

## Technological notes on some blades from Hummal Ia, El-Kowm, Syria

*by C. A. Bergman and K. Ohnuma, London*

### Introduction

The site of Hummal is found in the artesian basin of el-Kowm, about 90 kilometers NNE of Palmyra, Syria. From 1965 – 1977 many archeologists visited this area noting several different prehistoric occupations, mainly Middle Paleolithic and Neolithic. More recent work by the Cauvins (1979) and members of the CNRS team RCP 438 (Besançon et al., 1981) has identified Lower Paleolithic and Epipaleolithic occupation of el-Kowm, as well as adding to the number of known Middle Paleolithic and Neolithic sites. One of the most interesting sites investigated by RCP 438 is that of Hummal. The actual site is located in a well shaft which penetrates a large mound in order to reach the present water table. The archeological deposits can be observed in the section of the shaft and artifacts were recovered from six of the seven exposed levels.

As detailed descriptions of the geology and stratigraphy of the area are published elsewhere (Besançon et al., 1981; 1982) we shall only briefly summarise the relevant data. At the time these articles were written it was thought that level Ia was the oldest occupation at Hummal. The results of this past season's (1982) work at the site indicate that this may not be the case. The earliest archeological level now appears to be Ib, which occurs at the base of the shaft, and is Acheuleo-Yabrudian (L. Copeland, personal communication). While this assemblage does contain a few bifaces it is primarily composed of various types of sidescrapers made on thick, hard hammer-struck flakes. Level Ia is believed to occur on the opposite face of the shaft about a meter above this. The stone industry which is associated with this level is characterised by blade manufacture without centripetal preparation (Besançon et al., 1981; Copeland, 1982; Hours, 1982). Due to the unique nature of this assemblage it has been given the name 'Hummalian.' Above these two levels are a series of Levantine Mousterian assemblages with Levallois method for the production of flakes, points and blades. These assemblages occur in no less than four distinct stratigraphic units (Copeland, 1982; Hours, 1982).

### Method

The purpose of this study was to gain a general understanding of the type of flaking techniques used for blade manufacture in level Ia. To do this the authors devised a list of technological features which would describe various aspects of the flaking technology. General measurements such as the overall dimensions of a blank and its butt were taken. Morphological features of the butt, lateral edges, distal ends, and profiles of the blanks were noted as suggested by Bordes (1961), Marks (1976) and Tixier, Inzian and Roche (1980). A method of determining flaking mode developed by the authors (see Newcomer, 1975 for definition of flaking mode; Ohnuma and Bergman, in press) provided useful information as did a study of the flaking direction.

## Hummal Ia

The flaked stone industry of Hummal Ia is technologically characterised by blade manufacture with a blade index of 81.6 (Besançon et al., 1981; Copeland, 1982; Hours, 1982). The retouched tool assemblage is composed of side-scrapers, elongated Mousterian points, blades pointed by retouch, backed blades, notches, blades with continuous fine retouch and a few burins and end-scrapers (Besançon et al., 1981; Hours, 1982). Also present in the collection are Levallois flakes, points and blades (Hours, 1982). From the excavated material only 132 pieces, said to be typical, were available for study. Although this represents a small proportion of the artifacts recovered, general technological traits can be identified.

Of the 132 artifacts examined from level Ia, 114 are either unretouched blades or tools made on blades such as elongated Mousterian points. Although the longest piece measured is 185 mm the mean length for these blades is 93 mm with a standard deviation of 25 mm. They have a mean width of 30 mm and tend to be rather thick averaging 9 mm. The standard deviations for these two measurements are 7 mm and 3 mm respectively. The butts are usually plain (45 examples) or faceted (44 examples) and tend to be quite large with a mean width of 17 mm (standard deviation 6 mm) and thickness of 7 mm (standard deviation 3 mm). There is only one example with a cortical butt and three have crushed or broken butts. Faceting of the platform prior to detachment of the blade consisted of the removal of only a few flakes and was not as carefully done as in the later levels, where numerous tiny flakes are often removed to form a suitable platform (compare Fig. 1; 1–3 with Fig. 2; 4–6). This technique seems to have been used opportunistically in Ia in order to minimize overhang and to locally modify the flaking angle. The large size of the butts indicates that the point of percussion was well back on the platform rather than at its edge, and therefore the danger of crushing the platform was almost non-existent. Platform abrasion was only occasionally used to remove overhang and it occurs on only 24 blades, 18 of which have plain butts and four have faceted butts (see Fig. 1; 4 and Fig. 2; 3). The other two examples occur in association with a cortical butt and a butt which is broken. The majority of the blades which are unretouched or not heavily modified by retouch have parallel (54 examples) or converging (14 examples) lateral edges. Only seven pieces have expanding lateral edges (see Marks, 1976). The most common type of distal termination is blunt with 16 examples; pointed ends occur on 15 pieces. Nine blades plunge and four terminate in hinge fractures. Eighty-two of the blades have between three and six previous removal scars on their dorsal surfaces. In profile they tend to be curved (70), less often twisted (24) or straight (16).

An examination of the flaking direction yielded interesting results: the majority of the blades have unidirectional (54) or bidirectionally opposed (19) dorsal scars. Only eleven pieces have multidirectional scars; centripetal preparation is entirely absent. This indicates that blades were produced on cores which have a single platform or two opposed platforms and the technique used involves setting up long, parallel ridges to act as guides for the force of the blow. The presence of eight typical crested blades shows that cresting was one of the techniques used to prepare ridges on the flaking face of a core (see Fig. 3; 5–7 and Fig. 4; 1). An examination of the point of percussion relative to the dorsal ridges demonstrates the importance of these ridges in blade manufacture. The particular method we used was devised by Gingell and Harding (1979) for examining Neolithic and Bronze Age assemblages in England. They noted four categories of positioning of the point of percussion relative to the dorsal ridges: 1a, where the point of percussion lies behind a central ridge; 1b, where the point of percussion is to the side of a central ridge; II, where the point is clearly between two ridges and III, where the point is unrelated to dorsal ridges, as in pieces which are entirely covered with cortex. Consistent with a blade technology, 83 % of the pieces examined have their points of percussion either directly behind a central ridge (59) or to the side of one (23). Of the remaining examples there are 15 belonging to category II and one to category III.

Regarding the flaking angle, the angle between the butt and ventral surface, we found a clear division into two groups: those with plain butts and those with faceted butts. The blades with faceted butts tend

to have flaking angles approaching a right angle with a mean of  $100^\circ$  and a standard deviation of  $8^\circ$ . Those with plain butts are slightly more obtuse having an average of  $109^\circ$  with a standard deviation of  $6^\circ$ . As one of the main objectives of faceting is control over the platform angle of a core this is not surprising; correct platform angle is essential for the production of long blades.

The final aspect of analysis which was applied to these blades concerns the flaking mode. A method devised and tested by the authors (Ohnuma and Bergman, in press) proved to be useful. The criteria for determining the flaking mode include combined aspects of the point and cone of percussion, the bulb and the presence or absence of a lip or conchoidal fracture marks on the bulb. Using this method we were able to determine that of the 51 pieces suitable for analysis, 36 were detached by a hard hammer (Fig. 5; 1-6) and 15 by a soft hammer (Fig. 5; 7).

Eighteen of the artifacts brought from the field are cores and of these 11 are blade and bladelet cores and the rest are flake cores. The longest flaking face on a blade or bladelet core is 112 mm; the average for the group is 67 mm (Fig. 4; 3-5). When compared with the lengths of the blades measured this shows that many of the cores were greatly reduced in size during flaking. At the end of the flaking sequence they produced small blades and bladelets (Fig. 3; 3). The overall reduction of core length was accelerated by the use of platform faceting which occurs on nine striking platforms; five platforms are plain. These cores most often have single platforms (six examples) and in only four cases are they opposed. One core has two platforms which are not opposed. Nine cores are parallel-sided while only two have slightly converging, triangular sides. This is clearly reflected in the blades the majority of which have parallel lateral edges. Among the flake cores, four are made on flakes or blades and have their striking platforms formed by an inverse truncation (Fig. 4; 2). This technique is found at many different sites over a wide temporal and geographic range (Schroeder, 1966; Solecki and Solecki, 1970; Newcomer and Hivernel-Guerre, 1974). The final removals produced by these cores are often small and short. One example has inverse retouch along the entire length of both lateral edges and may be a tool.

## Conclusion

The blade technology used in this level involves preparing a core by forming parallel ridges. As mentioned above the presence of crested blades at the site shows one way by which this vital step of preparation was achieved. The technique of creasting has more remote origins than the Upper Paleolithic and its use as a technological type fossil is of dubious value. The blades come from cores with a single or two opposed platforms and which have flaking faces with curved profiles. Most blades have plain or faceted butts and the point of percussion generally lies directly behind or to the side of a central ridge. Faceting seems to have been used opportunistically to modify platform angle, shape the platform, and minimize overhang. As the point of percussion was well onto the striking platform, the danger of crushing was minimized and as such platform abrasion was only occasionally used to remove overhang – a point of weakness. The majority of the blades were detached with a hard hammer.

In the Levant there are two other early prehistoric flaked stone industries with blades; one of these has been described as having Levallois débitage (the Amudian) while the other (the Pre-Aurignacian) is said to lack it (Rust, 1950; Bordes, 1955; 1977; Garrod and Kirkbride, 1961; Jelinek, 1975; 1981; Besançon et al., 1981; Copeland, 1982; Hours, 1982). The terms 'Levallois' and 'non-Levallois' are probably best defined by building up a series of qualitative and quantitative characteristics. This is beyond the scope of this work and certainly represents a monumental task. We may find that these terms have outlived their usefulness and that flaking techniques are best described in detail and not by a single criterion such as 'shape predetermination'. All blade technologies, including the one described above, possess this quality. In fact, every step in the production of blades involves predetermination from the initial preparation of a core to the subsequent detachment of the blanks (Boëda, 1982 reaches a similar

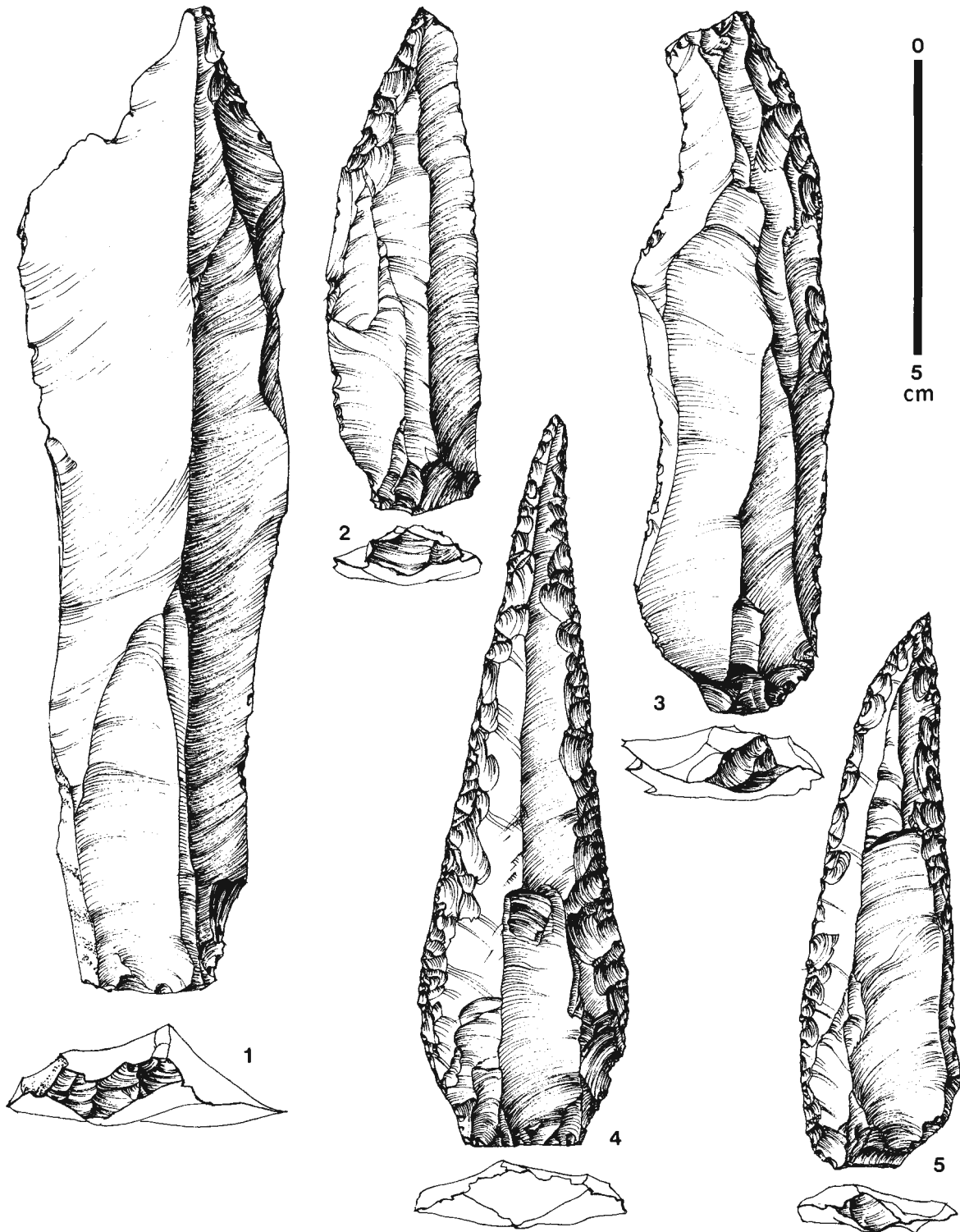


Fig. 1. Hummal 1a: 1 blade; 2 partially backed blade; 3 retouched blade or side-scraper; 4-5 elongated Mousterian points.

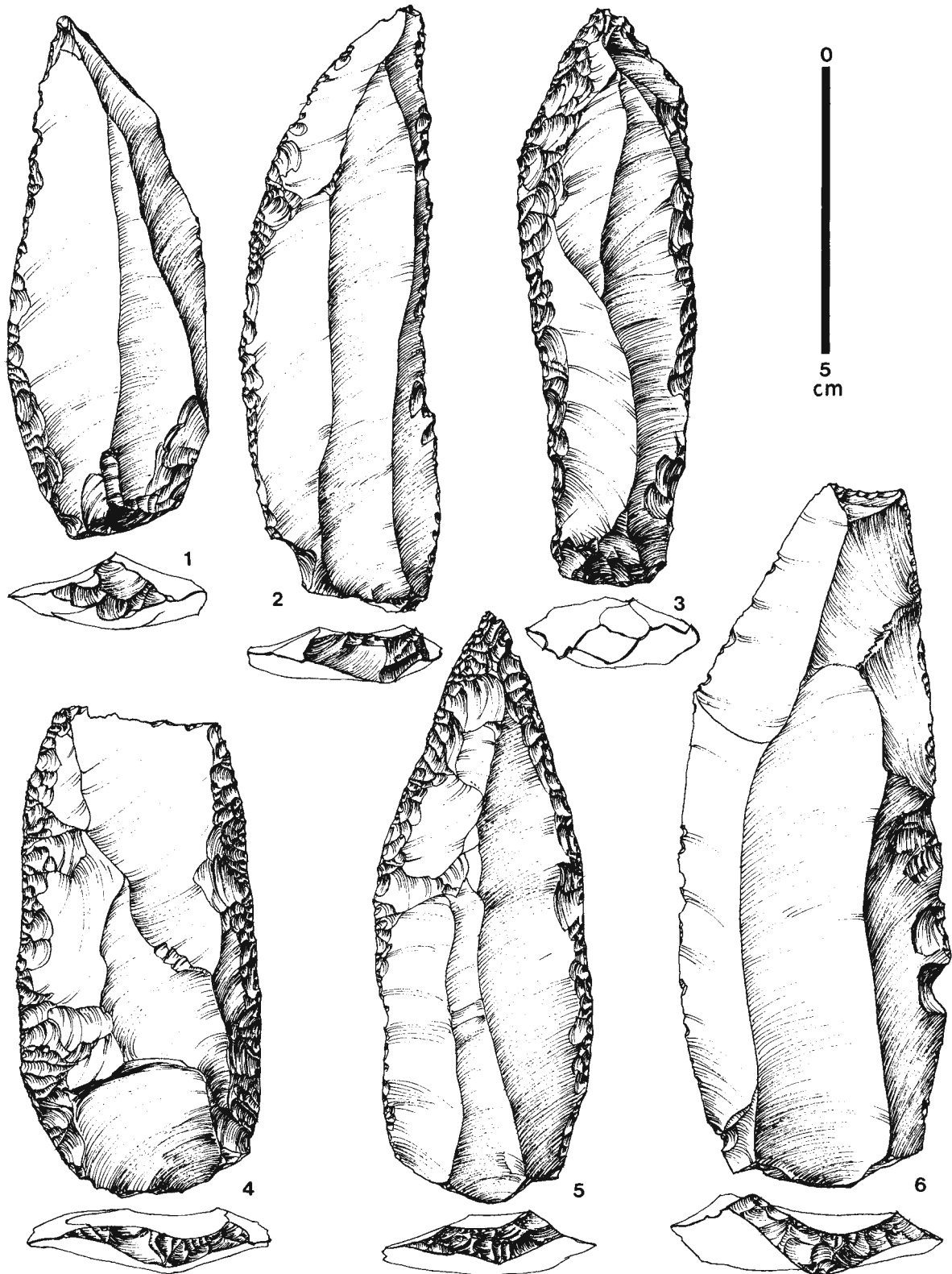


Fig. 2. Hummal Ia: 1-3 retouched blades or side-scrapers; Hummal III: 4 double side-scraper on a Levallois flake; Hummal IV: 5 elongated Mousterian point; 6 truncated Levallois blade (possibly spontaneous retouch).

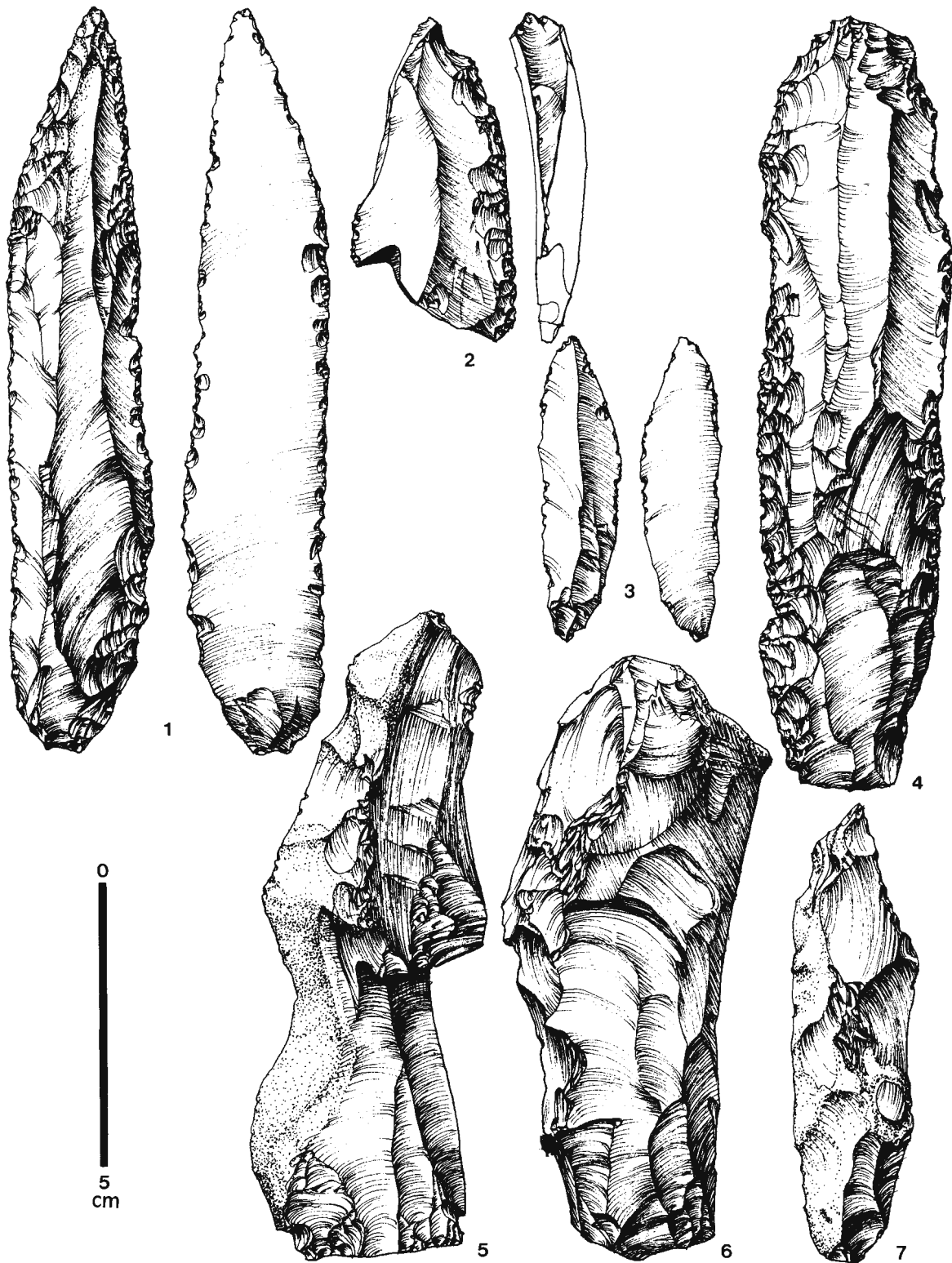


Fig. 3. Hummal 1a: 1 partially backed blade; 2 burin; 3 blade; 4 retouched blade or side-scraper; 5, 7 crusted blades; 6 crusted blade from a core made on a thick flake.

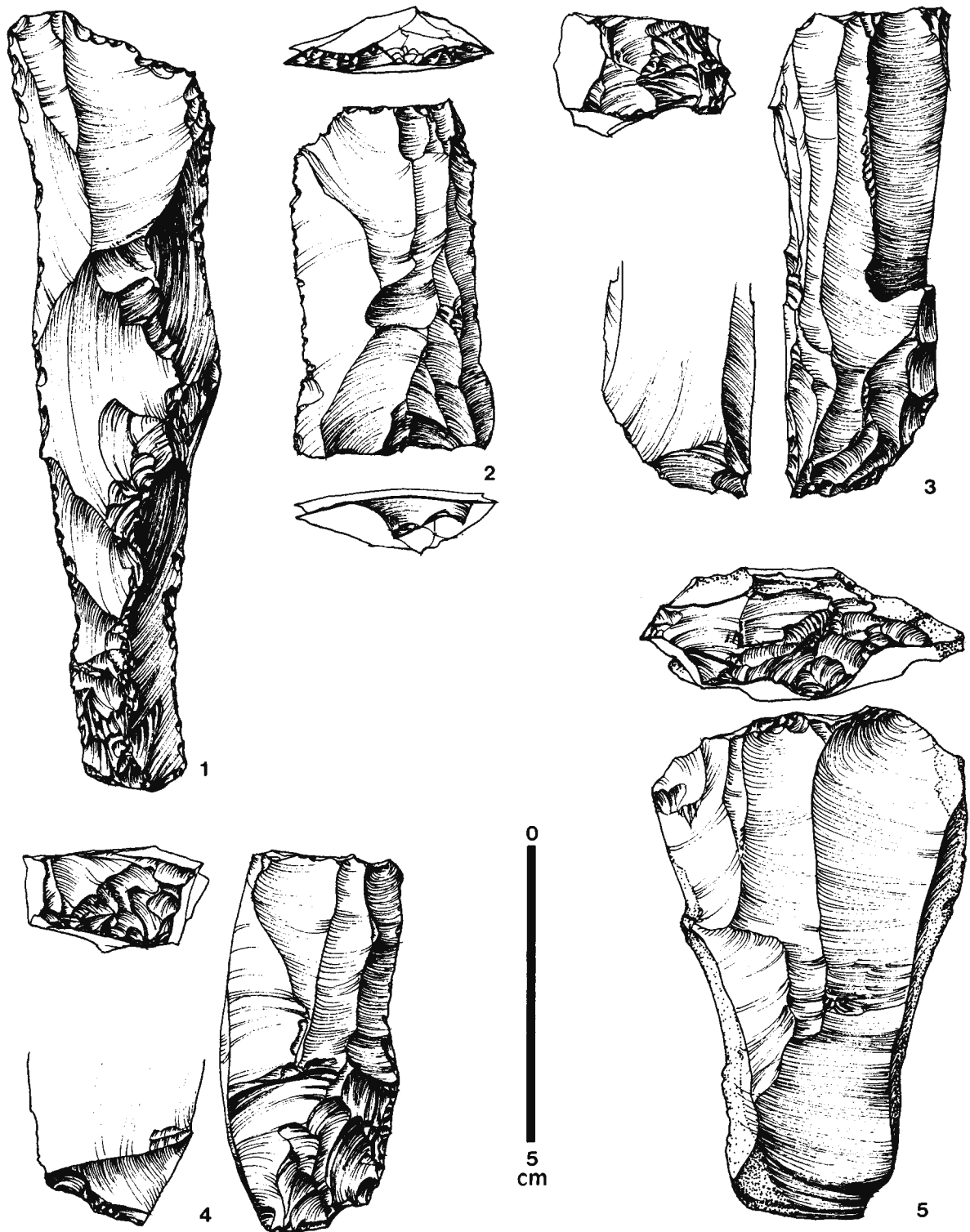


Fig. 4. Hummal Ia: 1 crested blade; 2 core made on a flake; 3 - 4 opposed platform cores; 5 single platform core.

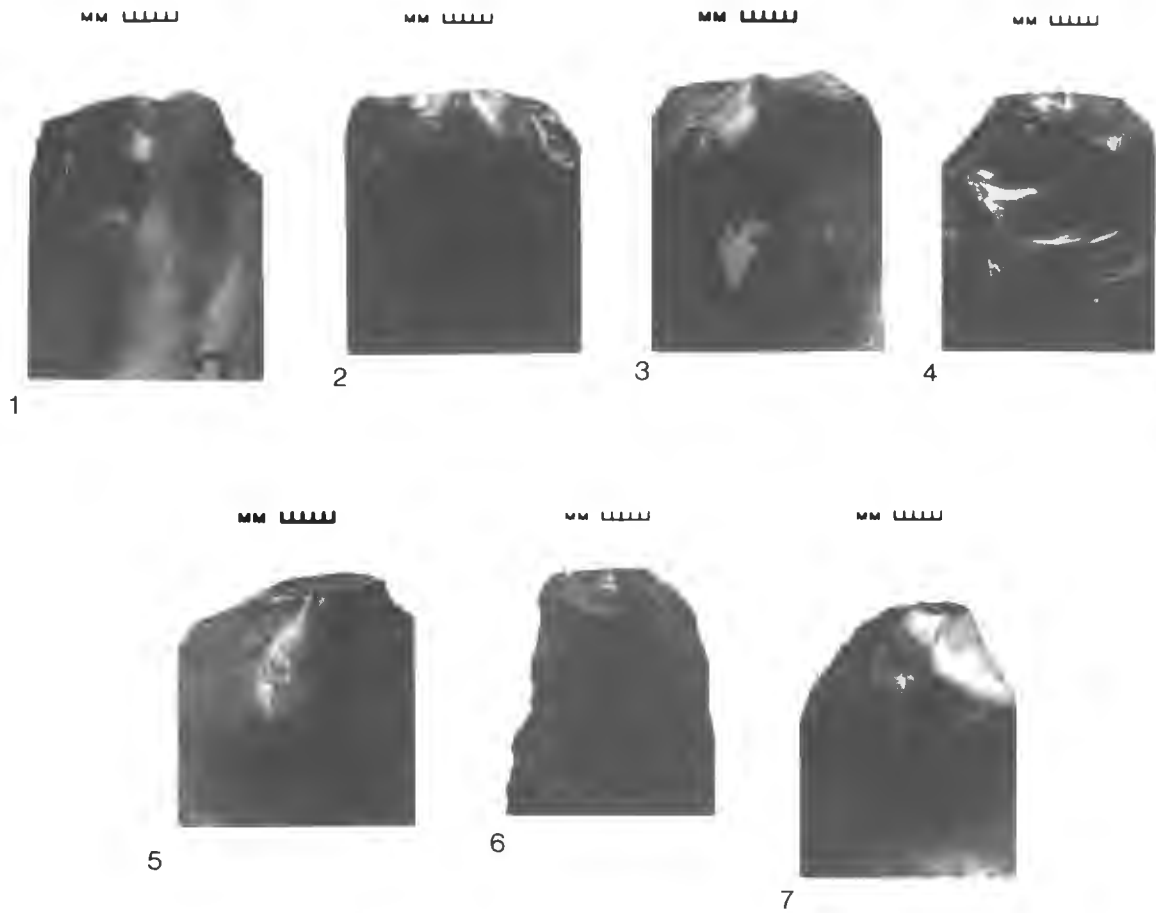


Fig. 5. Hummal Ia: 1 – 6 blades detached by the hard hammer mode; 7 blade detached by the soft hammer mode.

conclusion working on Levallois points). Aside from this shared characteristic, the blade technology of Ia has features, such as crestring and platform abrasion, which are usually associated with technologies described as non-Levallois. Most Levallois flakes, points and blades have butts which show signs of very careful platform preparation. This is not the case at Hummal where many of the blades seen have plain butts. In the published report it is stated that 75 % of the butts are plain and that the strict faceting index is only 24 (Besançon et al., 1981). In addition to this, the pieces we examined lacked centripetal preparation which is often characteristic of Levallois flaking. Given these considerations we feel that the blades we studied from Hummal Ia are probably best described as non-Levallois for the time being.

Having reached this conclusion we must still account for the reported presence of Levallois flakes, points and blades in this assemblage (Copeland, 1982; Hours, 1982). If the problems of excavating and sampling at Hummal are ignored and the published results are accepted then this assemblage is technologically different from the Pre-Aurignacian of Yabrud. Bordes (1955, Table I) noted an absence of Levallois débitage in this industry. The Amudian at Abri Zumoffen (Garrod and Kirkbride, 1961; Copeland, 1978; 1982) is said to have a Levallois index of about 10. These Levallois pieces lack centripetal preparation and derive from unidirectional cores (Copeland, in press). At Tabun, Jelinek (1975, Table 6) lists a few typical Levallois flakes in the Amudian (Bed 48B or 75I) but mentions that the assemblage is 'non-Levallois in character.' The relationship between these assemblages seems to hinge, in part, on the



presence or absence of Levallois flaking (Copeland, 1982). The definition of this concept of débitage (Bordes, 1961; Tixier, 1967; Tixier, Inizan and Roche, 1980) however, is so elastic that it is impossible to be certain that these reports are all describing the same thing. It is important to clarify the techniques used within the framework of this concept as, for example, a centripetally prepared 'Levallois' blade is obviously something quite different from one removed from a core initially set up by forming parallel ridges.

Typologically, these assemblages all contain varying amounts of 'Upper Paleolithic' tool types. This variation may be due to specific activity areas within a site or, as Jelinek (1973) suggests, the result of geographic location. At Tabun and Yabrud a few bifaces have been found in association with these two assemblages (Rust, 1950; Jelinek, 1975); they are absent at the other sites. Hummal has numerous 'Middle Paleolithic' types such as elongated Mousterian points and side-scrapers, although the side-scrapers might be classed as retouched blades.

Exactly what the relationship is between these assemblages is difficult to say. They all have a close stratigraphic proximity to the Yabrudian and are earlier than the Levantine Mousterian. So far the occurrence of these assemblages is limited to a small number of sites over a wide geographic area. As such we will not attempt to speculate on this question and will wait for results from future fieldwork. For the time being the site of Hummal poses many interesting problems for Near Eastern prehistory.

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