapers exhibit convex obversely retouched edges. One was made using scalar flat and scalar semi-abrupt retouch. All diagonal scrapers were made on flakes, and range in size from 30-60 mm long, and 33-62 mm wide.

Single-edge longitudinal scrapers are subdivided, on the basis of the shape of their retouched edges, into the following morphological groups: straight; convex; and, wavy (Fig. 14-2, *2*; 14-11, *1*, *4*; 14-12, *4*, *5*, *6*, *7*). Further, the straight edge scrapers comprise three types: straight (Fig. 14-2, *2*); straight, backed (Fig. 14-12, *4*); and straight with truncated faceted base (Table 14-15). Convex scrapers are subdivided into a convex regular type (Fig. 14-11, *1*, *4*; 14-12, *7*) and a convex type with a thinned base (Fig. 14-12, *6*). All longitudinal scrapers were produced using obverse scalar flat/semi-abrupt retouch. Blades served as the blanks for straight, backed, and for one wavy scraper. All remaining scrapers were made on flakes, including one *débordante*/Levallois flake (Fig. 14-2, *2*). The complete examples of single-edge longitudinal scrapers are between 38 and 67 mm long and from 24 to 48 mm wide. The largest scraper is a straight, backed piece which had been made on a broken blade (length: 92.14 mm; width: 34.92 mm).

There are five double-edge scrapers, these comprise three straight-convex pieces (Fig. 14-11, *6*), one double-convex piece (Fig. 14-11, *5*) and one convex-concave piece (Fig. 14-11, *3*). The convex-concave and straight-convex scrapers were made using scalar semi-abrupt retouch. Another straight-convex scraper and the single double-convex scraper were elaborated using scalar flat retouch. All but one of the double edge scrapers were made on flakes. The straight-convex scraper was made on a blade. These scrapers range in length from 44 to 64 mm and are between 22 and 56 mm wide.

Convergent scrapers are represented by four different types: triangular with thinned base (Fig. 14-12, *1*), semi-trapezoidal (Fig. 14-12, *3*), semi-trapezoidal with distal thinning, and semi-rectangular. A scalar stepped semi-abrupt retouch was used for triangular, thinned base scraper production. Both semi-trapezoidal scrapers were made using obverse

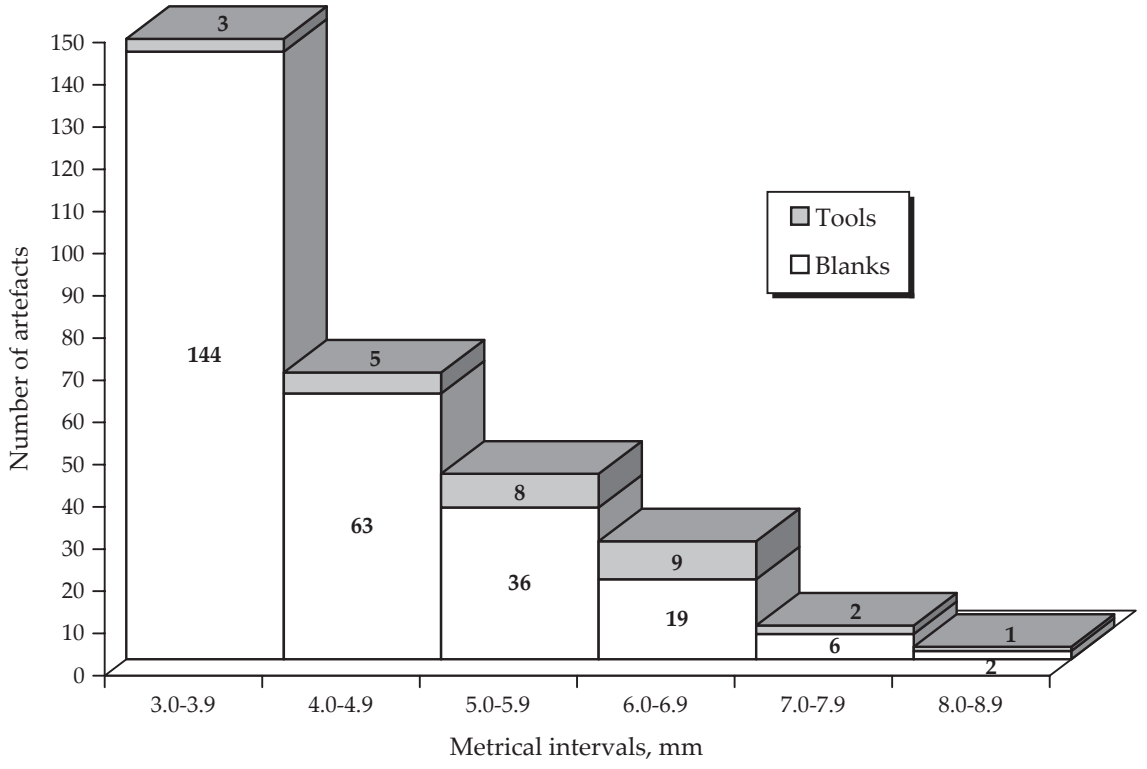


Fig. 14-8 Kabazi V, level IV/1. Tools and unretouched blanks, by metrical intervals.

scalar flat retouch, and semi-rectangular scrapers by obverse scalar semi-abrupt retouch. All convergent scrapers were made on flakes. These pieces range in length from between 36 and 48 mm, and are between 28 and 44 mm wide.

Notch

One notch was made by the application of obverse scalar semi-abrupt retouch to the lateral side of a small broken flake (length: >36.04 mm; width: 29.40 mm; thickness: 3.50 mm).

Truncated-faceted piece

One truncated-faceted piece was made on the proximal part of a fragmented blade (Fig. 14-12, *2*).

Burin

One dihedral burin was made on a chunk. This piece is 49.28 mm long, 49.61 mm wide and 16.28 mm thick.

Bifacial scrapers

There are three bifacial scrapers (Table 14-15). The sub-crescent bifacial scraper was made on transversal flake. It is 99.11 mm long, 55.96 mm wide and 14.55 mm thick (Fig. 14-13, *1*). The straight edge was elaborated by a demi-Quina retouch. The convex edge was made using a scalar flat retouch. The tip of the tool and the straight edge are obversely retouched, while the convex edge is inversely retouched. Thus, the sub-crescent scraper was made in a plano-convex alternate manner.

The leaf (asymmetrical) bifacial scraper was made on a natural flake. It is 113.91 mm long, 53.43 mm wide and 22.25 mm thick (Fig. 14-13, *2*). Both edges are obversely retouched. The straighter edge was made by demi-Quina retouch, while the more convex edge is the result of a scalar semi-abrupt retouch. Therefore, this leaf-shaped bifacial scraper was made in both plano-convex bifacial and unifacial dorsal manners.

The semi-crescent bifacial scraper was made on a flint plaquette. It is 66.49 mm long, 37.86 mm wide and 17.49 mm thick (Fig. 14-14). This tool was made in plano-convex manner using a scalar semi-abrupt retouch.

	Placement	Type	Angle	Level IV/1	Level IV/2	Level IV/3	Total:	%
Points	obverse	sub-parallel	flat	2	·	·	2	2.26
	obverse	sub-parallel	semi-abrupt	·	·	1	1	1.12
	obverse	scalar	semi-abrupt	3	1	·	4	4.50
	obverse	scalar	flat	1	·	3	4	4.50
Scrapers	obverse	scalar	abrupt	1	·	·	1	1.12
	obverse	scalar	semi-abrupt	7	4	·	11	12.36
	obverse	scalar	flat	7	6	1	14	15.73
	obverse	stepped	semi-abrupt	·	1	2	3	3.37
	obverse	stepped	abrupt	1	·	·	1	1.12
Notches	obverse	scalar	semi-abrupt	·	1	·	1	1.12
Bifacial scrapers	alternate	demi-Quina	semi-abrupt	1	·	·	1	1.12
	obverse	demi-Quina	semi-abrupt	1	1	·	2	2.26
	alternate	scalar	semi-abrupt	1	·	·	1	1.12
Retouched pieces	obverse	scalar	flat	·	7	4	11	12.36
	obverse	scalar	abrupt	·	·	1	1	1.12
	obverse	irregular	abrupt	2	·	·	2	2.26
	obverse	irregular	semi-abrupt	1	·	·	1	1.12
	obverse	irregular	flat	8	·	·	8	8.99
	inverse	irregular	flat	1	·	·	1	1.12
	obverse	marginal	flat	2	1	·	3	3.37
	alternate	marginal	flat	1	·	·	1	1.12
Thinned pieces	inverse	scalar	flat	1	·	·	1	1.12
	bifacial	scalar	flat	1	·	·	1	1.12
Unidentifiable	obverse	scalar	semi-abrupt	1	1	1	3	3.37
	obverse	scalar	abrupt	·	·	1	1	1.12
	obverse	stepped	semi-abrupt	·	1	·	1	1.12
	obverse	scalar	flat	3	1	4	8	8.99
			Total:	**46**	**25**	**18**	**89**	**100.00**

Table 14-16 Kabazi V, Unit IV: retouch characteristics.

Bifacial reutilized tool

The zone of breakage of the leaf-shaped tip of a plano-convex bifacial tool had been elaborated by a scalar retouch. The reutilized tool is 40.05 mm long, 44.47 mm wide and 15.47 mm thick.

Retouched pieces

Depending on the exact placement of retouch on an individual piece, retouched pieces are subdivided into 7 types (Table 14-15). The most numerous of these is the lateral, dorsal type (Fig. 14-2, *1*; 14-11, *2*). This type of retouched piece was made by scalar flat, irregular flat, irregular abrupt, irregular semi-abrupt

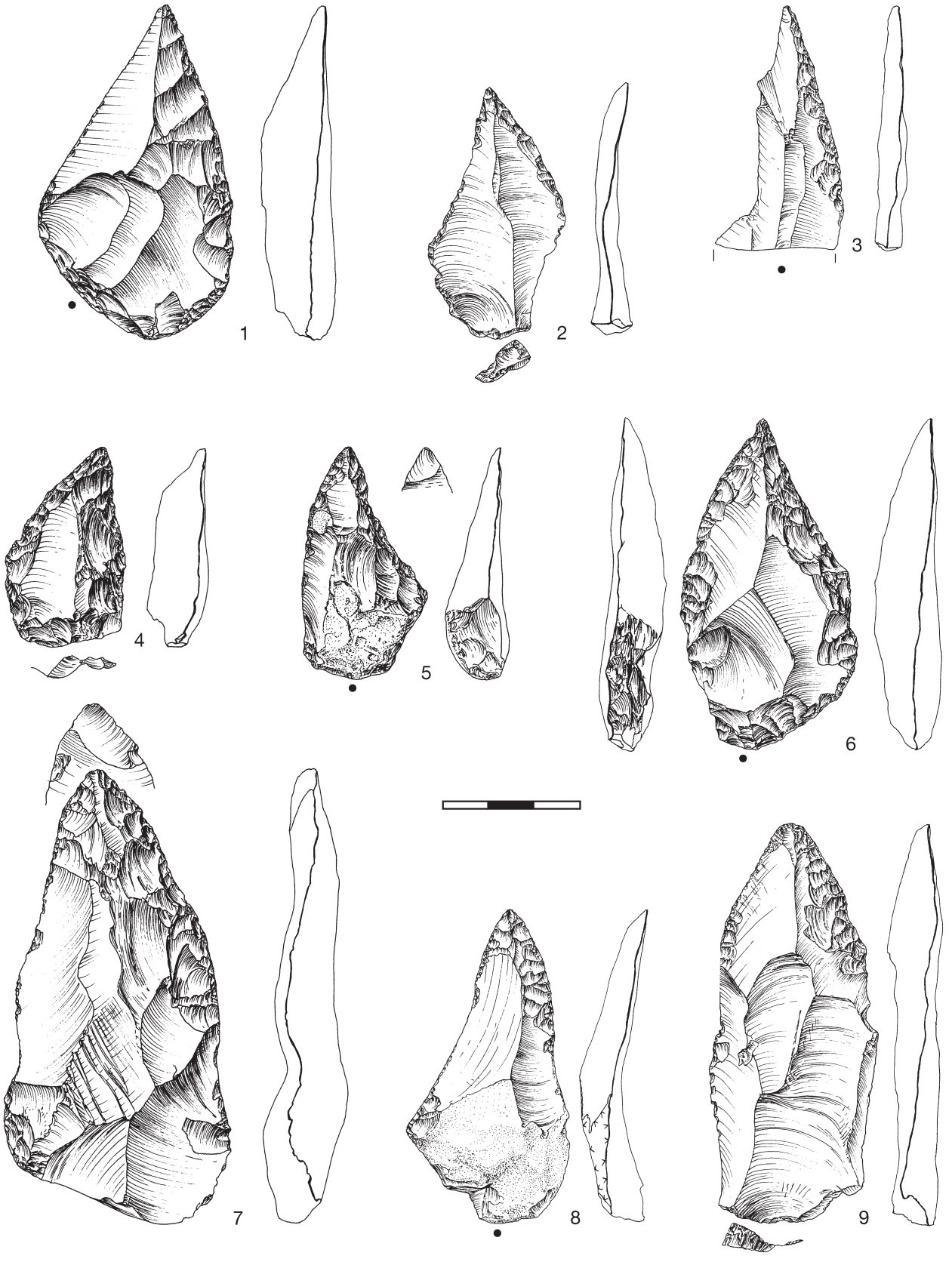


Fig. 14-9 Kabazi V, levels IV/1 (2, 3, 8, 9), IV/2 (4, 6), IV/3 (1, 5, 7). Points: 1 and 3 – lateral; 2, 8 and 9 – distal; 4 – sub-crescent; 5 – hook-like, distally thinned; 6 – sub-leaf; 7 – distal, distally thinned.

and marginal flat retouch. The only lateral ventral piece was realised by an irregular flat retouch. Bilateral retouched pieces (Fig. 14-1, *3*), as well as lateral distal retouched pieces, were produced using a combination of obverse marginal/irregular flat and alternate marginal flat retouch variations. The only retouched piece with a thinned base was made using an irregular abrupt retouch. Ten out of 28 retouched pieces were made on blades, and one piece on a natural flake. Retouched pieces range in length from 32 to 86 mm and are between 28 and 62 mm wide.

Thinned pieces

There are two flakes with a thinned base (Table 14-15). Whereas one piece displays a ventral thinning, the other has both ventral and dorsal thinning. These two pieces range in length from between 39-42 mm and are 26 to 26.5 mm wide.

Unidentifiable tools

Unidentifiable tools comprise tools fragments with an obverse retouch. One of the unidentifiable tools from level IV/1 was heavily burnt.

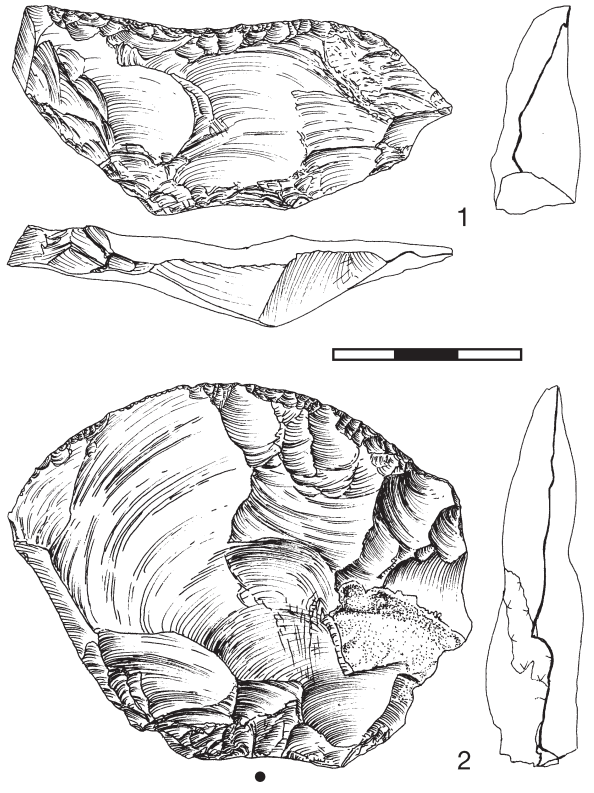


Fig. 14-10 Kabazi V, levels IV/1 (1) and IV/2 (2). Scrapers: 1 – transverse-wavy; 2 – transverse-convex.

Discussion: Kabazi V, Unit IV in WCM Context

With the exception of bifacials, all other represented tool types are common to WCM assemblages. Indeed, such types as the distal and lateral points, as well as the simple scrapers on blades, are the most characteristic features of WCM typology. Further, the characteristics of cores, flakes and blades are even clearer evidence of the WCM status of the Kabazi V, Unit IV assemblage. However, three bifacial tools from level IV/1, as well as one bifacial tool from level IV/2, are considered typical for the Crimean Micoquian. Indeed, the occurrence of these pieces alongside WCM artefacts might be the basis for further speculations.

At the present time, the only really reliable statement that can be made, as evidenced from debitage characteristics, is that there is a definite absence of on-site bifacial tool production and/or reshaping. This means that bifacials were brought to the site as already prepared tools. If then we were to assume that bifacials are part of a larger Micoquian assemblage, further "Micoquian" artefacts might include the semi-trapezoidal scrapers. Thus, the most probable scenario in the case of Unit IV at Kabazi V is a mechanical mixture of WCM and Micoquian artefacts in palimpsests.

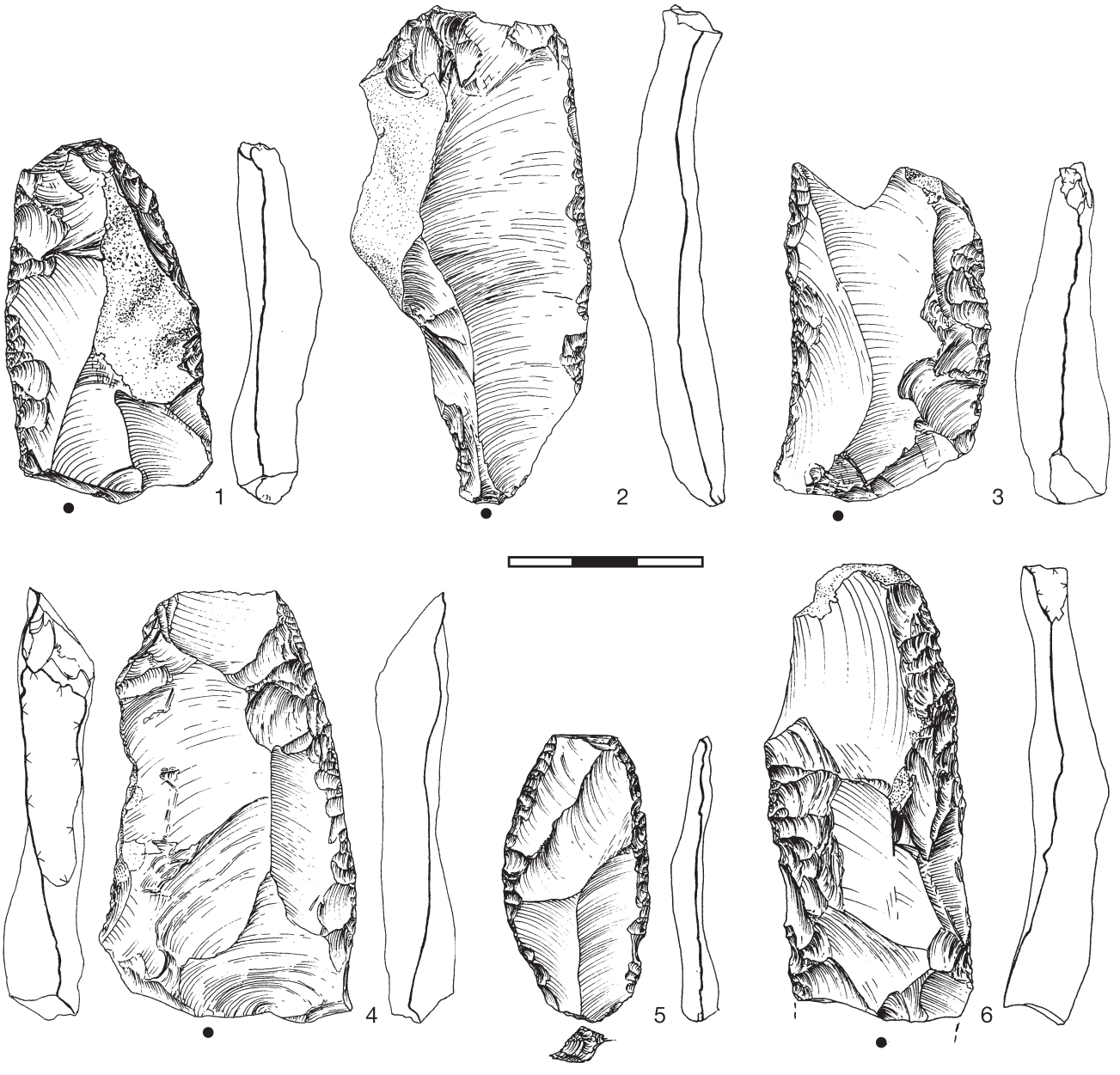
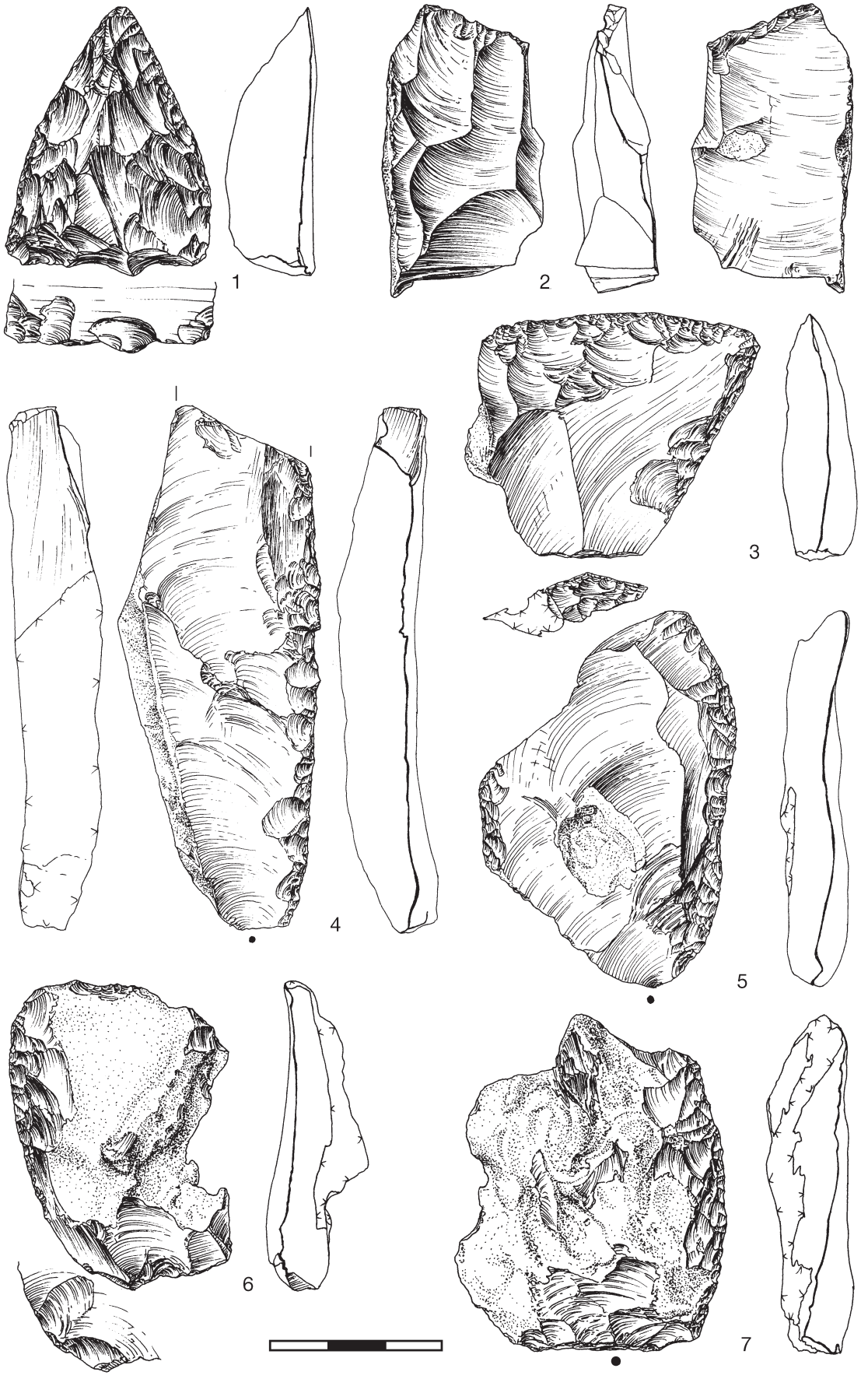


Fig. 14-11 Kabazi V, levels IV/1 (2, 3, 4), IV/2 (1, 5, 6). Tools: 1, 4 – scrapers, convex; 2 – retouched piece, lateral; 3 – scraper, convex-concave; 5 – scraper, double-convex; 6 – scraper, straight-convex.

Fig. 14-12 Kabazi V, levels IV/1 (3, 4, 5), IV/2 (2, 6), IV/3 (1, 7). Tools: 1 – scraper, triangular, thinned base; 2 – truncated-faceted piece, proximal; 3 – semi-trapezoidal; 4 – scraper, straight, backed; 5 – scraper, wavy; 6 – scraper, convex, thinned base; 7 – scraper, convex. ▶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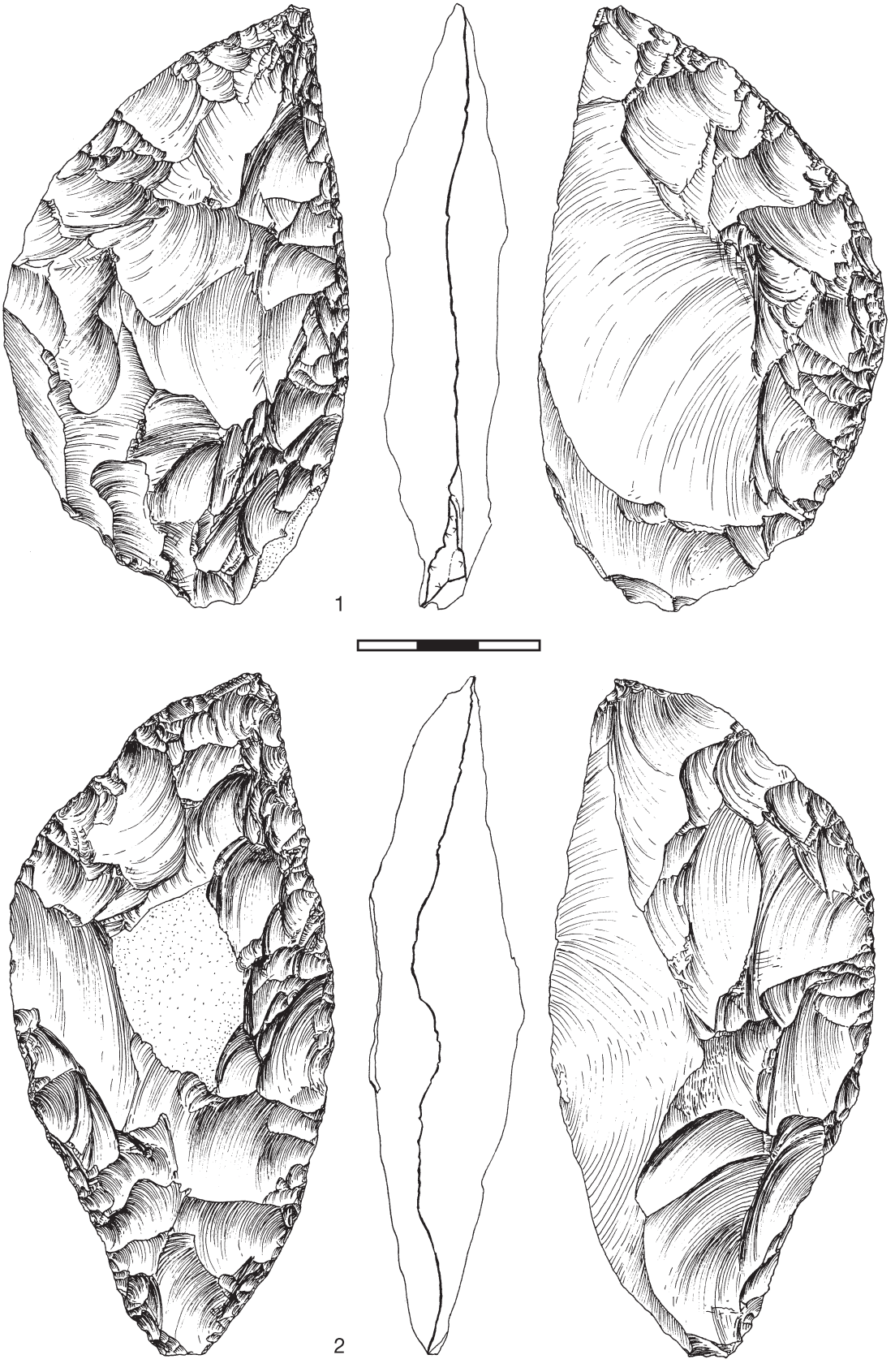

Fig. 14-13 Kabazi V, level IV/1. Bifacial scrapers: 1 – sub-crescent; 2 – leaf-shaped, asymmetrical.

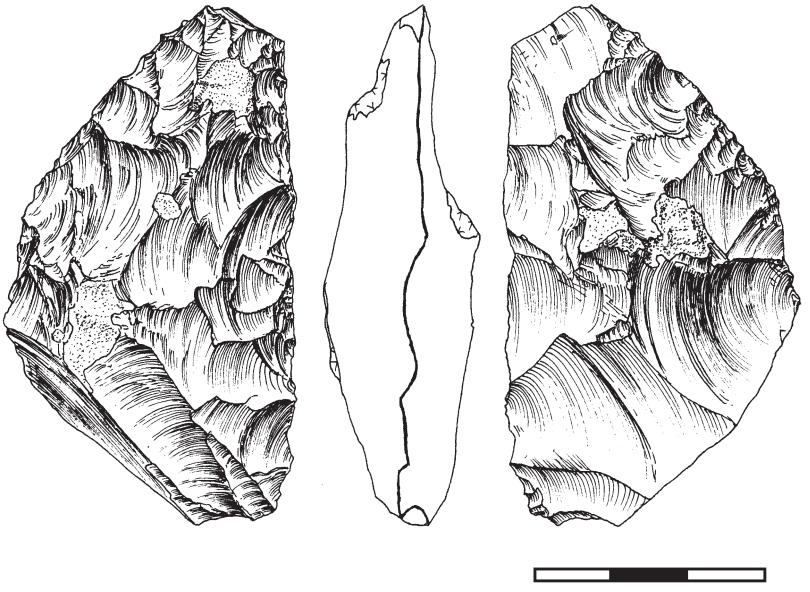

Fig. 14-14 Kabazi V, level IV/1. Bifacial scraper, semi-crescent.

Abstract

КАБАЗИ V, КУЛЬТУРНЫЙ СЛОЙ IV: ЗАПАДНОКРЫМСКОЕ МУСТЬЕ

ЧАБАЙ В.П.

Культурный слой IV представлен тремя археологическими горизонтами IV/1, IV/2 и IV/3, которые являются остатками древних жилых поверхностей. Горизонты IV/1, IV/2 и IV/3 залегают в первичном положении. Каких-либо существенных свидетельств воздействия эрозионных процессов не обнаружено (см. Главу 1 в этом томе).

Общее количество артефактов обнаруженных в IV культурном слое составляет 21563 изделий, в том числе 2 костяных ретушера. Наибольшее количество кремневых изделий происходит из горизонта IV/1 (12980 экз.). Значительно меньше обработанного кремня обнаружено в горизонтах IV/2 и IV/3: 5546 и 3035 экземпляров, соответственно. Без учета чешуек и обломков в структуре комплексов артефактов преобладают отщепы и пластины. Относительно широко представлены орудия и нуклеусы (Table 14-1). Соотношения орудий к нуклеусам составляют 3,6:1, 6,5:1 и 9:1 в горизонтах IV/1, IV/2 и IV/3, соответственно. Соотношения сколов к нуклеусам представлены следующими значениями: 39,4:1 (горизонт IV/1); 42,5:1 (горизонт IV/2); 24,5:1 (горизонт IV/3). Приведенные соотношения характерны

для стоянок-мастерских (Кабази II, II/1A – II/7; Кабази V, III/3), на которых происходил полный цикл нуклеусного расщепления и изготовления орудий из полученных заготовок.

Нуклеусы представлены: бессистемным – 1 экз.; леваллуазским черепаховидным – 1 экз.; радиальными – 3экз. (Fig. 14-1, *7*); дисковидными – 2 экз.; продольными – 3 экз.; бипродольным – 1 экз. (Fig. 14-2, *4*) и неопределимыми – 7 экз. Леваллуазский, бипродольный и продольные нуклеусы оснащены вспомогательными латеральными ударными площадками. Приведенная типологическая структура нуклеусов соответствует методу первичного расщепления Биаш в том виде, как он был описан для материалов Кабази II, II (Chabai 1998c). Подтверждением этого вывода являются находки леваллуазских отщепов и пластин с центростремительными и билатеральными огранками, сколов *enlèvement deux* и *débordantes* (Fig. 14-1, *1*, *2*, *3*, *4*, *5*, *6*, *8*; 14-2, *1*, *2*).

Для горизонтов IV/1, IV/2 и IV/3 индекс пластин составляет от 21,6 до 26,9, процент сколов двусторонней обработки (включительно с чешуйками) колеблется от 6 до 10%. Индексы фасетажа ударных площадок для горизонтов IV/1 и IV/2 составляют: Ifl=65,31, Ifs=44,37 и Ifl=60,67, Ifs=34,43, соответственно. На основании анализа технико-типологических признаков сколов было установлено, что комплекс отщепов и пластин подразделяется на две группы: качественных заготовок (desired blanks) и отходов производства (waste blanks). Усредненные параметры «качественных» заготовок: удлиненные пропорции (длина не менее 50 мм); прямоугольная симметричная или трапециевидная удлиненная, слегка асимметричная формы; ровный или слегка изогнутый латеральный профиль; перьевидный дистальный профиль. Признаки «отходов производства» следующие: укороченные, зачастую трансверсальные пропорции; трапециевидная асимметричная форма; искривленный латеральный и перьевидный дистальный профили. «Качественные» заготовки были обнаружены только в леваллуа-мустьерских комплексах и связаны со специфическими методами нуклеусного расщепления. «Отходы производства» обнаружены как в леваллуа-мустьерских, так и в микокских коллекциях и ассоциируются с этапом подготовки выпуклости рабочей поверхности нуклеусов и обработкой двусторонних орудий, соответственно.

Орудия культурного слоя IV представлены следующими классами: остроконечники (12 экз.); скребла (29 экз.); выемчатые (1 экз.); резцы (1 экз.); тронкировано-фасетированные (1 экз.); двусторонние скребла (3 экз.); двусторонние реутилизированные орудия (1 экз.); сколы с ретушью (28 экз.); сколы с утончением (2 экз.); неопределимые односторонние орудия (13 экз.). Двадцать пять из 91 орудия изготовлены на пластинах. Остроконечники подразделяются на следующие морфологические группы: дистальные (5 экз.); латеральные (2 экз.); сегментовидные (3 экз.); листовидные (1 экз.); аморфные (1 экз.). Среди скребел выделены следующие морфологические группы: поперечные (6 экз.); диагональные (4 экз.); продольные (10 экз.); двойные (5 экз.); треугольные (1 экз.); трапециевидные (2 экз.); прямоугольные (1 экз.). Двусторонние скребла (все из горизонта IV/1) представлены полусегментовидным, обушковым, подсегментовидным и листовидным асимметричным изделиями. Два последних обработаны ретушью Кина. Еще одно двустороннее орудие (реутилизированное) было обнаружено в горизонте IV/2. Большая часть сколов с ретушью представлена отщепами с дорсальной латеральной ретушью. Наиболее часто встречающиеся комбинации ретуши – дорсальная чешуйчатая плоская и дорсальная чешуйчатая полукрутая.

Кроме наличия четырех (3 в горизонте IV/1 и 1 в горизонте IV/2) двусторонних орудий ничто не противоречит отнесению кремневого комплекса Кабази V, IV к западнокрымской индустрии. Вместе с тем, среди сколов данного культурного слоя не обнаружено достаточных свидетельств изготовления двусторонних орудий на территории поселений горизонтов IV/1 и IV/2. С другой стороны, дополнительным микокским компонентом могут быть некоторые типы конвергентных скребел. Таким образом, наиболее вероятным сценарием появления двусторонних орудий является механическое смешение материалов микокских и западнокрымских поселений в палимпсесте IV культурного слоя Кабази V.