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Bronzové artefakty nalezené v depotech na hradišti „Tabulová hora“
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*A foto of bronze artifacts found in hoards in the hill fort „Tabulová
hora“ near Klentnice. See the study of A. Navrátil. Photo by J. Špaček.*

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LITHIC CHIPPED INDUSTRY OF THE JEVIŠOVICE CULTURE IN MORAVIA. AN INTRODUCTORY STUDY

KAMENNÁ ŠTÍPANÁ INDUSTRIE JEVIŠOVICKÉ KULTURY NA MORAVĚ. VSTUPNÍ STUDIE.

Jerzy Kopacz, Lubomír Šebela

Abstract

Analyses of lithic materials of the Jevišovice culture from five sites of major importance (Brno-Maloměřice, Brno-Starý Lískovec, Grešlové Mýto, Jevišovice–Starý Zámek, and Vysočany) indicate that—in general terms—they are more similar to Early Aeneolithic assemblages than to the so-called terminal assemblages. This conclusion is based on the presence of regular pre-shaped cores for blades, series of regular blade blanks, and "classic" blade tools, including endscrapers, burins, and truncated blades. However, certain "terminal" elements (frequent utilization of local rocks, high proportion of functional tools, common denticulated retouch) are also evident.

Keywords

Moravia, Aeneolithic, Jevišovice culture, lithic chipped industry

1. Introductory remarks

Czech-Polish studies on lithic assemblages from the transitional period between the Stone Age and Bronze Age were undertaken by the authors almost 20 years ago. They have encompassed all major Moravian cultural identities of that period, although not exactly in their chronological order: the Corded Ware culture, the Proto-Únětice culture, the Únětice culture, the Věteřov group, and the Bell Beaker culture. This study deals with the Jevišovice culture.

We are embarking on this study with a certain amount of experience, yet not without cautiousness. First of all we are dealing with a cultural unit with roots reaching back to the beginning of the 3rd mill. BC. A question arises how the Jevišovice stone assemblages are comparable with assemblages from the end of this millennium. As a first step in this direction, this work is intended to tackle this question.

As a material basis for our work we are using assemblages from five well known sites of the Jevišovice culture, which have large lithic assemblages: Brno-Maloměřice, Brno-Starý Lískovec, Grešlové Mýto, Jevišovice, Site Starý Zámek, and Vysočany. They provide a good insight into the basic aspects of the lithic chipped industry of the culture in question, but only an insight; a comprehensive monograph on the subject is in progress.

2 The Jevišovice culture

The Jevišovice culture appears as the most significant manifestation of the Younger Aeneolithic period in southern Moravia. The first archaeological material which was subsequently classified as Jevišovice culture was discovered at the end of the 19th century by Jaroslav Palliardi and František Vildomec who excavated a hillfort near Jevišovice, Znojmo district (cadastral area Střelice), called Starý Zámek. Upper cultural layer (B) of this stratified site was linked by J. Palliardi (1914) to the Corded Ware culture on the basis of the presence of amphorae deco-

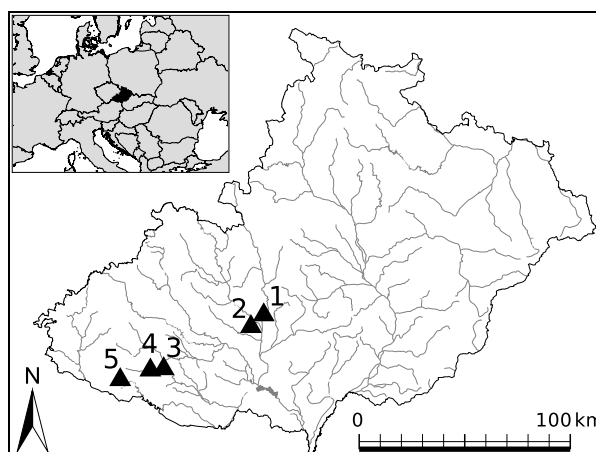


Fig. 1. Analyzed sites on the map of Moravia: 1–Brno-Maloměřice, Brno-město district; 2–Brno-Starý Lískovec, Brno-město district; 3–Jevišovice, Znojmo district; 4–Grešlové Mýto, Znojmo district; 5–Vysočany, Znojmo district).

Obr. 1. Zkoumané lokality na mapě Moravy: 1–Brno-Maloměřice, okres Brno-město; 2–Brno-Starý Lískovec, okres Brno-město; 3–Jevišovice, okres Znojmo; 4–Grešlové Mýto, okres Znojmo; 5–Vysočany, okres Znojmo).

rated with cord impressions. Later on, Oswald Menghin distinguished this assemblage as a specific entity, different from the Corded Ware culture, and referred to it as "of Jevišovice" (Hoernes, Menghin 1925). As a result, the terms "Jevišovice pottery", "Jevišovice type", and eventually "Jevišovice culture" took hold in the literature. The notion prevailing today is that Jevišovice culture is a local manifestation (developed on a local substratum) of the Central-European development of the Younger Aeneolithic cultural circle of southeastern Europe, distantly related to the Leibacher Moor culture of Slovenia.

A significant progress in our knowledge of the Jevišovice culture was obtained in 1970s when Anna Medunová-Benešová published a series of evidence cata-

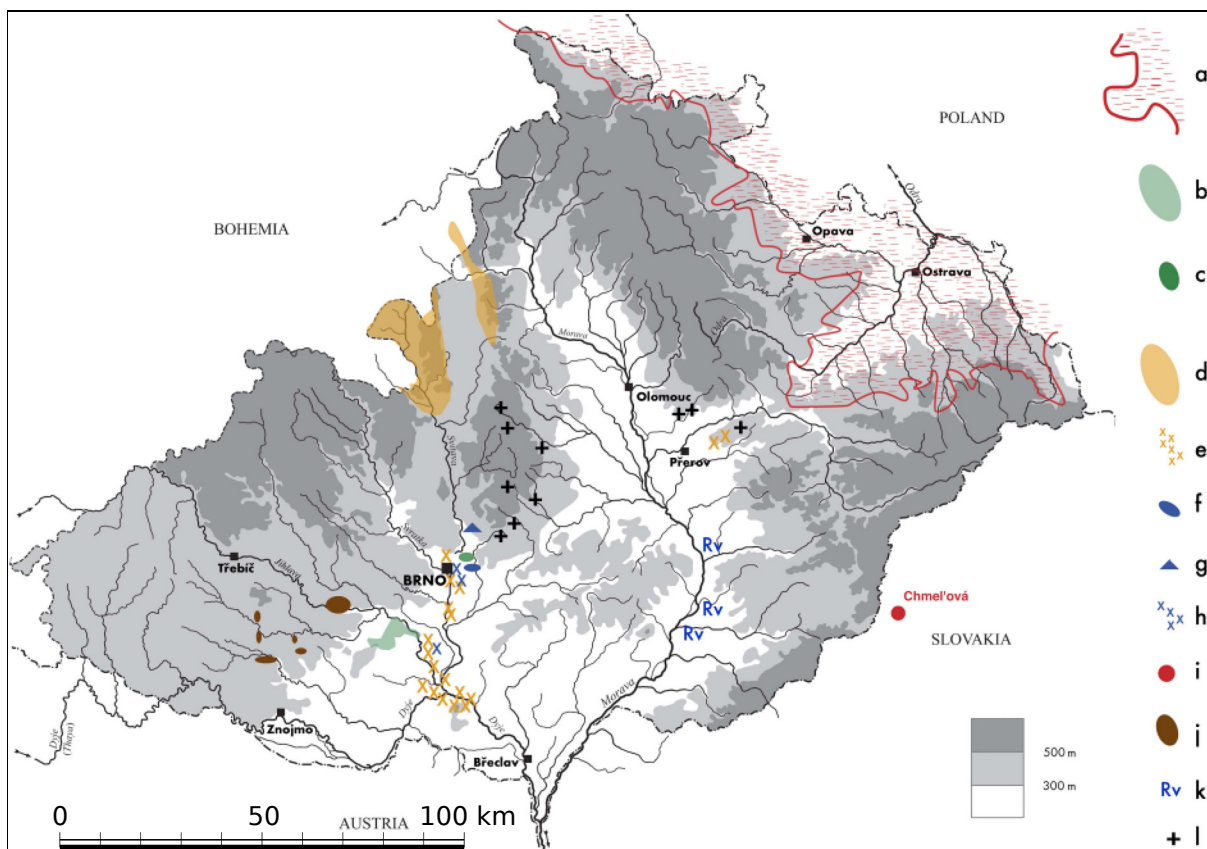


Fig. 2. Main raw material sources confirmed in Aeneolithic lithic inventories in Moravia and adjacent territories: a – areas of continental glaciations with occurrences of erratic siliceous rocks (from glacial sediments); b – distribution of Krumlovský les type cherts, varieties I and II; c – distribution of Krumlovský les type cherts, variety III; d – primary sources of Cretaceous spongolite cherts; e – Cretaceous spongolite cherts from gravels; f – cherts of the Stránská skála type; g – chert of the Olomučany type; h – Moravian Jurassic cherts from gravels; i – the Chmelová Hill near Vršatec, Slovakia; j – main sources of siliceous weathering products of serpentinites; k – silicified mudstones (révaite); l – quartzites (after J. Kopacz, A. Přichystal, L. Šebela 2009).

Obr. 2. Zdrojové oblasti hlavních surovin spojených s produkcí kamenné štípané in v eneolitu Moravy: a – silicity z glacigenních sedimentů; b – hlavní území výskytu rohovce typu Krumlovský les, variety I a II; c – území výskytu rohovce typu Krumlovský les, variety III; d – primární zdroje křídového spongolitu; e – křídový spongolit ze štěrků; f – rohovec typu Stránská skála; g – rohovec typu Olomučany; h – moravské jurské rohovce ze štěrků; i – kopec Chmelová u Vršatce, Slovensko, zdroj radiolaritu; j – hlavní zdroje křemičitých zvětralin serpentinitů; k – opalizovaný prachovitý jílovec (révait); l – křemence (podle J. Kopacz, A. Přichystal, L. Šebela 2009).

logues from three hillforts: Starý Zámek near Jevišovice – Layer B (1972), Nad Mírovcem in Grešlové Mýto (1973), and Palliardího Hradisko near Vysočany (1977a). On that basis, a comprehensive work on the culture in question was elaborated (1977b). It has retained its value as a reference point to this day.

Settlement of the Jevišovice culture was centered on territories of southern Moravia (Map 1). To the west and northwest it is geographically bordered by the Czech-Moravian Upland and the Drahaný Upland. The northernmost known appearance of the Jevišovice pottery has been detected between the cities of Vyškov and Prostějov, and in the Boskovice Furrow up to Svitávka (Štrof 1984). The hillfort near the latter locality may mark the route of diffusion of the Jevišovice culture towards eastern Bohemia. Southern Moravia, together with the adjacent part of Lower Austria to the north from the Danube, should be interpreted as one cultural milieu. Its eastern border runs along the Morava River. Further to the east we encounter the contemporaneous Bošáca group (*cf.* Podborský *et*

al. 1993, map 15). Jevišovice type finds in southwestern Slovakia (Romsauer 1981; Pavúková 1985) are interpreted as Lower Austrian intrusions.

Chronological subdivision of the Jevišovice culture is based on pottery. In territories to the west of the Morava River, three main horizons have been distinguished. The earliest one is represented by finds from Grešlové Mýto. The assemblage from Layer B on the eponymous site is related to the middle horizon (Medunová-Benešová 1977b). The youngest examples are finds from the site at Brno-Starý Lískovec (Medunová-Benešová, Vitula 1994).

The Jevišovice culture is known mostly from fortified settlement sites, located mainly on elevated points, usually on river or creek bends. In comparison with Early Aeneolithic hillforts, their Jevišovice counterparts are much smaller. We can assume that they protected rather small communities. Nothing can be said about spatial arrangements of these sites, because in most cases they are multi-cultural and usually disturbed by a subsequent occupation.

A good example is the Jevišovice-Starý Zámek site where a medieval castle was built upon the remains of an Aeneolithic hillfort. We also lack more detailed information about sites in less elevated positions, which are usually disturbed or obliterated by prehistoric and modern agriculture. The funerary ritual of the Jevišovice people is unknown due to the absence of unquestionable burials. By inference from literature, the presence of a burial under a barrow at Svitávka-Hradisko (Štrof 1984) is a possible.

Pottery of the Jevišovice culture is very distinctive. Main types of vessels are: pots, amphorae, bowls, pans, jar-like pots, mortars, all of which show diversity in shape and decoration. Of non-ceramic production, copper industry should get the first mention. Lithic chipped industry remained outside the field of archaeological interest for a long time. A still-relevant monograph on Moravian prehistory devotes only one sentence on this topic: *V souboru štípané industrie najdeme čepele, čepelovité ústěpy, některé s pilkovitou retuší, škrabadla a zcela výjimečně šipku*—In lithic chipped assemblages we can find blades, flakes, laminar flakes, some of them with denticulated retouch, endscrapers, and exceptionally arrowheads (Podborský *et al.* 1993, 198). This situation improved during the 1990s with publications of stone assemblages from Brno-Starý Lískovec (Oliva 1994) and Brno-Maloměřice (Valoch, Šebela 1995). Now it has become obvious that evidence of that kind possesses a significant research potential and should not be omitted in studies of the Jevišovice culture.

3. Evidence

3.1 Brno-Maloměřice, Brno-město district

The site, referred to as Občiny, is located on the border of the cadastral area of Maloměřice, 270 m a.s.l., at the foot of a limestone massif called Hády (424 m a.s.l.), on the left bank of the Svitava, in an area where the river enters the Brno Basin. The first traces of Aeneolithic settlement at Maloměřice were discovered in 1929, when a local quarry worker Jaroslav Boček, gave F. Adámek several greenschist axes, siliceous tools, and potsherds. During 1929–1942 J. Boček found more similar artifacts, all belonging to an Aeneolithic site, which was consequently destroyed by mining. At the same time the site was systematically supervised by F. Adámek and E. Vodička who salvaged a vast collection, including patinated artifacts identified as Paleolithic. In the following years, the site was visited by K. Valoch, V. Gebauer, B. Vyskočil, K. Simon, J. Čubak, and Pásek. In 1955 K. Valoch published the Paleolithic artifacts, classified as Aurignacian (Valoch 1955), while the Aeneolithic finds were sold to F. Adámek to complement his collection.

Besides the surface survey, in 1952 the site was excavated by F. Adámek and K. Valoch by means of sounding trenches. In one of the trenches, 2 meters from the actual quarry line, a cultural layer (“gray-black ashy clay”) with potsherds and stone artifacts was discovered. In the following years, further quarrying destroyed this site, in-

cluding several prehistoric structures (based on the diary of F. Adámek; *cf.* Valoch, Šebela 1995, 46).

Pottery obtained from the cultural layer has close analogies to Jevišovice, layer B. Therefore, the site in question should be interpreted as a Jevišovice culture site. Adámek’s lithic collection includes 1335 pieces.

Raw material

In terms of raw material, the Aeneolithic lithic chipped material is very homogenous. Over 80 per cent of artifacts are made from the Olomučany type chert and none shows traces of patina. Cortex present on few pieces is coarse and brown in color. These features suggest that the raw material originates from primary deposits.

The proportion of items identified as Moravian Jurassic chert is also significant (Valoch, Šebela 1995, 69, 70).

A detailed petrographic composition of the collection is as follows:

- Chert of the Olomučany type—1093 artifacts (83.12%)
- Moravian Jurassic chert (gray)—80 artifacts (6.08%)
- Chert of the Stránská skalá type—19 artifacts (1.44%)
- Cretaceous chert (spongolite)—10 artifacts (0.76%)
- Other cherts—8 artifacts (0.61%)
- Brown transparent silicite—6 artifacts (0.46%)
- Quartz—3 artifacts (0.23%)
- Crystalline rocks—3 artifacts (0.23%)
- Devonian limestone—2 artifacts (0.15%)
- Black silicite (?)—1 artifact (0.08%)
- Burnt silicite (undetermined)—90 artifacts (6.84%)
- Total—1315 artifacts (100.00%)

The material can be classified into the following categories:

1. Pre-core forms. They are shaped by convergent chipping, some of them are discoidal. Majority of them show a distinctive crest in the place of the intended striking platform (Fig. 3: 1–5).
2. Single-platform cores used for blades with a single striking surface (Fig. 4: 1–8; 3: 1, 5). Their striking platform is either natural (also cortical) or prepared. The surface opposite the striking surface was in some cases carefully fashioned (Fig. 4: 7, 8). During initial stages, the striking platforms were usually very convex (Fig. 4: 8), but later their convexity gradually diminished.
3. Cores with changed percussion axes, usually in advanced stages of exploitation (Fig 5: 2–7).
4. Hammerstones, usually spherical, with peck marks on the surface, especially on the edges (Fig. 6: 1–5).

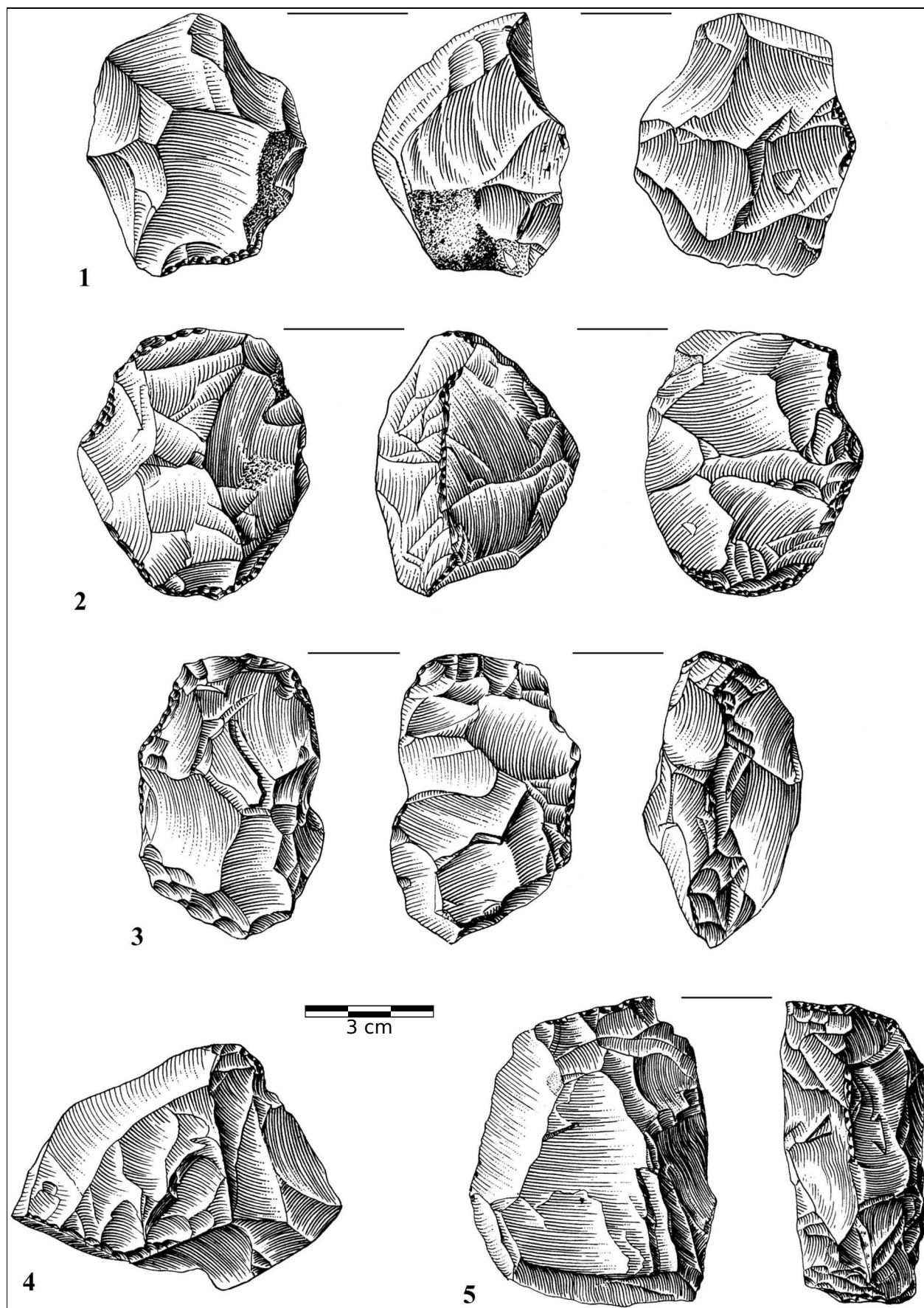


Fig. 3. Brno–Maloměřice, Brno–venkov district: 1–5 – knapped stone artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 3. Brno–Maloměřice, okres Brno–venkov: 1–5 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

5. Flakes and blades related to core preparation (Fig. 7: 1–19). Some of them are partially cortical (Fig. 7: 1). The most typical feature of these pieces is the crest-like edges on the dorsal surface (Fig. 7: 2–10). One piece shows clear traces of a faceted striking platform on a core (Fig. 7: 11). Some of them were utilized as expedient tools (Fig 7: 2, 9).
6. Blade blanks. Length of these pieces varies between 2–8 cm (Fig 8: 6–25). Some of them show traces of utilization retouch (Fig 8: 8, 9).
7. Tools. Tools (either typological or functional) number 117 artifacts (8.90% of the collection). They include the following types:
 - a Endscrapers–15 artifacts, *i.e.* 12.82% of tools, in most cases short unguiformes on flakes, laminar flakes, or small blades (Fig. 9: 2–8); one piece has two opposite scraping edges (Plate VII: 1).
 - b Endscraper–retouched blade–1 artifact, *i.e.* 0.85% of tools (Fig. 9: 10).
 - c Burins – 15 artifacts, *i.e.* 12.82% of tools, including burins on a break (Fig. 10: 13), flat-faced (Fig. 10: 14), and on retouched truncation (Fig. 10: 15).
 - d Notched tools–17 artifacts, *i.e.* 14.53% of tools (Fig. 11: 5).
 - e Denticulated tools–7 artifacts, *i.e.* 5.98% of tools (Fig. 11: 6, 17).
 - f Truncated blade–1 artifact, *i.e.* 0.86% of tools (Fig. 11: 1).
 - g Mini-pick–1 artifact, *i.e.* 0.86% of tools (Fig. 11: 14).
 - h Core-like tools with flat retouch–2 artifacts, *i.e.* 1.71% of tools (Fig. 11: 12, 13; the former resembles a knife-like tool).
 - i Blades and flakes with marginal retouch–58 artifacts, *i.e.* 49.57% of tools (Fig. 9: 9, 11–16, 18, 19; Fig. 10: 1–11; 9: 2–5, 7–11).

The lithic collection from Brno-Maloměřice shows characteristics of materials from stone-processing sites. It reflects all stages of the production process, from procurement, through fashioning pre-cores, various stages of exploitation of cores to obtain blade blanks, to manufacturing tools–from both flake and laminar forms. A significant number of functional and typological tools, as well as the presence of pottery, polished-stone artifacts, and animal bones indicate that the site was also used as a habitation place.

Collection: Moravian Museum Brno. Literature: Valoch, Šebela 1995.

3.2 Brno-Starý Lískovec, Brno-město district

The multi-cultural site at Starý Lískovec is located in the southwestern part of Brno, on southeastern slopes of Kamenný vrch hill. It was investigated, together with other places of prehistoric settlement located between

the city quarters of Starý Lískovec and Nový Lískovec, during three excavation seasons–1971, 1978, and 1989. This was a rescue excavation and was undertaken due to road construction.

In 1971, R. Tichý excavated 48 various prehistoric structures linked to the Linear Pottery culture, Moravian Painted Pottery culture and the Jevišovice culture (6 structures–nos. 26/71, 33/71, 34/71, 37/71, 38/71, and 45/71). An excavation in 1978 by K. Geislerová revealed the presence of nine more structures of the Linear Pottery culture and one structure of the Jordanów culture.

In 1989, a rescue excavation conducted by P. Vitula at a freeway construction site included three excavation trenches and other prehistoric structures from various periods, including 40 of the Jevišovice culture: 1–4/89, 11/89, 18/89/ 19/89, 30/89, 32b/89, 33–36/89, 38/89, 40/89, 42/89, 48/89, 50/89, 51a/89, 53a/89, 56/89, 60/89, 61/89, 64–66/89, 70–73/89, 75/89, 77/89, 94/89, 95/89, 97/89, 99/89, and 103/89.

Lithic chipped material related to the Jevišovice culture includes 30 artifacts. According to M. Oliva (1994), the collection includes the following pieces:

- Cherts of the Krumlovský les type–13 artifacts
- Moravian Jurassic chert or other chert–3 artifacts
- Chert of the Olomučany type–10 artifacts

Artifacts made from other raw materials have not been identified.

Lithic chipped industry was found in the following settlement structures:

Structure 33/71

1. Retouched flake, slightly similar to a sidescraper. Unidentified siliceous rock. Length 3.28 cm. Inv. no. 69/71.

Structure 45/71

1. Core with no distinct striking surface. Unidentified siliceous rock. Dimensions: 5.85×5.3×4.5 cm. Inv. no. 172/71.

Structure 1/89

1. Flake. Unidentified siliceous rock. Length 5.15 cm. Inv. no. 8/89.

Structure 2/89

1. Blade. Unidentified siliceous rock. Length 5.25 cm. Inv. no. 17/89 (Fig 13:1).
2. Flake. Unidentified siliceous rock. Length 6.35 cm. Inv. no. 18/89.

Structure 11/89

1. Flake. Unidentified siliceous rock. Length 3.7 cm. Inv. no. 141/89.
2. Notched cortical flake. Unidentified siliceous rock. Length 2.53 cm. Inv. no. 142/89.
3. Flake. Unidentified siliceous rock. Length 2.53 cm. Inv. no. 143/89.

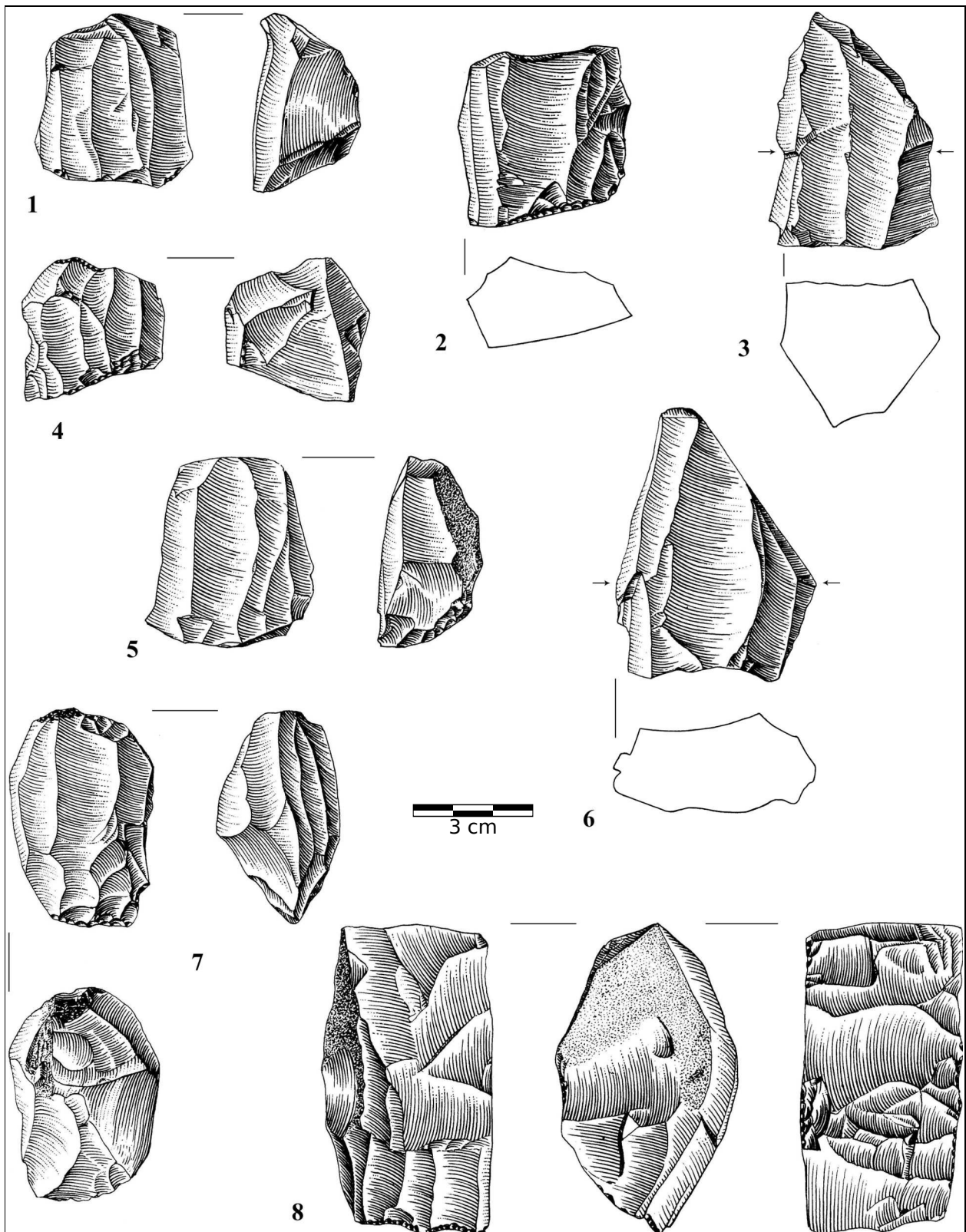


Fig. 4. Brno–Maloměřice, Brno–město district: 1–8 – knapped stone artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 4. Brno–Maloměřice, okres Brno–venkov: 1–8 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

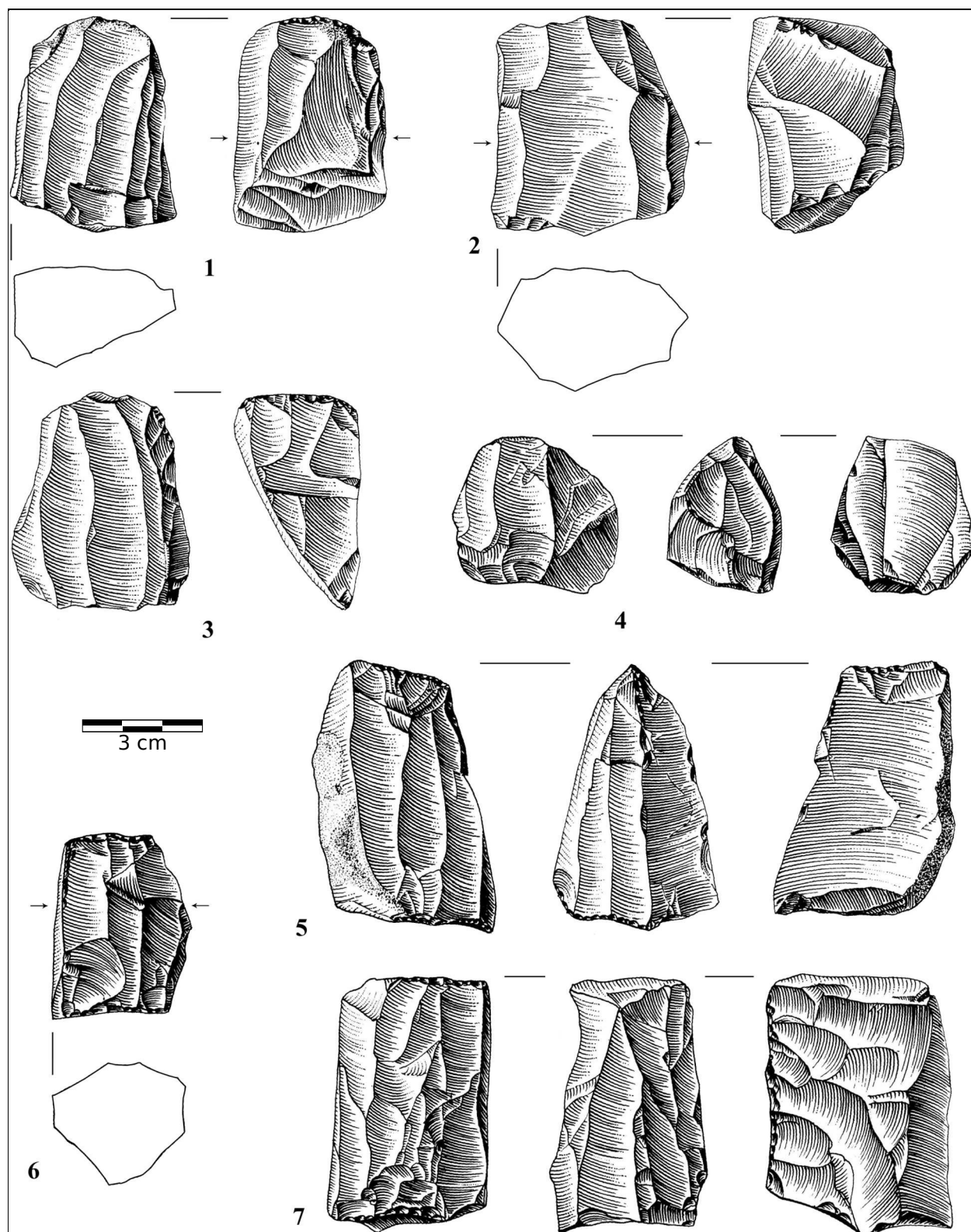


Fig. 5. Brno–Maloměřice, Brno–město district: 1–7–lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 5. Brno–Maloměřice, okres Brno–venkov: 1–7–kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

Structure 19/89

1. Flake. Unidentified siliceous rock. Length 4.25 cm. Inv. no. 174/89.

Structure 29/89

1. Flake. Unidentified siliceous rock. Length 3.4 cm. Inv. no. 227/89.
2. Flake. Unidentified siliceous rock kind. Length 3.25 cm. Inv. no. 228/89.
3. Flake. Unidentified siliceous rock. Length 2.75 cm. Inv. no. 229/89.
4. Flake with utilization retouch. Unidentified siliceous rock. Length 2.85 cm. Inv. no. 230/89.

Structure 35/89

1. Blade fragment. Unidentified siliceous rock. Length of fragment: 2.0 cm. Inv. no. 271/98 (Fig. 13:2).

Structure 40/89

1. Irregular blade with utilization retouch on one lateral edge, with sickle gloss.
2. Unidentified siliceous rock. Length 5.07 cm. Inv. no. 337/89 (Fig. 13:3).
3. Flake. Unidentified siliceous rock. Length 3.9 cm. Inv. no. 338/89.
4. Flake. Unidentified siliceous rock. Length 3.0 cm. Inv. no. 339/89.

Structure 48/89

1. Flake. Unidentified siliceous rock. Length 2.7 cm. Inv. no. 371/89.
2. Blade with a broken distal segment. Unidentified siliceous rock. Length of fragment 2.83 cm. Inv. no. 372/89 (Fig. 13:4).

Structure 51a/89

1. Distal blade fragment. Unidentified siliceous rock. Length of fragment 1 cm. Inv. no. 423/89 (Fig. 13:5).
2. Core. Unidentified siliceous rock. Dimensions: 3.7×4.9×3.55 cm. Inv. no. 424/89.
3. Residual core. Unidentified siliceous rock. Dimensions: 5.2×3.7×2.67 cm. Inv. no. 425/89.
4. Massive flake. Unidentified siliceous rock. Length 4.6 cm, width 3.5 cm, thickness 2.33 cm. Inv. no. 426/89.
5. Splintered piece. Unidentified siliceous rock. Dimensions: 3.4×3.1×1.2 cm. Inv. no. 427/89.

Structure 66/89

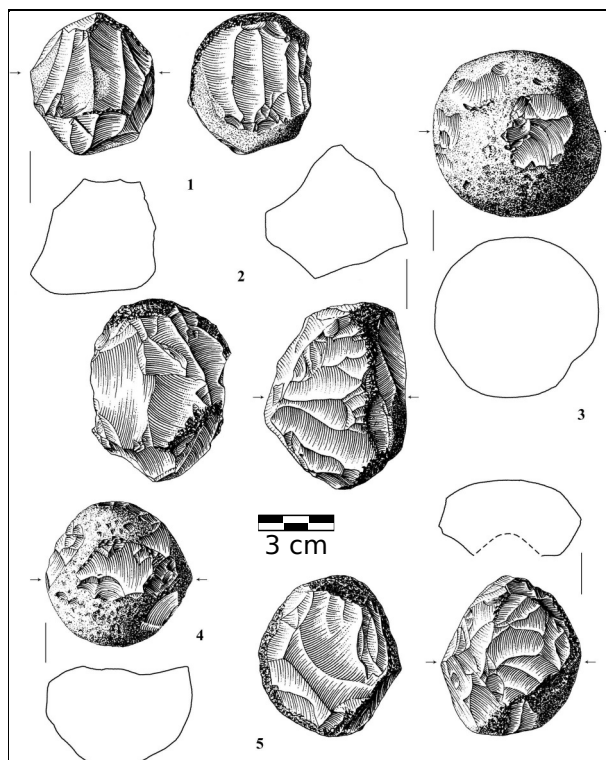


Fig. 6. Brno–Maloměřice, Brno–město district: 1–5 – lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 6. Brno–Maloměřice, okres Brno–venkov: 1–5 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

1. Flake. Unidentified siliceous rock. Length 3.0 cm. Inv. no. 600/89
2. Small blade. Unidentified siliceous rock. Length 2.84 cm. Inv. no. 601/89 (Fig. 13:6).
3. Small flake. Unidentified siliceous rock. Length 1.6 cm. Inv. no. 602/89.

Structure 70/89

1. Blade with a focal striking platform. Unidentified siliceous rock. Length: 4.5 cm. Inv. no. 629/89 (Fig. 13:7).
2. Sidescraper on a thick flake with denticulated retouch on both lateral edges. Unidentified siliceous rock. Length 3.4 cm, width 1.96 cm, thickness 1.15 cm. Inv. no. 630 (Fig. 13:8).

Structure 75/89

1. Flake core (negative of one flake detached). Unidentified siliceous rock. Dimensions: 8.1×6.5×4.5 cm. Inv. no. 711/89.

Structure 94/89

1. Short unguiforme endscraper on a blade. Unidentified siliceous rock. Length 2.54 cm. Inv. no. 736/89 (Fig. 13:9).

Structure 103/89

1. Flake. Unidentified siliceous rock. Length 3.56 cm. Inv. no. 779/89.

Collection: Moravian Museum Brno.

Literature: Medunová-Benešová, Vitula 1994.

3.3 Grešlové Mýto, Znojmo district, Site: Nad Mírovcem

The site is located to the northeast of Grešlové Mýto village, on a rocky promontory above the Jevišovka River. It was excavated by Jaroslav Palliardi in 1890, 1891 and 1894. He examined a cultural layer up to 50 cm thick and six pit-like structures (pits 1 to 6) related probably to the Moravian Painted Pottery culture. In 1966 the site was further examined by 7 soundings (A–G) by A. Medunová (Archaeological Institute of Czechoslovak Academy of Sciences, Brno).

The site is primarily of the Jevišovice culture site in its early stages of the development (*cf.* Chapter II). Objects from other cultural periods, including the already mentioned Moravian Painted culture and from the Medieval Period were also found.

A lithic assemblage recovered from the cultural horizon probably belongs (mostly) to the Jevišovice culture. It numbers 51 artifacts made from siliceous rocks, in most cases unidentified (Fig. 16–18). Raw material of two pieces has been identified as radiolarite (Fig. 18:10; 17:5).

The most frequent forms are regular blade blanks (Fig. 17:1, 3–18), with lengths varying between 3–6.5 cm. They were detached from specially prepared single-platform cores that allowed serial exploitation. Tools are represented mainly by endscrapers, as a rule made from regular blades (Fig. 16: 1–13, 14–17). Some of them are retouched on lateral edges (Fig. 17: 9, 10) There are also examples of knife-like tools (Fig 17:14; 18:10), a sidescraper (Fig. 16:18), a truncated blade (Fig. 17:2), a pick (Fig. 18:6), and boring tools (Fig. 18:11, 12).

The most remarkable find is a series of 5 arrowheads (Fig. 18:1–5). The biggest one (length is 2.5 cm, not including the broken tip) is almost triangular (Fig. 18:5), the others have either triangular (Fig. 18:1, 3, 4) or cordiforme leaves (Fig. 18:3) and narrowing (almost pointed) tangs. The cordiforme artifact has at least one notch at the tang base and resembles arrowheads of the Štramberk type.

Material from the cultural layer (J. Palliardi's excavations):

1. Core. Unidentified siliceous rock. Inv. no. 5513.
2. Endscraper on a core fragment (part of a striking surface). Unidentified siliceous rock. Inv. no. 50790 (Fig. 16:16).
3. Endscraper on a blade. Unidentified siliceous rock. Inv. no. 50791 (Fig. 16:11).
4. Bifacially retouched massive knife-like tool of an oblong laminar form. Brown radiolarite. Inv. no. 50792 (Fig. 18:10).
5. Endscraper on a blade with retouched lateral edges. Unidentified siliceous rock. Inv. no. 50793 (Fig. 16:10).
6. Small pick on a thick blade. Unidentified siliceous rock. Inv. no. 50794 (Fig. 18:6).
7. Blade with traces of cortex. Unidentified siliceous rock. Inv. no. 50795 (Fig. 17:3).
8. Blade with a broken proximal segment. Unidentified siliceous rock. Inv. no. 50796 (Fig. 17:1).
9. Endscraper on a narrow blade. Unidentified siliceous rock. Inv. no. 50797 (Fig. 16:2).
10. Narrow blade with marginal retouch. Unidentified siliceous rock. Inv. no. 50798 (Fig. 17:8).
11. Massive blade with residual cortex. Unidentified siliceous rock. Inv. no. 50799 (Fig. 17:15).
12. Massive crested blade with the proximal segment retouched, similar to an endscraper. Unidentified siliceous rock. Inv. no. 50800 (Fig. 17:16).
13. Endscraper on a blade with retouched lateral edges. Unidentified siliceous rock. Inv. no. 50802 (Fig. 16: 9).
14. Small endscraper on a blade with retouched lateral edges. Unidentified siliceous rock. Inv. no. 50809 (Fig. 16:13).
15. Endscraper on a blade. Unidentified siliceous rock. Inv. no. 50803 (Fig. 16:12).
16. Small endscraper on a blade. Unidentified siliceous rock. Inv. no. 50804.
17. Endscraper on a massive blade. Unidentified siliceous rock. Inv. no. 50805 (Fig. 16:17).
18. Knife-like tool on a wide flake. Unidentified siliceous rock. Inv. no. 50807 (Fig. 16:14).
19. Blade missing the distal segment and with traces of utilization retouch. Unidentified siliceous rock. Inv. no. 50807? (Fig. 18:13).
20. Endscraper on a massive blade. Unidentified siliceous rock. Inv. no. 50808 (Fig. 16:15).
21. Small splinter-like flake. Unidentified siliceous rock. Inv. no. 50811 (Fig. 18: 9).
22. Triangular arrowhead with a slightly concave base. Unidentified siliceous rock. Inv. no. 50812 (Fig. 18:5).
23. Oblong tanged arrowhead. Unidentified siliceous rock. Inv. no. 50813 (Fig. 18:4).
24. Tanged arrowhead. Unidentified siliceous rock. Inv. no. 50815 (Fig. 18:3).
25. Arrowhead with an incipient tang and one distinctive notch at the base. Unidentified siliceous rock. Inv. no. 50816 (Fig. 18:2).

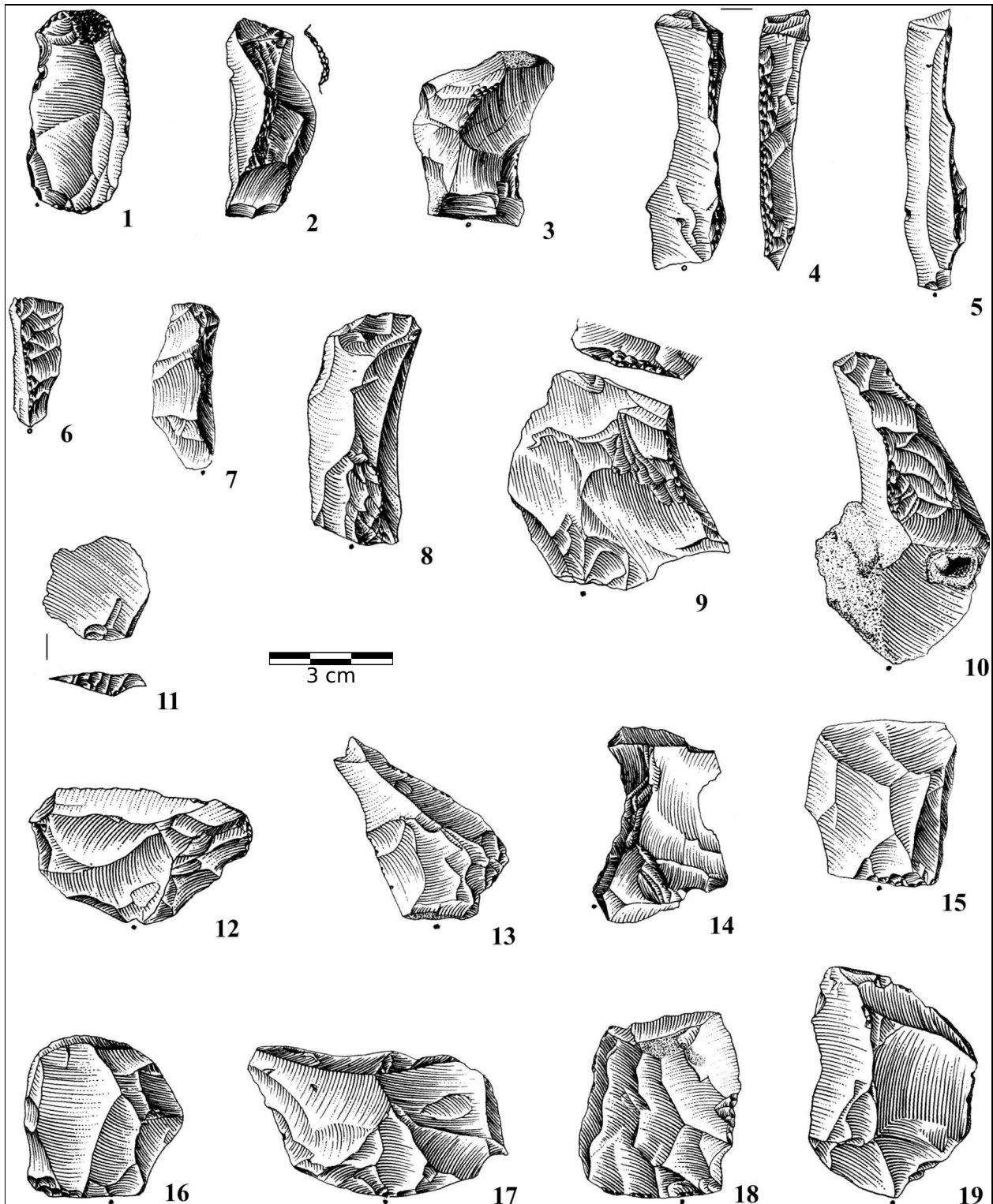


Fig. 7. Brno–Maloměřice, Brno–město district: 1–19 – lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 7. Brno–Maloměřice, okres Brno–venkov: 1–19 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

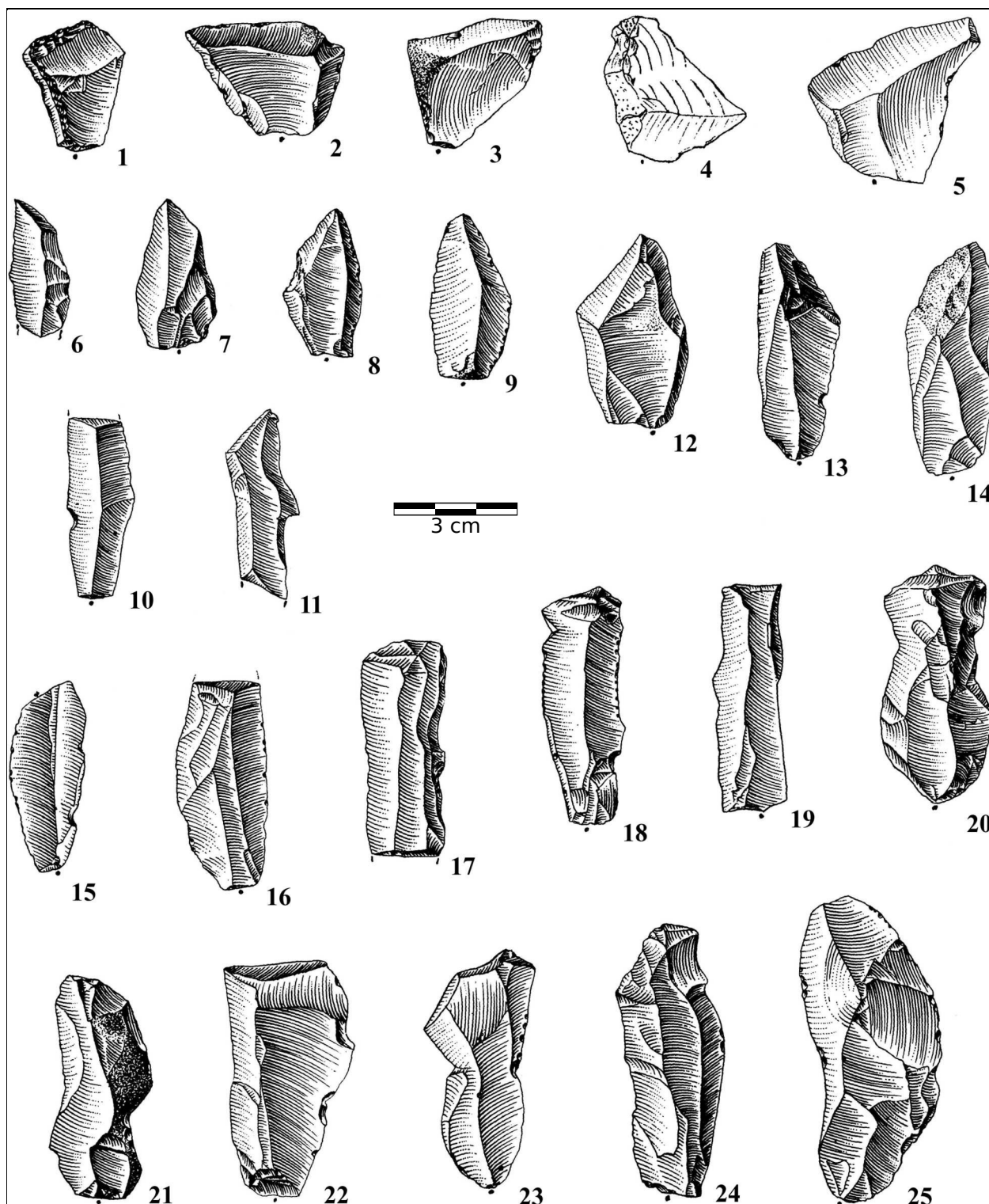


Fig. 8. Brno–Maloměřice, Brno–město district: 1–25 – lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 8. Brno–Maloměřice, okres Brno–venkov: 1–25 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

26. Tanged arrowhead. Unidentified siliceous rock. Inv. no. 50817 (Fig. 18:1).
 27. Blade. Unidentified siliceous rock. Inv. no. 50818 (Fig. 17:12).
 28. Endscraper on a proximal blade segment. Unidentified siliceous rock. Inv. no. 50819 (Fig. 18:6).
 29. Endscraper on a blade with a narrow scraping edge. Unidentified siliceous rock. Inv. no. 50820 (Fig. 16:4).
 30. Blade with marginal retouch. Unidentified siliceous rock. Inv. no. 50821 (Fig. 18:7).
 31. Ungiforme endscraper on a laminar flake. Unidentified siliceous rock. Inv. no. 50822 (Fig. 16: 5).
 32. Blade with a broken distal segment. Unidentified siliceous rock. Inv. no. 50823 (Fig. 17: 11).
 33. Flake with marginal retouch. Unidentified siliceous rock. Inv. no. 50824 (Fig. 18: 11).
 34. Blade with a broken tip. Unidentified siliceous rock. Inv. no. 50825 (Fig. 17:4).
 35. Blade with a broken distal segment. Unidentified siliceous rock. Inv. no. 50826 (Fig. 17:14).
 36. Blade without a proximal segment. Unidentified siliceous rock. Inv. no. 50827 (Fig. 17:9).
 37. Blade with residual cortex on the distal segment. Unidentified siliceous rock. Inv. no. 50828 (Fig. 17:17).
 38. Boring tool on a flake. Unidentified siliceous rock. Inv. no. 50829 (Fig. 18:12).
 39. Retouched laminar blade with traces of crest-like core preparation on the dorsal surface. Unidentified siliceous rock. Inv. no. 50830 (Fig. 18:8).
 40. Sidescraper with a concave scraping edge on a laminar flake. Unidentified siliceous rock. Inv. no. 50831 (Fig. 16:18).
 41. Endscraper on a blade with traces of cortex, with an irregular scraping edge. Unidentified siliceous rock. Inv. no. 50832 (Fig. 16:8).
 42. Blade with utilization retouch. Unidentified siliceous rock. Inv. no. 50833 (Fig. 17:18).
 43. Blade with a proximal segment broken. Unidentified siliceous rock. Inv. no. 50834 (Fig. 17:6).
 44. Blade with proximal and distal segments broken. Unidentified siliceous rock. Inv. no. 50835 (Fig. 17:7).
 45. Endscraper on a blade. Unidentified siliceous rock. Inv. no. 50836 (Fig. 16:7).
 46. Blade with proximal and distal segments broken, with traces of utilization retouch. Unidentified siliceous rock. Inv. no. 50837 (Fig. 18:14).
 47. Blade. Unidentified siliceous rock. Inv. no. 50838 (Fig. 17:13).
 48. Blade with proximal and distal segments broken. Unidentified siliceous rock. Inv. no. 50839 (Fig. 17:10).
 49. Ungiforme endscraper on a laminar flake. Unidentified siliceous rock. Inv. no. 50841 (Fig. 16:1).
 50. Blade with the proximal segment broken and with traces of utilization retouch. Unidentified siliceous rock. Inv. no. 50842 (17:2).
 51. Blade with a broken distal segment. Brown radiolarite. Inv. no. 50833 (Fig. 17:5).
 52. Blade with proximal and distal segments broken. Inv. no. 50839 (Fig. 17:10).
 53. Endscraper on a blade with a fan-like scraping edge. Inv. no. 50840 (Fig. 16:3).
- Collection: Moravian Museum Brno.
Literature: Medunová-Benešová 1973.

3.4 Jevišovice, Znojmo district (actually: Střelice), Znojmo district, Site: Starý Zámek

The site is actually located in the cadastral area of Střelice, yet – due to its close proximity to Jevišovice – is known in the literature under the latter name.

The name Starý Zámek (Old Castle) refers to a rocky promontory on the left-hand side of the Jevišovka River, opposite the Jevišovice village, with few remains (earth ramparts) of a medieval castle on the top. The place was excavated in 1909–1914, mostly by J. Palliardi, but also by F. Vildomec.

Jaroslav Palliardi distinguished four settlement horizons, denoted (from the top) as A, B, C1, and C2. Artifacts recovered from layer B became the basis for identifying the Jevišovice culture. They include 14 lithic chipped artifacts, so far not analyzed in the scope of raw material:

1. Blade with denticulated retouch on both lateral edges. Unidentified siliceous rock. Length 2.9 cm. Inv. no. 4906 (Fig. 12:1).
2. Blade with denticulated retouch on one lateral edge. Unidentified siliceous rock. Length 3.0 cm. Inv. no. 690 (Fig. 12:2).
3. Narrow thin blade with denticulated retouch on both lateral edges. Unidentified siliceous rock. Length 2.7 cm. No inv. no. (Fig. 12:3).
4. Laminar flake with traces of utilization retouch. Unidentified siliceous rock. Length 3.5 cm. No inv. no. (Fig. 12:4).
5. Blade with traces of utilization retouch. Unidentified siliceous rock. Length 3.6 cm. Inv. no. 3462 (Fig. 12:5).

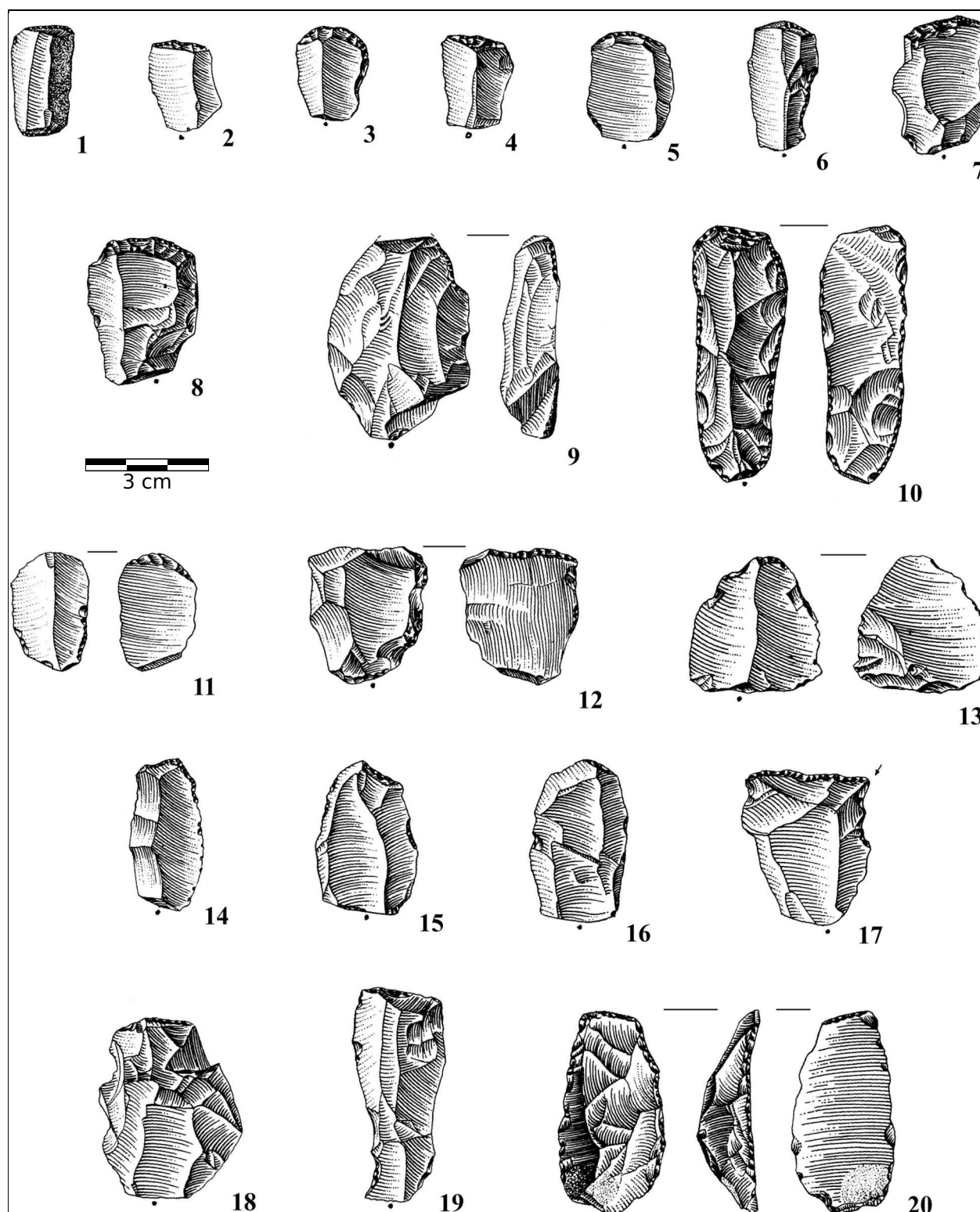


Fig. 9. Brno–Maloměřice, Brno–město district: 1–20 – lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 9. Brno–Maloměřice, okres Brno–venkov: 1–20 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

6. Massive blade, partially cortical, with very regular denticulated retouch along the entire length of one lateral edge. Unidentified siliceous rock. Length 5.7 cm. Inv. no. 5026 (Fig. 12:6).
7. Massive blade. Unknown siliceous rock. Length 6.3 cm. Inv. no. 5027 (Fig. 12:7).
8. Sub-crested blade with a regular triangular transversal cross-section. Unidentified siliceous rock. Length 4.6 cm. Inv. no. 6787 (Fig. 12:8).
9. Knife-like backed tool on a laminar flake, partially cortical, regularly denticulated working edge and a rounded tip on the dorsal surface. Unidentified siliceous rock. Length 4.5 cm. Inv. no. 619 (Fig. 12:9).
10. Regular, very long blade with a very small (focal) striking platform. Unidentified siliceous rock. Length 9.8 cm. Inv. no. illegible (Fig. 12:10).
11. Endscraper on a flake with residual cortex, with the edge opposite to the scraping edge shaped into a point (perforator bit?). Unidentified siliceous rock. Length 4.3 cm, width 3.3 cm. Inv. no. 4446 (Fig. 12:11).
12. Blade core in the early stage of exploitation, with rounded striking surface and cortical sides. Unidentified siliceous rock. Dimensions: 3.4×2.7×2.0 cm. Inv. no. 998 (Fig. 12:12).
13. Blade core fragment morphologically resembling a massive endscraper. Unidentified siliceous rock. Length 4.9 cm, width 3.3 cm, thickness 1.3 cm. No inv. no. (Fig. 12:13).
14. Laminar flake. Unidentified siliceous rock. Length 4.8 cm. Inv. no. 6807 (Fig. 12:14).

Collection: Moravian Museum Brno.

Literature: Medunová-Benešová 1972; Kopacz 2001, 59, Tab. XL on p. 164.

3.5 Vysočany, Znojmo district, Site: Palliardiho Hradisko (Palliardí's Stronghold)

This site is located on a big promontory overlooking the Želetavka creek valley. It has been known for a long time as a multi-cultural site from the Early Medieval Period, the Hallstatt Period (the Horákov culture), the Early Neolithic (the Linear Pottery culture), and the Younger Aeneolithic (the Jevišovice culture).

Excavations at the site were carried out between 1950 and 1958 by J. Sobotka, a teacher from nearby Dolní Lažany. They were supervised by the Archaeological Institute of the Czech-Slovak Academy of Sciences in Brno (J. Říhovský and A. Medunová). The recovered material related to the latter unit and was later published by A. Medunová-Benešová (1977a). The collection numbers 58 lithic chipped artifacts. The raw material type has not been confirmed by a detailed petrographic examination. The presence of a rock identified as "rock crystal" (possibly quartz) is significant.

Research 1950–1952

1. Blade with a broken distal segment, with traces of marginal retouch. Unidentified siliceous rock. Length: 3.2 cm. Inv. no. MB 187.

Research 1957

1. Endscraper on a blade. Unidentified siliceous rock. Length 3.3 cm. Inv. no. MB 280 (Fig. 14:1)
2. Endscraper on a blade with an irregular scraping edge on the distal segment and utilization retouch on one lateral edge. Unidentified siliceous rock. Length 5.1 cm. Inv. no. MB 301 (Fig. 14:2).
3. Flake core. Jasper. Dimensions: 5.5×4.8×3.2 cm. Inv. no. MB 302.
4. Crested flake. Unidentified siliceous rock. Length 5.45 cm. Inv. no. MB 309.
5. Blade with a broken distal segment. Unidentified siliceous rock. Length of the fragment 2.9 cm. Inv. No. MB 310 (Fig. 14:3).
6. Blade. Unidentified siliceous rock. Length 3.6 cm. Inv. no. MB 311 (Fig. 14:4).
7. Flake core. Jasper. Length 3.5 cm. Inv. no. MB 365.
8. Short blade. Unidentified siliceous rock. Length 2.5 cm. Inv. no. MB 412 (Fig. 14:5).
9. Blade with traces of marginal retouch. Unidentified siliceous rock. Length 3.9 cm. Inv. no. MB 456 (Fig. 14:6).
10. Blade with a broken distal segment. Unidentified siliceous rock. Length of fragment 3.65 cm (Fig. 14:7).
11. Flake with traces of marginal retouch. Unidentified siliceous rock. Length 4.0 cm. Inv. no. MB 475.
12. Blade with a broken distal segment. Unidentified siliceous rock. Length of fragment 3.4 cm. Inv. no. MB 490 (Fig. 14:8).
13. Flake. Jasper. Length 1.65 cm. Inv. no. MB 491.
14. Flake. Jasper. Length 4.2 cm. Inv. no. MB 574.
15. Blade with traces of marginal retouch. Length 4.1 cm, width 2.08 cm. Inv. no. MB 579 (Fig. 14:9).
16. Fragment of a retouched tool of an unknown type. Plattensilex length 5.75 cm, maximal width 4.1 cm. Inv. no. MB 584.

Research 1958

1. Flake fragment with traces of retouch. Unidentified siliceous rock. Length 1.6 cm. Inv. no. MB 1068.
2. Blade. Unidentified siliceous rock. Length 2.75 cm. Inv. no. MB 1070 (Fig. 14:4).

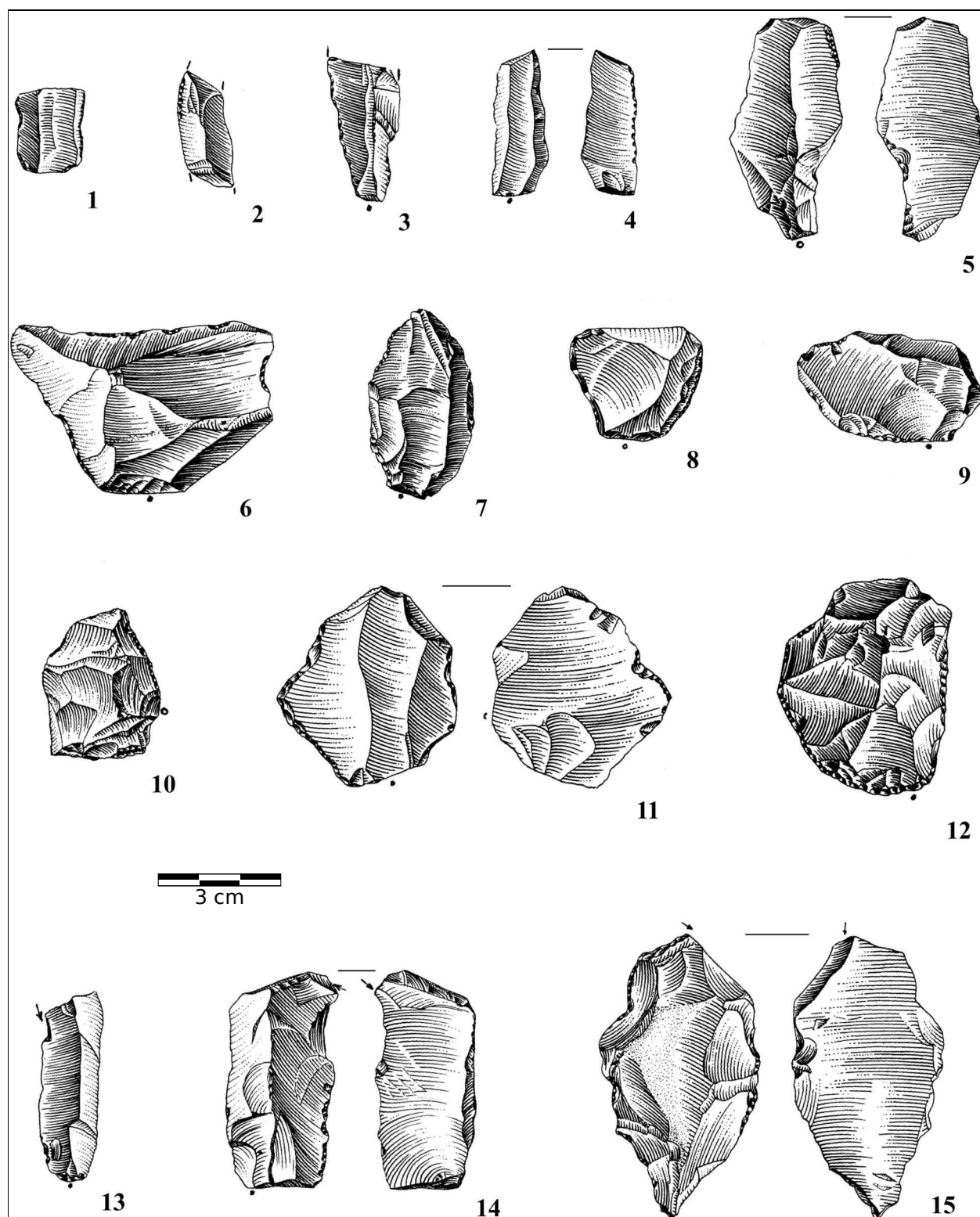


Fig. 10. Brno–Maloměřice, Brno–město district: 1–15 – lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 10. Brno–Maloměřice, okres Brno–venkov: 1–15 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

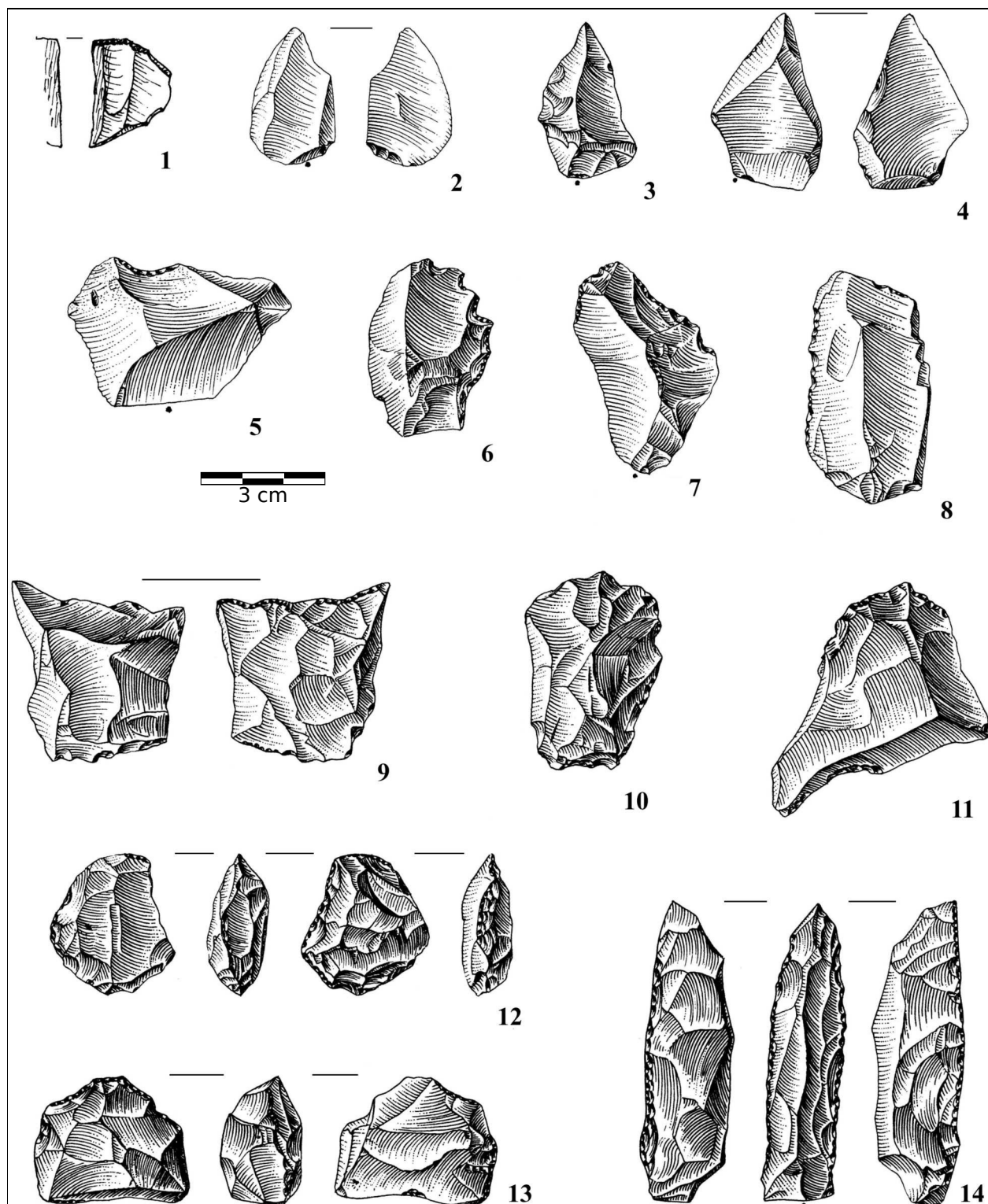


Fig. 11. Brno–Maloměřice, Brno–město district: 1–14 – lithic chipped artifacts from the Jevišovice cultural layer (after K. Valoch, L. Šebela 1995).

Obr. 11. Brno–Maloměřice, okres Brno–venkov: 1–14 – kamenné štípané artefakty z kulturní vrstvy jevišovické kultury (podle K. Valoch, L. Šebela 1995).

3. Arrowhead with convex sides and a slightly convex base. Quartz. Length 2.1 cm. Inv. no MB 1072 (Fig. 14:12).
4. Small blade. Unidentified siliceous rock. Length 2.17 cm. Inv. no. MB 1073 (Fig. 14:13).
5. Irregular blade. Unidentified siliceous rock. Length 3.1 cm. Inv. no. MB 1074 (Fig. 14:1).
6. Splinter. Unidentified siliceous rock. Inv. no. MB 1075.
7. Splinter. Jasper. Inv. no. MB 1076.
8. Blade fragment. Unidentified siliceous rock. Length of the preserved part 2.0 cm. Inv. no. MB 1077.
9. Flake. Length 4.8 cm. Inv. no. MB 1078.
10. Endscraper on a very narrow regular blade. Length 4.6 cm. Unidentified siliceous rock. Inv. no. MB 1079 (Fig. 14:14).
11. Rock piece. Crystal. Inv. no. MB 1095.
12. Laminar flake. Unidentified siliceous rock. Length 2.5 cm. Inv. no. MB 1103 (Fig. 14:15).
13. Blade. Unidentified siliceous rock. Length 2.6 cm. Inv. no. MB 1105 (Fig. 14:16).
14. Flake. Jasper. Inv. no. 1120.
15. Blade. Unidentified siliceous rock. Length 3.75 mm. Inv. no. 1127 (Fig. 15:21).
16. Crested blade with a regular triangular cross-section. Unidentified siliceous rock. Length 7.0 cm. Inv. no. unknown (Fig. 15:22).
17. Truncated blade with an oblique truncation on the distal segment and utilization retouch on both lateral edges. Unidentified siliceous rock. Length 5.6 cm. Inv. no. MB 1132 (Fig. 14:17).
18. Flake. Jasper. Length 5.35 cm. Inv. no. MB 1954.
19. Massive flake with traces of marginal retouch. Jasper. Length 7.4 cm. Inv. no. MB 1955 (Fig. 14:19).
20. Sidescraper on a massive flake. Jasper. Length 4.35 cm. Inv. no. MB 1956 (Fig. 14:18).
21. Occasional blade. Jasper. Length 4.45 cm. Inv. no. MB 1957 (Fig. 15:1).
22. Retouched flake. Unidentified siliceous rock. Length 2.9 cm. Inv. no. MB 1958 (Fig. 15:2).
23. Small flake with traces of marginal or utilization retouch. Jasper. Length 2.5 cm. Inv. no. MB 1959 (Fig. 15:3).
24. Narrow truncated blade with marginal retouch on the working (lateral edge). Unidentified siliceous rock. Length 3.8 cm. Inv. no. MB 2275 (Fig. 15:4).
25. Blade without the base part with traces of utilization retouch. Unidentified siliceous rock. Length 3.5 cm. In. no. MB 2276 (Fig. 15:5).
26. Massive retouched flake similar to an irregular endscraper. Unidentified siliceous rock. Length 4.8 cm. Inv. no. MB 2277 (Fig. 14:11).
27. Flake. Unidentified siliceous rock. Length 4.5 cm. Inv. no. MB 2279.
28. Endscraper on a blade with residual cortex, with an asymmetrically shaped scraping edge on the distal part. Unidentified siliceous rock. Length 4.75 cm. Inv. no. MB 2280 (Fig. 14:10).
29. Endscraper on a blade with retouch on both lateral edges. The main scraping edge is on the distal segment, it has a secondary edge in the proximal part. Unidentified siliceous rock. Length 4.0 cm. Inv. no. MB 2281 (Fig. 15:6).
30. Irregular truncated blade, or a blade retouched on one lateral edge and on the distal segment. Unidentified siliceous rock. Length 4.1 cm. Inv. no. MB 2282 (Fig. 15:7).
31. Flake. Jasper. Length 3.7 cm. Inv. no. MB 2283 (Fig. 15:8).
32. Blade. Unidentified siliceous rock. Length 3.6 cm. Inv. no. MB 2284 (Fig. 15:9).
33. Endscraper on a massive sub-crested blade. Unidentified siliceous rock. Length 3.4 cm. Inv. no. MB 2285 (Fig. 15:10).
34. Laminar flake. Unidentified siliceous rock. Length 3.4 cm. Inv. no. MB 2286 (Fig. 15:11).
35. Flake. Crystal. Length 2.5 cm. Inv. no. MB 2287 (Fig. 15:12).
36. Flake. Crystal. Length 3.0 cm. Inv. no. MB 2288 (Fig. 15:13).
37. Blade. Unidentified siliceous rock. Length 4.0 cm. Inv. no. MB 2289 (Fig. 15:14).
38. Double endscraper on a blade with traces of functional retouch on lateral edges. Unidentified siliceous rock. Length 3.7 cm. Inv. no. MB 2290 (Fig. 15:15).
39. Laminar flake. Unidentified siliceous rock. Length 3.05 cm. Inv. no. MB 2291. (Fig. 15:16).
40. Blade. Unidentified siliceous rock. Length 2.85 cm. Inv. no. MB 2292 (Fig. 15:17).
41. Flake. Jasper. Length 2.5 cm. Inv. no. MB 2293 (Fig. 15:19).
42. Blade. Unidentified siliceous rock. Length 3.35 cm. Inv. no. MB 2294 (Fig. 15:18).
43. Flake. Jasper. Length 2.6 cm. Inv. no. 2295 (Fig. 15:20).

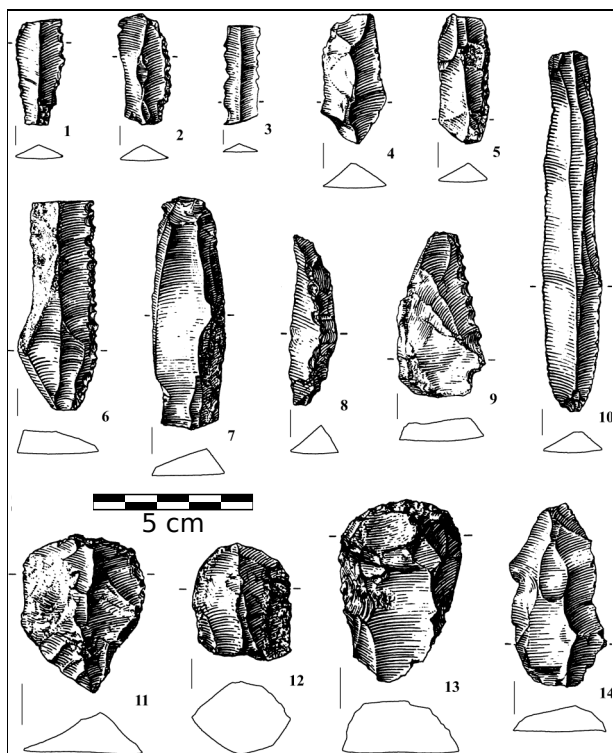


Fig. 12. Jevišovice, Znojmo district, Site Starý Zámek. 1–14–lithic chipped artifacts from Layer B (after A. Medunová-Benešová 1972).

Obr. 12. *Jevišovice, okres Znojmo, trat' Starý Zámek. 1–14–kamenné štípané artefakty z vrstvy B (podle A. Medunová-Benešová 1972).*

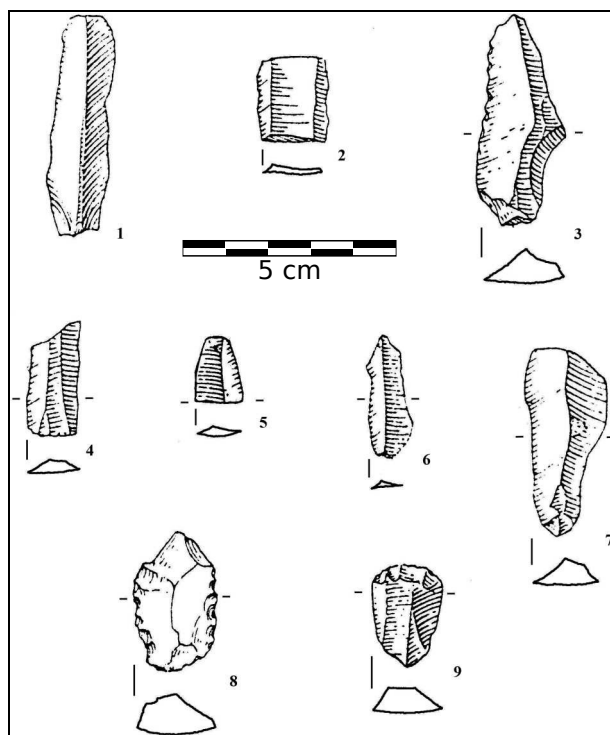


Fig. 13. Brno–Starý Lískovec, Brno–město district. Lithic chipped artifacts from features of the Jevišovice culture: 1–Structure 2/89; 2–Structure 35/89; 3–Structure 40/89; 4–Structure 48/89; 5–Structure 51a/85; 6–Structure 66/89; 7, 8–Structure 70/89; 9–Structure 94/89 (after A. Medunová-Benešová, P. Vitula 1994).

Obr. 13. *Brno–Starý Lískovec, okres Brno–město. Kamenné štípané artefakty z objektů jevišovické kultury: 1–obj. 2/89; 2–obj. 35/89; 3–obj. 40/89; 4–obj. 48/89; 5–obj. 51a/85; 6–obj. 66/89; 7, 8–obj. 70/89; 9–obj. 94/89 (podle A. Medunová-Benešová, P. Vitula 1994).*

Collection: Museum of Western Moravia in Třebíč.
Literature: Medunová-Benešová 1977a.

4. Raw materials

The petrographic analysis has not been completed so our identification of lithic raw materials used by people of the Jevišovice culture should be treated as tentative and needs to be verified by further research. At present, the presence of the following siliceous raw materials has been verified:

1. Chert of the Olomučany type
2. Moravian Jurassic chert
3. Cherts or chert of the Krumlovský les type
4. Chert of the Stránská skála type
5. Cretaceous chert (spongolite)
6. Quartz
7. Radiolarite
8. Plattensilex

4.1 Chert of the Olomučany type

The term “chert of the Olomučany type” was introduced into the archaeological literature in 1980s, as a result of petrographic examination of Aeneolithic assemblages from the vicinity of Brno (Přichystal 1984). It is a dark (almost black) siliceous rock with a layered structure, whitish-gray smudges (especially on layers' margins), and relics of a clastic texture of the silicified Jurassic shale. Microscopic examination revealed sponge spiculae and occasional lemonitized glauconite. This raw material was procured in prehistoric times from outcrops in the village of Olomučany in the central part of the Moravian Karst.

4.2 Moravian Jurassic chert

Moravian Jurassic chert (abbr. MJC) is an inclusive term used for a variety of Jurassic cherts sourced from secondary gravel deposits (which are younger than the primary deposits). Usually it is impossible to determine their exact provenience. Pieces of the Moravian Jurassic chert are known from the Rudice formation (probably of Lower Cretaceous Age) and Pleistocene river terraces in southern Moravia. Sporadically, they can

also be found in Miocene sediments of the Carpathian Foredeep. Rounded nodules and chunks of the Moravian Jurassic are bluish gray (no black surface).

Moravian Jurassic chert, as well as cherts of Krumlovský les type (to be described later), are siliceous relics of previously widespread Jurassic limestones. After denudation of limestones they were not exposed during the Lower Tertiary and did not develop a black patina.

Concretions of the Moravian Jurassic chert can be of a considerable size (*e.g.* one piece in A. Přichystal's collection is 41×40×28 cm in size and weighs 59 kg). Raw material types of small artifacts are often impossible to distinguish from primary deposits in Jurassic limestones, as fossils and siliceous mass are the same in both cases. In our studies, doubtful pieces are usually denoted as MJC.

4.3 Cherts of the Krumlovský les type

The so-called cherts of the Krumlovský les type are siliceous rocks originally formed in Jurassic and Cretaceous sediments on eastern borders of the Bohemian Massif. They are known exclusively from secondary deposits (mainly gravels), located in the Krumlovský les mountains, but also in other places. Studies of A. Přichystal (1984) resulted in the identification of two main varieties, denoted as KL I and KL II. Subsequent examination of the various Moravian lithic chipped inventories led to the identification of a third variety (KL III). The primary deposits of this variety are unknown. It is possible that they are located somewhere in the vicinity of Brno.

Rocks or pebbles of the Krumlovský les type chert of all three varieties are distinguished by a thin surface envelope, dark or almost black, composed mainly of Si, Al, Fe, and Mn. It is interpreted as an ancient desert varnish. Siliceous mass of KL I is usually light to medium gray, with lighter smudges of sponge spiculae. Due to a high amount of chalcedony it is slightly translucent and has a suspended whitish substance close to the surface. KL II is pale yellowish brown or pale brown, with distinctive petrosilex intrusions. Its siliceous mass is highly translucent. KL III appears in forms of pebbles or small pieces. It has a gray siliceous mass with numerous fossil relics (whiter spots).

More details of the characteristic of cherts of the Krumlovský les type can be found in the recently published monographs which focus on terminal lithic industries in Moravia (Kopacz, Šebela 2006; Kopacz, Přichystal, Šebela 2009).

4.4 Chert of the Stránská skála type

Cherts of the Stránská skála type appear in relics of denudated Upper Jurassic (Oxfordian) limestones. They outcrop in several places in the eastern suburbs of Brno, especially on a rocky elevation called Stránská skála, where a four-meter-thick layer of crinoidal limestone divides the profile into two sections featuring different nodular cherts.

Cherts of the Stránská skála type are usually gray or bluish gray. Those from a layer overlying the crinoidal

layer show distinctive banded patterns of the siliceous mass. In contrast to the so-called banded flint of the Krzemionki Opatowskie type (Lesser Poland), patterns of the cherts from the area of Brno are never rectangular. The variety from the lower part of the profile (below the crinoidal layer) is not banded but spotted.

Despite various appearances (color, surface pattern, etc.), the siliceous mass of the rock in question is never translucent.

4.5 Cretaceous chert (spongolite)

Raw materials classified as Cretaceous spongolite cherts are known in Moravia from both primary and secondary deposits. Primary deposits include Turonian silty mudstones from localities Letovice, Bořitov, Březov nad Svitavou, and as far as Ústí nad Orlicí in eastern Bohemia.

In our studies the most important cherts are from the area of Letovice and Bořitov (western Moravia), where it is usually honey-brown in color. Polished rock surfaces occasionally display various patterns formed by black encrustation ("desert varnish").

Cretaceous spongolite cherts experienced intensive fluvial transport in the Svitava River which flows in the vicinity of denudated Cretaceous relics in western Moravia. They can be also found in terraces of the Dyje River (southern Moravia) and on the Maleník Upland at the southern edge of the Moravian Gate.

4.6 Quartz

Quartz is a very common mineral and – at the same time – one of the most resistant to weathering. It can be found on slopes or in deluvio-fluvial sediments near quartz dykes. It also occurs as pebbles in river terrace gravels, as well in many conglomerates.

Quartz is most often colorless although some varieties are gray-white, brown, yellowish, or gray-black. It has a glassy luster. It does not have cleavage and it almost always contains tiny bubbles filled with liquid or gas. It often contains rutile needles, chlorite, muscovite, pyrite, etc.

4.7 Radiolarite

Radiolarite is Jurassic in age and can be distinguished by its specific hues – reddish brown, green, olive, bluish, or yellow. It contains microfossils – rounded radiolarians. Primary deposits of radiolarites closest to the area of our interest are located in limestones of the Western Carpathian Klippen Belt – near the Vlára Pass (Vlářský průsmyk) on the Moravian-Slovakian border.

4.8 Plattensilex

The German name Plattensilex is a commonly accepted term for Upper Jurassic platy cherts from the so-called Altmühl Alb in the Regensburg/Kelheim region in southern Bavaria. The term refers to its tabular appearance. For this reason Plattensilex is especially suitable for the production of flat tools, often with application of flat or semi-flat retouch. Utilization of this raw material in the upper Danube region has been confirmed throughout the entire Stone Age. Its relevance to this

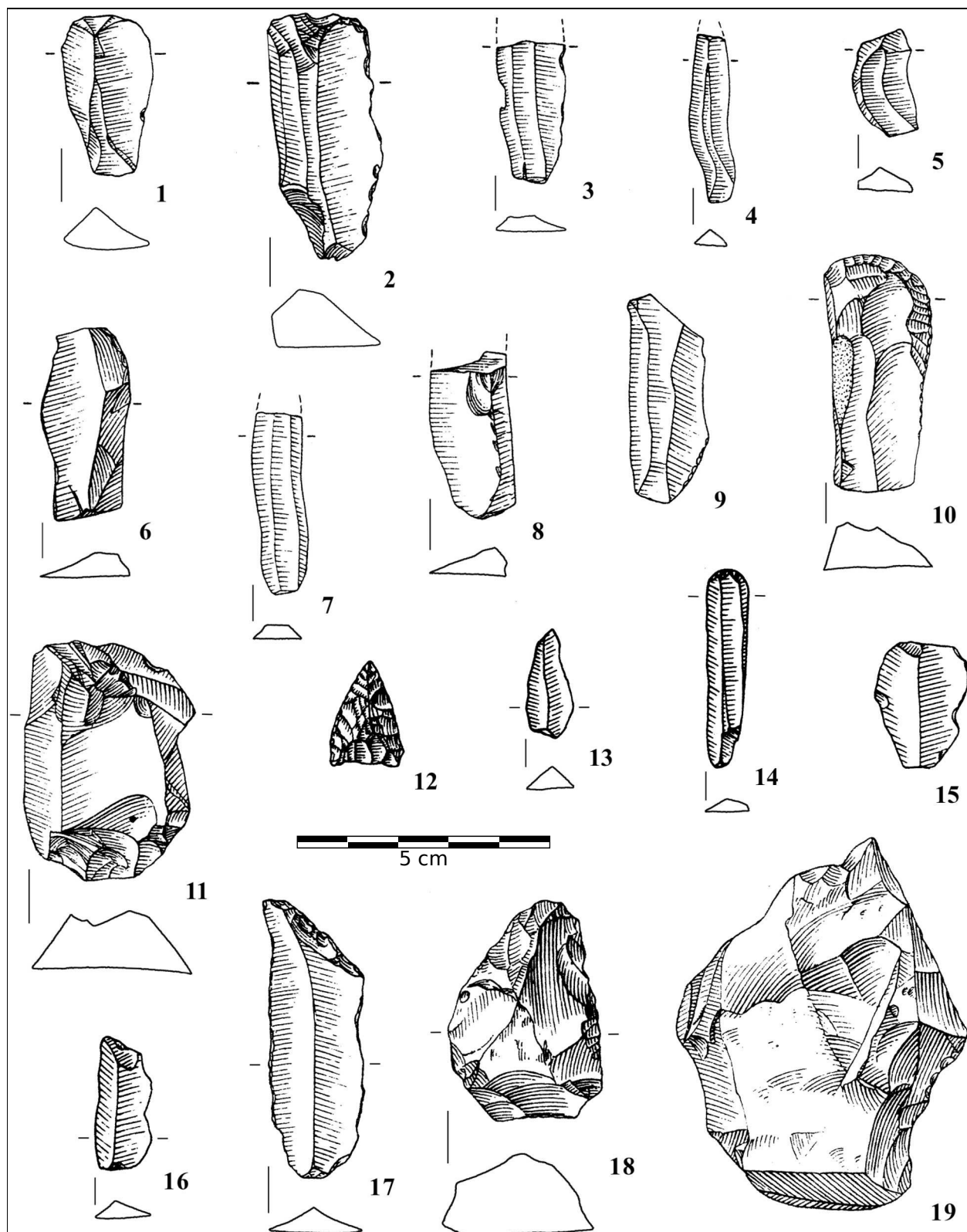


Fig. 14. Vysočany, Znojmo district, Site Pallardiho hradisko. Lithic chipped artifacts of the Jevišovice culture – J. Sobotka's collection. 1–9 – field season 1957; 10–19 – field season 1958 (after A. Medunová-Benešová 1977a).

Obr. 14. Vysočany, okres Znojmo, trať Pallardiho hradisko. Kamenné štípané artefakty jevišovické kultury – sbírka J. Sobotky. 1–9 – výzkumná sezóna 1957; 10–19 – výzkumná sezóna 1958 (podle A. Medunová-Benešová 1977a).

study is its use during the Aeneolithic, especially in Bohemia and Eastern Bavaria (in the Cham and Corded Ware cultures). The presence of *Plattensilex* in lithic assemblages of the Jevišovice culture suggests affinities with western Aeneolithic milieus.

A review of raw materials utilized by people of the Jevišovice culture leads to the conclusion that their lithic chipped industry was based almost entirely on local rocks. In the Brno area, the Olomučany type chert was preferred. With regards to the sites in the Brno-město district (Brno-Maloměřice, Brno-Starý Lískovec) it can be considered as a “local rock”. Our definition of a local source’ is a source located within one-day-walking distance (*i.e.* ca 30 km) from where it was used. This is also the case with the Stránská skála cherts, which are located within the urban area of the city of Brno.

Raw material composition of sites in southern Moravia (Znojmo district) should be verified by detailed petrographic analyses. Currently it can be presumed that a significant proportion of artifacts from the eponymous site (Jevišovice, Starý Zámek) and from Vysočany, denoted as “unidentified siliceous rock”, may come from the Krumlovský les area, thus fitting the category of a local raw material. The presence of Krumlovský les type chert in Brno-Starý Lískovec is unquestionable. In this case the distance between the site and the raw material outcrops (ca. 30 km) is on the borderline between “local” and “distant” (*cf.* Kopač, Přichystal, Šebela 2009, 68).

Raw materials of minor significance include Cretaceous spongolite chert, quartz and various types of Moravian Jurassic cherts. Raw materials described in the literature as “crystal”, “jasper”, or “Devonian limestone”, are evidently also local, although their exact provenience is unknown.

Thus, the only raw materials unequivocally identified as “very distant” imports (more than 100 km; *cf.* Kopač, Přichystal, Šebela 2009, 68) are radiolarite (2 artifacts from Grešlové Mýto) and *Plattensilex* (1 artifact from Vysočany).

Locations of raw material source areas of major types utilized in the Aeneolithic lithic industries in Moravia are presented on Fig. 2.

5. Chipping techniques

Knapping techniques employed by the Jevišovice people can be best observed in the Brno-Maloměřice assemblage. A series of forms associated with core shaping and core exploitation are considered particularly significant.

Generally speaking, blanks used for tool production were being obtained from cores prepared according to certain standards. Shaping the striking surface was very important in this process. The single striking surface was often narrow and rounded. It was achieved by crest-like fashioning of the pre-core (Fig. 3:1–5). This procedure is also confirmed by the presence of crested blades (Fig. 7:4, 6, 7). Shaping of pre-cores sometimes also included the surface opposite to the intended striking platform (Fig. 4:7, 8).

Most of the cores possess one striking surface (Fig. 4:1–8; 3: 1, 5), usually prepared, sometimes by repeated trimming (*cf.* Fig. 7:11).

Multiple striking platforms usually occurred with changes in percussion axes during late stages of core exploitation (Fig. 5:2–7). Attempts to maximize the utility of cores were also evident in other “repairing procedures”, such as trimming the striking platform edge (Fig. 5:2–4).

The cores described above were used for obtaining series of regular blade blanks, with a preferable length of 4–7 cm. In most cases, the blades have parallel lateral margins and are only slightly concave along the lateral axis (Fig. 7:5; 6: 15–19). Pieces with proximal segments often have a very narrow striking platform and an indistinct percussion bulb.

Features of pre-cores, cores, and blanks described above indicate that the lithic industry of the Jevišovice culture from Brno-Maloměřice was based on blade blanks obtained from specially prepared and “maintained” cores, knapped using a percussor (probably organic). The same can be said about assemblages from other sites, especially from Grešlové Mýto (Fig. 17:1–18) and Jevišovice-Starý Zámek (Fig. 12:1–10). The longest blade from this site (Fig. 12:10) is also the longest known laminar form in this culture.

Despite the laminar character of the Jevišovice lithic industry, a large proportion of chipped artifacts (both blanks and tools) are flakes. We presume that most of them (especially those from Brno-Maloměřice) originate from core preparation (Fig. 7: 1–19). Some of them were by-products of blade core exploitation, mainly in its advanced stages and during changes of percussion axes. Nevertheless, they should be interpreted not merely as production waste, but as potential tools, especially expedient tools.

Sporadic presence of forms related to splintering (Vysočany) is another proof that the true blade technique of the Aeneolithic tradition was a dominant knapping technique.

A series of massive rounded hammerstones from Brno-Maloměřice (Fig. 6:1–5) also need interpreting. These artifacts were certainly useless for exploitation of blade cores as described above. As the site in question is a stone processing workshop, with elements which suggest stable settlement (pottery), we cannot exclude their use (at least for some of them) for general domestic purposes (*e.g.* for grinding). However, in our opinion, the artifacts from Brno-Maloměřice were used mainly for initial shaping of rocks prior to fashioning pre-cores, *e.g.* for removing cortex, fragmenting bigger pieces, and testing the raw material quality. Therefore, their presence complements, rather than contradicts, the general conclusions about the technical aspects of the Jevišovice lithic industry.

6. Tools

The artifacts we describe as tools fall into two main categories – “typological” and “functional”. Such a division is commonly accepted in analyses of Aeneolithic lithic chipped inventories, and in this respect the Jevišovice culture is not an exception. The first category includes arti-

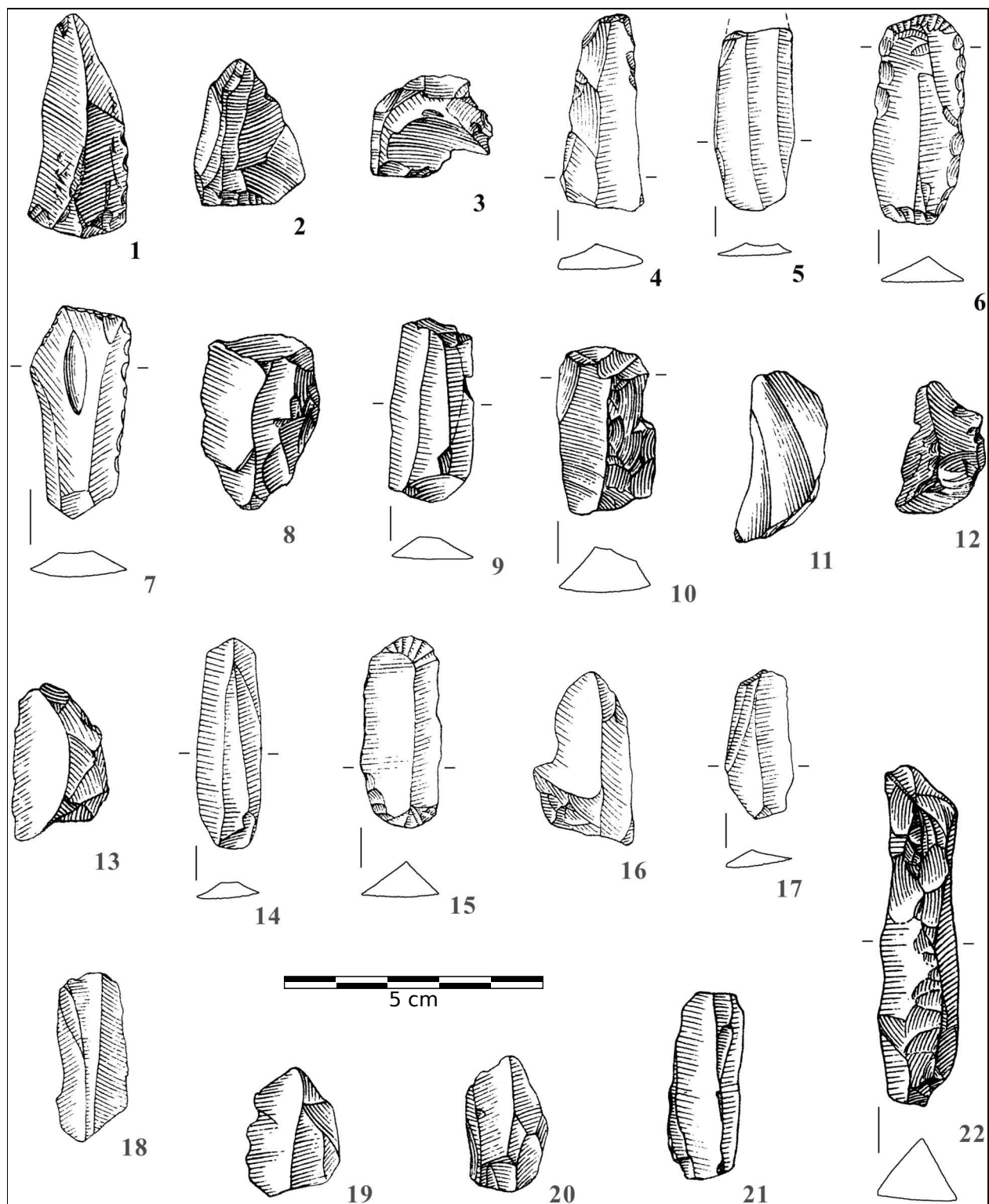


Fig. 15. Vysočany, Znojmo district, Site Pallardiho hradisko. Lithic chipped artifacts of the Jevišovice culture—collection of J. Sobotka. 1–22—research 1958 (after A. Medunová-Benešová 1977a).

Obr. 15. Vysočany, okres Znojmo, poloha Pallardiho hradisko. Kamenné štípané artefakty jevišovické kultury—sbírka J. Sobotky. 1–22—výzkumná sezóna 1958 (podle A. Medunová-Benešová 1977a).

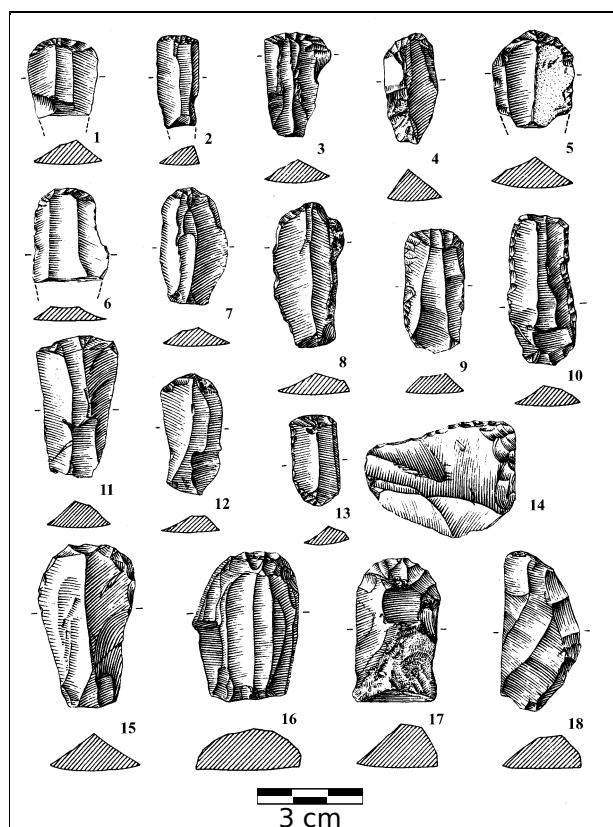


Fig. 16. Grešlové Mýto, Znojmo district, Site Nad Mírovcem: 1–18 – lithic chipped industry (after A. Medunová-Benešová 1973).

Obr. 16. Grešlové Mýto, okres Znojmo, poloha Nad Mírovcem: 1–18 – kamenná štípaná industrie (podle A. Medunová-Benešová 1973).

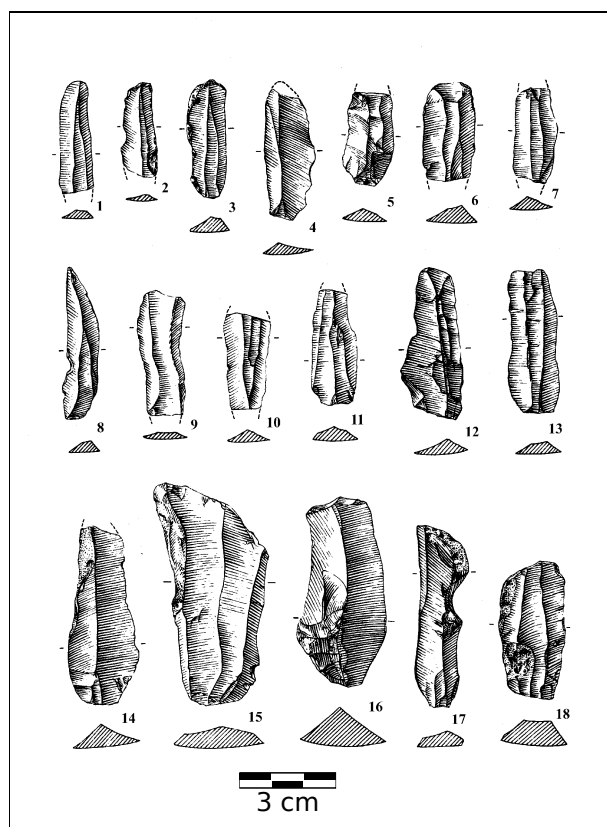


Fig. 17. Grešlové Mýto, Znojmo district, Site Nad Mírovcem: 1–18 – lithic chipped industry (after A. Medunová-Benešová 1973).

Obr. 17. Grešlové Mýto, okres Znojmo, poloha Nad Mírovcem: 1–18 – kamenná štípaná industrie (podle A. Medunová-Benešová 1973).

facts featuring recurrent and well defined typological elements. In contrast, functional tools cannot be precisely defined in morphological terms. Among them we can find forms with marginal retouch, as well as those with only utilization traces, the latter usually difficult to distinguish from the former.

The most frequent implement type in our assemblages is the **endscraper** – typical Neolithic (typological) tool. At least 41 endscrapers have been identified – 15 from Brno-Maloměřice (examples on Fig. 9:2–8), 16 from Grešlové Mýto (Fig. 16: 1–13, 15–17), 1 from Brno-Starý Lískovec (Fig. 13:9), 2 from Jevišovice-Starý Zámek (Fig. 12: 11, 13), and 7 from Vysočany (Fig. 14:1, 2, 6, 10, 14, 15). Moreover, one artifact from Brno-Maloměřice (Fig. 9:10) should be classified as a combined tool – endscraper and retouched blade.

The endscrapers in Brno-Maloměřice are especially important, not only because of their significant number, but also because all of them are made on short blade, or laminar, flakes – they are short or medium-sized and rather thin. The use of such blanks directly influenced tool shapes – they usually resemble “thumbnails”, and some can be classified as typical *ungiformes* (Fig. 9:3, 5, 8). One tool has two scraping edges, but the one in the proximal segment is poorly shaped and evidently of the secondary use (Fig. 9:7).

The endscrapers from Brno-Starý Lískovec (Fig. 13:9) are identical to the *ungiformes* from Brno-Maloměřice, and two artifacts from Jevišovice-Starý Zámek (Fig. 12:11, 13), made on massive and “oversized” flakes, also seem to resemble them. One of them was probably combined with a perforator (Fig. 12:11).

The series from Grešlové Mýto and Vysočany appears to be very different, perhaps due to their greater antiquity. The artifacts were produced from narrow regular blades and for that reason they lack thumbnail features. In at least two cases, the lateral margins were shaped by retouch (Fig. 18: 9, 10). In one case a massive sub-crested blade was used for that purpose (Fig. 15:10). Scraping edges, rounded and well shaped are situated on distal segments of blanks. Exceptions include an artifact with two equal opposite scraping edges (Fig. 15:15) and an artifact with the main edge on the distal segment and the secondary edge on the proximal segment (Fig. 15:6).

Burins constitute another important category of typological tools. In Jevišovice assemblages, their presence has been confirmed only at Brno-Maloměřice, but their number is significant (15 artifacts). They constitute almost 13 per cent of forms recognized as tools, including functional tools. There are several types of burins at Brno-Maloměřice, including burins on a break (Fig. 10:13), flat-faced burins (Fig. 10:14), and burins on a retouched truncation (Fig. 10:15). All of them are massive tools with dis-

tinctive burin chutes, made from blades or flakes of a substantial size.

The number of burins from Brno-Maloměřice, and their characteristics, exclude the possibility of an accidental contamination. At present, they should be viewed as an integral part of the Jevišovice culture.

Other functional tools of Neolithic character in Jevišovice assemblages include three **truncated blades**. The artifact from Vysočany (Fig. 14:17) was made on a regular blank 5.6 cm long. It has a steeply retouched oblique, long truncation that forms a distinctive knife-like point on the distal segment of the blade. Both lateral edges of the tool, but especially the longer one (on the point side, traces of functional retouch occur). The blank used for production of the tool comply – in size and morphology – with other blades from the same assemblage. Therefore, we should exclude the possibility of admixture or rejuvenation of older artifacts.

The truncated blade from Grešlové Mýto is smaller and less regular (Fig. 17:2). However, the truncation is also undisputable.

The third truncated blade is known from Vysočany. It is narrow, 3.8 cm long, with a rather indistinct truncation on the lateral part and marginal retouch on the lateral edge (Fig. 15:4).

The most distinctive tools in East-Central European assemblages from the transition of Stone and Bronze Ages are probably **arrowheads**. In Moravia, the majority of finds of this type are linked to the Bell Beaker culture (Kopacz, Přichystal, Šebela 2009, 84–97). They also appear in the Moravian Proto-Únětice culture (Kopacz, Šebela 1998). In contrast, the scarcity of arrowheads in the Moravian Corded Ware culture is remarkable (*cf.* Kopacz, Šebela 1992a; 1992b).

One arrowhead has been identified in the Vysočany assemblages (Fig. 14:12). It is 21 mm long and – according to metric standards developed by J. Olivík (2009) for arrowheads of the Moravian Bell Beaker culture – should be referred as “short”. It has convex sides and a very shallow and slightly concave base. Its barbs are rather minute; one of them seems to be squared, although maybe unintentionally. The raw material of the Vysočany artifact (quartz) is atypical for arrowheads. In the Moravian Bell Beaker culture, tools of that kind were usually produced from high quality raw material – firstly imported, then local (*cf.* Kopacz, Přichystal, Šebela 2009, 109 and other pages).

The morphology of the artifact described above closely resembles one arrowhead from Grešlové Mýto (Fig. 18:5), which is slightly bigger. Quite exceptional are tanged artifacts from the latter site. One of them has a notch in the base part so it is similar to the Štramberk type.

Arrowheads which were used typically entered the archaeological context away from inhabited places. They were also used as grave goods. Given that our assemblages originate in domestic contexts, we cannot expect any significant presence of arrowheads, even if they were produced by the Jevišovice people in greater numbers. However, the unique series of tanged arrowheads from Grešlové Mýto suggest that they might have been rare but significant elements of Jevišovice lithic assemblages.

It is worthwhile mentioning the somewhat “mysterious” arrowheads of the Štramberk type, very generally associated with Moravian Early or Middle Aeneolithic (the Funnel Beaker culture?). Its characteristic feature is the presence of symmetrical side notches on the base part. Similar forms are also known from Aeneolithic assemblages from other sites in the Carpathian zone (for example from Vidra, jud. Guirgiu, Romania; *cf.* Kopacz 2001, Tab. I: 7, 8). This issue, possibly important for ascertaining the earliest stage of the Jevišovice culture, certainly deserves more attention.

Terminal assemblages also feature **sidescrapers** – tools commonly recognized as “typological”, yet very diverse in size and morphology. In our assemblages, one such a tool (from Brno–Starý Lískovec) has both lateral edges fashioned by denticulated retouch (Fig. 13:8). The artifact from Vysočany (Fig. 14:18), made from a massive flake, resembles a knife. However, it has flat-concave? cross-section and due to this feature (in consequence – asymmetric working edge) it is classified as a sidescraper. More typical is the artifact from Grešlové Mýto, with rather regular concave scraping edge (Fig. 16:18).

Knife-like tools are similar to side scrapers, well represented in the Grešlové Mýto (Fig. 16:14; 18:10) and Jevišovice assemblages (Fig. 11:12; 12:9). Tools described as **picks** have been identified in Brno-Maloměřice (Fig. 11:14) and again in Grešlové Mýto (Fig. 18:6). From the latter locality we also have examples of **boring tools** (Fig. 18:11, 12).

The question whether **notched and denticulated tools** in assemblages from the end of the Stone Age and the beginning of the Bronze Age should be regarded as a separate typological category remains open. Denticulation is a feature adopted by tools of various types; it can be also found on functional tools as specific “marginal” retouch. This issue has been recently raised by the authors in their work on lithic industry of the Moravian Bell Beaker culture (Kopacz, Přichystal, Šebela 2009, 104).

In our material we have a series of tools of that type on flakes from Brno–Maloměřice, classified either as notched (Fig. 11:5) or denticulated tools (Fig. 11:6, 17). It gives a basis for the presumption that forms of that type constitute, at least at the site in question, an integral part of the tool set. Moreover, one notched tool on a flake is also known from Brno-Starý Lískovec.

Flake tools with denticulated edges were also discovered in Brno-Maloměřice. We classify them within other categories, *i.e.* retouched blades (Fig. 12:1, 2, 6), blades with marginal retouch (Fig. ??:3), or even as knife-like tools (*cf.* see previously mentioned artifact from Jevišovice; Fig. 12:9).

Morphological forms with notched or denticulated edges do not constitute a homogeneous group. They should be regarded, at least in inventories of the Jevišovice culture, as implements intermediate between typological and functional tools.

Finally, there is a variety of **non-typological tools** on flakes or blades, featuring more or less consequent marginal retouching, or possibly only traces of use. Not surprisingly, as implements of “expedient use” they are especially frequent at Brno-Maloměřice. Fifty-eight such

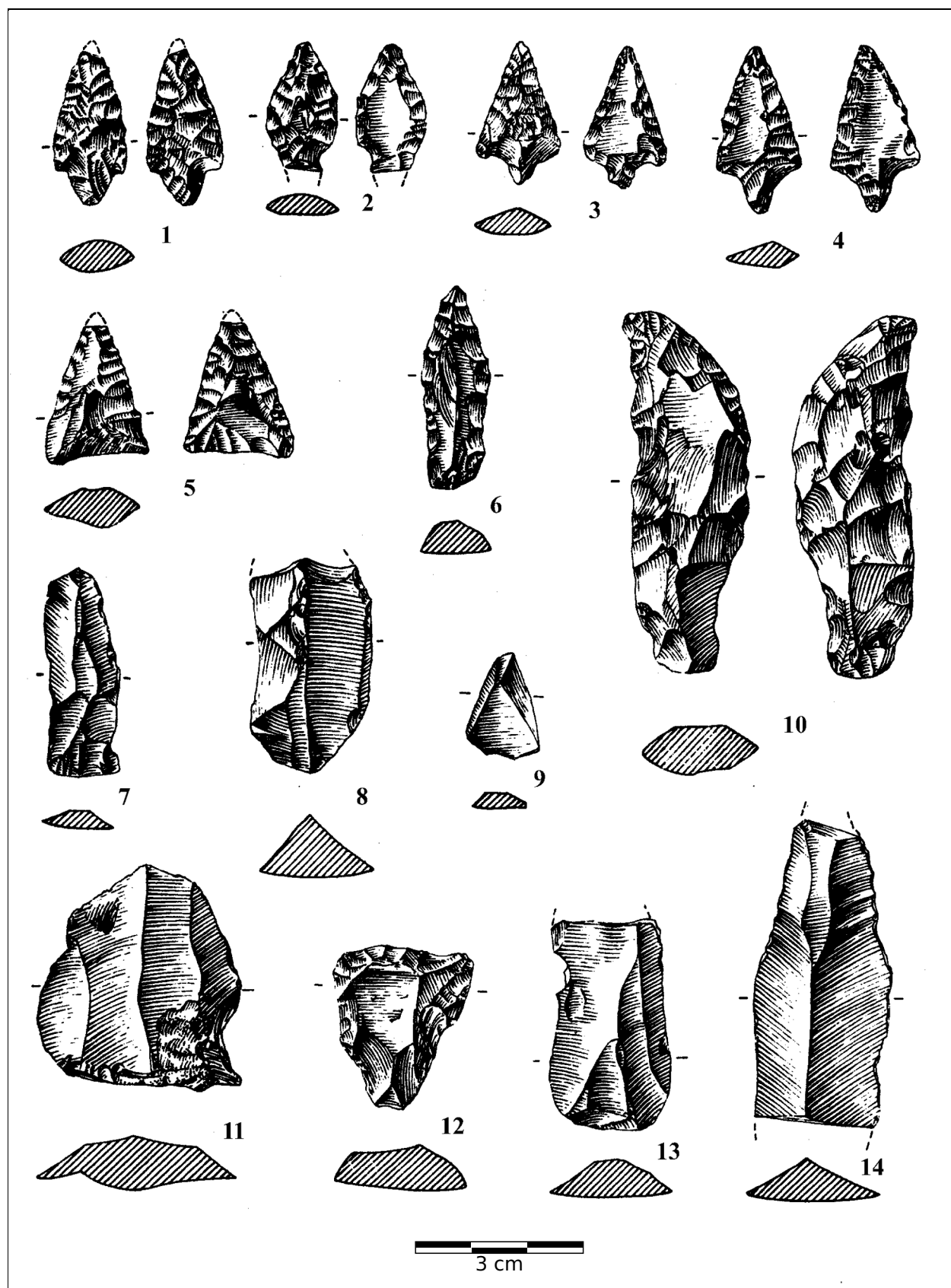


Fig. 18. Grešlové Mýto, Znojmo district, Site Nad Mírovcem: 1–14 – lithic chipped industry (after A. Medunová-Benešová 1973).
 Obr. 18. Grešlové Mýto, okres Znojmo, poloha Nad Mírovcem: 1–14 – kamenná štipaná industrie (podle A. Medunová-Benešová 1973).

forms account for 49.57% of all tools (Fig. 9:9, 11–16, 18, 19; Fig. 10:1–11; 9: 2–5, 7–11). They also appear at other sites – for example, at Brno-Starý Lískovec (e.g. the blade with utilization retouch and sickle gloss; Fig. 13:3), Jevišovice (denticulated retouch, Fig. 12:3, 5, 10), and Vysočany (Fig. 14:6).

7. Technological and typological conclusions

Analysis of lithic assemblages representative of the Jevišovice culture leads to interesting, and sometimes unexpected conclusions. In the scope of chipping technology we can positively conclude that the lithic industry in question is based on exploitation of cores pre-prepared for obtaining blades of medium or larger sizes (length most often between 5–10 cm). The preparation of cores usually included crest-like fashioning of the intended striking surface, but also the striking platforms and other core surfaces. Cores were exploited from a single striking platform until it was not possible to obtain any more desired blanks. Orientation of the percussion direction could have been applied, but only in to strongly used cores. Such residual cores could still produce flakes, occasionally with laminar morphology.

Morphological characteristics of blade blanks suggest that cores were usually exploited by indirect percussion, with the probable use of an intermediate organic percussor (antler, wood?).

The Jevišovice tool set is consistent with its technological characteristics. It can be described as highly "typological". The most frequently occurring tools are end-scrapers, both oblong forms on blades and *ungiformes* on flakes. Burins are also present in significant proportions, diverse and by no means accidental, as well as truncated blades.

The high proportion of functional tools should not be overlooked. Such forms, usually made on flakes blanks, are especially frequent at Brno-Maloměřice. This is not surprising given their stone processing, domestic context.

8. Final conclusions

The notion of "terminal lithic chipped industries" has been developing in the Polish literature since the 1980s (cf. Kopacz 1978; Kopacz, Šebela 2000a; Libera 2004), as a result of investigations of stone assemblages from the transitional period between Stone and Bronze Ages. The specific types of evidence require specific analytical approaches, very much different from those commonly used for assemblages from earlier periods. Due to a high proportion of artifacts which are difficult to describe typologically, rather than using an inflexible typological list we employ an open "typological key", easily adaptable to various inventories (cf. Kopacz, Valde-Nowak 1987; Valde-Nowak 1988; Kopacz, Šebela 1992a; Kopacz, Šebela 1992b; Kopacz, Šebela 2006; Kopacz, Přichystal, Šebela 2009). As the notion of the terminal industry has been comprehensively discussed in the above mentioned studies, here we like only recall a reflection on this subject, presented in our monographic work on the stone material of Moravian Únětice culture and the Věteřov group.

Terminal lithic industry is an entirely different entity. It was – we can say – a home production, performed by contemporary people for their purpose, as a rule by own means. It followed the principle that the goal should be obtained by the most economical means (translation from: Kopacz, Šebela 2006, 72).

We should also add that the re-use of older artifacts was a very characteristic feature of terminal industries. It is consistent with the notion of "optimization", developed by French specialists in this field, mainly in relation to the Bell Beaker culture (cf. Kopacz, Přichystal, Šebela 2009, 131–132). In contrast, stone processing in the Neolithic and early Aeneolithic periods was highly standardized with definitive raw material preferences, well defined chipping techniques and morphological forms of final products.

Technological and typological aspects of the Jevišovice lithic chipped industry, as presented in our study, appear to be typical Early/Middle Aeneolithic. However, we should not overlook certain features which can be interpreted as forerunners of the approaching New Epoch. They include frequent use of local raw materials (not necessarily of high quality), high proportion of non-typological tools, ubiquitous denticulation, etc. Further studies on this subject which include more assemblages and more detailed petrographic analyses should confirm these conclusions.

Acknowledgements

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Resumé

Pramenou základnu pro analýzu kamenné štipané industrie jevišovické kultury představují soubory z pěti jihomoravských sídlišť, a to Brna–Maloměřic, okr. Brno–město (1315 předmětů; Valoch, Šebela 1995); Brna–Starého Lískovce, okr. Brno–město (30 kusů; Medunová-Benešová, Vitula 1994); Grešlového Mýta–Nad Mírovcem, okr. Znojmo (51 artefaktů; Medunová-Benešová 1973); Jevišovice–Starého Zámku, okr. Znojmo (14 předmětů; Medunová-Benešová 1972) a Vysočan–Pallardiho Hradiska, okr. Znojmo (58 kusů; Medunová-Benešová 1977). I když nedisponujeme kompletními petroarcheologickými analýzami, můžeme konstatovat, že štipaná industrie využívala hlavně suroviny, které byly lehce dostupné. V Brně byl preferován rohovec typu Olomučany, jehož hlavní zdroje se nacházejí v Moravském krasu a jsou od Brna–Maloměřic i Brna–Starého Lískovce vzdáleny 30 km. Využíván byl rovněž rohovec typu Stránská skála, jehož výchozy jsou na východním okraji Brna. Kamenná štipaná industrie ze Znojemska na své petrografické vyhodnocení čeká. Předpokládáme, že výsledky budou prezentovány v komplexním zpracování štipané industrie jevišovické kultury. Nevylučujeme ani výskyt importovaných surovin, jak to signalizuje předmět zhotovený z bavorského plattensilexu, identifikovaný v souboru z Vysočan.

Analýzovaný materiál, především soubor z Brna–Maloměřic, přinesl cenné poznatky o produkci, která vykazuje velmi výrazné technologické rysy štipané industrie jevišovické kultury. Opírá se o exploataci jednodostavových jader (obr. 4: 1–8; 5: 1, 5; 7: 11), jejichž podstava je většinou připravená (obr. 3: 1–5), někdy i více úštěpy (obr. 5: 2–7).

Výše popsaná jádra byla využita k sériovému odbíjení čepelí o délce 4–7 cm, pravděpodobně pomocí prostředníku z organického materiálu. Využívány byly i úštěpové polotovary, které pocházejí hlavně z úpravy jader a koncového stadia jejich těžby a jsou dokladem úštěpové techniky.

Nejvíce zastoupenými nástroji v jevišovické kultuře, vyskytujícími se ve všech analyzovaných souborech, jsou škrabadla (41 kusů; obr. 9: 2–8; 12: 11, 13; 13: 9; 14: 1, 2, 10, 14; 15: 6, 10, 15; 16: 1–13, 15–17). Exempláře z Brna–Maloměřic jsou zhotoveny na převážně dosti krátkých čepelích nebo čepelovitých úštěpech. Část z nich připomíná formy popsané ve francouzské literatuře jako ungiformes (obr. 9: 3, 5, 8). Velmi podobný je exemplář

z Brna-Starého Lískovce (obr. 13: 9) a dvě škrabadla z Jevišovic (obr. 12: 11, 13), která lze považovat za nehtovitá.

Škrabadla z Grešlového Mýta (obr. 16: 1–13, 15–17) a Vysočan (obr. 14: 1, 2, 10, 14; 14: 6, 10, 15) se od výše uvedených výrazně odlišují. Jsou zhotovena z úzkých čepelí, a proto nevykazují rysy nehtovitých škradel. Možná je to spojeno s jejich časnějším datováním v rámci vnitřní chronologie jevišovické kultury.

Vedle škradel se ve štípané industrii jevišovické kultury vyskytují rydla. Byla rozpoznána pouze v Brně–Maloměřicích, ale zato ve větším množství (15 exemplářů; obr. 10: 13, 14, 15). Jsou větších rozměrů a vyznačují se velmi výraznými rydlými údery. Značně méně jsou zastoupeny čepele s příčnou retuší (3 kusy; obr. 14: 17; 15: 4; 17: 2).

Z výše uvedeného je zřejmá výrazná kontinuita staroneolitických tradic v kamenné štípané industrii. Na tomto místě si zvláštní pozornost zaslouží šipky zjištěné v souborech jevišovické kultury. Jedná se o formy, které jsou typické pro moravský pozdní eneolit a starší dobu bronzovou. Dva předměty tohoto typu byly zjištěny ve Vysočanech (obr. 14: 12) a v Grešlovém Mýtě (obr. 18: 5), jsou formami jednoduchými – mající tvar blízký trojúhelníku s velmi slabě konkávní bází. Od nich se úplně odlišují šipky s trnem, které byly zjištěny jen v Grešlovém Mýtě (obr. 18: 1–4). Jedna z nich (obr. 18: 2) vykazuje výrazné vruby při podstavě a díky tomu připomíná hroty typu Štramperk. Ty jsou na Moravě spojeny se starým eneolitem. Vzhledem k jejich výskytu je možné uve- dené hradisko klasifikovat jako příklad, kde se vyskytují staroneolitické tradice ve štípané industrii jevišovické kultury.

Skladbu nástrojů doplňují drásadla (obr. 13: 8; 14: 18; 16: 18), nožovité nástroje (obr. 16: 14; 18: 10), vrtáky (obr. 11: 14; 18: 6), dírkače (obr. 18: 11, 12) jakož i různé formy bez výrazných typologických znaků. Některé z nich jsou opatřeny vruby a zoubky.

S ohledem na technologii opracování kamene a skladbu nástrojů vykazuje štípaná industrie jevišovické kultury velmi silné vazby k produkci štípané kamenné industrie starého až středního eneolitu. Je v ní možné pozorovat mimo jiné i vlastnosti, které jsou charakteristické pro posteneolitickou štípanou industrii a jež mohou být předzvěstí transformací, kterou prochází i štípaná industrie. Je pro ni typické mezi jiným využívání lokálních surovin, ale i jistý podíl netypologických nástrojů. Tyto znaky je možné uzнат za velmi typické pro štípanou industrii na konci eneolitu a ve starší době bronzové (cf. Kopacz 1978; Kopacz, Šebela 2000a; Libera 2004) spíše než ve starším eneolitu.