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KABAZI II: LAST INTERGLACIAL OCCUPATION, ENVIRONMENT & SUBSISTENCE

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Chapter 9

Carefully Planned or Confronted with the Unknown? Transformation of Raw Material at the Middle Palaeolithic Site of Kabazi II, Level V/3

Thorsten Uthmeier

Stratigraphical Position and Distribution of Finds

At Kabazi II, level V/3, finds come from an excavated area measuring 19 m^2 immediately behind the limestone block that was, at the time of settlement, eight meters high. On a living floor that was embedded in a 2 cm thick archaeological level, lithic artefacts and faunal remains were found concentrated around a small fireplace in sq. 6H-7H (Fig. 9-1). During excavations, the fire place was indicated by a 2,5 cm thick and 30 cm wide lens of burned bones and ash. Burned sediments immediately below the fire place show not only its *in-situ* preservation, but at the same time speak for a considerable time of heating. Most of the 72 lithics from level V/3 were chips which are not suitable for a sortation of raw material that is supposed to result in units as small as single nodules. Only 29 artefacts show fracture planes that were considered to be large enough for such a detailed examination. Together with the above mentioned 43 small chips as remnants of intense preparation and modification activities, these 29 artefacts witness the production, use and discard of blanks within the excavated area. Given the size of the trench, it cannot be excluded that there were more concentrations other than the one analysed. However, because the distribution of artefacts is fairly restricted, and because the lithics comprise a functional unit together with the fireplace, one has the impression that the find scatter was not much larger than the clear concentration found in sq. 7Λ, 6M to 8M, 6H and 5H (Fig. 9-2). At best, the artefacts under discussion are all that remained after a short term, single visit on the paleo-surface of level V/3 (see also Patou-Mathis, Chapter 5, this volume); they definitely belong to a separate zone of activity. Whether there were more zones of activity is open to speculation, but if there were others, it is most likely that they had little to do with the one excavated. At the moment, arguments for the datation of archaeological level V/3 are mainly based upon the pedogenesis of the sediments, the results of recent pollen studies (Gerasimenko, Chapter 2, this volume), and absolute dates from the overlying Unit III. Level V/3 was found in Stratum 14A which is described as the humus (A1) horizon of a well developed humiferous soil (Gerasimenko, Chapter 2, this volume). Numerous pollen samples show that the pedogenesis took place under interglacial conditions, with a south-boreal forest vegetation surrounding the site. Absolute ESR-dates from Unit III which fall between 74.000-85.000 BP and 82.000±10.000 BP suggest a

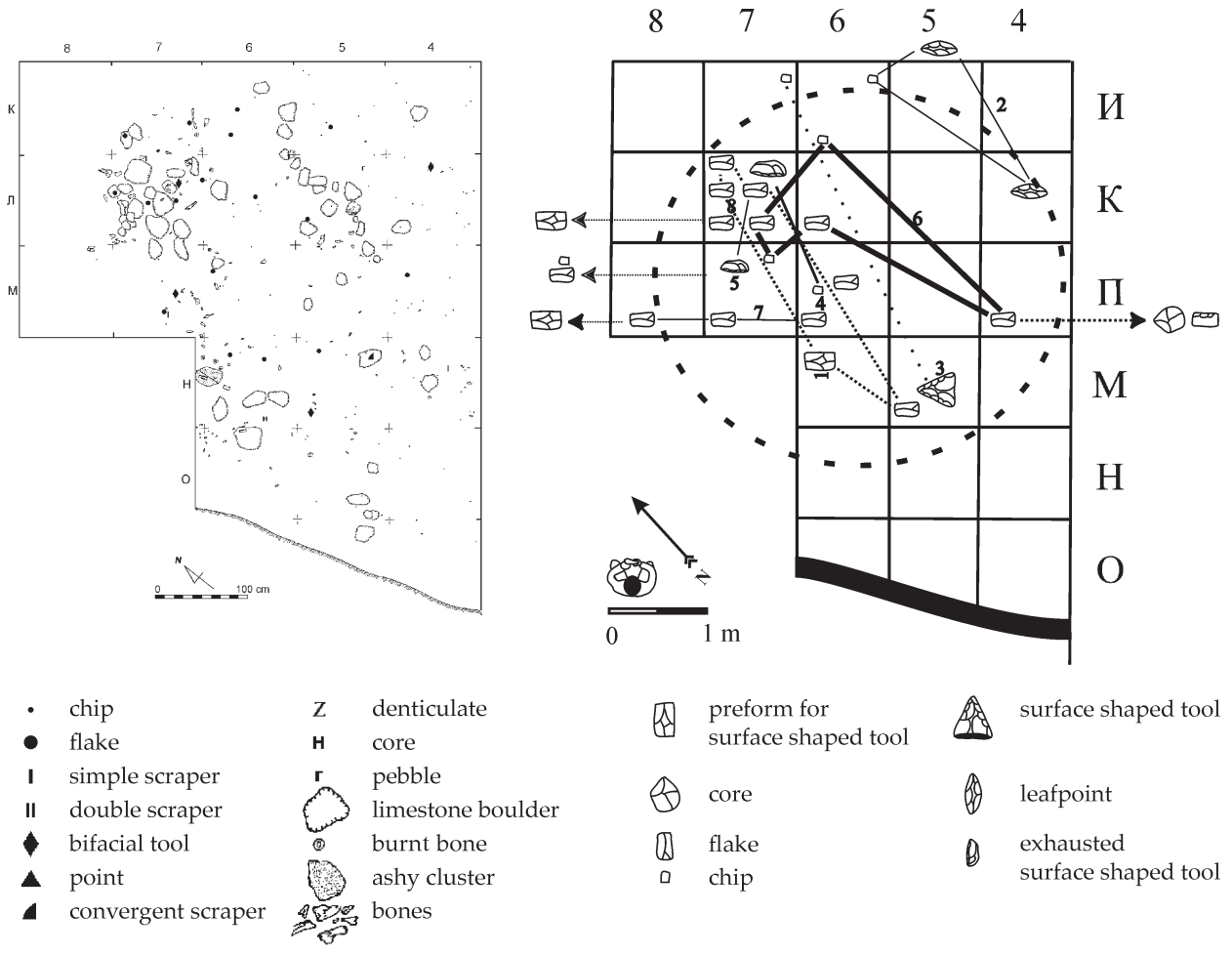

Fig. 9-1 Kabazi II, level V/3: Left – faunal remains, lithic artefacts and limestone blocks on the living floor. Right – distribution of artefacts from 8 workpieces with three-dimensional measurements. Because raw material units defined as workpieces are thought to represent distinct nodules, lines were used to link artefacts that belong to the same raw material unit; numbers correspond to numbers of raw material units in the text an tables.

chronological position of the underlying sediments at the end of OIS 5 (Chabai, Chapter 1, this volume). At the momentary state of knowledge, it appears most reasonable to argue for a (late) Eemian age of level V/3 ("Eemian 6b" or "Mikulino 8" according to Gerasimenko, Chapter 2, this volume).

Typological and Technological Features of Kabazi II, Level V/3

As previously mentioned, the majority of the assemblage consists of chips. Owing to the small size of their facture planes that might represent only a limited, yet probably not representative cut-out of the original raw pieces, they were excluded from the following analysis. Thus, the sample described here contains 29 artefacts only, of which six were classified as formal tools (Fig. 9-3). Additionally, there is a bifacial blank (Fig. 9-4, *5*) and a piece with discontinuous retouch (Fig. 9-5, *11*) that, although showing modifications of their edges, cannot be counted as formal tools *sensu stricto*. While the basal fragment of a simple side scraper (Fig. 9-5, *7*) is not diagnostic, there are five formal tools which belong to the class of surface shaped tools typical for assemblages of the "Crimean Micoquian". These are considered to be "surface shaped" because their outline and cross section was altered by soft hammer facial retouch (*façonnage*) either on the dorsal, ventral, or on both sides. One of these pieces is a small

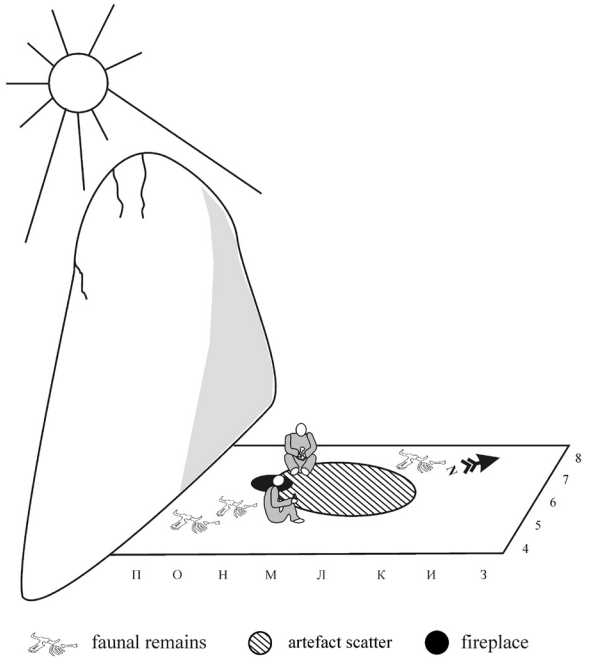

Fig. 9-2 Kabazi II, level V/3: Illustration of the main features found in the excavated area. The existence of one small fireplace, the low density of artefacts, and the analysis of faunal remains speaks for a single, short-term occupation.

bifacial leaf-scraper (Fig. 9-4, *8*). To judge from the remnants of some large negatives situated on both sides of the piece which were struck from striking platforms located at some distance from the preserved lateral edges, this piece must originally have been much larger before a repeated cycle of usage and resharpening began. The hypothesis that it is a worn out piece, discarded at the very end of its lifetime, is supported by the observation that the dorsal negatives of the retouch of the working edge often end in a hinge: after several phases of rejuvenation, the angle between the dorsal and ventral surface had become quite steep. The basal fragment of a second surface shaped tool (Fig. 9-4, *7*) is nearly identical in width and thickness, assuming that it represents the remnant of a second bifacial (leaf-)scraper that had the same function and underwent a similar reduction process. Two other surface shaped tools were also identified as being bifacial. These were, however, so heavily reduced at the point of discard that a clear typological classification is practically impossible (Fig. 9-5, *4*; 9-6). Nevertheless, one of these shows a lateral fracture that forms a back opposite to a straight, bifacial working edge (Fig. 9-5, *6*). It is not entirely clear whether the back is the consequence of a terminal breakage of a larger tool during usage or rejuvenation, or a remnant of the original shape of the raw piece. In typological sense, the latter would

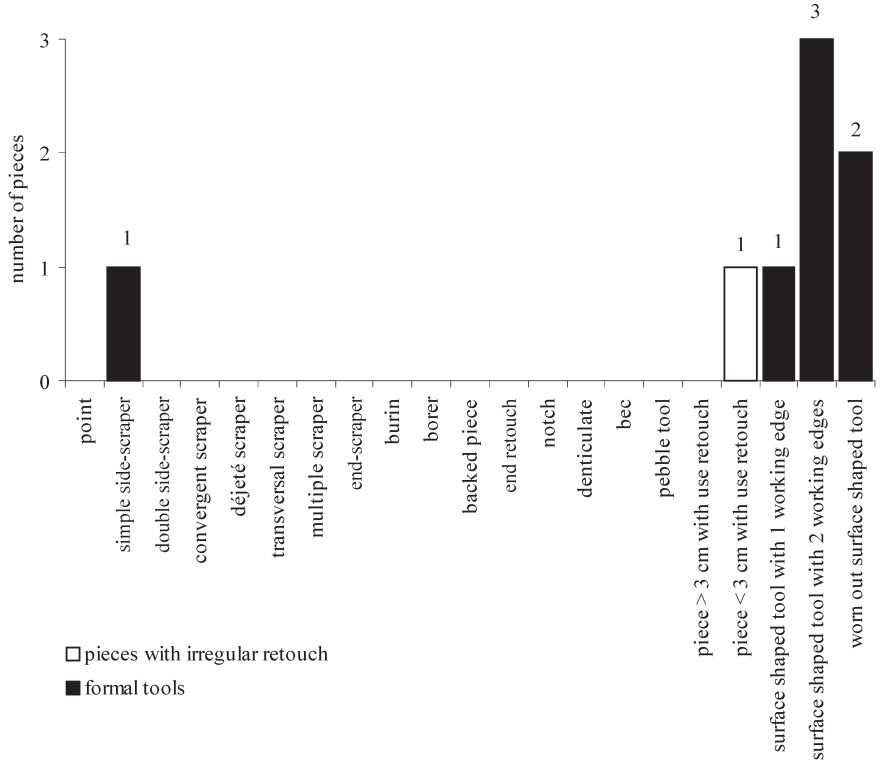

Fig. 9-3 Kabazi II, level V/3: Frequency of tools.

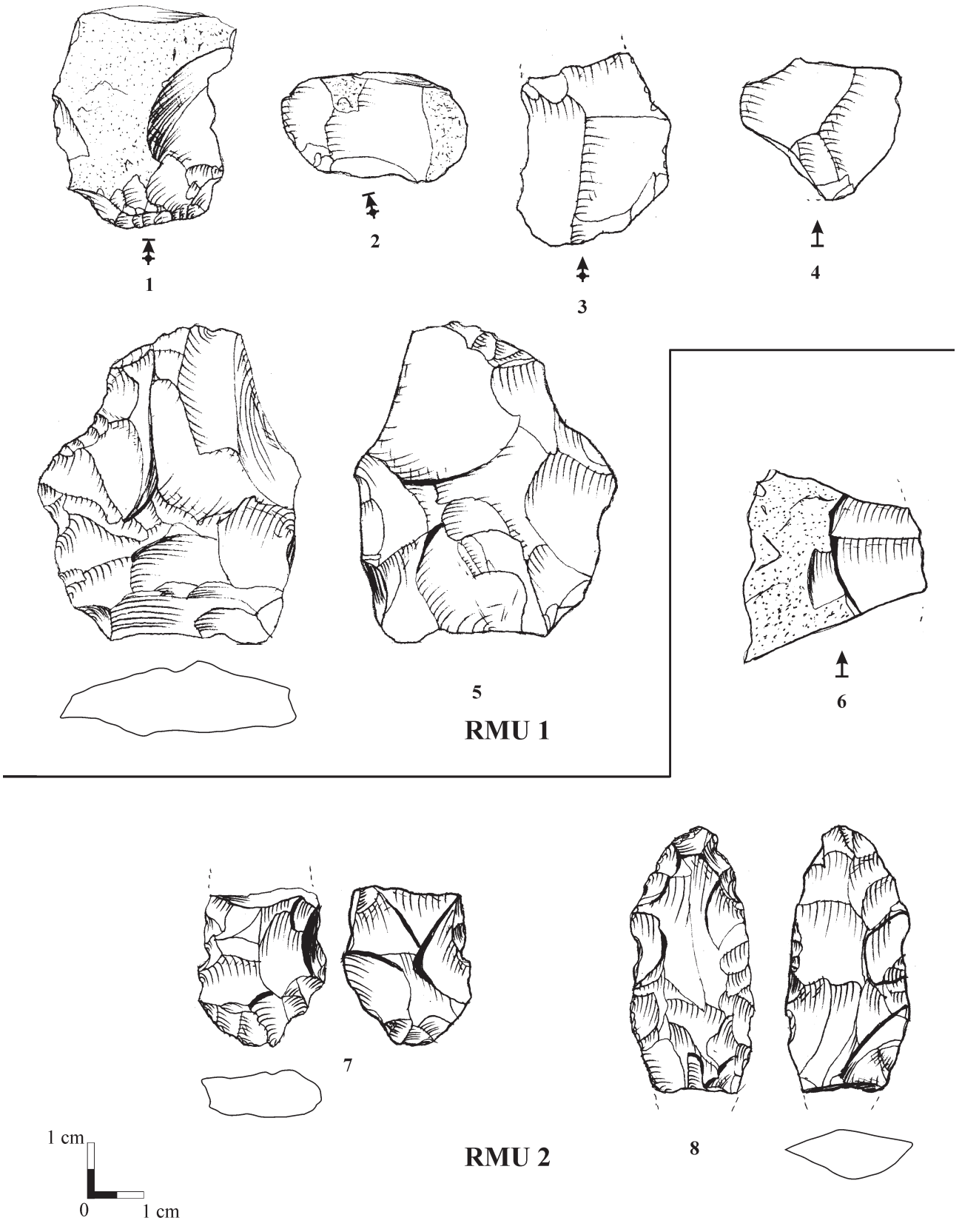

Fig. 9-4 Kabazi II, level V/3: Artefacts of RMU 1 and RMU 2.

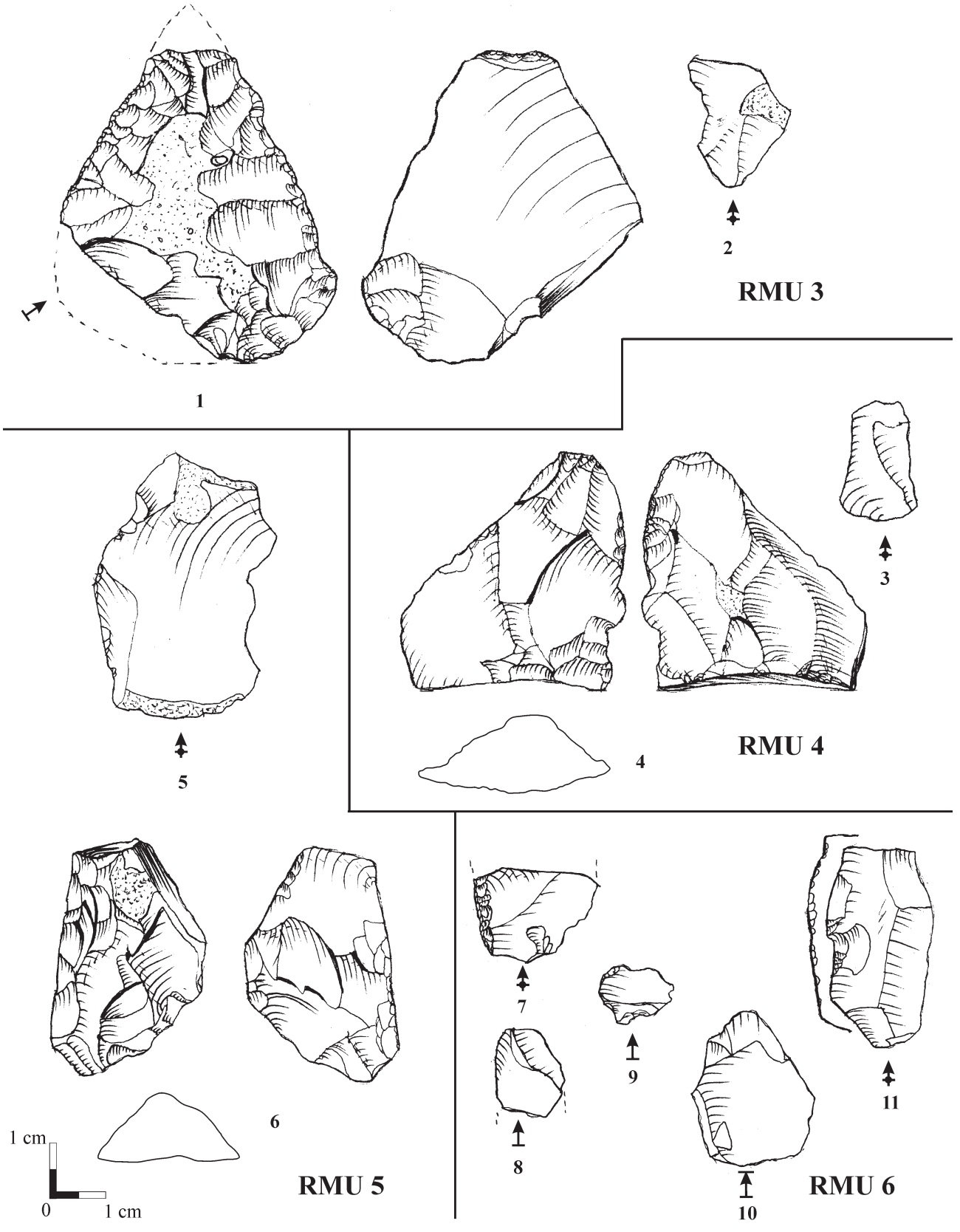

Fig. 9-5 Kabazi II, level V/3: Artefacts of RMU 3, RMU 4, RMU 5 and RMU 6.

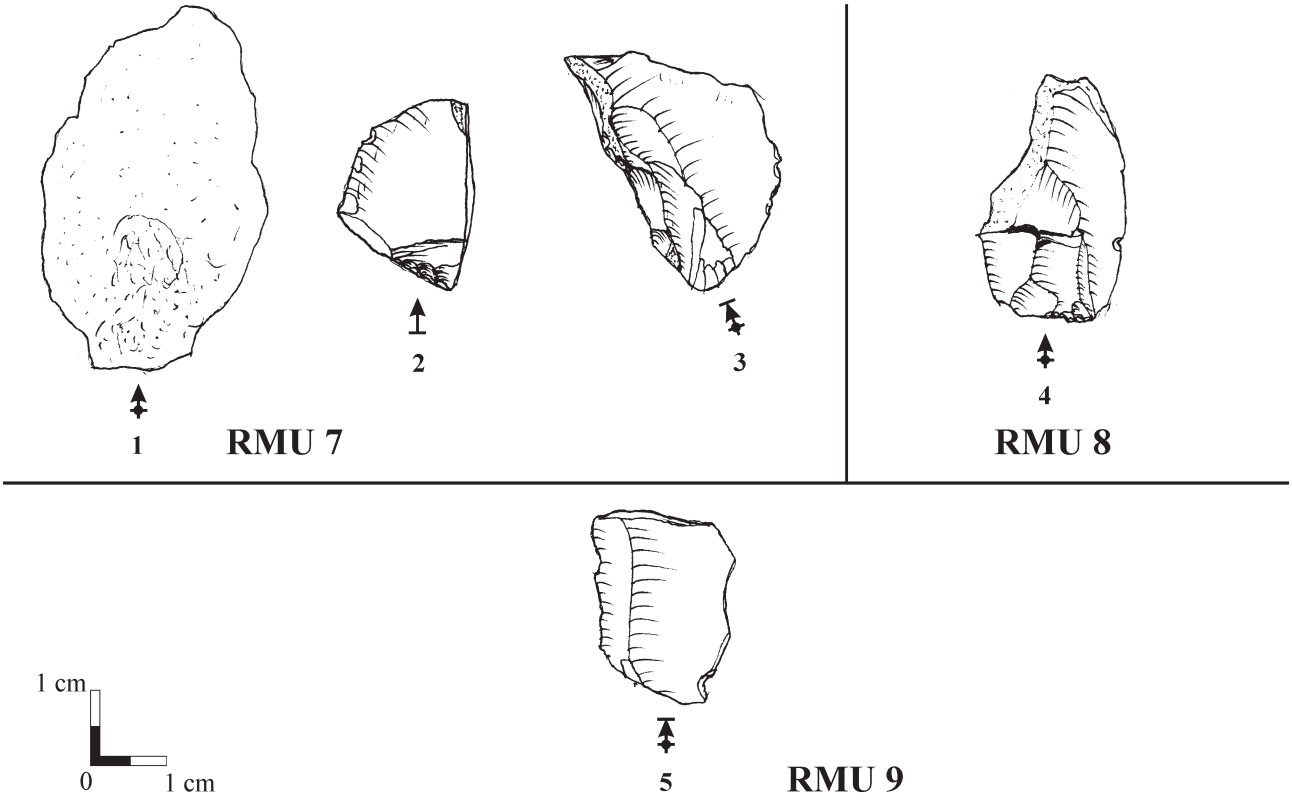

Fig. 9-6 Kabazi II, level V/3: Artefacts of RMU 7, RMU 8 and RMU 9.

imply that the piece was a naturally backed bifacial scraper (or: "Keilmesser") before reduction started. Most other colleagues would probably classify another formal tool as a simple convergent scraper (Fig. 9-5, *1*). But in our opinion, the fact that the artefact is not entirely covered by negatives does not necessarily mean that it is a simple unifacial tool. The focus of the oldest work steps visible on the dorsal surface was a correction of the cross section by facial retouch, followed by a ventral thinning at the right lateral side of the flake. Only the last work steps are dedicated to the modification of the working edges. Consequently, we consider the piece a surface shaped tool, which not necessarily has to be bifacial. Fine negatives along a terminal fracture plane – either from modification or usage – suggest that it was used even after the tip broke off. Finally, there is a bifacially worked preform (Fig. 9-4, *5*). Although at an early stage of surface shaping, it was already quite small, which was probably the reason for it being repudiated.

Generally speaking, the primary goal of all flaking activities which could be reconstructed from the discarded artefacts was the production of surface shaped blanks and tools of plan-convex cross section. This generalisation is based upon the fact that there are six surface shaped blanks, some of which are modified, and eight flakes almost certainly struck by direct soft hammer percussion. Conversely, there are no blanks that could be explained by the reduction of prepared cores, e.g., crested flakes (*éclats débordants*) or Levallois flakes (Fig. 9-7). Nevertheless, the focus on surface shaped tools does not necessarily mean that there are no flakes struck by direct hard hammer percussion. Indeed, eight flakes show indicative signs of a direct, hard hammer blow, e.g. a pronounced bulb, a bulbar scar, a straight (and not curved) length section, and deep dorsal negatives (Fig. 9-7). Furthermore, some of these pieces were used to an extent that they show either an irregular retouch (1 case among discard), or were retouched into a simple side scraper (1 case among discard). In cases were bifacial surface shaped blanks were produced, the facial retouch commenced on the lower (ventral) surface. Only after its completion did the facial retouch of the upper (dorsal) surface begin. In most cases, working steps that were dedicated to rejuvenation are found on the upper surface, whereas the lower surface remains more or less untouched by work steps being late within the entire *chaîne opératoire*.

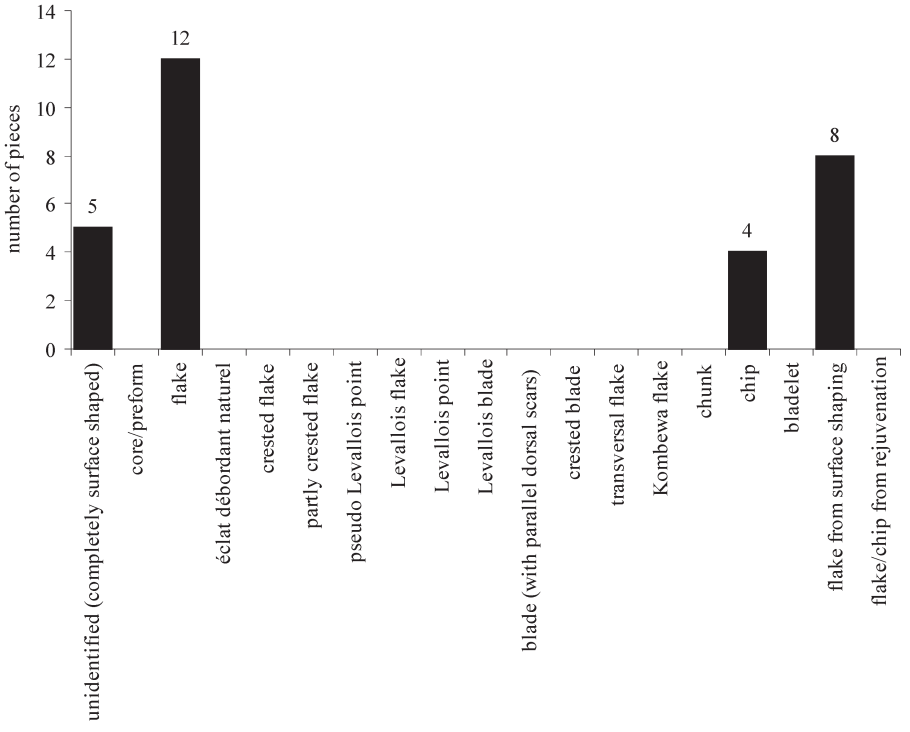

Fig. 9-7 Kabazi II, level V/3: Frequency of blanks.

Sortation of Raw Material Units

Because the fracture planes of most chips were too small to represent a reliable cut-out of the nodules defined, the sample sorted into raw material units consists of 29 artefacts (for a description of the method, and especially the attributes used, compare Uthmeier 2004a). All in all, 10 raw material units were recognised, but one unit with five artefacts which were either patinated or showed evidence of being subject to burning had to be excluded from further analysis. It is this unit that includes rolled and / or patinated pieces ("colluvial artefacts" according to Chabai, Chapter 1, this volume). Of the remaining 24 artefacts, nine raw material units were identified (Fig. 9-8), ranging from one single piece per unit (2 cases) up to five artefacts per unit (3 cases). Thus, it is clear that these units are very small – but are they too small to be plausible? At least four non-exclusive explanations are feasible: first, the distinction between the raw material units might have been too strict, thus dividing artefacts into several units that in reality belong together, second, raw material units tend to be incomplete because of post-depositional natural site formation processes or the restricted size of the excavated area, third, most artefacts that seem to be missing can be found among those pieces smaller 3 cm which were not further considered, or, fourth, the low frequency of artefacts in raw material units possibly indicates only minor flaking of each item brought into the excavated area. The raw material that was used to produce the artefacts found in level V/3 is Cretaceous flint. The colours of most fracture planes are either light-grey, grey or dark-grey, but some artefacts have a greenish or brownish colour. In addition, many – but by far not all – pieces show black schlieren and white or grey intrusions, while others have striking black needle-like inclusions. As far as the distinction between raw material units is concerned, it is important to mention that it is not a single attribute alone, but a combination of attributes that leads to their definition. Within the small assemblage of Kabazi II, level V/3, this attributes show a considerable variation, especially when it comes to combinations. To conclude, we are quite sure that the identification of raw material units ended up on the level of single pieces or workpieces. The question to what extend the other hypotheses listed above contributed to the characteristics of the assemblage can only be discussed in the light of the results of the transformation analysis.

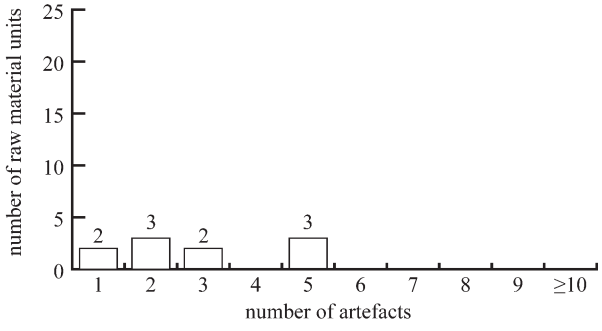

Fig. 9-8 Kabazi II, level V/3: Number of artefacts in raw material units.

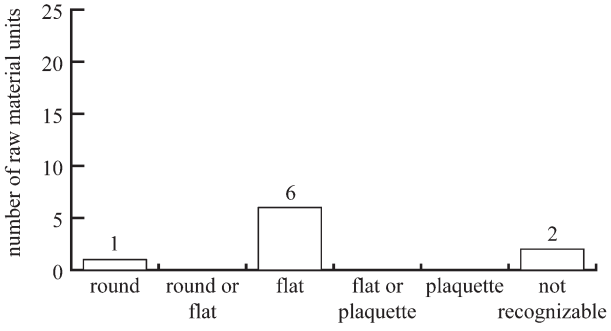

Fig. 9-9 Kabazi II, level V/3: Original shape of raw pieces before the transformation began. Hypothesis on the shape of raw pieces are based upon cortical flakes and the assumption that each raw material unit represents a distinct nodule (workpiece).

Some General Remarks on the Transformation of Raw Material at Kabazi II, Level V/3

The analysis of raw material resulted in nine units, each comprising either a single piece that had a unique combination of raw material attributes, or several artefacts coming from the same nodule. The low overall frequency of artefacts larger than chips seems to suggest the presence of raw material units that underwent short or incomplete reduction sequence within the excavated area, as underlined by the presence of single pieces. The fact that the blanks from seven raw material units exhibited enough cortex to reconstruct the shape of the raw nodule shows that part of the reduction started with raw nodules or only partly decorticated pieces (Fig. 9-9). In six cases, nodules originally had a flat shape before their reduction started. In attempt to pinpoint the geological provenance of raw nodules, the degree of weathering of the cortex was broadly classified into "chalky", "weathered", or "rolled", assuming that these classes reflect procurement from primary sources, secondary residual sources or river terraces (Fig. 9-10). As in the case of the reconstruction of the shape, the result is clear: from seven units with cortex, six were classified as "weathered". This points to outcrops where the nodules were in a residual position or areas were nodules could be collected from the surface. The fact that one unit still shows a chalky cortex would point more to the latter hypothesis. It is likely that the raw material derives from a primary source were nodules had fallen from their surrounding limestone bed after weathering or chemical dissolution. Raw material surveys (Chabai 2004c, Fig. VI-2; Demidenko 2004a, 115; Uthmeier 2004a, Fig. 11-3) suggest that the grey to dark-grey Cretaceous flint used in level V/3 was collected in the Bodrak valley, some 6 kilometres to the southwest of Kabazi II. The assumption that the raw material is local can almost certainly be ruled out. Geological analysis of the river terraces (Chabai, Marks and Monigal 1999, 228) has demonstrated that the river system of Crimea did not begin to cut deeply into the landscape before the beginning of OIS 3. It follows that outcrops of primary Cretaceous flints, which today can be seen in the immediate vicinity of the site, were still located below the surface at the time when Neanderthals occupied level V/3. At the Bodrak valley we observed a considerable diversity of raw nodules ranging mainly from round to flat pieces. The fact that flat nodules dominate at Kabazi II, level V/3 suggests a clear preference for raw volumes that were suitable to the production of surface shaped tools. The many chips found indicate the preparation of striking platforms, as well as the retouch of lateral edges. At the same time, the dorsal surfaces of the flakes found at Kabazi II, level V/3 often removed cortex when struck from the nodule or preform (Fig. 9-11). There are two cortical flakes and ten flakes partly covered by cortex on their dorsal surfaces, but only ten flakes that exhibit no cortex at all. Thus, on grounds of conventional data, it can be argued that in some cases the flaking started with a raw nodule, that in these cases blanks removed by direct hard and soft hammer percussion were actually manufactured inside the excavated area, and, finally, that in most cases the reduction did not proceed deep enough into the nodules to produce a considerable number of blanks without cortex.

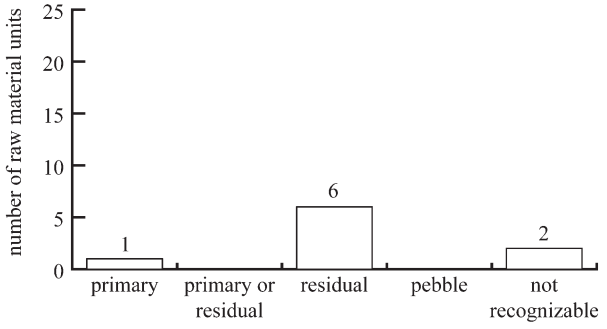

Fig. 9-10 Kabazi II, level V/3: Geological classification of raw pieces. Hypothesis on the geological provenance of raw pieces are based upon cortical flakes and the assumption that each raw material unit represents a distinct nodule (workpiece).

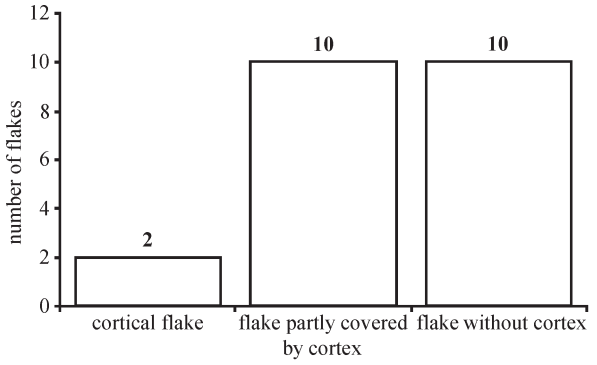

Fig. 9-11 Kabazi II, level V/3: Frequency of cortex on dorsal surfaces of flakes, measured in three broad classes.

Transformation Analysis

Transformation analysis provides a more detailed insight into the history of single nodules (data is listed in Table 9-1; for a description of the method see Uthmeier, Chapter 7, this volume). Surprisingly, all artefacts were produced within the excavated area. Whereas this simply results from the methodological premises of classification for units with two or more artefacts, it is quite astonishing when units with single pieces are concerned. One (RMU 8) is a thin, small flake from surface shaping (Fig. 9-6, *4*). In contrast to larger and thicker pieces, such a fragile flake from facial retouch is assumed to be a static object that one would not expect to be moved after its detachment. Instead, it is more likely that it is part of the waste that remains at the place of knapping. Therefore, it is concluded that RMU 8 was an initially prepared preform which was transported into the excavated area and, after minor additional surface shaping, taken out again. The second single piece (RMU 9) falls into a similar category (Fig. 9-6, *5*). It is a short, straight flake from surface shaping (of the lower surface of a plano-convex biface?) that ended in a hinge. It is likely that it belongs to a more advanced stage of manufacture, at a time when the preform was given its final form. Again, the remaining inner part of the nodule, in this case a bifacial tool, is missing. For a number of other raw material units, the transformation sections reflect reduction sequences that are only slightly longer. RMU 3 (Fig. 9-5, *1-2*) and RMU 4 (Fig. 9-5, *3-4*), for example, both contain a small chip from surface shaping or modification, and the corresponding surface shaped tool. Speaking in terms of raw material transformation, the only flaking exhibited by the discarded artefacts was the final modification of a surface shaped preform. After usage, the surface shaped tools were discarded. In another case, RMU 7 (Fig. 9-6, *1-3*), a cortical flake and two simple flakes resulted from the initial preparation of a raw nodule into a preform, which is missing. Only in four from nine cases were transformation sections long enough to cover the production of (surface shaped) blanks with subsequent modification. In some cases, the reduction started with raw nodules (RMU 1: Fig. 9-4, *1-5*, RMU 2: Fig. 9-4, *6-8*), in other cases the decortication happened elsewhere and on site flaking began with a partly decorticated preform (RMU 5: Fig. 9-5, *5-6*, RMU 6: Fig. 9-5, *7-11*). In the majority of cases, surface shaped tools, produced and used in the excavated area, were discarded. Only on one occasion, RMU 6 (Fig. 9-5, *7-11*), is a core (or initially prepared preform) missing, which, judging by the facture planes of two flakes and two chips, should have also been there.

To summarise, the transformation analysis has shown that in some cases the reduction sequence was much longer than previously suggested by the conventional data (Fig. 9-12). Despite the low overall frequency of artefacts in the assemblage, four raw material units were dedicated to the manufacture of surface shaped tools or preforms. Starting with a raw nodule or an initially prepared piece, and ending with the modification of formal tools, their transformation sections cover all or almost all phases of the formal *chaîne opératoire*. The remaining units reflect short transformation sections from either the

assemblage: Kabazi II, Unit V, Level 3 – raw material unit	weight (in g)	N	data related to identification of: raw piece: phase 0 – raw piece or chunk	cortical flake	initially prepared or flaked piece: phases 1 or 2 – flake partly covered by cortex	flake without cortex	inner part of flaked piece – core/preform	unknown blank (bifacially surface shaped piece)	imported item	on-site transformation (as indicated by discard): production of blanks: phases 1 and 2 – flake	blade	trimming flake	core/preform	chunk	indifferent – chip	modification and usage: phase 3 – simple tool	surface shaped tool	chip from modification	flake from rejuvenation or broken tool tip	early discard – raw piece	transformation section	evacuation > 3 cm
7	3	19		1	2				raw piece	3											Np	preform
8	1	2			1				raw piece	1											Np/surface	surface shaped blank
1	5	56			2	2		1	raw piece	4							1				Nm/surface	
2	3	23			1			2	raw piece	1							2				Nm/surface	
6	5	12				5			core	2					2	1					Cm	core
5	2	27			1			1	preform	1							1				Cm/surface	
3	2	23			2				flake						1		1				TM/surface	
4	2	23				1		1	surface shaped tool						1		1				TM/surface	
9	1	1				1			surface shaped tool									1			Mi/surface	surface shaped tool
10	5	16	2	1	1	1			sorting rest	3				2								
sum 10	29	202	2	2	10	10	0	5		15	0	0	0	2	4	1	6	1	0	0		

Table 9-1 Kabazi II, Level V/3: Data relevant for transformation analysis. The classification of transformation sections is conducted on the "workpiece-level". As workpieces are considered as refits, two or more artefacts made on the same piece of raw material and recovered from the excavated area are taken to represent the transformation of this raw material on site. For each raw material unit the most initial and the most final work step in the formal *chaîne opératoire*, as highlighted by the artefacts, are used to define the boundaries of a transformation section (an explaination of the different classes of transformation sections can be found in Fig. 9-13).

beginning of the *chaîne opératoire* (initial preparation), or from the very end (modification of tools). At the same time, it can be stated that in four of six cases where nodules or preforms were flaked in the excavated area, a raw nodule stood at the beginning of the reduction sequence. Thus, the analysis uncovered the following aspects of raw material transformation at Kabazi II, level V/3 (Table 9-2):

1. Final modification of existing surface shaped preforms, use and discard;

2. Production of surface shaped tools, use and discard;

3. Initial preparation of raw pieces, sometimes decorticated.

Discard on the one hand, and export of preforms or surface shaped tools out of the excavated on the other, were each observed in four cases.

It has been stressed more than once that – with the exception of Unit IV – the preservation of archaeological remains in almost all archaeological levels of Kabazi II is good or excellent. In this regard, level V/3 is no exception. There is no evidence for the activity of post-depositional natural site formation processes that severely altered the original context of archaeological finds. Except for some "colluvial artefacts", lithics are not patinated, with sharp lateral edges. If at all, it is assumed that erosion or other post-depositional processes during site formation may have led to minor changes in the position of small items only. In most cases, large pieces like cores, preforms or tools should not be affected. With regards to the size of the excavated area, two things seem to be important. Given the nature of Kabazi II as a kill and butchering site visited for short periods of time, a single visit may not have required more space than represented by the trench actually excavated. This

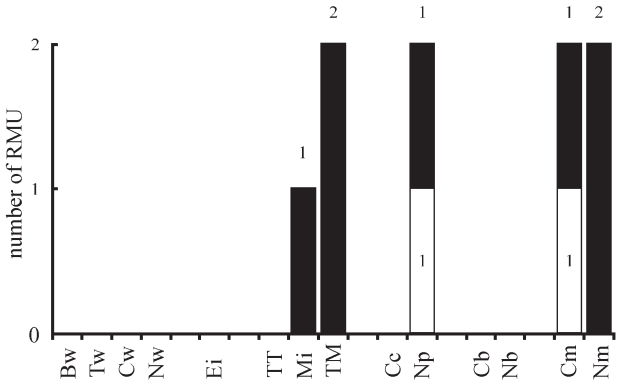

Fig. 9-12 Kabazi II, level V/3: Frequency of transformation sections – Bw = blank without transformation (within the excavated area), Tw = tool without transformation, Cw = core without transformation, Nw = nodule without transformation, Ei = isolated functional part of a tool, including resharpening flake, TT = broken tool with corresponding tip, Mi = two or more isolated chips from modification, TM = tool with corresponding chips from its modification, Cc = correction of a core, Np = preparation of a raw nodule, Cb = blank production from a core, Nb = blank production from a raw nodule, Cm = blank production from a core and modification of blank(s), Nm = blank production from a raw nodule and modification of blanks(s); black bars: */f = *façonnage*, indicated by flakes from *façonnage* and / or surface shaped tools).

picture of a short-term stay is supported by the restricted distribution of artefacts around a fireplace near the limestone block. On the other hand, some raw material units are incomplete to such an extent that they might be taken as a strong argument for the assumption that important parts of the assemblage have not yet been excavated. RMU 2 (Fig. 9-4, *6-8*), for example, consists of a flake partially covered by cortex, and two bifacial tools. Although only a few artefacts were band together, the story told by this unit, when read in terms of transformation analysis, is quite long: the flake must have been struck from a partly decorticated flat nodule, as probably were the blanks of the bifacial tools. Alternatively, the latter might also have been manufactured from pieces that resulted from an intentional breakage of the raw piece. Afterwards, the two blanks (or broken parts of the nodule) were surface shaped and modified into bifacial leaf-scrapers and then, according to the differing sizes of the dorsal and ventral negatives, largely reduced on site before discard. The hypothesis that the pieces were rejuvenated within the excavated area is strongly supported by the refitting of a chip on the lower surface of one of the bifacial leaf-scrapers (Fig. 9-4, *8*). Due to its small size, we were not able to sort this chip (Chabai, Chapter 6, Fig. 14-3, this volume) into one of the raw material units. It is not so much the presence of the two bifacial scrapers in one unit that call for a classification as a long transformation section. As an exception to the rule (Uthmeier 2004a), they also could have been imported. However, the presence of an additional

phase 0: discarded after testing (unit contains chunks and/or nodules)	**phase 1: initial preparation** (unit contains cortical flakes)	**phase 2: production of blanks** (unit contains flakes partly with and/or without cortex)	**phase 3: modification** (unit contains chips from modification and/or formal tools)	number of cases
	surface shaping: 1			**2**
	surface shaping: 2			**2**
		surface shaping: 1		**2**
			surface shaping: 3	**3**

Table 9-2 Kabazi II, Unit V, Level 3: Overview over the frequency of transformation sections, projected onto the scale of the formal *chaîne opératoire*.

flake, that obviously came from the initial preparation of a raw nodule and which was very unlikely to have been moved between sites, inevitably calls for a classification as an item that underwent a considerable amount of flaking on the site. As a result, all flakes from surface shaping, retouch of the working edges and rejuvenation would be missing, and possibly also a core-like piece (if the blanks for the bifacial points were flakes). But even if most flakes from the production of bifacial tools fall into the category of chips (which had to be excluded from raw material sortation), one would still expect some more flakes larger than 3 cm in length. Thus, it can not absolutely be excluded that single artefacts ≥ 3 cm produced on site are missing, most probable in connection with the material uncovered at the edge of the concentration at Kabazi II, where the trench ends and the paleo-surface inclines towards the slope. Nevertheless, it is assumed that mistakes caused by the effects of erosion tend to be restricted to smaller artefacts, such as chips or flakes, and only randomly affect bigger objects like cores or preforms. Additionally, even if some artefacts were deposited outside of the excavated area, it does not hinders the recognition of valid patterns of raw material transformation at the site. In those cases where cores, preforms or tools are missing – which according to the logics of transformation analysis should have been there – it is concluded that their absence is – in most cases better explained by cultural site formation processes, in this case import and / or export by Neanderthal individuals.

Reconstruction of Moves

The results of the transformation analysis can be depicted in a table (Fig. 9-13), showing a reconstruction of the condition in which single pieces and workpieces were brought into the excavated area ("import"), the reduction that occurred on the site on the basis of discarded pieces found during excavations, and a reconstruction of the artefacts that are missing in between or at the end of the transformation process ("export"). In general, flaking activities were mainly dedicated to:

1. Initial preparation of raw nodules and subsequent transport of preforms out of the excavated area;

2. Transformation of raw nodules or preforms into surface shaped tools that were used and discarded;

3. Transportation of surface shaped preforms or surface shaped tools into the excavated area where they were, if necessary, modified, used, and – sometimes after rejuvenation – discarded.

Neanderthals coming to Kabazi II were obviously carrying some readymade surface shaped tools with them, combined with cores, preforms and raw nodules (Table 9-3). Looking at the colour and the shape of the nodules, it is most probable that the raw material originates from the rich outcrops of the Bodrak valley, some 6 km southwest of Kabazi II. The flakes that were discarded at Kabazi II show that all objects produced on the site were related to the production of surface shaped blanks or tools. After their stay in Kabazi II, the Neanderthals left with two initially prepared, largely unfinished preforms, one surface shaped blank that still needed lateral retouch to produce working edges, and a finished surface shaped tool of unknown shape. Because the raw material outcrops are not very far, two scenarios can be considered to explain the results of the transformation analysis. First, Neanderthals knew that there was a lack of raw material in the Alma valley. Therefore, they started from their previous campsite (near the outcrops of the Bodrak valley?) equipped with some surface shaped tools for immediate use, and a number of preforms as a stock to replace worn out tools. In addition, they carried with them some raw nodules, probably intended for stays in the nearer and more distant future, or for otherwise unforeseen needs. For some reason or another, the lithic reserves had to be used during their stay at Kabazi II. This scenario would best explain the graded stage of preparation of raw material at the beginning of the reduction sequences carried out at Kabazi II.

On the other hand, another interpretation might be equally plausible. Neanderthals were not aware of the lack of local raw material at Kabazi II, and arrived at the site with some surface shaped tools. These tools (possibly hafted) were long-life parts of their all-day equipment, carried around during daily trips as well as during residential moves. They do not indicate a pronounced amount of planning depth. After having realised that there were no local raw material sources, the Neanderthals then proceeded to the Bodrak in the search for suitable flint outcrops along river valleys. They collected raw nodules and some tested blocks, and returned to Kabazi II for further flaking and subsequent usage.

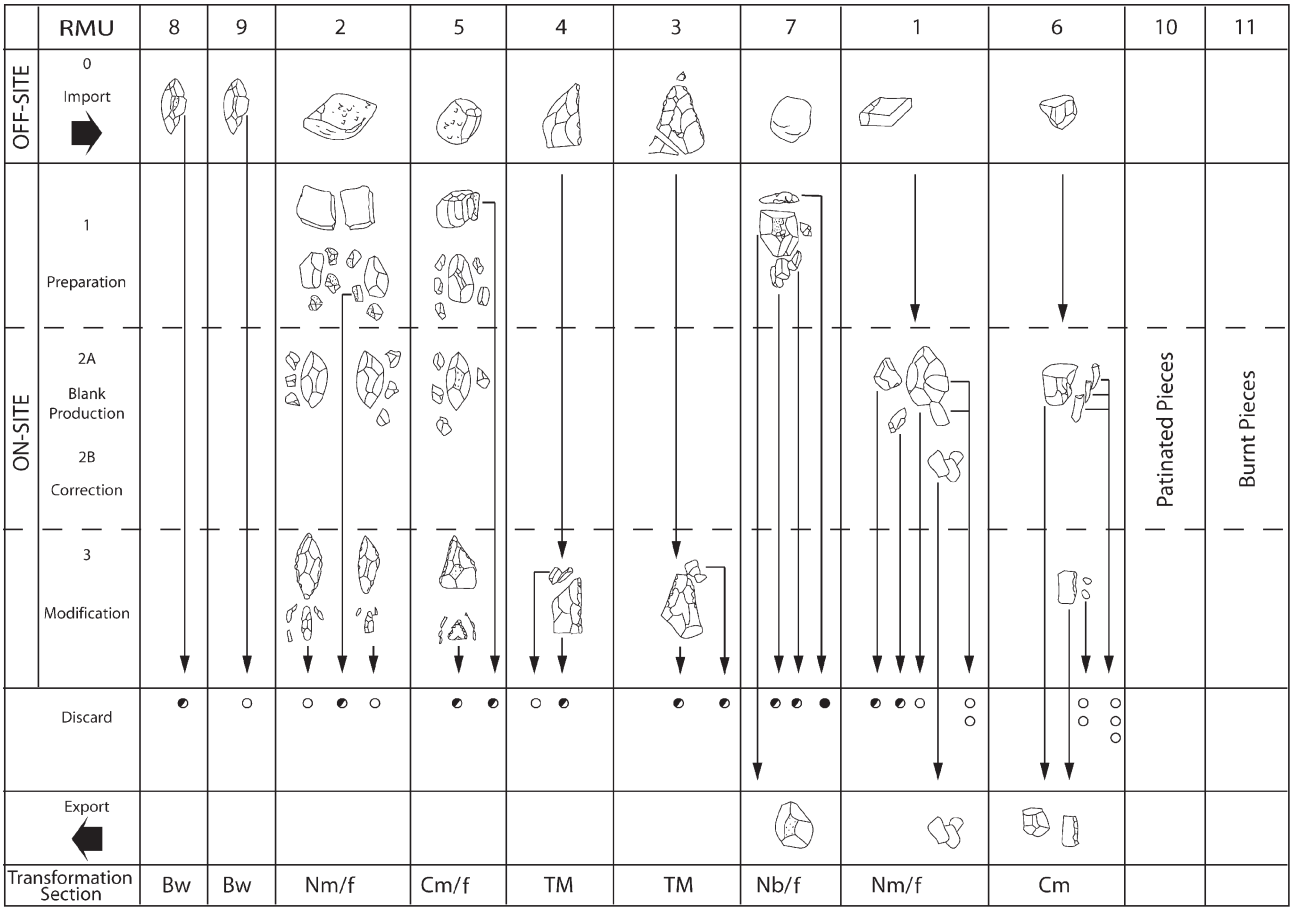

Fig. 9-13 Kabazi II, level V/3: Flow chart of the results of the transformation analysis. For every raw material unit, the part of the *chaîne opératoire* reconstructed with the help of the discarded artefacts (transformation section) is depicted as conducted within the excavated area. Import and export refer to phases of the lithic reduction which left no traces among the lithic discard, or to artefacts missing in between the transformation section (abbreviations of classes of transformation sections are explained in Fig. 9-12, steps of the formal *chaîne opératoire* after Geneste 1985; 1988; 1990).

	import	on-site discard	export
simple blank	1		
simple tool			
surface shaped tool	2	5	1
preform or core	1	24	2
surface shaped blank	1		1
raw piece	4		
sum	**9**	**29**	**4**

Table 9-3 Kabazi II, Unit V, Level 3: summary of pieces that, according to transformation analysis, were imported into discarded in and exported from the excavated area.

While the first scenario sees Neanderthals as humans who carefully coordinated their activities on the basis of a mental map that had stored the spatial and temporal availability of key resources, the second scenario is consistent with a view on Neanderthals as humans that merely acted in a simple stimulus-and-response modus: only broadly prepared for a wide range of possible future activities, they were not equipped with curated tools or raw material reserves. Instead, they were searching for basically known resources in unknown territories, and did not store information about past successful attempts that would have helped to minimise future efforts. In the case of Kabazi II, Level V/3, Neanderthals were manufacturing surface shaped performs at the outcrop in the Bodrak valley. The

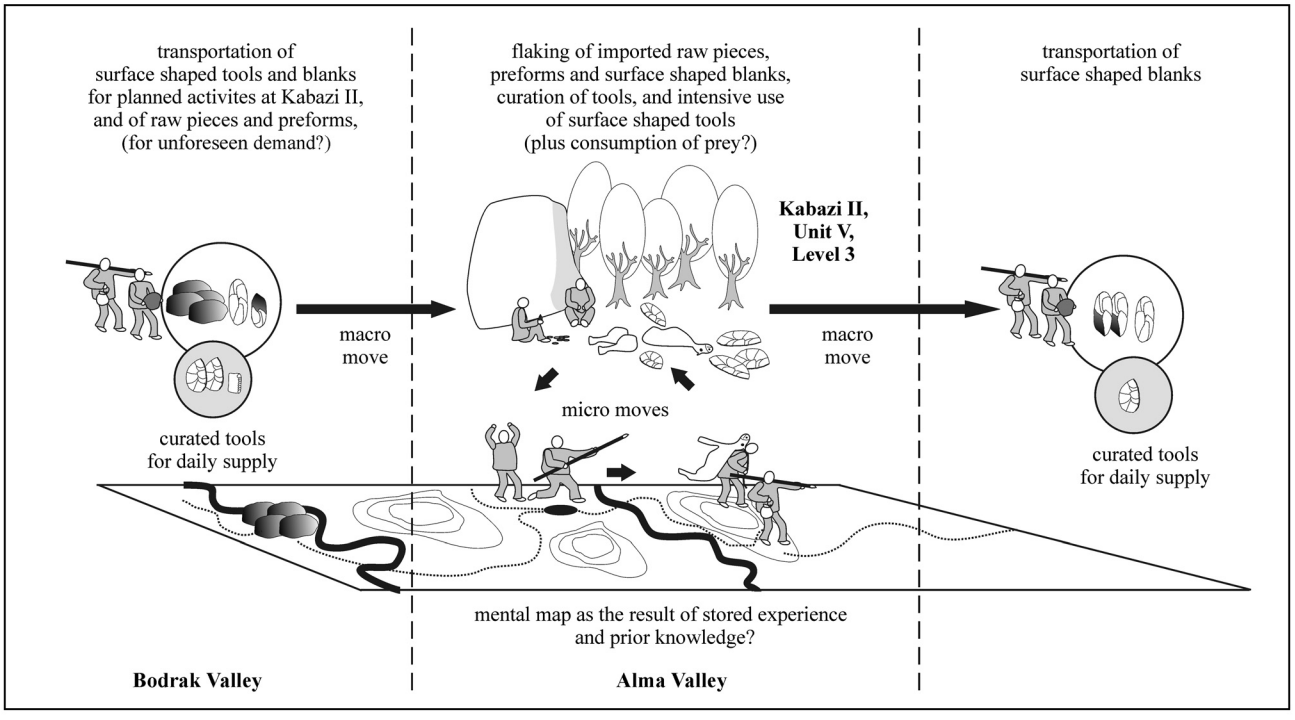

Fig. 9-14 Kabazi II, level V/3: Hypothetical reconstruction of moves. It is assumed that the artefacts discarded represent a single occupation that was excavated more or less completely. Therefore, it is expected that incomplete *châines opératoires* on the level of raw material units are the result of moves: some might have been left at previous camps or transported to future camps (macro moves), while others might have been taken to contemporaneous sites (micro moves).

high amount of cortex discarded in level V/3 certainly has to do with the short distance from the raw material outcrop, but at the same time suggests that raw nodules were produced exclusively for the stay at Kabazi II, rather than dedicated to subsequent use at several sites in the past. The latter mode would have resulted in a much lower amount of cortex. It follows that the results of the transformation analysis show a basic "gearing up" of equipment and raw material supply for periods in the near future (Fig. 9-14). So far, all archaeological levels from Kabazi II which have been investigated in regard of their faunal remains are from archaeological Units II and III. They are dominated by small Equides (*Equus hydruntinus*) that were killed nearby, transported to the site and butchered behind the lime stone rock (Patou-Mathis 1999; Patou-Mathis & Chabai 2003). As a rule, meat bearing parts were taken to other places. After first analysis, it is most probable that also during the last interglacial Neanderthals came to Kabazi Mountain to hunt *Equus hydruntinus* in the valley of the Alma River (Patou-Mathis, Chapter 5, this volume). In contrast to archaeological units that date to the interpleniglacial of the last glaciation (OIS 3), only single individuals or small numbers of animals were killed. This might be explained by a different pattern of land use, and / or with smaller group sizes of Neanderthal humans. While it has been suggested for Unit II that equids were killed by chasing them over the cliff of the questa above Kabazi II, the few *Equus hydruntinus* found in level V/3 might have been killed at the valley bottom. Especially during dry periods in summer, when this species needed daily water supply, it was most promising to lie in wait near the river. In preparation for the hunting and butchering, the Neanderthal humans carried with them specific lithic resources (e.g. the bifacial tools and preforms) for anticipated situations, and unspecific lithic resources (e.g. raw nodules) that most probably had the function of a raw material stock for unexpected situations (at Kabazi II), or, more likely, for future activities (Fig. 9-14). Perhaps they already knew that their moves would lead them to other regions in the second chain of the Crimean Mountains – and not back to the Bodrak valley where the transformation of raw material started.

Abstract

ГЛУБОКОЕ ПЛАНИРОВАНИЕ ИЛИ ПРОТИВОСТОЯНИЕ НЕВЕДОМОМУ? ТРАНСФОРМАЦИЯ КРЕМНЕВОГО СЫРЬЯ НА ПОСЕЛЕНИИ КАБАЗИ II, ГОРИЗОНТ V/3

Т. УТМАЙЕР

На поселении горизонта V/3 был исследован очаг, который, судя по всему, был центром стоянки. Общее количество обнаруженных артефактов невелико – 72 изделия. Технология обработки кремневого сырья базируется на плоско-выпуклом двустороннем расщеплении. Микокский орудийный набор представлен двусторонними листовидными формами и скреблами с обушками. Настоящий анализ артефактов был проведен в два этапа:

1. распределение артефактов по сырьевым группам;

2. анализ трансформации артефактов в каждой из групп.

Второй этап предполагает выводы о том, какая часть производственной цепи связана с территорией поселения, какие возможные операции были проделаны с артефактами до и после того как они аккумулировались в отложениях данного горизонта.
Кремневое сырье, обнаруженное в горизонте V/3, изначально было собрано на месте его вторичного залегания, скорее всего, в долине реки Бодрак. Трансформационным анализом на основании оставшихся на территории стоянки артефактов была установлена следующая цепь их утилизации:

1. на стоянке были использованы и оставлены импортированные двусторонние орудия;

2. на стоянке были изготовлены, использованы и оставлены двусторонние орудия из импортированных кремневых желваков;

3. на стоянке производилась обработка преформ, которые были импортированы в виде фрагментов сырья с уже снятой желвачной коркой.

Часть, приготовленных на стоянке преформ и двусторонних орудий, не была обнаружена. Хотя, на основании трансформационного анализа можно утверждать, что они были произведены или переоформлены на территории стоянки. Следовательно, остается предположить, что данное поселение посетила группа неандертальцев, которой был принесен набор двусторонних орудий для разделки охотничьей добычи, а также запас сырья для планируемых в будущем операций или для непредвиденных обстоятельств.