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THE EARLY AURIGNACIAN INDUSTRY FROM VEDROVICE II (SOUTHERN MORAVIA) AND THE QUESTION OF THE AURIGNACIAN ORIGINS

ABSTRACT — The site of Vedrovice II lies directly above the former brickworks, the loess walls of which contained a few artefacts in a stratigraphic position under the interpleniglacial soil. The chipped industry from surface collections and trenches (which proved the existence of the single finding layer) is identical: the prevalent implements are burins (including Aurignacian forms) and side scrapers. Blades are very rare in spite of the fact that a special blade method of core reduction was known. The industry as a whole lacks further analogies even in the sites situated, as in case of Vedrovice II, in the region with raw material sources.

In Europe there are several Aurignacian-like assemblages of a mutually different character and probably of a different origin more than 35 000 years old. This is the reason why the author expresses his hypothesis about the polygenetic origin of the Aurignacian in several independent centres.

KEY WORDS: Vedrovice II — Early Aurignacian — Polycentric evolution.

The site of Vedrovice II is situated on a flat elevation in the direction of NW—SE, 250 m above sea level, outside the eastern boundary of the village (*Photo 1.*). In the direction of NE the landscape slopes to a little brook; the eastern side the locality is disturbed by a loam pit of the former brickworks (at present there is a football-field there). In comparison with other Aurignacian sites (cf. Oliva 1984) the mentioned site does not give any view of the environs as it is lined, with exception of the southern direction, by the projections of the Krumlov Forest (Krumlovský les) reaching a 415 m height 4 km to the north. The nearest bigger stream — the Jihlava river — is in the distance of 8.5 km in the direction of NE. The geological substrate is formed by pre-Cambrian eruptive rocks of the Brno massif (the Krumlov Forest), which project from Lower Miocene sand and gravel of an Ottnang stage. Loess occurs only sporadically on the eastern slopes of the Krumlov Forest, so that most of the Palaeolithic localities of this region are situated only on the surface. They were discovered by Václav Effenberger, who cooperated with the Moravian Museum and started collecting the Palaeolithic industry here at the end of the 50's. At present there are roughly hundred known loci with Palaeolithic finds. They mostly belong to the Szeletian, partly to the Middle Palaeolithic (the Krumlovian, the Micoquian?) and only some localities in the southern margin of this region to the Aurignacian. Besides Vedrovice II there is another site here — Vedrovice I. It is a rich surface station situated 700 m in the direction to NNW and, together with its smaller concentration Ia, it provides suitable conditions for archaeological excavation. The site of Kupařovice I situated directly in the fluvial plain of the Jihlava river is rather exceptional. In the years 1975—1976, under the supervision of K. Valoch, we excavated trial trenches

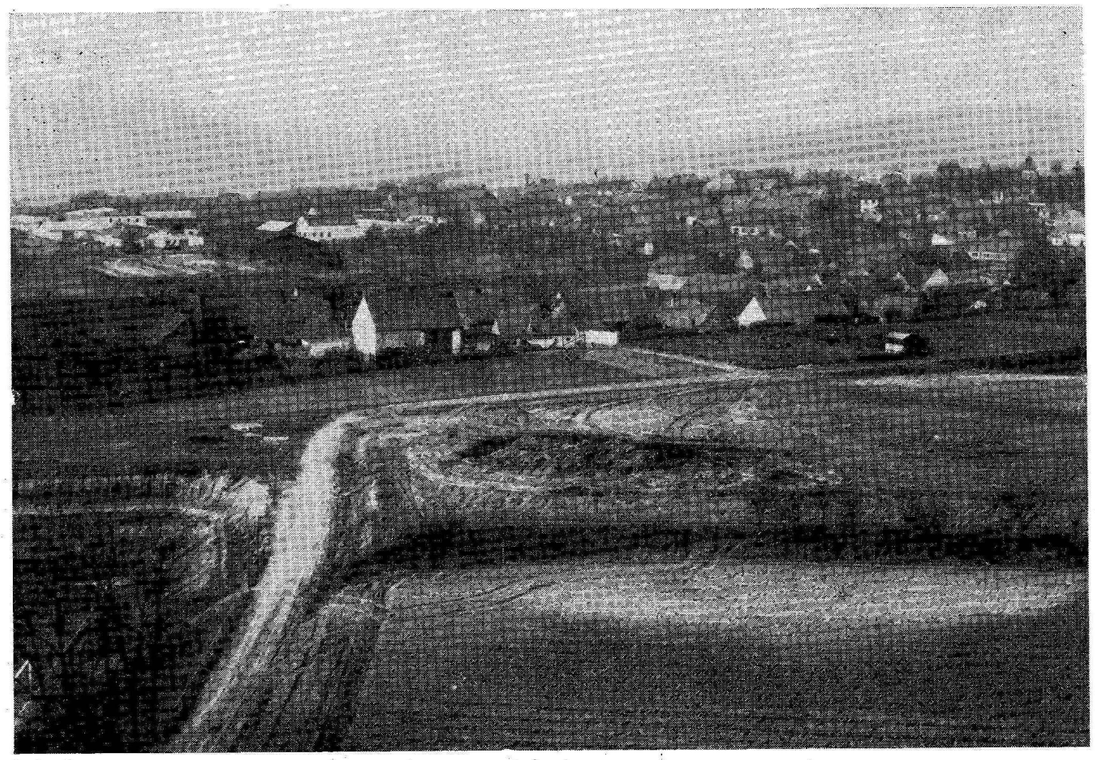


PHOTO 1. *The site Vedrovice II (above the loess wall, on both the sides of the road). Photo M. Oliva.*

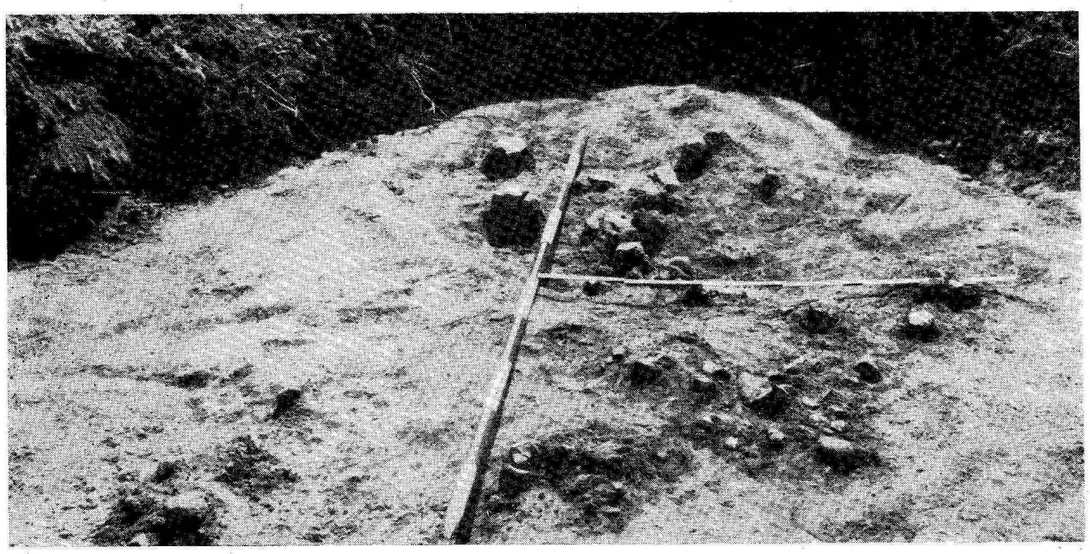


PHOTO 2. *The position of artefacts in the loess. Photo M. Oliva.*

in the localities of Vedrovice II and Kupařovice I. In both the sites an intact layer was discovered. The results of collections, excavations and geological and pedological analyses have been already published in detail (Valoch et al. 1985; Oliva 1987).

STRATIGRAPHY

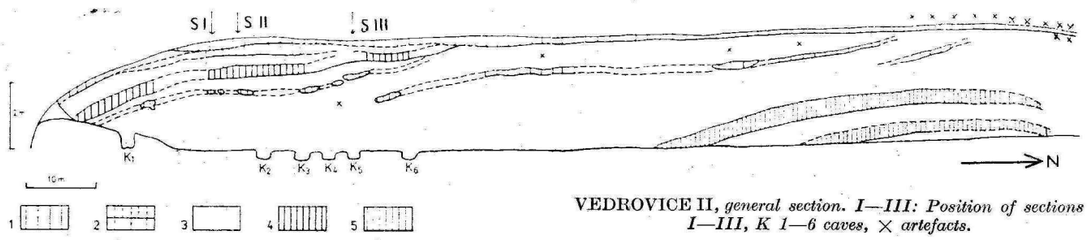
The artefacts of all three trenches lay in the depth of 10—30 cm in loess directly under arable soil (*Photo 2.*). However, during the brickwork's loam wall examination we have succeeded in finding some flaked hornstones in situ in loess, below a well developed horizon of fossil soil. This horizon runs to the surface in the northern direction (i.e. in the places of surface finds and trenches), where it merges in the arable soil (*cf. the general section*). The deep-brown soil is up to 80 cm thick and its base is heavily disturbed by soil-flowage (*cf. sections I—III*). According to L. Smolíková's micromorphological analysis (1985) it is medium-developed soil with recalcification in the following phase of loess accumulation. It came into existence in a forest environment in a relatively humid climate, which can be, in the given circumstances, only a result of Middle Würmian temperate oscillation. This fact brings the term of ante quem for the age of our finds. In the loess between the soil and the finds of the flaked industry, in the northern profile there are two darker lines, which become more evident due to more intensive weathering out. Therefore, the position with artefacts dates back to an unspecified phase of the Lower Würm. This fact has been also proved by the results of a palaeomagnetic curve (Kočí, in Valoch, in preparation).

RAW MATERIALS

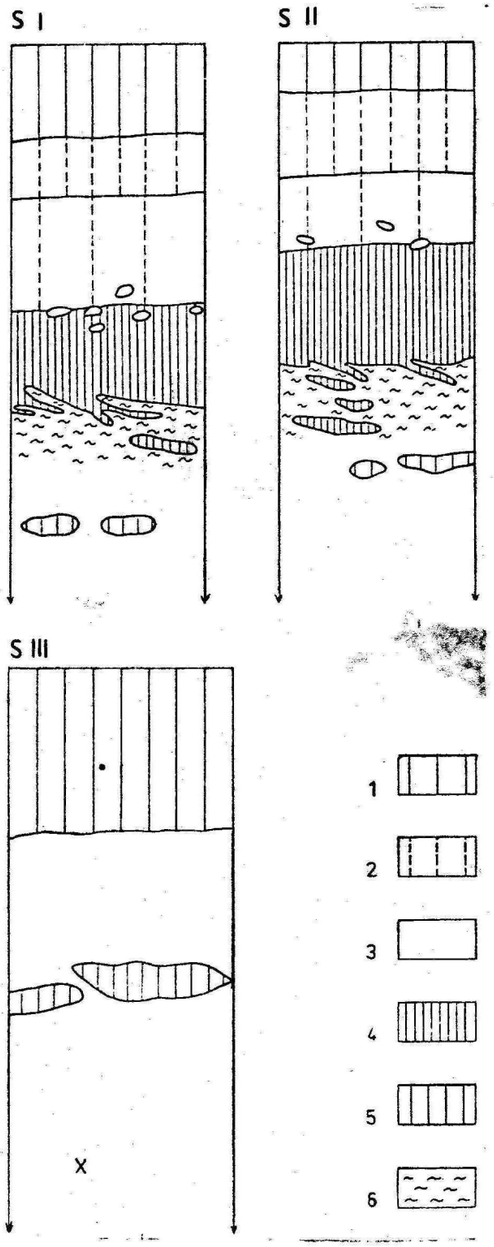
The raw material almost exclusively used in the industry was the hornstone of a Krumlov Forest type. It occurs in neigbouring Tertiary marine deposits in the form of blocks and pebbles with a black cortex. A. Přichystal (1984, 202) determines two varieties; here it is possible to find only variety I of lower quality and of Jurassic and partly Creataceous origin. A characteristic feature is silicite mass gritty tarnish caused by needles of sea fungi. Although the prevalent colour ranges from grey to grey-brown, it is possible to see also purplish varieties and breccia hornstones with grey patina. Karel Valoch's more detailed analysis (1984, 10—11) supposes types 1 and 3. The blocks and pebbles of variety I were probably larger and more accessible in the landscape and that is why they prevail in all Palaeolithic sites

TABLE 1.

Type of core	Pcs.	%
A. Single platform cores		
1. striking surface unprepared		
a) without crest preparation	17	
b) with dorsal crest	1	
2. striking surface prepared by 1 blow		
a) without crest preparation	57	
b) distal preparation (flat)	1	
c) lateral preparation	6	
d) with distal crest	1	
3. striking surface prepared by more blows		
a) without crest preparation	56	
b) distal preparation (flat)	5	
c) lateral preparation	12	
d) with ventral crest	4	
e) with dorsal crest	2	
	162	55.29
B. Opposite platform cores		
1. Striking surfaces prepared by one blow		
a) without crest preparation	2	
2. striking surfaces prepared by more blows		
a) without crest preparation	8	
b) lateral preparation	2	
	12	4.10
C. Changed orientation cores	24	8.19
D. Discoidal cores	25	8.53
E. Polyhedrical cores	12	4.10
F. Irregular cores	55	18.77
G. Pre-cores	3	1.02
TOTAL	293	100.—
Early stage "cores"	37	
Undetermined cores and fragments	310	



VEDROVICE II, *general section. I—III: Position of sections I—III, K 1—6 caves, × artefacts.*



VEDROVICE II, *sections I—III. 1 Holocene, 2 loess-like substrate, influenced by the Holocene soil development, 3 loess, 4 fossil soil, 5 lentils of light brown loam, 6 Ca-horizons, × artefacts.*

However, in comparison with the Aurignacian, variety II is more abundant in the Szeletian, especially among retouched tools. The Szeletian assemblages are on the whole richer in imports, in Vedrovice II there is only one core of the honey-coloured Cretaceous hornstone from the environs of the Svitava river and perhaps two pieces of flint. The industry shows fresh or slightly rounded edges and medium to strong patina.

TECHNOLOGY

Table 1 shows that the most abundant cores are prismatic ones; they can be unidirectional (*fig. 5:5, 6:3, 4, 6*), bidirectional (*fig. 6:2.5*) or with changed orientation (*fig. 6:1*). Most scars on these cores resemble straight sided flakes. Core striking platforms are usually prepared by one or several blows, some pieces being without any preparation. In spite of the fact that the cores are mostly only slightly reduced, the traces of the crest preparations are not frequent (*fig. 5:5, 6:6*). The first flake or blade could be struck off even from its natural edge; this fact is proved by J. Hahn (1988, 144) on the basis of the refitted cores from Geissenklösterle. A regularly convex or protruding outline of the base of the exploitation surface is typical for the Aurignacian cores. It is possible to find pieces with a wedge-like way of reduction based on the principle resembling burin blows. Discoidal cores are very rare (*fig. 5:8*) and they are mostly inexpressive; Levalloisian cores do not occur at all here. On the other hand, irregularly flaked pebbles and blocks represent a large group (18.7 %). Unfortunately, the limited range of trenches has not allowed to start the study of the reduction strategy based on the reconstruction of cores.

The morohology of proximal parts show that blades seem to have most features of the so-called soft hammer mode. A wide, nonreduced platform with lipped bulbar parts (*Tab. 2*) occur in 71 % of blades (and only in 18 % of flakes). The blades are usually thick (due to a triangulate shape of the platform) with parallel sides, both straight and considerably arched in their side view. However,

TABLE 2

Striking platform	Flakes		Blades		Total		I lam
	Pcs.	%	Pcs.	%	Pcs.	%	%
flat ("lisse")	208	41.27	5	11.11	213	38.80	2.35
with cortex (unprepared)	62	12.30	1	2.22	63	11.47	1.59
lipped	74	14.68	18	40.00	92	16.76	19.56
lipped, faceted	16	3.17	14	31.11	30	5.46	46.67
faceted and dihedral	69	13.69			69	12.57	0
pointed ("punctiforme")	75	14.88	7	15.56	82	14.94	8.54
Total	504	100.—	45	100.—	549	100.—	8.20
core trimming removings	30		18		48		37.50
"outrepassés"	9				9		0

these features do not explicitly clarify the use of direct or indirect percussion. The low percentage of blades (8.2 %) in comparison to flakes is at variance with the existence of the specialized technology.

TYPOLOGY

A dominant group of implements is represented by burins and side scrapers; the other tools, i.e. end scrapers, notches, denticulates, retouched blades, points, pebble-tools and bifacially shaped implements, are not so numerous. Burins include all common types in spite of the fact that the shaping of burin edges is relatively simple. Dihedral burins (*fig. 1:14; 2:6* dist., 7 prox.) slightly prevail over the burins on retouched truncation (*fig. 1:13, 15*). However, both the basic "types" can be only certain phases in a functional cycle of one artefact (Djindjian 1985; here cf. *fig. 1:12; 2:1* and *7* prox.). A high number can be reached even by simple burins on the natural surface (*fig. 2:6* prox., *7* dist.) or on the break. In 8 % of burins 2 or more parallel scars on one side form a polyhedral edge. The most striking group is carinated or busked burins usually formed with an opposite blow (*fig. 1:8, 10, 11; 2:1, 3, 4*), less on truncation (*fig. 1:9*). The burin blow of some specimens ends in an intentionally made notch (*fig. 1:9—11; 2:2—4*) and it is possible to speak about real busked burins. However, their shapes are often unusually rough (*fig. 2:3, 4*), which may be related to the development from the wedge-like exploitated cores (*fig. 5:2, 3*). However, the three times higher frequency of blows struck from the right side proves a good typological stability of the Aurignacian burins. A relatively frequent phenomenon is the combining of several burin edges in one blank (*fig. 2:1, 3, 4, 6, 7*).

Another group is represented by end scrapers with some Aurignacian forms (carinated: *fig. 1:3, 4;* nosed *1:5*). This group is not large but variable in the number of shapes. Besides atypical pieces, which are not illustrated here, in the mentioned site there appear simple end scrapers on blades (one case is laterally retouched: *1:2*) and on flakes (*fig. 1:1, 6*). It is interesting that the end scrapers are never combined with burins. In the group of the Upper Palaeolithic types of points there is only one carinated point (*fig. 3:3*), which is similar to a typical Tayac point (*fig. 3:1*). The other Upper Palaeolithic forms are represented by several truncated flakes (*1: 7*), only 8 retouched blades and 4 splintered pieces. The group of notched and denticulated implements (*fig. 3:5, 11; 4:5*) is quite large (14 %). Some bifacially shaped artefacts can be classified as small handaxes (*fig. 3:6* to 8).

These tools introduce a large group of side scrapers, which are about 1/4 of the inventory. In spite of a number of shapes this group does not contain either any Quina-retouch or finely made and standardized pieces known from the neighbouring Szeletian stations. The structure of all side scrapers is as follows:

Nr.	Type	Pcs.	Fig.
9	single straight side scraper	14	4 : 2
10	single convex side scraper	20	
11	single concave side scraper	3	
12	double straight side scraper	1	
13	double straight-convex side scraper	1	3 : 9
15	double convex side scraper	2	3 : 10
18	convergent straight side scraper	3	3 : 4
21	offset side scraper	3	
22	straight transverse scraper	2	
23	convex transverse scraper	6	4 : 3
25	side scraper on the ventral surface	5	
26	abrupt retouched side scraper	1	
27	side scraper with thinned back	1	4 : 1
28	side scraper with bifacial retouch	2	
29	alternate retouched side scraper	2	4 : 4
		66	

The other artefacts include a set of choppers and chopping-tools (*fig. 5:1, 6*). From a theoretical point of view they can partly represent the first stages of core preparation and they can be conditioned by the pebble form of raw material. However, this fact does not explain why they do not occur in the neighbouring station of Vedrovice I and in other Aurignacian sites. Another difficult problem is the classification of some core artefacts resembling heavy-duty burins (*fig. 5:2—4*) or thick end scrapers (*5:7*). Such forms are much more numerous in the near-by site of Kupařovice I (Oliva 1985, 141, 144).

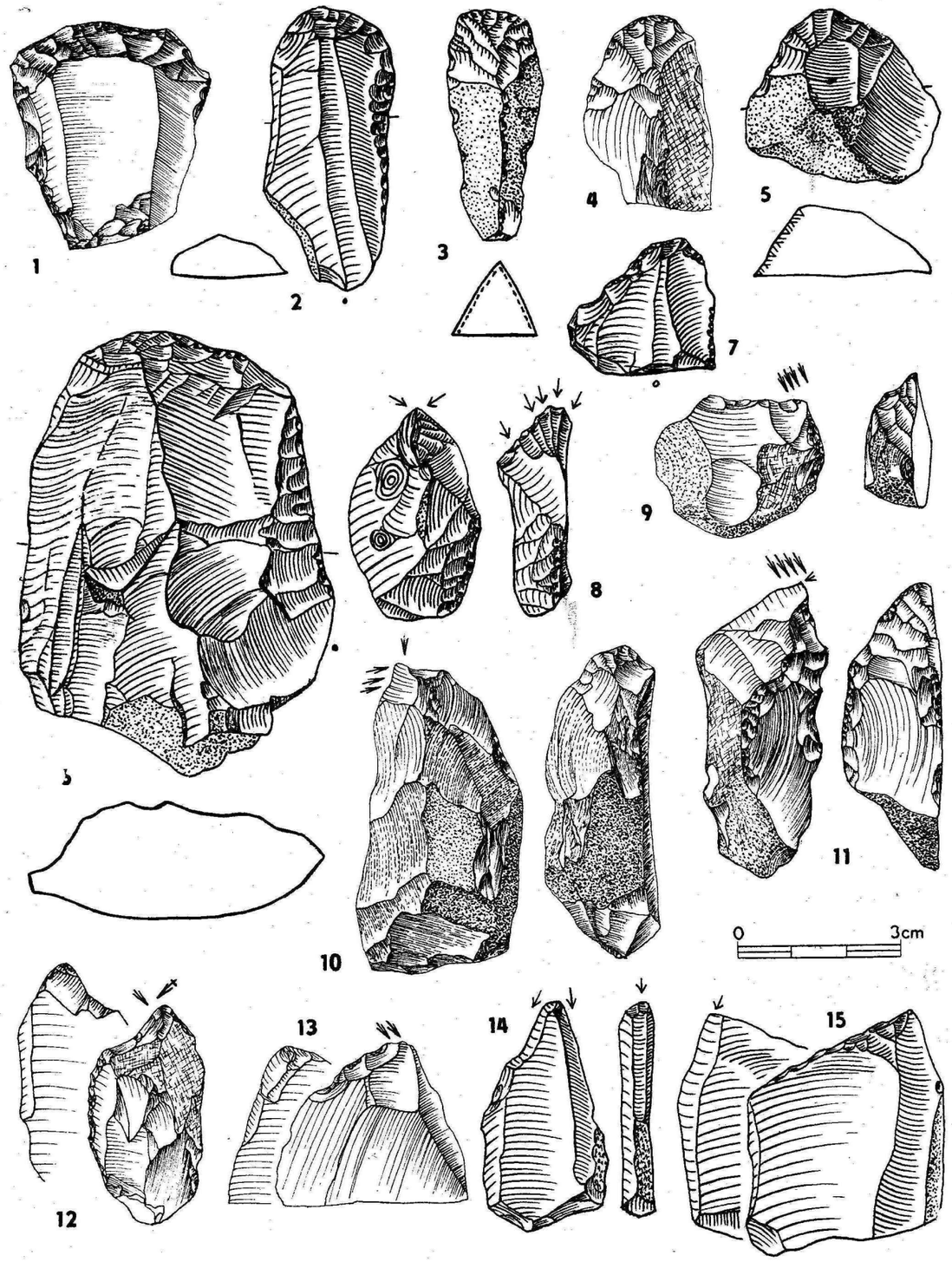


FIGURE 1. *Vedrovice II, lithic tools. Drawings L. Najmrová, T. Janků.*

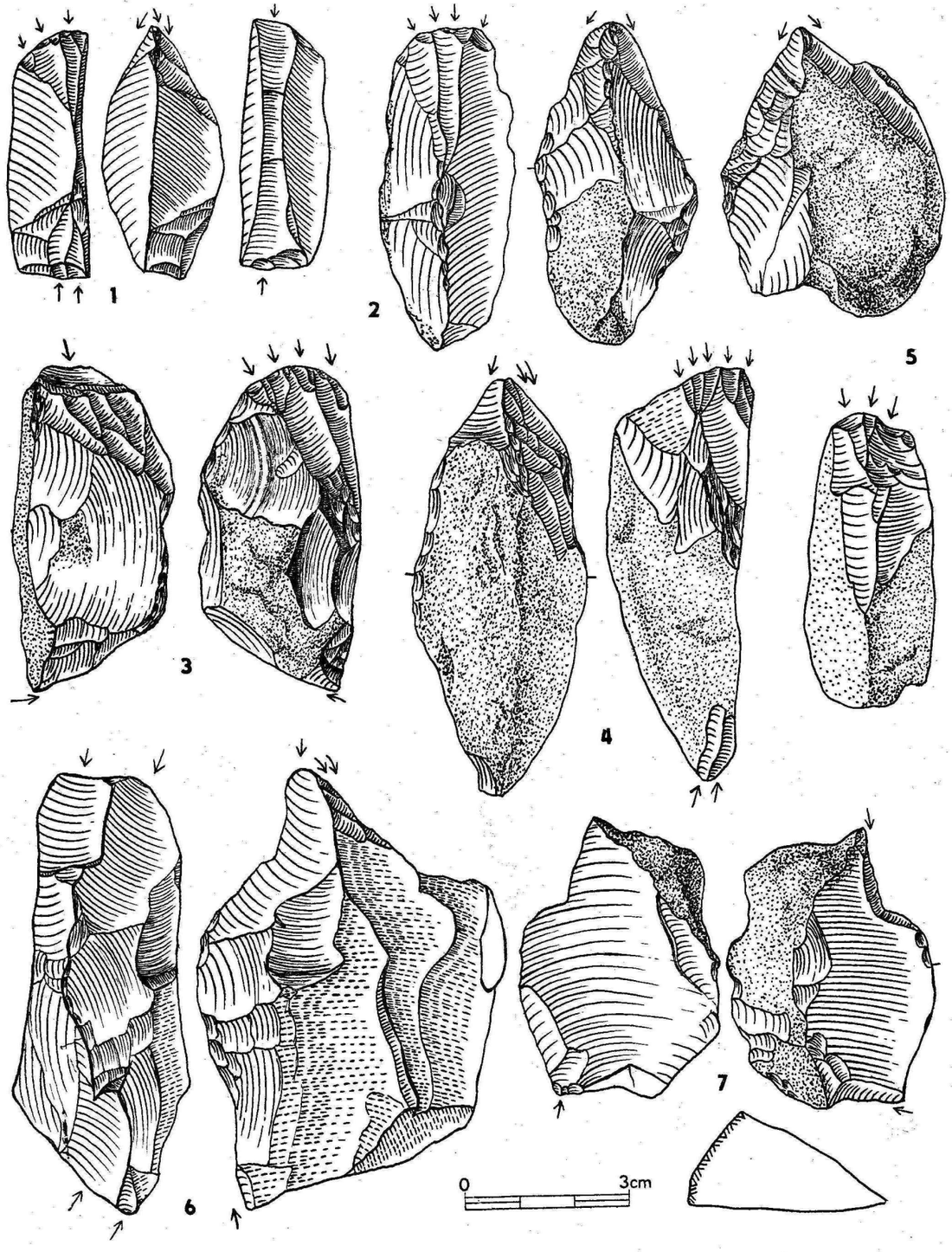


FIGURE 2. *Vedrovice II, lithic tools. Drawings L. Najmrová.*

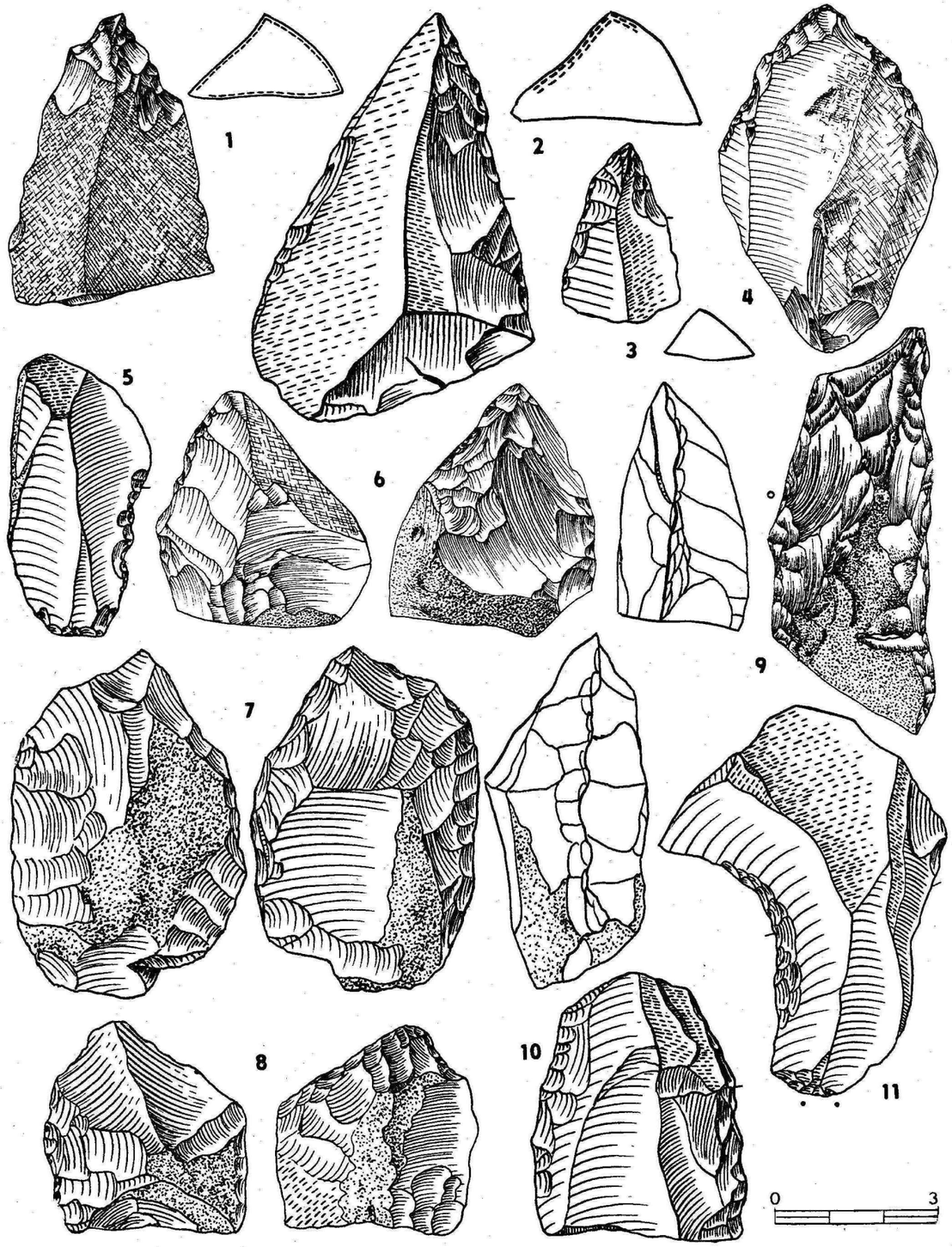


FIGURE 3. *Vedrovice II, lithic tools. Drawings L. Najmrová, T. Janků.*

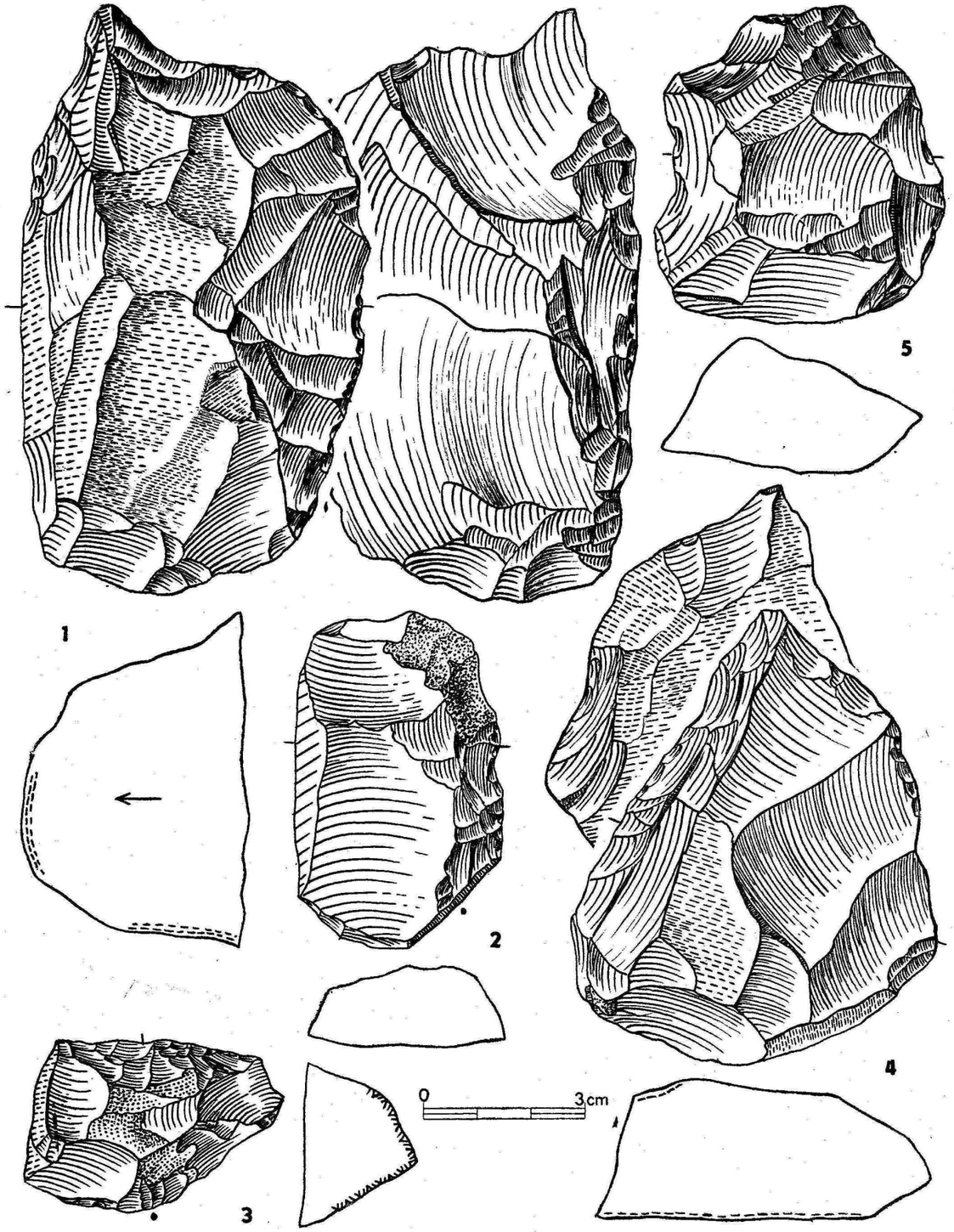


FIGURE 4. *Vedrovice II, lithic tools. Drawings L. Najmrová.*

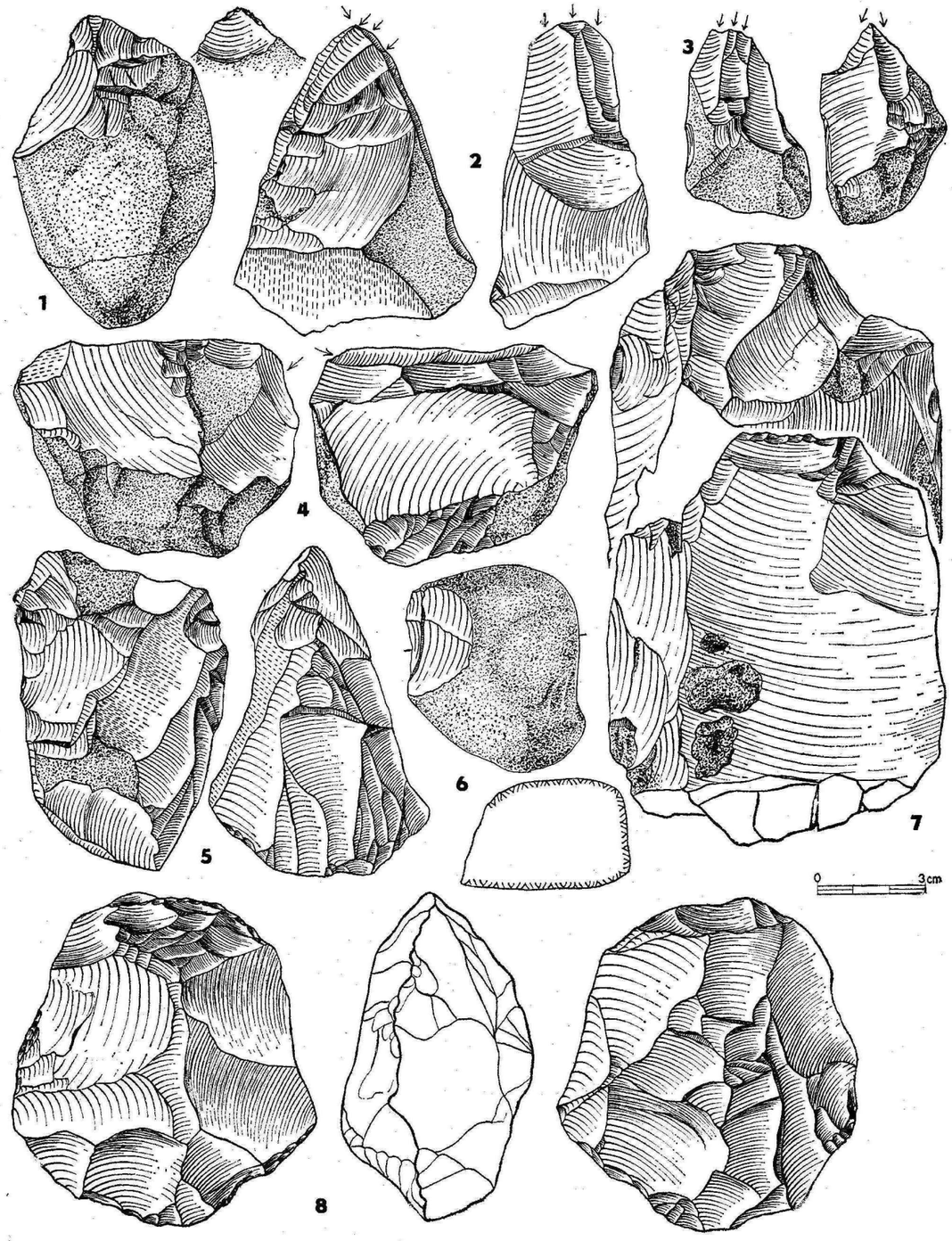


FIGURE 5. *Vedrovice II, cores and core-tools. Drawings L. Najmrová.*

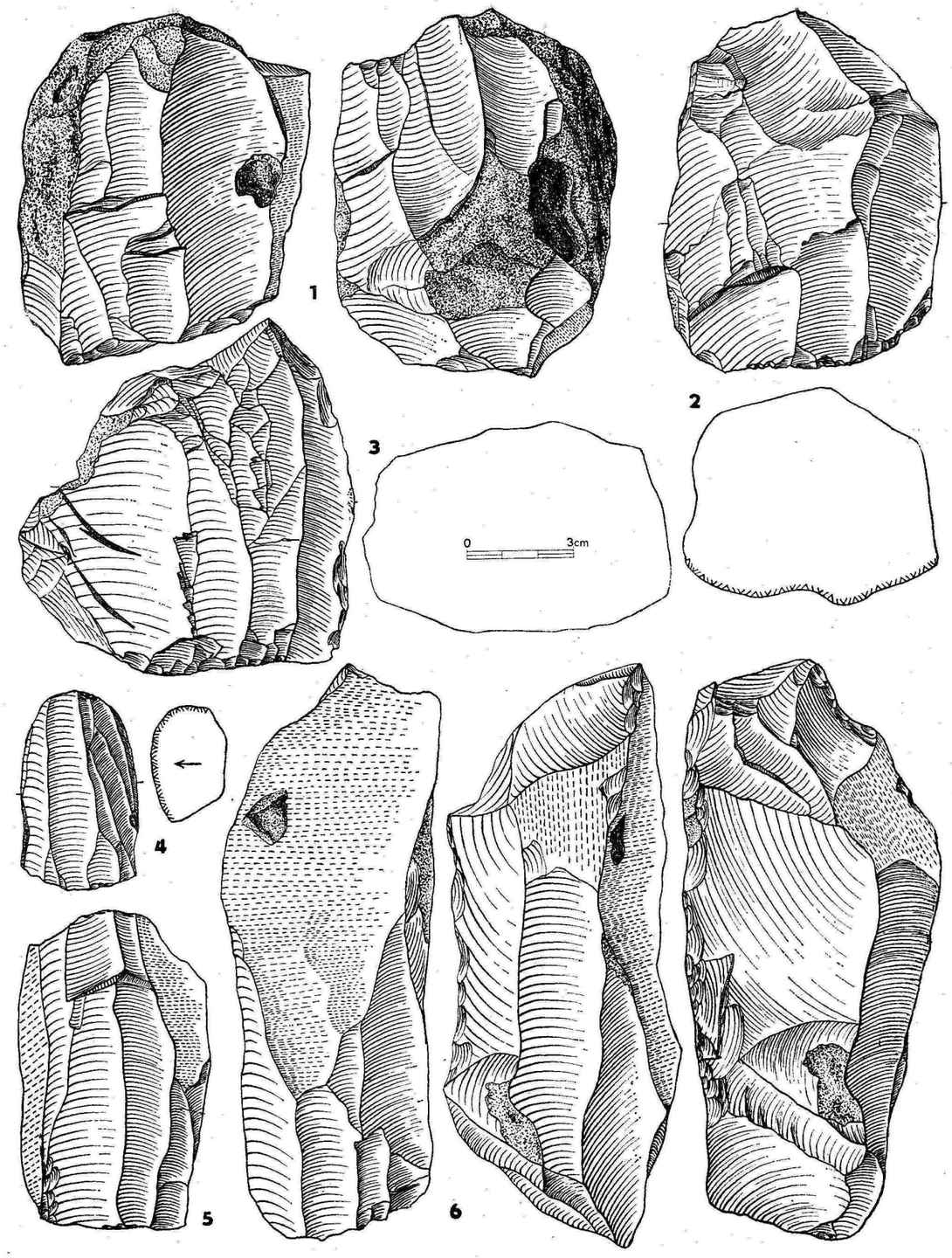


FIGURE 6. *Vedrovice II, cores. Drawings L. Najmrová.*

I think that all these artefacts are connected with the local origin of the leading Aurignacian types even if some pieces are undoubtedly rough-outs or mere cores.

TABLE 3

No.	Type	Pcs.	%	+ in comb.
1	End scraper on blade	6	2.29	
2	Atypical end scraper	5	1.91	
5	End scraper on retouched blade	1	0.38	
8	End scraper on flake	4	1.53	
11	Carinated end scraper	7	2.67	
13	Nosed carinated end scraper	2	0.76	
15	Core-like end scraper	3	1.15	
19a	Burin—notch, denticulate	1	0,38	
24	Bec	3	1.15	
27	Straight dihedral burin	5	1.91	1
28	Déjeté dihedral burin	2	0.76	2
29	Angle dihedral burin	3	1.15	3
30	Angle on break burin	10	3.82	2
30a	Burin on natural surface	10	3.82	3
31	Multiple dihedral burin	3	1.15	
32	Busked burin	8	3.05	
32a	Carinated burin	5	1.91	1
32b	Carinated burin des Vachons	1	0.38	
34	Burin on retouched truncation	1	0.38	1
35	Burin on oblique retouched truncation	7	2.67	1
38	Transverse burin	1	0.38	
40	Multiple burin on retouched truncation	1	0.38	
41	Multiple mixed burin	1	0.38	
43	Core-like burin	4	1.53	
44	Flat burin	3	1.15	
47	Point with abrupt retouch	1	0.38	
59	Blade with partial abrupt retouch	1	0.38	
60	Truncated piece	2	0.76	
61	Oblique truncated piece	5	1.91	
62	Concave truncated piece	2	0.76	
65	Unilaterally retouched blade	7	2.67	
67	Aurignacian blade	1	0.38	
74	Notch	31	11.44	
75	Denticulate	7	2.67	
76	Splintered piece	4	1.53	
77	Side scraper	66	25.19	1
93	Pointed blade	7	2.67	
93a	Carinated point	1	0.38	
92a	Notch beneath break	1	0.38	
92b	Small biface	2	0.76	
92c	Tayac point	1	0.38	
92d	Quinson point	1	0.38	
92e	Chopper, chopping tool	25	9.54	
Total		262	100.—	15
Total "active parts"		271		
Partially retouched or used blanks		108		
Unretouched blades		97		
Core trimming removings and "outrepassés"		57		
Flakes, chips, chunks		923		
Cores, core fragments		649		
Hammerstones		9		
Total lithic industry		2 105		

IG	10.33
IGA	3.32
IB	25.09
IBA	5.53
IBD	5.90
IBT	4.06
ILA	0.37
ILDuf + 52	0
IR	24.35
IOcomp, mult	2.29

DISCUSSION

In view of the fact that most of the industry has been collected on the surface, it is necessary to admit the possibility of secondary contaminations. However, our excavations have proved the existence of the only cultural layer and all the artefacts found in the adjacent loess wall were in an identical stratigraphic position. The character of the finds from trenches and from surface collections is the same. The total absence of leaf points and fine standardized side scrapers suggest that the settlement was not contemporaneous with the Szeletian from this region, but it probably existed slightly earlier. Several bifacially trimmed pieces (*fig. 3:6—8*) are without the classical flat retouch and they represent only a general archaic element.

To what extent can the undoubtedly archaic appearance of this assemblage be caused by the developed local lithic production? It is necessary to point out that this site is not a specialized workshop-site. This is proved by a relatively high share of retouched implements and, on the contrary, by a low density of lithics in the finding-place and in the trenches. A similar typological structure cannot be found in any Aurignacian station even if it were situated in the area of raw material sources. The number of archaic elements is much lower in the near-by station of Vedrovice I, whose workshop character is much more pronounced than in Vedrovice II (more finds in a higher density, a lower frequency of retouched pieces). Another different element is the technology of blade production and the strategy of core reduction on the whole (Oliva 1985).

The contrast between the existence of a very specialized blade technique (cf. the analysis of platforms) and the generally low number of blades (including retouched implements) show that a certain kind of the non-Levallois method of blade production was known at that time, but their mass production was not stimulated in that time. Considerable attention was devoted to the bladelet retouch of burins and end scrapers. We have arrived to the hypothesis (Valoch 1966; Oliva 1985, 157—158) that these most characteristic types of the Aurignacian derived from the application of the prismatic core technology to smaller blanks and chunks. Of course, this concerns only the genesis of carinated scrapers and burins. However, at present there appears more and more evidence documenting the very old industries of Upper Palaeolithic character; the essentially Aurignacian forms are very interesting as to their cultural attribution, but they are quite rare. At the same time these assamblages do not include any specimens of the transitional forms between cores and scrapers or burins. A certain exception is the Early Aurignacian in the Castillo Cave in Cantabria, perhaps 40—37 thousand years old (Cabrera Valdes 1984; Cabrera Valdes, Bernaldo Quiros 1985, oral information). There occur a lot of side scrapers (24 %, often of a Quina type) and 34 pieces of core end scrapers. Thick cortical flakes were usually used as blanks for carinated scrapers. A phenomenon deserving attention is the existence of flat-faced burins of a developed Aurignacian character. The industry of Vedrovice II is quite different from that of the Bačo Kiro Cave, layer 11 (Kozlowski et al. 1982), which is probably more than 43 thousand years old. A dominant group in the lithic industry consists of retouched and pointed blades, while the share of carinated scrapers is very low (0.6 %, atypical) and that of nosed scrapers is higher (3.13 %). In view of the occurence of fine retouched bladelets and the absence of classical side scrapers, the mentioned unit is similar to the Mediterranean Lower Aurignacian (the "Protoaurignacian"), which, however, on the basis of radiometric data, is more than 10 000 years younger. Quite a different industry appears in layer Ia, Korolevo I in the Transcarpathian Ukraine (Gladilin, Demidenko 1989), which also belongs to the time before the interpleniglacial. Thick end scrapers are also rare and the whole group of end scrapers prevails over burins and side scrapers; however, there are no nosed scrapers and pointed blades here. New radiocarbon data about 40 thousand years BP from Willendorf II (Lower Austria) relate to the poor content of layer 2, where the only form resembling the Aurignacian is a small strangulated blade. The often quoted, but probably too old radiometric data from the lower layer of the Istálloskö Cave in Hungary (39 thousand and 43 thousand BP) concern the set of bone points with a split base with very few lithics. Carinated scrapers also occur in the early interpleniglacial assemblages from Remagen in the Rhineland (App et al. 1987), but the evaluation of their typological context cannot be realized until more detailed reports are published. The industry from Geissenklösterle, layer III (the Swabian Jura) with two dates in the range of 38—33 000 years BP (Hahn 1988, 44) represents the developed Aurignacian with the prevalence of carinated and nosed scrapers.

The extent of the territory where the first Aurignacian-like industries appeared more than 35 000 years ago does not support the theory about the invasion of this technocomplex from one place of origin. In the Near East, which was traditionally considered the place of origin of the Upper Palaeolithic owing to the occurence of old Leptolithic assemblages and of the early progressive type of Homo sapiens, there is no evidence of the similarly dated Aurignacian. On the basis of the evidence at hand it seems to be more probable that the origin of the Aurignacian is polycentric in the vast territory spreading from Balkan through the Ukraine and Central Europe to Spain. The basic condition of the "Aurignacianisation" was the discovery and acceptance of the Upper Palaeolithic blade method and its application at implement retouching. These new technological processes could come into existence independently in various cultural substrates or they can influence them in a secondary way. In Moravia it would be possible to consider the so-called Krumlovian to be the root-industry; in eastern areas the roots of Aurignacian could be represented by various groups of the Mousterian, in el Castillo by the subjacent Charentian and later in Italy by the Uluzzian etc. The development process probably included all the

ways: independent invention, diffusion and migration. The quick spreading of this technological innovation represented by the blade method and bladelet retouch was probably also helped by its psychic and social aspects. It must be admitted that the conservative character of hunters-gatherers inclined them to experimenting, but not to accepting new technologies. This is the reason why the spreading of new tools and techniques supposes the change in the hierarchy of values, in innovation evaluating. The blade method as well as the bladelet retouch were known in the Middle Palaeolithic (Hummalian, Jabrud I/15, Adlun etc.); however, they did not form a technocomplex. The mentioned industries from the Near East were probably created by the diversified population of Homo sapiens (sapiens?) appearing in the mentioned territory as early as 90 thousand years BP. In Europe the population of modern men replaced the Neanderthals much quicker and it cannot be denied that the quick accepting of the Aurignacian blade method and new types of tools followed by the forming of a new technocomplex could be a result of the that change.

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