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Editorial

Vážení přispěvatelé a čtenáři časopisu Přehled výzkumů,

poměrně nedávno, konkrétně v čísle 57-1 jsme si připomněli malé výročí: uběhlo 60 let od rozhodnutí tehdejších pracovníků Archeologického ústavu ČSAV v Brně založit a vydávat časopis Přehled výzkumů. Jak již název napovídá, jeho cílem bylo referovat nejen o aktuálních terénních výzkumech, ale taktéž publikovat analytické příspěvky a teoretické stati. Protože vydavatel i redakce musejí reagovat na aktuální situaci v oboru i na trhu publikací, snaží se o neustálé zkvalitňování časopisu. Toto nikdy nekončící úsilí bylo aktuálně oceněno zařazením časopisu Přehled výzkumů do mezinárodní databáze SCOPUS, konkrétně od ročníku 58 (v databázi ERIH+ a na seznamu recenzovaných časopisů vydávaných v ČR zůstává i nadále). Protože časopis je již několik let k dispozici nejenom v tištěné, ale i elektronické formě (open access), bylo mu od ročníku 59 přiděleno též ISSN 2571-0605 pro jeho elektronickou verzi.

Studie v čísle 59-1 prezentují výzkum v jeskyni Pod hradem v Moravském krasu se zaměřením na objev baltského jantaru (L. Nejman et al.), nový detailní rozbor materiálu z lokality tzv. Pomoravského aurignacienu v Hlinsku (Yu. Demidenko et al.), výzkum klasické lokality pavlovienu Dolní Věstonice I v 90. letech minulého století (J. Svoboda et al.), studii o vybraných aspektech nakládání s lidskými ostatky v pavlovienu (S. Sázelová et al.) a příspěvek k možnostem modelování tras tažení římské armády proti Marobudovi (M. Vlach). Rádi bychom, aby publikované příspěvky byly přínosným stimulem do diskusí nad dotčenými tématy. Jako každoročně, část nazvaná Zprávy o výzkumech předkládá základní informace o archeologických terénních aktivitách na Moravě a v české části Slezska v roce 2017.

V Brně, 30. června 2018,
Petr Škrdla jménem redakční rady

STUDIE A KRÁTKÉ ČLÁNKY

CASE STUDIES AND SHORT ARTICLES

STUDIEN UND KURZE ARTIKEL

Recenzovaná část

Peer-reviewed part

Rezensierter Teil

The Hlinsko – Kouty I Site and the Only Stratified Aurignacian-like Assemblage With a Bifacial Triangular Point in Moravia

Hlinsko – Kouty I – jediný stratifikovaný aurignacoidní soubor s plošně retušovaným trojúhelníkovitým hrotem na Moravě

Yuri E. Demidenko, Petr Škrdla, Joseba Rios-Garaizar

Abstract

A salvage excavation carried out in Hlinsko quarry in 2006 yielded a collection of Aurignacian-like artifacts supplemented by a bifacial triangular point. Recently, a refitting attempt documented on-site reduction of a carinated burin-core and shaping/thinning of the bifacial point. Subsequently, a use-wear study supported the homogeneity of the assemblage. The assemblage relates to the Morava-type Aurignacian (B. Klíma) or Míškovice-type Upper Paleolithic industry (M. Oliva) previously known in Moravia for lithic assemblages originating only from surface find spots. At the same time, some similar excavated Upper Paleolithic assemblages combining Aurignacian-like and Szeletian-like features are also known in Eastern Europe.

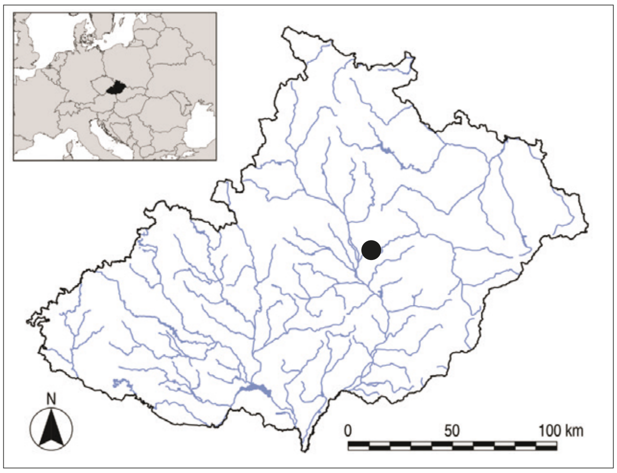
Keywords

Moravia, Morava-type Aurignacian, Míškovice-type, carinated burin-cores, bifacial triangular point

1. Introduction

Moravia is a region of Central Europe well known for its rich Early Upper Paleolithic (EUP) record. The record consists of Szeletian and Aurignacian techno-complexes, supplemented by the Bohunician techno-complex (not mentioned here), which actually belongs to the Initial Upper Paleolithic (IUP) (for the latest updates, see Škrdla 2017). The so-called Moravian Early Szeletian, which has a bifacial tool treatment tradition for lithic assemblages with its *in situ* sites, is dated to the time period between ca. 46 ka and 42 ka cal BP, GIS-12 – GIS-10 (Kaminská *et al.* 2011). This Early Szeletian geochronology predates the very cold conditions of the North Atlantic Heinrich Event 4 (HE 4), coinciding with the Campanian Ignimbrite (CI) eruption, ca. 40–39 ka cal BP. On the other hand, the Aurignacian in Moravia, which has no Proto- or Early Aurignacian sites, is only securely represented by *in situ* Middle and Evolved Aurignacian sites with no bifacial tools in their lithic assemblages. These Later Aurignacian sites have absolute dates between ca. 37–36 ka and 33–32 ka cal BP, i.e. the GIS-8 – GIS-5 period, geochronologically post-dating the HE 4 / CI eruption interval (for the latest updates, see Demidenko *et al.* 2017).

At the same time, the Moravian Upper Paleolithic (UP) record includes a number of "typologically strange-looking" varied lithic assemblages originating from surface collections at non-stratified sites, which have both Szeletian-like bifacial tools, various side-scrapers and points, and Aurignacian-like carinated



Location of the site on a map of Moravia.
Poloha studované lokality na mapě Moravy.

endscraper-cores and burin-cores (see historiography of the subject in Allsworth-Jones 1986, 165–177). Nowadays, most of the former type of "Szeleto-Aurignacian" assemblages originating from surface find spots at high elevations are interpreted as mixed, industrially heterogeneous ones, Early Szeletian and Middle/Evolved Aurignacian artifacts having been left by humans at the same loci but at different times and then naturally mixed after sediment erosion there (i.e. palimpsest hypothesis, Škrdla *et al.* 2011; 2016; Škrdla 2017). However, there is one more series of such lithic assemblages in Moravia also found at elevated-terrain loci considered as a special and industrially homogeneous [*sic*] UP industry type, although its assemblages came exclusively from surface find spots. Initially, it was proposed by B. Klíma (1978) that it be named "*Morava-type Aurignacian*". This was due to the location of the find spots mainly along the middle and upper courses of the river Morava, the use of mostly imported raw materials, and Klíma's "industrial accent" on the assemblages' Aurignacian lithic types (carinated and nosed endscrapers and a smaller number of carinated/polyhedral burins) and infrequent bifacial tools (triangular and leaf-shaped points) (Klíma 1978; 1979). In the early 1990s, the industry type was renamed by M. Oliva in favor of the more industrially neutral attribution "*Míškovice-type industry*" using the name of the Míškovice I surface site (Oliva 1990), whose assemblage was also included by B. Klíma in the "*Morava-type Aurignacian*" (Klíma 1979, 369). Oliva's decision was due to a number of typological reasons (e.g. Oliva 1990, 226; 2017, 121). First, Míškovice-type assemblages seem to have a different representation of carinated and nosed endscraper-cores and carinated burins from Moravian Aurignacian *sensu stricto* assemblages. Second, there is the rare occurrence of bifacial tools with mainly triangular points in Míškovice-type assemblages (however, there is a curious lack of triangular points within Míškovíce-type site collection), while bifacial tools are always numerically well represented in the Moravian Early Szeletian and leaf-shaped points absolutely dominate. Third, there are even some Gravettian-like backed bladelets in the Míškovice-type assemblages. Thus, from Oliva's point of view, the industry type cannot merely be termed Aurignacian, since it has such a mixture of various UP techno-complexes' lithic traits. He is rather inclined to consider the industry type as possibly representing "*Szeletian industries surviving in contact with the Gravettian and the late Aurignacian in regions lying farther away from major river valleys occupied by the Gravettian people*" (Oliva 2005, 55).

All in all, the "*Morava-type Aurignacian / Míškovice-type industry*" is thought to be a very peculiar UP industry type in Moravia. However, it is important to remember that all the known lithic assemblages of this industry type which have been described originated from surface find spots, not from real *in situ* sites, which is why its traced multi-industrial component could still be the result of natural mixing, as in the cases mentioned above with Szeletian and Aurignacian artifacts present together in the same assemblage. Accordingly, there is an obvious need for assemblages which come from a stratified context and result from modern excavations. Such a site, Hlinsko–Kouty I, was discovered and excavated in 2006 by one of us (P. Š.) and was then preliminary published the following year (Škrdla 2007). The recovered lithics, though few in number, still represent the only such *in situ* and well-excavated assemblage for the "*Morava-type Aurignacian / Míškovice-type industry*". Moreover, none of the surface collections of the UP industry type noted long ago has been ever published with any real techno-typological details, despite them being used twice to define the new UP industry type in Moravia.

That is why the main purpose of the present article is to represent the Hlinsko–Kouty I lithics in a highly detailed way through complex integrated analysis and then to try to define their main and peculiar techno-typological characteristics. If the purpose is successfully realized, a comparison will then be made with some surface assemblages of this industry type to try to understand more about it (if it is indeed real), although another separate article is already planned by us for this analytical work.

2. Site location and investigations

A small site cluster characterized by a specific UP industry combining Aurignacian-like tools with bifacially worked triangular points was documented at the Bečva River left bank elevations flanking the southwestern entrance to the Moravian Gate (a natural corridor connecting the Danube Valley with the North European Plain). These sites are concentrated on the cadastral territories of two neighboring villages – Lhota and Hlinsko – within an area not exceeding 20 km^2 (Škrdla 2007). With one exception, the recently excavated Hlinsko–Kouty I site, all of the sites are surface artifact clusters lacking any stratigraphical data. The rescue excavation within the remaining strip (the southern margin of the quarried-off elevation named Kouty) of intact sediments endangered by the expansion of the Hlinsko stone quarry was realized in 2006 (Fig. 1). This strip was intensively surveyed and subsequently an area covering 150 m^2 was excavated using shovels (Škrdla 2007). Only a portion of the sediments was washed (including all the sediments in a diameter of 1 m around the bifacial point find spot [Fig. 1]). The artifacts were excavated within a thin layer of colluvial deposits covering weathered Kulmian rocks and filling local depressions within rocks. The artifact-bearing horizon was disturbed by Aeneolithic activities, resulting in pottery shards and charcoal penetrating into colluvial sediment. No charcoal samples related to Paleolithic artifacts and suitable for dating were acquired. The site was quarried out in subsequent years and is no longer in existence.

Fig. 1. Hlinsko – Kouty I. View of surveyed and excavated area. Triangular point find spot.
Obr. 1. *Hlinsko – Kouty I. Pohled na zkoumanou plochu. Místo nálezu trojúhelníkového hrotu.*

3. Lithic assemblage new methodology studies: some brief notes

Due to the extreme importance of the *in situ* Hlinsko–Kouty I site lithics, a decision was taken to attempt intensive study efforts to understand the recovered assemblage in the most complete way for any possible further "deciphering" of similar but surface-recovered lithic collections in Moravia. That is why refitting and use-wear approaches were realized for the lithics. At the same time, the traditional techno-typological method was applied to the lithics with all the procedures that had already been used during analyses of some recently investigated *in situ* Aurignacian sensu stricto assemblages in Moravia (see Demidenko *et al*. 2017). This will facilitate an understanding of the whole Aurignacian *sensu lato* record in Moravia.

To summarize, in applying the three approaches, it will be important to try to match together the results of the approaches for interpreting the site's lithics. It is especially important to perform such complex lithic analyses as the absence of any recovered animal bones and charcoal pieces for obtaining C14 dates and realizing an archeozoological study definitely hinders complex and comprehensive research into the on-site and off-site actions of humans visiting the site.

3.1. Lithic assemblage: descriptions of artifacts

As was already mentioned above, the number of lithic artifacts recovered is not high, amounting to only 139 pieces. They are structured into the following six main categories.

- Core-like-pieces – 5 / 3.6% / 7.5%;
- Core maintenance products (CMP) – 6 / 4.3% / 8.9%
- Regular Core Debitage – 29 / 20.9% / 43.3%
- Specific Various Debitage – 9 / 6.5% / 13.4%
- Tools – 18 / 12.9% / 26.9%
- Debris – 72 / 51.8% / -

Regarding the lithic item preservation, it is worth noting the presence of six heavily burnt lithics in the assemblage, indicating that hearths and/or fireplaces were present at the site but did not "survive" until the 2006 excavations or were located in some other recently destroyed site areas.

In terms of the raw materials used for lithic production, there is an overall dominance of erratic flints for all the lithics found, aside from a single, rather large-sized (> 5 cm) flake/blade core on a red radiolarite nodule. Given the absence of any other artifact on radiolarite, it can once again be seen that the assemblage is only a small fraction of all the existing site lithics saved during the 2006 excavations. Accordingly, this again points to the fragmentariness of all our possible knowledge and understanding of the site and its finds. At the same time, the two noted raw-material types have a special meaning for understanding human activity at the site. The known red radiolarite outcrops closest to the site are in the vicinity of the town of Púchov (White Carpathians, Western Slovakia), which is ca. 60 km to the east of the site in a straight line. The known erratic flint outcrops are located ca. 25 km northeast of the site in Northern Moravia and Southern Poland. Thus, the only use of non-local raw materials at the Hlinsko–Kouty I site must have influenced some primary and secondary lithic treatment actions/features performed by the site's human visitors.

Indeed, it has been possible to identify a series of distinct techno-typological traits in the assemblage. However, these traits do not make it easy to represent the lithic data in a traditional way. That is why, first, the basic artifact category representation data will be demonstrated and, second, some separate and specific artifacts will also be specifically discussed.

3.1.1. Core-like pieces

The five pieces of this type are only represented by cores and there is no specimen which can be associated with "unprepared/unworked pieces of raw material" or "pre-cores". The absence of any "very initial cores", which usually occur at Paleolithic sites situated close to the basic raw-material outcrops used, indicates off-site pre-core preparation processes. Accordingly, it is highly likely that cores prepared off-site were brought to the site and then primarily knapped there.

Previously (Škrdla 2007), it was proposed that the assemblage's cores were represented by a single "core" and four "micro-cores". Indeed, the radiolarite core is a real core on a nodule, while four other cores are on thick flakes with *lamelle* (bladelet/microblade) removal negatives, being actually a sort of "micro-core". That is why it is logical to follow the proposed previous "core" and "micro-core" subdivision for the related items' morphological descriptions.

The flake/blade core on the radiolarite nodule is a parallel double-platform orthogonal sub-pyramidal item. The two striking platforms are plain and roughly prepared with semi-acute angles. It is 5.0 cm long, 5.6 cm wide, and 3.6 cm thick. The core's two flaking surfaces located at an orthogonal/90-degree angle to one another bear only hinged removal negatives, which indicate the core's real exhaustion despite its seemingly relatively large overall size and adequate thickness for flaking continuity.

All four "micro-cores" actually represent a specific sort of bladelet core on flake blanks, a carinated burin/single-platform narrow-flaked core type (see Demidenko 2012a: 97–98). The only major difference between these burin-like cores and traditionally defined carinated burins is the width of their fronts/flaking surfaces being always well over 1 cm, which is why such pieces are definitely cores. The small-sized burin-cores (with a maximum dimension of 3–4 cm) have plain and semi-acute-angle striking platforms from which series of bladelets and microblades with both non-twisted and twisted general profiles were then detached. The only morphological difference between the four pieces is the location of the striking platforms on the flake blanks. Three pieces show a use for the striking platform formation of a flake blank's distal end (Fig. 2: 28–29, 31). Two of the three pieces also bear a small amount of primary cortex on their bodies (Fig. 2: 28–29), while the third piece is a non-cortical one (Fig. 2: 31). The three burin-cores fully correspond to the carinated burin technology well known in various European Late/Evolved/Recent Aurignacian assemblages with serial carinated burins (e.g. Demidenko, Chabai 2012; Demidenko, Noiret 2012). On the other hand, the last burin-core (Fig. 2: 30) is more specific from the morphological and technological points of view. Its plain striking platform (maximum 1.3 cm wide) was formed by two removal negatives on the flake blank's proximal end, the blank's thickest part, which is also true for the other three burin-cores described above with striking platforms at the distal ends, which is why all the platforms were created there. Again, a series of no less than seven bladelets and microblades was flaked from the burin-core's platform, but their detachment had a peculiar specificity. The piece's front/flaking surface with bladelet/microblade removal negatives was not only situated at the flake blank's narrow surface of the proximal end, as is typical for carinated burin-cores, but it also partially "enveloped" the ventral surface of the blank. Because of the "ventral surface" location of some bladelet/microblade removal negatives, the particular Hlinsko–Kouty I carinated burin-core becomes a flat-faced one of the Vachon type, which is a fairly common feature of some Western European Late/Evolved/Recent Aurignacian assemblages rich in carinated burin-cores. Finally, it is worth noting that core platform rejuvenation processes were realized by one or two small flake removals and the faceting technique was not documented on cores or detached debitage pieces.

Thus, the assemblage's cores give a two-fold impression. Some "regular" core can be detected on nodule reduction, this, however, being represented by only one radiolarite flake/blade core. On the other hand, the other four cores are *lamelle* (bladelet/microblade) "micro-cores" or carinated narrow-flaked burin-cores. This dominance of the latter type of cores on flakes might indeed indicate that only a few real cores were brought to the site, which also served as a "flaking source" for thick flakes, which were then prepared on-site and primarily reduced as *lamelle* "micro-cores". Accordingly, it is highly likely that the on-site core primary reduction processes were largely devoted to small-sized bladelet and microblade reduction, meaning the provision of blanks for microliths.

3.1.2. Core maintenance products (CMP)

These six items consist of three crested pieces and three core tablets. The crested pieces are characterized by the notable absence of any primary crested specimen, and the examples identified are one extremely fragmented and unidentifiable core trimming element, one non-cortical fragment (distal part) of a secondary crested large-sized blade (2.3 cm wide) with an initially two-sided crest and one re-crested bladelet (non-cortical medial part) with a one-sided crest. The last two items are important for on-site core-reduction data. First, if core preparation processes occurred somewhere off-site and cores with preformed primary crested ridges were brought to the site, the large-sized secondary crested blade indicates initial reduction of a large-sized blade and/or flake/blade cores at the site. Second, the re-crested bladelet shows consistent and multiple *lamelle* reduction from the carinated burin-cores described above.

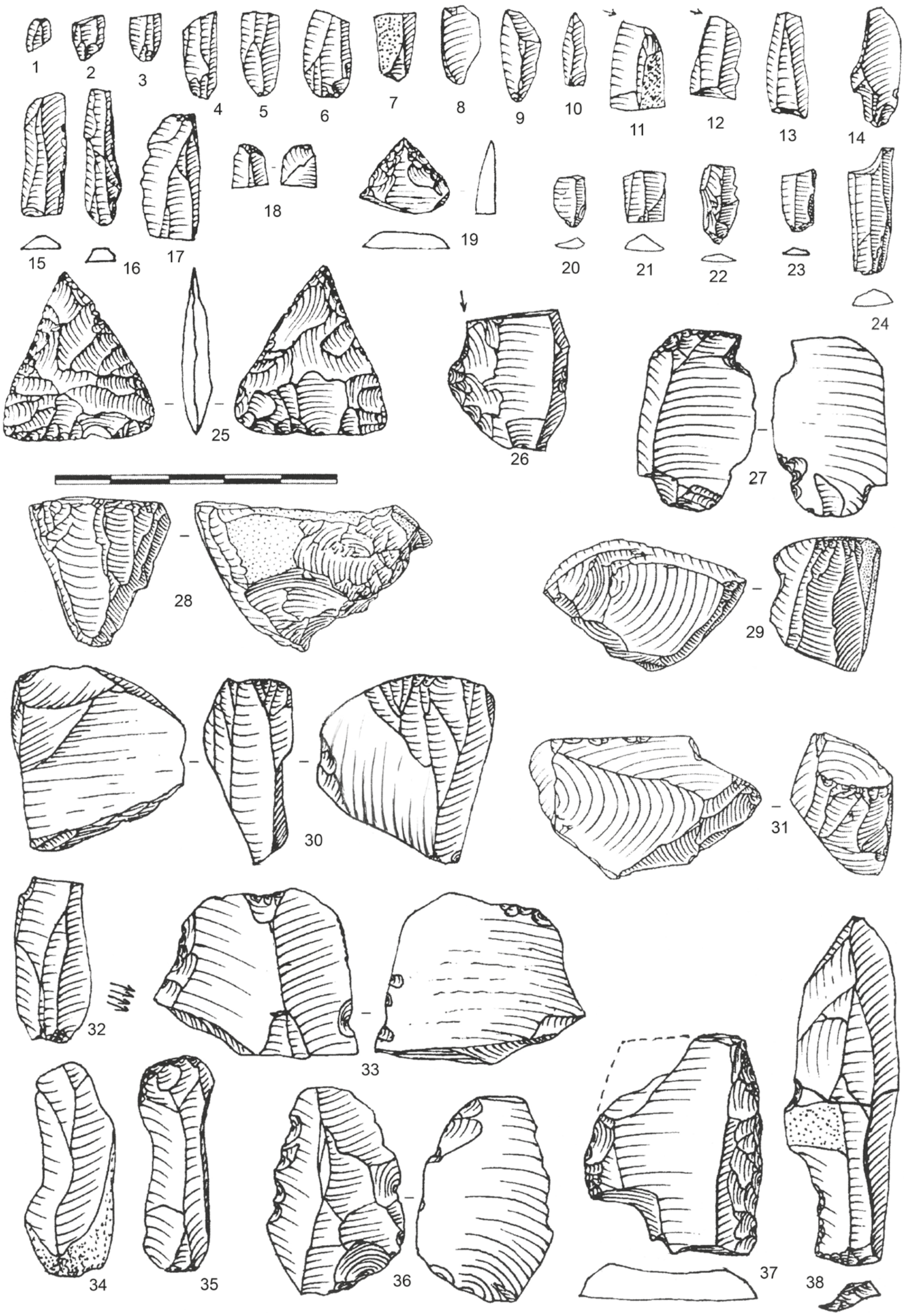


Fig. 2. Hlinsko – Kouty I. Selected artifacts.
Obr. 2. *Hlinsko – Kouty I. Vybrané artefakty.*

All three of the core tablets are primary ones on small-sized flakes (1.3–1.8 cm in length and/or width). Such specific small flakes demonstrate on-site core-striking platform rejuvenation procedures and rejuvenation performed using small flakes that indirectly points to the removal of the core tablets from *lamelle* cores.

3.1.3. Regular Core Debitage

The 29 regular core debitage items are subdivided into the following basic sub-categories:

- flakes – 8 / 27.6%
- blades – 3 / 10.3%
- bladelets (w = >= 7 mm – < 12 mm) – 8 / 27.6%
- microblades (w < 7 mm) – 10 / 34.5%

The debitage numerical data are very indicative. They show the rarity of blades, ca. 2.5 times more frequent occurrence of flakes than blades, and more than double the presence of all lamelles taken together compared to flakes. Accordingly, in spite of the definite loss of artifacts during the road construction that occurred before the 2006 excavations, the debitage sample, as is also true for CMP, corresponds well to the core data.

The eight *flakes* are all complete pieces and they can be further characterized as follows:

- partially cortical flakes – 6 / 75%
- non-cortical flakes – 2 / 25%.

Four of the six partially cortical flakes have a maximum dimension of more than 3 cm. This probably indicates their "nodule decortification" role within on-site primary flaking processes. At the same time, none of them exceeds 4.1 cm. The following flake data can also be added. First, there is the absence of any primary flakes (≥ 75% of cortex on dorsal surface) and the presence of just a single partially cortical flake with a significant cortex amount on its dorsal surface (> 25 – < 75%) among these four flakes. Second, all the other five pieces have a non-significant cortex share (≤ 25%), including flakes smaller than 3 cm. To summarize, there is no question that these were mostly off-site core preparation processes performed by flake removals. Five of the flakes with a partial cortex have a unidirectional scar pattern and only one piece demonstrates a undirectional-crossed/orthogonal scar pattern, indicating some core-flaking surface preparation/re-preparation. It is also worth noting that three partially cortical flakes (one under 3 cm and two over 3 cm) have a few lamelle removal negatives on their dorsal surfaces in addition to the basic trapezoidal profile at the midpoint. These pieces are not, however, specific lateral/fronto-lateral rejuvenation flakes removed from carinated endscraper-cores and/or burins (see Le Brun-Ricalens *et al.* eds. 2005), instead being detached during the initial formation of the above-described carinated burin-cores right after the basic decortification of cores, when not all of the cortex was removed. This is quite a typical feature of European Evolved/Late/Recent Aurignacian and Epi-Aurignacian assemblages.

The two non-cortical flakes are morphologically very different from one another. One of them is a metrically transversal piece whose width is greater than its length (2.0 cm long and 3.3 cm wide), which has a particularly undirectional-crossed/orthogonal scar pattern, expanding shape, flat general profile and punctiform abraded butt, possibly meaning its removal in the course of core reduction after the re-preparation of its flaking surface. The other non-cortical flake (2.1 cm long and 1.3 cm wide) has a unidirectional scar pattern, irregular shape, slightly incurvate general profile and dihedral unabraded butt. Accordingly, these two flakes are of a rather occasional technological character indicating their mainly supplementary technological role in core-reduction processes at the site. This is also evident from the fact that CMP outnumber the non-cortical flakes.

The three *blades* are all fragmented pieces, consisting of a single partially cortical item and two non-cortical examples. The partially cortical blade is a large-sized medial part (2.2 cm long and 2.3 cm wide) with a unidirectional scar pattern and a significant amount of cortex, indicating its casual detachment in the course of a core decortification. One of the non-cortical blades (Fig. 2: 32) is a proximal fragment (2.9 cm long and 1.3 cm wide) with a unidirectional scar pattern, a trapezoidal profile at midpoint with bladelet removal negatives on its dorsal surface and a plain abraded butt. This type of narrow blade was most likely removed during a bladelet reduction, being just a "wider bladelet" rather than a true blade. The other non-cortical blade is again a narrow but this time distal part (2.8 cm long and 1.5 cm wide) with a unidirectional scar pattern, converging shape, left off-axis removal direction and trapezoidal profile at midpoint. This blade might also originate from a basic bladelet reduction when some occasional blades were detached. As a result, a few of these blades from the assemblage under consideration, like the flakes, do not testify to intentional blade reduction. Such rare/occasional occurrence of blades is actually a common feature of Evolved/Late/Recent Aurignacian and Epi-Aurignacian LGM assemblages. There the core-reduction focus was devoted to *lamelle* production, where mainly flakes and only a few blades were detached during the *lamelle* core preparation and re-preparation processes and then used as blanks for the manufacture of various UP tool classes and types (e.g. Demidenko, Chabai 2012).

The eight *bladelets* (mean width 0.75 cm) consist of one complete (Fig. 2: 9) and seven fragmented specimens (four proximal [Fig. 2: 2, 5–7], one medial [Fig. 2: 13] and two distal parts [Fig. 2: 17]).

The only complete bladelet (length 1.6 cm, width 0.7 cm, thickness 0.3 cm) has a unidirectional scar pattern, converging shape, left asymmetrical axis, incurvate medial general profile, feathered distal end, triangular profile at midpoint, and punctiform butt. The seven fragmented bladelets are notable for the presence of a single primary cortical proximal part, while all other six pieces are non-cortical. At the same time, no partially cortical bladelet is known. The primary specimen (Fig. 2: 7) (1.2 cm long and 0.7 cm wide) has only an identifiable linear butt with no abrasion present. This might indicate some *lamelle* detachments right from the very beginning of the reduction flaking of the object. Morphologically, the six non-cortical fragmented bladelets demonstrate a consistent pattern in their morphology: all of them have a unidirectional scar pattern, and all but one triangular one have a trapezoidal profile at the midpoint, and both of the pieces with identifiable general profiles are twisted.

The ten *microblades* (mean width 0.51 cm) are all non-cortical, with one being complete (Fig. 2: 10) and nine fragmented items (seven proximal [Fig. 2: 3–4, 20], one medial and one distal part [Fig. 2: 1]). The single complete microblade (length 1.3 cm and width 0.4 cm) has a unidirectional scar pattern, converging shape, on-axis removal direction, twisted general profile, feathered distal end, triangular profile at mid-

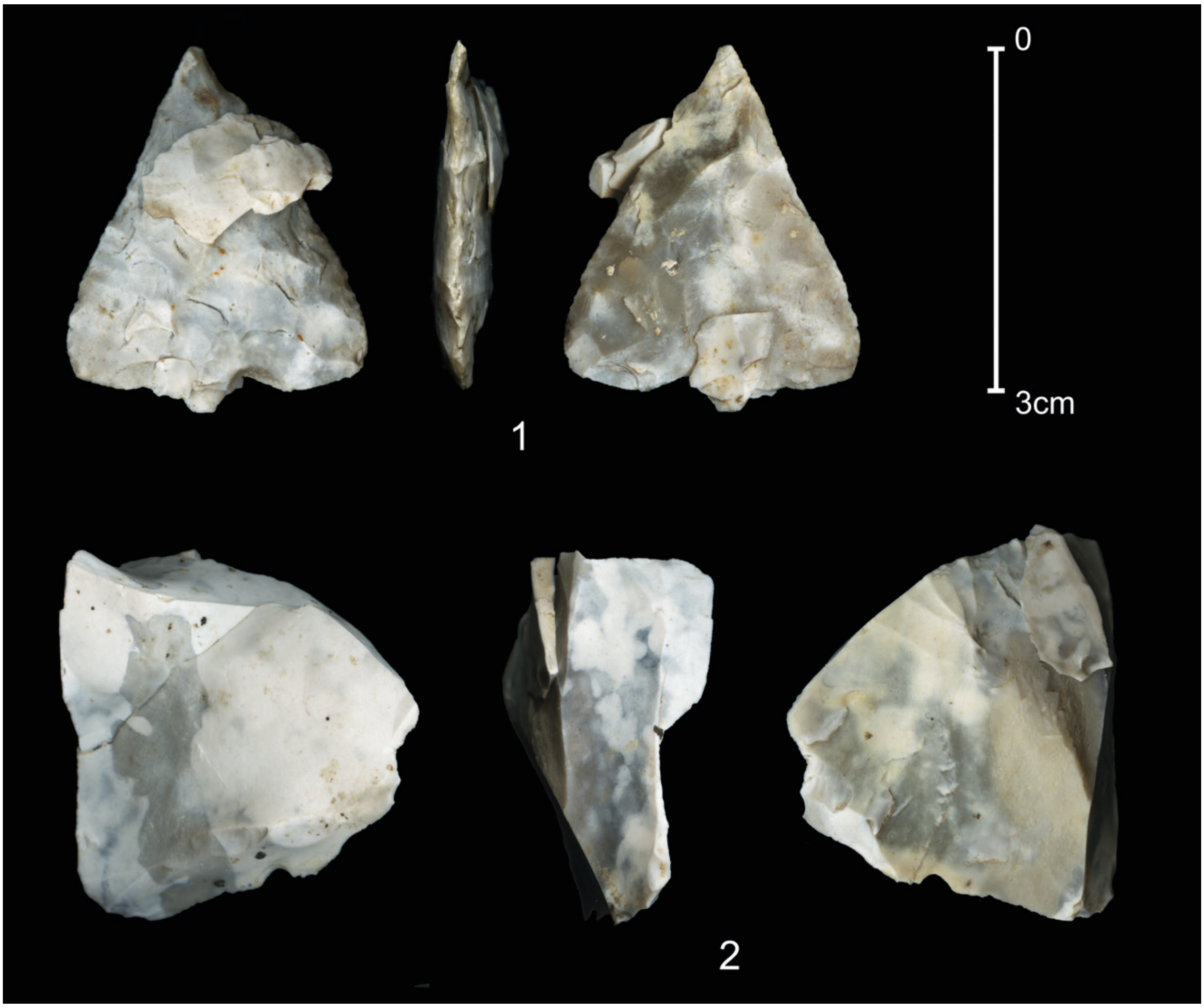


Fig. 3. Hlinsko – Kouty I. Bifacial point with four refitted flakes (1) and burin-core with refitted bladelet (2). Photo: L. Zahradníková.

Obr. 3. *Hlinsko – Kouty I. Oboustranně plošně retušovaný hrot se čtyřmi přiloženými úštěpy (1) a rydlo-jádro s přiloženou čepelkou (2). Foto L. Zahradníková.*

point, and linear butt. The fragmented microblades are morphologically very similar to bladelets, all of them having a unidirectional scar pattern, eight trapezoidal and only one (distal part) triangular profile at midpoint, and only generally identifiable profiles: two twisted and one flat.

Thus, from all the morphological data presented above, all the *lamelles* (bladelets and microblades) demonstrate a consistent pattern of serial reduction. Given their similar narrow width data and especially mainly twisted general profiles, there is no question that the *lamelles* are technologically connected with the primary reduction of carinated burin-cores in the assemblage.

All in all, the so-called "regular debitage data" presented above correspond well technologically with the assemblage's core-like pieces: a single flake/blade core and four carinated burin-cores. Flakes have a supplementary role in core reduction. Blades are either occasional or just "wide bladelets". On the other hand, the *lamelles* which are present in the greatest numbers have been purposefully produced from the carinated burin-cores. That was certainly the basic on-site primary reduction trend for the lithic assemblage in question.

3.1.4. Specific various debitage

Aside from the regular core debitage discussed above, the Hlinsko–Kouty I site assemblage is additionally characterized by 12 very specific and/or refitted items (4 flakes, 2 blades, 3 bladelets, 3 chips), both confirming some of the core debitage data already described and demonstrating that some other reduction types occurred at the site. The items are actually connected to the following three reduction types: 1) bladelet/microblade production from carinated burin-cores; 2) chip and flake detachment from a bifacial triangular point during various final shaping and thinning processes; 3) bipolar anvil core reduction.

1. Carinated burin-cores are clearly connected to the assemblage's *lamelle* production, where one bladelet (Fig. 2: 8) was refitted onto the proximal part of a flat-faced carinated burin-core of the Vachon type (Fig. 2: 30). The refitted non-cortical narrow bladelet (1.4 cm long, 0.7 cm wide, 0.2 cm thick) is almost complete, missing only a tiny and definitely feathered distal end. It has a unidirectional scar pattern, expanding shape, on-axis removal direction, slightly incurvate general profile, lateral steep profile at midpoint, and crushed butt. The Hlinsko–Kouty I refit of the bladelet onto the carinated burin (Fig. 3: 2) is significant in terms of settlement, virtually documenting the on-site [*sic*] carinated burin-core reduction process and reduction lithics as an integral part of the lithic assemblage under consideration. Accordingly, it is now possible not just to suggest but to state with confidence the technological association of the assemblage's many, if not all, bladelets and microblades with carinated burin-core reduction realized at the site.

2. Aside from the two non-cortical flakes described above for the core-reduction-associated debitage, there is one more non-cortical small flake that technologically should be connected to the single bifacial "bi-convex" triangular point known in the assemblage. The flake has transversal proportions (1.0 cm long, 1.9 cm wide, 0.4 cm thick) and specific morphological features allowing it to be connected to bifacial tool reduction. It has a peculiar partially finely faceted semi-lipped butt with a semi-acute angle and abrasion. The flake also has a hinged distal end. That means that it is definitely a final shaping or thinning flake from a bifacial tool, most likely detached from the bifacial triangular point noted above. Unfortunately, the specific bifacial reduction small flake could not be refitted onto the bifacial point as happened with the four bifacial final shaping and thinning chips described below.

The refitting block of such chips and the point can be described as follows.

The bifacial triangular point (Fig. 2: 25; Fig. 3: 1) is a small (length 3.0 cm, width 2.6 cm, thickness 0.5 cm) and complete non-cortical one, which also has a typical Upper Paleolithic "bi-convex" method of manufacture. Unfortunately, the point's blank (a debitage item or a nodule/chunk) is unknown because of too many secondary treatment removal negatives heavily covering its two surfaces.

The four chips are also non-cortical specimens. Technologically, they can be subdivided into two groups. Two of them demonstrate the point's basal thinning process on its two surfaces. The two other chips are probably not thinning ones but rather "bi-convex" surface pieces from the final shaping of the point's body. Accordingly, the four bifacial reduction chips – three of them refitted onto what is conventionally defined here as surface "A" (Fig. 2: 25 – left) and a single piece refitted onto surface "B" (Fig. 2: 25 – right) – are described below in the "two-partite" way.

The first thinning chip was the single refitted item connected to the base of the point's surface "B". By removing this particular chip, leaving the largest removal negative at the base there, a UP flintknapper actually significantly improved the formation of the whole base at the surface under consideration, "B". The chip itself is a non-cortical fragmented item (proximal part – 0.9 cm long, 0.6 cm wide, 0.1 cm thick) with just a slightly incurvate general profile. It has a punctiform butt with abrasion. The butt is ca. 2 mm below the point's base, showing that after its detachment some more treatment of the point's base for its final shaping went on at the site. Another thinning chip refitted onto the point's base on surface "A" is a much smaller (0.4 cm long and wide, 0.1 cm thick) non-cortical complete one with a flat general profile. The chip also has a punctiform butt with abrasion at the level of the point's base, meaning that this particular chip was among the last, if not the very last, detached during the final treatment of the point's base. Moreover, by comparing the butt levels of the two thinning chips, it can clearly be seen that the second piece described was flaked after the first one. This makes it highly likely that the point's base was first formed for surface "B" and then for surface "A". The two chips also have a peculiar shared feature. Morphologically, according to their punctiform butts, they do not look like real bifacial tool treatment chips, and this has two implications. First, it was difficult to find such tiny pieces among "regular chips" to refit onto the point. They are simply indistinguishable from core-reduction "regular chips". Second, the presence of the two bifacial thinning chips among the "regular chips" cannot lead to real number evaluation of bifacial reduction chips in the UP assemblage in question. Similar complex cases with bifacial tool reduction small-sized debitage have been already realized and observed by one of us for the East European Middle Paleolithic context with bifacial "plano-convex" tools (e.g. Demidenko 2015a).

Removing the second thinning chip from the point's base on surface "A" seems to be a different technological process from detaching the following two final shaping chips, again from surface "A" but from the point's body. It really appears as though there were two different shaping/thinning processes during the formation of the point – the "basal part" and "main body" ones. The first such final shaping non-cortical and complete chip has been refitted by its butt near the point's pointed part, demonstrating its detachment from the point's right edge when the chip (1.5 cm long, 0.8 cm wide, 0.2 cm thick) with an incurvate medial profile went through the whole width of the point to its left edge at the point's narrow area. The chip's butt is also morphologically a real but specific one from a bifacial tool (see below) and through the chip detachment a UP flintknapper was creating the required convexity of surface "A" on the point's body. Also, the chip's butt is ca. 2–3 mm above the point's edge, meaning that some more fine treatment by very tiny chips was then realized at the site. All the data described above indicate that the chip in question is not a thinning/rejuvenation chip but still a formation/final shaping one within the initial shaping process of the bifacial point. The second final shaping chip was not actually refitted onto the point but refitted onto the left dorsal part of the first final shaping chip. It is again a non-cortical but fragmented item (the proximal part being 0.9 cm long, 0.6 cm wide, and 0.2 cm thick) with a slightly incurvate medial profile. Morphologically, the chip's butt is again a real but specific one from a bifacial tool (see below). Technologically, the chip was also flaked during the point's convex surface "A" formation, exactly like the previously described chip. The chip's butt is ca. 1 mm above the first final shaping chip's butt level, also a difference of almost 4 mm with the point's edge. This again indicates a rather long and intensive surface "A" body formation process, all of which took place at the site. The third and fourth refitted chips on the bifacial point morphologically resemble rather typical bifacial reduction chips, both having lipped, acute butts with abrasion. These butts (see also Demidenko 2015a) are usually very indicative of thinning/rejuvenation pieces flaked from bifacial tools where the butt abrasion does indeed show some rejuvenation of the already retouched [*sic*] edges of the bifaces. The Hlinsko–Kouty I bifacial point's two chips are, however, more likely to have been detached during the final shaping of one of the points as the point itself does not have all the outlines carefully formed. At the same time, the two chips' butts are of plain type (0.5 × 0.2 cm and 0.3 × 0.2 cm in width and height/thickness), while faceted butts are usually acknowledged to be a real butt feature for bifacial tool treatment debitage pieces. However, small-sized flakes and especially chips originating from bifacial tool treatment and/or rejuvenation processes often have plain butts (see Demidenko 2015a, Fig. 2: 7–9). Their usually small plain butts only specifically demonstrate the pieces' detachment from small treatment removal negatives of another tool's surface where a shaping hammer/retoucher blow has been delivered. Indeed, such fine treatment is observed on surface "B", which is why the bifacial final shaping chips in question have plain butts.

Thus, the Hlinsko–Kouty I assemblage does not only contain a single bifacial "bi-convex" triangular point but both refits to it; the four chips and the presence of one other non-refitted bifacial reduction flake with a partially faceted butt clearly demonstrate the on-site final shaping and thinning of the point. It is also probable that the absence of any bifacial tool treatment debitage pieces bearing some primary cortex is a good indicator of some sort of prepared (at a distant erratic flint outcrop?)

bifacial preform being brought to the site, where it was then shaped into the point. This is a good example of human activity at or near a flint outcrop, with forward planning of some more particular flint treatment actions during a stay at a site. At the same time, there are only data on the bifacial point manufacture at the site, but no signs of its re-shaping and rejuvenation at the site. This might indicate a relatively short stay by humans at the site. All in all, some of the chips in the assemblage and probably a few flakes do not represent core-reduction-derived pieces but on-site bifacial treatment debitage.

3. Bipolar anvil core reduction "completed" various flint treatment processes performed at the site by its human visitors. Seven debitage pieces related to this peculiar type of core flaking, actually smashing, were among the most surprising lithics identified in the assemblage. The bipolar anvil debitage is morphologically well distinguished from the regular "free-hand" core reduction by the presence of "two butts" and/or tiny splinter-like removal negatives coming from both the proximal and distal ends of each piece. The specimens are as follows: a complete non-cortical and small blade 3.9 cm long, 1.3 cm wide, and 0.7 cm thick (Fig. 2: 35); a complete partially cortical (proximal and lateral cortex location) blade 3.8 cm long, 1.6 cm wide, and 0.7 cm thick (Fig. 2: 34); two complete non-cortical small-sized flakes (3.0 and 1.7 cm long, 1.7 and 0.9 cm wide, 0.6 and 0.5 cm thick, respectively); the proximal part of a non-cortical longitudinally fragmented Siret flake (1.5 cm long, 0.9 cm wide, and 0.5 cm thick); a complete non-cortical bladelet (2.2 cm long, 0.8 cm wide, and 0.4 cm thick) (Fig. 2: 14); and the distal part of a non-cortical bladelet (1.3 cm long, 1.1 cm wide, and 0.4 cm thick). The presence of just a single item bearing some primary cortex points to a use for bipolar reduction of some exhausted "free-hand" cores and/or thick flakes/blades. Also, the variety of debitage types traced is quite typical for bipolar anvil core reduction, where little real control for particular debitage piece production was achieved.

To sum up the data on so-called "specific various debitage", three core-reduction methods applied to primary flint treatment processes can definitely be seen (regular "free-hand", carinated burin-core, and bipolar anvil ones), while some small-sized debitage also came from bifacial point manufacture production. This complexity of primary treatment reductions with the presence of carinated burin-core and bipolar anvil ones could actually be connected to the real and understandable deficit of available erratic flint pieces at the site.

3.1.5. Tools

Comparing the number of tools (18 specimens) with the total number of debitage pieces (38 items), we find the presence of only around two debitage pieces for each tool, which is certainly not a large number. Such tool *vs* debitage statistics obviously allow us to state repeatedly that some peculiar tool formation processes occurred off- and on-site, which also meant some previously prepared tools being brought to the site by humans. On the other hand, the Hlinsko–Kouty I tool kit, which still belongs to a UP assemblage, does contain a variety of industrial features. This brings us to the need for a thorough description of the site's tool kit in a structured way through an analysis of so-called indicative UP tool classes and their types (5 items), non-geometric microliths (6 items), bifacial triangular points (1 item), retouched pieces (4 items) and "various" tools (2 items), highlighting each tool group's shared and specific morphological data.

Indicative Upper Paleolithic tools. These are composed of four burins and one borer, and no endscraper of any type occurs in the tool kit.

Burins. These are represented by two identifiable items, each of a different type. Two more specimens are unidentifiable, still having some specific and shared morphological features.

One of the identifiable items is a burin on a lateral retouch (Fig. 2: 33). The burin was produced on the distal part of a non-cortical flake. The flake blank bears a concave scalar and semi-steep dorsal retouch on its left lateral edge, and a single transversal burin spall was struck off from the retouch along the flake's medial breakage. The flake blank's identifiable morphology is as follows: unidirectional scar pattern, on-axis removal direction, flat general profile, hinged distal end. It is 3.0 cm long, 3.7 cm wide, and 0.8 cm thick.

Another identifiable burin is of a dihedral angle type. The burin's blank is a complete and partially cortical flake. The unretouched flake blank has a burin termination on its distal part formed by two pairs of short burin spall negatives. The first runs from the distal end a short way along the blank's left lateral edge, and this "platform" was then used for the detachment of burin spalls transversally. Morphologically, the flake blank has a undirectional-crossed scar pattern, expanding shape, on-axis removal direction, incurvate medial general profile, irregular profile at midpoint, non-significant amount of lateral cortex, and plain lipped butt with an acute angle and abrasion present. Length – 3.0 cm, width – 2.1 cm, thickness – 1.0 cm.

Two unidentifiable burins have missing burin terminations, and their identification as burins is only based upon the presence of the lower parts of burin spall removal negatives on their lateral edges. One such piece (Fig. 2: 26) is the proximal part of a non-cortical flake. It has a convex heavy scalar and flat dorsal retouch on its left lateral edge and there is part of a burin spall negative running along the lateral edge from the piece's medial breakage. The flake blank (length 2.4 cm, width 2.1 cm, thickness 0.5 cm) has an identifiable unidirectional scar pattern, twisted general profile, and plain semi-lipped butt with a semi-acute angle and abrasion present. One more unidentifiable burin (Fig. 2: 37) is the distal part of a non-cortical flake. It bears the following bilateral convex dorsal retouch: a heavy scalar and flat retouch on its right lateral edge and a scalar semi-steep retouch on its left lateral edge, where there is part of a burin spall negative coming from the blank's medial breakage along the heavily fragmented lateral edge. The flake blank has an identifiable unidirectional scar pattern, on-axis removal direction, trapezoidal profile at midpoint, and flat general profile. It is 3.9 cm long, 3.2 cm wide, and 0.7 cm thick.

It is worth noting the following features of the burins outlined above. The typologically identifiable pieces have a transversal orientation of the last-removed burin spalls. All of the burins are on small flake blanks with a maximum size of less than 4 cm. The occurrence of two unidentifiable burins on laterally/bilaterally retouched fragmented flakes may point to the re-use of the sidescraper-like pieces brought to the site as burins.

Borer. The single borer on a non-cortical complete flake (Fig. 2: 27) is an angled/*déjeté* one formed by a straight scalar semi-steep dorsal retouch at the blank's distal edge and a notch (scalar and semi-steep dorsal retouch) at the right lateral edge near the blank's distal end. Accordingly, the convergence of the two retouched edges formed the borer's short sting. The flake blank (length 3.2 cm, width 2.0 cm, thickness 0.5 cm) has a unidirectional scar pattern, rectangular shape, on-axis removal direction, lateral steep profile at midpoint, twisted general profile, and punctiform butt with abrasion present.

Non-geometric *microliths*. These six pieces are represented by four retouched *lamelles* and two unretouched *lamelles* with clear projectile damage traces.

The retouched *lamelles* can be individually characterized as follows.

The first retouched item (2.4 cm long, 0.6 cm wide, 0.3 cm thick) is an almost complete microblade with the very tip of the distal part broken (Fig. 2: 16). The whole length of the microblade's right lateral edge has been secondarily treated by a marginal backed dorsal retouch. Due to the breakage of the microblade's tip, which according to the use-wear analysis (see below) appears to be a consequence of projectile damage, it is impossible to say whether it is a fragmented point or just a laterally retouched microlith. Morphologically, the microblade has a unidirectional scar pattern, rectangular/converging shape, on-axis removal direction, slightly incurvate medial general profile, trapezoidal profile at midpoint, no cortex, and a plain semi-lipped butt with an acute angle and abrasion present.

The second retouched microblade is a complete item (length 1.1 cm, width 0.4 cm, thickness 0.1 cm) with the left lateral edge in this case being partially retouched by a thin marginal dorsal retouch near the butt. The use-wear analysis of this piece (see below) showed the presence of a combination of projectile traces. The microblade blank has a unidirectional scar pattern, rectangular shape, on-axis removal direction, slightly incurvate medial general profile, trapezoidal profile at midpoint, feathered distal end, no cortex, and a punctiform butt with abrasion present.

The third retouched *lamelle* (Fig. 2: 15) is only the preserved medial part of a bladelet (length 2.2 cm, width 0.7 cm, thickness 0.3 cm). The use-wear observation of the item did not reveal any clear projectile damage. The microlith has a partially retouched right lateral edge with a marginal backed dorsal retouch. In terms of morphology, the bladelet has a unidirectional scar pattern, on-axis removal direction, slightly incurvate medial general profile, trapezoidal profile at midpoint, and no cortex.

The fourth and last retouched microlith is again of bladelet proportions (length 0.8 cm, width 0.7 cm, thickness 0.2 cm) but is represented by a distal part (Fig. 2: 18). The piece is important because of the combined presence of both some retouch and a projectile damage facet. The bladelet's distal end has been obliquely retouched by a micro-scalar and semi-steep dorsal retouch, whereas the bladelet's lateral edges are unretouched. However, there is a single, rather wide and flat burin-like-spall removal negative running diagonally from the retouched distal termination onto the ventral surface. This negative definitely originated from projectile damage. The bladelet blank's preserved distal part is too small (length 0.8 cm, width 0.7 cm, thickness 0.2 cm) for any objective morphological feature recognition.

The *lamelles* with only projectile damage present are as follows.

These two pieces (Fig. 2: 11–12) are the distal parts of morphologically unidentifiable bladelets, although one of them is non-cortical (length 1.4 cm, width 0.8 cm, thickness 0.2 cm), while the other has a significant amount of lateral cortex (length 1.6 cm, width 0.9 cm, thickness 0.3 cm). Each of them bears a single narrow transversal-like burin spall removal negative from projectile damage running from the bladelet's left lateral edge along its distal end. Due to the very fragmented nature of the two bladelets with projectile damage traces, the pieces' retouching before use as microliths in hunting projectile weaponry cannot yet be excluded.

All the above data on the six microliths allow us to make the following main observations. When retouched – and it is always dorsal retouch – the microliths bear either a very thin marginal retouch or a slightly thicker, even backed-looking, but still marginal retouch. The backed-looking retouch is a result of the multiple application of an abrasive action to a lateral edge treatment, which is why the resulting retouch is a little thicker. Accordingly, the Hlinsko–Kouty I microliths are not characterized by any real backed Gravettian- and/or Epigravettian-like thick backed retouched edges. The presence of clear projectile damage facets on five of the six microliths and the additional retouch at the distal end of one of them undoubtedly indicates the use of microliths as components of the hunting projectile weaponry of the humans on the site. In addition, there is an important observation on the microliths' one morphological feature. None of the three morphologically clearly identifiable microliths has a twisted general profile or off-axis removal direction; instead, they always have a slightly incurvate medial general profile and on-axis removal direction. Coming back to the unretouched *lamelles* (9 bladelets and 10 microblades), there is a different situation with their general profiles and axis removal direction. Out of the 19 *lamelles*, only eight items are identifiable by these two morphological features. Of the eight general profiles, five are twisted, while slightly incurvate medial, incurvate medial and flat types are represented by one example each. A similar situation is found for removal direction: four off-axis, one asymmetrical and three on-axis. As a result, a consistent pattern is seen where only non-twisted and on-axis *lamelles* have been selected for microliths. It is surely surprising to some extent as most, if not all, of the *lamelles* in the assemblage originated from carinated burin-cores, which are traditionally associated with the production of mostly twisted and off-axis *lamelles* (e.g. Le Brun-Ricalens *et al.* eds. 2005; Demidenko, Chabai 2012; Demidenko 2012b). However, a closer examination of the burin-cores reveals that only two (Fig. 2: 30–31) out of four have some (but not many) very clear twisted and off-axis removal negatives on their flaking surfaces. This points to the primary production aim of non-twisted and on-axis *lamelles* at the site and the special selection of such *lamelles* for microliths for the UP assemblage in question. Finally, the occurrence of most of the microliths with projectile damage certainly testifies to their having been used during a hunt near the site and then brought back to the site within darts/arrows and/or hunted ungulate carcasses. Such successful hunts might actually be one of the basic reasons why the particular site was then established by UP humans in an area situated very far from the exploited distant raw-material outcrops.

<u>*Bifacial triangular point*</u>. This single piece has already been well described during the specific and refitted debitage piece analysis. Here it is just worth adding two observations. First, it is a real UP bifacial point produced through the "bi-convex" technique (see Demidenko 2015b), which is why the tool does not represent any Middle Paleolithic admixture in the tool kit, not being, for example, of any possible Micoquian origin, bearing in mind the rich Micoquian record in Moravia. Second, taking into consideration all the refitting data on the point's final shaping and thinning, it does not seem as if the point's secondary treatment process was really finished. That is because some of the point's edges have been left slightly denticulated and there are no signs of the pressure technique application to the point's surface that is usually associated with finalizing treatment for UP bifacial "bi-convex" points in Europe (e.g. Demidenko 2014, 177–179). That may be why the point was left at the site, as it was actually unfinished and unused.

<u>*Retouched Pieces*</u>. These are four debitage items (2 blades and 2 flakes) bearing marginal and/or irregular retouch. Individually, they can be represented as follows.

The first blade (Fig. 2: 38) is a complete partially cortical item (length 6.2 cm, width 1.9 cm, thickness 1.0 cm) with the left lateral edge partially retouched by a marginal dorsal retouch. Morphologically, it has a unidirectional scar pattern, converging shape, on-axis removal direction, incurvate medial general profile, trapezoidal profile at midpoint, blunt distal end, non-significant amount of lateral cortex, and a crudely faceted convex semi-lipped butt with an acute angle and abrasion present.

The second blade is a complete partially cortical specimen (length 4.5 cm, width 2.0 cm, thickness 0.6 cm) but with bilateral irregular ventral retouch. It is characterized by a unidirectional scar pattern, expanding shape, on-axis removal direction, slightly incurvate medial general profile, triangular profile at midpoint, blunt distal end, non-significant amount of distal cortex, and crushed butt.

The first flake (Fig. 2: 36) is a complete non-cortical piece (length 3.6 cm, width 2.4 cm, thickness 0.8 cm) bearing a bilateral irregular retouch. The flake's left lateral edge has an irregular partial dorsal retouch and its right lateral edge an alternating partial retouch. In terms of morphology, the flake has a bidirectional scar pattern, converging shape, left asymmetrical axis removal direction, incurvate medial general profile, multifaceted profile at midpoint, unidentifiable distal end, and crushed butt.

The second flake is also a complete non-cortical specimen (length 3.8 cm, width 2.3 cm, thickness 0.9 cm) with a bilateral irregular ventral retouch. Morphologically, it features a bidirectional scar pattern, crescent shape, on-axis removal direction, incurvate medial general profile, triangular profile at midpoint, blunt distal end, and a plain lipped butt with an acute angle and no abrasion.

In terms of maximum size, there is an interesting pattern for the retouched pieces. The two retouched blades are all complete, while all three unretouched blades are fragmented. On the other hand, all two retouched and five unretouched flakes over 3 cm in size are all complete. Accordingly, particularly complete and certainly long blades and flakes were selected for some further use among debitage items.

Various Tools. The first such tool is the distal tip of a unifacial point (Fig. 2: 19) formed bilaterally by a heavy scalar flat and semi-steep dorsal retouch. The tool's blank was probably a non-cortical flake, but due to its small overall size (length 1.3 cm, width 1.6 cm, thickness 0.3 cm), it is morphologically unidentifiable. No other missing part of the tool is present in the assemblage.

The second piece is more uncertain from a typological point of view as it cannot be classified with any certainty. On the one hand, it is a complete non-cortical crested flake with a two-sided ridge that has the following dimensions: length 3.1 cm, width 1.7 cm, thickness 0.7 cm. On the other hand, the piece's ventral surface bears a series of chip removal negatives testifying to some secondary treatment, but there is no retouch on any surface/edge of the piece. At the same time, it is not a core-like piece either. Accordingly, the piece's treatment can be best characterized as a sort of primary *façonnage*. If it is a *façonnage*, the piece could be a preform of a bifacial tool. Having such an unusual piece from whose ventral surface some "Janus" or "Kombewa" chips have been detached, an attempt was undertaken to find these morphologically distinct chips and to refit them to the piece in question. Unfortunately, no such chip has been found in the assemblage. Therefore, it is possible that the piece (a possible bifacial preform) was brought to the site ready-prepared but then not treated in any further way and was left at the site when its human visitors moved on to another location.

<u>*Some notes on the tool-kit data*</u>. The tool set presented here leaves us with neither a clear impression nor the ability to evaluate it industrially using traditional techno-typological criteria.

First, the tool kit, in which we should not forget to include the carinated burin-cores classified above among the cores, is certainly a rather unusual one due to its seemingly multi-industrial components. On the one hand, there is the true Aurignacian *sensu stricto* core-tool-type component represented by four carinated burin-cores, including a flat-faced one of the Vachon sub-type to which a bladelet was also refitted, indicating on-site burin-core reduction. The occurrence of flat-faced carinated burin-cores together with "simple" carinated burin-cores is a characteristic techno-typological feature of some Western European Late/Evolved/Recent Aurignacian assemblages containing serial carinated burin-cores (see Perpère 1972; 1977; Pesesse, Michel 2006). Second, the presence of a bifacial triangular point here constitutes an industrially different UP component that is not at all well known in homogeneous *in situ* Aurignacian *sensu stricto* assemblages in Western and Central Europe. Nevertheless, as refits of four chips onto the bifacial point clearly demonstrate, the point was at the site during the final shaping of its body surface and thinning of its base, which is why it cannot be an accidental piece that happened to be in the assemblage in an "admixture way". Moreover, it is also almost certain that the point's blank (bifacial preform) was shaped somewhere off-site and brought to the site for formation into a point. The resulting tool shaping was probably not very successful, which is why the tool was finally left at the site. Thus, both Aurignacian *sensu stricto*, namely Late/Evolved/Recent Aurignacian-type lithics (carinated burin-cores) and Szeletian-like lithics (bifacial triangular point) – although not the ones known among *in situ* Early Szeletian assemblages in southern Moravia like Vedrovice V and Moravský Krumlov IV (Valoch *et al.* 1993; Neruda, Nerudová eds. 2009; Nerudová, Neruda 2017) – are recognized as occurring together under various reduction processes at the site in question. Third, the tool kit shows a specific composition of so-called indicative UP tool classes and types. Only burins and a borer occur, while endscrapers, truncations, well-retouched blades and splintered tools are absent. This points to some specificity in human activity in the small excavated area of the site realized through the recovered lithics. Fourth, the analyzed microliths also give a two-fold impression. Their blanks (bladelets and microblades) have been flaked from carinated burin-cores, but exclusively non-twisted and non-off-axis *lamelles* were then retouched and selected for use as six microliths, components of hunting projectile weaponry. This is different from the known European Late/Evolved/Recent Aurignacian assemblages with many carinated burin-cores where mostly twisted and off-axis *lamelles* were then retouched into Dufour microliths of the Roc-de-Combe sub-type. Although both Hlinsko–Kouty I and Roc-de-Combe microliths were treated with a fine marginal abrasion lateral retouch, the former type of microliths are only dorsally retouched, while the latter are often ventrally retouched as well. Accordingly, Hlinsko–Kouty I microliths are significantly different from traditionally defined Late/Evolved/Recent Aurignacian microliths. On the other hand, a new Evolved Aurignacian industry type recently identified by us for a series of sites in Central and Eastern Europe, including sites near Brno in southern Moravia (Demidenko *et al.* 2016; Demidenko *et al.* 2017), is characterized by Góra Puławska II-type microliths. These microliths are mostly incurvate medial or slightly incurvate medial and on-axis pieces bearing lateral or bilateral dorsal retouch, whose blanks (microblades) have, however, been flaked from wide-fronted carinated endscraper-cores and not from carinated burin-cores as is the case with Hlinsko–Kouty I microliths. Taking into consideration the above-noted European Late/Evolved Aurignacian microlith comparisons, it looks as if the Hlinsko–Kouty I microliths combine features of both Roc-de-Combe and Góra Puławska II microliths to some extent. This raises the possibility of defining a new microlith type in the European UP. Fifth, there is a notable occurrence of a few archaic-looking tools. First and foremost, there is the tip of a unifacial point, which is actually indistinguishable from similar fragmented pointed items in Middle Paleolithic assemblages. Two fragmented and therefore typologically unidentifiable burins with a heavy lateral/bilateral dorsal retouch seem to have been brought to the site as sidescraper-like tools and been radically re-shaped there. Sixth, the tool multi-component data, as well as the non-blade character of the assemblage, is also well confirmed by debitage blank data. Excluding an unidentifiable blank of a bifacial triangular point, all the other 17 tools have the following blank types: flakes – 9 / 52.9% (all 5 indicative UP tools; 2 retouched pieces; a unifacial point tip; a possible bifacial preform), blades – 2 / 11.8% (2 retouched pieces); bladelets – 4 / 23.5% (4 microliths); microblades – 2 / 11.8% (2 microliths). Accordingly, a rather haphazard use of blades with no intentional retouching of them is seen, while flakes served as blanks for all other tools except microliths, which corresponds well with the core data showing the presence of a flake/blade core and four carinated burin-cores for *lamelle* detachment. This flake and *lamelle* tool-blank structure and core data have a great significance for a possible industrial attribution of the Hlinsko–Kouty I assemblage. Finally, the presence of projectile damage facets on most of the Hlinsko–Kouty I microliths probably explains one of the basic reasons why the site camp was organized in this particular place located far away from the exploited raw-material outcrops. A site for short-term occupation was probably established after a successful hunt there. The combination of two circumstances – the need to stay at the locus for some time after a successful hunt and the obvious deficit of raw-material pieces necessary for primary and secondary ungulate carcass dismembering – probably led to the application of some bipolar anvil core reduction at the site. This specific reduction was realized on a few thick debitage pieces (no flint and radiolarite nodules at the site or in its vicinity) with the aim of detaching some small-sized debitage pieces, probably then serving unretouched as small ad hoc cutlery tools. At least partially, all of these conditions taken together can explain both the very limited indicative UP tool class occurrence and the tool multi-component presence there. With such a situation, the dominance of carinated burin-cores (4 out of 5 cores – 80%) and the notable proportion of microliths (6 out of 18 tools – 33.3%), when some of them could also be lost during hunting activities, seem to indicate a significant on-site emphasis on bladelet/microblade reduction and the use of the *lamelles* produced. They were serially detached from burin-cores, secondarily treated by a fine marginal abrasion retouch and then used as components of hunting projectile weaponry near the site. Other tools were partially brought to the site as ready-prepared pieces and their semi-products/preforms for further on-site treatment, while some other tools were probably produced at the site on flake blanks resulting mostly from the shaping processes of the burin-cores.

3.1.6. Debris

This most numerous artifact category in the assemblage (72 pieces) is composed of the following sub-categories:

- chips – 53 / 73.6% (including 4 items refitted onto a bifacial point);
- uncharacteristic debitage pieces – 11 / 15.3%
- chunks – 2 / 2.8%
- heavily burnt pieces – 6 / 8.3%

Chips are small-sized complete "flakey" items and flake fragments with a maximum dimension of less than 1.5 cm. Most of them are non-cortical (47 items) and only six pieces bear some primary cortex. *Uncharacteristic debitage pieces* are definitely debitage pieces, but because of their heavy fragmentation, it is impossible to relate them to either flakes or blades/bladelets, which is why they are put into this "neutral" debitage sub-category. All 11 of them are non-cortical specimens. The occurrence of a sufficiently high number of such pieces in the assemblage, aside from the intensity of core-reduction processes at the site, can be additionally explained by the bipolar anvil core technology applied here, which always results in quite a large amount of shatter. *Chunks* are small pieces (with a maximum dimension of less than 2.5 cm), natural flint fragments rather than bipolar technology shatter. *Heavily burnt pieces* cannot be definitely attributed to any artifact category due to their preservation state. At the same time, their very occurrence points to fireplace/hearth presence at the site, although the structures have not been found within the small excavated area.

3.2. Use-wear study of some Hlinsko lithics

A short use-wear study of some Hlinsko site lithic artifacts was realized by one of us (J.R-G.) in 2015 and 2016. The lithics were gently cleaned with water and soap, in case they presented soil deposits, and with alcohol (70º) applied with a cotton swab. The alcohol cleaning was repeated as many times as was necessary. The use-wear analysis was realized using a Nikon microscope and binoculars. The identification of the traces, including diagnostic impact fractures (DIF) was carried out following the criteria applied in Brno for Mohelno–Plevovce LGM UP lithic pieces (Rios-Garaizar *et al.* in press). The preservation of the lithic collection for use-wear analysis is poor. Most of the pieces present heavy weathering of the surfaces caused by chemical (patination) and mechanical processes (surface abrasion), which is why a micro use-wear analysis is a complicated issue. Nevertheless, a small sample of six pieces was analyzed. These were five non-retouched and retouched bladelets with apparent DIF and a single bifacial point. The analysis conclusively confirmed the presence of DIF in the two non-retouched bladelets (Fig. 2: 11–12) and in one of the retouched bladelets (Fig. 2: 16), while two other retouched microliths have probable projectile damage. All these bladelets tend to be rather wide (ca. 7 mm), and only one of the non-retouched pieces has a clear asymmetrical section. With this basic information, it can be proposed that these bladelets were used as parts for multi-composite hunting weaponry, but no more details about the position of the barbs (distal, lateral, oblique…) can be provided. The single bifacial point was also patinated and has clear traces of abrasion on both surfaces, suggesting kinetic contact with abrasive material, most probably particles of sediment. That is why any use-wear traces, if they were present, had no chance of surviving until today. Thus, there is no chance of a clue about any possible use of such a specific bifacial tool occurring together with the carinated burin-cores usually found within a European Late/Evolved/Recent Aurignacian context.

4. Some considerations regarding the Hlinsko–Kouty I assemblage and *"Morava-type Aurignacian / Míškovice-type industry"* industrial attribution and comparison data

The Hlinsko–Kouty I lithic assemblage can be summarized as follows. The well-excavated *in situ* lithic pieces demonstrate the same preservation state – often heavy patination from chemical processes and some surface/edge abrasion due to mechanical (sediment) processes. At the same time, no lithics with a different preservation state are present in the assemblage. Accordingly, in terms of the preservation state, the lithics do represent a homogeneous assemblage.

However, it is not easy to establish a homogeneous subject because of the assemblage's techno-typological data. The following techno-typological components are clearly defined for the assemblage.

1. Carinated burin-cores (4 pieces), including a flat-faced one of the Vachon sub-type with an unretouched bladelet refitted onto its front/flaking surface, indicate a Late/Evolved/Recent Aurignacian-like trait used for on-site *lamelle* reduction to obtain blanks for microliths then retouched for hunting projectile weaponry bearing a fine marginal or marginal backed abrasion dorsal retouch.

2. The single bifacial triangular point with two chips refitted onto it for its basal thinning process and two chips for its final body shaping process demonstrate the on-site terminal formation of the piece whose prepared preform was probably brought to the site. Though the point does not match any comparable triangular examples among the known stratified Moravian Early Szeletian points, it can still be considered a Szeletian-like/Szeletian *sensu lato* feature.

3. The presence of serial and morphologically diverse debitage pieces originating from bipolar anvil core reduction adds another special technological trait to the assemblage. This trait is especially worth noting here as previously we only knew of the bipolar anvil core reduction application for the Central European early Late UP of the LGM time period (e.g. the Mohelno–Plevovce and Rosenburg assemblages of the Epi-Aurignacian industry with Sagaidak–Muralovka-type microliths and the Ságvár assemblage of the Early Epigravettian) and not for chronologically earlier UP assemblages in the region.

4. Some unifacially retouched flakes, including the pieces additionally bearing burin-spall removal negatives, also constitute an archaic-looking industrial component greatly resembling Middle Paleolithic points and sidescrapers of various unifacial types.

5. Finally, the assemblage is of a non-blade technological character where most of the core and debitage and tool blank data point to the dominance of flakes with only a supportive role played by bladelets or microblades.

Thus, the complex industrial character of the "*Morava-type Aurignacian / Míškovice-type industry*" previously described by both B. Klíma and M. Oliva finds much support in what is currently the only known excavated *in situ* Hlinsko–Kouty I assemblage of this type. Only the previously claimed

Gravettian component for the "*Morava-type Aurignacian / Míškovice-type industry*", which is completely absent from the Hlinsko–Kouty I assemblage, should be approached with great caution. That is because the Gravettian traits were mainly added to the industry type by M. Oliva on the basis of some backed bladelet presence among lithics from the Boršice/Buchlovice – Elevation Marker 331 surface find spot, where it is also explained by a natural Gravettian admixture – "*because of the vicinity of the Gravettian site of Chráska, Gravettian hunters may have occasionally visited the hill*" (Škrdla 2005, 101). Excluding the very dubious Gravettian part, the industry type still appears to have the seemingly multi-industrial component structure described above for the Hlinsko–Kouty I assemblage.

As has already been proposed (e.g. Škrdla 2007, 38; Škrdla 2016, 6; Oliva 2017, 121–122), it is worth looking to the East at the East European UP record, where particularly the Kostenki–Streletskaya EUP industry type with its bifacial triangular points but with a concave base that is not present in the "*Morava-type Aurignacian / Míškovice-type industry*" triangular points "*could indicate some influence of the Kostenki-Streletskaya technocomplex from the east*" (Škrdla 2016, 6) on the Moravian UP industry.

Based on the presence of true Late/Evolved/Recent Aurignacian carinated burin-cores and retouched microliths with a fine marginal or backed abrasion dorsal retouch, some Szeletian-like or Szeletian *sensu lato* bifacial triangular and leaf-shaped points, and some unifacial sidescrapers and points of Middle Paleolithic appearance, as well as the general character given to the non-blade industry by some use of bipolar anvil core reduction, it is now possible to preliminarily propose the basic Late/Evolved/Recent Aurignacian attribution for the "*Morava-type Aurignacian / Míškovice-type industry*" with the addition of all the non-Aurignacian *sensu stricto* traits noted above (here we come back to B. Klíma's original attribution to some extent, but with a much greater data base for it) and to compare the Moravian EUP industry with assemblages from the East European UP record and, above all, from the so-called "Brînzeni / Pruth culture" sites (Brînzeni I, lower layer, Gordineşti I, Bobuleşti VI and possibly Trinca III) in Moldova, the Vys' site in central Ukraine and the Sungir and Garchi I, upper layer sites in European Russia, which have roughly the same "techno-typological package" again combining Aurignacian, Szeletian / Streletskian and Middle Paleolithic-like features. The detailed industrial attribution and East European comparison data and considerations will, however, be the subject of our next article.

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Resumé

Záchranný archeologický výzkum, realizovaný v roce 2006 v souvislosti s rozšiřováním kamenolomu u Hlinska (obr. 1), poskytl drobnou kolekci čítající pouze 139 artefaktů štípané kamenné industrie. Soubor je vyroben převážně z eratického silicitu, který byl importovám z oblasti kontinentálního zalednění severně evropského rozvodí u Hranic na Moravě. Ojediněle se vyskytl radiolarit z prostoru bradlového pásma, které lemuje moravsko- slovenské pomezí. V kolekci jsou mimo jiné přítomny artefakty charakteristické pro aurignacien v doprovodu drobného, oboustranně plošně opracovaného hrotu trojúhelníkového tvaru (obr. 2). Tato kolekce, která byla publikována již v roce 2007 (Škrdla 2007), byla nyní znovu detailně analyzována. Skládáním artefaktů byly získány dvě zajímavé sekvence: 1. čepelka přiložená na ploché karenoidální rydlo-jádro (obr. 3: 2), 2. čtyři formující/ztenčující úštěpy byly přiloženy na trojůhelníkovitý hrot (obr. 3: 1). Tyto sekvence dokládají formování zmíněných nástrojů na místě a podporují nejen hypotézu o homogenitě vlastní kolekce, ale současně i hypotézu o přítomnosti oboustranně plošně opracovaných hrotů trojúhelníkového tvaru v kontextu součásti aurignacké industrie. Homogenitu kolekce dokládá i výsledek traseologického studia – povrchy všech artefaktů mají shodný charakter. Kolekce zapadá do definice Pomoravského aurignacienu popsaného B. Klímou, respektive industrie míškovického typu ve smyslu prací M. Olivy. Jak již bylo konstatováno dříve, analogické industrie jsou známy ve východní Evropě.

Contacts

Yuri E. Demidenko
Department of Crimean and North-West Black Sea Region Archaeology
Institute of Archaeology National Academy of Sciences of Ukraine
Geroyiv Stalingrada Av. 12, Kyiv
UKR-04210, Ukraine
yu.e.demidenko@gmail.com

Petr Škrdla
The Czech Academy of Sciences
Institute of Archaeology, Brno
Čechyňská 363/19
CZ-602 00 Brno
ps@iabrno.cz

Joseba Rios-Garaizar
Consorcio CENIEH (Centro Nacional de Investigación sobre la Evolución Humana)
Paseo Sierra de Atapuerca 3
ESP-09002 Burgos, Spain
joseba.rios@cenieh.es

Ladislav Nejman, Lukáš Kučera. Petr Škrdla, Lenka Lisá, Šárka Hladilová, Miroslav Králík, Rachel Wood, Miriam Nývltová Fišáková, Duncan Wright, Marjorie E. Sullivan, Philip Hughes
2016 excavation of basal layers at Pod Hradem Cave and the finding of shell and amber

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The Hlinsko – Kouty I Site and the Only Stratified Aurignacian-like Assemblage With a Bifacial Triangular Point in Moravia

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Puzzling Pairs from Pavlov and Mortuary Diversity in the Mid Upper Paleolithic

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Modelování tras a prostorové aspekty římského tažení proti Marobudovi

Přehled výzkumů na Moravě a ve Slezsku 2017
Paleolit
Neolit
Eneolit
Doba bronzová
Doba železná
Doba římská a doba stěhování národů