5

The Lithic Assemblage from Buran-Kaya III Level C

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This chapter describes the lithic assemblage recovered from Level C of Buran Kaya III during the 1996, 1997, and 2001 field seasons. Dated to between 36,000 and 32,000 years ago and underlying a Kiik-Koba type Micoquian (Monigal, Chapter 1), the cultural remains from this level are technologically and typologically distinct from any other known Crimean assemblage. The highly standardized and specialized bone and lithic tool production have been attributed to the Early Upper Paleolithic.

Assemblage Structure and Reduction Patterns

The lithic assemblage from Buran-Kaya III Level C consists of 3,780 pieces, all flint, recovered from an excavation area of 18 m^2 (Monigal, Chapter 1). A substantial portion of these are chips less than 30 mm in maximum dimension, pieces smaller than 10 mm are especially well represented (Table 5-1, Figure 5-1). Excluding debris related to flaking processes (chips, chunks, cores, pieces from tool resharpening), the remaining sample comprises 249 pieces: primary elements (9.2%), flakes (38.2%), blades (9.2%), and tools, including bifacial preforms (43.4%). Much of the breakage seen in the flint assemblage (Figure 5-1)

TABLE 5-1
Artifact totals for Level C

	N	%	%
Chips ≤ 15 mm	2583	68.3	
Chips 15.1–30 mm	922	24.4	
Chunks	5	0.1	
Cores	1	0.03	0.4
Primary flakes	23	0.6	8.5
Flakes	95	2.5	35.2
Blades	23	0.6	8.5
Tools	108	2.9	40.0
Tool resharpening pieces	20	0.5	7.4
Total	3780	100.0	100.0

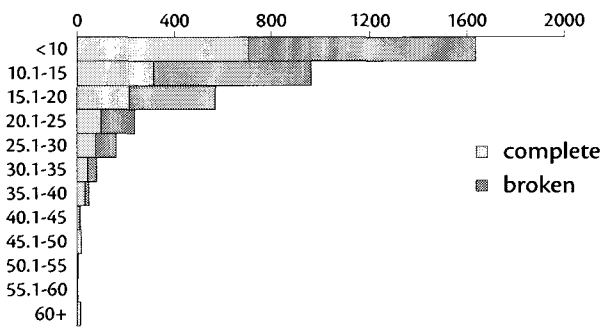

Figure 5-1—Histogram of maximum dimensions (in mm) for all complete and broken lithics.

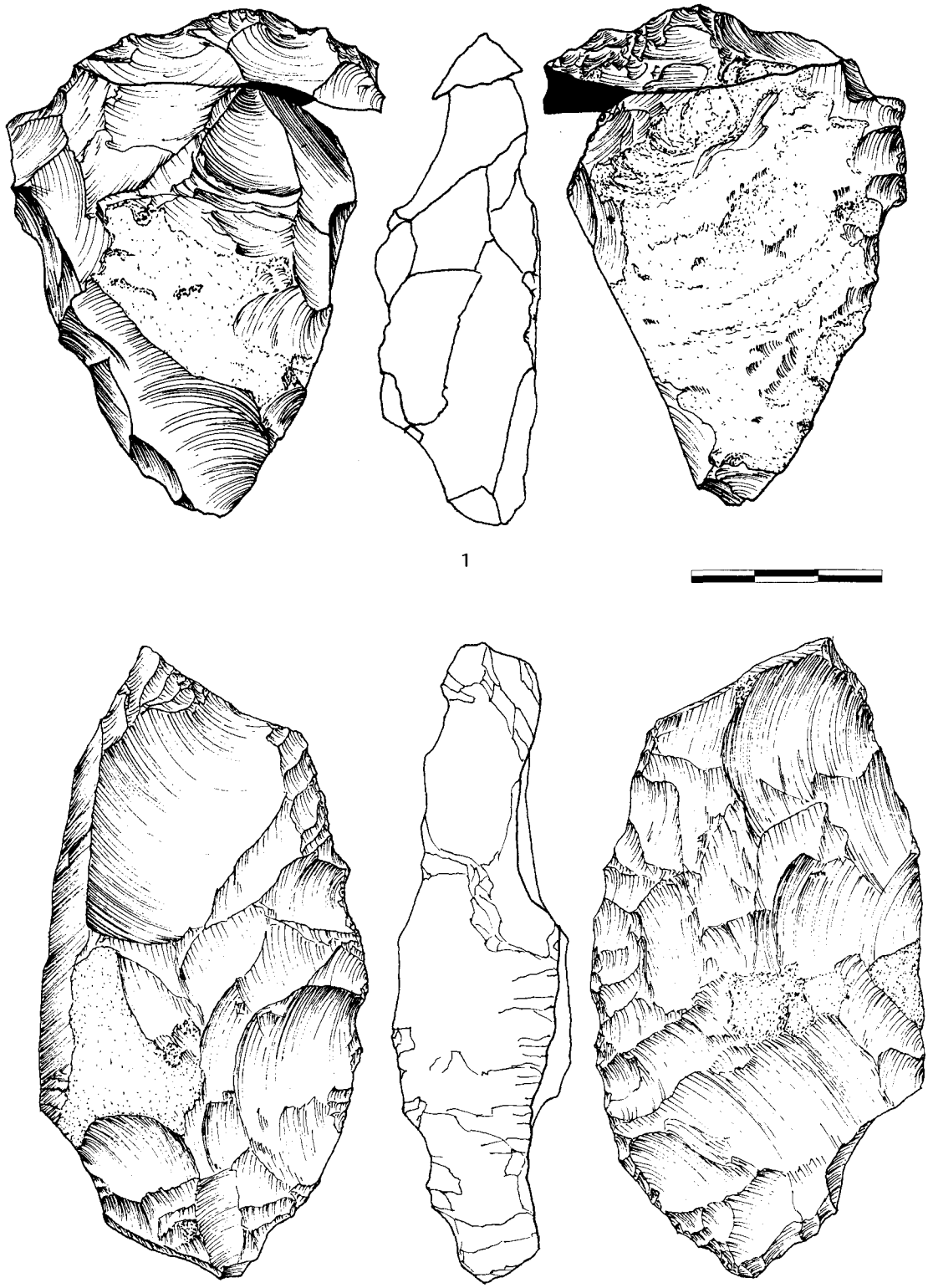

Figure 5-2—Inital stage bifacial preforms.

is due to the delicate nature of the flaking debris; all artifacts in this level were in primary context and show no evidence of having been moved, washed, or trampled. Lithic densities were highest in squares B–Г7, where there was a large cluster of flakes, chips, and a bifacial knife of the same raw material representing a single reduction episode, with an additional four bifacial knives (two fragmentary), two preforms, three scrapers, two trapezoids, six retouched pieces, and numerous tool rejuvenation pieces. Square Д8 also displayed a significant lithic density with a cluster of nine trapezoids, two endscrapers made from reworked bifacial cores, four broken bifacial knives, and three preforms (see Chapter 1, Figure 1-6). Given the incredible difficulty of refitting finely thinned bifacial pieces, an extensive refitting program was not attempted on the assemblage; yet, a very high number of fortuitously refit pieces did occur, underlining both the primary context in which the assemblage was found, as well as the numerous discrete reduction episodes,

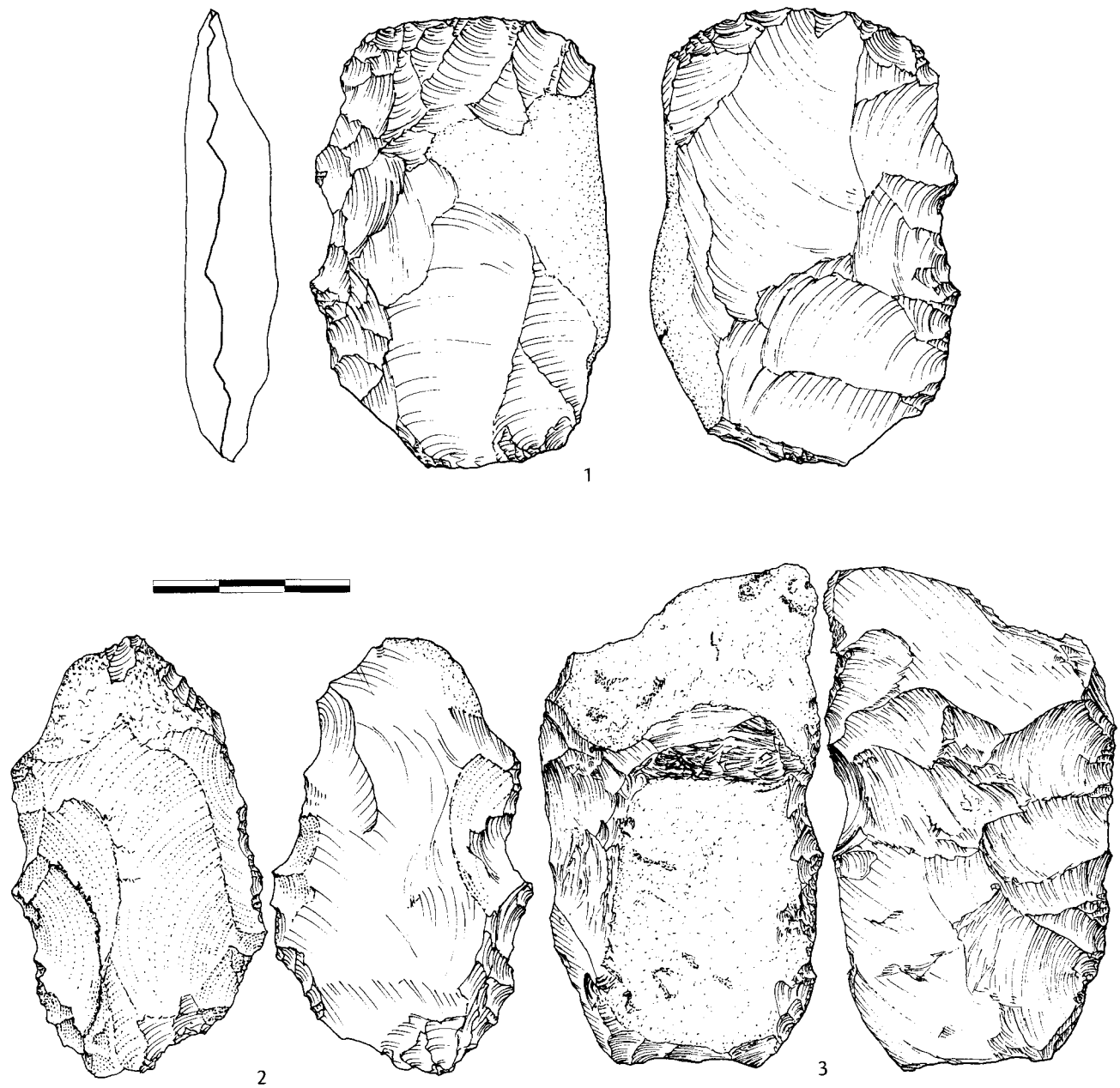

Figure 5-3—Inital stage bifacial preforms.

probably by single flintknappers, that make up this lithic assemblage.

The flint artifacts in the Level C assemblage range in color from translucent yellowish brown to shades of grey to opaque black. Based on the overall characteristics of the reduction strategy seen in the assemblage, as well as the high degree of cortical elements, it appears that the preferred raw material form was a plaquette. The original size of such plaquettes may be inferred from the numerous pieces with cortex on both their ventral and dorsal surfaces (e.g., Figures 5-2, 5-8): these range from 8 to 25 mm in thickness. When cortex is present, it appears as a thin, non-chalky rind, white to beige in color, but without pockmarking or battering suggestive of stream bed origin. At least one primary source for this type of plaquettes has been identified about ten kilometers north of the site in the Burulcha River valley (Uthmeier, Chapter 11).

These raw material plaquettes were worked in a singularly consistent manner: without preliminary decortication, at least two edges (one long edge and one short edge) of the plaquette were thinned bifacially to set up striking platforms. From these, a series of thin flakes and blades were struck by either a soft hard hammer or bone percussor from both surfaces. These initial shaping pieces were long and/or broad, but were often not particularly invasive in depth. As a result, the original raw material plaquette—which was already thin in its unworked state—was not substantially changed in thickness, but its surfaces were regularized and prepared for additional shaping and thinning *façonnage*. At this phase of the reduction sequence, the worked plaquette (Figure 5-2, 5-3) functioned as both an incipient tool and a core: the initial shaping flakes removed from it were later used as blanks for a number of tool forms while the plaquette itself would eventually be shaped into a bifacial knife.

The single true core in the Level C assemblage (Figure 5-4)—a piece not destined to later become a bifacially worked tool—is small and extremely thin: 58 × 67 × 13 mm. It was made on a broad primary flake, which underwent fairly limited preparation of two, opposing platforms and produced about five, very thin flakes, all under 37 mm in maximum dimension. This core is clearly related to the two endscrapers on recycled pieces previously identified as scaled pieces (Marks and Monigal 2000a; Hardy et al. 2001) discussed below and depicted Figure 5-17: *9, 11*. The core is larger, and unifacial, but the pieces removed from it unequivocally conform to the debitage from Level C—that is, despite being a "true core" it was reduced in the same manner and technique as items that are products of *façonnage*: a regularization of the platform, a soft hammer percussor, and the removal of a broad, thin, delicate flake totally in keeping with the attributes identified on the Level C flake-blanks.

The following description of the Level C lithic material is ordered according to unretouched debitage and discrete tool forms. Such a description, by its very nature, sets up the unfortunate dichotomies of core versus biface and debitage versus tool blank, when, in reality, all were interrelated parts of this one, very simple reduction strategy. In fact, all of the Level C lithic assemblage may be viewed as segments along a continuum, one that was, at times, circular in nature as items were recycled into new forms.

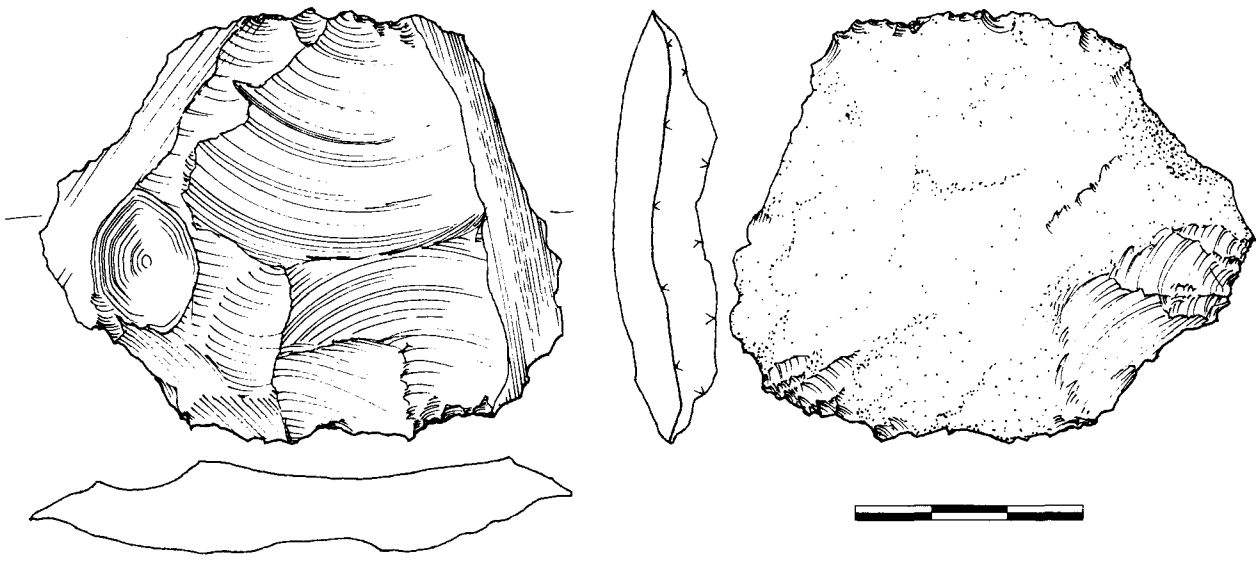

Figure 5-4—Core from Buran-Kaya III Level C.

Debitage

The debitage component of the Level C lithic assemblage consists of 95 flakes, 23 blade-proportioned pieces, and 23 primary flakes. Among the flakes, 31.6% are broken; these are usually distal or longitudinal breaks. Blades show a surprisingly low percentage of breakage—only 13.4%. Primary flakes on the other hand, have a high proportion of broken pieces at 56.5%, perhaps due to their relatively larger size and gracility.

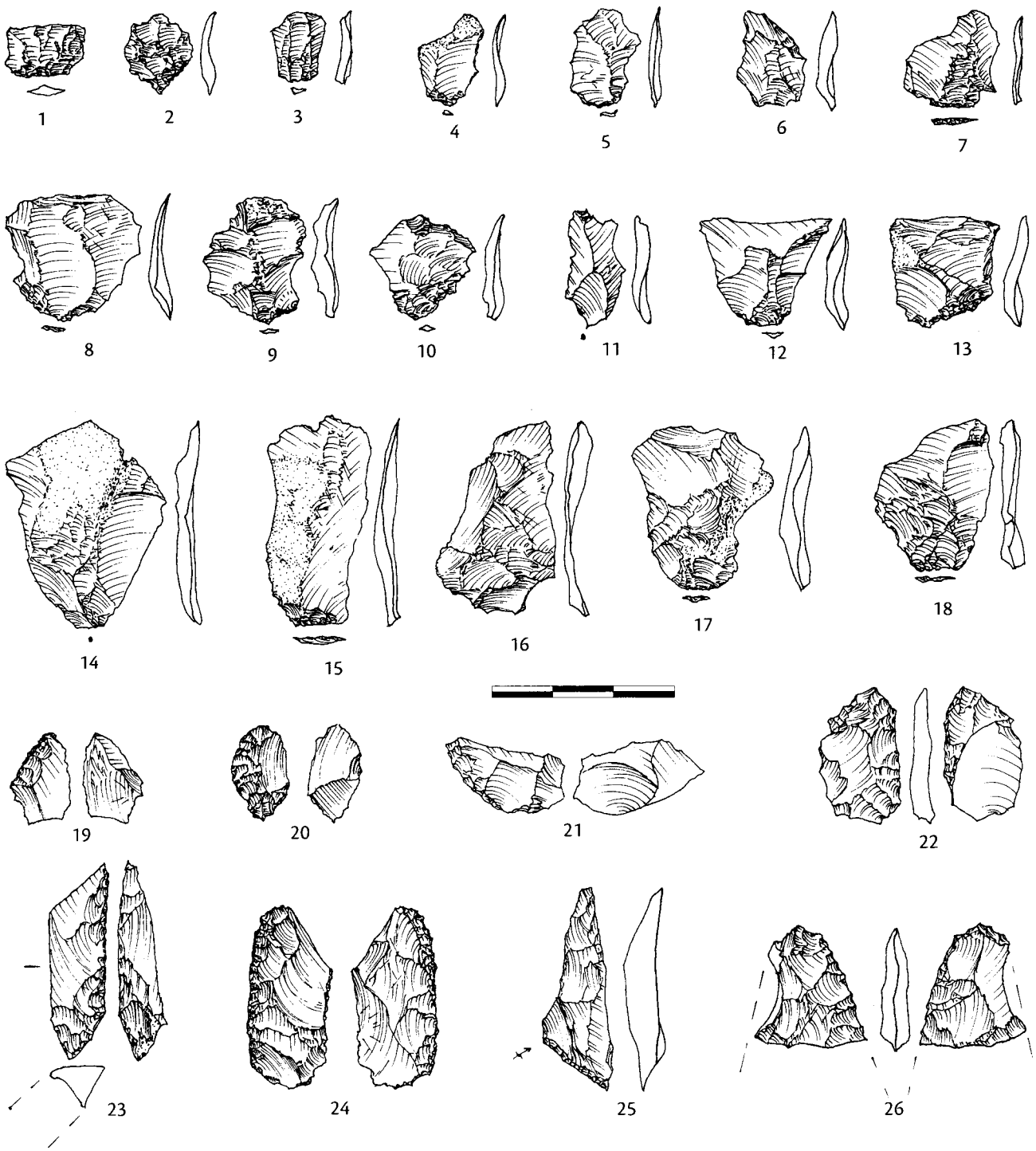

Figure 5-5—Typical bifacial thinning and shaping debris (1–18) and resharpening pieces (19–26) from Level C.

Unretouched flakes in the Level C assemblage share an unvarying suite of morphological characteristics: they are small (mean flake size of complete flakes = 35.5 mm), very delicate, thin in cross-section, usually incurvate in profile, and waisted at the proximal end. They have narrow, very short, faceted, semi-lipped striking platforms, although these are frequently crushed, and diffuse bulbs of percussion (Figure 5-5). In sum, they are entirely commensurate with debitage derived from a *façonnage* method of surface reduction/shaping by a soft hammer technique. There are only four exceptions among all of the debitage and tool blanks: these four pieces (Figures 5-16: *8, 11*; 5-17: *10*) are massive in all dimensions in comparison to the other flakes, with thick and broad platforms, salient bulbs of percussion, éraillure scars, and clear radial fissures. They appear to have been reduced from true cores by a hard hammer. Since three of these pieces have light patination, it is most likely that they were picked up elsewhere by the Level C occupants and brought to the site; they certainly were not produced at Buran-Kaya III.

Primary flakes—having more than 50% dorsal cortical coverage—are fairly common in the assemblage at just under 10%. In fact, a very high proportion of debitage and finished tools have at least some cortex on their dorsal surface. This is due to two important aspects of the *chaîne opératoire* used by the Level C inhabitants: raw material was invariably in the shape of oblong, thin plaquettes, and the raw material did not undergo a separate decortication stage before shaping/reduction began.

The blade-proportioned pieces in the Level C assemblage—pieces that are twice as long as they are wide—make up about 10% of the non-debris assemblage. These pieces should be viewed as elongated members of the flake assemblage—their lateral edges are wavy, they have small, semi-lipped to lipped platforms, arched ventral profiles, are very thin in cross-section, and do not deviate from the dorsal scar pattern characteristics seen on the flakes. Aside from their overall similarity to flakes in every aspect but their relative narrowness, none of the tool types is preferentially made on elongated pieces.

The Level C Tool Assemblage

One of the unusual features of the Buran-Kaya III Level C lithic assemblage is its decidedly high proportion of tools: 43.4% of the non-debris assemblage. If the eight unfinished bifacial pieces/preforms are excluded, the retouched tools still account for 40.1%. The tool assemblage is fairly simple and homogenous: bifacial knives, and their fragments and preforms account for 34.3% of the tool assemblage (Table 5-2), followed by bifacially retouched trapezoidal microliths (21.3%), various types of retouched pieces (15.7%), endscrapers (10.2%), diverse sidescrapers (8.3%), denticulates and notches (5.5%), and burins, varia, and a unifacial point together comprising less than 5%.

TABLE 5-2
Tool typology for Level C

	N	%
Preforms of bifacial knives	8	7.4
Bifacial knives	5	4.6
Distal end of bifacial knives	14	13.0
Trapezoids	23	21.3
Retouched pieces	17	15.7
Endscrapers	11	10.2
Sidescrapers	9	8.3
Denticulates	5	4.6
Notches	1	0.9
Burins	2	1.9
Unifacial points	1	0.9
Varia	2	1.9
Tool distal tips/fragments	10	9.3
Total	108	100.0

Bifacial Knives

The transformation of a raw material nodule into a bifacial piece is a continuous and reductive process, punctuated by changes in objective and technique (reducing volume, regularizing edges or surfaces, types of percussion) and it does not necessarily cease at some ideal, readily identifiable moment in time and form. Bifacial knives may be classified according to how "finished" they are, but this is a purely subjective division between so-called preforms and gradations of finished bifacial pieces. Level C contains a series of knives that grade into each other from one end of the reduction continuum to the other.

Initial stage preforms are irregular in plan view and in cross-section; their reduction has so far been limited to devising platforms along some or most of the edges of the plaquette and removing large flakes/blades from both surfaces (Figures 5-2, 5-3). Subsequent surface shaping of the piece was preceded by isolating platforms by grinding, allowing for fine control over thinning removals from both surfaces (Figure 5-6). Flakes removed during this stage of surface shaping were very thin, irregularly shaped, often narrow, flat to slightly arched in profile, and frequently had a slight hinge at the terminal end. The final stage of retouch

was edge regularization of the knife, accomplished by grinding and short, non-invasive, semi-steep sub-parallel retouch (Figures 5-7–5-10).

There are eight pieces (7.4%) typed as preforms in the Level C assemblage (Figures 5-2, 5-3, 5-6: *2*), and a ninth was remade into a burin (Figure 5-18: *3*). Preforms range between 66.4–103.9 mm in length, 38.9–53.34 mm in width, and 13.5–25.8 mm in thickness. Their width/thickness index is variable: between 2.0 and 3.8. While these are classed as preforms because they lack the regularization in shape and cross-section seen on the "finished" knives, many carry tertiary

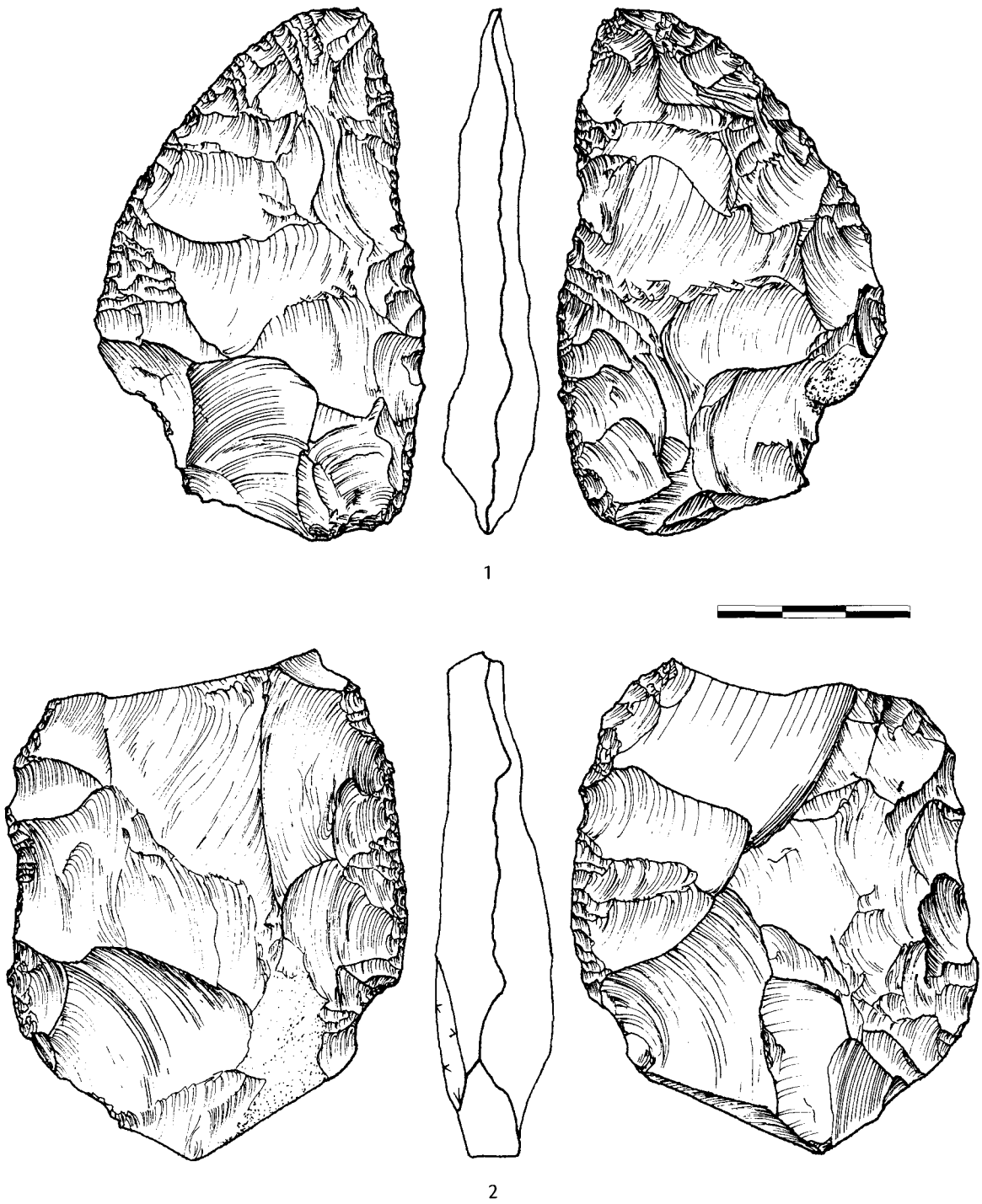

Figure 5-6—Bifacial knife (1) and preform (2) from Level C.

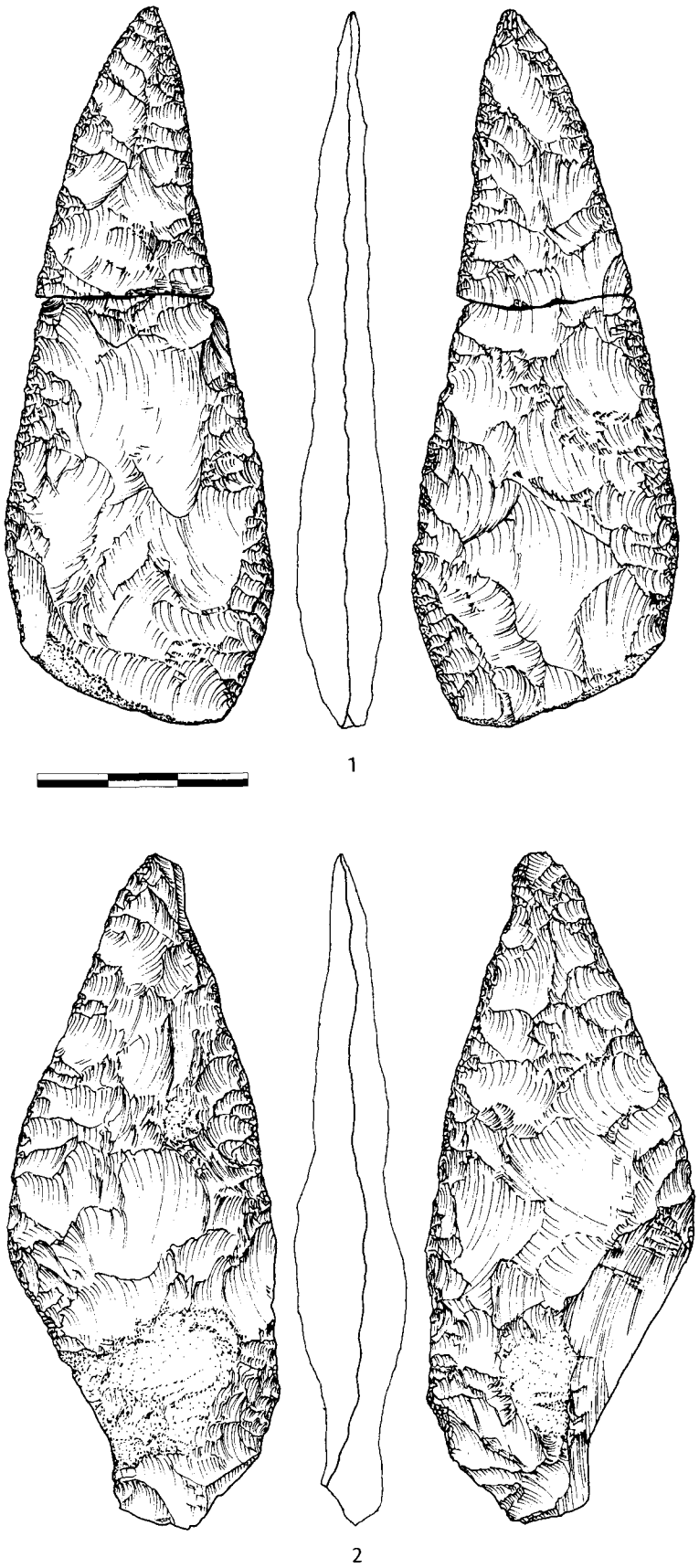

Figure 5-7—Finished bifacial knives from Level C.

retouch along part of one or more edges, suggesting in fact, that to the makers, they were finished tools (Figure 5-6). Residue and traceological studies carried out on some of these pieces do indicate that they were used. Figure 5-3: *3*, a fairly thin piece with a discontinuously bifacially retouched lateral edge, showed evidence of having been used as a cutting or scraping implement, as well as woody tissue indicative of having been hafted (Hardy et al. 2001:10975). The initial stage preform depicted in Figure 5-3: *2* had evidence for burin-type use, as well (Hardy et al. 2001).

Complete, finished bifacial knives account for 4.6% of the tool assemblage (Figures 5-7–5-10). They are mostly asymmetric in shape and elongated: their length/width ratios range between 1.6 and 2.5 (Figure 5-11). These pieces find their closest analogy in Königsaue type A *Keilmesser* (Bosinski 1967), although they are thinner and more finely crafted

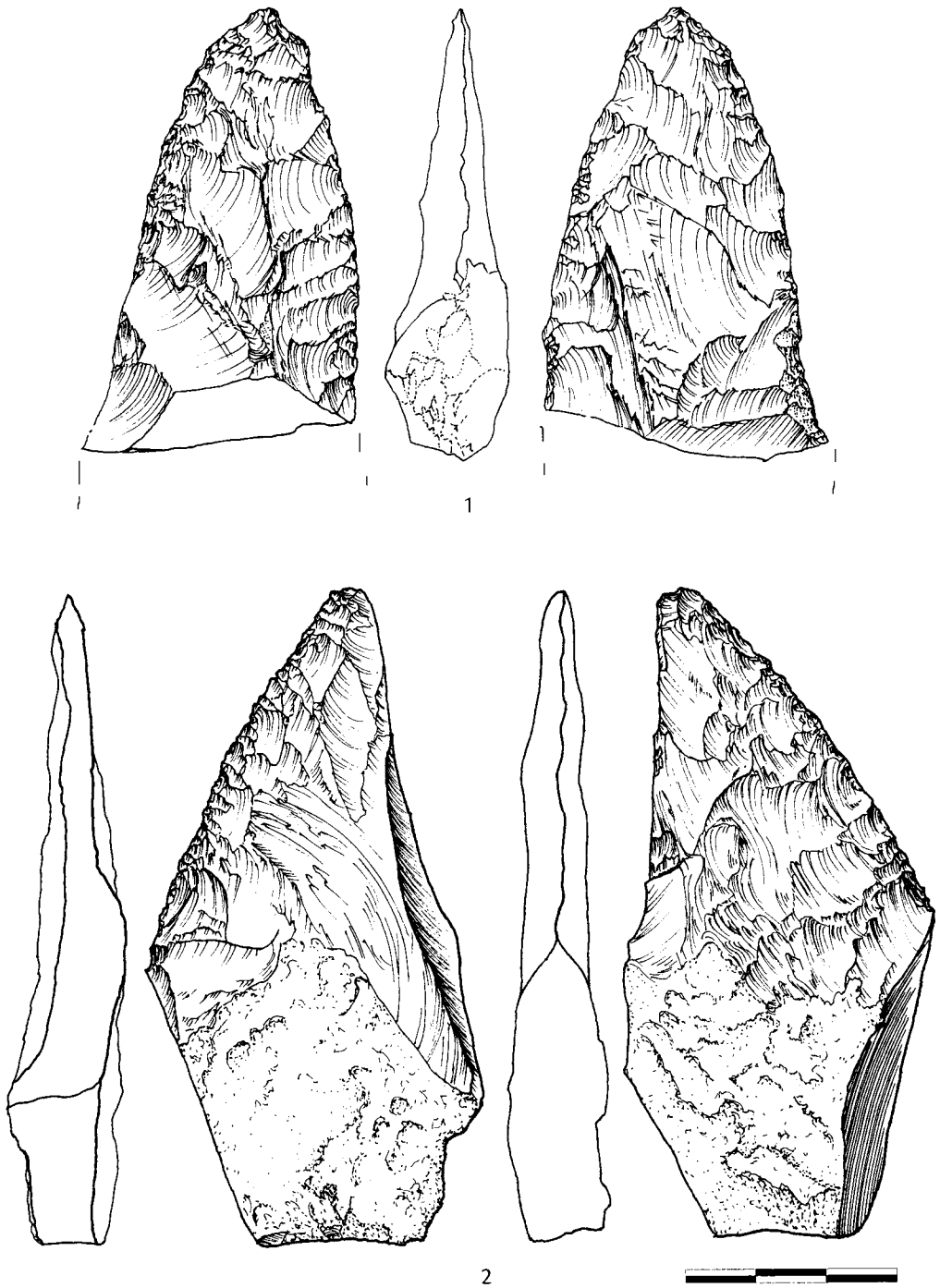

Figure 5-8—Finished bifacial knives from Level C.

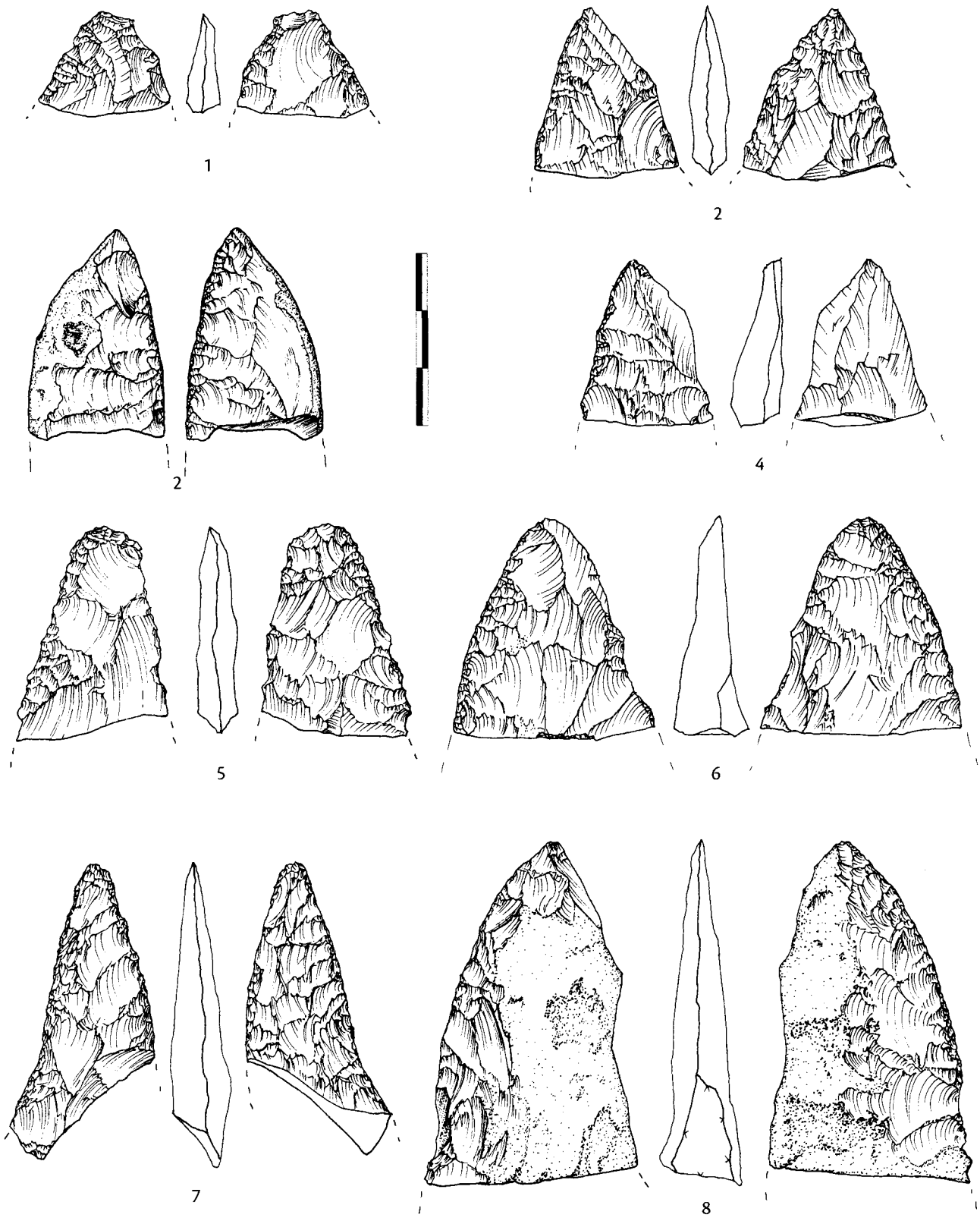

Figure 5-9—Distal ends of broken bifacial knives.

than those Middle Paleolithic pieces. One convex and one straight lateral edge converge to a point or sub-rounded point. Relatively thin at this pointed end, they broaden and thicken towards the proximal end and have an oblique base. In cross-section, the bifacial knives are lenticular to D-shaped, but always thin: the width/thickness ratios range between 3.31 and 4.45 (Figure 5-12). Two pieces (distal fragments) have cortical backs, while a third has a natural break that acts as a backing, but such accommodation appears to be the exception rather than the rule. The complete knives range between 62.3–97.5 mm in length, 31.4–50.3 mm in width, and 7.3–11.6 mm in thickness.

In addition to the complete specimens, there are 14 distal or distal + medial fragments of bifacial knives (Figure 5-9). Some of these, based on the extent of thinning and retouch, and their perverse fractures, obviously broke during manufacture. Others appear to have already undergone use and rejuvenation episodes, and their bending fractures suggest they broke while being used. Although all are roughly equivalent in thickness, both among themselves and to the complete knives, the variance in widths displayed by these pieces suggests that bifacial knives saw more breadth and width diversity than indicated by the complete knives alone (Figures 5-11, 5-12).

The smallest and thinnest of the bifacial knives stands somewhat apart from the others because of its remarkable symmetry and elegance (Figure 5-10). This foliated piece is elongate-ovoid in shape, with evenly convex edges converging to a point. Its maximum width is at the midpoint, and it tapers somewhat at the base, which is straight and unretouched. In cross-section, it is lenticular and it has an exceptionally regularized profile. Although this piece is thinner (7.3 mm) than the other knives (which average 11.6 mm), in all its other dimensional attributes, including a width/thickness index of 4.32 and a length/width index of 2.1, it falls squarely into the bifacial knives group (Figures 5-11, 5-12).

While this one piece might be considered outstanding in any Paleolithic context, it should be noted that

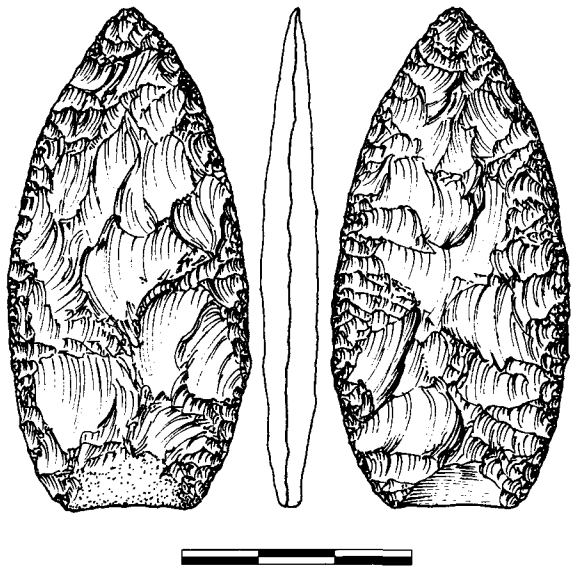

Figure 5-10—Bifacial foliate knife from Level C.

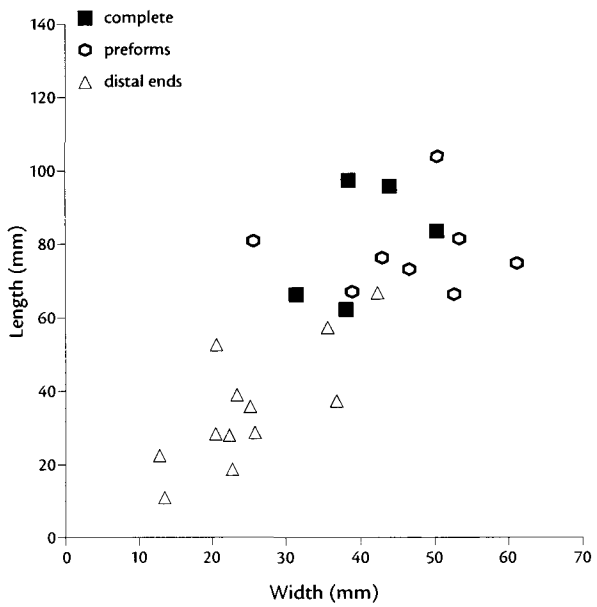

Figure 5-11—Length/width scatterplot of preforms, complete bifacial knives, and distal ends of knives.

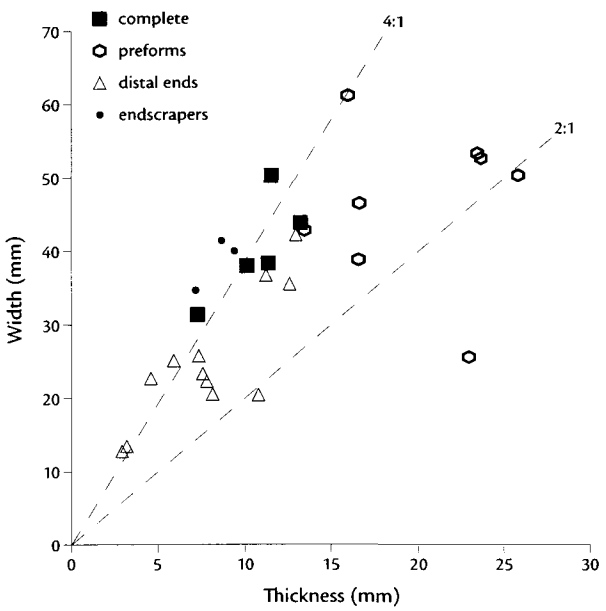

Figure 5-12—Width/thickness scatterplot of preforms, complete bifacial knives, distal ends of knives, and endscrapers on recycled bifacial pieces.

it is made on a translucent yellow-brown fine-grained raw material common in the Level C assemblage, it was shaped, thinned, and retouched with the same techniques and methods seen in the other bifacial pieces, and it is within the dimensional distribution of the other bifacial pieces. Instead of viewing this one piece as aberrant because it is so much more attractive and seemingly the product of an exceptionally gifted knapper, it should be seen as one extreme of the reduction continuum in which all preforms and knives are a part; this one foliate simply underwent extended thinning and retouching episodes.

It is impossible to subdivide all these preforms/knives into discrete types representing production endpoints. The flintknappers did not have an ideal in mind, but a thinned plaquette of appropriate size with a functional edge. When the edge became damaged or too blunt, it was thinned and retouched again. This process was repeated as necessary, eventually ending with a piece as finely worked as that in Figure 5-10.

Although there is a very high percentage of distal ends (points) of bifacial knives in the Level C assemblage, there are no proximal ends/bases to which they might belong. Only one very small, fragmentary piece in all of the assemblage might be a part of a knife base. It is evident, then, that tools were often resharpened, rejuvenated, reworked, and recycled by the Level C flintknappers. Resharpening accounts for at least a portion of the longitudinal asymmetry seen on some of the knives where the distal third of the point is considerably narrower than the midpoint and base section. Residue and traceological studies (Hardy et al. 2001) further suggest that the asymmetry was because the lower half to two-thirds of the tool was in a haft when it was resharpened.

Tool rejuvenation pieces that are at least a part of this knife resharpening process are common in the assemblage (Figure 5-5: *19-26*, Table 5-1), as are tiny distal points of bifacial tools (Table 5-2). The base of the knife depicted in Figure 5-7: *1*, for example, underwent some retouch after the tip was broken off. While the basal snap showed residue of plant material (Hardy et al. 2001:10974), this appears to have been ad hoc usage, since the break at the distal end of the base has only two spall-type removals and some incidental damage at either edge and since the base and tip were found in close proximity to each other. It is also possible that an entirely new pointed end was formed on a bifacial knife that had lost its distal portion. If this is the case, then these newly re-pointed pieces appear to have been carried away from the site—not unsurprising given how far away the raw material source for the plaquettes imported into the site and how ephemeral the Level C occupation was. In a few cases, the knife bases appear to have been recycled into entirely new tool forms, as in the case of the endscrapers (Figure 5-12), described below.

Trapezoidal Microliths

The most distinctive tool type in the Level C assemblage is the bifacially retouched trapezoidal microlith. These may be subdivided into two groups: finished examples, which appear fairly standardized (Figure 5-13: *1–12*) and unfinished pieces, which are larger and more variable, and grade into the forms classified as retouched pieces.

There are 12 finished trapezoids; these all have three bifacially retouched edges, and are square to rectangular in shape, often slightly narrower in breadth at the unretouched edge. With one exception, they are non cortical pieces, often retaining a significant portion of the original blank's ventral and dorsal surface features. The longer edges of the finished pieces are slightly convex (75%) to straight (25%), the unretouched edge is straight (83.3%) or irregular (16.7%), and the edge opposite this (shown as proximal in the illustrations of Figure 5-13) is very faintly concave (pronounced in 2 examples) (50%), straight (33.3%), or faintly convex (16.7%).

The trapezoids were made on flakes or elongated pieces with flat ventral profiles, and are quite thin, ranging in thickness from 2.1 to 3.8 mm (Table 5-3). Their blanks are consistent with initial bifacial shaping flakes, both in their thickness and in the dorsal scar patterns most of them carry. If this is the case, then small bifacial shaping by-products with fairly flat ventral profiles were specifically sought, and segmented, to arrive at a standardized, and dimensionally specific, shape. The blanks for trapezoids might also have been derived from the core (Figure 5-4) and endscrapers made on core-like pieces (Figure 5-17: *9, 11*). The facet dimensions visible on these latter pieces do mostly conform to the blanks used for trapezoid production

Table 5-3
Main dimensional features of finished and unfinished trapezoidal microliths

Finished (total = 12)	*Min*	*Max*	*Mean*	*S.D.*
Length (mm)	14.85	19.92	17.09	1.55
Width (mm)	13.48	22.78	16.47	2.26
Thickness (mm)	2.11	3.84	2.78	0.49
Weight (g)	0.60	2.20	1.02	0.47

Unfinished (total = 11)	*Min*	*Max*	*Mean*	*S.D.*
Length (mm)	15.96	30.52	23.38	4.37
Width (mm)	14.56	28.15	20.80	3.98
Thickness (mm)	2.25	5.05	3.52	0.94
Weight (g)	0.90	3.10	1.79	0.77

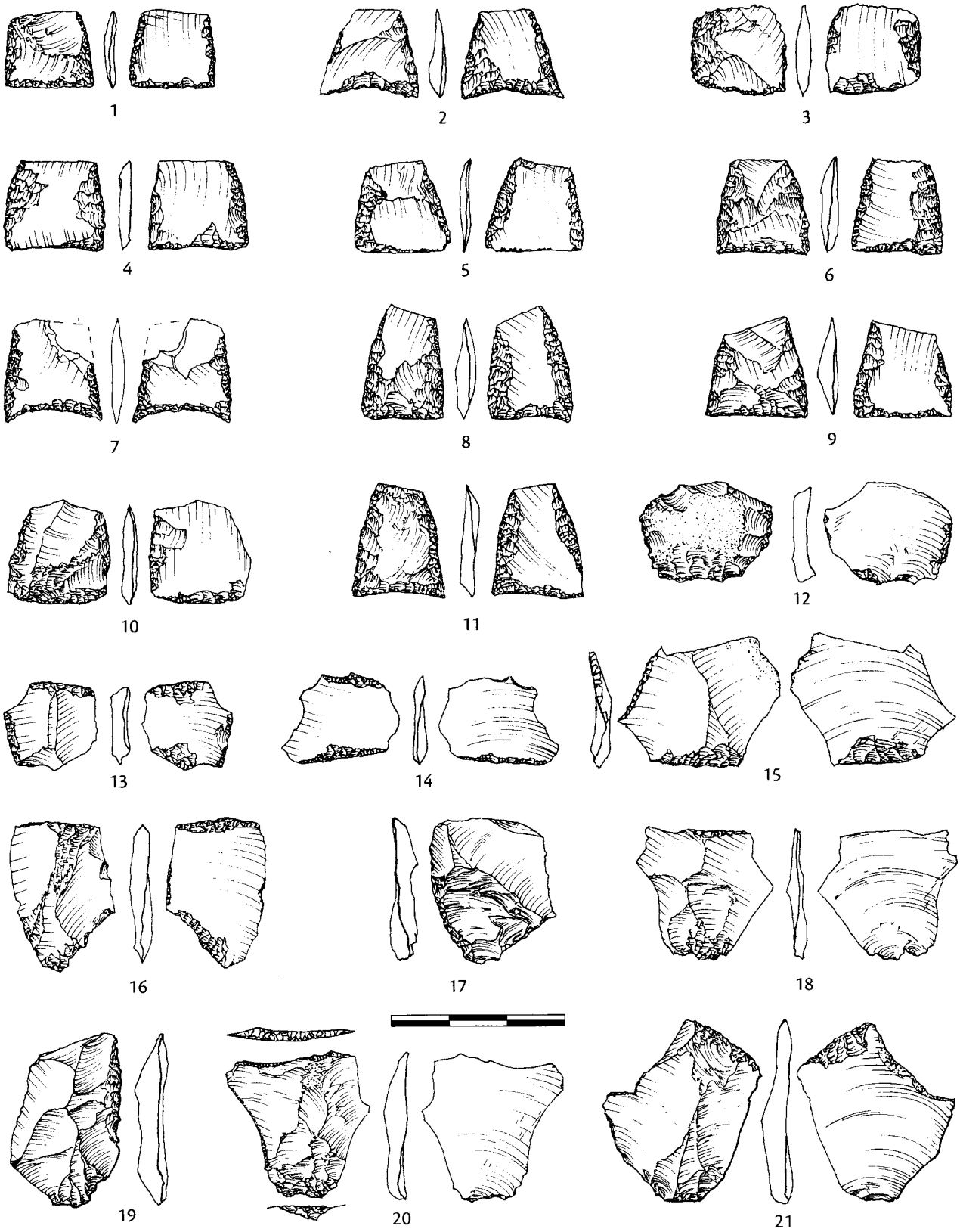

Figure 5-13—Bifacially retouched microlithic trapezoids (1–12) and unfinished trapezoids (13–21).

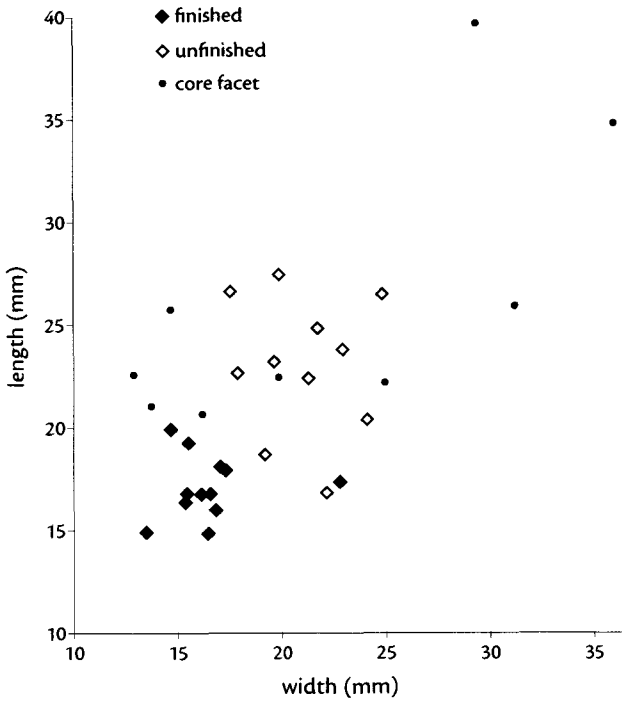

Figure 5-14—Length/width scatterplot of finished and unfinished trapezoids and core facets.

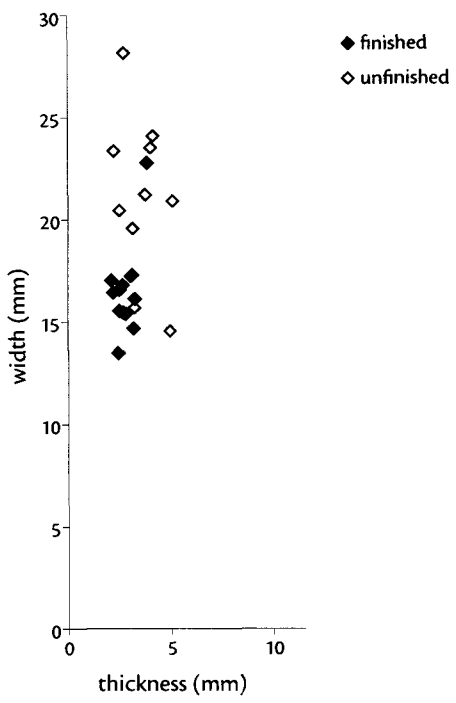

Figure 5-15—Width/thickness scatterplot of finished and unfinished trapezoids.

(Figure 5-14), and there is at least one instance of an unfinished trapezoid being refit onto an endscraper. Using a core-reduction technique would have been a superior way of obtaining the needed blank form, rather than searching among the detritus from bifacial tool production. Based on undulations and radial fissures visible on the ventral surfaces of the trapezoids, the blanks were quite short and narrow, and their size was not substantially changed by the tool retouch applied to them.

While this tool type is unknown in other Upper Paleolithic contexts, microliths of this variety do appear in the Final Paleolithic and Neolithic periods throughout Europe. The geometric microliths of the Epigravettian are always diverse in shape: crescent, triangle, rectangle, trapezoid, and rhomboid-shaped. They tend to have one long lateral edge versus a very short lateral edge, both unretouched, and retouched/truncated proximal and distal edges that are about two-thirds as long as the longest edge (Ferrari and Peresani 2003). Retouch is also more often in the form of direct truncation; that is, quite different from that applied to the Level C pieces.

Retouch on geometric microliths is used to adapt to hafting and to improve the efficacy of the working—non-retouched—edge (Nuzhnyj 1989). Late Mesolithic and early Neolithic trapeze-like microliths were made on blade-blanks from prismatic cores, and, due to the very standardized morphology of these blanks and the microburin technique used on them, had only limited retouch/truncation (Nuzhnyi 1993; 2000). During these later periods, the microliths were used as components in various types of composite arrowheads, including transverse, oblique, or piercing and with or without barbs. Geometrics of the Crimean Shan-Koba culture have been interpreted as part of the adaptation to closed mountain forest and used as both piercing arrowheads and as transverse arrowheads (Nuzhnyj 2000:100).

The Level C trapezoids are closer to the Final Neolithic and Eneolithic microliths of Europe, made on blanks derived not from microblade cores, but from large prismatic blade cores, which were shaped by flat retouch. These show more standardization in shape and typology than the geometrics of earlier periods, in part because their use was limited to chisel-ended and oblique arrowheads (Nuzhnyj 2000).

In contrast to the geometric microliths of the Late Paleolithic and Neolithic, the trapezoids of Level C were considerably simpler. These later periods used core reduction systems that were largely geared to producing blanks for microlithic projectile point weapons, and the microliths were fashioned by elaborate, multi-step processes using truncation, micro-burin, and haft-adapted retouch techniques. Level C trapezoids on the other hand, were made on cores that were

mainly recycled bifacial pieces, and the blanks were retouched simply with bifacial marginal to semi-steep retouch, without drastically changing the blanks original shape or size.

Four of the finished trapezoidal pieces (Figure 5-13: *1, 5, 6, 10*) underwent both residue and traceological analysis (Hardy et al. 2001). Two of these (Figure 5-13: 1, 6) had no residues at all, but were apparently used for cutting, with at least one being hafted (Hardy et al. 2001:10975). A third (Figure 5-13: *5*) had no use-wear evidence, but did have plant tissue residues of starch grains and raphides. The fourth (Figure 5-13: *10*) had plant tissue and evidence for hafting (Hardy et al. 2001:10975). Yet, whether they were used for the multicomponent type projectile weapons seen at the end of the Paleolithic was not addressed by these studies, and their exact function for the Level C occupants remains ambiguous.

Retouched Pieces

Retouched pieces comprise 15.7% of the Level C tool assemblage and include a variety of forms, all on unifacial blanks. Of the retouched pieces, only 41% are complete; the others are classified, despite their fragmentary state, as retouched pieces due to their blank and retouch characteristics, although obviously, they might be fragments of some other tool type. One complete retouched flake displays steep inverse retouch, with additional discontinuous obverse retouch along a lateral edge (Figure 5-16: *7*). This piece is broken into two parts; if this breakage occurred soon after the blade's production, which seems most likely, the two pieces could easily be incorporated into the group of unfinished bifacial trapezoidal microliths based on their dimensional and morphological traits. There are three fragmentary pieces with bifacial retouch, which, due to their morphology, are not considered part of the tool rejuvenation/resharpening group. There are four steeply retouched (complete) flakes (Figure 5-16: *5, 6*), one of which (Figure 5-16: *5*) underwent retouch to two parts after it had been broken into three pieces; one or more of these pieces might be construed as commensurate with the unfinished bifacial trapezoids. Discontinuous retouch additionally is present on two complete flakes and seven broken flakes.

Endscrapers

Endscrapers (Figure 5-17) account for 10.2% of the tools in Level C, and fall into two distinct groups: unifacial tools on flake/blade blanks (73%) and those made on bifacial remnants/cores (27%). Most of the unifacial scrapers (Figure 5-17: *1–7, 10*) are made on primary blanks (63%) or on blanks with some cortex (25%); there is a single example without cortex. With one exception, a simple endscraper on a primary blade, the endscrapers are on flakes, and range in size between 30 and 40 mm; the one large piece (Figure 5-17: *10*) is 69 mm × 46 mm. In all cases, the unifacial endscrapers have additional retouch on the lateral edges of the tool, often a continuation of the scraper edge, but somewhat irregular and/or discontinuous. Other than the steep endscraper (Figure 5-17: *6*), the retouch is short and steep and did not significantly change the blank's overall morphology.

The remaining three endscrapers (Figure 5-17: *8, 9, 11*) are evidence of recycling bifacial/core-like pieces by the Level C occupants. All three are dimensionally similar, ranging in size between 35–41 mm × 28–37 mm × 7–9 mm. One of these (Figure 5-17: *8*) has the tool retouch applied to what appears to be a bifacial remnant, such as the base of a bifacial knife, while the other two (Figure 5-17: *9, 11*) undoubtedly served as cores before being reworked for the third time into endscrapers. These latter pieces are morphologically similar to the single core found in the level (Figure 5-4), and their larger facets are dimensionally similar to blanks used for the trapezoid production (Figure 5-14). All three pieces fall within the width and thickness dimensions of the bifacial knives (Figure 5-12). One of the unfinished trapezoids (Figure 5-13: *18*) has also been refit to the distal facet on the ventral surface of the endscraper in Figure 5-17: *11*.

Some of these scrapers have undergone residue and traceological studies. The large endscraper on the primary flake (Figure 5-17: *10*) was used as a plane for wood working (the endscraper portion) and was hafted (based on usewear traces on the unretouched proximal left edge) (Hardy et al. 2001). This piece also had a microscopic fragment of wood attached to its distal working end (B. Hardy, personal communication). Of the endscrapers made on recycled bifacial/core remnants, two have been interpreted as being used for wedges, based on use-wear results (Figure 5-17: *9, 11*), and the third, which has residue evidence of plant tissue hafting, may have been used as an adze (Hardy et al. 2001).

Sidescrapers

Sidescrapers comprise 8.3% of the tool assemblage, but given that more than half are broken, their typological classifications are provisional. One of the sidescrapers (Figure 5-16: *9*) is made on a bifacial piece that is thin in cross-section; the others are all on unifacial blanks. The complete, typologically identifiable specimens include two simple straight scrapers (Figure 5-16: *1, 2*), a transverse concave sidescraper on a small (< 20 mm) primary flake, and an off-axis convex sidescraper on a ventrally thinned piece. Broken sidescrapers that can be conditionally classified include a straight scraper made on a bifacial plano-convex piece, the distal portion of a convergent convex sidescraper (Figure

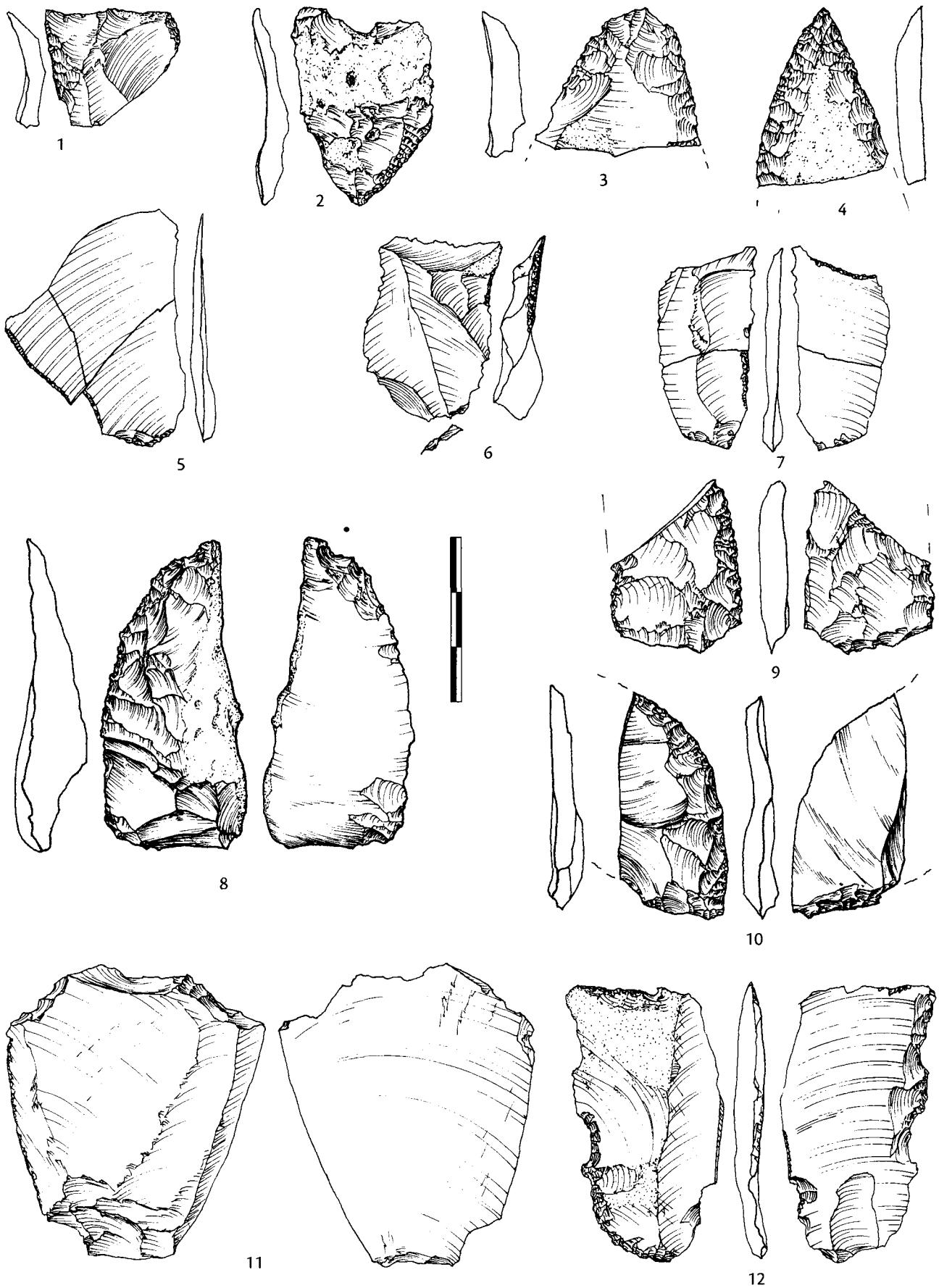

Figure 5-16—Straight simple sidescrapers (1, 2), convexo-straight convergent sidescraper (3), unifacial point (4), steeply retouched flakes (5–7), denticulates (8, 11, 12), and scraper fragments (9, 10) from Buran-Kaya III Level C.

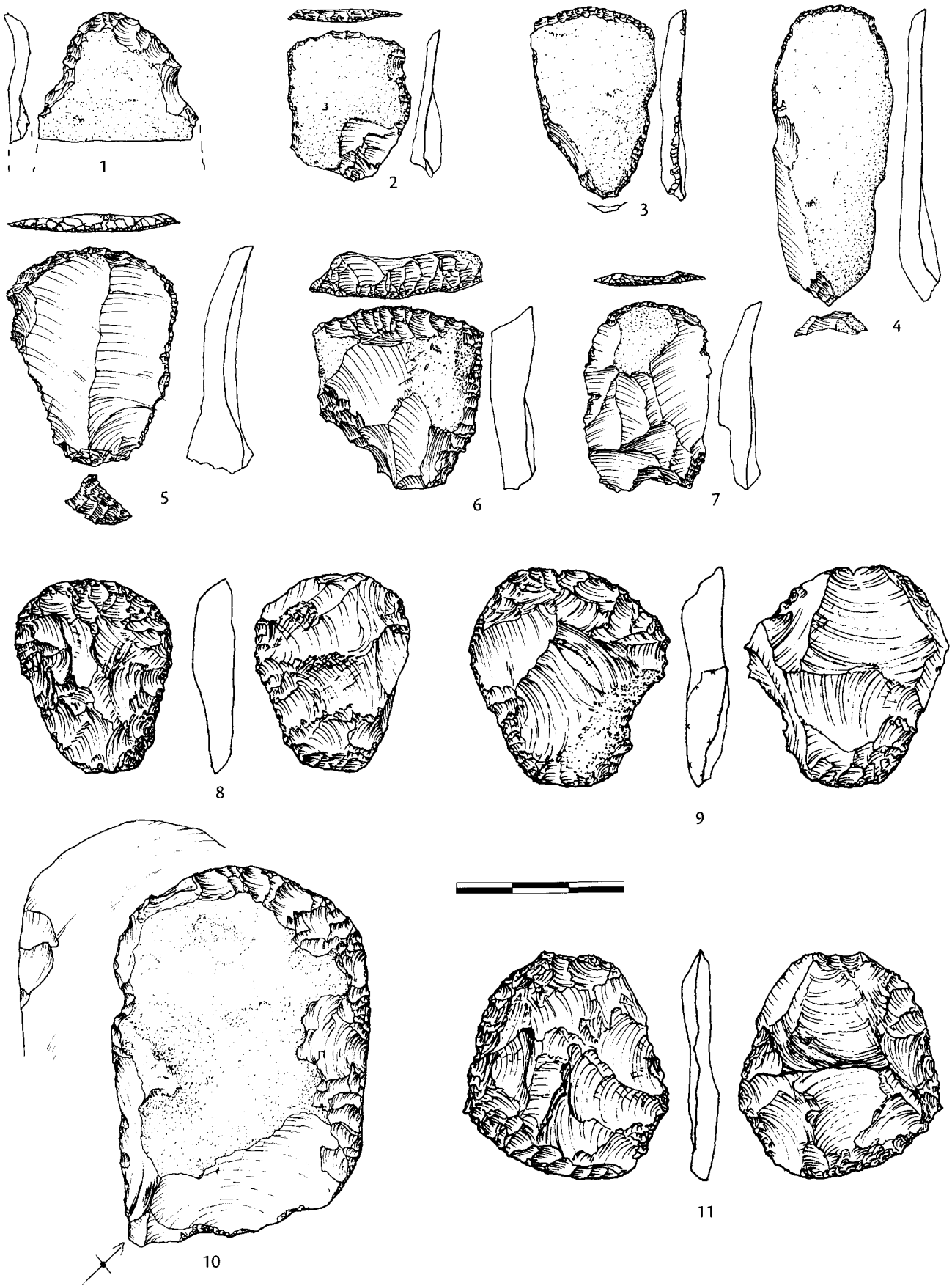

Figure 5-17—Unifacial endscrapers on bilaterally retouched flakes (1–7, 10) and endscrapers on bifacial knife remnants/cores (8, 9, 11) from Buran-Kaya III Level C.

5-16: *3*), a broken simple convex scraper with ventral thinning (Figure 5-16: *10*). Another two tool fragments probably belong to this sidescraper group.

Denticulates and Notches

There are five (4.6%) denticulates in the Level C assemblage. Three of these (Figure 5-16: *8, 11*) are made on large, thick flakes that seem to derive from true core reduction (averaging 50 mm in length and 8 mm in thickness), while the other two are on thin, gracile flakes. The single notch in the Level C tool assemblage is made on a bifacial shaping blade (47 × 21 × 8 mm). In all cases, these are complex notches, with tiny, internal retouch to each.

Burins

Two pieces (1.9%) in the Level C assemblage were classified as burins. One of these is a dihedral burin on a small (32 mm in length, 18 mm in width), apparently bifacially worked fragment. The second is also made on a large recycled piece—what appears to be a bifacial tool preform—that is 53 × 66 × 24 mm. In this case, one lateral edge was used for carinated-type removals of three to four bladelets (Figure 5-18: *3*).

Unifacial Points

A single, distal portion of a unifacial point was found in Level C (Figure 5-16: *4*). It is made on a primary flake that has a flat ventral profile and is relatively thin (3.9 mm) in cross-section. The piece was struck on-axis and has well-executed flat retouch.

Varia

Two pieces from the Level C tool assemblage fall into the varia category: a *pièce esquillée* (Figure 5-18: *1*) and a primary plaquette with some core-like removals and retouch (Figure 5-18: *2*). The *pièce esquillée* is fairly thick in cross-section (13 mm) and may have served as

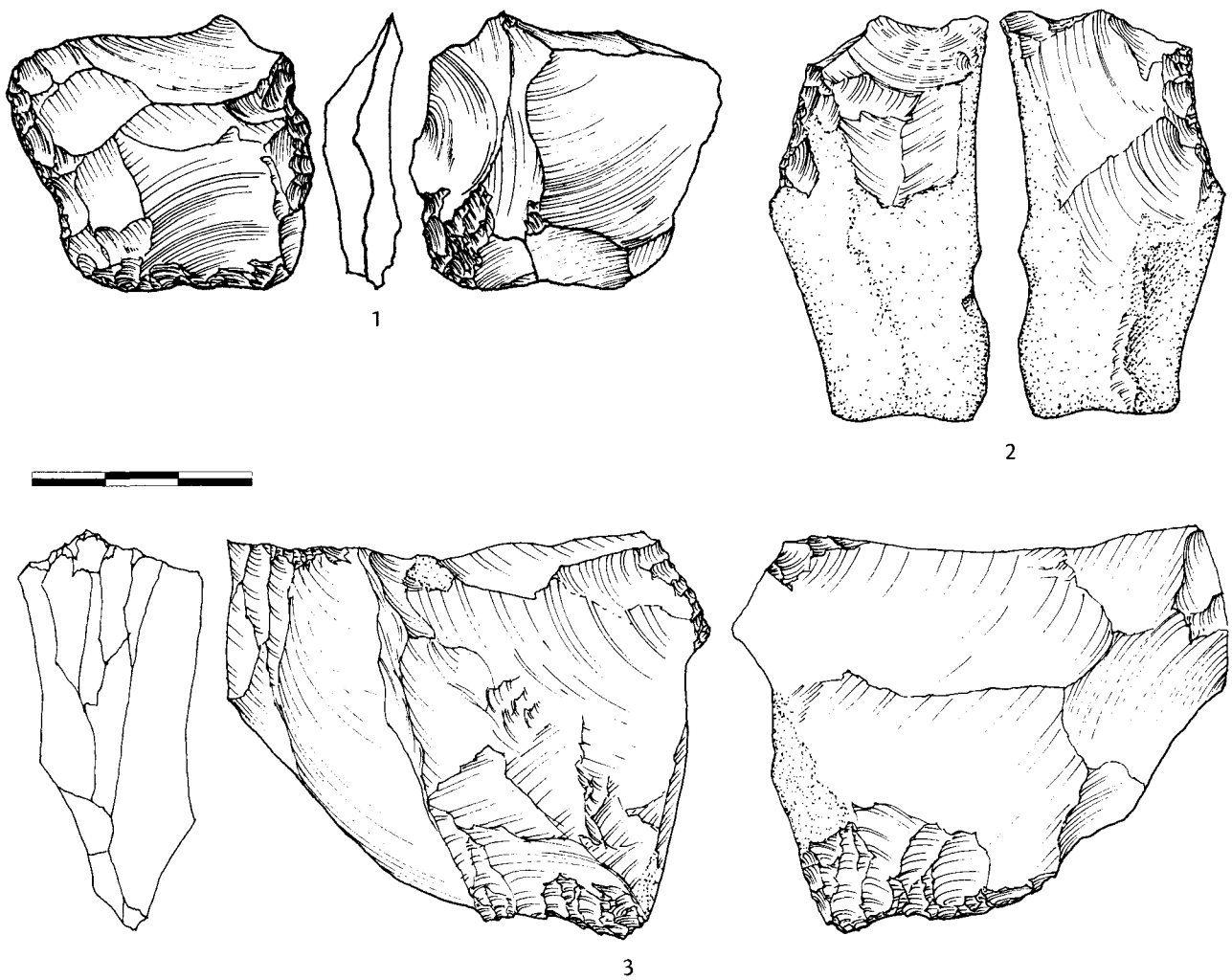

Figure 5-18—Pièce esquillée (1), varia/core object (2), and carinated burin on bifacial knife preform (3) from Level C.

a core or as a portion of a very early stage of a bifacial preform. There are broad, flake-sized removals from both its dorsal and ventral surfaces, overlain by semi-steep to steep discontinuous retouch. The core-like piece was made on a black, finger-shaped nodule of flint from which a few (testing?) removals were taken from the distal end, and which has bifacial retouch along one lateral edge.

Bone Tools

Level C also possesses a series of bone tools (Figure 5-19), including tubes and percussors. The bone tubes, in particular, demonstrate standardized dimensional and production characteristics. The tools are the subject of an extensive analysis by Laroulandie and d'Errico in Chapter 7.

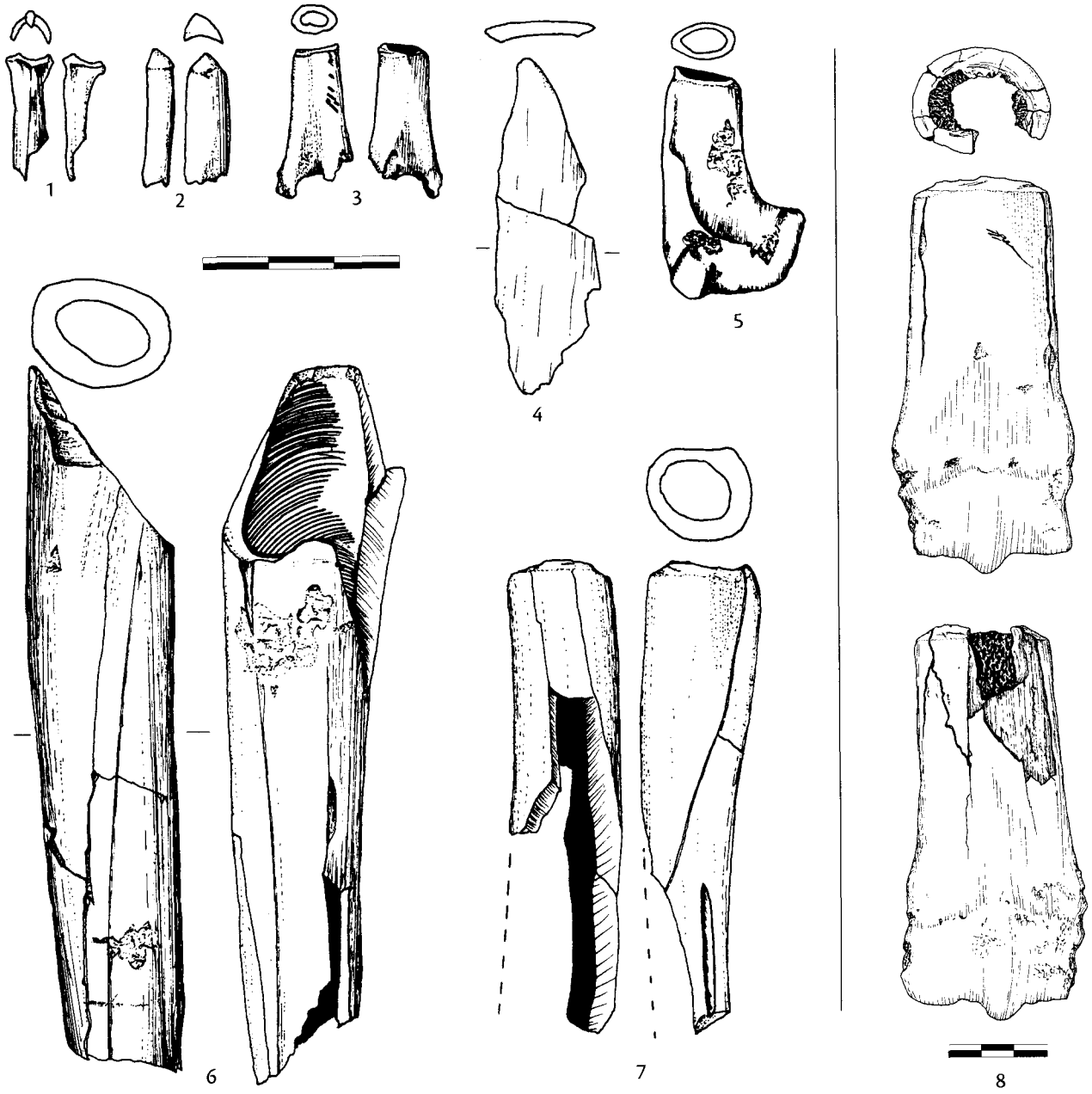

Figure 5-19—Bone tools and manufacture by-products from Level C.

Conclusion

Since the first artifacts of Level C were uncovered during the 1996 field season, many names have been applied to the assemblage in an attempt to understand it and pigeonhole it. Since it underlay the Kiik-Koba Micoquian of Layer B, during the initial days of that season it was presumed to be an Ak-Kaya type Micoquian. The Ak-Kaya is found at a number of sites nearby and always contains a substantial proportion of plano-convex bifacial knives and foliates. When the trapezoidal microliths and more bi-convex bifacial knives were discovered, and it was obvious Level C was not related to the Ak-Kaya, the least rude classifications of the assemblage included "mixed" and "Neolithic." Once the very substantial number of professional archeologists who worked and visited at the site agreed by the end of the 1996 season that Level C was completely and unquestionably in situ, that it predated an apparently late manifestation of the Kiik-Koba, and that the tool assemblage was not completely Middle Paleolithic in character, it was referred to as "transitional" (e.g., Marks 1998). Level C has most often been referred to in print (e.g., Marks and Monigal 2000; Monigal 2001) as "Eastern Szeletian," a term used (e.g., Efimenko 1956; Anikovich 1992) to group the post-Middle Paleolithic, non-Aurignacian assemblages with bifacial tools of Eastern Europe. This term does not enjoy widespread usage or understanding, and it is often assumed to mark consanguinity with the Szeletian of the Bükk Mountains, which it was never intended to do.

The Level C assemblage has most recently (Chabai 2003; Chabai, Marks, and Monigal, Chapter 25) been referred to as part of the "Streletskaya" group of assemblages found in the Mid and Lower Don region at Kostenki 12 layers Ia and III, Kostenki 1 layer V, and Kostenki 6 (Rogachev and Anikovich 1982c; Rogachev et al. 1997) and the Seversksy-Donets region at Birioutchia Balka 2 layer 3 (Matioukhine 1998), as well in the Northern and Central Urals at Garchi I and Byzovaya (Guslitzer and Pavlov 1993). The Kostenki sites, which are dated to between 36,000 and 28,000 BP (see Chapter 25), provide the largest and most extensively dated assemblages for the Streletskaya.

The Streletskaya assemblages of the Mid Don contain very well made, symmetric, bifacial bi-convex points made on large flakes and plaquettes that were occasionally heat treated and that were shaped, thinned, and retouched with a soft hammer, possibly pressure flaking, and edge grinding (Bradley et al. 1995), like Level C (with the exception of pressure flaking and heat treatment). Unlike Level C, these bifacial pieces are amygdaloid, poplar-leaf, and, most characteristically, triangular with a concave base in shape. The Streletskaya points are also much thinner than those of Level C: at Kostenki 1 layer V, the triangular point width/thickness average ratio is 5.7 (Bradley et al. 1995:996), while the Level C complete knives' width/thickness average ratio is 3.8.

It has been suggested (Chabai et al. 2000:81) that the trapezoids of Buran-Kaya III, two of which have a concave edge (Figure 5-13), are analogous to the concave-based micro-points which appear in small numbers in the later stage Streletskaya. As these micro-points have not been extensively described or illustrated in the literature it is impossible to know their average size and thickness (3 cm long based on illustrations in Rogachev and Anikovich 1984), or whether they were more often retouched only on their edges or bifacially. It is obvious, however, that they had three sides and not four, and assuming the concave longer edge is the working edge, were slotted with the point into the haft or shaft. The true type fossils of the Kostenki Streletskaya, these points and micro-points were part of a complex projectile weapon system that remained stable in its stylistic details throughout the Streletskaya occurrences in Kostenki-Borshevo, Seversky-Donets, and Urals regions; one that would not be expected to be manifested very differently, even with a move to Crimea.

Other tools found in these Streletskaya assemblages include small fan-shaped endscrapers that are usually unifacial with thinned bases, triangular and cordiform endscrapers, *pièces esquillées*, unifacial single, double, and convergent sidescrapers, retouched pieces, and rare burins (Rogachev and Anikovich 1982c; Rogachev et al. 1997; Bradley et al. 1995; Anikovich 1992). The most notable differences between this tool kit and that of Level C then, is in the types of endscrapers and sidescrapers. In addition, the Don and Seversky-Donets Streletskaya does not contain bone tools. True core reduction was common in these latter assemblages as well, from single-surface, non-volumetric, single or double platformed, for the production of flakes. There are no prismatic cores and only exceptionally rare blades. While this may be similar to that used in Level C, the Don Streletskaya flintknappers appeared to have used it much more extensively, as it provided the blanks for a substantial part and variety of the tool assemblage.

Given that stadial conditions prevailed around the time Level C was occupied, (Monigal, Chapter 1) Crimea would not have been a peninsula as it is today, but the southern extension of the mainland as the Sea of Azov and the Odessa Gulf shrank to nothing. Although the distance is over 700 km, it is conceivable that the peoples who inhabited the Streletskaya Kostenki sites traveled along the Don River Valley and found easy access into Crimea—and soon out of it, as Level C is the only possible southern instance of this industry.

The flintknappers of Level C had a very efficient technological system: thin plaquettes imported into the site were quickly shaped into bifacial knives, were used and resharpened. When broken, either in use or manufacture, the bifacial remnants were reworked as endscrapers or cores. By-products from bifacial knife production and from the cores were retouched into simple endscrapers, sidescrapers, retouched pieces, and trapezoidal microliths. Without a doubt, some of the bifacial pieces were imported into the site, and carried away when the occupants left after their brief occupation. Where they went, and how much the Level C cultural remains offer a true picture of their technological repertoire remains, however, unknown.