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AT THE EDGE: ACHEULEAN IN THE MIDDLE OF EUROPE

"I could not trust my eyes, as in whole of Czechoslovakia one may count the hitherto discovered handaxes on fingers of one hand, and here (Adrar, Mauretania), tens of pieces are visible in one terrace section" (Strouhal 1971).

ABSTRACT: Whereas Africa clearly represents the core area of the Acheulean, Eurasia was occupied by this technocomplex only partly. In present-day Czech Republic, Slovakia and Poland the Acheulean creates a kind of eastern-exposed "peninsula" of the southwest European centers. Within the loess stratigraphies, patterns of prepared core technology first occurred as early as MIS 10 (Horký nad Jizerou) and individual Acheulean tool-types may possibly date to MIS 7 and 6 (Letky nad Vltavou, Předmostí?), but large and complex Acheulean assemblages originate from surface surveys only (Bečov II, IV, Stvolínky I–II). The Early Acheulean (with individual bifaces in context of various pebble and flake industries) is scarcely represented but wide-spread over central Europe, whereas the Evolved Acheulean (with Levallois technology) is more coherent, more dependent on certain raw materials (quartzite/flint) and its boundaries are more distinct. The paper also mentions the discrepancy between paleogeography of Acheulean techno/typology and the fossil human record.

KEY WORDS: Acheulean - Eastern Central Europe - Raw Materials - Technology - Typology - Human Expansion

INTRODUCTION

Acheulean paleogeography during the Lower and Middle Pleistocene represents one of the key questions in studies of early human dispersal and colonisation worldwide. Whereas Africa clearly represents the core area of the Acheulean, Eurasia was occupied by this

technocomplex only partly. External Acheulean boundaries, as outlined by Movius (1949; in the post-war terminology baptized *the Movius line*), are being precised for several decades (*Figure 1* above right). In terms of human dispersal and colonization, geographic distribution of the Acheulean technocomplex does not coincide with distinct human fossil taxa of

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Lower/Middle Pleistocene such as *Homo ergaster/erectus*, *H. heidelbergensis/rhodesiensis* and others. As one of the cases that document this discrepancy repeatedly through human evolution, it is difficult to interpret directly the Acheulean in terms of human migrations. Without trying to go deeper into these general discussions, this paper will focus on the archaeological situation in one of the borderland areas.

In Europe, the *Movius line* separates the classical Acheulean in the west and southwest from sporadic occurrences in center, southeast and east of the continent (Tuffreau, *ed.* 1996). Central Europe is one of the regions along the boundary (Bosinski 1967, Svoboda 1989, Valoch 1995, Fridrich 1997). Whereas

the simple, small-dimensional, pebble and flake technocomplexes are dispersed all over the region more or less regularly, the Acheulean clearly disappears from the west towards the east (*Figure 1*).

CHRONOSTRATIGRAPHIC BACKGROUND

The bifaces (handaxes) of early Acheulean type in various techno-typological contexts are documented in Germany from the beginning of the Middle Pleistocene, as at Kärlich-Seeufer (MIS 11/9; Bosinski 1995), but the well-defined Evolved Acheulean (*Jungacheuléen* sensu Bosinski 1967) in this region is

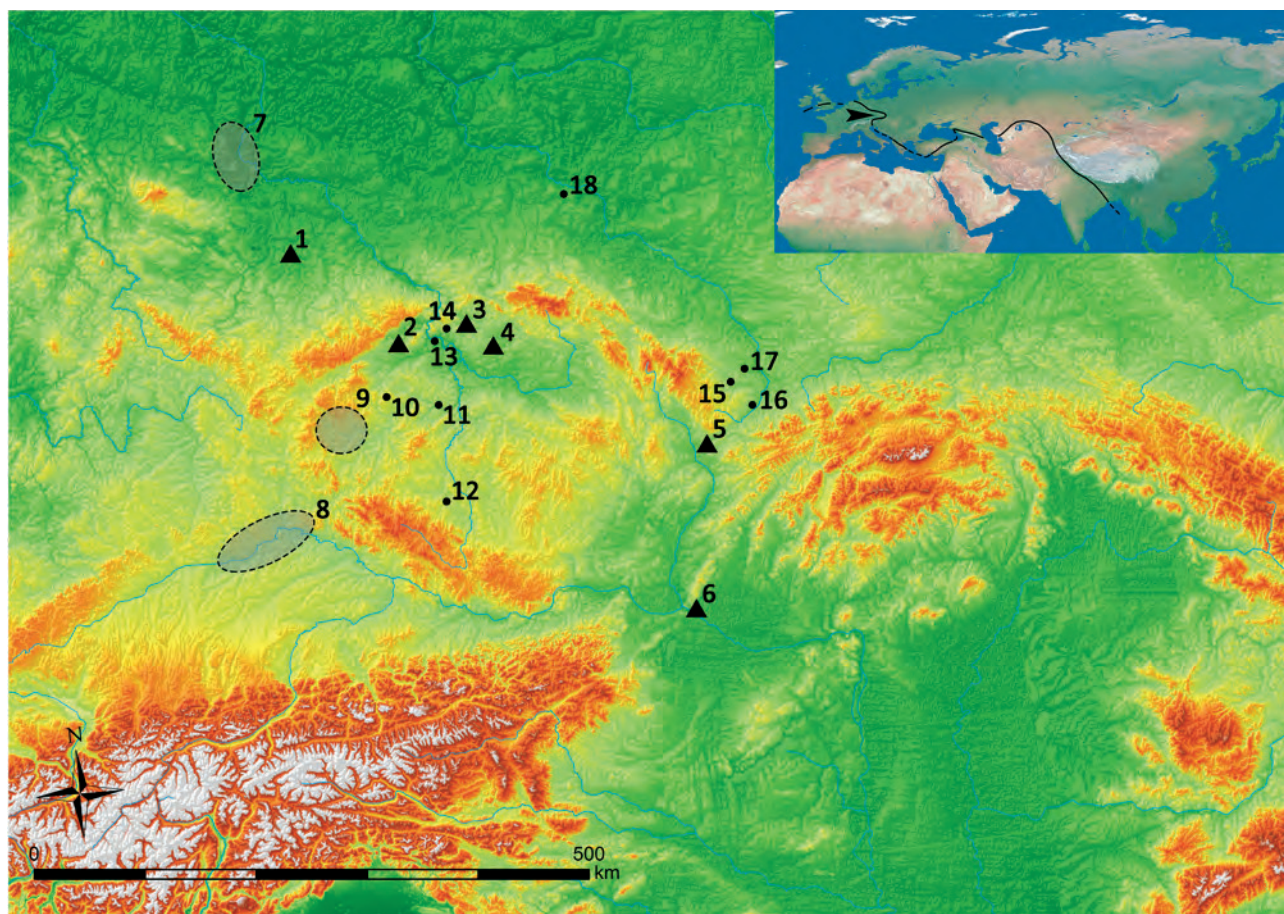


FIGURE 1: The Acheulean "peninsula" in the middle of Europe and the expected direction of the expansion (arrow). **Triangles:** sites discussed in the text. 1: Markkleeberg (D); 2: Bečov area (CZ); 3: Stvolinky area (CZ); 4: Horky nad Jizerou (CZ); 5: Předmostí (CZ); 6: Bratislava (SK). **Shaded areas:** concentrations of Acheulean finds. 7: Middle Elbe-Saale sites (D); 8: Upper Danubian sites (D); 9: West Bohemian sites (CZ). **Points:** individual Acheulean bifaces. 10: Mutějovice (CZ); 11: Srbsko (CZ); 12: Putim (CZ); 13: Křešice (CZ); 14: Konojedy (CZ); 15: Bohuslavice (CZ); 16: Polanka nad Odrou (CZ); 17: Owsiszczce (PL); 18: Kondradówka (PL).

mostly related to fluvial deposits of Drenthe age (approximately MIS 8), or to the very base of these terraces (MIS 8/9), as at Markkleeberg (Baumann, Mania 1983, Schäfer *et al.* 2004).

Further east (modern Czech, Slovak and Polish Republics, including historical lands of Bohemia, Moravia and Silesia; cf. Fridrich 1982, Kaminská 2014, Wiśniewski 2006), the key Middle Pleistocene sections with archaeological contexts include variety of small-dimensional, pebble and simple flake industries, as at Račíněves (Fridrich, Sýkorová 2003), Karlštejn (Smolíková, Fridrich 1984), or Červený kopec (Svoboda *et al.* 1998). Bečov, the most important Lower/Middle Paleolithic sequence in Bohemia (Fridrich 1982, 1997), provided stratigraphic evidence of undiagnostic Lower Paleolithic (site I-B) and several layers of Middle Paleolithic Mousterian (site I-A), but the Acheulean assemblages were only collected at surface locations around (sites II and IV).

Within the loess-and-paleosol sections of the Czech Republic (e.g. Kukla 1975) only rare indications of an Acheulean occupation may be encountered. The site complex at Horky nad Jizerou (Šída *et al.* 2015) produced a flake industry with patterns of prepared-core (or, Levallois) technology and some flat retouche as early as MIS 10, but typical Acheulean tool-types are absent at this site. Letky nad Vltavou (*Figure 8: 1*, Fridrich 1982) provided a small lithic assemblage dominated by a cleaver made on massive flake, probably from the MIS 7 paleosol ("collected by Prošek below the profile, but there was still an imprint in the paleosol level", Fridrich, pers.comm.). Předměstí, an important Middle Paleolithic site complex in Moravia, yielded two larger bifaces 6m deep in loess (MIS6?) below the "reddish paleosol" of the last interglacial (MIS 5, which also provided smaller foliate bifaces; Svoboda *et al.* 1996). However the two above-mentioned specimens are now lost and only rough sketches were published at the time of discovery (Knies 1929). In summ, the larger and typically Acheulean assemblages in these territories mostly originate from surface surveys or other unsecure contexts (*Figure 1*).

TECHNO-TYPOLOGICAL CONTENT

When approaching the Acheulean in terms of techno/typology, several situations are encountered:

- complex lithic assemblages: Bečov II, IV, Stvolínky I (Fridrich 1982, 1997, Fridrich, Sýkorová 2005, Svoboda 1980)
- assemblages based on prepared core (Levallois) technology and patterns of bifacial technology, but without diagnostic Acheulean tool types: Horky nad Jizerou, Stříbro and other west Bohemian sites, Stvolínky II (Bricháček, Šída 2015, Šída *et al.* 2015)
- diagnostic bifaces or unifaces: Křešice, Mutějovice, Srbsko, Putim, Konojedy, Bratislava, Modletice, Hrotovice, and others (Fridrich 1982, Oliva 1981, Svoboda 1989, Valoch 1980, Wiśniewski 2006, this paper)
- diagnostic cleavers: Letky nad Vltavou, Srní (Fridrich 1982, this paper).

THE EARLY ACHEULEAN PROBLEM

Possible bifacial or, rather, "proto-bifacial" artifact forms occur in certain early Middle Pleistocene lithic assemblages of Central Europe (Kärlich-Seeufer in western Germany, Bosinski 1995). Other assemblages pose problems due to difficult readability of coarse lithic materials (Přezletice in central Bohemia with "proto-bifacial" forms; Fridrich 1997), lack of diagnostic tool-types (south Moravian assemblages; Valoch 2000), and possibly a natural origin of some of the examined collections and pieces.

Here we add another, little known site in the Danube valley in west Slovakia.

Bratislava (W Slovakia). During the 1980's Bohuslav Novotný announced me finds of archaic lithic industries collected on the plain above Mlýnská dolina, west of the city center of Bratislava. In the basement sections of a newly constructed University faculty we observed fluvial deposits (at 250–260 m a.s.l.) overlain by reddish clays of unknown age. A crude handaxe made on a quartz plaque, showing partial flat retouches alternatively from both faces, was the most typical artifact (*Figure 2: 1*; preliminary publication in Svoboda 1989, fig. 6). Associated specimens were made of river pebbles of various materials, such as simple choppers (*Figure 2: 2–3*) and flakes. Some are difficult to separate from natural pieces due to fluvial transport, intensive erosion, or both.

In 1992, Hromada and Cupper added another, unifacial handaxe, with a pebble cortex on the back. The location of the findspot was nearby, and in a position overlying the highest (Mindelian?) river terrace. Again, more or less dubious artifacts of river pebbles were associated. This second implement entered in the synthesis of the Slovak Paleolithic by Kaminská (2014, fig. 3).

In summ, it is to be regretted that the Bratislava Lower Paleolithic site could not be surveyed more systematically. In the context of other simple (archaic) bifaces from German sites such as Kärlich-Seeufer, these finds suggest that Early Acheulean handaxes may be associated to a wider range of simple, small-dimensional or larger flake industries, without evidence of core preparation techniques.

THE EVOLVED ACHEULEAN

Evolved Acheulean industries (*Jungacheuléen* sensu Bosinski 1967), with elaborate bifaces in context of the Levallois technique, occur in central Europe during later Middle Pleistocene as a more coherent entity. In contrast to the little known Early Acheulean, these assemblages represent technological systems based on bifacial and Levallois techniques. Sometimes, technical problems may arise with distinguishing prepared pre-core forms from curated bifacial tools. The earliest assemblage with this technology in our territory, Horky nad Jizerou, lacks typical handaxes and cleavers (Šída *et al.* 2015).

The Bečov area (NW Bohemia, Czech Republic). The "Sandy Hill", a Cretaceous and Tertiary elevation

near Bečov (317 m a.s.l.) represents a primary outcrop of whitish ("sugar-like") quartzites of the Bečov-type and porcelanites (used as ochre). The area was explored since 1964 by K. Žebera and J. Fridrich. Site Bečov I is an abandoned quarry southern slope of the hill with important stratigraphic sequences (Fridrich 1982, Fridrich, Smolíková 1973). However the Acheulean evidence comes from extensive surface sites around. Basing on techno/typological grounds, there is no reason why any of these sites should be earlier than others.

Site Bečov II is located NW of the Sandy Hill where it covers an area of 450×350 m. Obviously, it follows fluvial deposits of the Brvanský vrch terrace (238–240 m a.s.l.), dated to the beginning of the paleomagnetic Brunhes Period. Intensive surface surveys in this area provided a published assemblage of almost 1,500 pieces of local quartzites (the Skršín-type) supplemented by several thousands of pieces from additional surveys. There are typical cordiform and triangular bifaces, flat cores of the Levallois type, and flakes, partly retouched (Figure 3; Fridrich 1997). Flakes of the Kombewa type are also present (Fridrich 1997, fig. 51.1–2). This industry is supplemented by simple pebble tools, especially

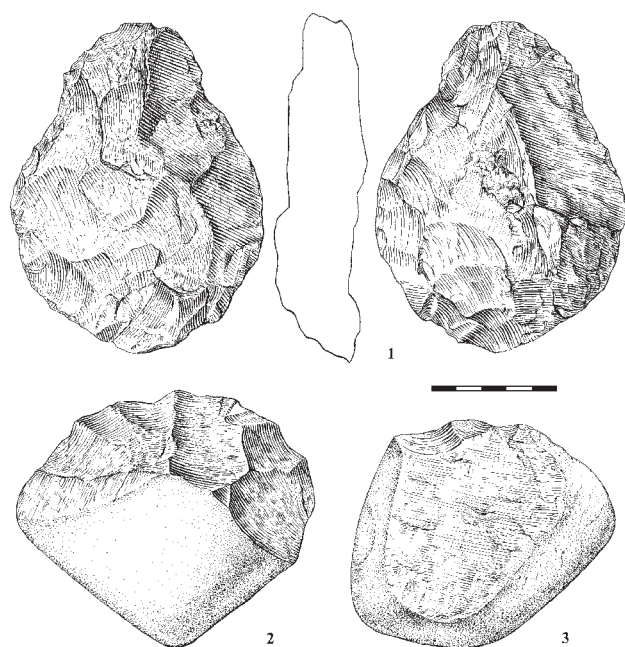


FIGURE 2: Early Acheulean, Bratislava – Mlýnská dolina. 1: handaxe, quartz; 2–3: choppers, various materials. The artefacts provided by B. Novotný, drawing by B. Ludíková.

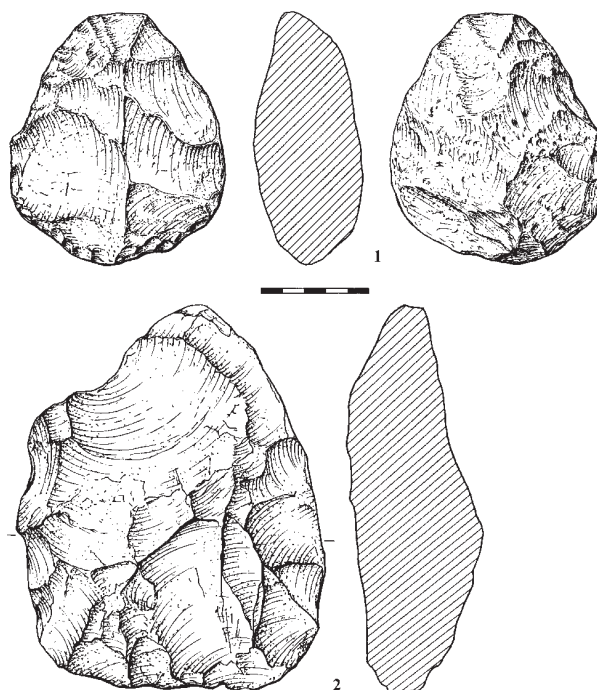


FIGURE 3: Evolved Acheulean, Bečov II. 1: handaxe; 2: Levallois core, both quartzite. Drawing by J. Fridrich.

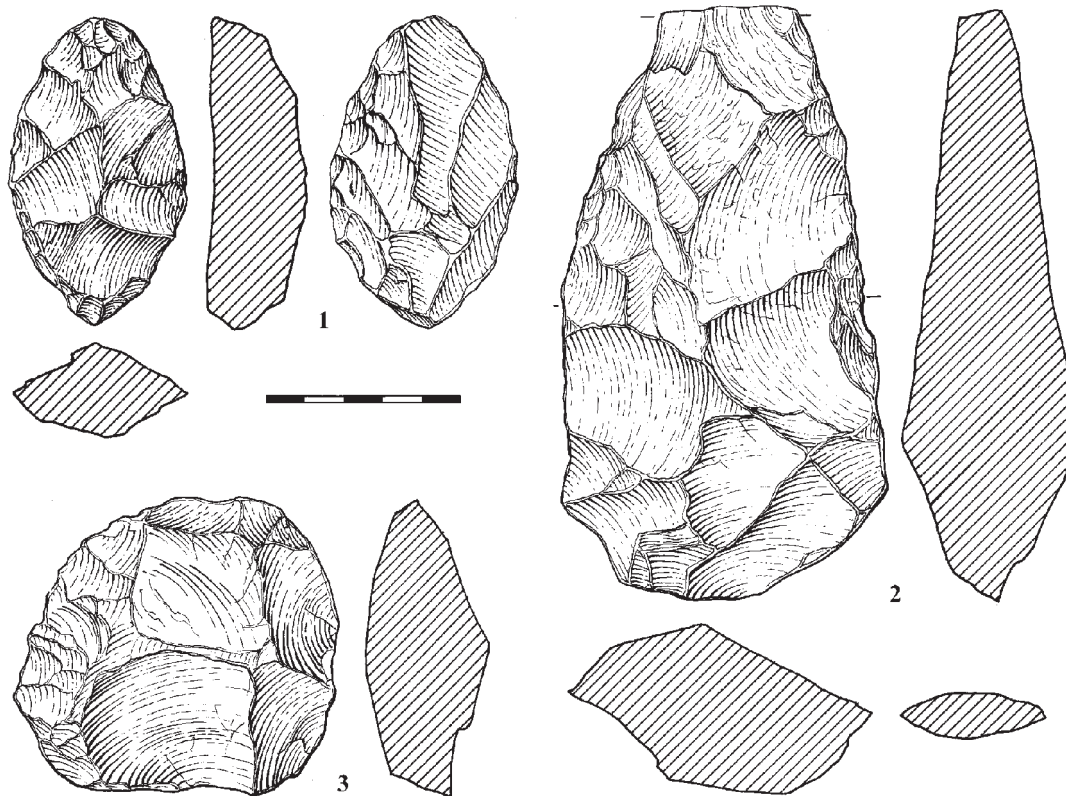


FIGURE 4: Evolved Acheulean, Bečov IV. 1: foliate biface; 2: handaxe; 3: core, all quartzite. Drawing by J. Fridrich.

choppers (their archaic character was one of the reasons to suspect an earlier age of site II compared to site IV).

Site Bečov IV lies on an extensive plain south of the Sandy Hill, measuring about 500×500 m (250 m a.s.l.), and attached to nearby water springs. Surface survey provided large assemblage (more than 5,000 pieces) made predominantly of local quartzites (the Bečov-type) and supplemented by the Skršín-type quartzites, porcelanites, and basalts. It includes elongated, cordiform and foliate bifaces, flat cores of the Levallois type, a typical polyhedral core and numerous flakes, some of them retouched (Figure 4; Fridrich 1982, Fridrich, Sýkorová 2005).

The Stvolínky - Holany area (N Bohemia, Czech Republic). The area of Cretaceous sandstone basin along the Bobří (Beaver) Creek, with several present-day ponds, has been surveyed on surface since 1972. Accumulations of lithic artifacts were recorded on small sandstone elevations around the ponds (Svoboda 1980).

Site Stvolínky I, the most important one, lies on a slight SE-exposed sandstone elevation in an area of 200×100 m (around 280 m a.s.l.) above the Bobří Creek and the Dolanský pond. Large, up to 1 m long quartzite blocs occur in the area, especially on top of the elevation. The collected assemblage includes 270 artefacts made of quartzite (90 %) and quartz (10 %). The diagnostic type is a triangular biface with cortical base (Figure 5: 1). There is evidence of core preparation, flat cores of Levallois forms (Figure 5: 6-7) and a voluminous polyhedron (Figure 6: 1). Some flakes display platform preparation, three flakes recall Levallois points (Figure 5: 2-4), one documents the Kombewa technique (Figure 5: 5), and others are retouched (notches, denticulates, sidescrapers and endscrapers). The quartz component was made of local pebbles (simple choppers and flakes).

Within the radius of 3-12 km around the site, smaller assemblages composed of cores and flakes document the same technology (Stvolínky II, Holany I and II), and isolated Acheulean artefacts in the same region complete the picture.

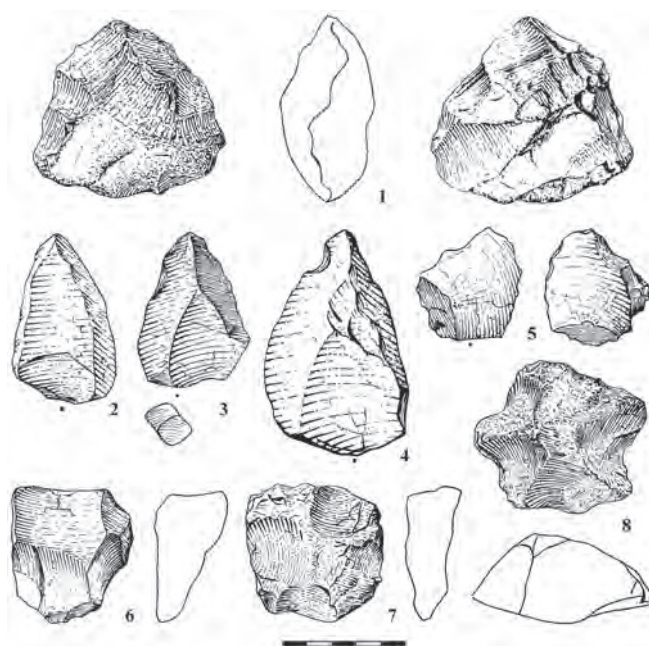


FIGURE 5: Evolved Acheulean, Stvolínky I. 1: handaxe, quartzite; 2-8: selected industry, quartzite and quartz. Drawing by the author.

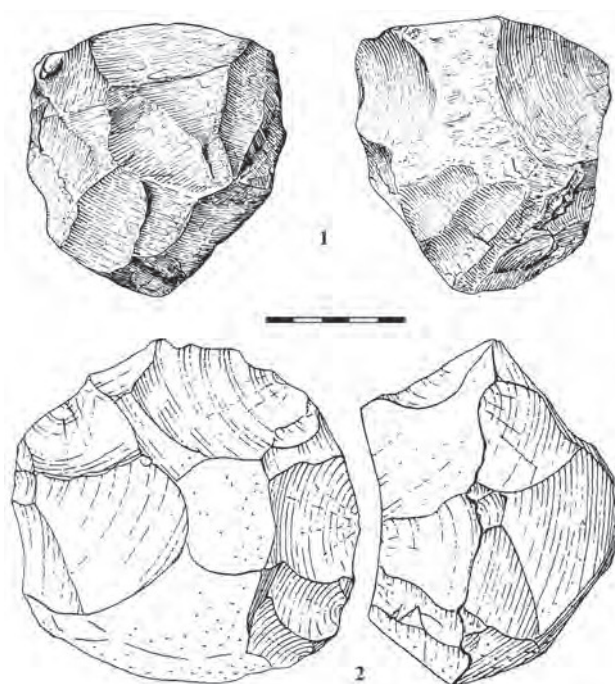


FIGURE 6: Voluminous polyhedric cores. 1: Stvolínky I; 2: Holany II, both quartzite. Drawing by the author.

OTHER SITES

Larger lithic assemblages without typical bifaces, classified as Evolved Acheulean due to context and application of the Levallois technique, were found at Stříbro, Bělá, and other sites in western and northern Bohemia (Fridrich 1982, Břicháček, Šída 2015).

Solitary bifaces or smaller Acheulean collections are more frequent in the adjacent parts of Germany (Bavaria and Saxony-Anhalt). In Bohemia (western Czech Republic), solitary handaxes of typically Acheulean forms, lanceolate or cordiform, and sometimes with cortical base, occurred at Mutějovice, Srbsko, Putim, Křešice, Konojedy, and other sites (Fridrich 1982, this paper, *Figure 7: 1*). Quartzite or quartz, as most typical raw materials, relate these finds to their western parallels. In Silesia (Poland and eastern Czech Republic), analogical finds are recorded from Konradówka, Owsiszczce, Polanka and Bohuslavice (Wiśniewski 2006, Svoboda *et al.* 1991); these are mostly made of nordic flint. In addition, there are also solitary finds of unifaces (Modletice and Hrotovice in the Bohemian-Moravian Highland, *Figure 7: 2*) and cleavers (Letky nad Vltavou and Srní, *Figure 8*).

Elsewhere in southern Poland, in Moravia and Slovakia, classification of individual bifaces (Pietraszyn, Dzierzysław, Karolín, Určice, Kadov, etc.) becomes even more difficult (Valoch 1980, Oliva 1981, Wiśniewski 2006). These regions provide an extensive evidence of later bifacial technologies such as the Micoquian, with slightly smaller and asymmetrical bifacial forms and foliates, made of a variety of local materials (caves of the Moravian and Krakowian karsts). In addition, there are extensive Middle and Early Upper Paleolithic workshops, located directly at the raw material outcrops, with numerous bifacial pre-forms (Bořitov and Jezeřany areas). Thus in context of surface surveys in these regions, we lack a methodology for separation of Acheulean from later bifacial technocomplexes.

CONCLUSION

Chronostratigraphy. Within the broader interval of the Middle Pleistocene, it is difficult to propose a direct dating of these eastern peripheral Acheulean sites (in contrast to the dated small-dimensional industries such as Račiněves, Bilzingsleben and Vértesszölös which mostly belong to the temperate periods of the Middle

Pleistocene MIS 11 and 9). In this respect, the French and German chronologies serve as points of reference. In Germany, Early Acheulean typological features appear in warm period deposits (MIS 11 and 9) while several Evolved Acheulean sites were found in context of the subsequent cold-period fluvial gravels of the Middle Pleistocene (so-called *Bagger-Acheuléen*; Toepfer 1981). Markkleeberg, as the easternmost one, dates to the transitional temperate/cold period MIS 9/8 (Bauman, Mania 1983, Schäfer *et al.* 2004).

Within the loess stratigraphies located along the eastern periphery, patterns of prepared core technology occurred as early as MIS 10 (Šída *et al.* 2015) and individual Acheulean tool-types may possibly date to MIS 7 and 6. However the large and complex assemblages, with diagnostically Acheulean types and Levallois technology, originate from surface surveys only. This situation only allows us to distinguish scattered Early Acheulean evidence from the better documented Evolved Acheulean complex; any finer techno/typological divisions are questionable.

Raw materials. The potentially earliest assemblages with bifaces probably used local materials such as

quartz, chert, kiesel-schiefer or andezite, regardless of their lower quality.

After the Evolved Acheulean horizon has been established in the highlands of southern part of central Europe, the basic material became the quartzites, available in various outcrops from east France to south and central Germany and Bohemia – hence the German term *Quarzit-Paläolithikum* (Toepfer 1981). In fact, abundance of material was a precondition for extensive usage of the prepared core technology, as documented at Reutersruh or Teufelsmauer, for example (Luttrupp, Bosinski 1971, Toepfer 1981). In Bohemia, the primary deposits are at Bečov (Bečov-type of „sugar-like“ appearance, Figure 9), Skršín (Skršín-type quartzite), and accumulations of similar quartzite blocs and boulders occur in the Stvolínky-Holany area (Stvolínky-type quartzite). At certain sites, quartz was collected from nearby fluvial gravels and the pebbles served as a supplementary raw material.

In northern plains of central Europe, various silicites ("flints") of glacial origin become the dominant raw material. A typical example is the assemblage from Markkleeberg in Saxony, and a number of isolated handaxe finds extend further east, from Saxony-Anhalt to Silesia.

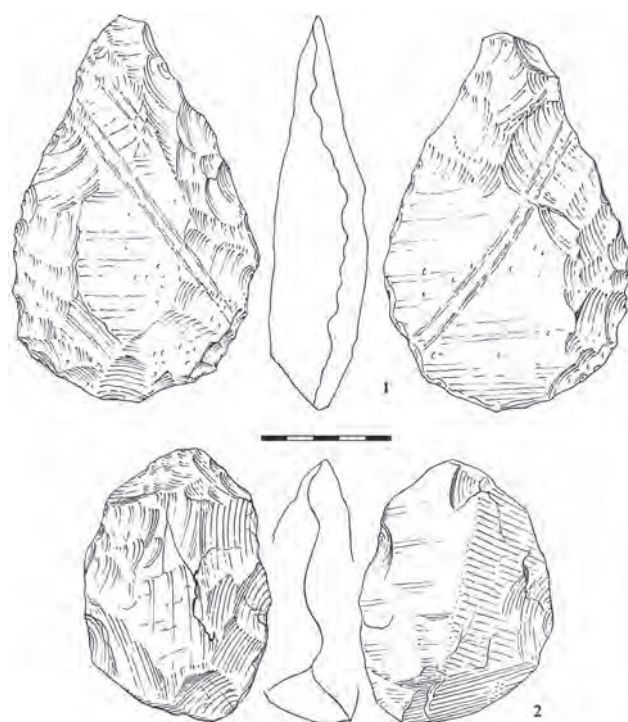


FIGURE 7: Isolated finds of bifaces and uniface. 1: Konojedy, quartzite; 2: Modletice, quartz. Drawing by the author.

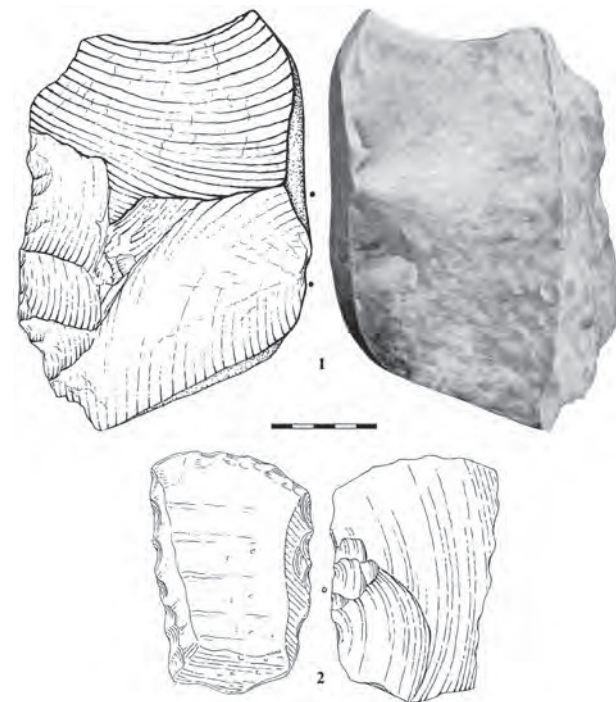


FIGURE 8: Isolated finds of cleavers. 1: Letky nad Vltavou (probably MIS 7); 2: Srní (surface find), both quartzite. Drawings by J. Fridrich, J. Izera, and the author.

Technology. The Early Acheulean bifaces, as at Bratislava (*Figure 2: 1*), are associated to pebble cores, choppers and simple flakes, without evidence of any core preparation techniques.

In contrast, the Evolved Acheulean assemblages clearly document standardized bifaces in context of prepared-core technologies, including the Levallois technique. Large quartzite blocks suit best to such extensive mode of production. Most of the described assemblages are of primary workshop character, as documented both in core and flake components. Some of these assemblages also prove the Kombewa technique as the cleaver from Srní, which, in fact, turns into a large flake core showing a subsequent flake negative (*Figure 8: 2*), or the Kombewa flakes from Bečov II, Stvolínky I a II showing two subsequent bulbs from the both faces (Fridrich 1997, Svoboda 1980).

Simple pebble and flake industries may enter as supplementary component at any of these sites. In this

case, flaking technology is direct, without preparation, and some flakes are "citrus"-shaped.

Typology. Whereas the early Acheulean industries only provide simple, partly cortical handaxes as diagnostic artifacts, associated to unstandardized or even dubious pieces (Bosinski 1995, Svoboda 1989, Valoch 2000), in the Evolved Acheulean sites the bifaces and cleavers make part of standard typological contexts in the sense of Bosinski (1967). Associated are sidescrapers, endscrapers, notches and denticulates.

Structure of the Acheulean expansion. On a world-wide perspective, Acheulean is one of the cases when the geographic distribution of human anatomical types does not coincide with distinct lithic industries. Acheulean origin relates to the *Homo ergaster/erectus* clades in Africa during the Lower Pleistocene. During the Middle Pleistocene, *Homo heidelbergensis* appears as the dominating species in Acheulean context in Europe, while *Homo erectus* was the main producer of



FIGURE 9: Boulders of the whitish ("sugar-like") Bečov-type quartzite in the Bečov area. Photo by the author.

the non-Acheulean industries in east Asia. Possibly the long time-span of the Middle Pleistocene, rhythmical climatic changes, and the related processes of human migration and acculturation may explain why there are so many exceptions from this rule in Eurasia.

Acheulean paleogeography in present-day Czech Republic, Slovakia and Poland creates a kind of eastern-exposed "peninsula" of the western European centers (Figure 1). Early Acheulean is scarcely represented but wide-spread over the area. The Evolved Acheulean is more coherent and its boundaries more distinct. Basing primarily on lithic raw materials, two west-east oriented streams may be observed at this stage: in Bohemia, bifaces are mostly made of quartzite or quartz similarly as in several regions of Germany, while the Silesian finds are made of Nordic flint and may be compared to similar specimens from Saxony-Anhalt.

NOTE

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