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Chapter 9

The Problem of the Levallois Method in Level II/8 of Kabazi II

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Although some of the cores from Kabazi II (Chabai 1998c) level II/8 display, with absolute certainty, work-steps associated with the Levallois method, these pieces also resemble classical tortoise cores. Therefore, it came as no surprise that, in the course of typological observations, refittings and attribute analysis of this assemblage, one non-Levallois, one Levallois “tortoise”, and one uni- and bipolar Biache scheme were found (Chabai, Sitlivy 1993, Chabai 1998c). Thus, the question arose, did the Levallois “tortoise” scheme represent either a part of the Biache scheme or an entirely separate method of reduction (Chabai 1998c, 2004c)?

Preliminary results of refittings from level II/8 favoured the absence of both the “tortoise” centripetal scheme and the uni- and bipolar Biache scheme as leading principles of reduction. Instead, we preferred to assign the Levallois method of Kabazi II (II/8) to the Molodova type (Usik 2003). However, this point of view was not shared by V.Chabai (Chabai 2004c), and, for this reason, the principles dictating the determination of the reduction method, and some of the technological features, should be again discussed.

THE DETERMINATION OF LEVALLOIS: METHOD, TECHNIQUE* AND TECHNOLOGY

In the typological analysis of many Middle Palaeolithic collections the products of the reduction process relate to the use or non-use of a specific Levallois method, as do particular scar patterns which can be observed on cores or flakes, along with other technological features. Indeed, it would appear that different

production techniques (centripetal, convergent, parallel, etc.) are associated with the production of particular types of blanks (flakes, blades, points). These criteria create a scheme, in which method, technique and technology are inter-connected and mutually conditioned (Demidenko, Usik 2003; Usik 2004b).

*In the former Soviet Union, the term “technique” was used to indicate the scheme of reduction that evokes the typology of cores and flakes. Accordingly, we understand “reduction” as the modification of the surface relief by detachments made in a particular direction: centripetal, convergent, parallel, etc. In this sense, the term “technique” is close to the term “method” as used by P. Van Peer (Van Peer, 1991a, 1991b). In this paper, we refrain from using the term “technique” to refer to the hammer used for blank detachment, such as the “hard hammer”, which was widely applied by Middle Palaeolithic knappers.

Firstly, it should be noted that the author holds to the "strict" interpretation of the Bordian term of "Levallois" (Bordes 1961), also expressed by Gladilin in the mid-1970s (Gladilin 1976, 1977). "Levallois" should denote a method of reduction in which blanks of predetermined shapes are produced through the shaping of the exploitation face of the core. "From each core prepared in such manner, flake production was restricted to one or rarely two**, but no more, blanks per turn" (Gladilin 1977, p. 31). Thus, all preparatory blanks are waste products (Gladilin 1976).

This interpretation excludes Levallois blades (Bordes, 1961) and all variants of multiple (recurrent) Levallois production falling under the definition "Levallois".

Given that the Levallois reduction system (Van Peer 1991, p. 133) is "a particular organization of preparatory scars on either the upper surface of a Levallois core or the dorsal face of a Levallois blank", which must be completed before the Levallois blank is struck, this means that the Levallois method implies the technique (the scheme of reduction) only as a prerogative in order to prepare the "end product" (Van Peer 1992).

From this point of view there is only one "classical" Levallois method of production, whereby the variants of the classical method represent different technical solutions for the preparation of classical Levallois blanks (Bordes 1980; Marks 1988; Marks, Volkman 1983; Inizan, Roche, Tixier 1992; Van Peer 1991a, 1991b; Van Peer 1992, Chabai, Sitlivy 1993; Skrdla, 1996; Demidenko, Usik 1993b, 1994, 1995, 2003).

Complex variants of Levallois core and blank surface preparation include two particular Levallois methods, the "Safaha method" (Van Peer 1991a) and the "Nubian 1 method" (Guichard, Guichard 1965, p. 68-69).

The primary principle of the Levallois method is the preparation of each Levallois blank within the same sequence, as indicated by refitting data (Van Peer 1992; Demidenko, Usik 1993b, 1994, 1995, 2003; Sellet 1995; Usik 2003, 2004a). Any remaining blanks detached from Levallois cores were technically predetermined by previous scars, such as blanks removed during preparation or core reshaping (Usik 2003, 2004a), as well as blanks from non-Levallois core reduction (Usik, 2004b), depending on the relief of the exploitation surface.

The idea of a recurrent concept with several target flakes (Boëda 1994, 1995, 1988a, 1988b, Boëda et al., 1990) has been strongly criticised (Van Peer 1992), particularly with respect to the reconstruction of the Levallois reduction process, and based on both core construction, and criteria of predetermining scars.

The principal critique is that the criteria of this concept are vague, that direct connections between core construction and Levallois end products are absent, and that classification into predetermined and predetermining blanks is unclear, with refitting data lacking (Van Peer, 1992, p. 7, 64-65).

Based on refitting results, Van Peer concludes that "Levallois recurrent" did not exist as a means of Levallois blade production (Van Peer 1992, p. 89, 111).

Refittings of classical Levallois points from Central Europe and the Near East have produced identical results: The Levallois system was found to be classical but not recurrent. The preparation and technology of reduction of unidirectional-convergent Levallois points as end products was conducted in the same way (Demidenko, Usik 1994, 1995, 2003; Usik 1989, 2003, 2004a). It should be noted that blades had a preparatory function, and thus were a waste product of the Levallois point preparation.

In all cases, the classical Levallois method displays particular features of the technological sequence of the preparation process. The principal features are the creation of the principal and supplementary platform, the preparation of the upper surface of the core (Van Peer 1991a), and the creation of lateral and distal convexities (Boëda 1994, 1995, 1988a, 1988b; Boëda et al., 1990). Convexity is understood as the limiting factor of the convex relief on the exploitation surface, evoked by supplementary scars placed intentionally on the lateral and distal parts of the core's upper surface. One full turn of preparation is completed when one prepared Levallois blank (end product; sometimes two blanks) is produced from the individually prepared faceted striking platform.

A further technological mode discovered among the production of Levallois points (Demidenko, Usik 1995, 2003) was based on the creation and exploitation of the so-called "central plane". This is a flat negative, either specially designed, or appearing accidentally, after the first Levallois blank had been removed from the upper surface of the Levallois core (Boëda et al. 1990, fig. 4: B). This technical mode was regularly used among the Levallois industries of Molodova V (Usik 2003). By this way, the process of preparation of each new Levallois blank was significantly simplified.

It is now possible to conclude that the method determines the goal of the production, the technique

**Two Levallois end products of the same type (for example, classical Levallois points) can only be produced if sufficient convexity is available on the surface relief (Usik 1989, p. 205, fig. 25).

determines the direction of the reduction (scar pattern), and the technology determines the organisation of the reduction sequence and the core construc-

tion. The typology of the Levallois or non-Levallois core depends first of all on the stage at which reduction was stopped.

KABAZI II, LEVEL II/8: BIACHE METHOD OR NOT?

Following V. Chabai, two Levallois methods have been postulated for the industry of Kabazi II/level 8, whereby the same Levallois blanks of “centripetal” scar pattern result both from the “tortoise” Levallois method and the uni- and bi-polar Biache method (Chabai, Sitlivy 1993; Chabai 1998c). The Levallois “tortoise” method applies to cores with only one negative being the remnant of the detachment of a target flake. They were made on flakes or narrow pebbles, and were certainly products stemming from a single turn of production (Chabai 1998c, p. 239; 2004c, p. 49)

At the same time it was noticed that metrical data of some predetermining centripetal flakes and some flakes of “Biache” character failed to fit into the variation of the mentioned “tortoise” method (Chabai 2004c, p. 52). Thus, a whole spectrum of flakes remained which had to be explained by the supposed presence of the “Biache method” (Chabai, Sitlivy 1993; Chabai 1998c). These included elongated Levallois flakes; Levallois blades; blanks with uni- and bi-directional/crossed scar patterns which are not associated with “tortoise” cores; cores made on flakes; and parallel volumetric and flat cores without supplementary platforms. The attribution of the Kabazi II/8 examples followed the definition of the Biache method as defined by E. Boëda in his study of Biache-Saint-Vaast (Boëda, 1988a, 1988b). The Kabazi II/8 Levallois method only differed from Biache by shorter reduction sequences at Kabazi, which allowed for just one turn of production with just one Levallois blank (end product), the subsequent “recurrent” turn lacking (Chabai 2004c, p. 53-57).

Generally, Chabai does not see any great difference between the uni-polar “Biache method” at Kabazi II and the eponymous site itself, both of which have yielded evidence for the shaping of the core’s upper surface by centripetal scars (stage I), the removal of one Levallois flake and some “*enlèvement 2*” (stage II), as well as full centripetal re-preparation of the core’s upper surface (stage III; Chabai 2004c, p. 57, fig. II-15). Concerning the bi-polar “Biache method”, the exploitation of the distal platform should be added (Chabai 1998c, p. 249). Several core forms can result from different stages, such as Levallois “tortoise” (Fig. 9-1, 5, 6, 7; 9-2, 3; 9-4, 1), uni- and bi-directional cores with supplementary platforms

(Fig. 9-3, 2, 3), and also centripetal cores (Fig. 9-5, 5, 6). This variety of the “Biache” method provides an important advantage when producing Levallois blanks with parallel scar patterns during stage II, and also permits the re-development of convexity in the exploitation surface on the Levallois “tortoise” core following the removal of the principal Levallois blank. In this way, the number of big blanks which can be detached from the same “tortoise” production sequence increases (Chabai 2004c, p. 56-57).

The refittings of artefacts, however, has produced results which strongly contradict this kind of interpretation, and support a quite different view (Usik 2003). The principal results are: only one Levallois method was used in level II/8 at Kabazi II, and the centripetal technique of preparation was virtually absent. In some cases, immediate reshaping of the Levallois upper surface occurred, as implied by short flakes in the centre of the surface. The preparation technique for Levallois blanks appears to have been a combined one. Such interpretations, however, have been rejected by V. Chabai (Chabai 2004c, p. 57).

Obviously, the principal problem of technical and typological classification of Kabazi II/8 has resulted from the definition of the unipolar and bi-polar “Biache method” itself.

Undoubtedly, all of the mentioned schemes (Boëda 1988a, 1988b, 1994, 1995; Chabai, Sitlivy 1993) share the preparation and production of classical Levallois blanks. Following preparation of the upper surface, the Levallois blank was produced from the principal striking platform. However, in any determination of these methods, the technique of preparation leading to the real principal Levallois blank was ignored. Although the distal supplementary platform was already present on the core at the moment of preparation of the classical Levallois blank, the method itself is not yet determined, i.e. whether it is to become unipolar or bipolar. Unipolar and bipolar production appear only at the next stage of the reduction sequence, and depended on the shape of the core, and the implication of the distal striking platform. From the technological point of view, “*enlèvement 2*” and “*enlèvement 3*” produced in this stage are morphologically identical. Unprepared parts are now removed from the unidirectional surface between the negative of the Levallois flake and the lateral part of the core.

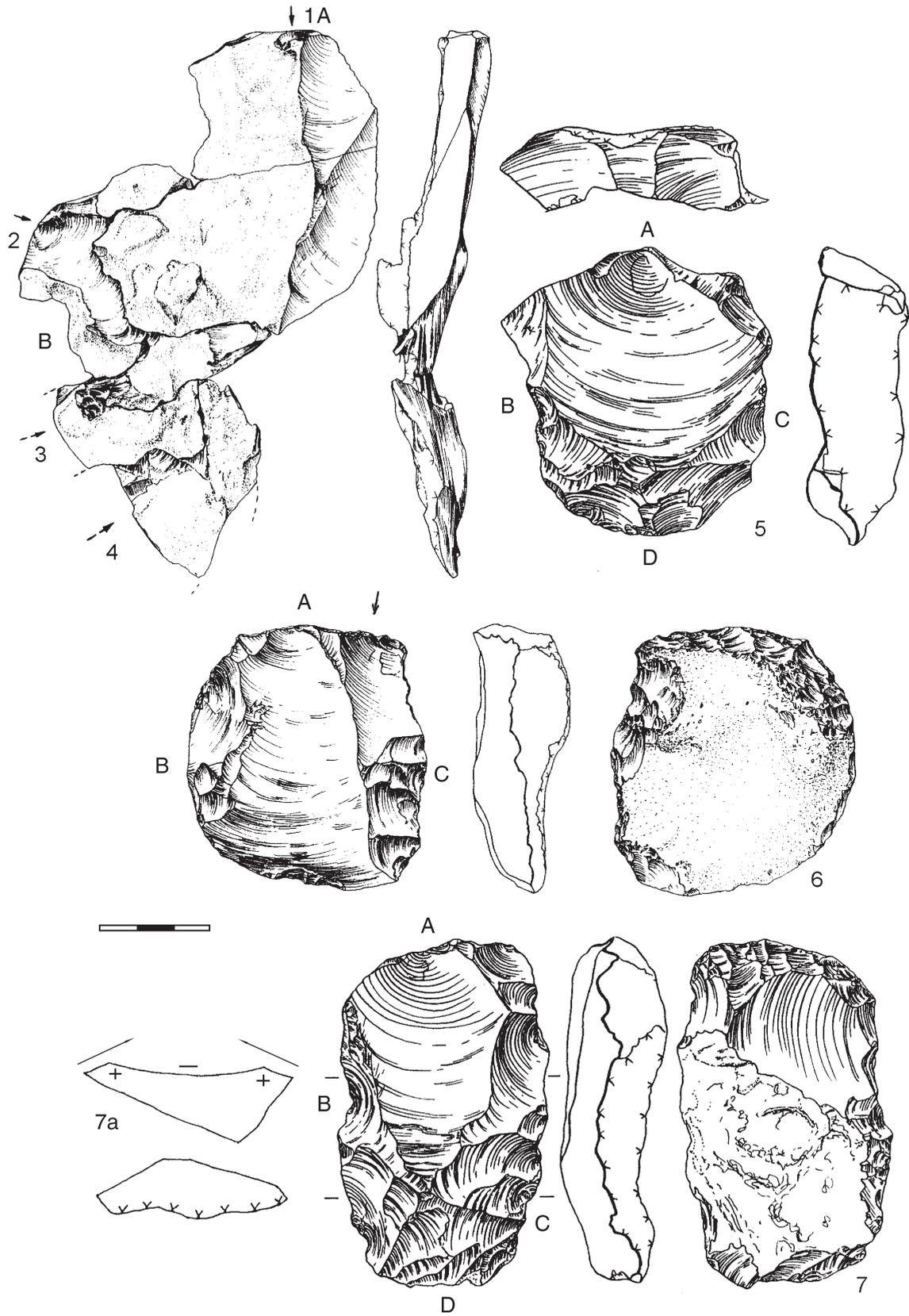


Fig. 9-1 Kabazi II, level II/8: 1-4 – refitted blanks of Levallois upper surface preparation (1, 2, 3, 4), Levallois cores (5, 6, 7) (A is the principal platform, B and C the lateral parts of the core, and D the distal part of the core).

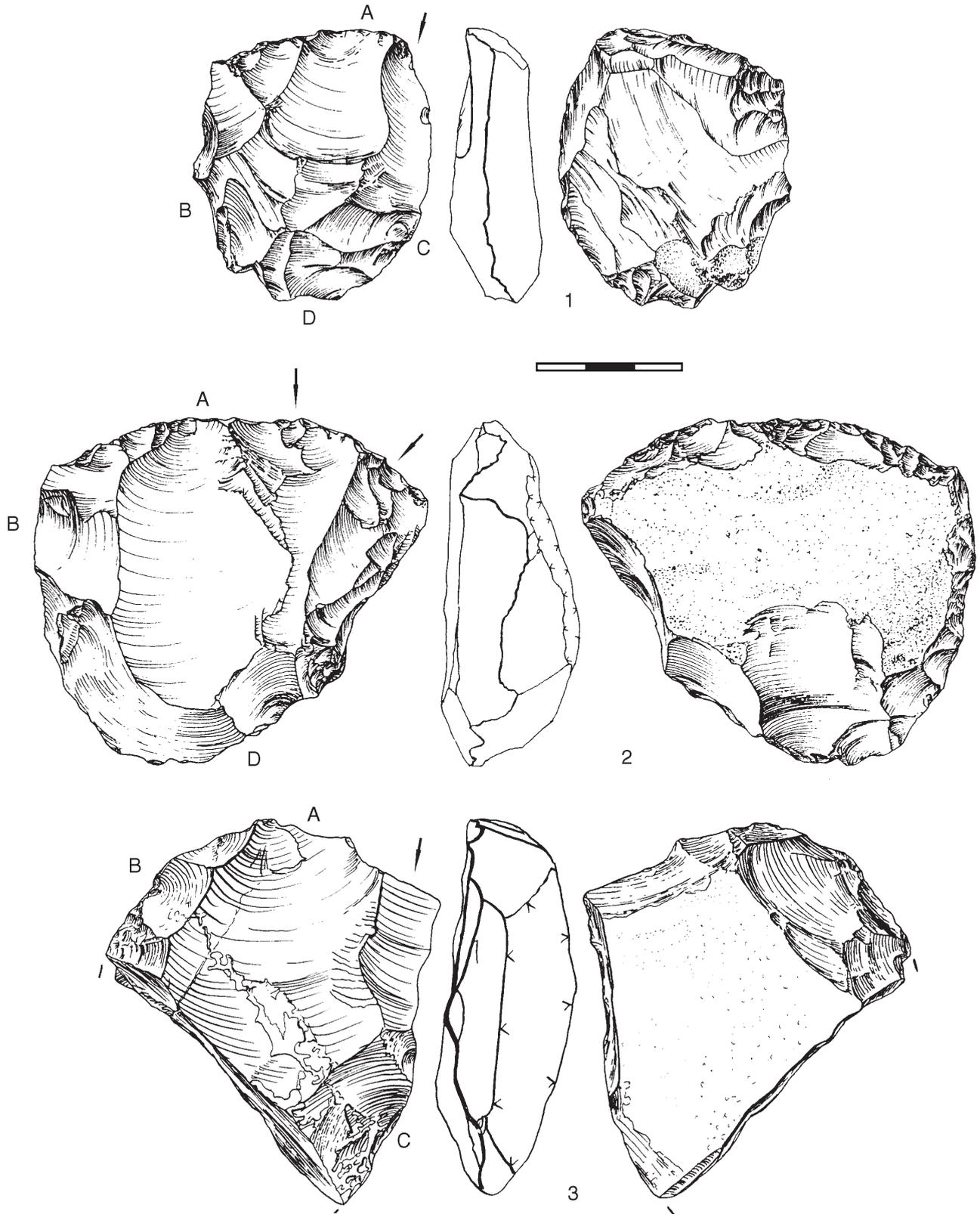


Fig. 9-2 Kabazi II, level II/8: convergent cores with supplementary platforms (1, 2), Levallois core (3).

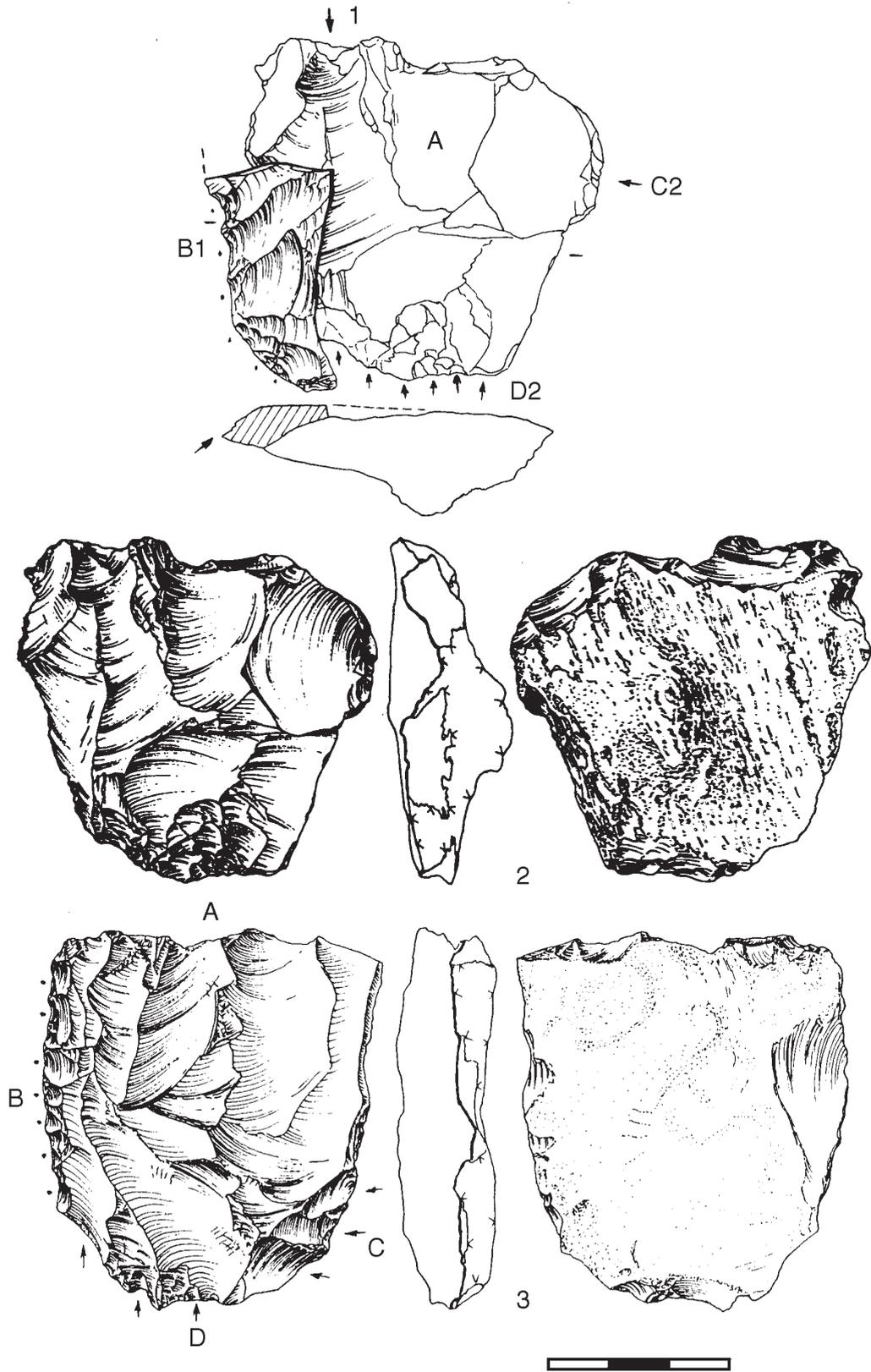


Fig. 9-3 Kabazi II, level II/8: core refitted with debordant flake (1, 2), bi-directional core with supplementary platforms (3).

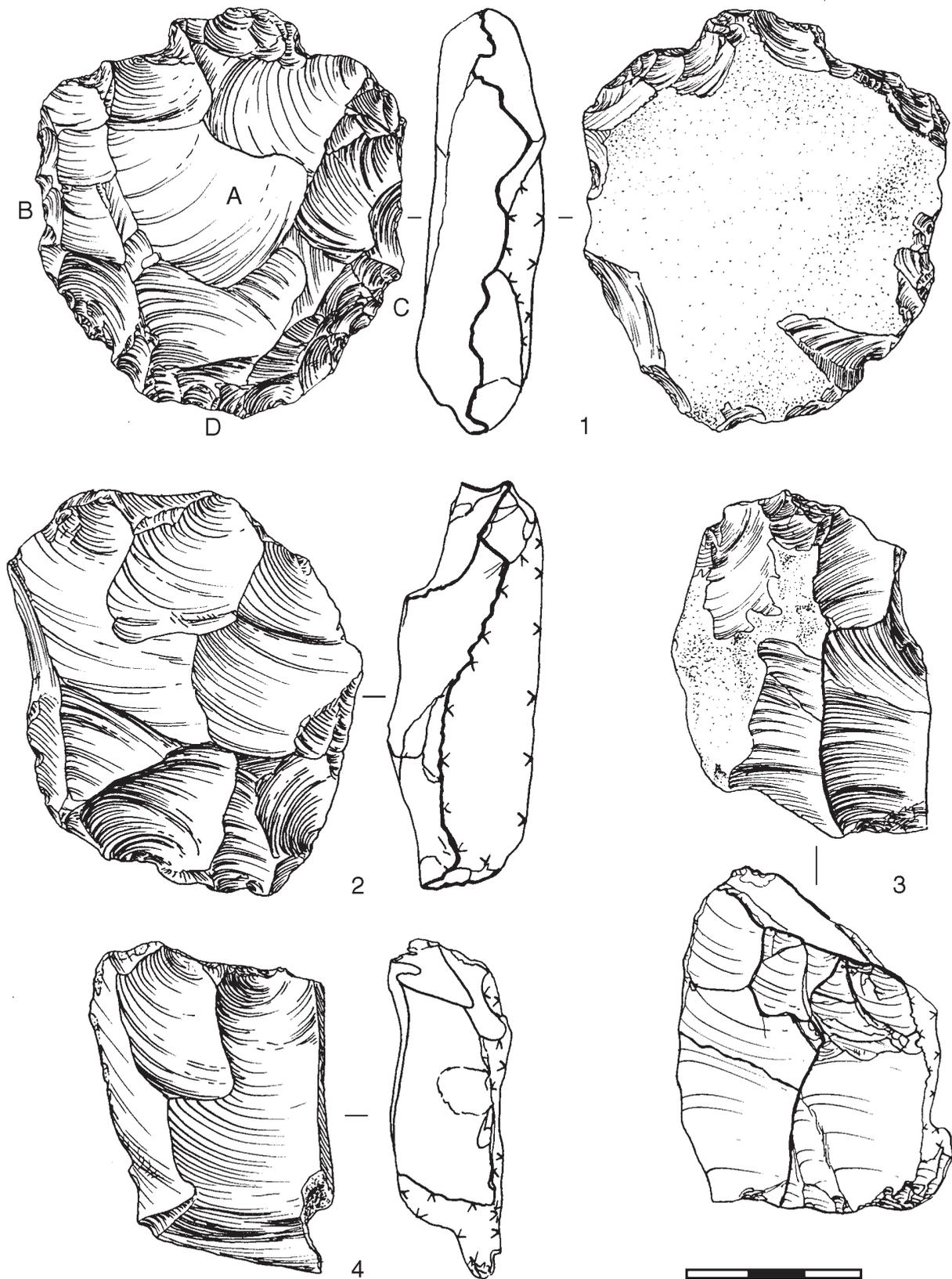


Fig. 9-4 Kabazi II, level II/8: Levallois prepared core (1), bidirectional cores (2, 3), unidirectional core (4).

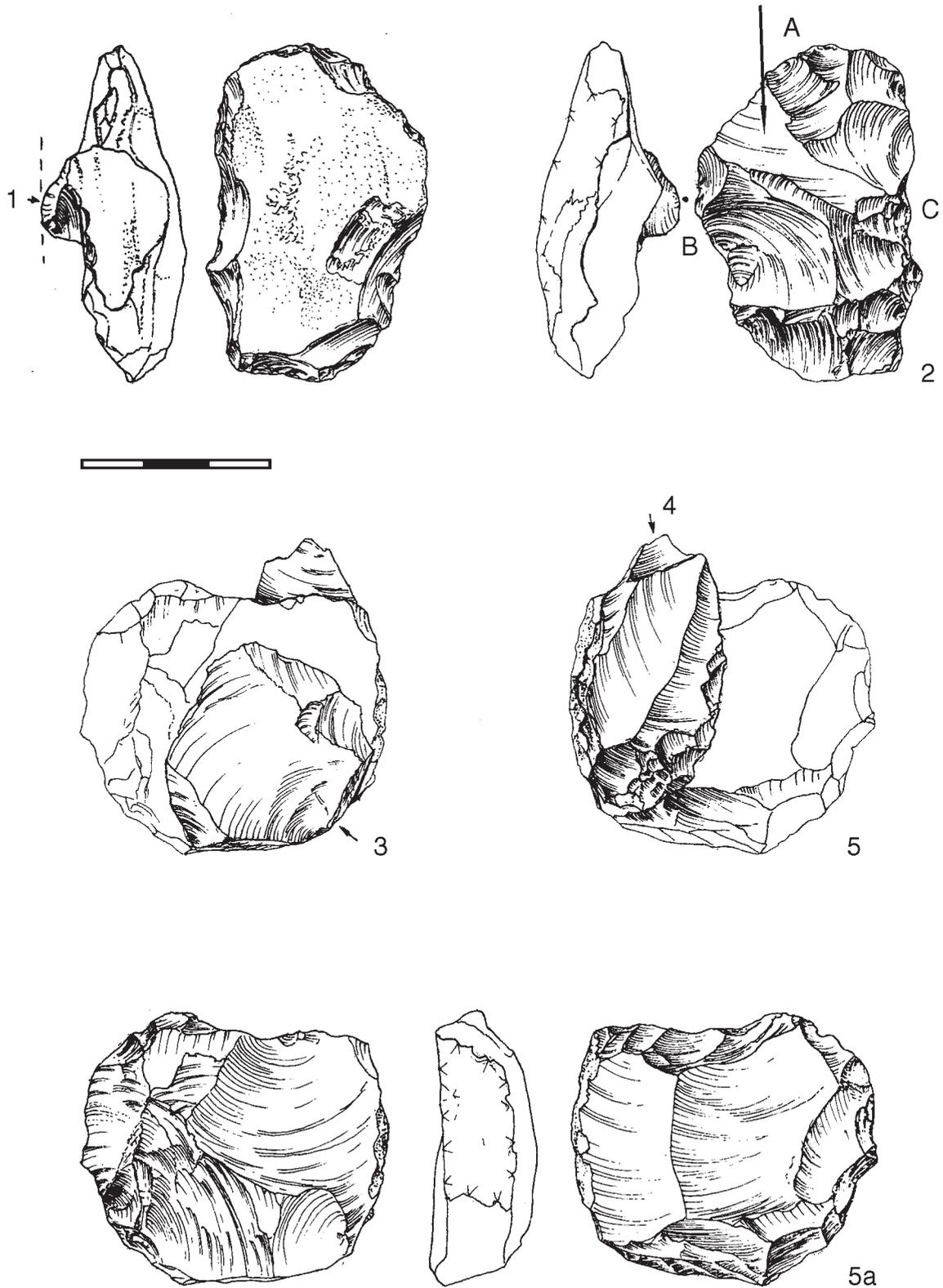


Fig. 9-5 Kabazi II, level II/8: Levallois prepared core (1 is the striking platform, 2 is the flaking surface), refitted centripetal/unidirectional core (3 and 4 are refitted flakes, 5 and 5a is the core), centripetal (radial) core (6).

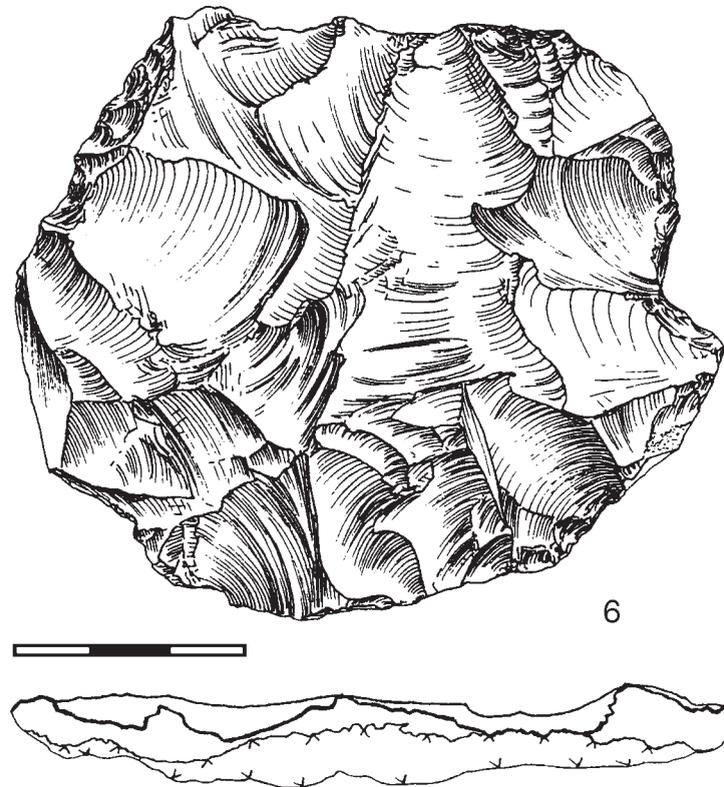


Fig. 9-5 continued.

The flaking direction coincides with the direction of the longitudinal ridge. Such blanks can appear as flakes or blades with unipolar, bi-directional/crossed scar pattern, or elongated debordant flakes resembling crested blades.

The choice between bipolar and unipolar production depends on whether the principal or distal platform was reduced. In reality, such blanks were produced prior to the next Levallois blank, and theoretically, they were able to contribute to the shaping of the new Levallois upper surface.

By contrast, the upper surface lacks the particular scar pattern of such Levallois blanks, and the Kabazi II schemes display full modification of the upper surface, without such a scar pattern. It would appear that two methods were connected with the same process of reduction: classical Levallois and uni- or bi-polar reduction. This is why the "Levallois recurrent uni/bi-polar" method, or simply unipolar/bipolar "Biache method" (Kabazi case), was identified in the reduction process. Obviously, only one stage of reduction was chosen to be assigned to the method. The question now is whether the unipolar/bipolar stage was an independent scheme of

exploitation or just one stage of re-preparation of the Levallois core. In any case, the unipolar and bipolar reduction process, as involved in these schemes, had reduced the unprepared parts of the corresponding surface relief. These methods cannot be determined as "Levallois" which simply failed to produce Levallois flakes as end products. This holds also for Kabazi II, where the unipolar/bipolar "Biache method" is inapt to produce classical Levallois blanks, owing to the radial scheme which is involved (Fig. 9-15).

The second question is whether the "tortoise" blanks in Kabazi II display a centripetal scar pattern. Classical "tortoise" cores generally maintain oval shapes along with a principal striking platform, and a circular striking platform facilitating centripetal preparation of the upper surface. Both "tortoise" cores from Kabazi II/II-8 (Fig. 9-1, 5, 6, 7; 9-2; 9-4, 1; 9-5, 2) and bi-directional cores (Fig. 9-3) have a rectangular shape, a principal striking platform (A), and separate platforms on the lateral (B and C) and distal (D) parts of the core, as mentioned by Chabai (Chabai 1998c, p. 230, 248, 249). However, given such geometrical placement of the lateral platforms, it is difficult to define the preliminary preparation of all these cores as "centripetal".

Preparation of the “tortoise” cores came from the lateral platforms (B and C) and was oriented perpendicular to the long axis of the core (Fig. 9-1, 5, 6, 7; 9-2, 2, 3; 9-4, 1; 9-5, 2). The preparation of the distal part of some cores was directed up from the distal supplementary platform (D) (Fig. 9-1, 5, 6, 7; 9-2, 1; 9-4, 1). However, some cores display bi-perpendicular (bi-lateral) preparation, directed only from the lateral supplementary platform (Fig. 9-5, 2). Subsequently, in some cases, this led to the creation of relief convexity on the upper surface of the core; this we could term bi-lateral, or bi-lateral together with distal (full crossed), which corresponds better to core typology.

Furthermore, the idea that “tortoise” cores should be included within the Levallois group, despite of the fact that they display centripetal flakes with some cortex left on the surface, has been rejected (Chabai 2004c). There is no evidence for the suggestion that the cortex would have been removed later, as soon as centripetal preparation was fully completed. None of the blanks with centripetal scar patterns correlate with the principal negative of a Levallois core. Some examples (Fig. 9-4; 9-7; 9-8; 9-11, 1) even prove that comparable centripetal blanks, as pointed out by V. Chabai (Fig. 9-12, 1), had not only been flaked from the principal platform, but from any lateral or distal part of the Levallois core. This occurred accidentally when the process was still on-going, and not only after completion of the full preparation process. When three-directional preparation of the exploitation surface is applied, blanks and cores can occur which resemble those from centripetal schemes (Fig. 9-5, 6).

Moreover, “tortoise” cores sometimes display scars which start from the principal platform and continue uni-directionally (Fig. 9-1, 6) or convergently (Fig. 9-2, 1).

Careful re-analysis of some principal examples which had been noted as indicative for independent application of the so-called “tortoise” method (Chabai 1998c) also delivered negative evidence. Certainly, some uni-directional convergent negatives do occur on the upper surface, instead of one primary negative and only one scar of lateral preparation on side B, which had been made prior to the detachment of the last flake (Fig. 9-2, 2). Thus, the blank removed from this core was not the only one (which would indicate the typical “tortoise” core) and could feature a uni-directional convergent as well as crossed scar pattern. Uni-directional scar patterns exist also on other “tortoise” cores with supplementary platforms (Fig. 9-2, 1; 9-4, 1).

It is absolutely clear that the typology of Levallois blanks cannot be fully centripetal. A certain

number of flakes with uni-directional/crossed, bi-directional/crossed or uni-directional-convergent/crossed scar patterns can always occur, and are not restricted to the “Biache method”.

Contrasting V. Chabai’s question whether the “tortoise” cores, those made on flakes included, represent a variant of the “Biache method” (Chabai 1998c, p. 250), we arrive at another problem: did unipolar and bi-directional cores with lateral and distal platforms, along with uni-directional and bi-directional / crossed blanks, result from the exploitation of Levallois “tortoise” or from other variations of the Levallois method?

The principal conclusions on the status of the unipolar “Biache method” rely on the refitting of one single core (Chabai 1998c, p. 240-247; fig. 9-12, 9-13, 9-14). After Chabai, this core (Fig. 9-6, 1, 2, 3, 4, 5, 6, 7, 8, 9) was subject to three stages of reduction. Stage I established the principal and supplementary platforms, along with centripetal preparation of the core. Stage II saw the removal of the central Levallois “tortoise” blade from the principal striking platform, and included some preparatory flakes with uni-directional, uni-directional/crossed, converging scar patterns and a number of rejuvenating flakes from the supplementary platforms. Stage III served to re-prepare the core and to renew the exploitation surface. Stage II documents the transition from the tortoise core to the single platform core with lateral supplementary platforms. This stage produced the blanks with uni-directional and crossed scar patterns which are usually recognized as indicative for the “Biache method”.

It should be stressed that such an interpretation of the refitting assigns the production of the Levallois blank to stage II (Fig. 9-15, II.1), while, from the technological point of view, preparation and production both belong to one turn of the Levallois reduction process.

Under the so-called “Biache” scheme of Kabazi II, in stage II (Fig. 9-15, II.2-II.3) the blanks were removed from the unprepared parts of the core surface relief. Both, V. Chabai and the present author agree in determining the “*enlèvement 2*” and debordant flakes as “non-Levallois” (Usik 2003; Chabai 2004c, p. 57). However, some interesting attributes within this particular example of a refitted core indicate repeated preparation of the upper surface of the core following the removal of the first Levallois blank, and stage II represents a more complex process, which displays important technological details regarding the production of some of the Levallois blanks at Kabazi II.

Compared to previous publications (Chabai 1989; Usik 2003), new investigations resulted in a

significant number of additional refitted artefacts. First of all, new refitting focused on two reduction sequences, one of them featuring a core (Fig. 9-6, 1, 2, 3, 4, 5, 6, 7, 8, 9), and the other without a core (Fig. 9-7, 1a-14a), both coming from the same raw nodule. A massive concretion of flint split into two pieces along a natural fissure. Natural internal fissures of the flint nodule influenced the quality of reduction.

Example 1 (Fig. 9-6, 1, 2, 3, 4, 5, 6, 7, 8, 9)

The first Levallois blank of blade proportion was removed from the principal platform following the preparation of the upper surface of the core (Fig. 9-6, 1). The distal part of the blank was modified. The proximal part is absent, though there are clear traces of distal (Fig. 9-6, 1-D) and lateral (Fig. 9-6, 1-B) preparation. The first turn was finished by the removal of this Levallois blank, and the flat negative on the central plane (A) appeared (Fig. 9-6, 3-A).

The second cycle began by the removal of a short hinged flake from the main platform along one lateral ridge, and was completed by preparation of the lateral part (B) (Fig. 9-6, 3-B). Perpendicular scars guided this operational step, these emanated from the lateral striking platform which followed the scar pattern of blank no. 6 (Fig. 9-6, 6).

It cannot be ruled out that flake 4 was removed before blank 3 (Chabai 1998c, p. 243). In this case the blank 3 must have been bilaterally prepared. In any case, lateral or bilateral preparation of blank 3 was specially created from lateral / bilateral supplementary platforms. This means that blank 3 (Fig. 9-6, 3) could be classified as "Levallois".

After the removal of flake 4 (Fig. 9-6, 4), which left a deep negative on the lateral side of the core, a drastic re-preparation of the exploitation surface became necessary. The same flake 4 removal therefore appears as a supplementary action (Chabai's reconstruction number 3: Chabai 1998c). It was removed at an angle of 55 degrees, as measured from the upper surface (Chabai 1998c, p. 246, fig. 9-12).

Flakes 5-7 (Fig. 9-6, 5, 6, 7) define the stage of the next turn, which, during bilateral (B, C) preparation of a new surface relief on the upper surface, established a lateral convexity on one side of the core (C) (Fig. 9-6, 9). The distal part of the core remained unmodified at this stage. After the platform preparation, two attempts failed to detach a Levallois blank from the upper surface (Fig. 9-6, 8). If this had been successful, the core would have attained the classical shape, featuring one large negative and a bilateral supplementary platform. In this case, the

flake removed from the core would have displayed a pattern indicative of bilateral preparation on the dorsal side, as would resemble a Levallois blank refitted by supplementary flakes (Fig. 9-9, 3).

The analysis of refitting, blank typology and morphological changes of the core during reduction results in two operatory turns: the first turn shows crossing bilateral and distal preparations of the first Levallois blank, and resulted in a classical core with one negative and only two lateral supplementary platforms. The second turn begins with a central plane (A) left by the negative of the Levallois blank, which was re-prepared only from the lateral platforms. The shape of blank 3 (uni-directional and crossed) contrasts the "Biache scheme". In this stage, the core displayed a convergent scar pattern with one lateral supplementary platform. Following this (cycle 3), the process of bilateral preparation of the upper surface was again repeated. It seems that the distal part of the core was left unprepared, thus resembling a Levallois core made on a flake (Fig. 9-2, 2).

To conclude the rule of separate preparation applied on each single Levallois blank (upper surface) is typical within the classical Levallois reduction system, but not within the "Biache scheme". Only the flakes 5 and 6 (Fig. 9-6, 5, 6) refer to the uni-polar "Biache scheme", but they belonged technologically to the process of lateral re-shaping of the Levallois core, and should not be attributed to the production process.

Example 2

This refitting combined two separate cores, the one from example 1 and the one present here, in one workpiece, probably pointing to a fracture of the raw nodule in an early phase of the reduction sequence (Fig. 9-6, 11-7a). Flake 7a belongs to a group of flakes implied in distal preparation of the upper Levallois surface (Fig. 9-7, 1a-10a).

From the very beginning, the dorsal surface of the first elongated Levallois blank (Fig. 9-7, 12a) was prepared, as indicated by uni-directional convergent scars emanating from the principal striking platform. Only afterwards was this refined by bilateral (B and C) negatives stemming from the supplementary platforms (Fig. 9-7, B, C) in the lower part. The next Levallois blank (Fig. 9-7, 14a) shows lateral and distal secondary preparation emanating from new lateral and distal platforms. The last flake is not informative (Fig. 9-7, 13a). According to the nature of the raw material, some lateral re-shaping flakes belong to this group (Fig. 9-11, 9-10).

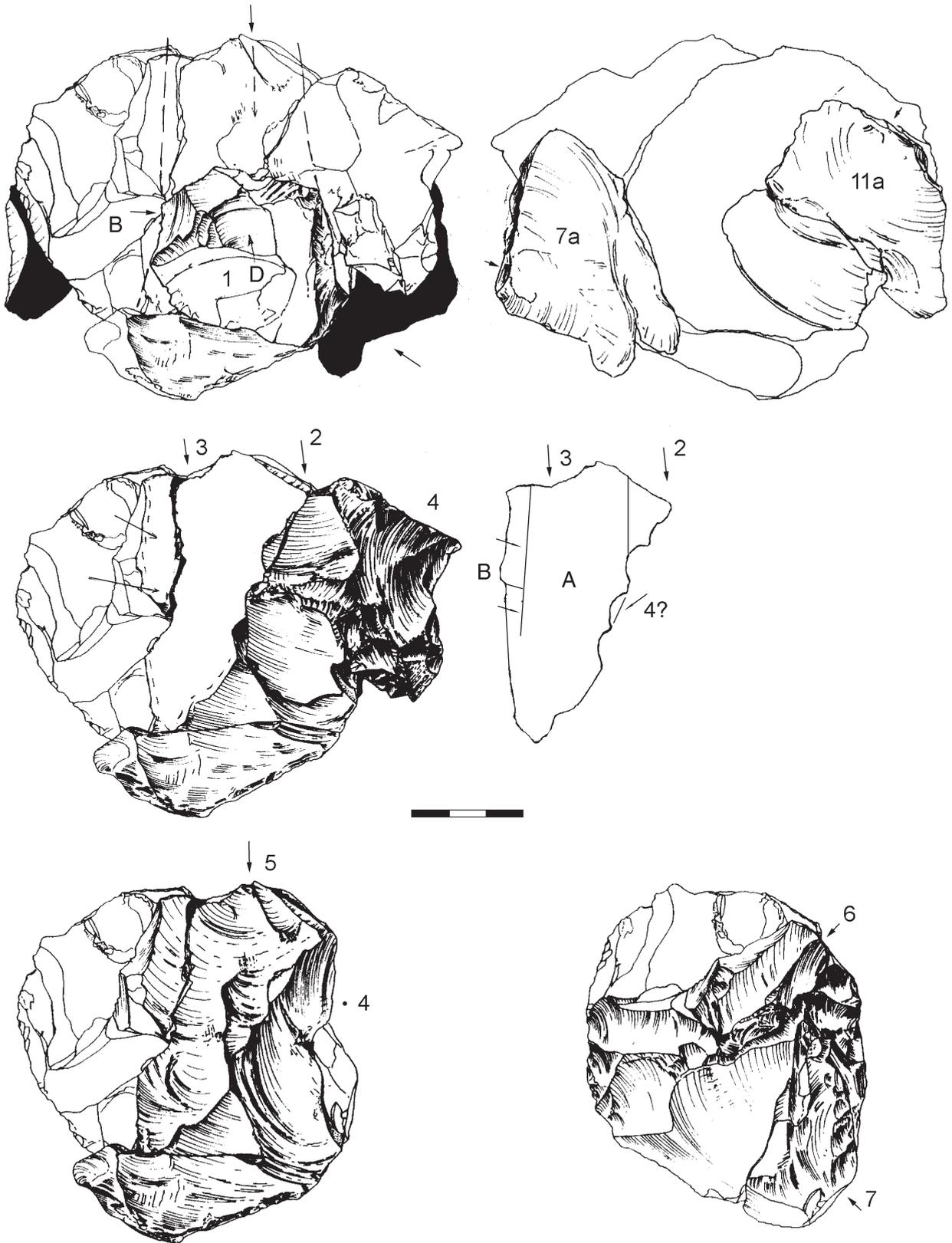


Fig. 9-6 Kabazi II, level II/8: example I, refitted Levallois core (1, 2, 3, 4, 5, 6, 7, 8, 9), example II (refitted flakes 7a and 11a conjoin the refitted Levallois core with the refitted sequence shown in Fig. 9-7).

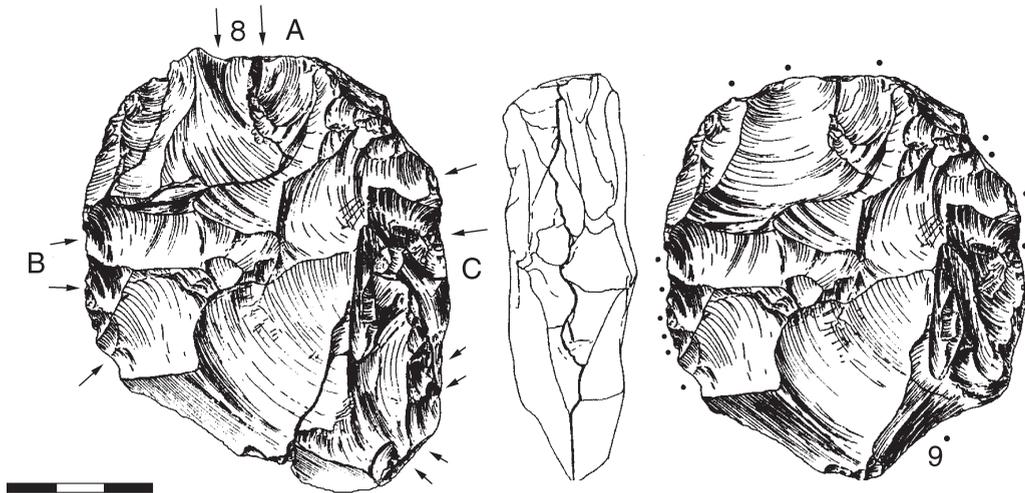


Fig. 9-6 continued.

Thus, this reduction sequence provides a second example without "tortoise" preparation. The same unidirectional convergent preparation and some preparation by short flake scars from the supplementary platform was also recorded in other Levallois blanks (Fig. 9-8, 2; 9-9, 8, 11, 12).

The refitted sequences help not only to understand the variants of the Levallois method, but also to interpret stages and cycles of production. The cores and products of the second stage of Levallois production are of particular interest. Chabai (Chabai 2004c, p. 57, fig. II-15) integrated the stage II products into his scheme of the Levallois "Biache" reduction system, as only here can both unipolar and bipolar-crossed blanks and debordant flakes occur (Fig. 9-15).

Example 3 (Fig. 9-10, 5b-7b)

V. Chabai attributed the refitted sequences of this group to the "Biache" type of reduction, owing to the occurrence of Levallois blanks with "centripetal" scar patterns (Fig. 9-10, 6b) and "enlèvement 2" (debordant) (Fig. 9-10, 7b), which might mirror stage II (Fig. 9-15) of this method (Chabai 2004c).

In contrast to the first stage of this cycle, the surface relief of the Levallois blank was prepared via crossed scars which emanated from lateral (B and C) (Fig. 9-10, 5b, 6b) and distal (D) supplementary platforms. After one unsuccessful attempt, Levallois flake 6b was removed from the main, re-prepared

striking platform. Following the detachment of the Levallois blank this cycle was ended.

In this stage, the core displayed the rectangular shape of the classical type with lateral and distal supplementary platforms (cf. Fig. 9-1, 7). The debordant flake 7b, which had been removed from the distal platform, belonged to the next cycle of re-preparation of the upper surface. According to the nature of the raw material, this refitting sequence should be associated with the core retaining a small part of previous longitudinal scars on the upper surface with only bilateral preparation (Fig. 9-5, 2). In both cases, the preparation of the Levallois blank and the discard of the core followed stages I and III of sample 1.

As a result of refitting, the industry of level II/8 of Kabazi II comprised Levallois blanks with full crossed preparation, as well as Levallois blanks with uni- and bi-directional crossed preparation, which do not belong to the "enlèvement 2" group of the "Biache method".

Other examples (Fig. 9-10, 2a-3c) display a narrow convex surface relief which was created on the upper surface, and which derived from the detachment of flakes from the supplementary lateral and distal platforms in three directions (Fig. 9-10, 2a). A natural fissure in the centre of the exploitation surface led to the development of a hinge lip. For this reason, the lower part was removed from the distal platform, which had been convexly prepared for Levallois blade production. The exploitation surface (Fig. 9-10, 3a) was modified by perpendicular scars from the lateral platform B (Fig. 9-10, 3b).



Fig. 9-7 Kabazi II, level II/8: sample II, refitted blanks from Levallois production (1a-14a).

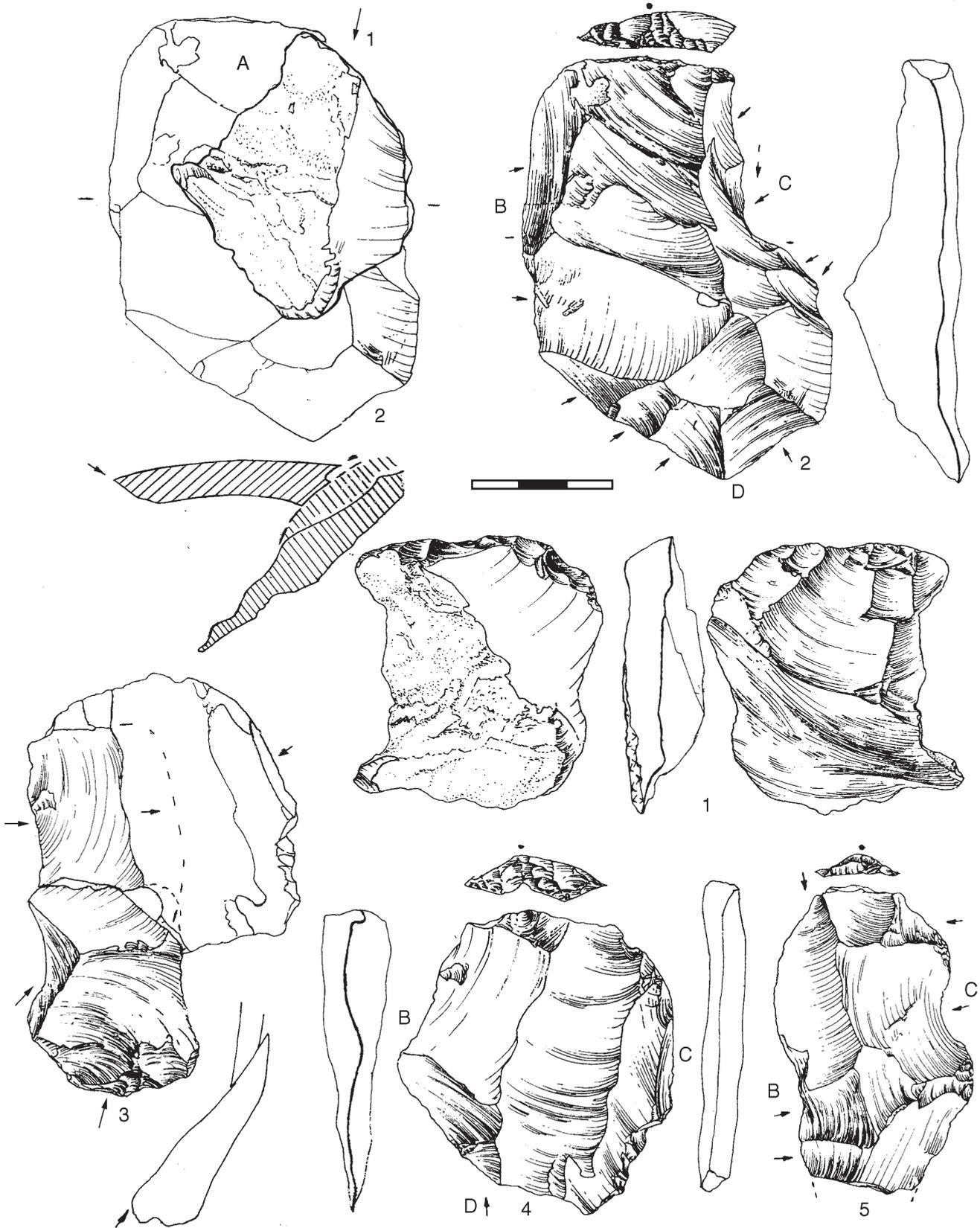


Fig. 9-8 Kabazi II, level II/8: unidirectional core on flake (1), refitted Levallois blank (2), refitted Levallois blank (3, 4), Levallois blank (5).

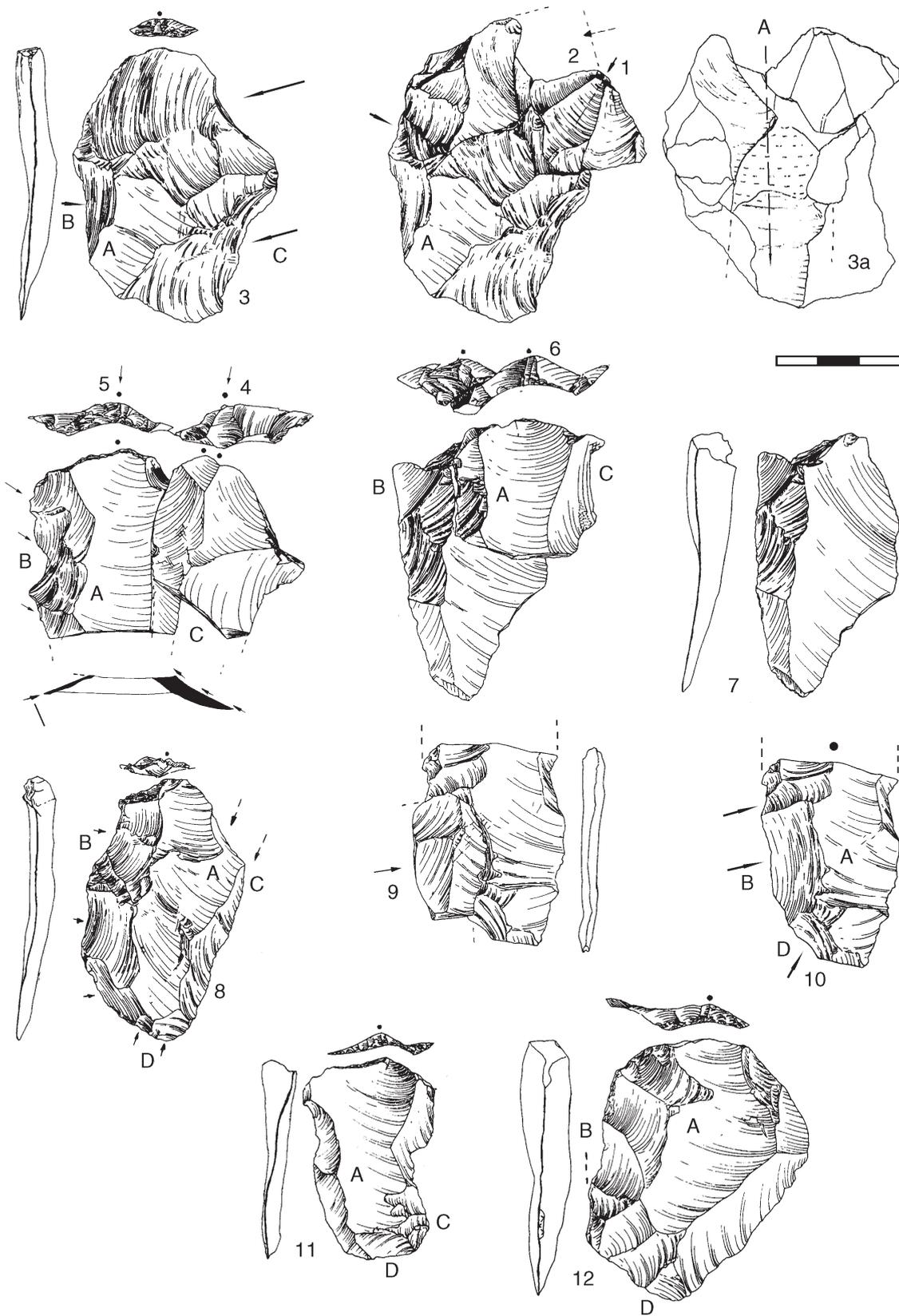


Fig. 9-9 Kabazi II, level II/8: refitted Levallois blank (1, 2, 3, 3a), "enlèvement 2" (4), Levallois blank (5), Levallois blank (6), "enlèvement 2" (7), refitted Levallois blank (9, 10), Levallois blanks (8, 11, 12).

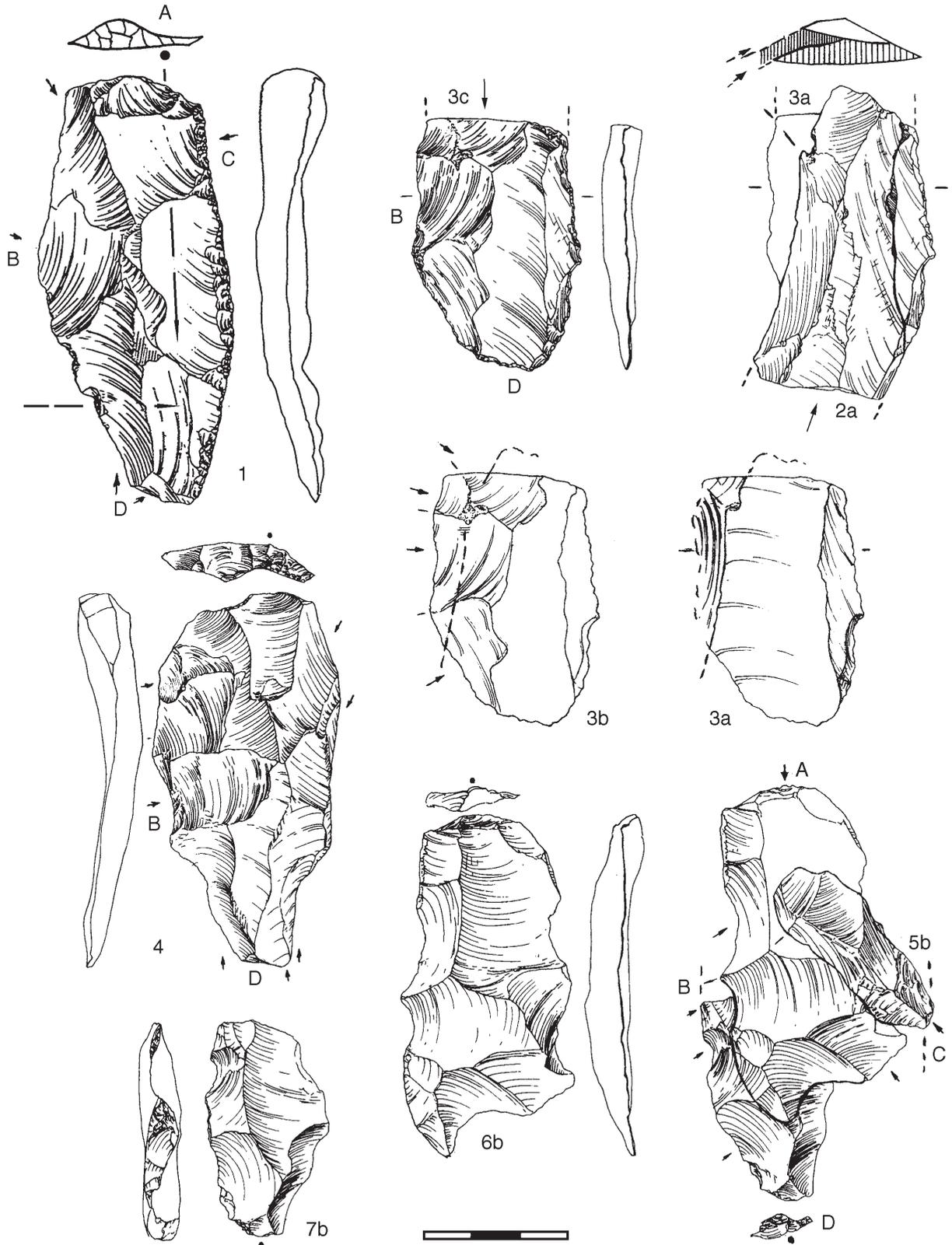


Fig. 9-10 Kabazi II, level II/8: Levallois blanks (1, 4), refitted Levallois blanks (2a, 3c), refitted Levallois blank (6b) and debordant/"enlèvement 2"(7b).

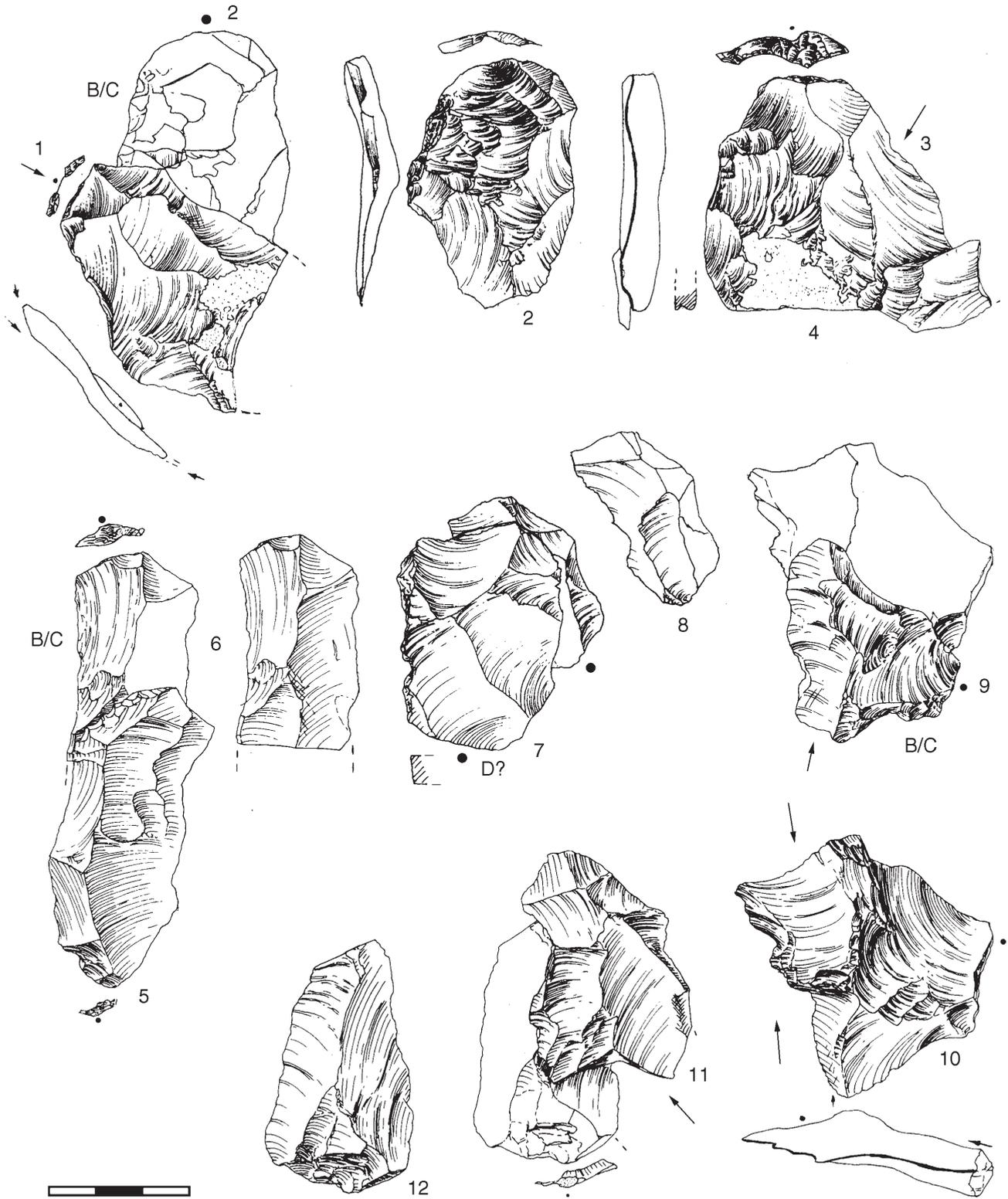


Fig. 9-11 Kabazi II, level II/8: refitted supplementary blanks of Levallois reduction process (1 – 12), "enlèvement 2" (2, 5, 6, 12).

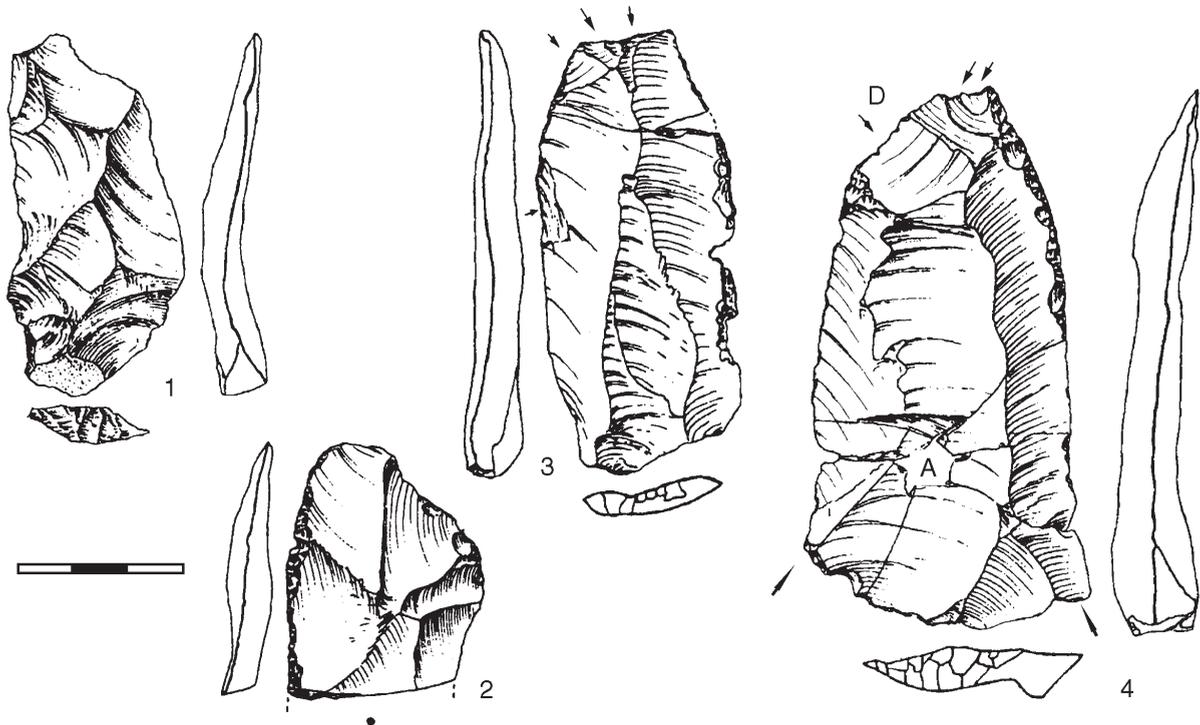


Fig. 9-12 Kabazi II, levels II/7 (1) and II/8 (2, 3, 4): centripetal blank (1), Levallois blanks (2, 3, 4).

A Levallois blank with opposite and lateral scar patterns (Fig. 9-10, 3c) was removed from the principal striking platform. Thus, after completion of the first stage of preparation and production of one Levallois blank, the next stage began with the immediate re-preparation of the upper surface, exclusively from the lateral part. The same kind of lateral (B) (sample 5) and distal (D) preparation by short scars was found on the Levallois blank (Fig. 9-9, 9, 10).

The examples 5 (Fig. 9-9, 4, 5) and 6 (Fig. 9-9, 6, 7) include so-called "enlèvement 2" (Fig. 9-9, 4, 7), one Levallois blank with bilateral (B and C) preparation (Fig. 9-9, 6) and one Levallois blank with uni-directional parallel and lateral (B) preparation (Fig. 9-9, 5). The latter is typologically and technologically quite different from an *enlèvement 2*.

According to the analysis of previous scar patterns on the upper surface of the core of example 5, one first blank was removed. This piece might have had crossed or bilateral (cf. flake 6 in Fig. 9-9, 6) or exclusively lateral preparation, the perpendicular direction of which was preserved on the dorsal surface of flake 4 (Fig. 9-9, 4). After completion of the first Levallois blank, a flat plane was left in the centre (Fig. 9-9, 5-A). Re-preparation of the convexity of

lateral part C was achieved by the removal of blank 4 ("enlèvement 2" type). Short perpendicular scars emanating from supplementary platform B (Fig. 9-9, 5-B) completed the design of the future Levallois blank.

The principal typological and technological difference between Levallois blanks with uni-directional/crossed scar patterns (Fig. 9-9, 5, 10; 9-10, 3c) and "enlèvement 2" with the same scar patterns is that crossed scar patterns on Levallois blanks appeared as the result of intentional lateral preparation of the upper surface of the Levallois core. The attribution of such kinds of Levallois blanks to specific uni-directional/crossed scar patterns provoked the objection (Chabai 2004c, p. 57) that minor additional preparation transforms the production of Levallois blanks into one continuous process. It is important to stress, that following the detachment of a Levallois point, it is sometimes sufficient to re-shape only one side by only one scar (Usik 1989, Demidenko, Usik 1994, 1995, 2003). This does not interrupt Levallois blank production, serving only a repetition of the cycle. If the Levallois reduction process was cyclical, then a given Levallois core represents the result of one cycle of production of one Levallois blank.

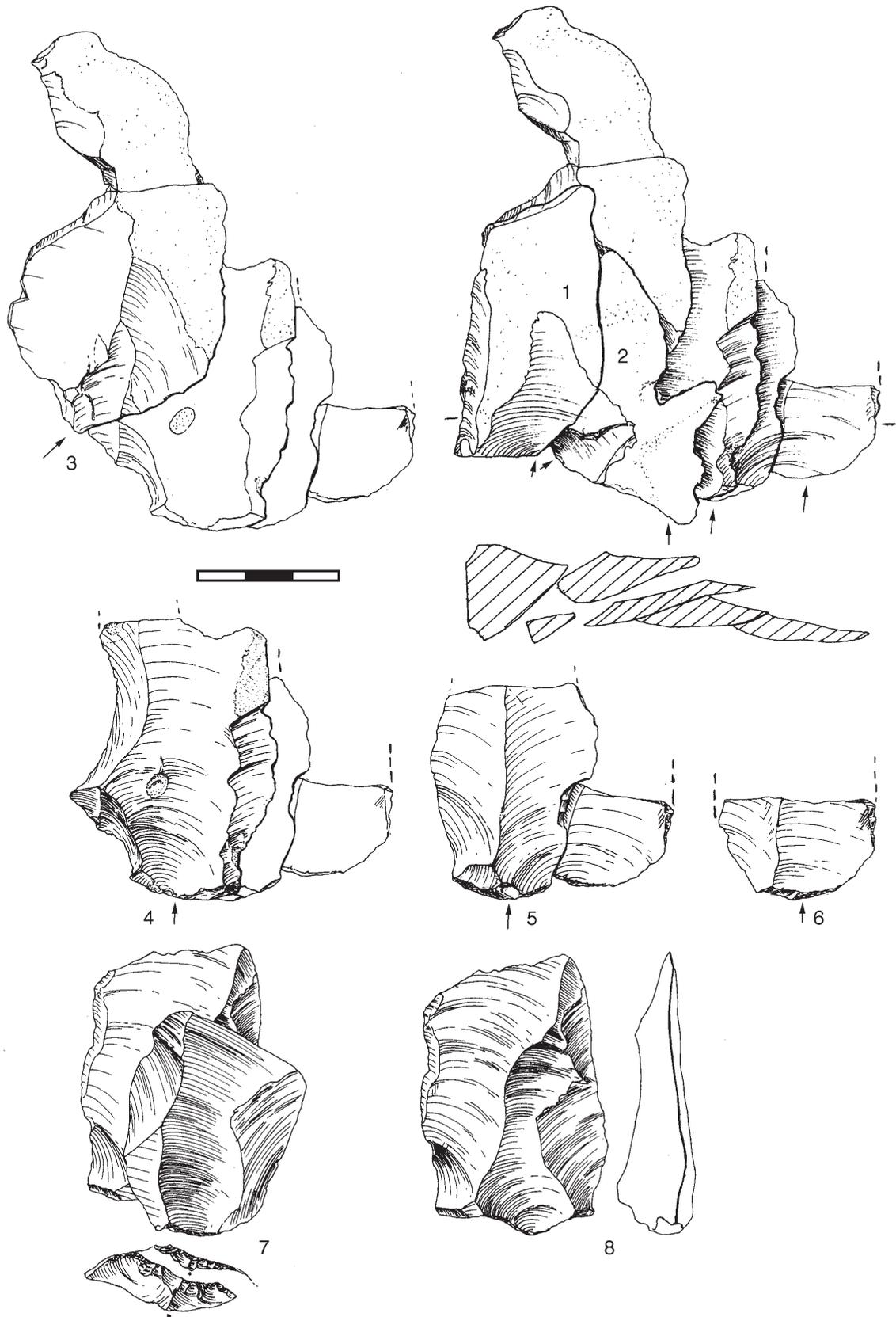


Fig. 9-13 Kabazi II, level II/8: refitted non-Levallois blanks (1, 2, 3, 4, 5, 6, 7, 8).

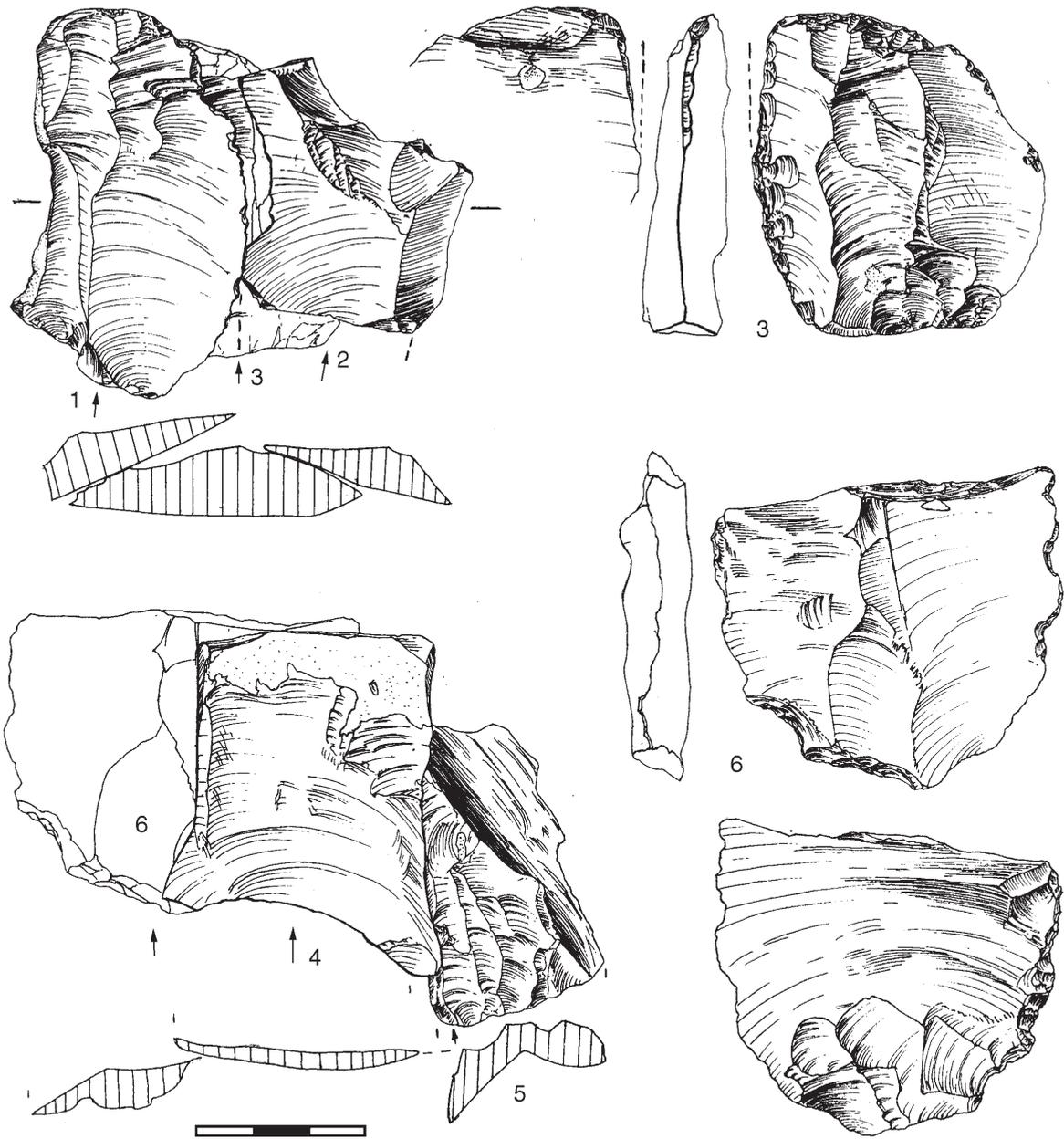


Fig. 9-14 Kabazi II, level II/8: refitted non-Levallois blanks (1, 2, 3, 4, 5).

The question arises in which context the preparation of each Levallois blank occurred. In order to find an answer to this question, we need to observe all examples of Levallois blank preparation and their respective relatedness to cores, technique and technology.

Blanks which had been attributed to the Levallois method display uni-directional parallel or convergent scar patterns with crossed preparation, which is regularly repeated in the lateral and distal parts (Fig. 9-9, 8, 12), or partially laterally and distally (Fig. 9-9, 11; 9-12, 3), or only distally (Fig. 9-12, 4). Such blanks should not be classified as variants of the "tortoise" scheme. They are rather related to the preparation of the unipolar/bipolar, uni-directional convergent variant of the "tortoise" scheme, known as Kabazi II variant. According to this view, the Biache scheme never existed at Kabazi II.

Obviously, the so-called "Biache" unipolar scheme in Kabazi II occurs – a) under the condition that blanks of the different stages of the Levallois process maintain distinct technological features: stage I Levallois blanks should usually display centripetal scar patterns, while blanks from the next stage (stage II) should show unipolar, bipolar/crossed scar patterns – b) if classical Levallois blanks are part of this process (stage II) – c) if supplementary blanks fail to be produced in stage II in order to shape the upper surface of the next Levallois blank planned to have centripetal scar patterns.

As mentioned before, in Kabazi II Levallois "tortoise" cores with one negative show non-centripetal directions of negatives forming the flaking surface. When all three supplementary platforms (lateral and distal) are present on the core, the only possible mode of preparation of the upper surface is a crossed (three-directional) scar pattern (Fig. 9-6, 1; 9-10, 6b; 9-12, 2). Other examples of refitting show that primary formation of the central plane A is possible by one single scar (Fig. 9-1, 1-A) from the main platform. Subsequent lateral preparation from the supplementary platform (Fig. 9-1, 2-4-B) can also be realised by uni-directional convergent preparation of the central plane A. This might be supported by flakes from lateral and distal striking platforms B-C-D (Fig. 9-8, 1, 2). The same type of Levallois core might also deliver Levallois blanks with uni-directional and supplementary bilateral preparation (Fig. 9-8, 3, 4) or with uni-directional A and bilateral preparation B-C (Fig. 9-9, 3-3a). As mentioned previously, Levallois "tortoise" cores can display uni-directional or bi-directional convergent negatives (Fig. 9-1, 6; 9-2, 3; 9-4, 1), which permit a combination of Levallois blanks with both uni- and bi-directional, convergent-crossed and distal scar

patterns (Fig. 9-8, 5; 9-10, 1, 3c, 4). Thus, blanks with different full-crossed or bi-lateral scar patterns can be linked with Levallois cores. All bear negatives from lateral and distal preparation originating from the supplementary platforms.

The second group comprises cores with supplementary platforms and some uni-directional parallel (Fig. 9-3, 2, 3) or uni-directional convergent scar patterns (Fig. 9-2, 1), such as a core on flake (Fig. 9-2, 2). These cores show the principal platform on one side, and are the source of Levallois blanks with uni-directional, convergent dorsal scar patterns on the central plane, with only partial lateral or distal preparation on the other side (Fig. 9-9, 5, 8, 10, 11, 12; 9-12, 3, 4). When the so-called "enlèvement 2" variant of lateral preparation of the upper surface is applied (Fig. 9-9, 4), more than one negative will remain on the exploitation surface of the core.

One should remember that the cores in the Levallois reduction process can be represented by three types: cores with fully prepared upper Levallois surface, but without target flake, classical Levallois cores with one negative on the upper surface, and Levallois cores on the stage of re-preparation. The latter give the illusion of multiple blank productions, and typologically cannot be termed Levallois.

The presence of the uni-/bi-directional/crossed Levallois blanks evokes a different view on so-called bipolar cores with lateral supplementary platforms (Fig. 9-3). One of the refitted cores (Fig. 9-3, 2) shows removal of a debordant flake (Fig. 9-3, 1) supported by lateral scars from the previous preparation of an earlier upper surface (B1). Afterwards, only the lateral (C2) and distal (D2) parts (Fig. 9-3, 1, 2) were re-shaped. If the last flake had been removed, it would have displayed uni-directional scars with lateral and distal preparation, which would make it "Levallois". It now becomes evident that bi-directional cores are representative of one variant of Levallois cores with supplementary lateral B, C and distal D striking platforms in their proper stage of re-preparation (Fig. 9-3, 3). Thus, bi-directional cores cannot be accepted as examples of the unipolar or bipolar "Biache method".

With the exception of Levallois blanks with fully crossed preparation, the application of the uni-directional and convergent technique during the preparation of other Levallois blanks seems reasonable. When supplementary lateral platforms exist on cores, re-shaping along the length axes results in elongated blanks, such as "enlèvement 2" or debordant flakes (Fig. 9-9, 4; 9-3, 1). This is due to the fact that Levallois cores with lateral supplementary platforms developed flat or pronounced negatives and two longitudinal ridges (Fig. 9-1, 7-A, 7a;

9-9, 4, 5-A) as soon as the Levallois blank was removed from the central part.

Creation of new limits of convexity on the upper surface is also possible by re-preparation of the exploitation surface from one lateral, two lateral, or lateral and distal supplementary platforms. The same result is made possible by producing blanks with uni-directional/bi-directional crossed scar patterns or debordant flakes with uni-directional, bi-directional crossed or perpendicular scar patterns (Fig. 9-3, 1) emanating from the principal (Fig. 9-9, 4, 7), distal (Fig. 9-10, 7b) or from two opposite platforms (Fig. 9-11, 5, 6). Both variants facilitate the removal of formerly un-prepared parts of the surface relief. The uni-directional, bi-directional/crossed preparatory blanks remove parts of the local surface relief, containing remnants of previous preparation (Fig. 9-11, 1, 2, 11, 12).

In the Kabazi II industry, the successful re-shaping of one side of the core was effected by blanks with unipolar or bipolar scar patterns, and by sufficient longitudinal convexity. Furthermore, the opposite lateral part had to be re-prepared by

perpendicular scars from the lateral supplementary platform. The distal supplementary platform was used depending on the necessity of creating convexity in the distal part. Thus, under the general scheme of the Levallois upper surface, so-called "enlèvement 2" do not occur as elements of unipolar or bipolar reduction according to the "Biache method", but they were required to shape the lateral convexity of the future Levallois end product.

When the Levallois blank is detached from the upper surface of the classical Levallois core, all subsequent detachments belong to the next cycle of creation of a new upper surface. When the classical Y-shaped Levallois point is detached from the upper surface of the classical Levallois-convergent core, all subsequent blades and flakes belong to the next cycle of preparation. In the same way, all Kabazi II blanks with uni-directional scar patterns, bi-directional scar patterns, debordant flakes with perpendicular scar patterns, as well as flakes from lateral preparation, belong to a new cycle of preparation undertaken prior to the detachment of the next Levallois end product.

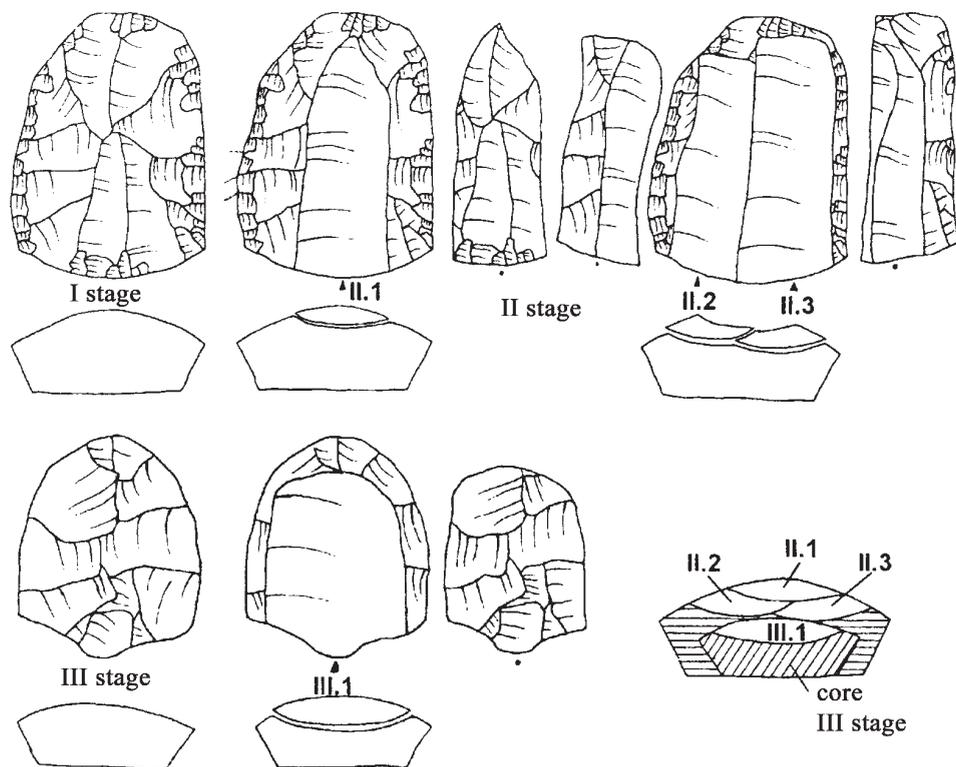


Fig. 9-15 Idealised scheme of uni-directional variant of the Biache method of core reduction (after Chabai 2004, p.57, Fig. 9-II-15).

CONCLUSION

The analysis of core and blank typology and reduction sequences from Kabazi II-II/8 contradicts the identification of both a distinct “tortoise” method and also of a “tortoise” stage within the “Biache method”. Essentially, this is due to the absence of the centripetal preparation technique.

The “Biache” uni-directional or bi-directional method is neither supported in terms of production of a series of blanks following the Levallois end products, nor in terms of the sequence and principles of preparation and re-shaping of the upper surface of Levallois cores.

Those cores from Kabazi II typologically classified as “bi-directional” cores with lateral supplementary platforms (Fig. 9-3) represent a variant of Levallois cores with lateral and distal supplementary platforms, which were discarded in a stage of re-preparation of the upper surface.

Moreover, evidence is lacking that cores originally classified as “Biache method” permitted production of a number of large Levallois blanks, instead of only one classical Levallois blank (Chabai 2004c, p. 57). This would contradict the technological cycle of Levallois blank production, since any supplementary blank produced during preparation or re-preparation of the Levallois upper surface is classified as waste. Increasing production of any kinds of target flakes, except Levallois, is not an aim of the Levallois method. Even if a number of larger blanks could be produced without individual adjustment, only refitting of such blanks with Levallois products would prove the relation to the Levallois reduction process. Typologically similar blanks could also be produced by non-Levallois methods using the parallel uni-directional technique of reduction (Fig. 9-14, 1, 2, 3) in flat uni-directional parallel cores (Fig. 9-4, 4; 9-8, 1), parallel bi-directional flat or volumetric cores (Fig. 9-4, 2, 3), or using the convergent technique (Fig. 9-13; 9-14, 4, 5, 6).

In some cases the same core could supply very different kinds of blanks featuring different scar patterns (Fig. 9-5, 3, 4, 5).

In all details, the Levallois reduction strategy of level II/8 of Kabazi II repeats the strategy of reduction and the typology of Levallois cores and Levallois end products as found in the Middle Palaeolithic site of Molodova V (Usik, 2003). Both correspond to only one method of production – the classical Levallois method. Both, Kabazi II and Molodova VI have a specific feature in common: the mode of

central plane A creation, based on additional adjustment of the central plane. Generally, four different variants of Levallois blanks (end products) occur in Kabazi II.

Variant A1 represents the type of full-crossed (three-directional) preparation of the upper surface (Fig. 9-16, A1-I), variant A2 (Fig. 9-16, A2-I) represents intentional shaping of the central plane A by removal of a single flake from the principal striking platform or along one uni-directional scar following the first Levallois blank (Fig. 9-16, A1-II), variant A3 represents the uni-directional parallel scar pattern (Fig. 9-16, A3-I), and variant A4 the uni-directional convergent scar pattern of the central plane (Fig. 9-16, A4-I, II) of the upper surface.

Variants A2-A4 (Fig. 9-16) sometimes differ in detail, e.g. in the combination of additional adjustment of crossed scars emanating from lateral and distal supplementary platforms (Fig. 9-6, 3; 9-7, 12A-14A; 9-8, 2, 4, 5; 9-9, 3, 5, 6, 8, 10, 11, 12).

Finally, we can characterise the Levallois method of Kabazi II as a mode of production resulting in specially prepared Levallois end products, based on a combination of preparation techniques applied to the upper surface. The technology of reduction represents a flexible system of exploitation of supplementary platforms along with changing techniques of preparation dependent on the changing surface relief.

Previously, the so-called “Biache method” of Kabazi II had been determined as a variant of the “developed Levallois reduction strategy” (Chabai, Sitlivy 1993, p. 25-26), based on the increasing production of large blanks and blades. If the idea of technological evolution is accepted, then Kabazi II could occupy the interface between the real classical “tortoise” method with centripetal preparation and the Levallois method for uni-directional convergent points. In the author’s opinion, the Kabazi II Levallois method aimed at making the technology less consumptive, which is achieved by one of three given methods – the classical method of Levallois points. Two, or maximum three, scars are needed to create a Y-shaped surface relief of a Levallois point (central plane A, lateral scars) and one, maximum two, scars for the creation of the following one (Demidenko, Usik 1994, 1995, 2003; Usik 2003, 2004a). It is quite possible that the Kabazi II industry represents the first traces of a transition to less consumptive technologies, thus reducing the amount of waste.

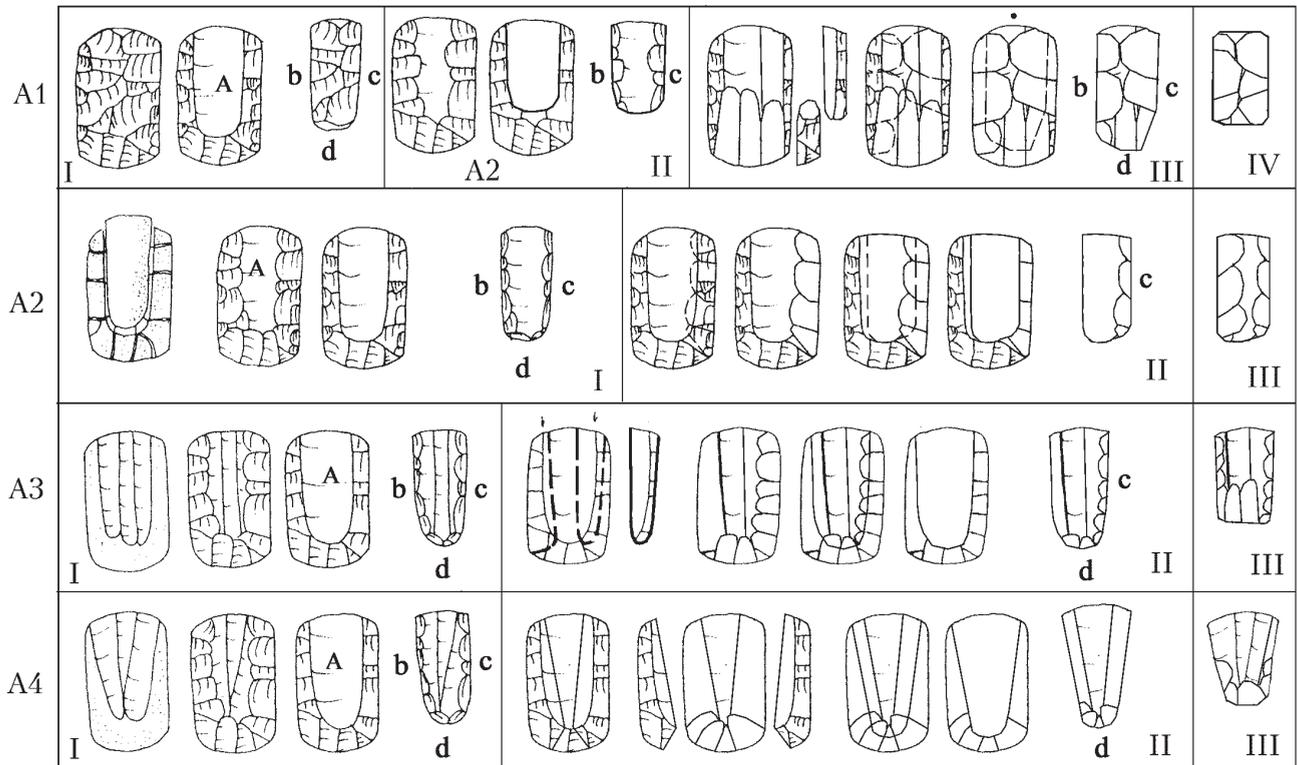


Fig. 9-16 Scheme of variants of Levallois cores and blanks of the Kabazi II, level II/8 Levallois method (Molodova type of the Levallois method).

АБСТРАКТ

ПРОБЛЕМА ИНТЕРПРЕТАЦИИ ЛЕВАЛЛУАЗСКОГО РАСЩЕПЛЕНИЯ В КАБАЗИ II, ГОРИЗОНТ II/8

В.И. УСИК

На Крымском полуострове бесспорные классические нуклеусы и заготовки леваллуа представлены в индустрии раннего этапа западно-крымского мустье стоянки Кабазы II, горизонт II/8. По данным типологии, ремонтажа и анализа типологических признаков (attribute analysis) в этой индустрии были отмечены черепаховидный метод леваллуа, а также уни- и биполярный метод Биаш. В реконструкции последовательности расщепления черепаховидные нуклеусы леваллуа рассматривались как примеры самостоятельной эксплуатации, так и как возможная стадия эксплуатации метода Биаш (Chabai, 1998c). Собственно, основная дискуссия по проблеме леваллуа горизонта II/8 Кабазы II состоит в

анализе последовательности раскалывания черепаховидных нуклеусов и уни- и биполярных нуклеусов с вспомогательными площадками, а также последовательности подготовки леваллуазских заготовок (Усик, 2003; Чабай, 2004с).

По данным ремонта перечисленные нуклеусы представляют собой результат эксплуатации не двух методов (леваллуа черепаховидного и уни- и биполярного метода Биаш), а разные варианты подготовки наиболее выпуклой части рабочей поверхности леваллуазских нуклеусов, ограниченной с латеральных и дистальной сторон вспомогательными снятиями. Организация формирования рельефа каждой леваллуазской заготовки повторяется в неизменной последовательности (подготовка, получение конечного продукта, переподготовка) и соответствует классическому методу леваллуа.

Система подготовки и переоформления рабочей поверхности леваллуазских нуклеусов Кабази II в целом и в деталях повторяет примеры известные по материалам среднепалеолитических слоев 12 и 11 стоянки Молодова V (Усик, 2003). Конкретно выделено четыре варианта подготовки. Вариант А1 представляет полную перекрестную подготовку, направленную с вспомогательных латеральных и дистальной площадок нуклеуса. Варианты А2-А4 различаются формированием рабочей поверхности нуклеуса, соответственно, одним продольным негативом, серией параллельных и, наконец, конвергентных негативов, дополняемые короткими сколами с латеральных и дистальной площадок. Часто в технологической последовательности переоформления боковых сторон леваллуазских нуклеусов использовалось удаление латеральных сколов в виде пластин и отщепов "дебордан", а также сколов с продольно-перекрестной огранкой "enlevement 2", которые выполняли одинаковую функцию создания нового выпуклого рельефа на рабочей поверхности. Таким образом, несколько негативов на поверхности нуклеусов с вспомогательными латеральными и дистальной площадками соответствуют стадии переподготовки, а не использования метода Биаш.