Middle Paleolithic blady assemblages in the Near East : a reassessment

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MIDDLE PALEOLITHIC BLADY ASSEMBLAGES IN THE NEAR EAST: A REASSESSMENT

The Middle Paleolithic blady phenomenon, identified in the form of an intentional blade production has presently been recognized in different regions of the Old World (Eurasia and Africa; see: [Bar-Yosef, Kuhn, 1999; Meignen, 2000; Meignen, Tushabramishvili (in press) for references), and is thereafter acknowledged by most prehistorians. But it has not always been the case. Following the gradualist evolution hypothesis which postulates a close association between cultural and biological changes in human evolution, prehistorians for a long time considered the blade production as a major technological innovation linked with the appearance of *Homo sapiens sapiens*, see: [Bar-Yosef, Kuhn, 1999; Meignen, 2000; Meignen, Tushabramishvili in press, for references]. Middle Paleolithic was then characterized by flake tools while the Upper Paleolithic had blade tools.

Nowadays this equation of blade technology with Upper Paleolithic and/or modern human behavior, is no more systematically pushed forwards.

Numerous discoveries of pre-Upper Paleolithic blady assemblages, even recently [Barkai et al., 2003; Gopher et al., 2005; Locht, 2002; Weinstein-Evron et al., 2003] and more detailed technological studies have confirmed that the knowledge and ability to produce blades in series were already part of the technical repertoire long before the Upper Paleolithic. Available data demonstrate that blade industries occur in various areas and time periods prior to the Upper Paleolithic times. But the diversity and chronological limits of this phenomenon are not yet well documented.

In fact, even if these early blade productions are so far often not yet well dated, in our present state of knowledge, this blady phenomenon seems to be in many regions globally discontinuous and not especially developed just prior the onset of the Upper Paleolithic; no striking evidence for a marked shift to the blade production at the end of the Middle Paleolithic has been systematically observed.

However, the Near Eastern area is well-known for its high component of elongated blank production throughout the Paleolithic, even if not continuous, from the earliest occurrences during the late Lower Paleolithic to the classical Upper Paleolithic, through the Early MiddlePaleolithic (the so-called Early Levantine Mousterian) which is the main topic of this paper.

Recent dating programs and technological studies allow to present a general chronological frame for these pre-Upper Paleolithic blady industries (tabl. 1).

In Southwestern Asia, blade productions appeared quite early, in the Pre-Aurignacian and Amudian industries, in few sites: Yabrud (Syria) [Bakdach, 1982; Rust, 1950] and Haua Fteah (Lybia) [McBurney, 1967] for the former, in Tabun [Garrod, 1956], Abri Zumoffen/Adlun [Copeland, 1975; Garrod, Kirkbride, 1961], Zuttiyeh [Gisis, Bar-Yosef, 1974] and Maslouk [Skinner, 1970] for the latter. Both assemblages have been found interstratified in the Acheulo-Yabrudian levels; they are included in the Mugharan tradition and therefore are traditionally considered as late Lower Paleolithic although some scholars grouped them with Middle Paleolithic [Jelinek, 1982]. Stratigraphically, they always follow the Acheulian but predate the Levallois Middle Paleolithic. The Amudian has been dated to 264 +/– 28 000 y in the deep archeological sequence of Tabun (Tabun unit XI, [Mercier, Valladas, 2003]). But more recently, the discovery and dating of a new long Amudian sequence seems to indicate that these Lower Paleolithic blady component could have started more than 380 000 y ago and lasted till 200 000 y [Barkai et al., 2003; 2005].

The Amudian/Pre-Aurignacian assemblages have always been described as non-Levallois technologies. Often grouped together on the basis of their blady characteristics, of their non Levallois technology and chronological position [Garrod, 1956; 1970; Vishnyatsky, 1994], they actually differ in several technological and typological points [Bordes, 1977; Copeland, 1975; 1983; Jelinek, 1990; Meignen, 1994; Monigal, 2001; 2002; Vishnyatsky, 2000], especially in the core-reduction strategies and retouched tool-kits dominated by Upper Paleolithic tools in both cases, but not of the same kind (burins, endscrapers, retouched blades for the Pre-Aurignacian, mostly backed knives and some burins/endscrapers for the Amudian).

In Tabun unit XI, the Amudian includes a large blady component, including quite long and narrow thick blades, often with natural cortical back. They result from a very simple hard hammer core reduction strategy, with unidirectional removals struck from a unique striking platform [Jelinek, 1990; Meignen, 1994]. No specific core shaping was involved and the natural convexities of the block/pebble were exploited («*débitage direct*»). Blades are struck in series, from a large part of the periphery of the core, with lateral convexities being maintained by the systematic removal of *lames débordantes*; consequently, numerous naturally backed knifes are produced which are characteristic of this industry [Barkai et al., 2005; Jelinek,

1990; Meignen, 1994; Monigal, 2001; 2002]. The resulting cores are in general semi-prismatic [Meignen, 1994: fig. 3], but sometimes relatively flat [Monigal, 2001]. These elongated blanks have been clearly selected for retouching (more than half of all amudian blades in Tabun unit XI; Monigal, 2001), often in classical backed blades considered as backed-knives, with abrupt or semi-abrupt retouch. In fact, this typical reduction strategy clearly aimed at the production of long sharp cutting-edge opposed to a back (natural or retouched) [Meignen, 1994, *132*; Barkai, et al., 2005]. Lemorini et al. recently showed that butchery activities were the main purpose of those tools. Contrary to what has been observed in the Pre-Aurignacian, other Upper Paleolithic tools such as burins and endscrapers are rare in Tabun unit XI, present but not largely developed in Qesem [Barkai et al., 2005].

In Tabun unit XI as well as in Abri Zumoffen/Adlun, Amudian assemblages present a significant flake component (of the Yabrudian type) aside these blady production. Conversely, in the recently discovered site of Qesem Cave, an exclusive blade oriented core reduction strategy of the same kind as in Tabun unit XI has been recognized [Barkai et al., 2003; 2005], thus without the flake component. Backed pieces are equally the main end-products in these new assemblages.

The Hummalian has sometimes been considered as part of this intra-Lower Paleolithic complex (Monigal, 2001 and references therein). Its stratigraphical position, above the Acheuleo-Yabrudian of the El Kowm basin, and under blady Levallois Middle Paleolithic assemblages, is somewhat particular and allows to consider it whether as part of the earlier complex (together with Amudian and Pre-Aurignacian) or as part of the Early Levantine Mousterian. Due to its striking similarities in term of core reduction strategies and tool-kits with the Hayonim Lower E and F assemblages, we consider it as an Early Middle Paleolithic. Its stratigraphical position at the bottom of the Levantine Mousterian is compatible with this hypothesis. Moreover the radiometric dates previously published [Oxford Research Laboratory for Archaeology, 1988; 1990] are thereafter considered as non reliable as environmental dosimetry measurements have shown problems of radioelement contamination in this area [Mercier, Valladas, 1994]. Preliminary results of a new radiometric dating program in the context of the renewed excavations directed by J. M. Le Tensorer, lend credibility to an early age for these industries (170—250 ky; Richter in Le Tensorer et al., 2005—2006).

Unlike the Amudian-PreAurignacian industries, the more recent Early Middle Paleolithic blade productions, when discovered in long archeological sequences, are stratigraphically positioned above the Acheulo-Yabrudian complex (in the case of Abou Sif C-D) or above the Acheulo-Yabrudian complex and at the bottom of the Middle Paleolithic sequence (in cases of Tabun unit IX, Hayonim lower E and F and Hummal Ia). In the other sites, they occur uniformly through the full short stratigraphic sequence (Rosh ein Mor, Nahal Aqev, Sahba ?).

When radiometric dates are available [Mercier, Valladas, 1994; 2003; Mercier et al. in press; Mercier et al., 1995; Rink et al., 2004; Rink et al., 2003; Valladas et al., 1998], these Early Middle Paleolithic assemblages are found between 270 to 160 000 y.

After that, there is a gap in the systematic blade production until the so-called «transitional » industries, more often designated now as «Initial Upper Paleolithic» [Kuhn, 2004; Meignen, in press b]. In the Near East, they developed roughly between 45/46 000 y [Boker Tachtit, Marks, 1983] to around 39 000 y [Uçagizli, Kuhn, 2004].

But it must be stressed that during the Late Middle Paleolithic, between 70 to 45 000 y, among the Levallois industries which were clearly dominant at that time, some assemblages demonstrated quite high proportions of Levallois blades (more than 30 % in Kebara unit XI [Meignen, Bar-Yosef, 1991], Amud [Hovers, 1998], Tor Sabiha [Henry, 1995]) which means that even during the Late Middle Paleolithic, the leptolithic tendency never totally disappeared.

Finally, following the Initial Upper Paleolithic, as early as 42—43 000 y in Kebara cave [Bar-Yosef et al., 1996], a true Upper Paleolithic, the Ahmarian, developed, with a systematic blade/bladelet production obtained by soft hammer percussion.

This short review of presently available data shows that manufacture of elongated products (blades, elongated points or «laminar flakes») was largely spread throughout the Paleolithic, even if this phenomenon is not continuous.

***Middle Paleolithic blady assemblages*:**

The Middle Paleolithic blady assemblages located at the bottom of the Levantine Mousterian sequence are generally grouped under the name of Early Levantine Mousterian (Early Middle Paleolithic) or Tabun D type industries. When not found in long stratigraphical sequence and/or without any radiometric dates, only their general similarity with this assemblage pushed the prehistorians to name them «Early Middle Paleolithic» (for instance, Abou Sif, Sahba).

This Early Middle Paleolithic is recognized in numerous sites throughout the Levant, with a large geographical repartition, known in different environments, in the coastal plain as well as in the marginal areas (fig. 1).

But recent technological studies have shown that this group is less homogeneous and more complex than previously thought, as it encompasses assemblages demonstrating variations in their reduction strategies as well as in their tool-kit composition.

Of course, they all share a significant blady component (Ilam= 20 to 60 %), but this elongated production is very rarely exclusive (except maybe for Hummal Ia). Short blanks (flakes and points) are always present, produced by a separate core reduction strategy, most often of the Levallois type.

The blady component itself, for a long time characterized as solely Levallois, clearly results from diversified production methods. Recent technological studies (in Hayonim lower E and F [Meignen, 2000], Rosh Ein Mor [Marks, Monigal, 1995), Hummal Ia [Boëda, 1995; 1997; Wojtczack in Le Tensorer et al., 2005—2006]) have led to

underscore different volumetric organizations (geometric construction) of the core in blade production. Besides the classical Levallois method for elongated blank production (blades and elongated points), our researches in Hayonim have shown evidence from 220/230 000 y ago, of other debitage systems that we have grouped under the name of the Laminar method [Meignen, 2000]. In term of geometric core construction («conception volumétrique» [Boëda 1988; 1994]) they are close to those documented later, in the Upper Paleolithic, even if the productivity and the end-product regularity are clearly not the same as in theUpper Paleolithic [Meignen, 2000].

While recurrent Levallois core reduction elaborated on relatively flat flaking surfaces result in wide thin elongated blanks (pl. 1: *1*; pl. 5: *6*; pl. 8: *1*, *4*), often with facetted striking platforms, the Laminar method, identified in the form of semi-pyramidal and semi-prismatic cores, results in narrow, thick blades (for instance pl. 1: *4*, *6*, *7*; pl. 5: *1*, *3*, *9*) here frequently retouched in elongated points. More precisely, the Laminar method is identified by cores with markedly convex debitage surface (contrary to Levallois cores) from which elongated blanks are struck in series from one (sometimes two) striking platform(s) (pl. 2: *1*, *5*; pl. 3).

Unidirectional cores, the most frequent, show a highly convexe section, with a flaking surface expanding to the lateral edges/ around a large part of the core periphery («débitage semi-tournant/tournant» in the French litterature) (pl. 2: *1*, *5*). This was allowed by the special preparation of the striking platform whose removals set up the necessary angle for the lateral edge exploitation (pl. 2: *1*). Most often semi-pyramidal (or pyramidal.), they are of different sizes, including small size (pl. 2: *3*, *4*), geared to the production of large to small blades, and even microblades (pl. 5). Bidirectional core exploitation has been identified in the form of cores, with two opposed platforms slightly twisted («off axis») (pl. 3). From these two striking platforms, two reduction surfaces, (one along the widest face, the other along the narrow face of the block) are exploited, whose intersection creates the necessary convexities for the blank detachment. The resulting debitage surface is, as in the previous case, highly convex, and the morphology of the core is «semi-prismatic». Such bidirectional exploitation has been also identified by specific overshot blades which take off the opposite «off axis» striking platform (pl. 4: *1*, *4*). Crested blades have been involved in core shaping and maintenance (pl. 4: *2*, *3*).

The resulting end-products of this Laminar system are mostly narrow thick blades of different sizes (pl. 5), including small blades/bladelets, the latter also eventually struck from «nucleiform burins» in the case of Hayonim (pl. 6: *1*, *2*, *3*, *4*).

The characteristics of the striking platform, bulb of percussion and ventral surface of the products suggest direct percussion by hard hammer.

Detailed technological studies presently available show that in most of these Middle Paleolithic blade geared industries, the two reduction strategies (Levallois and Laminar) coexisted in each assemblage but did not occured in equal frequencies [Meignen, 2000, in press].

In some cases, the Laminar concept seems to be dominant (Hayonim lower E and F, Abou Sif), even probably exclusive in the case of Hummal Ia (a result that needs to be confirmed on the lithic assemblages collected in the renewed excavations directed by J. M. Le Tensorer in this area). In other cases, the main emphasis of blade production is on the Levallois core reduction at the expense of the Laminar concept (Tabun IX [Meignen, 2000; 2002, *307*]; Rosh Ein Mor [Monigal, 2002, *307*; contra Marks, Monigal, 1995], Nahal Aqev, and probably Douara IV).

Concerning the retouched tool-kits, early Levantine Mousterian are usually characterized by relatively high proportion of elongated points [Copeland, 1975; Jelinek, 1981; Marks, 1981] and a wide range of Upper Paleolithic tools [Marks, 1981; 1992] alongside of the Mousterian typical tools (scrapers, denticulates and notches). More careful examination of the presently available data shows a more refined picture. Some assemblages are clearly dominated by elongated retouched points and retouched blades as described in Hummal Ia [Copeland, 1985], Abou Sif [Neuville, 1951] and Hayonim lower E and F [Meignen, 2000, in press a] (pl. 1; pl. 7); these elongated tools are often established on the narrow thick elongated blanks struck according to the Laminar method.

On the contrary, few assemblages happen to contain significant proportions of Upper Paleolithic tool types (burins, endscrapers, truncations, borers...IIIess between 20 to 30) and a lower ratio of elongated retouched points (established on thinner, wide elongated blanks often only slightly retouched) (pl. 8). These more balanced tool-kits have been recognized in sites such as Rosh Ein Mor [Crew, 1976], Ksar Akil XXVIII (if considered as Early Middle Paleolithic [Marks, Volkman, 1986 contra Meignen, Bar-Yosef, 1992] and to a lesser extent, Nahal Aqev [Munday, 1977] and Tabun IX [Jelinek, 1975]. Most of them seem to be developed in assemblages characterized by the predominance of Levallois core reduction strategies for elongated production.

But in fact these two separate groups defined on technological and typological criteria (schematically, predominance of the Laminar method/predominance of elongated retouched points *versus* predominance of the Levallois method /Upper Paleolithic tools) are not as clearly-cut as expressed recently by [Monigal, 2002] who claimed that they are chronologically and stratigraphically distinct, with an «abrupt technological break» between them.

The more balanced picture we previously exposed, together with the recently obtained results on Hayonim cave chronology [Mercier et al., in press] do not allow to strictly separate two different entities. Indeed in all assemblages, both reduction strategies (Laminar and Levallois) were involved in blade production. Moreover the Upper Paleolithic tool component, which characterized the Rosh ein Mor/Tabun group, appears to be developed as well in the assemblages dominated by the elongated retouched points, in the form of classical burins as we recently recognized them in Hayonim cave (pl. 6: *5*, *6*). These short comments already show that the suggested break between the two groups cannot be accepted even if different general ten-

dencies can be clearly identified. Moreover new dating results, recently obtained from Hayonim cave [Mercier et al., in press] in which blady assemblages lasted for a long period of time, from 230 000 to 160 000 y, disprove the chronological succession of the two groups suggested by Monigal. Indeed, based on TL dates [Mercier et al., 1995; Mercier, Valladas, 2003] the Levallois dominated assemblages (also characterized by a developed Upper Paleolithic tool kits) that she considered as the most recent entity, predate (in Tabun unit IX: 270 000y; [Mercier, Valladas, 2003]) or are roughly contemporaneous (in Rosh Ein Mor: 200 000 y; Rink et al., 2003) with the Laminar assemblages rich in elongated retouched points such as those from Hayonim lower E and F (160—230 000y; [Mercier et al., in press]).

Thus contrary to the prevailing idea, this early Middle Paleolithic complex comprises quite diversified industries in which the *blady component* appears as the main common distinctive end-product. The picture we got now is the co-existence, on a broad time scale, of different human groups belonging to the same large «technical sphere» (Leptolithic tradition) but differentiating themselves by specific combinations in term of technical traditions («*façons de faire*») in blade production and tool-kits.

Conclusions

The data presently available demonstrate that in the Near East, significant and intentional blade productions largely developed at an early date in the Middle Paleolithic sequence (mostly between 220—160 000y) i.e. not just prior to the Upper Paleolithic.

In these early Middle Paleolithic assemblages, some technical and typological traits that will developed later during the Upper Paleolithic time were already established such as the Laminar reduction strategies, emergence of the small blade/microblade production even if not yet largely developed (from unidirectional/bidirectional small cores and «nucleiform burins» in Hayonim cave and Hummal Ia [Copeland, 1985], for instance) and even in some assemblages, as it has been referred before [Marks, 1992], a significative component of Upper Paleolithic tools (mostly burins, endscrapers). Thus it's clear that the sole presence of these elements (a significant blade component from «volumetric» core reduction and Upper Paleolithic tools) in lithic assemblages has no «evolutive» connotation. Only stratigraphical and chronological informations could validate their interpretation as «transitional industries».

These Middle Paleolithic blady assemblages are characterized by

— *diversity in the lithic production*:

as we previously mentionned, blades and elongated points are systematically associated with short blanks (flakes, points) produced by a separate core reduction strategy, most often Levallois [Meignen, 2000; Monigal, 2001: *13*]. Such an association means that the technical needs of the group were fulfilled by different «chaînes opératoires»

— *diversity also in the blade production*:

as stressed before, two different lithic production systems, including core reduction strategies close to those developed later in the Upper Paleolithic (Laminar method), have been involved.

But the morphology of the elongated end-products is not yet well controled: they are quite irregular in shape, generally robust, rarely parallel-sided and often relatively thick; these characteristics should be linked with hard hammer percussion and a relatively summary core-shaping (few occurrences of crested blades)

— the *retouched tool-kits* are diversified, mostly composed of Middle Paleolithic tools (retouched elongated points, scrapers) and/or Upper Paleolithic tools (burins, endscrapers, backed knives...). The development of the latter has been often considered as a characteristic of the Early Levantine Mousterian [Garrod, Bate, 1937; Copeland, 1975; Jelinek, 1981; Marks, 1981; 1992; Shea, 2003]. But the presently available data show a stronger internal variability of the tool-kits in term of relative proportions between Middle Paleolithic and Upper Paleolithic tool categories than previously recognized: even if in some sites (the Negev sites, for instance, and to a lesser extent, Tabun unit IX), Upper Paleolithic tools (burins, endscrapers) are well represented (more than 20 %), other early blady assemblages show very low to low proportions of Upper Paleolithic type tools (Abou Sif, Hummal Ia, Hayonim lower E and F).

As previously recognized by [Monigal, 2002], two general tendencies, based on technological and typological criteria, can be identified inside the so-called Early Levantine Mousterian: assemblages dominated by Laminar core reduction strategy and elongated retouched tools (mainly points) and those developing mainly the Levallois technology together with an Upper Paleolithic tool component. But available radiometric dates including those recently obtained for the site of Hayonim preclude her hypothesis of «chronologically distinct groups». Moreover, recent lithic technological studies demonstrates that the two groups are not so clearly-cut, and therefore, if there are actually some different tendencies between them, no abrupt technological break can be recognized. It means that the differences presently observed between these two groups in term of technology and typology do not result of a diachronical evolution inside the Leptolithic industries but conversely, represent an intra Early Levantine Mousterian variability.

— Comparisons with Initial Upper Paleolithic (blady assemblages identified at the end of the Middle Paleolithic, often considered as «transitional» and dated between 46 to 39 000y (for instance, Boker Tachtit levels 1—4, Ksar-Akil layers XXI—XXIV, Uçagizli FGHI, Tor Sadaf A B) show that the later are in contrast with Early Middle Paleolithic blady assemblages by higher frequencies of elongated blanks, an emphasis on the Laminar methods at the expense of the Levallois reduction strategy (which means a tendency to emphasize a unique core reduction strategy) and a predominance of Upper Paleolithic tools for most of them.

But these Initial Upper Paleolithic assemblages retain still typical Middle Paleolithic technical traits such as hard hammer percussion and in some cases («Paléolithique in-

termédiaire» Umm el Tlel, [Bourguignon, 1996]; Tor Sadaf [Fox, 2003]) still demonstrate some reduction strategies close to the Levallois.

Boker Tachtit level 1 assemblages have been initially considered as Levallois [Marks, Kaufman, 1983] and were still recently recognized as Terminal Middle Paleolithic by [Monigal, 2001].

But the recent technological approaches allowed us to identify in this case a series of criteria pointing to an already Upper Paleolithic concept of débitage: often narrow-sided cores (an element more developed during the Upper Paleolithic than in the Middle Paleolithic assemblages), the systematic use of crested blades to set up the debitage surface, the reduction strategy which is only focused on elongated blank and its high productivity, the elongation of the products and the numerous parallel-sided blades [Meignen, 1996]. Alongside the specific tools called Emireh points, Upper Paleolithic tools are largely represented.

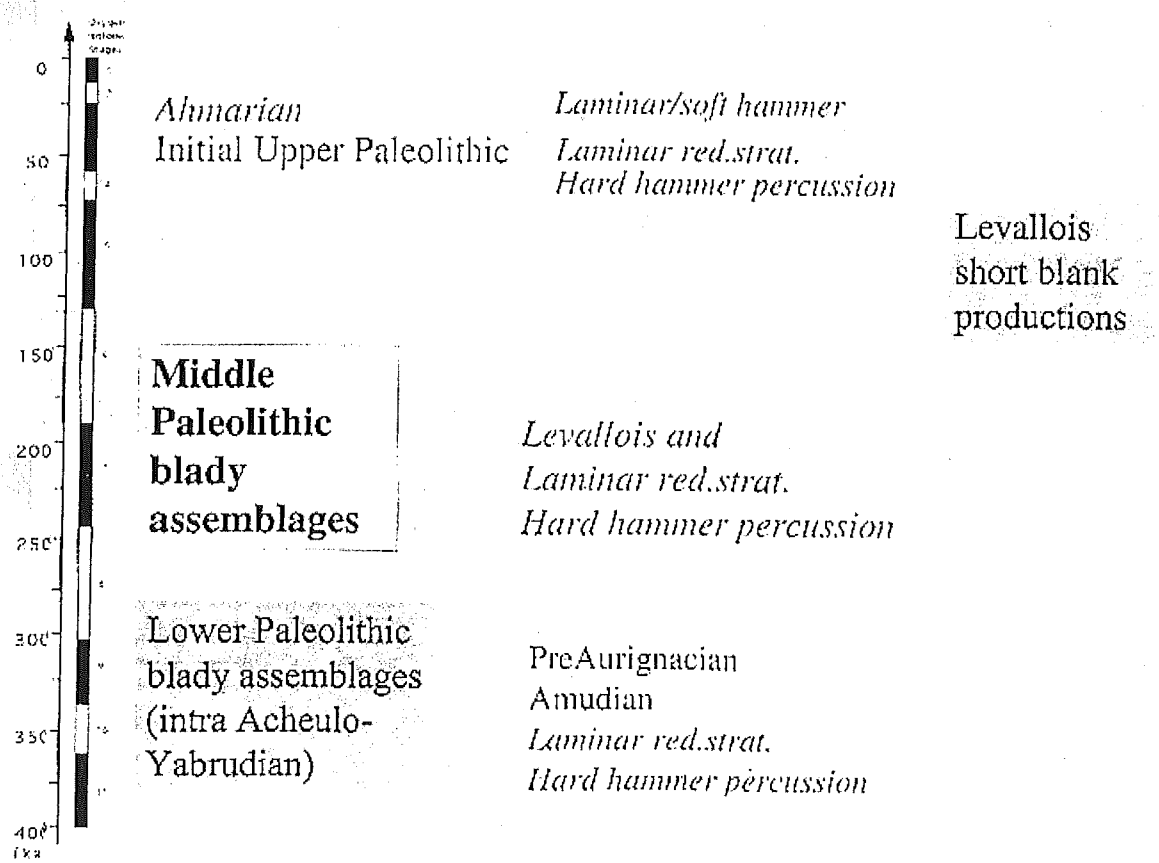
Conversely, UET layers III2a' and IIbase'considered as «Paléolithique intermédiaire» demonstrate reduction strategies close to the Levallois [Bourguignon, 1996] alongside of intentional bladelet productions as recently stated [Boëda, Bonilauri, in press].

These Initial Upper Paleolithic thus correspond to a period of technological changes which demonstrate over time a move away from multiple reduction strategies geared to the production of flakes and blades towards a consistent blade technology. During this period, in few sites, a progressive appearance of the soft hammer/tangential gesture technique (KsAkil 24—21 [Ohnuma, Bergman, 1990], perhaps Tor Sadaf [Fox, 2003]) and the emergence of intentional organized bladelet production (Umm el Tlel; Boëda, Bonilauri in press) have been identified. Conversely, in [Uçagizli, Kuhn, 2004] considered that the use of the soft hammer technique occured relatively abruptly at the end of the Initial Upper Paleolithic.

But it is only with the Ahmarian, representing the first true Upper Paleolithic industry in the Near East, around 43—42 000 y ago for the earliest in Kebara, that all the Upper Paleolithic characteristics are settled. A careful core shaping and the systematic use of the organic soft hammer (or soft stone hammer) for detachment of blade and bladelets allowed a regularity and a normalisation of the elongated end-products never observed in the Middle Paleolithic blady assemblages.

Table 1

Synthetic chronological frame for the Paleolithic Blady assemblages



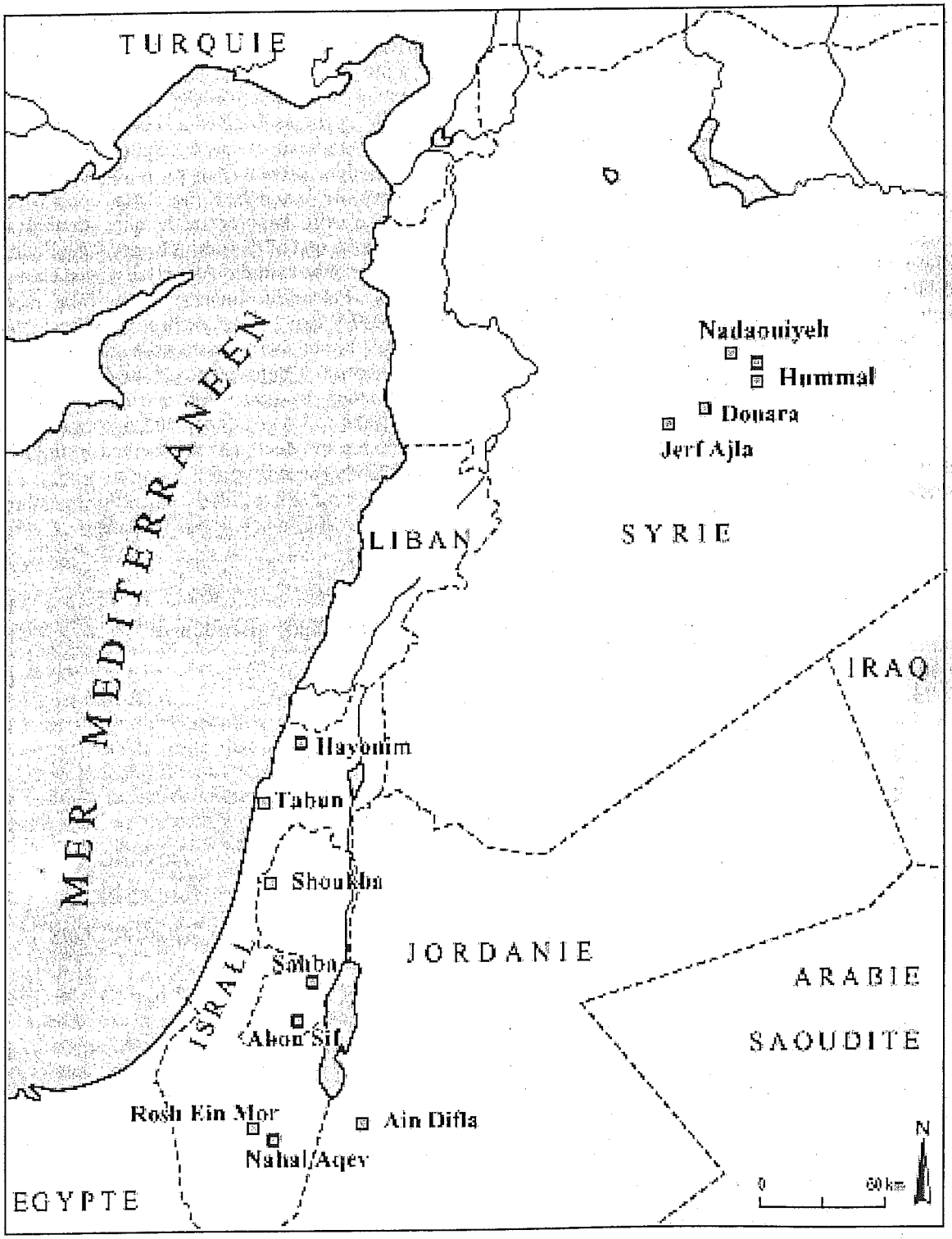
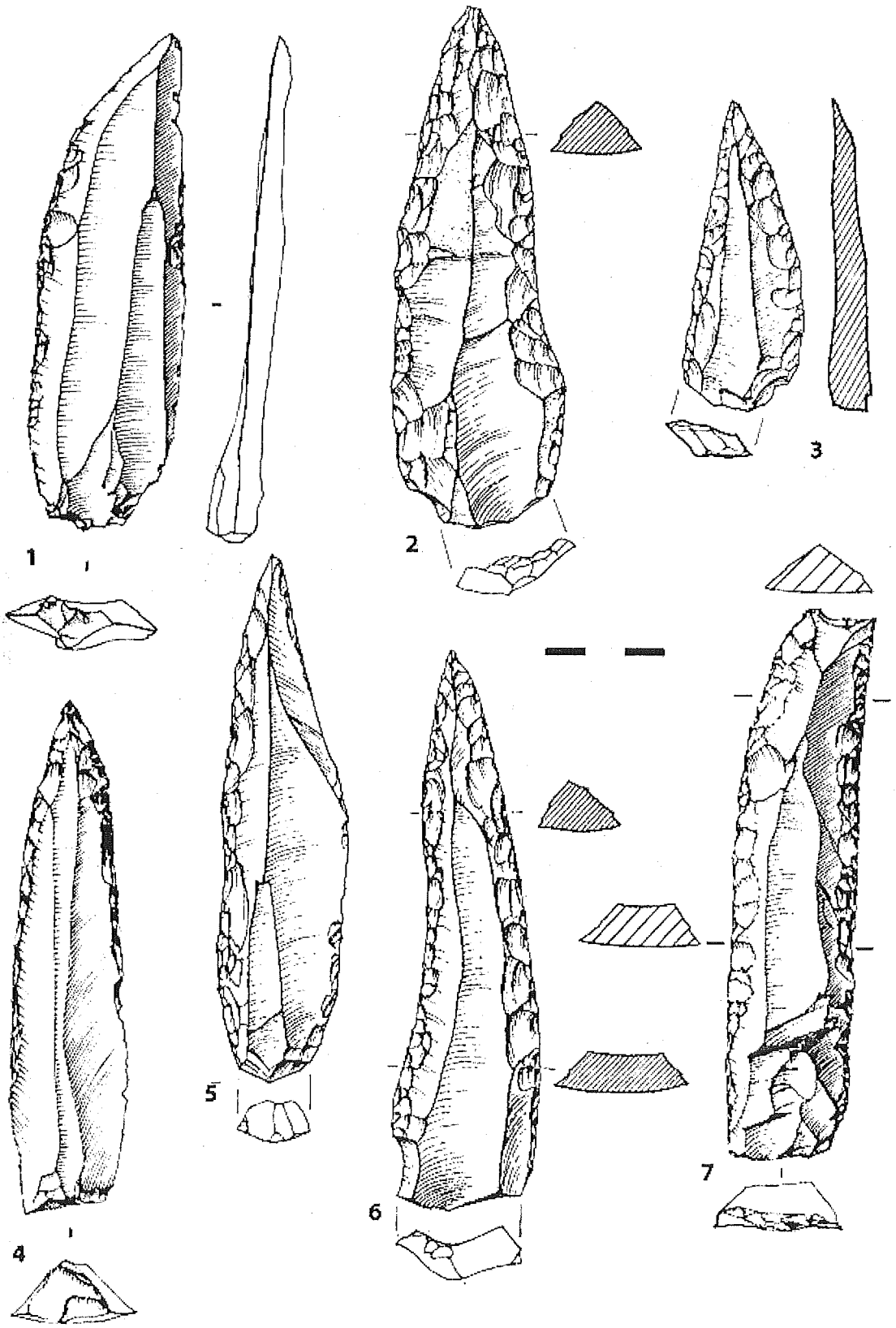
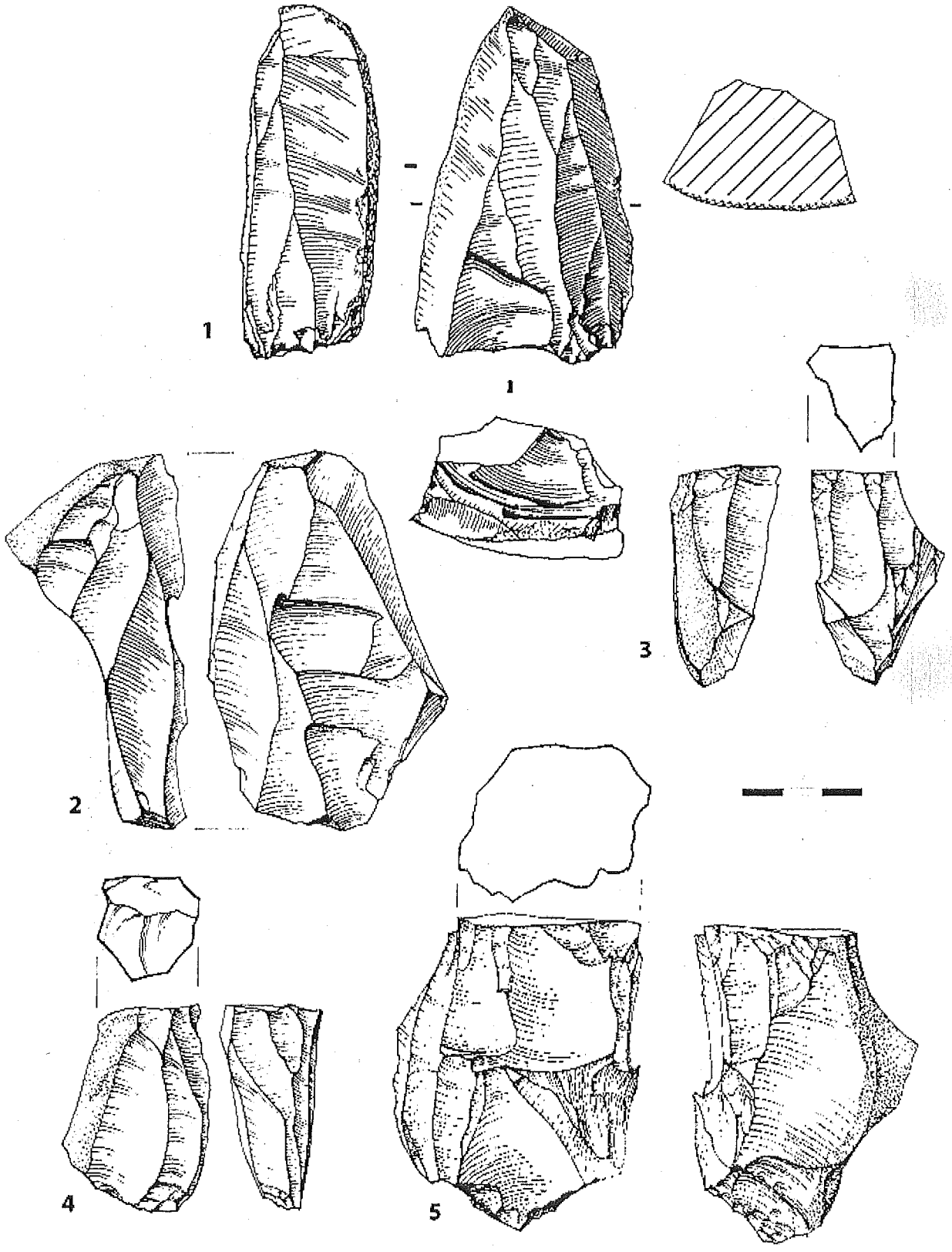


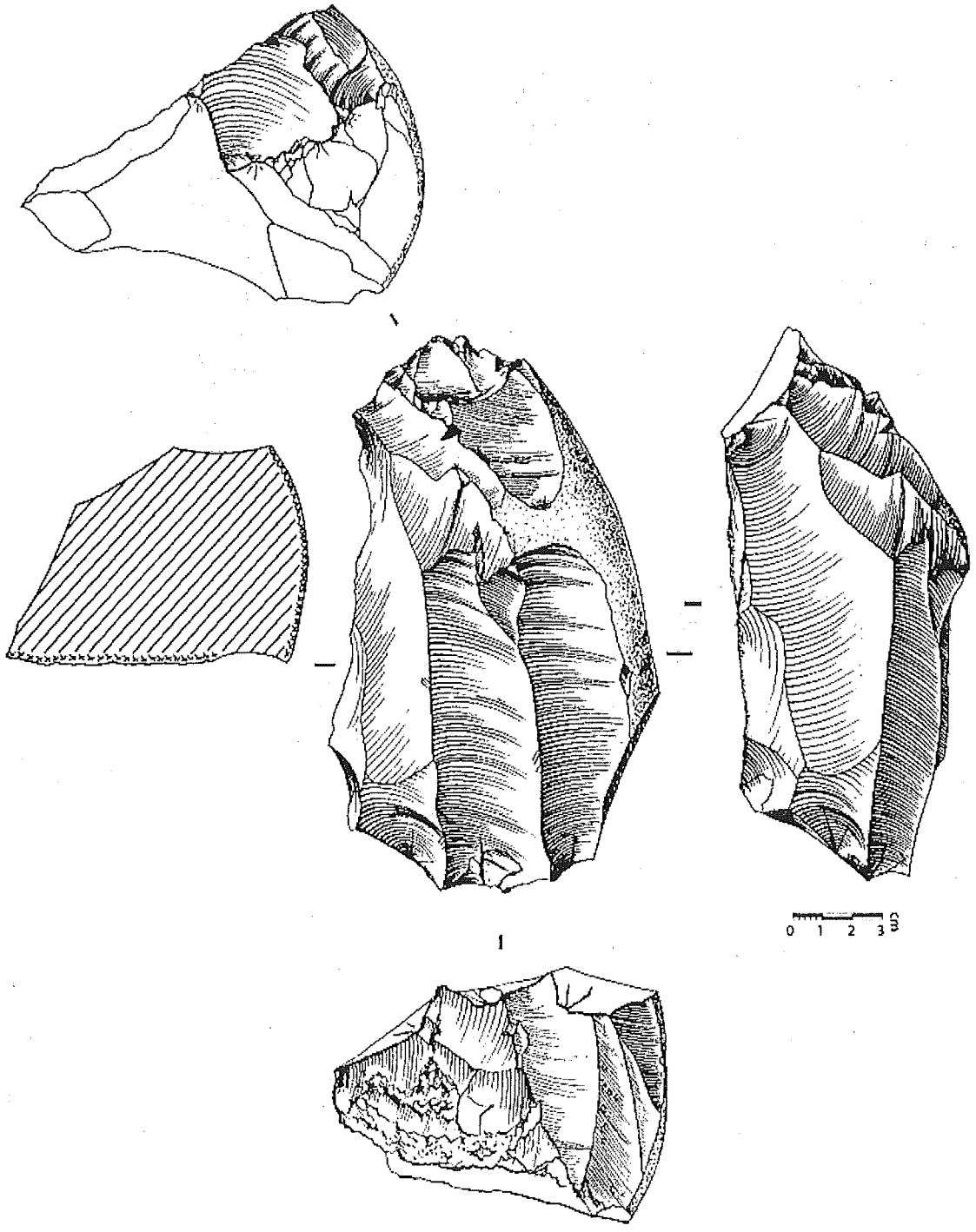
Fig. 1. Map of the Near Eastern Middle Paleolithic blady assemblages



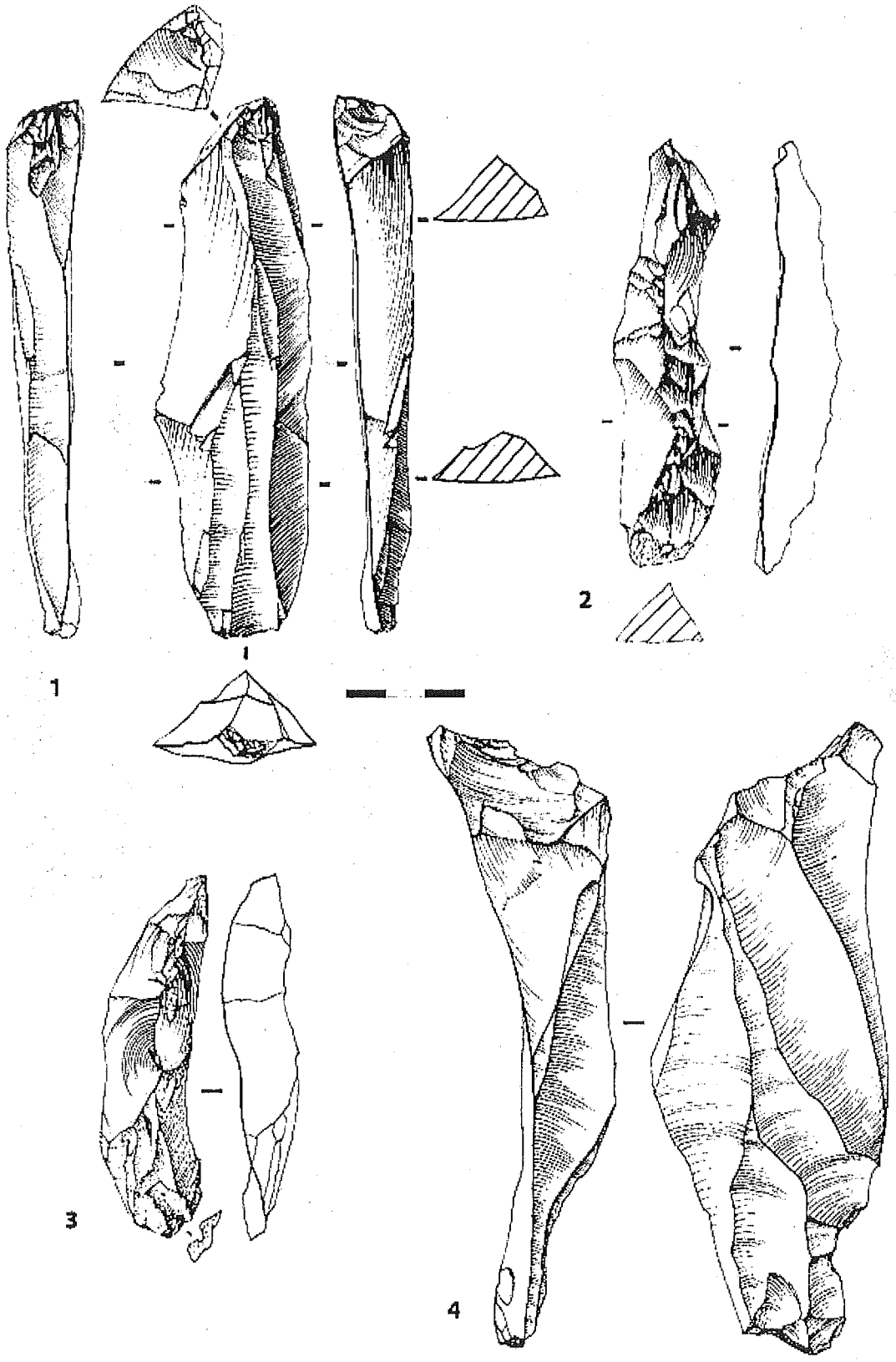
Pl. 1. Hayonim Lower E and F: *1*, *2*, *3*, *4*, *5*, *6* — elongated retouched points; *7* — retouched blade



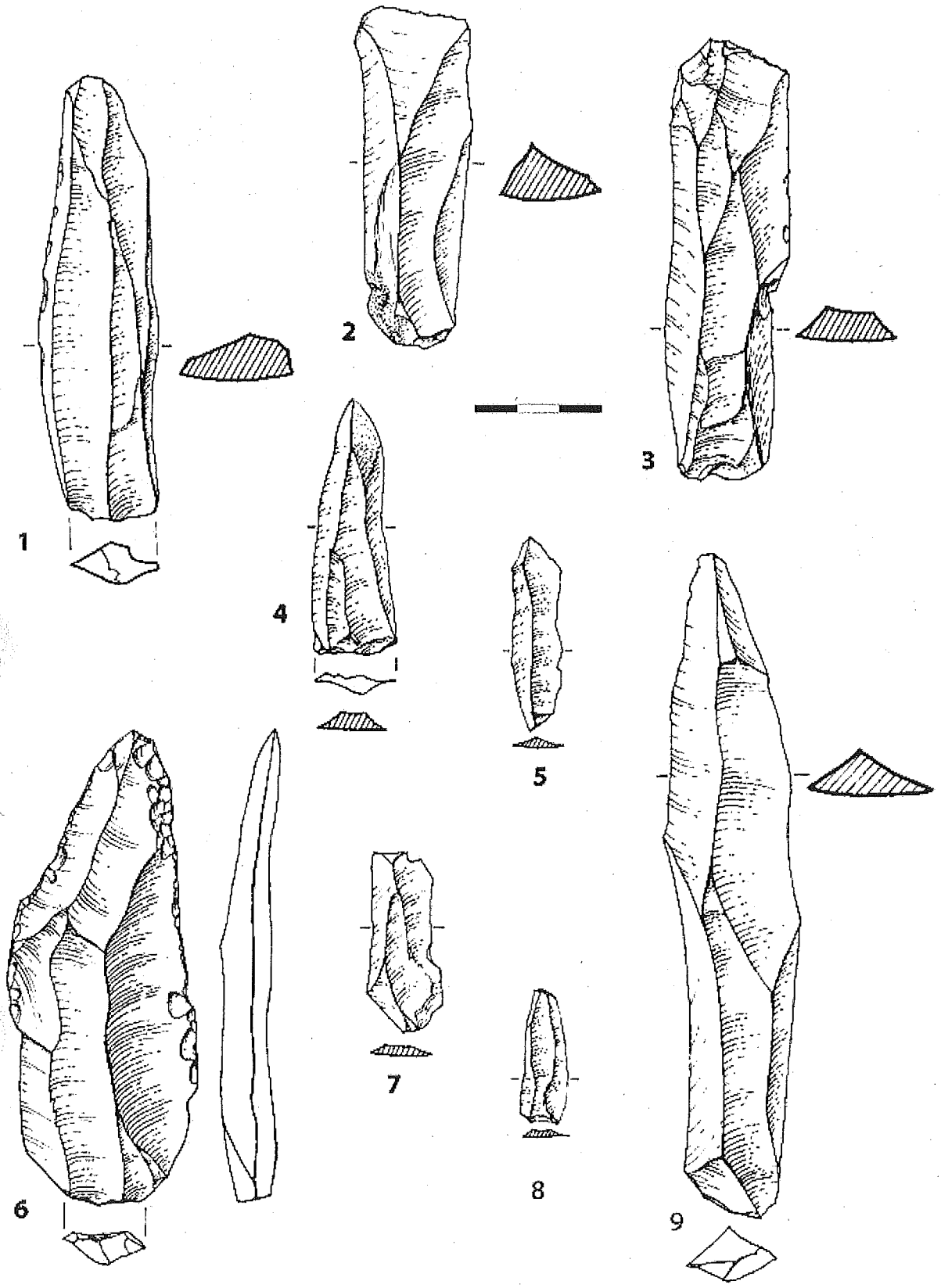
Pl. 2. Hayonim Lower E and F: *1* — unidirectional «semi-tournant» core; *2* — overpassed blank from unidirectional «semi-tournant» core; *3* — small unidirectional «semi-tournant» core; *4* — small bidirectional core with 2 opposed twisted striking platforms



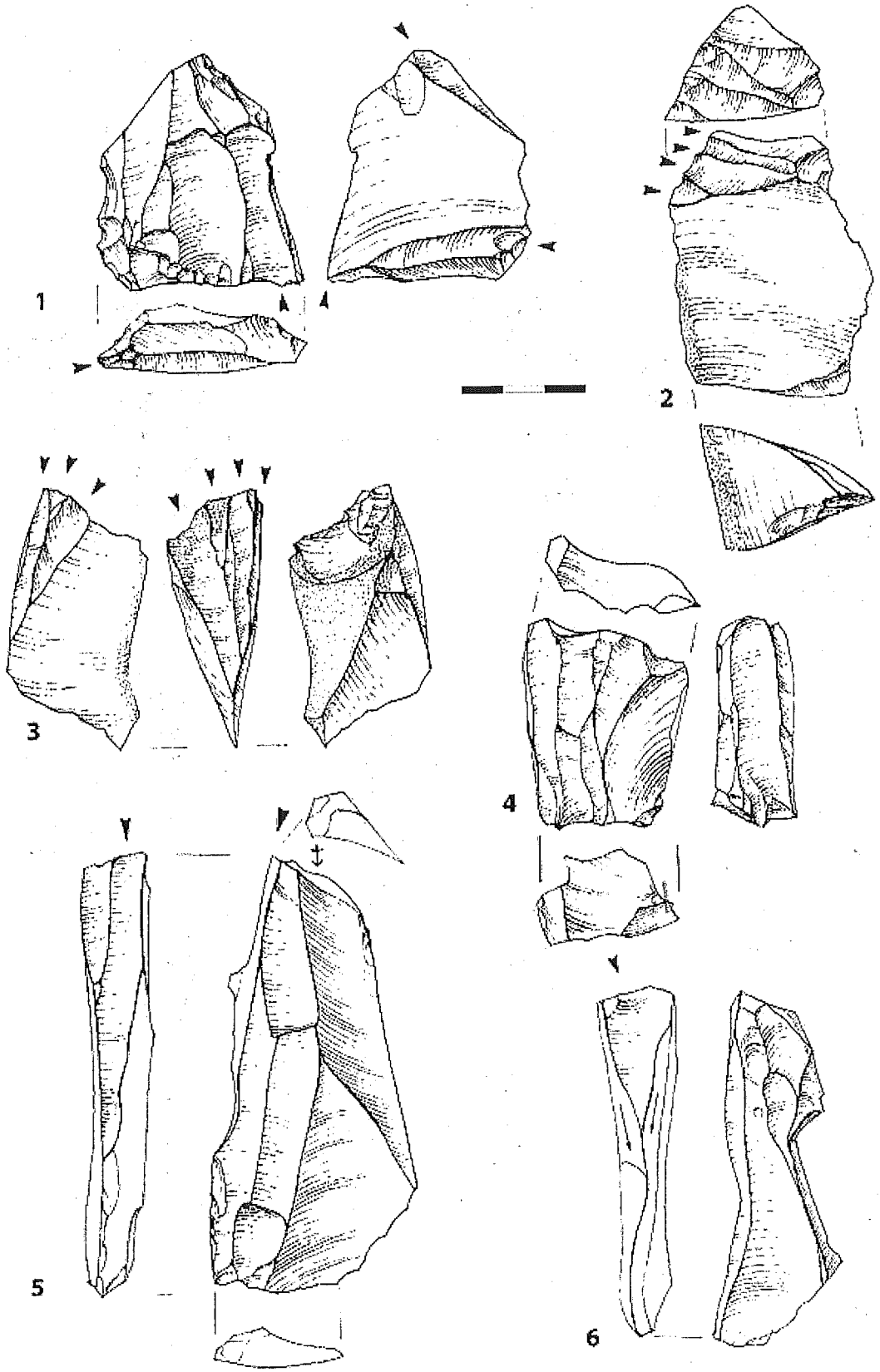
Pl. 3. Hayonim Lower E and F: large bidirectional core with 2 opposed twisted striking platforms



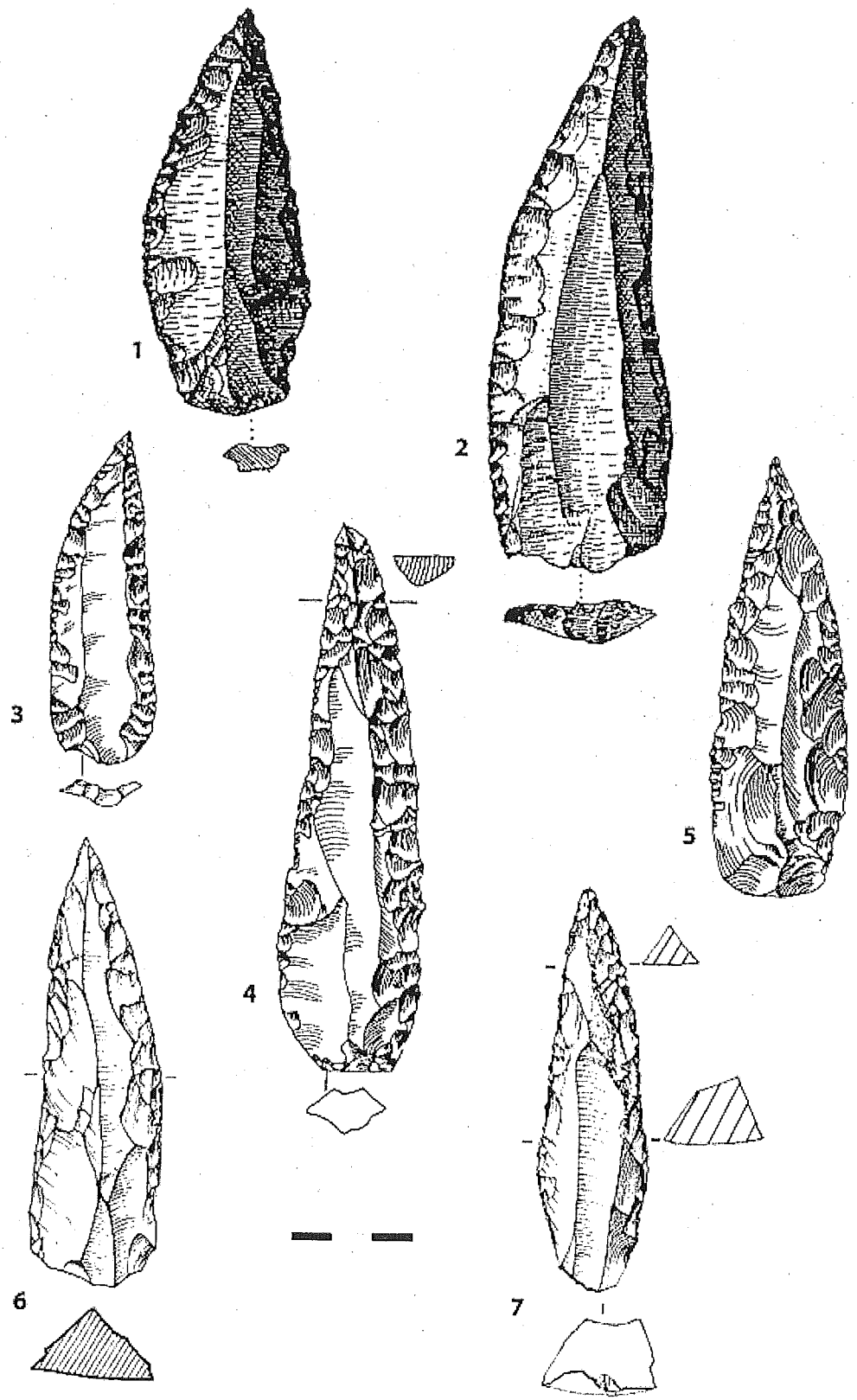
Pl. 4. Hayonim Lower E and F: *1*, *4* — intentional overpassed blades (CTE) from bidirectional cores with opposed twisted striking platforms; *2*, *3* — crested blades



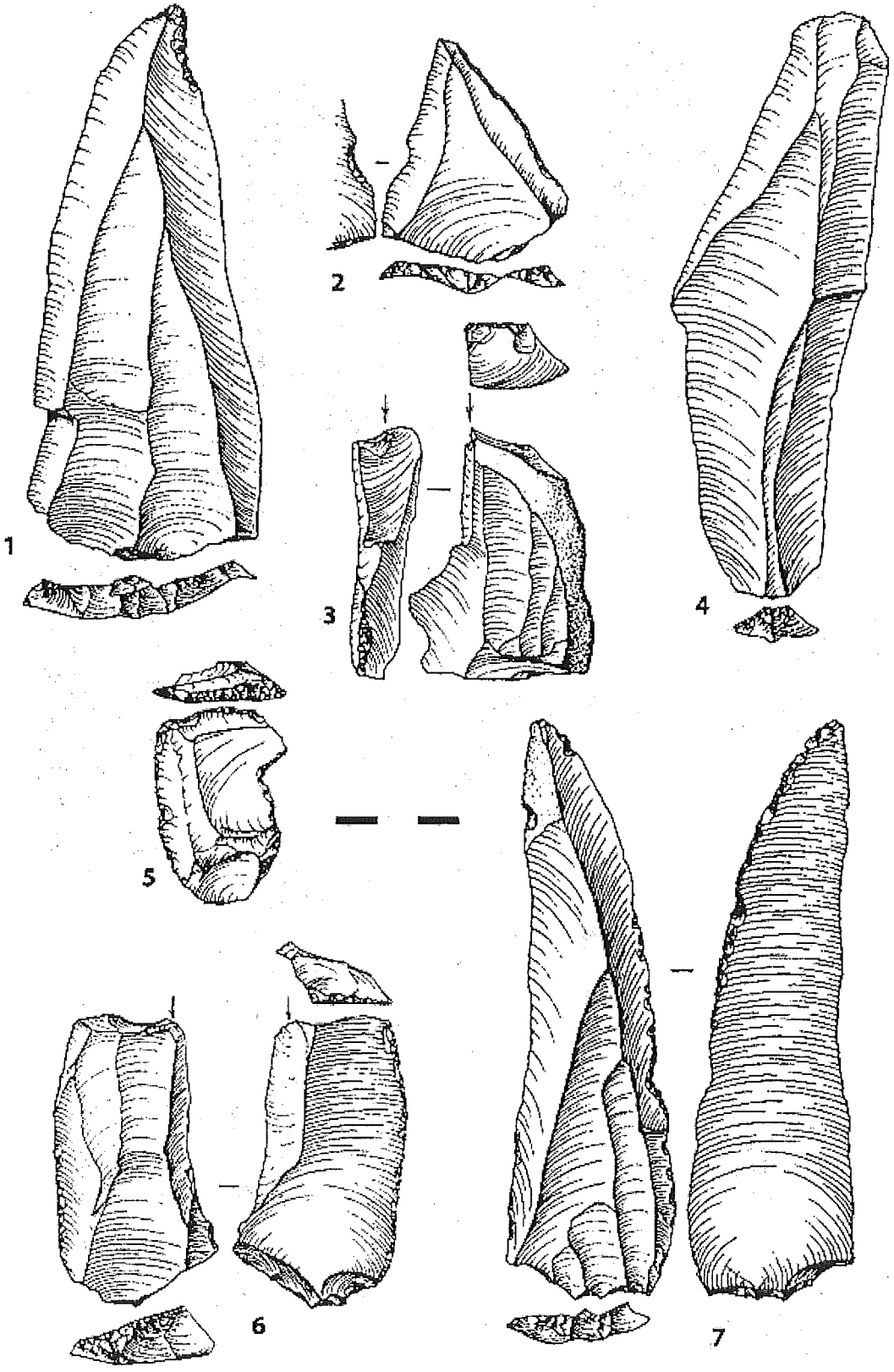
Pl. 5. Hayonim Lower E and F: *1*, *2*, *3*, *9* — narrow, thick blades; *4*, *5*, *7*, *8* — microblades of bladelets; *6* — wide thin blade with irregular retouches



Pl. 6. Hayonim Lower E and F: *1*, *2*, *3* — nucleiform burins; *4* — bidirectional core for microblades with 2 opposed slightly twisted platforms; *5*, *6* — multiple burins



Pl. 7. thick elongated retouched points: *1*, *2* — from Abou-Sif [Neuville, 1951]; *3*, *4*, *5* — from Hummal Ia [Copeland, 1985]; *6*, *7* — from Hayonim



Pl. 8. Rosh Ein Mor: *1*, *4* — elongated Levallois blanks; *2* — retouched short Levallois point; *3*, *6* — burins; *4* — endscraper; *7* — elongated Levallois point retouched on ventral face

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