

THE PROBLEM OF LEVALLOIS POINT PRODUCTION IN THE BOHUNICIAN AND THE SZELETIAN COLLECTIONS

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Abstract

This article presents the production mode of the Levallois points at the beginning of the Upper Palaeolithic. Several collections from South Moravia (Podolí I, Stránská skála III-1, Lišen-Ctvrte, Brno-Bohunice and Orechov I and II) were analysed from the standpoint of the type of Levallois points found in the Bohunician and Szeletian collections and how they were made. Generally, the Levallois points have blade proportions between 10-35% and often bi-directional scar patterns (27-100%).

Key words

Central Europe - Moravia - Bohunician - Szeletian - Levallois points - Lithic technology.

1. Introduction

When nearly forty years ago, K. Valoch detached a certain part of the Szeletian collections and called it "Szeletian of Levallois facies" (Valoch 1964, 1973) and when M. Oliva almost twenty years ago used the term "Bohunician" (Oliva 1979, 1981; Svoboda 1980) for this sphere of the collections, certainly neither of them guessed how the significance of this new culture would grow in the years to come. Still there exist lithic industries on the verge of Szeletian and Bohunician, which are characterised by Szeletian typological features and a rather high percent representation of the Levallois method. The Levallois method used in a certain part of the Szeletian industries sphere has a different character from that used in the Bohunician (Nerudová 1995).

This article is aimed at the problem of the change in Levallois point production technology in the period at the beginning of the Upper Palaeolithic, in relation to interesting results presented by Y. E. Demidenko and V. I. Usik (1993a, b). These authors describe the reduction strategy of Levallois points from Boker Tachtit and other localities in the Near East during the Middle Palaeolithic, where the bi-directional mode of production of Levallois points appears very significantly (between 25-53%). According to the authors, the record came from those localities which suggest a mixture of two technologies. As the first technology dies away, the second, more progressive technology, emerges and then survives. Such collections are unknown in Central Europe, but authors suggest similarities with collections came from Brno-Bohunice and Kulychivka (Ukraine; Demidenko - Usik 1993a, 14). Since both Bohunician and Szeletian collections of Moravia contain Levallois and leaf points, the author analyzed all Bohunician and some Szeletian collections of

Moravia to undertake a wider comparison.

With their value, the cultures of the Bohunician and Szeletian represent transitional industries between Middle to Upper Palaeolithic, as they are mostly characterised by the presence of basic Middle Palaeolithic elements (various bi-facial tools, usage of the Levallois method) and Upper Palaeolithic elements such as pyramidal cores, blades or some Upper Palaeolithic types of tools. Although the Bohunician has a higher RC dating, higher percentages of blades (compare: Nerudová, in print a, b) and Upper Palaeolithic tools present are more comparable to Middle Palaeolithic tools than Szeletian. In a similar manner, the mode of Levallois reduction strategy should appear different.

1.1. The studied localities

Orechov is a locality approximately 10 km SW of Brno in the valley of the Bobrava River. The location Orechov I is an easy rise at the elevation point 342 NE of the village, location II "Randlík" course is found on an easy rise at the elevation point 301 SE of the village. At the past these two stations were not differentiated. They were introduced in the literature by K. Valoch (1956; 1962; 1973).

Bohunice (Kejbaly) is found between 279-281 metres above sea level, approximately 110 m north of the Brno - Jihlava road, by the wall of a loam-pit at Cervený kopec (Valoch 1974; 1976; Valoch 1982). The lithic artifacts were obtained by R. Klíma, an amateur collaborating with Anthropos Institute, from stratified surfaces (surfaces I-IV) in connection with large construction works at the beginning of the 1970's.

Stránská skála is a cliff of Jurassic limestone with a source of hornstone, situated on the eastern edge of Brno (borough of Slatina), 310 m above sea level.

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Location III-1 can be found a hill descending eastward toward the road between Líšen and Slatina (Svoboda 1987; Valoch- Nerudová- Neruda, 2000). Eastward, a hill by Líšen locks upon Stránská skála. Its location "Ctvrte", lying SW of the elevation point 331 represents the centre, from which comes the majority of the lithic collection (Oliva 1985).

Podolí I (course Hrubé Podsedky) is a small ridge declining toward SE, located NW of a village of that name, SE of the elevation point 315 (Oliva 1981; 1984).

1.2. Methodology

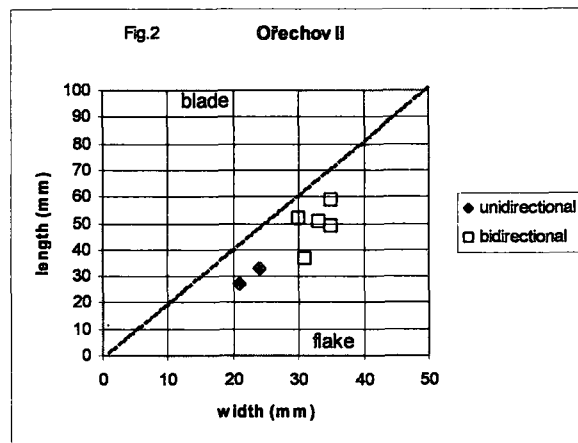
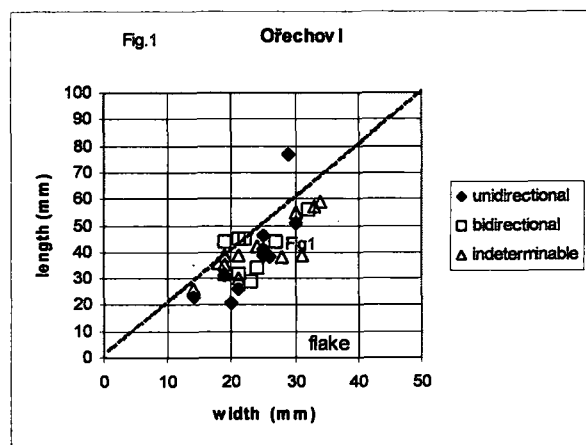
In the collections of Levallois points a length-width index was studied, in connection with their possible bi-directional mode production, along with the character of Levallois cores and a possible presence of crested blades. For this purpose, only full, complete genuine Levallois points were used (not pseudo-Levallois points or broken pieces). Those artifacts that have at least one dorsal scar pattern removed in the direction opposite to the general axis point on the dorsal surface (Figs. 15:2; 18:2) can be considered products of bi-directional mode of production. Unidirectional removed points are those whose all dorsal scarn patterns on the dorsal surface have the same removal direction as the general axis point (Figs. 15:7,8; 16:4). In several isolated cases the bi-directional dorsal scar pattern remained undetermined. The results of the measurement were used to create individual diagram, while the partial surfaces from Stránská skála and Bohunice (Figs. 3-9) were first independently analysed, and then were summarised (Figs. 12-13). All analysed artifacts are charted in individual diagrams by their size and direction of dorsal scar patterns. The surface of each diagram is divided into blades (upper part) and flakes (lower part) by a simple rule that the length of the blade must be at least double of its width.

2. Analysis

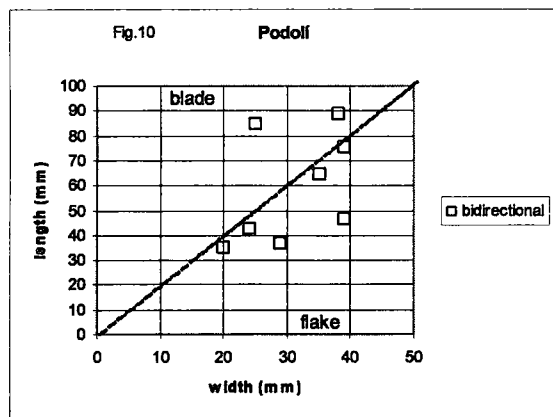
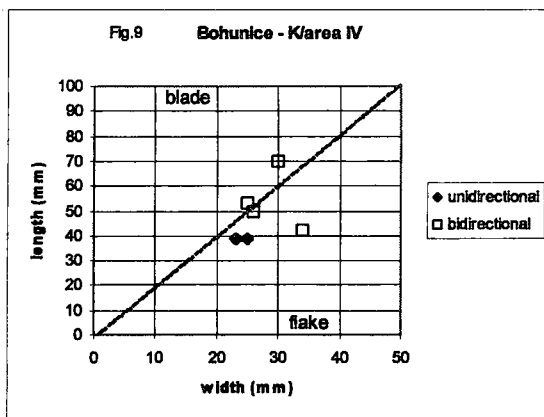
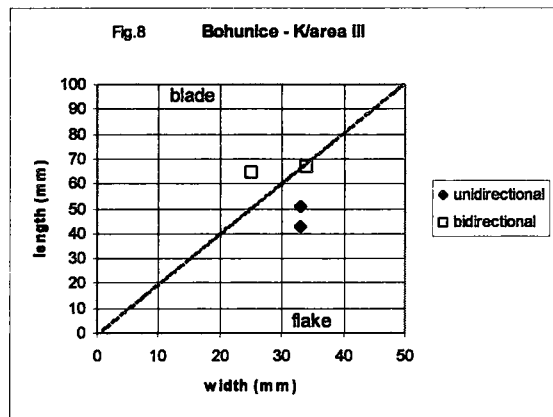
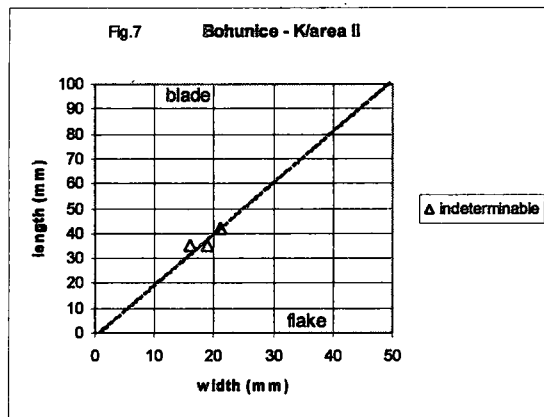
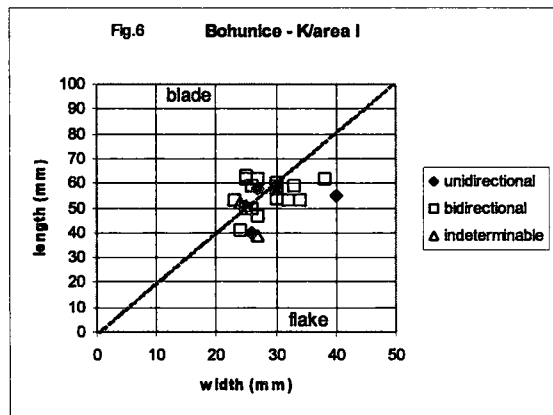
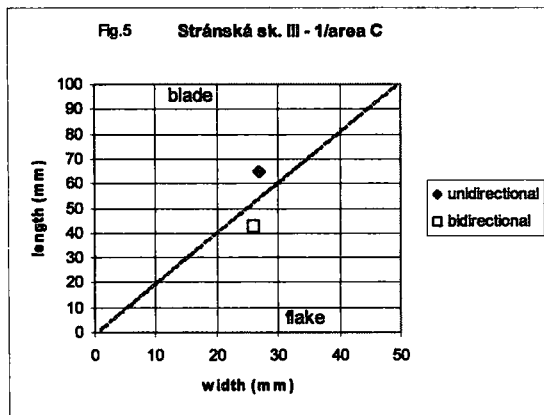
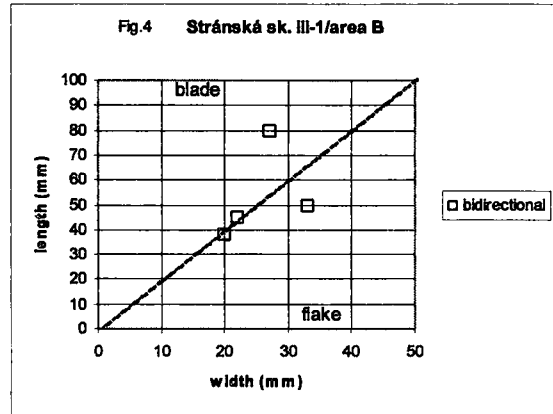
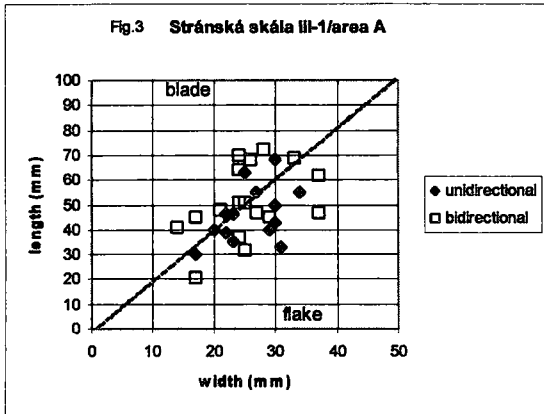
Orechov I and II (Figs. 1, 2) show a considerable homogeneity of the analysed collection, which is the more surprising by the fact that both cases are quite large surface stations. In Orechov I, approximately 450 Levallois points, blades and flakes were determined and 12 Mousterian points. (At the moment the collection contains approximately 10,000 lithic artifacts). There is a low number of Levallois debitage in this respectable amount. However the index of Levallois tools is high (Nerudová 1999, 26), the Levallois points were represented only sporadically. The proportion of Levallois cores is much higher. Out of the total of 363 cores there are 124 pieces of the Levallois type (Nerudová 1999, Tabl.2).

In Orechov II, on the contrary, there are very few Levallois cores: only 4 pieces out of 102 other types of cores (Nerudová 1995, Fig. 13:1-3), on which there is a crisp scar pattern of the removed point. Levallois debitage here represents 7.16 % out of all pieces of industry. From almost 2.000 pieces of the debitage 85 Levallois flakes, 27 Levallois blades and 9 Levallois points were identified. On the Levallois debitage, there are apparent marks of abrasion or partial retouch; in two cases chiselling into the form of a tool appeared, in the concrete an endscraper and sidescraper (Nerudová 1995, Figs. 8-11).

In Orechov I the width of Levallois points varies within the range from 13 to 35 mm and length between 20 to 59 mm, both on unidirectional and bi-directional pieces. Only one Levallois point more than 70 mm long (Fig.15:1) passes all studied collections, with the exception of those from Podolí. Almost all points are on the level of flakes or on the verge of flakes and blades (see further). Orechov II as the only collection shows 100% flaked Levallois points, while points with bi-directional dorsal scar patterns are of significantly larger dimensions than those with unidirectional dorsal scar patterns (Fig. 2) and therefore form in fact two independent groups.



Figures 1 à 13 : Length-width index of Levallois points. . Cepel - blade, úštep - flake, délka - length, šířka - width.



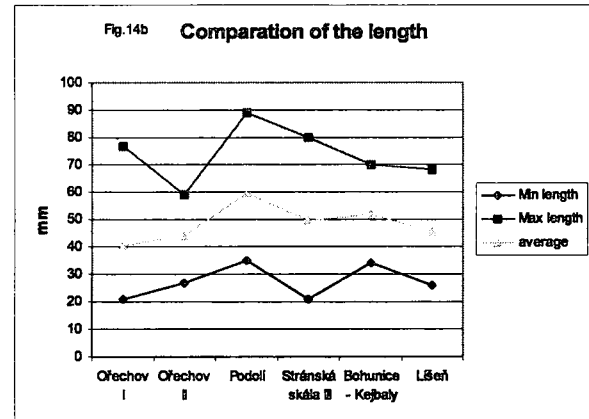
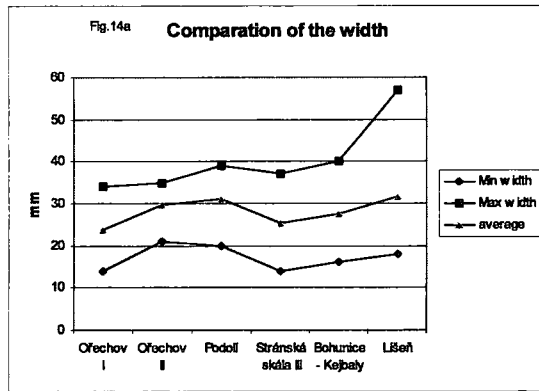
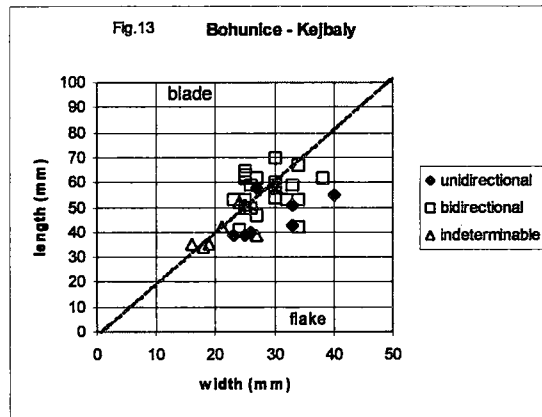
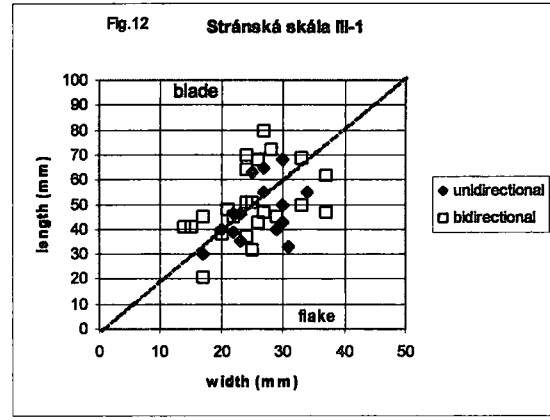
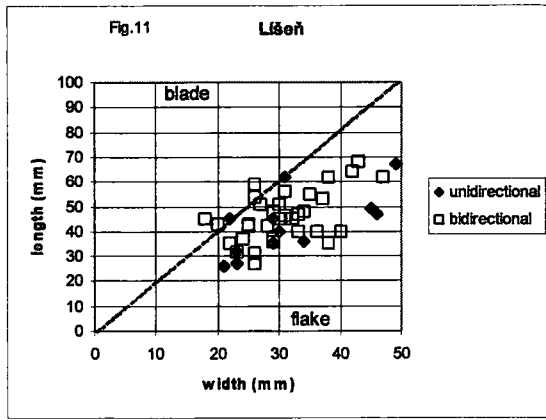


Figure 14a : Comparison of the width of Levallois points.
 Figure 14b : Comparison of the length of Levallois points.

To keep the finding units from the research by K. Valoch, Stránská skála III-1 was first analysed by the original A,B,C sectors. Area A with the highest number of pieces is of the highest testimonial value. It contains Levallois points of both types (with unidirectional and bi-directional dorsal scar patterns), while both variants can be found among flakes as well as among blades (Fig. 3). Blade Levallois points with bi-directional dorsal scar pattern prevail over blade points with unidirectional dorsal scar pattern (in 11:2 ratio), and unidirectional flake points prevail over bi-directional flake points (8:7 ratio). Four points are on the verge of flakes/blades. Area B supplied

exclusively points with bi-directional dorsal scar patterns (4 pieces), which respond rather to flakes than blades (Fig. 4), in 2:1:1 ratio (flake/blade/on the verge).

Area C (Fig. 5) has not a great testimonial value with only two pieces: also here, the unexpected opposite positioning of the points is evident. The point with unidirectional dorsal scar patterns corresponds with its proportion to blades, the bi-directional removed point corresponds to flakes.

On the summarising diagram (Fig.12), the distribution of points with unidirectional dorsal scar patterns is apparent; especially in the category of flakes in the ratio

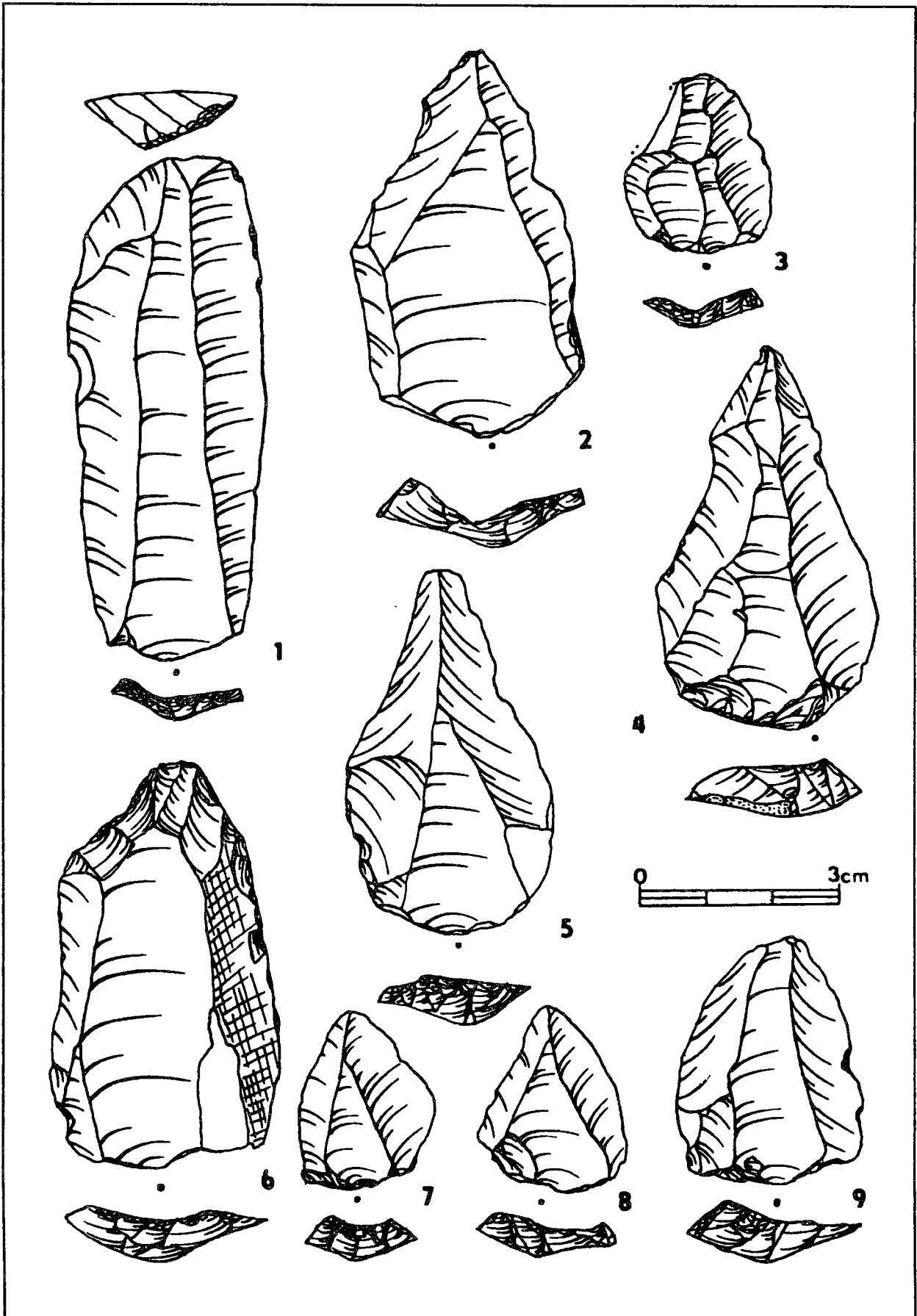


Figure 15 : 1-3 Orechov I; 4,5 Orechov II; 6-9 Lišen-Ctvrte.

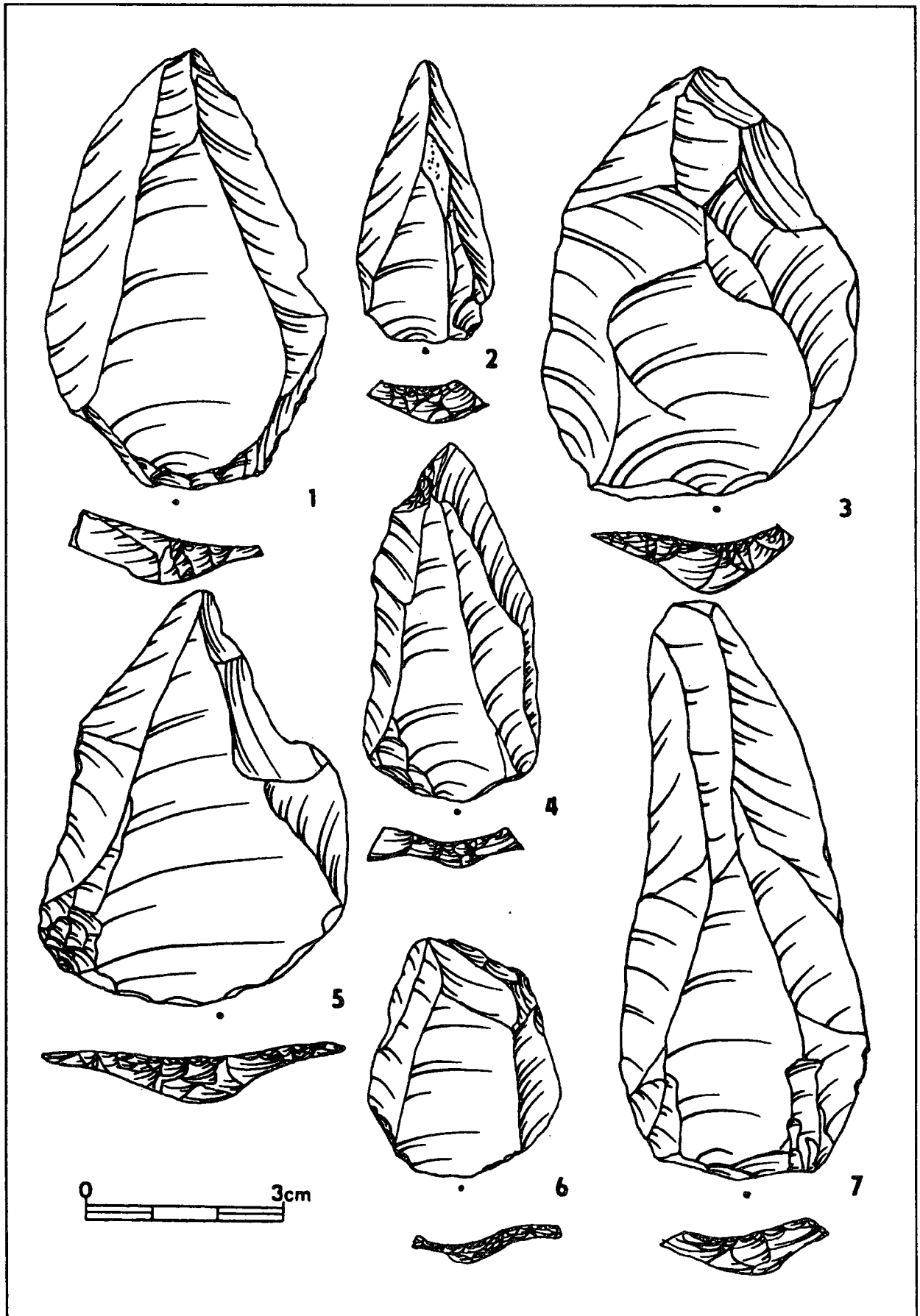


Figure 16 : 1-5 Lišen-Ctvrte, 6,7 Podolí I.

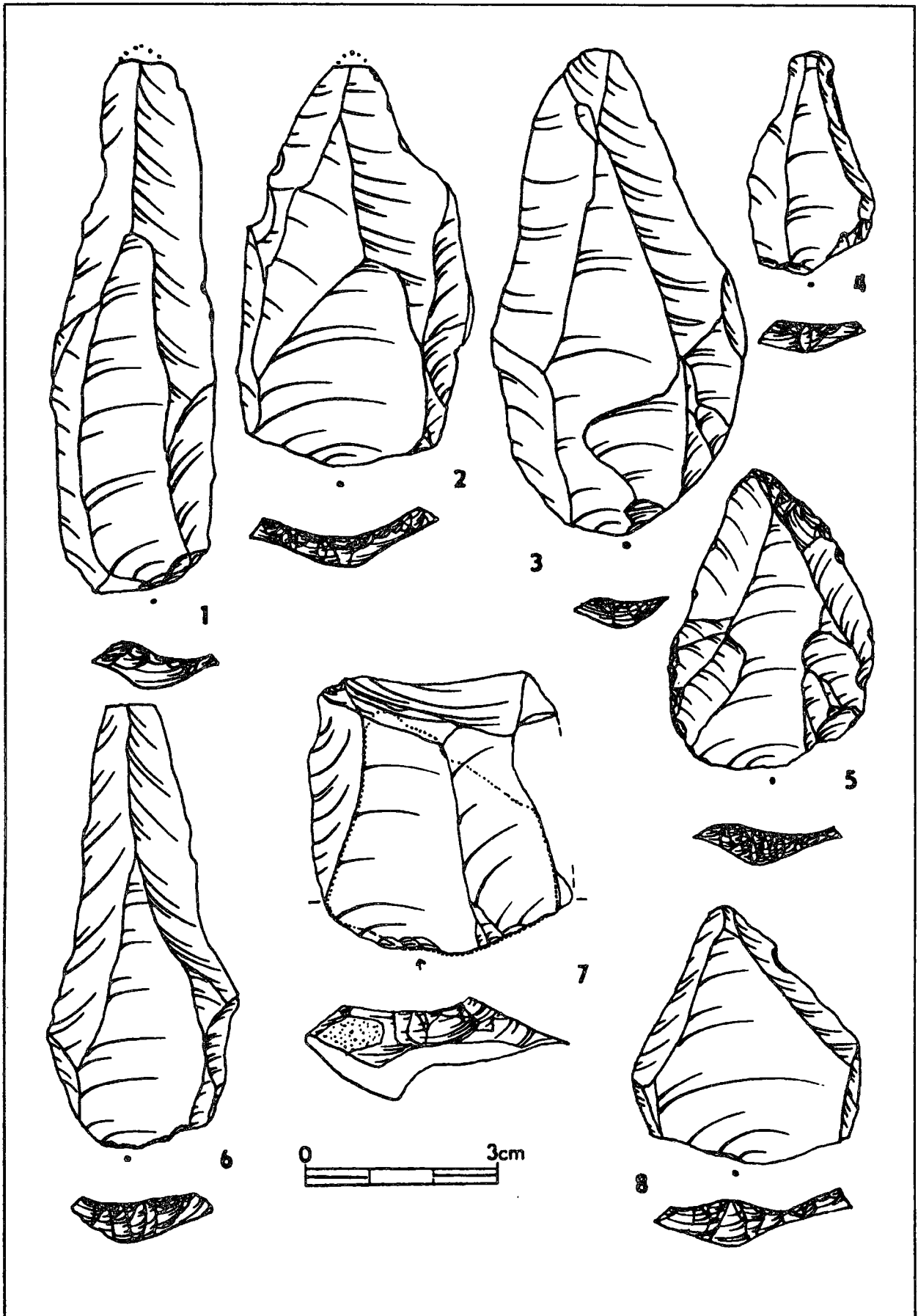


Figure 17 : 1-4 Podolí I; 5-8 Brno-Bohunice.

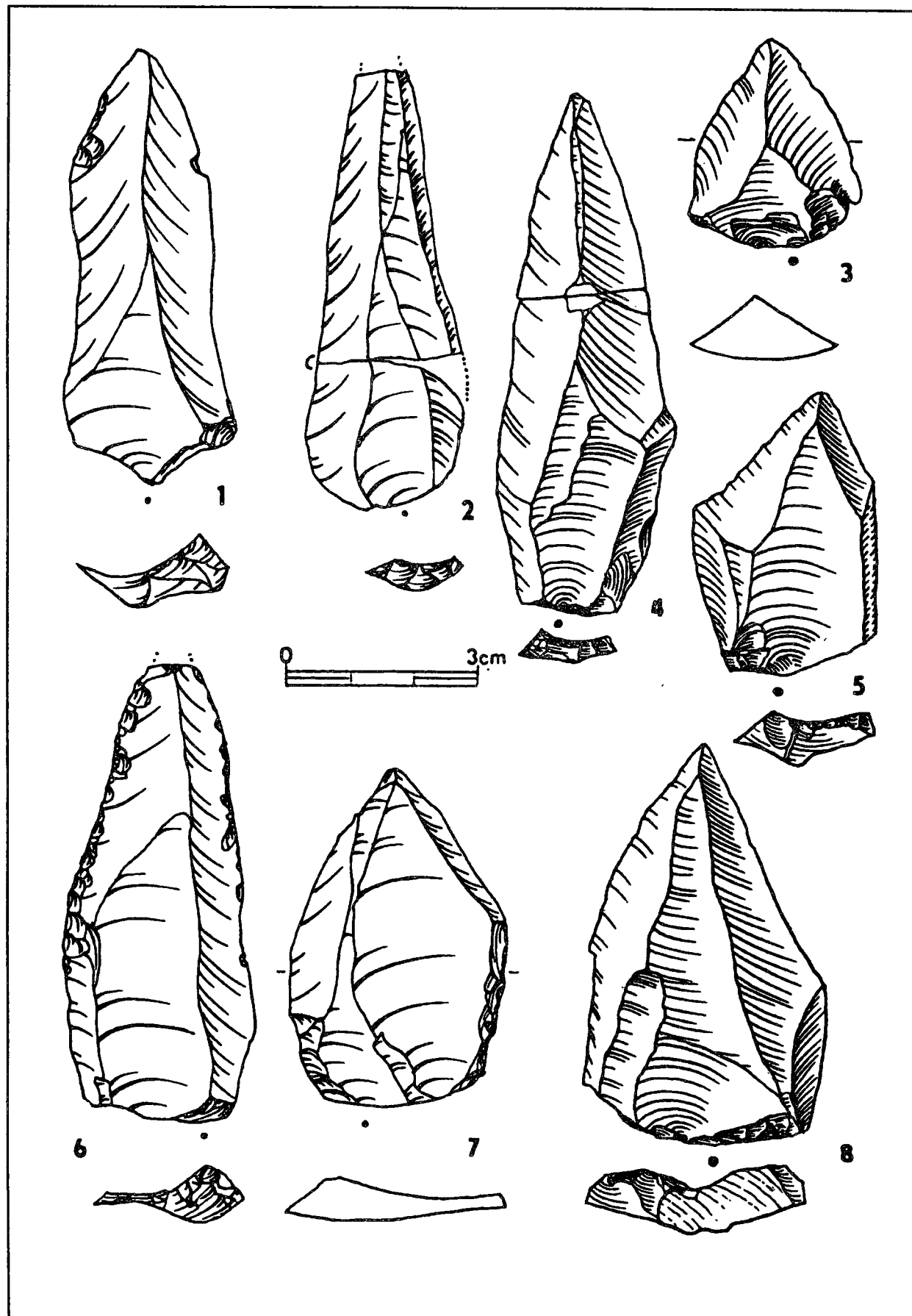


Figure 18 : 1-8 Stránská skála III-1.

of 10 against 3 among blades, while the bi-directional points are distributed evenly among both blades and flakes (11:10 in favour of blades). Their length ranges are accentuated by the measures of the smallest and biggest Levallois points: the former of 21mm length and 17mm width and the latter of 80mm length and 27mm width (Fig.18:4). On the verge of flake/blade there are 5 pieces with bi-directional dorsal scar patterns. In the diagram there are two main groups are set off: one within the range of 62 to 80 mm length, the other 30 to 50 mm.

Similarly to Stránská skála, also the material from Brno-Bohunice was first divided by individual finding units, which were distinguished so by K. Valoch during his rescue research (Valoch 1982). From these diagrams (Figs. 6-9), it is obvious that the general part of the collection of Levallois points was located in area I; from other three areas (II to IV) there come only scattered pieces. It is interesting that the findings from areas III and IV accord with the proposition of Demidenko and Usik about the relation between the size of points and presence of opposite dorsal scar patterns. The bi-directional points from these two areas are always bigger in size, rather responding to blades than flakes, in comparison to smaller points with unidirectional dorsal scar patterns. This fact is evident in the overall diagram (Fig. 13), which shows that the blade points with bi-directional dorsal scar patterns prevail over the blade points with unidirectional dorsal scar patterns (represented by only two pieces). Overall, in this material the bi-directional dorsal scar patterns dominate significantly over unidirectional ones.

In this respect, the material from Podolí I appears very interesting. It is represented exclusively by bi-directionally removed points, mostly only flaked (6 pieces: 2 blade points), whose width varies within the range from 20 to 38 mm. Objects of bigger size 88 and 90 mm long (Fig.17:1) come from this collection.

The Levallois points from Brno-Lišen have probably the most flaked character. Huge width by the proximal part, from 17 to almost 50 mm, and rather short length is also very typical of them. Although we may find only a very limited quantity of blade points, bi-directional dorsal scar patterns dominate in the material. Out of all studied Bohunician collections, this is the least bladed one and relatively very little integral in the sense of dimension. Evidently, it is also less homogenous than Orechov I. The Levallois points from Lišen with their dimensions and morphology resemble the Levallois point found in layer 7 in Vedrovice Ia, square 26/P. Unfortunately, neither this one is complete, as its terminal part is broken off (Oliva 1993, Fig. 4:7).

3. Conclusion

In the assemblages of Levallois points, belonging to several Bohunician (Podolí I, Brno-Bohunice, Stránská skála III-1, Lišen-Ctvrte) and Szeletian (Orechov I and II) collections, the following variables of Levallois points were observed: the length-width index of points in connection with their relevant bi-directional exploitation. Together with these factors, the character of the Levallois cores and

the eventual presence of crested blades (*lames à crête*) were also assessed. Only whole, genuine Levallois points (not pseudo-Levallois points) were used in the study. The results of the measurements have been converted into individual figures (1-13), in which all analysed points were recorded according to their dimension and the determined the following: Orechov I and II represented flake points, while in the Bohunician collections blade points are also found. From the metrical standpoint Bohunician Levallois points from Lišen have the smallest blade proportion.

The following tendencies are apparent in the analysed assemblages:

1. Blade Levallois points with bi-directional scar patterns slightly prevail over those with a unidirectional dorsal scar patterns.
2. The opposite or symmetrical position of negatives in bi-directional or unidirectional dorsal scar patterns probably does not have a determinable influence on the point types (that is, if it is a flake or blade type). At Orechov I, at Stránská skála III-1/B and at Podolí I the largest point is unidirectional. The aim probably was not to obtain long, semi-finished supports from opposed platform cores. Trough bi-directional exploitation the longitudinal convexity of cores was maintained more easily.
3. Flake Levallois points are quite shorter in length while at striking platforms they are relatively wide, as obvious especially on the material from Lišen (Fig.11).
4. Points of great dimensions (Podolí I, Stránská skála III-1 surface B, Orechov I) are rare and always occur in blade proportion.

Undeniable is also the usage of the crested blade technique, which is documented at Stránská skála III-1, Bohunice or Orechov I (Nerudová, in print a, b).

Two points, refitted together and described in the article by Demidenko and Usik (1993a) as bi-directional blade points (*ibid.* Fig. 4:1-2) were not evaluated quite correctly: only one of them is a blade, the other is subsequently removed and metrically already falls among the flakes. Due to the manner in which the re-preparation of the striking platform is carried out, it is obvious there is also a decrease of the removed support.

Through the analysis of preserved Levallois cores we determined that to a considerably degree their surface of exploitation was not oblong but the rather round or square (Nerudová, 1999; in print a, b; Valoch-Nerudová-Neruda, 2000).

In terms of percentages we discovered that in the analysed collections blade Levallois points never had representation greater than one-half in any case (Tabl.1). Roughly one-third of the points at Stránská skála III-1 and Brno-Bohunice are blade Levallois points. Podolí I is characterised by one-fourth representation of blade Levallois points and 100% representation of bi-directional dorsal scar patterns. Lišen-Ctvrte has a relatively low number of blades points in contrast to a great proportion of bi-directional dorsal scar patterns (Tabl.1) and after Orechov II and Podolí I the greatest proportion of this scar

pattern overall.

The author expected that the observed trends would be quite similar, especially at the Bohunician industries. However, it is shown that each collection must be assessed individually in terms of the evaluated features. The blade proportions of Levallois points fluctuate in each particular collection between 10-35%, the degree of dorsal scar patterns being bi-directional is between 27-100%.

Considering the closed circuit of industries from the Near East, the blade proportions of our Levallois points are considerably lower. On the other hand Bohunician Levallois points have bi-directional dorsal scar patterns (27-100%). It is a question as to whether this phenomenon is by certain local traditions or the influence of raw materials.

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AMM Acta Musei Moraviae, Brno
AR Archeologické rozhledy, Praha
PA Památky archeologické, Praha
PV Přehledy výzkumu, Brno