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EARLY UPPER PALEOLITHIC INDUSTRIES IN MORAVIA: A REVIEW OF RECENT EVIDENCE

by
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In the last 15 years, developing a chronological model of the evolution of the EUP in Moravia has been the major focal point of interest, ever since the first stratified material came to light. Previous theories had been based on surface collections mainly.

The present model is build on two main sources of evidence: stratigraphy and radiometry. The transitional Middle/Upper Paleolithic period may be divided into three phases:

1. The Central European Micoquian in Kůlna (VALOCH, 1980) evolved during the First Pleniglacial period. It is probable that the settlement avoided the unfavourable time-span of the Pleniglacial maximum (layer 7b) and that the rich horizon 7a, related to the fossils of *Homo sapiens neanderthalensis*, falls in its final phases. At the end of the First Pleniglacial (before 40.000 B.P.), Bohunice-type industries appear (Bohunice-VALOCH, 1976, 1982; Stránská skála IIIa, layer 4 - SVOBODA, 1985, 1987 a; Stránská skála IIa, layer 5 - not publ.). The archaeological material is related to cryosolifluciton processes of various sedimentary characters. This phenomenon is being investigated by T. Czudek with respect to the temperatures and humidity responsible for the deposition.

2. During the first soil formation of the Interpleniglacial (Hengelo, around 38.000 B.P.) the industries of the Bohunice-type were still present (Stránská skála III, layer 5 - SVOBODA, 1985, 1987 a), together with the Szeletian (Vedrovice V - VALOCH, 1984).

3. The Aurignacian was present during the second soil formation of the Interpleniglacial (Denekamp-Arcy, around 31.000 B.P.) at Stránska skála (site IIIa, layer 3 - SVOBODA, 1985, 1987 a; site II, layer 4 - SVOBODA 1987 b; site IIa, layer 4 - not publ.). This horizon is comparable to the hunting site in the Pod hradem cave (VALOCH, 1969, 137). The important finds of the early *Homo sapiens sapiens* at Mladec, accompanied by the Mladec points, can in all probability be placed somewhere during the Interpleniglacial (JELÍNEK, 1983; SVOBODA, 1986).

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Further evidence is provided by palynological studies. They make it possible to note certain differences between the final First Pleniglacial vegetation and the steppe - parkland steppe landscapes of the Interpleniglacial (cf. SVOBODA-SVOBODOVÁ, 1985; SVOBODOVÁ, 1987).

LITHIC RAW MATERIALS

An important phenomenon of broader socio-economic significance is the intensity of local lithic material exploitation (hornstones, quartzites), a trend culminating in the beginning of the EUP period (Bohunice-type, Szeletian). In the Aurignacian, a certain increase of foreign rock import, especially of flint, may be observed. This evolutionary trend predominates in the following periods (Pavlovian, Magdalenian).

Four lithic exploitation areas in Moravia, in the vicinity of Ondratice, Stránská skála, Boritov and Krumlovsky les, were defined (SVOBODA, 1983). These are either regions in an area several km from localized raw material sources or in places with a concentration of non-localized raw materials, where numerous industries were made prevailingly of local rocks. These industries may have more or less pronounced workshop character: number of raw material pieces, pre-cores, cores, debris and non-retouched flakes of larger dimensions. Typologically the core tools/cores, finished or unfinished bifacial forms, side-scrapers and/or denticulates may reach higher percentages. Certain missunderstandings were induced in the recent literature by difficulties with dividing this workshop component, related to the context and function, from the Middle Paleolithic ("archaic") component, related to typological tradition (for discussions cf. VALOCH, 1984; SVOBODA, 1984; ALLSWORTH-JONES, 1986). In the lack of stratified evidence, the danger exists that the Upper Paleolithic cultures would be developed out of their own workshop sites.

With respect to the well-known fact that the areas of raw material sources were settled repeatedly in the prehistory, the disadvantage of surface collections for detailed chronology and systematics of the Moravian EUP is evident. However, this material may be used for studies of technology and raw material economics.

Another type of behavior is connected with the radiolarite material. An important source area in the montaneous parts of Moravian-Slovakian borderland was hardly settled in this period. The material, however, is scattered in smaller quantities in many of the EUP industries in and outside Moravia, and concentrated at Tvarozná.

THE BOHUNICE-TYPE INDUSTRIES

The actual state of knowledge on this type of industry has been summarized in three monographs: Bohunice (VALOCH, 1976), Ondratice (SVOBODA, 1980), Stránská skála III, IIIa and Lísen (SVOBODA, 1987 a) and in a number of related papers. Most of the sites are located next to the raw material sources, within the Stránská skála and Ondratice exploitation areas. Extension of the Bohunice-type industries is limited to the distribution area of hornstones from Stránská skála (max. 40 km), along the S-E slopes of the Bohemian Massif (Fig. 1).

Stratified evidence. Chronologically, the Bohunice-type industries represent the first appearence of the Upper Paleolithic in Moravia, beginning at the end of the First Würmian Pleniglacial and evolving to the Interpleniglacial (Hengelo). This geochronological division may be used as a base for periodisation of the industries.

The first stratified industry was excavated by K. VALOCH (1976) in Brno-Bohunice (Fig. 4). After K. Valoch, the industry and the charcoals were located at the basis of an

interstadial soil (layer 4); however, the radiocarbon dates (before 40.000) are slightly earlier than is supposed for the first Interpleniglacial pedogenesis. New stratigraphic observations in the vicinity of K. Valoch's site unearthed a horizon of removed loessic earth with charcoals, inferior to the soil (layer 4a). The character of sedimentation is analogical to removed final First Pleniglacial layers at Stránská skála. Pollen analysis indicates a tundra landscape with the dominance of *Salix* (SVOBODA-SVOBODOVÁ, 1985, Fig. 2, Tab. II). The fact that this horizon was not recognized during K. Valoch's excavation may be due to the effect of Interpleniglacial pedogenesis upon the substrat (cf. VALOCH, 1976, 10).

The industry is primarily composed of Levallois-leptolithic technologies using hornstone of Stránská skála-type which was transported to the site from a distance of about 7 km. Some of the bifacial leaf-points and typical side-scrapers are made out of hornstones of the Krumlovsky les-type and from the Cretaceous hornstones. These were available in secondary sources (river gravels) in the immediate vicinity of the site (PRICHYSTAL, 1987), or by transport from primary sources in the Boritov and Krumlov exploitation areas. Smaller specialized workshops (VALOCH, 1974a) document, however, that even these foreign materials were worked directly at the site.

The Levallois points, simple side-scrapers, notches and denticulates are the most common types. Simple burins are more frequently found than end-scrapers. The end-scrapers are flat, often made on wide flakes. Thick "Aurignacian" forms of end-scrapers are exceptional, but they may appear. Further important exceptions include an atypical Chatelperron-type point and a Quinson-type point.

In 1982, K. VALOCH published supplementary materials from the same site, yielding more tools of similar charater.

At Stránská skála IIIa (SVOBODA, 1985, 1987 a), the First Pleniglacial is well demonstrated by a redeposited sequence of paleosoils, calcaneous earths and small gravel removed by solifluction. After T. Czudek, the character of the redeposition is influenced by increasing humidity, increasing temperature and by deep thaw of the permafrost. The pollen spectrum is poor and it documents a cold climate. The Bohunice-type industry lies in the uppermost part of the redeposited sequence (layer 4), overlaid by the second Interpleniglacial soil with Aurignacian industry (layer 3; Fig. 5).

With the few exceptions (quartz, radiolarite, etc.) the bulk of the material of this site is made of local hornstones of the Stránská skála-type. The leaf-points are absent. Levallois points, side-scrapers, notches and denticulates appear frequently (Fig. 6-7). An end-scraper or a burin may even be made on the extremity of Levallois points (Fig. 6: 4,9). Compared to Bohunice, the end-scrapers predominate the burins, and the thick "Aurignacian" form is more frequently used (Fig. 7: 12-14). Of importance is an atypical point with ventroterminal retouche (Fig. 6: 12).

At the site of Stránská skála III the industry is found in the first Interpleniglacial soil (Fig. 9) and it is therefore more recent. The pollen analysis indicates a steppe landscape with arboreal elements *(Pinus, Betula, Picea, Alnus)*. Compared to the site IIIa, certain differences may be noted.

Most of the retouched tools are made from foreign rocks (radiolarite, different hornstones). The rest of the industry, made out of local hornstones, documents a primary workshop specialized in Levallois points, blades and pre-cores. The end-scrapers dominate (including one thick — "Aurignacian" — piece) while the burins are absent. The leaf-points are absent as well, but flat ventroterminal retouch has been applied on the extremity of a Levallois point (Fig. 10: 4). Side-scrapers, notches and denticulates complete the tool-kit (Fig. 10-11).

This paper was written during summer field season, at the moment when the Bohunice-type layer (5) appeared from under the Aurignacian layer 4 at the site of Stránská skála IIa. The sediment is composed of limestone rubble removed by cryosolifluction processes. It would be premature to characterize this new material now, but it will certainly enlarge out knowledge of stratified Bohunice-type industries.

Variability of the surface sites. The superposition of the Bohunice-type and the Aurignacian is now documented repeatedly at Stránská skála IIIa and IIa and suggests that the surface sites in the vicinity are mixed. It may be noted, however, that Stránska skála II (VALOCH, 1954) is prevailingly Aurignacian material, while Podstránská (VALOCH, 1974b) is prevailingly Bohunician.

Some of the surface collections attributed to the Bohunice-type, especially Lísen and Ondratice, are extremely rich. They contain tens of thousands of artifacts and numerous varied types. In both cases, however, a longer occupation must be supposed and certain contamination of different cultural elements cannot be excluded.

The Lísen industry (SVOBODA, 1987 a) is made out of Stránská skála hornstones, transported from a distance of about 2 km, together with a certain percentage of foreign materials. In Ondratice, on the other hand, local quartzites were used and supplemented by silicite rocks of higher quality (including the Stránská skála hornstone). It has been theoretically supposed (without being possible to prove stratigraphically) that the local sources were intensively exploited mainly in the early EUP, while foreign rock were more frequently imported during the later EUP (cf. VALOCH, 1967; SVOBODA, 1980).

THE SZELETIAN

Szeletian sites penetrate deeper into the Bohemian Massif (to the NW) than the Bohunice-type industries (Fig. 2). This population densely occupied the Krumlovian and Boritov exploitation areas and exploited their sources. It also seems to have occupied the caves more often than the other EUP populations.

Stratified evidence. The hitherto only well stratified and dated Szeletian in Moravia was excavated by K. VALOCH (1984) at Vedrovice V. It demonstrates that the Szeletian existed in Moravia during the first pedogenetical process of the Interpleniglacial (Hengelo, about 38 000 B.P.), side-by-side with the Bohunice-type industries. Evidence concerning its further evolution is less clear; however, it is probable that the Szeletian co-existed with the Aurignacian during the evolved Interpleniglacial period, so that it could influence the following Pavlovian development.

The lithic material of Vedrovice V is made from local hornstones of the Krumlovsky les-type, or exceptionally from radiolarite, by using non-Levallois flake and blade technologies. A major portion of the retouched implements (4 leaf-points, 2 side-scrapers) is covered by surface flat retouche. The side-scrapers, notches and denticulates are common, end-scrapers and burins are present. Only a few pieces wittness that Levallois technology was known (VALOCH, 1984).

Variability of the other industries. From the point of view of function, the Szeletian sites may be divided into home-base/primary workshop sites, located in lithic exploitation areas (Jezerany and Boritov), home-base/secondary workshop sites (Neslovice, Vincencov), and specialized hunting sites in caves. The latter are typologically poor and their attribution to the Szeletian is mainly based on the presence of isolated leaf-points (Pod hradem, Rytírská, Krízova, Turold). In Jezerany in the Krumlovian area (VALOCH, 1966) and around Boritov (not publ.) specialized workshops produced the leaf-points. These industries yielded not only the standardized final products, but also coarser bifacial forms,

disgarded and unfinished blanks, pre-cores, cores and débitage.

The Szeletian industries use non-Levallois technologies for both the flake and blade production. Typologically, they may be divided into the end-scraper-dominated (Jezerany, Neslovice, etc.) and the burin-dominated ones (Vincencov). It is important to note that the only hitherto studied burin-dominated industry - Vincencov (SVOBODA-PRICHYSTAL, 1987) is located in the Drahany area, in the immediate vicinity of Aurignacian burin-dominated sites (Urcice, Ondratice II). Both the Aurignacian and the Szeletian burins are similar: they are made on small blades, often truncated. Transversal burins, rare in the other Moravian assemblages, are present in this area.

Both the burin-dominated and end-scraper-dominated industries contribute an important share of side-scrapers. Before using the "Middle Paleolithic" elements as chronological markers (cf. VALOCH, 1973, 54), it is necessary to separate them from the workshop component in case that the site is located inside a lithic exploitation area.

The leading tool-type, the leaf-point, is more frequently found in the Szeletian than in any other Moravian culture (about 15 % in Neslovice, 26-28 % in Jezerany; VALOCH, 1973, 1966). An even more important stylistic pattern, however, is the general dispersion of flat retouche in shaping not only the surface of points, but also of side-scrapers, end-scrapers and other tool types. Another important type is represented by the Mousterian (dorsaly retouched) points. Aurignacian types such as thick end-scrapers and carinated burins are more common in Szeletian than in most of the Bohunice-type industries.

THE AURIGNACIAN

The Aurignacian settlement forms a relatively dense network (Fig. 3). It may be divided into several regionally restricted groups: the Krumlovsky les area (1), Brno Bassin (2), Zdánicky les area (3), Drahany area (4), Kromeríz area (5) and the Moravian Gate (6). Practically all the local raw materials were used (even if it is sometimes difficult to separate the Aurignacian in the rich EUP materials in lithic exploitation areas), but an important share of rocks has been imported. The most intensively exploited were the Krumlov and the Stránská skála exploitation areas.

Stratified evidence. Stratigraphically, the Aurignacian of Stránská skála is related to the second soil formation of the Würmian Interpleniglacial (Denekamp - Arcy). The Aurignacian settlement in Moravia, however, must have evolved longer than the period of one pedogenetical process. This is suggested by the density and richness of the settlement and by rare Aurignacian finds from pure loess (Vedrovice II, Malomerice-Obciny). Direct superposition of the Aurignacian and the Bohunice-type industries is documented at Stránská skála IIa and IIIa, and the superposition of Pavlovian and Aurignacian may be supposed at Predmosti (KLÍMA, 1973). Certain chronological overlapping of the mentioned cultures is probable as well.

The first stratified Aurignacian assemblage has been excavated at Stránská skála IIIa, layer 3 (SVOBODA, 1985, 1987 a), superimposed over Bohunice-type industries (Fig. 5). The industry is end-scraper-dominated (Fig. 8), with Aurignacian forms composing the greater part of this group (Fig. 8: 1-7). The burins are less common (Fig. 8: 13-16). The side-scrapers, notches, denticulates and truncated blades complete the tool-kit. A hearth found in this layer yielded date of 30 980 B.P.

Layer 3 at Stránská skála IIIa has been, at certain places, affected by subsequent cryoturbation processes, so that removal of some artifacts from the subsoil cannot be excluded. It was therefore important to discover an intact Aurignacian layer at site II, deposited directly on the limestone subsoil. This industry (SVOBODA, 1987 b) contains

about 40 % of end-scrapers, including typical Aurignacian types (Fig. 12: 4-6). This assemblage is completed by a burin (Fig. 12: 7), a splitered piece (Fig. 12: 3), 2 retouched blades (Fig. 12: 11-12), side-scraper, notches and denticulates.

At the moment of writing, another Aurignacian assemblage is being excavated at Stránská skála IIa, superposed over the Bohunice-type industries. It is larger, and, although not yet studied in detail, clearly end-scraper-dominated (Fig. 13). The combinations end-scraper/burin appear as well. This layer yielded a C14 date 32.350 B.P..

Compared to the Bohunice-type industries of Stránská skála, the share of blades (Ilam) increased and the striking platforms are less frequently facetted. The Levallois elements disappear.

Variability of the surface collections. The typical Aurignacian industries are based on Upper Paleolithic blade technology. Typologically, they may be divided into end-scraper-dominated and burin-dominated sorts (apart from relatively balanced industries). There is certain regional divergence between the two groups. In the Drahany area the burin-dominated industries predominate (Urcice, Ondratice II). Similarly as in the near-by Szeletian site of Vincencov, the burins are made on blades and bladelets, often truncated, and the transversal burins emerge as well. In the Kromeríz area, on the other hand, the end-scraper-dominated industries are more common, while in the Brno-Bassin the both sorts are found side-by-side.

The end-scraper/burin dichotomy has been explained as reflecting chronological-developmental factors of an evolution from end-scraper-dominated to burin-dominated assemblages (VALOCH, 1964), or as co-existence of two separate Aurignacian facies, each of them undergoing its own complicated evolution (OLIVA, 1980). The main reason for rejecting the first model both by M. Oliva and K. Valoch was the apparent contradiction between the "archaic" appearence and the high share of burins in the newly collected industries from the Krumlovian exploitation area (Vedrovice I, II, Kuparovice I).

With the lack of stratified evidence, especially for the burin-dominated group, it is difficult to discuss this question in the present moment. However, it is hard to accept 1. that industries with more pronounced workshop character, or, from the other point of view, industries of "archaic" appearence (Bycí skála and sites of the Krumlovian exploitation area) would necessarilly be the earliest, and 2. that there would be any strictly linear evolution of typological indices (for comments see SVOBODA, 1984; ALLSWORTH-JONES, 1986).

K. Valoch has put much effort into determining the geological age of the surface collections from Vedrovice II and Kuparovice I, believed by him to represent the earliest ("Lower Würmian") Aurignacian (VALOCH *et al.*, 1985). In Vedrovice II, some of the artifacts have penetrated into the uppermost parts of an undated loess (VALOCH *et al.*, 1985, Beil. II). In a section near the site, 9 artifacts could be dated to the beginning of Lower Würmian times using paleopedological methods ("basis of PK II", SMOLÍKOVÁ in VALOCH *et al.*,1985, 190). They, therefore, can hardly be related to the EUP surface finds in the vicinity. At Kuparovice I, a trial trench helped to shed light on the relation of the artifacts to the Würmian fluviatile deposits and to suggest that the site could be dated to Interpleniglacial ("Middle Würmian") time (KARÁSEK in VALOCH *et al.*,1985, 183).

Beside the typical Aurignacian, there exist regionally restricted industries in the area of Zdánicky les (Krepice - KLÍMA, 1968/9; Klobouky, Diváky - OLIVA, 1984; SVOBODA-HAVLÍCEK, 1987) and to the east of the Morava river, penetrating into the Moravian Gate (Prestavlky, Lhota - KLÍMA, 1978, 1979). They make larger use of flake technology and are typologically closer to the Szeletian because of a higher share of typical side-scrapers and leaf-points. In many cases the distinction between atypical Aurignacian and Szeletian is unclear (cf. Hostejov - VALOCH, 1985).

CONCLUSIONS

The Central European Micoquian, based on a technology of bifacial flat retouch and irregular (non-Levallois) cores demonstrates little to suggest a further evolution towards the Upper Paleolithic. More progressive tedencies such as developed core preparation and blade production may be observed in some Levallois-influenced Middle Paleolithic industries of neighbouring countries (Dniestr region, Balkans). However, the typical Upper Paleolithic tool-types such as end-scrapers and burins are still relatively rare in these assemblages.

In Moravia, the appearence of Bohunice-type industries at the end of the First Würmian Pleniglacial seems to be proved both stratigraphically and radiometrically. The transitional character of these industries is well suited to their chronological position. The technology includes both the Middle Paleolithic (Levallois) and Upper Paleolithic (leptolithic) techniques and even some transitory types between them (SVOBODA, 1980). Upper Paleolithic tool-types are not only present, but they are frequent. The Bohunice-type industries are related to the Levallois-influenced Middle Paleolithic of the neighbouring countries, but they are more evolved in the direction towards the Upper Paleolithic.

The Szeletian represents a non-Levallois variation of the EUP complex, with flat surface retouche of the tools as the most important technological and stylistic pattern. It is contemporaneous with the Bohunice-type industries during the early Interpleniglacial at least, and the both units seem to respect each other geographically (Fig. 1-2).

At the moment, there is no sufficient evidence to document the existence of the typical Aurignacian in Moravia before the Interpleniglacial, as K. Valoch (VALOCH *et al.*,1985; VALOCH, 1986) has attempted to show. Nor many the Bachokirian of Bulgaria and one of the Istálloskö dates from Hungary serve as proofs of the earliest Aurignacian in Moravia. This naturally does not mean that a very early Aurignacian will not be found in this region in the future.

The present state of knowledge permits us to state that there may have existed, before the appearence of the typical Aurignacian in different parts of Europe, various transitional industries which include the thick end-scrapers (the Bohunice-type, the Bachokirian). German collegues have been kind enough to show me a typical Aurignacian end-scraper found in a Middle Paleolithic context at the early Interpleniglacial site of Remagen. In another words, it seems that the first appearence of Aurignacian end-scrapers preceded the typical Aurignacian culture.

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TABLE 1

Review of the stratified evidence

Site	Bohunice	SS II	SS IIa		SS III	SS IIIa		Vedrovice V
Layer	4 - 4a	4	4	5	5	3	4	4
Sediment	soil/solifl.	soil	soil	solifl.	soil	soil	solifl.	soil
C 14 (B.P.)	40173 ± 1200 42900 + 1700 - 1400 41400 + 1400 - 1200		32350 ± 900		38200 ± 1100 38500 + 1400 - 1200	30980 ± 360	41300 +3100 -2200	39500 ± 1100 37650 ± 550
Chronology	final Pleniglacial	Interplen. 2nd soil	Interplen. 2nd soil	final Pleniglacial	Interplen. 1st soil	Interplen. 2nd soil	final Pleniglacial	Interplen. 1st soil
Culture	Bohunice	Aug	Aug	Bohunice	Bohunice	Aug	Bohunice	Szeletian
Reference	Valoch 1976 Valoch 1982 Svoboda-Svobodová 1985	Svoboda 1987 b	not publ.		Svoboda 1985, 1987 a Svoboda-Svobodová 1985			Valoch 1984 Valoch 1986

TABLE 2

Typology of the stratified industries

Site	Bohunice	SS II	SS III		SS IIIa	Vedrovice
Layer	4	4	5	3	4	4
End-scrapers (thick and shouldered)	2	2	1	7	5	0
End-scrapers (others)	28	4	15	5	14	5
Burins	33	1	0	5	3	3
Leaf-points	12	0	0	0	0	4
Points with ventroterm.ret.	0	0	1	0	1	0
Points with dorsal ret.	3	0	2	0	0	1
Levallois points	98	0	10	1	12	0
Other points	2	0	2	0	0	0
Side-scrapers	51	1	7	4	10	10
Notches and denticulates	81	3	3	6	16	38
Other tools	20	4	9	5	9	3
Combined tools	1	0	0	0	0	0

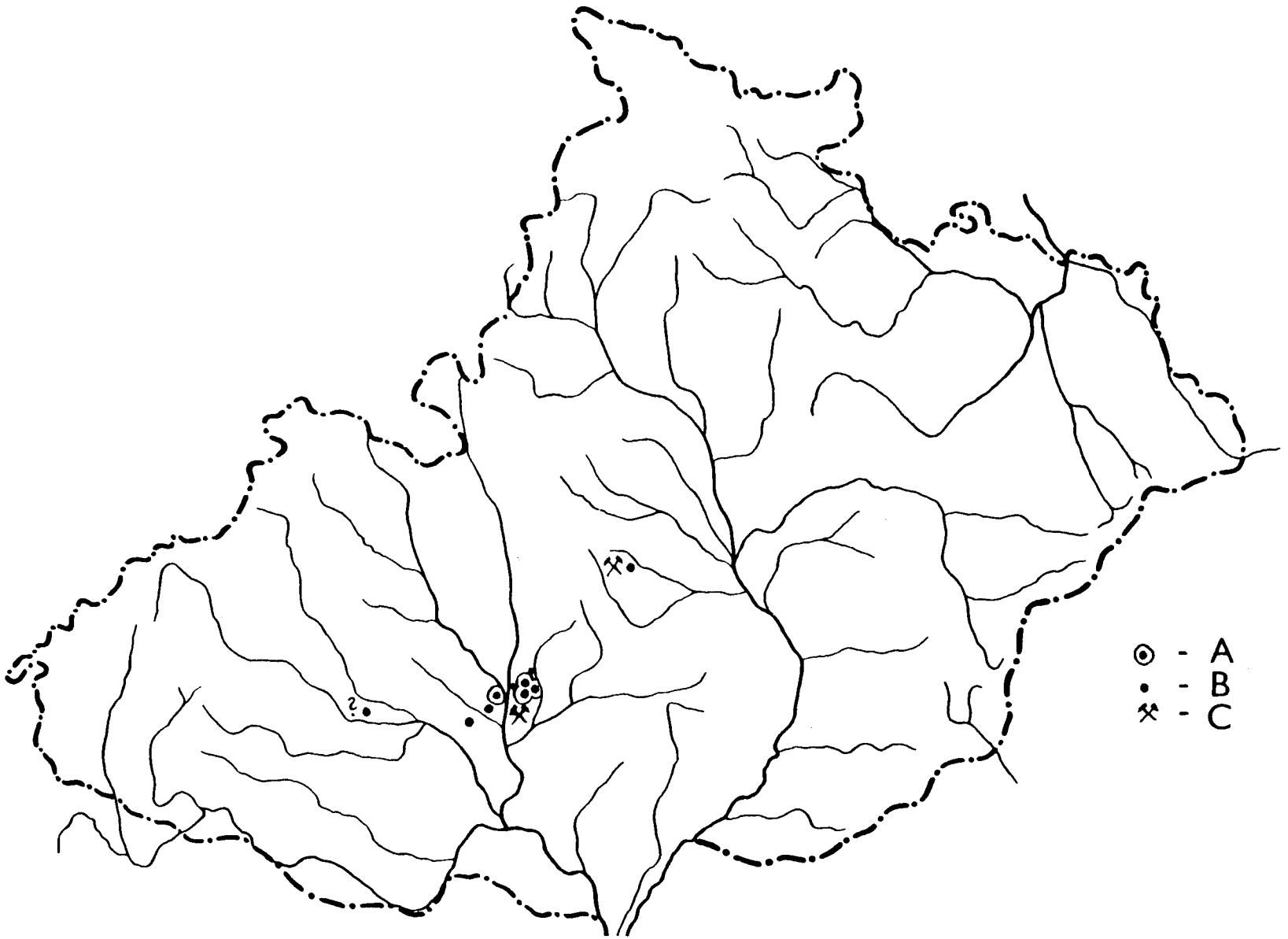

Figure 1 - The Bohunice-type sites.
A - stratified sites; B - surface sites; C - lithic exploitation areas.

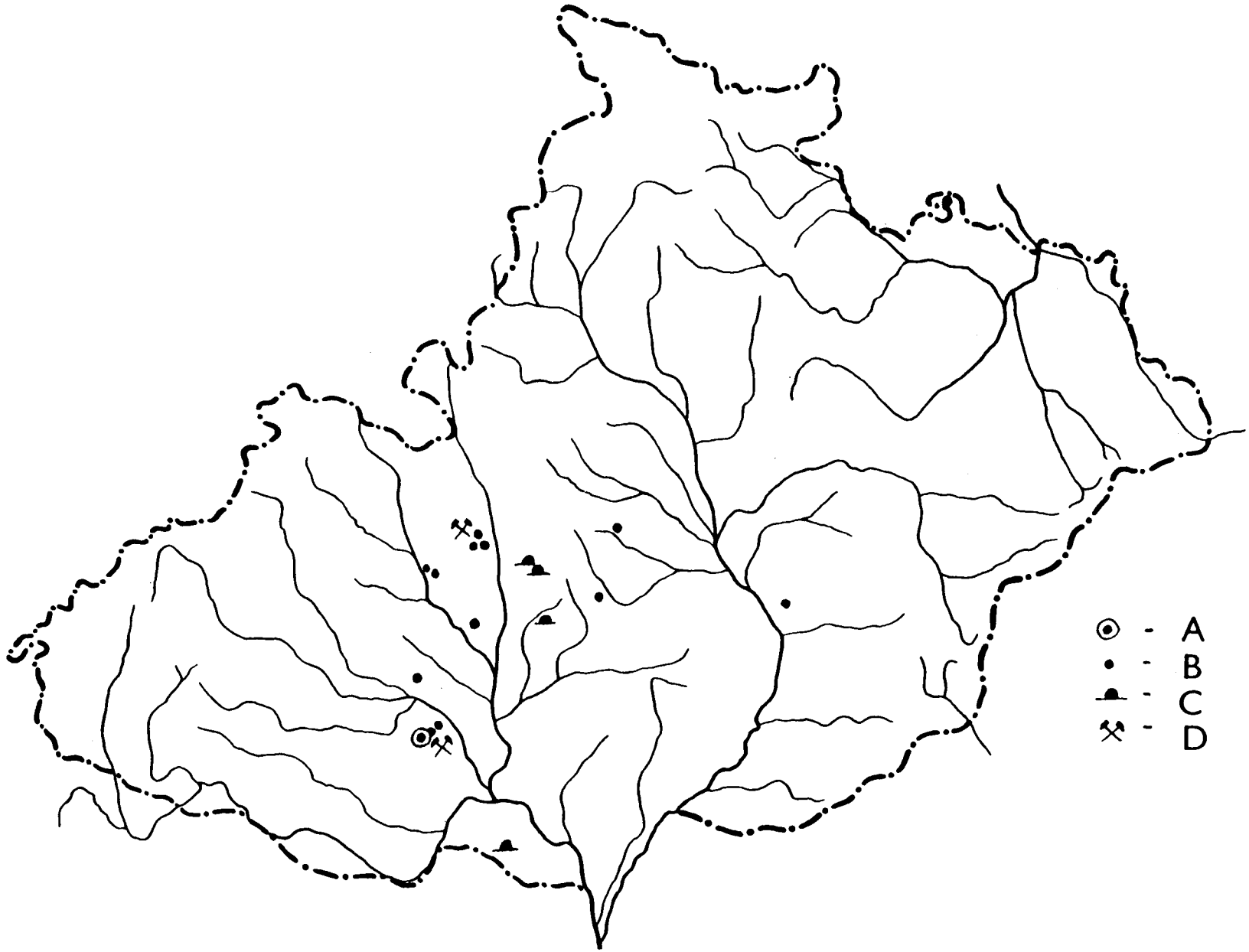

Figure 2 - Important Szeletian sites.
A - stratified sites; B - surface sites; C - caves; D - lithic exploitation areas.

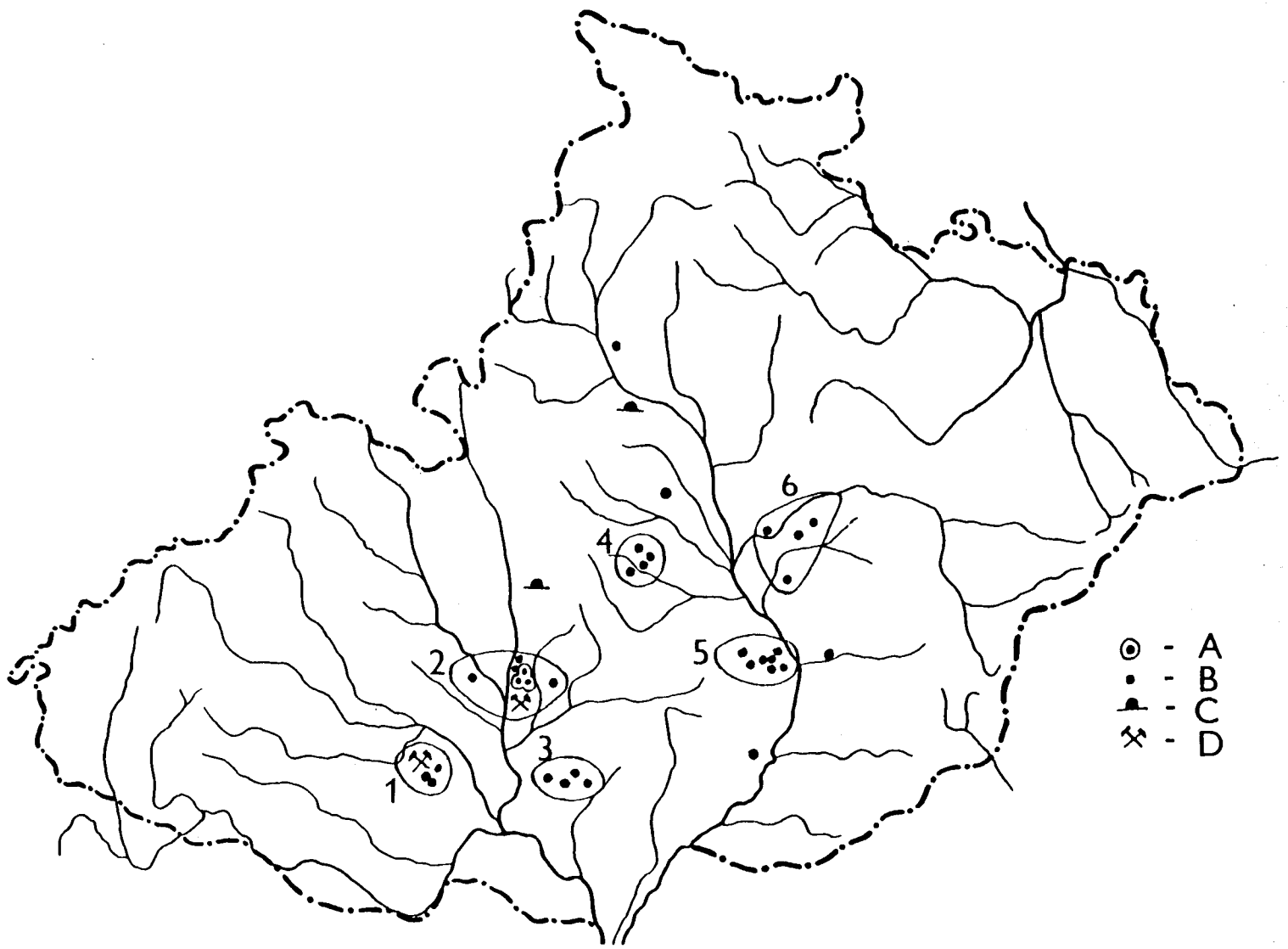

Figure 3 - Important Aurignacian sites.
A - stratified sites; B - surface sites; C - caves; D - lithic exploitation areas.
1 - Krumlovsky les area; 2 - Brno Bassin; 3 - Zdánicky les area;
4 - Drahany area; 5 - Kromeríz area; 6 - Moravian Gate.

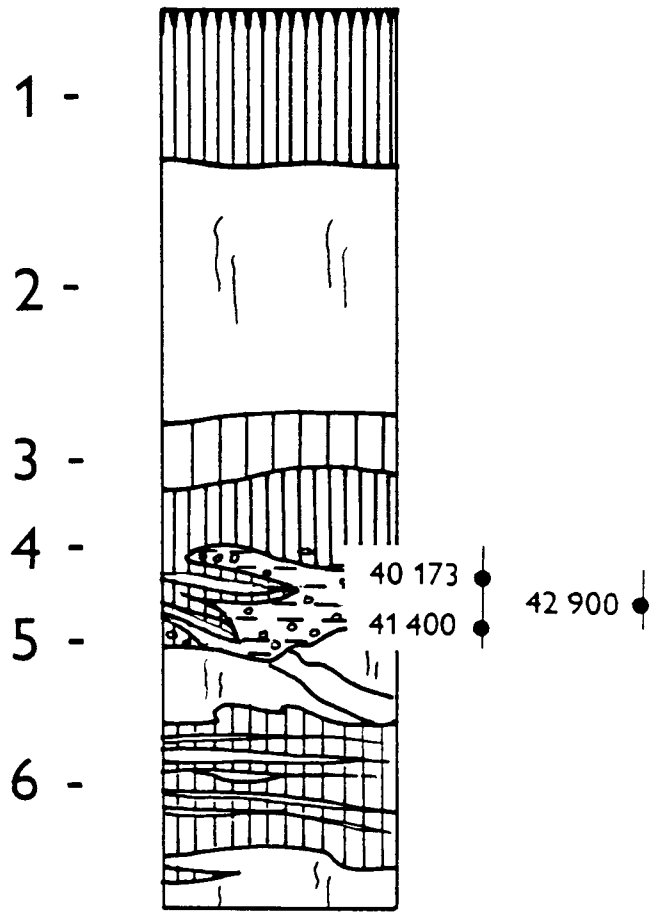

Figure 4 - Brno-Bohunice, section. The data obtained by K. Valoch (1976) are hypothetically placed into a section which has been recently studie.

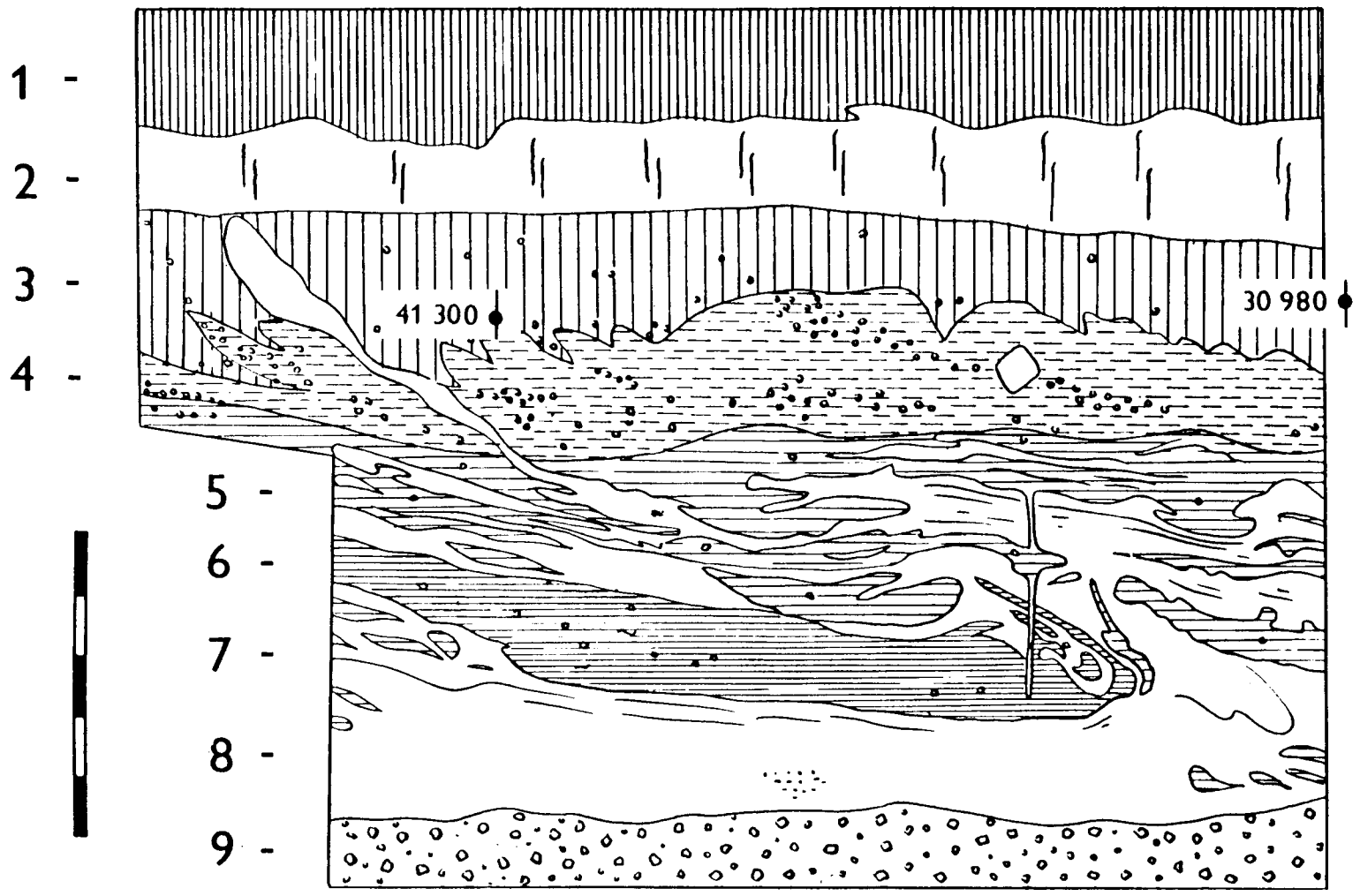

Figure 5 - Stránská skála IIIa, section 1984.
Layer 4 - the Bohunice-type; layer 3 - Aurignacian.

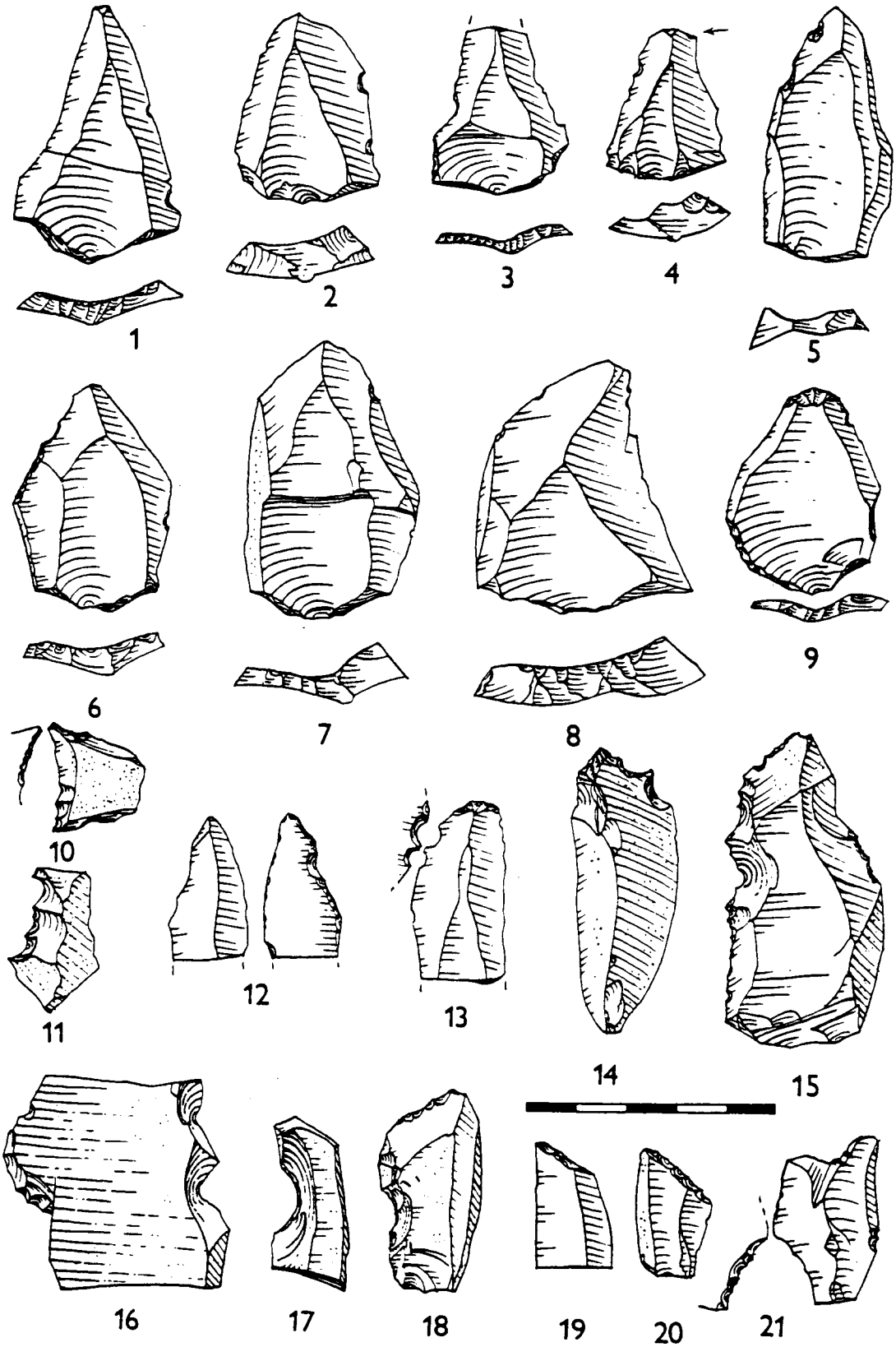

Figure 6 - Stránská skála IIIa, layer 4.
Bohunice-type industry: the final First Pleniglacial phase.

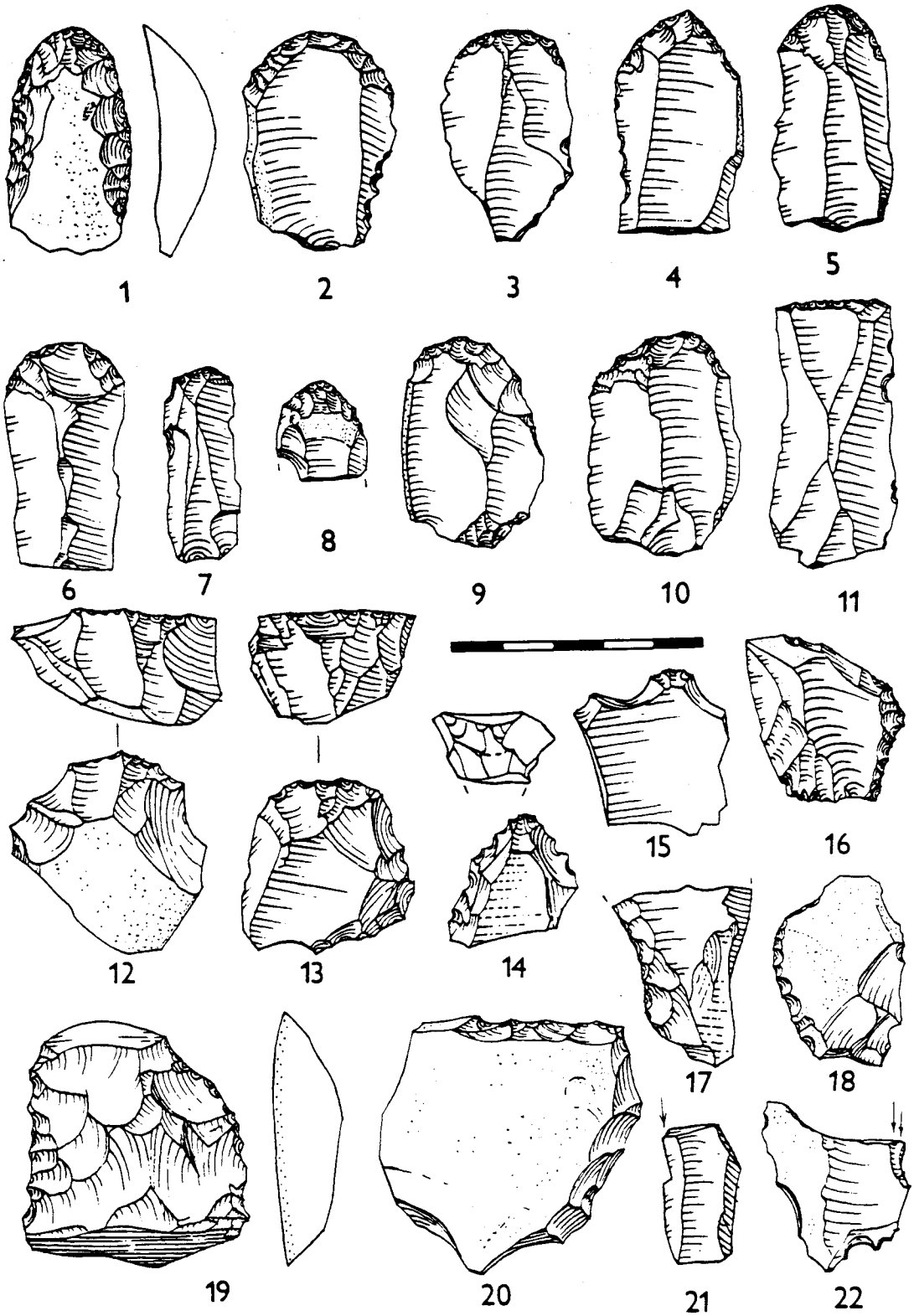

Figure 7 - Stránská skála IIIa, layer 4.
Bohunice-type industry: the final First Pleniglacial phase.

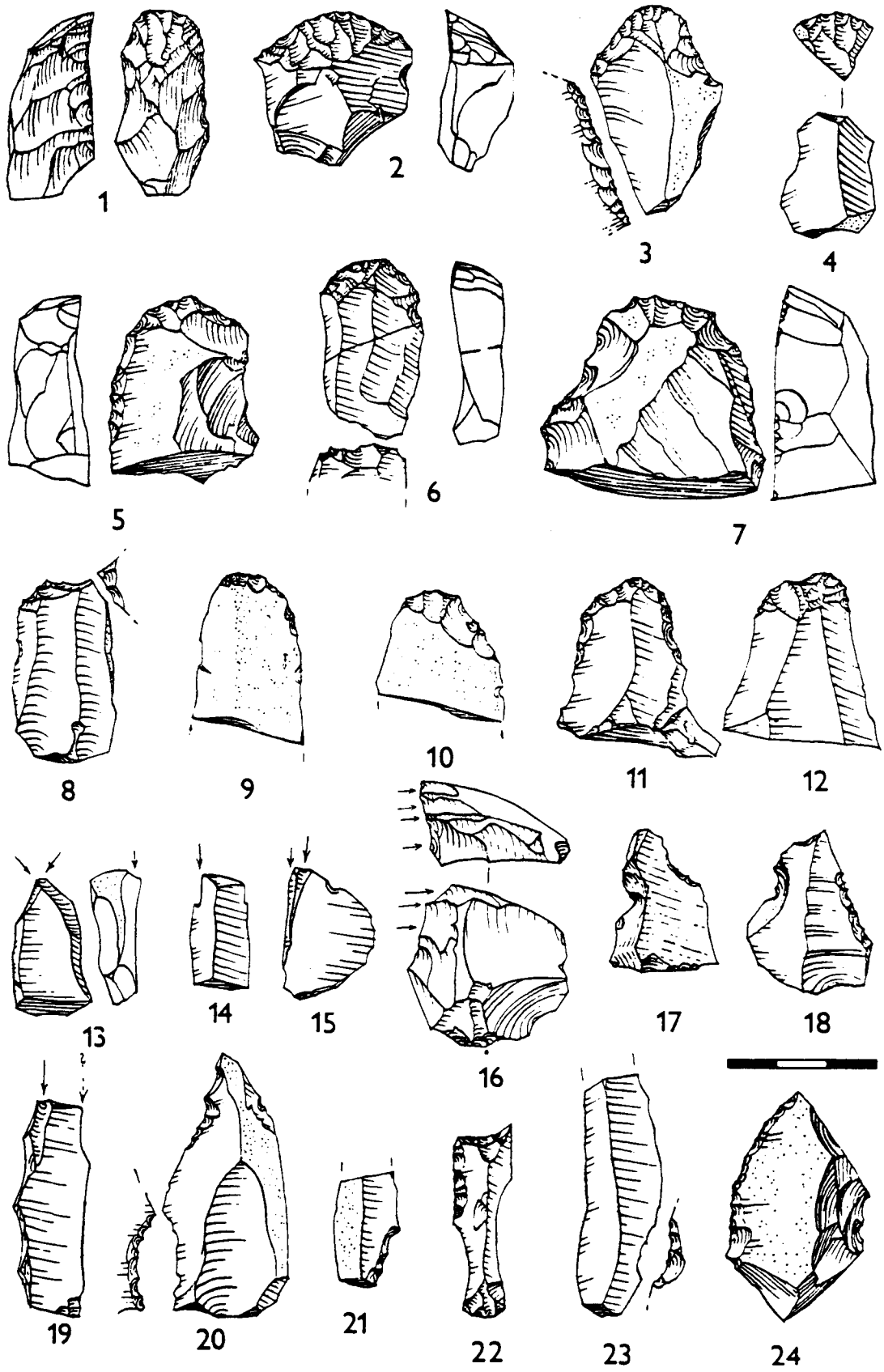

Figure 8 - Stránská skála IIIa, layer 3. Aurignacian industry.

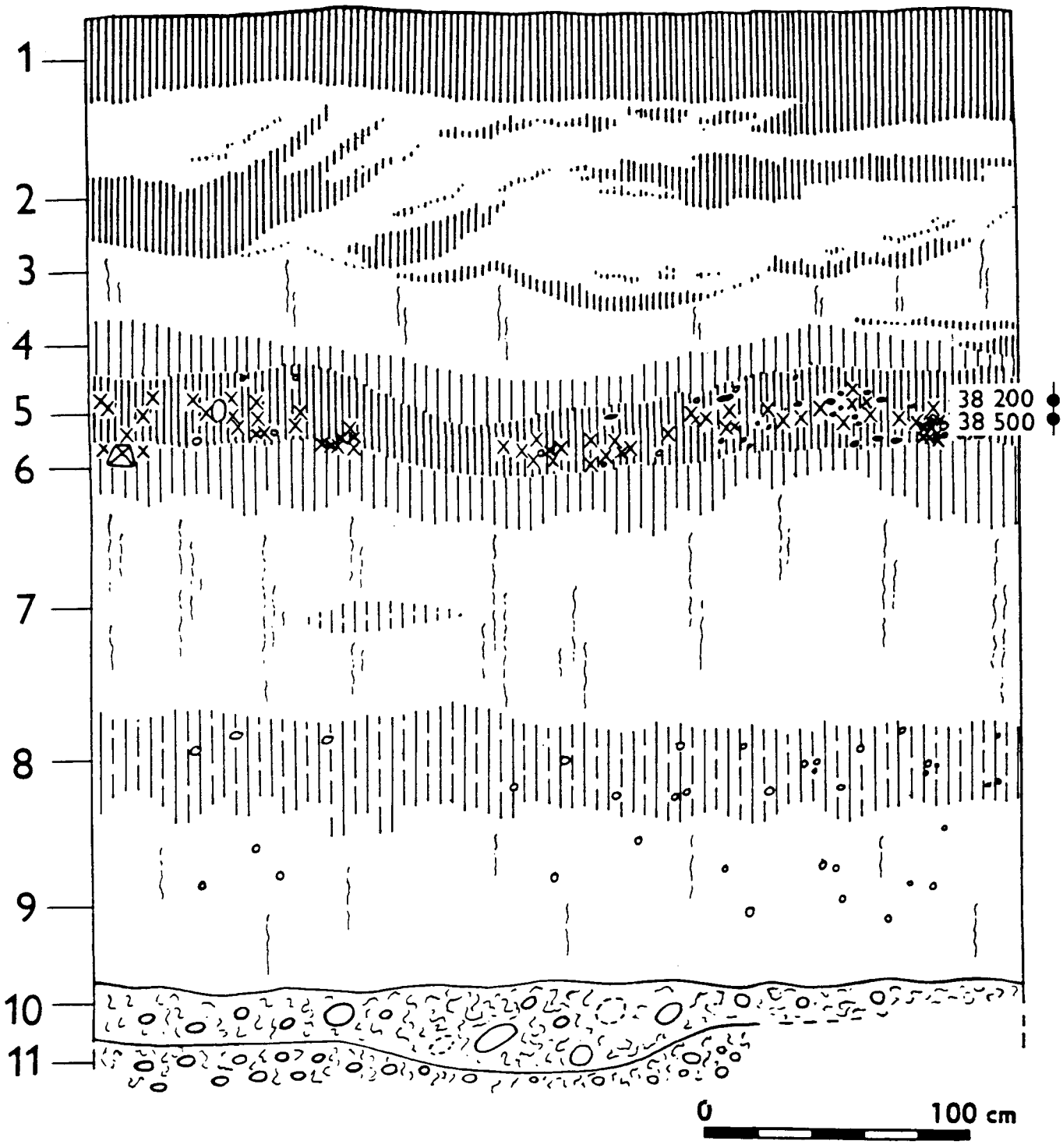

Figure 9 - Stránská skála III, section 1982. Layer 5 - the Bohunice-type.

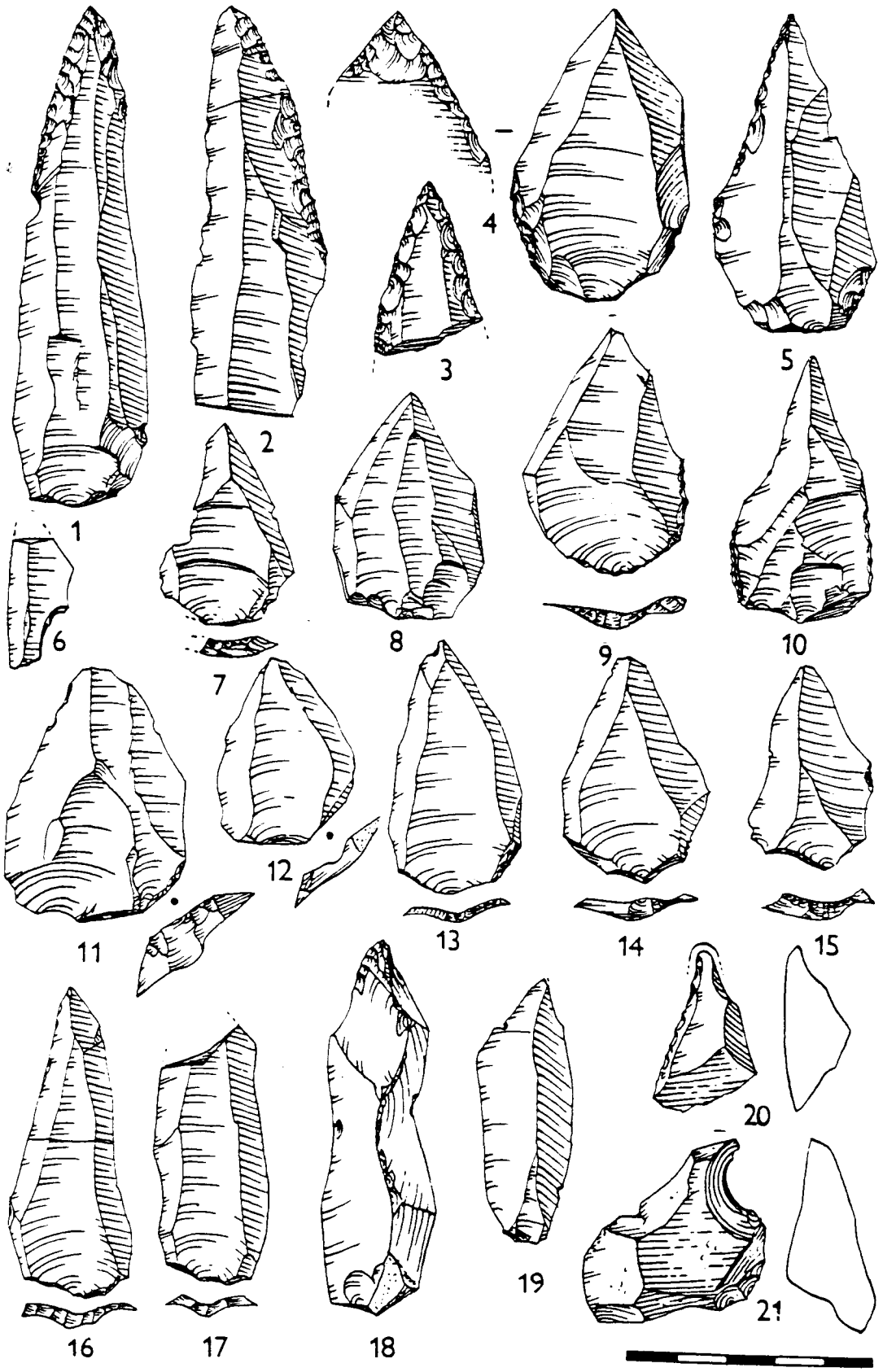

Figure 10 - Stránská skála III, layer 5.
Bohunice-type industry: the Interpleniglacial phase.

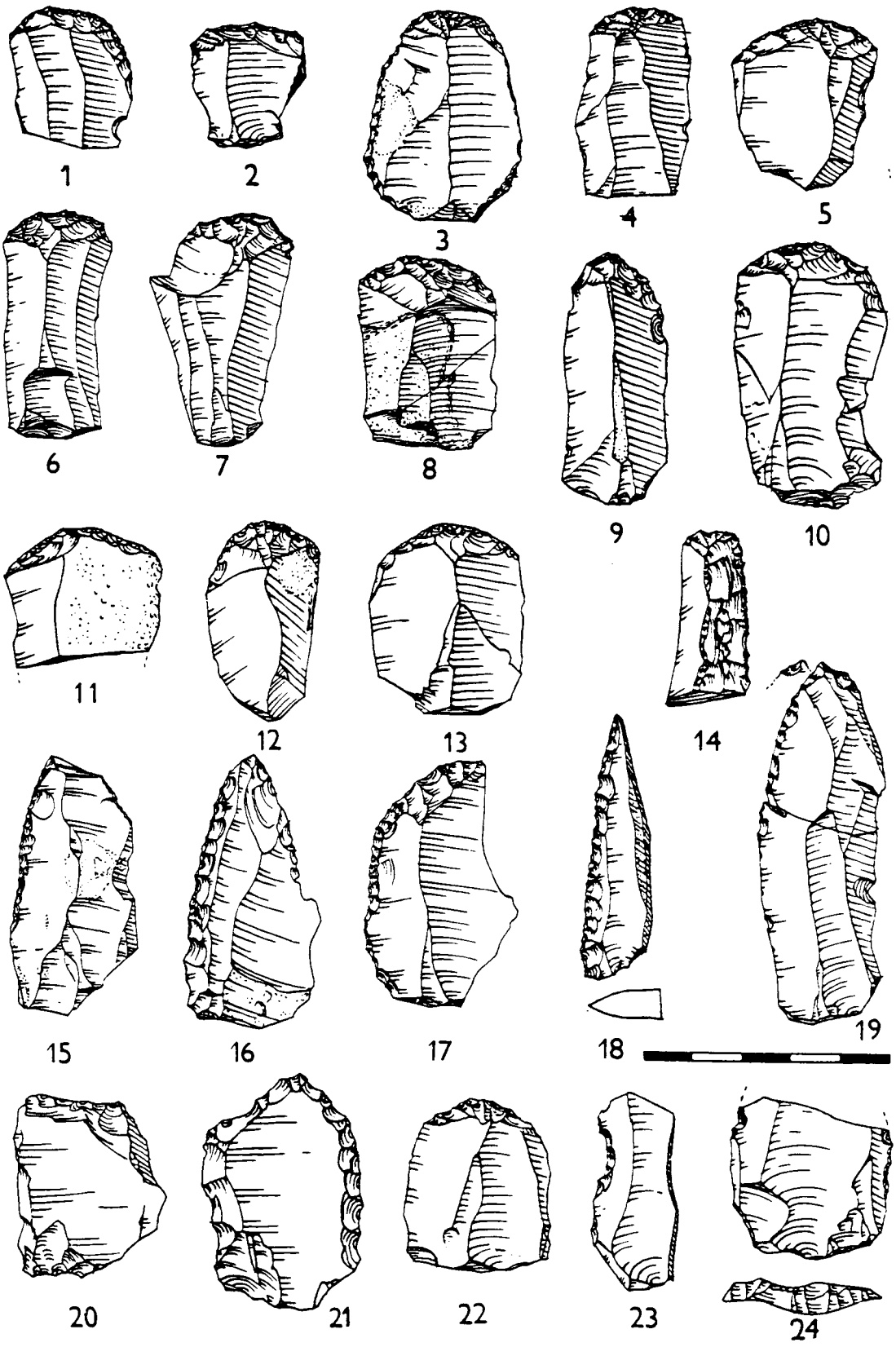

Figure 11 - 1 - 20: Stránská skála III, layer 5. Bohunice-type industry, the Interpleniglacial phase.
21 - 24: Stránská skála IIIa, trench 1983. Bohunice-type industry.

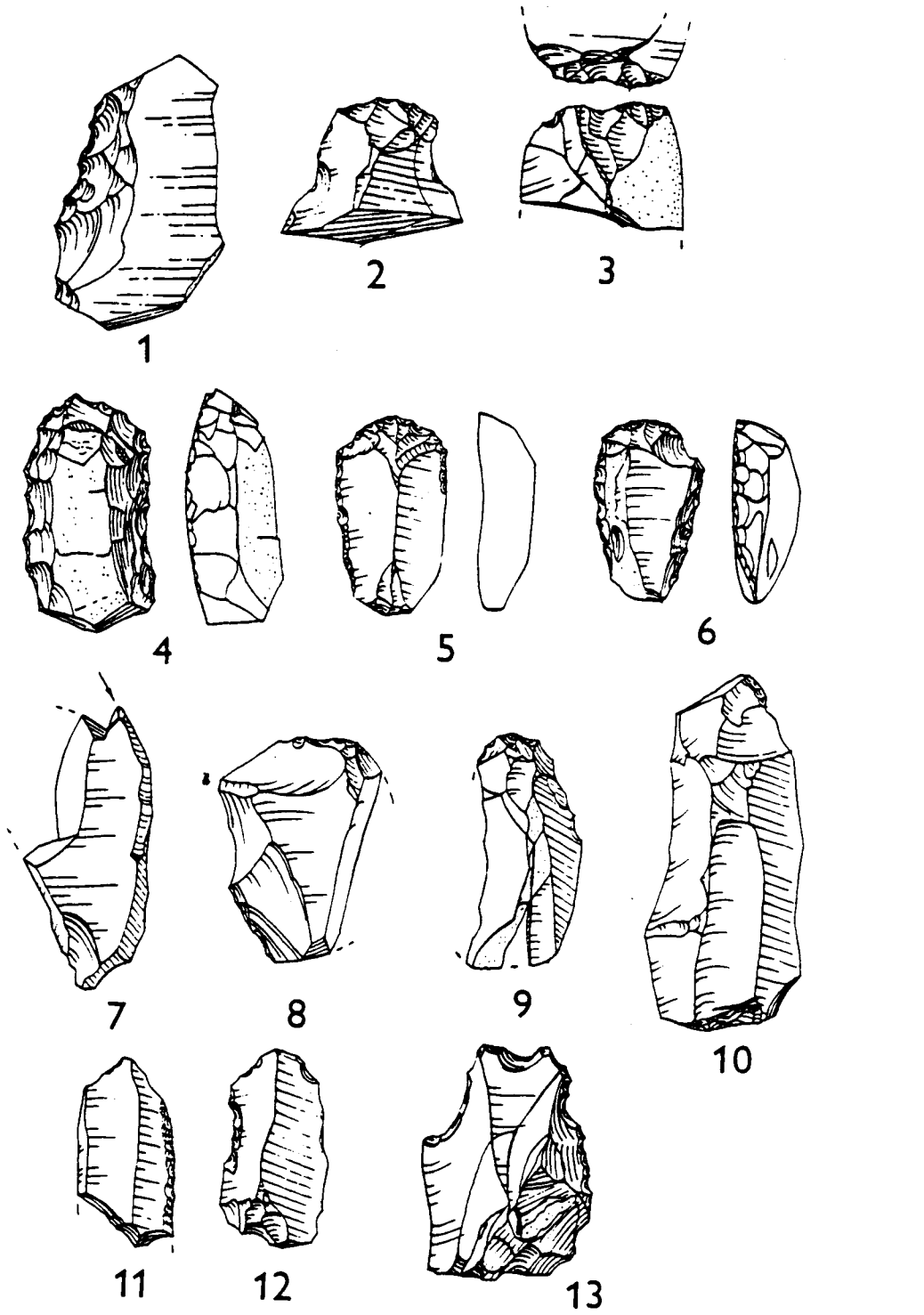

Figure 12 - Stránská skála II, layer 4. Aurignacian industry.

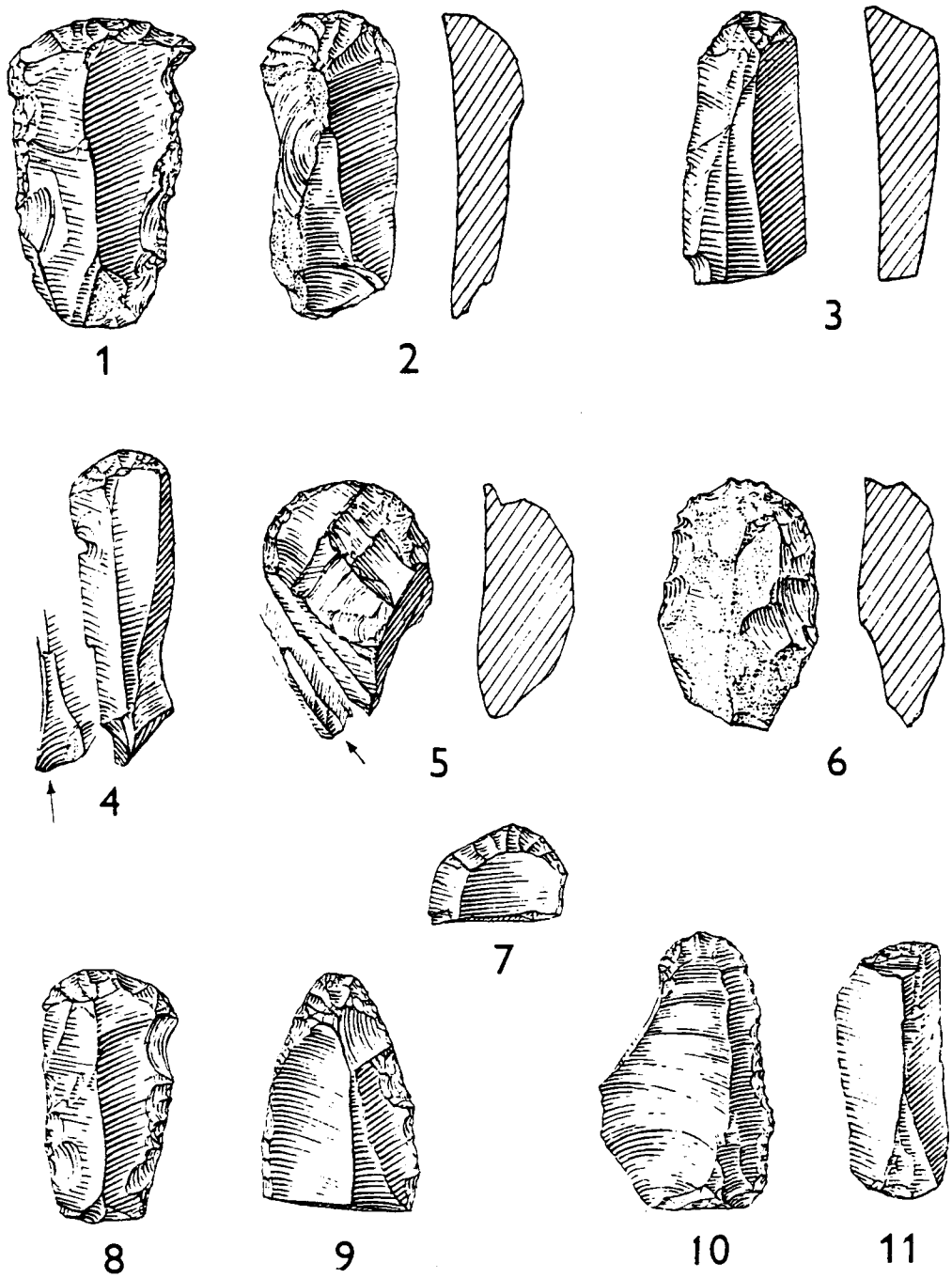

Figure 13 - Stránská skála IIa, layer 4. Aurignacian industry.