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*Archaeologia historica*. 2023, vol. 48, iss. 1, pp. 209-218

ISSN 0231-5823 (print); ISSN 2336-4386 (online)

Stable URL (DOI): <https://doi.org/10.5817/AH2023-1-9>

Stable URL (handle): <https://hdl.handle.net/11222.digilib/digilib.78537>

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Access Date: 28. 11. 2024

Version: 20230912

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## A NEW FIND OF A GREAT MORAVIAN DECORATED BATTLE-AXE HEAD FROM ZNOJMO-OBLEKOVICE

ALENA NEJEDLÁ – TOMÁŠ VLASATÝ – JIŘÍ HOŠEK

**Abstract:** *The article deals with a new find of a decorated battle-axe head, which can be dated with a high degree of certainty to the Great Moravian period. The axe head was found in the Oblekovice cadastre in Znojmo in 2021 during metal detecting and handed over to the South Moravian Museum. Subsequent prospection of the site surroundings did not reveal any other related finds. In Moravia, the Oblekovice axe head is unique for its decoration.*

**Keywords:** *bearded battle-axe head – Great Moravian period – Middle Ages – Znojmo-Oblekovice – axe-head decoration.*

### *Nový nález velkomoravské zdobené bojové sekery ze Znojma-Oblekovic*

**Abstrakt:** *Článek se zabývá novým nálezem zdobené bojové sekery, kterou lze s vysokou mírou jistoty datovat do velkomoravského období. Sekera byla nalezena na katastru Oblekovic ve Znojmě v roce 2021 detektorářem kovů, který ji předal Jihomoravskému muzeu. Následná prospekce okolí naleziště neodhalila žádné další související nálezy. Svou výzdobou je oblekovická sekera v rámci Moravy ojedinělá.*

**Klíčová slova:** *bojová sekera bradatice – období Velké Moravy – raný středověk – Znojmo-Oblekovice – výzdoba sekery.*

## Introduction

In May 2021, a metal-detector find of a unique axe head was made in the Oblekovice cadastre in Znojmo and handed over to the South Moravian Museum (Fig. 1). What makes this find exceptional is the axe head decoration and the location of the discovery, since Great Moravian finds associated with the then-important stronghold of Znojmo come almost exclusively from the opposite side of the city. The weapon was found at a depth of 20 cm in forest soil and classified as a surface find. Unfortunately, more detailed information was not provided by the collaborating metal detectorist.<sup>1</sup>

## Circumstances of the find

The find was made near “Palice” Hill, the western and northern parts of which are surrounded by the Thaya River flowing towards the east. The elevation of the promontory is separated from the find spot by a shallow depression, which is still visible among the forested slopes but was levelled by agricultural work in the adjacent field. There is also a spring nearby.

We returned to the site in the spring of 2022 and conducted a detailed metal-detector survey.<sup>2</sup> The aim was to check whether other finds from the Great Moravian period can be uncovered in the surroundings. Unfortunately, no other artefacts that could be related to the axe head were discovered.

## Description of the find

The shape of the Znojmo-Oblekovice battle-axe head is traditionally referred to as the Great Moravian bearded axe with long pointed lugs (Figs. 2 and 3). The head is preserved in a nearly

<sup>1</sup> Protocol on the acceptance of archaeological find No. 1/2021.

<sup>2</sup> We would like to thank Mr. P. Kiš, M. Přeč and Z. Petz for their cooperation.

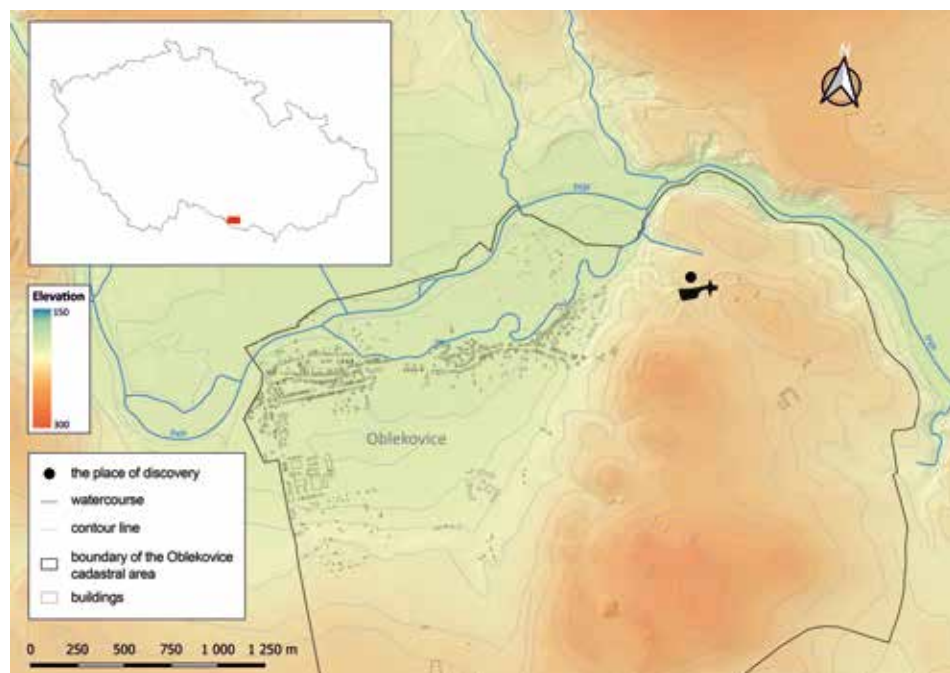


Fig. 1. Oblekovice (Znojmo district). Map indicating the place of discovery of the battle-axe head. Edited by D. Rožnovský.  
Obr. 1. Oblekovice (okr. Znojmo). Mapa s vyznačením místa nálezu sekery. Autor mapy D. Rožnovský.



Fig. 2. The battle-axe head before conservation. © SMM archive in Znojmo; photo by F. Drybčák.  
Obr. 2. Sekera ve stavu před konzervací. © Archiv JMM ve Znojme; foto F. Drybčák.

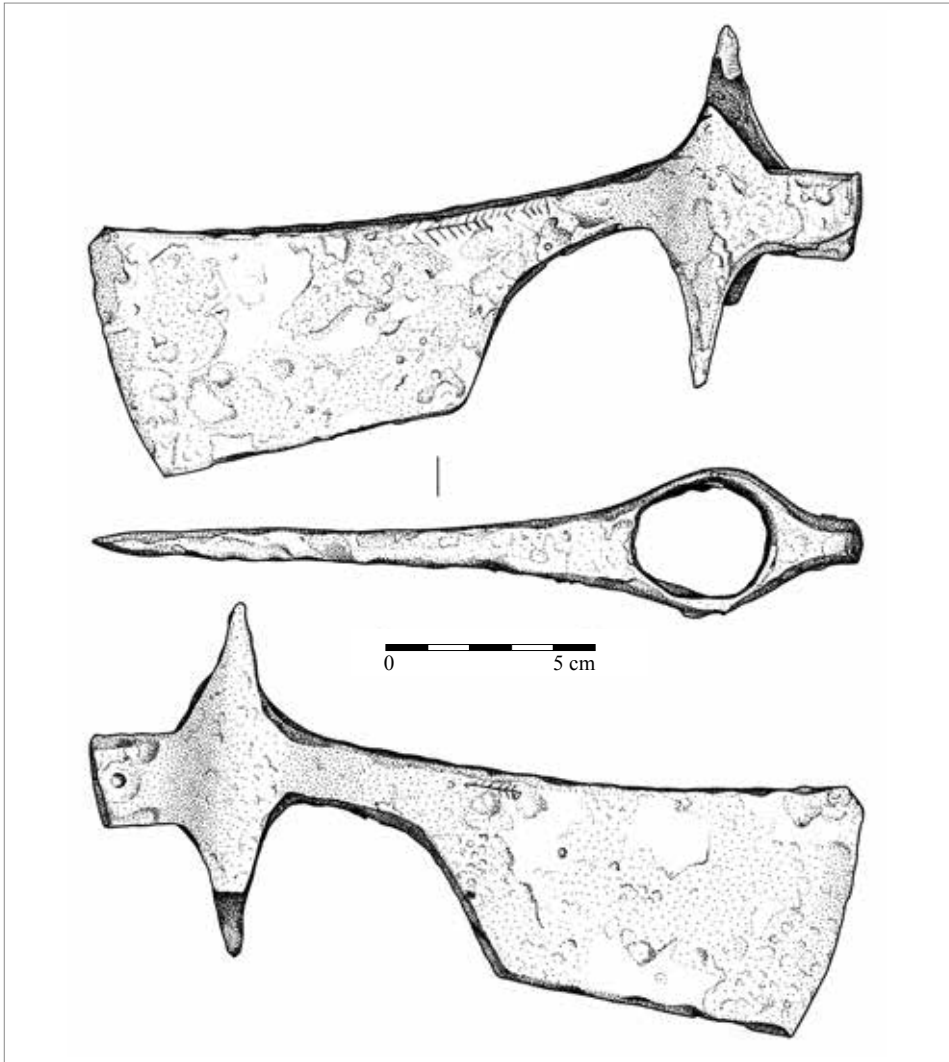


Fig. 3. Drawing documentation of the battle-axe head before conservation. Drawing by Z. Vejtasová.

Obr. 3. Kresebná dokumentace sekery před konzervací. Kresba Z. Vejtasová.

intact state, its total length reaches 189 mm, and the weight before conservation was 327 grams. Although the axe head was not handed over to the museum in its find condition, it is clear that no organic residues (shaft wood, textile or leather) were preserved in the corrosion products. At the upper edge of the blade, however, traces of decoration were visible to the naked eye (Fig. 4); the decorative motif was later documented using X-ray computed tomography (X-ray CT).

### ***Metric data***

Following the terminology and concept of metric description introduced for early medieval axe heads by P. Kotowicz (2014, Fig. 1), the axe head from Oblekovice has total length of 189 mm and

its blade is 61 mm high (see Kotowicz 2014, Fig. 1:a, b). The minimum height of the head-neck is 16 mm and the height of the eye reaches 22 mm (see Kotowicz 2014, Fig. 1:c and Fig. 1:e, respectively). The eye hole is ovoid in cross-section and broadens slightly upwards – it measures 32 × 29 mm at the upper mouth and 31 × 28 mm at the lower mouth (see Kotowicz 2014, Fig. 1:g). The width of the eye is c. 34 mm (see Kotowicz 2014, Fig. 1:d). The eyes of Great Moravian bearded axe heads were created either by punching (Kotowicz's variant 1, Kotowicz 2018, 25, Fig. 5:1; see also Pleiner 1962, 33, Fig. 45) or less often by forge-welding (e.g. Kotowicz's variant 5, Kotowicz 2018, 27, Fig. 5:5; see also Pleiner 1967, 79, Abb. 1). In our case, however, the X-ray CT inspection did not enable a determination of the employed method. The form of the hole indicates that the wooden shaft was slid into it from above (Kotowicz 2018, 147, Pl. XIX–XXIV; Poláček et al. 2000, 199, Abb. 22–27). The angle between the handle and the upper edge of the blade was less than 90° (roughly 85°), so the blade inclined slightly downwards, which increased its penetrating power. The side walls of the eye are provided with triangular lugs pointing upwards and downwards. The preserved span of the lugs is 68 mm on the left side and 66 mm on the right, but the original span on either side can be estimated at roughly 90 mm (see Kotowicz 2014, Fig. 1:f). The thickness of the lugs tapers from c. 2–3 mm to 1–1.5 mm at their ends. The outside surface of the lugs is rather rounded in horizontal view, i.e. the lugs are not provided with a distinct central rib. The rear part of the battle-axe head, the hammer poll, is 21 mm long when measured from above (see Kotowicz 2014, Fig. 1:i) and 18 mm when measured from below. The hammer poll broadens in front view towards its end, which is slightly rounded, 23 mm high and 9 mm wide. In the horizontal view, the poll takes a shape slightly resembling an hourglass.

### **Decoration**

Both sides of the axe head bear below the upper edge fragmented decoration visible to the naked eye and taking the form of a strip with a simple herringbone pattern running towards the blade on the left cheek and towards the eye on the right cheek. The weapon was therefore subjected to an X-ray CT inspection,<sup>3</sup> which revealed on both sides a continuation of the decorative motif in a short section below the upper edge of the blade and at the rear arc-shaped edge of the beard; see Figs. 5:a and 6. These strips converge at the narrowest part of the blade – the neck near the eye hole (Fig. 5:b, c) – where five (perhaps six) vertical bands with oblique lines together forming a more complex ('SZSZS' or perhaps 'SZSZSZ') herringbone pattern were also detected.

The cutting edge, the bottom edge of the beard, the hammer poll and the lugs did not show any traces of decoration. Likewise, no other mark or ornament was revealed on the axe head. The total proven extent of the decoration is shown in Fig. 7.

It seems the decoration was created using a small hand fuller (see Kotowicz 2018, 37 for the technique); the grooves are shallow and the decoration must have suffered considerably from corrosion. Based on a pXRF analysis, we can state that the grooves forming the decoration were not filled with non-ferrous metal.

### **Chrono-typological analysis and discussion**

The weapon belongs to light battle-axes, the blades of which are inclined slightly downward relative to the shaft axis. J. Poulík (1948, 33) and M. Hanuliak (2004, 145–146) classify this form as type I, according to the classification of V. Hrubý (1955, 170, Fig. 28:1), B. Dostál (1966, 70), A. Ruttkay (1976, 306–307) and P. Luňák (2018, 126–127), the axe head corresponds to type IA, according to A. Nadolski (1954, 41, Tab. XIII.3) to type Id, and A. Bartošková (1986, 7, Fig. 1) refers to it as IV.Ac. The most accurate classification system introduced so far is Kotowicz's combination

<sup>3</sup> Data for X-ray computed tomography was obtained using the Testima X-Test universal X-ray system (provided with a detector with resolution of 200 µm) using a primary X-ray generator (set in the mode for a maximum voltage of 225 kV, maximum power of 800 W and a focus of 0.4 mm.)



Fig. 4. Detail of decoration visible on the corroded surface of the battle-axe head. © SMM archive in Znojmo; photo by F. Drybčák.

Obr. 4. Detail výzdoby patrný na zkorodovaném povrchu sekery. © Archiv JMM ve Znojmě; foto F. Drybčák.

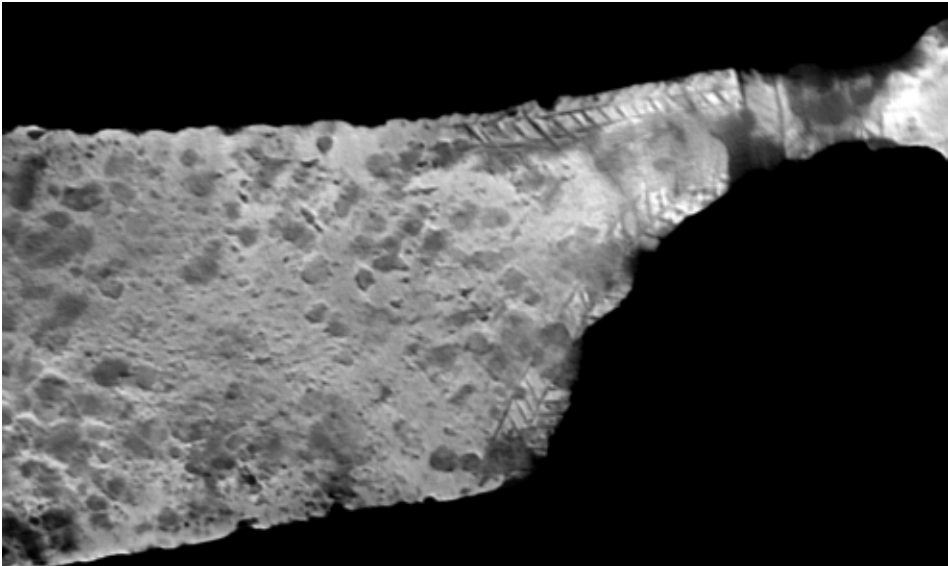


Fig. 5. Decoration of the part of the battle-axe head visible in a tomography non-planar section. X-ray computed tomography (X-ray CT); J. Hošek.

Obr. 5. Výzdoba části sekery viditelná v neplanárním tomografickém řezu. Rtg. výpočetní tomografie; J. Hošek.

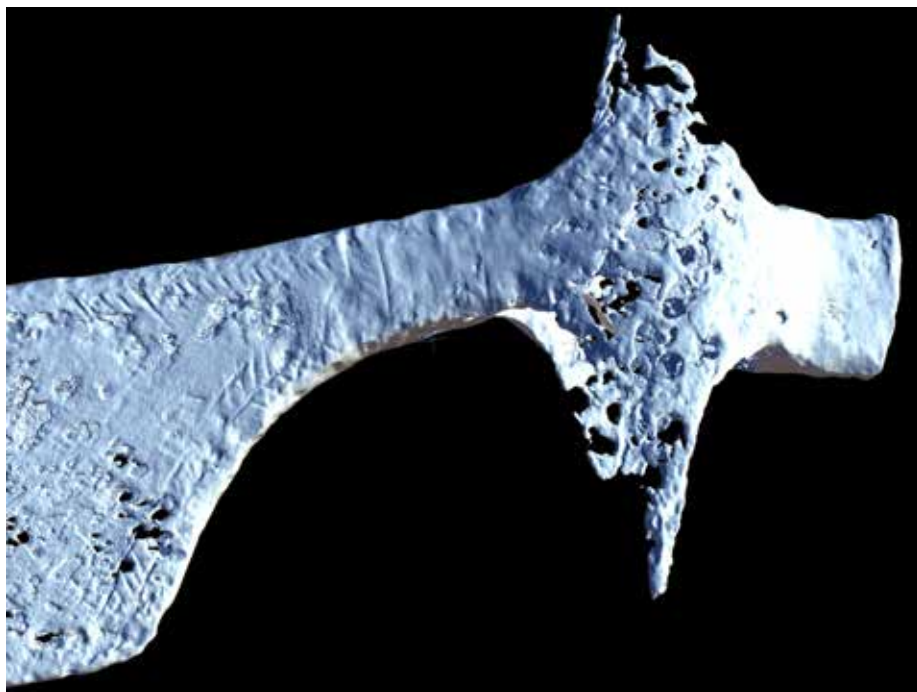


Fig. 6. A 3D CT model of the battle-axe head with partially revealed decoration. X-ray CT; J. Hošek.

Obr. 6. Trojrozměrný tomografický model sekery s částečně odkrytou výzdobou. Rtg. výpočetní tomografie; J. Hošek.

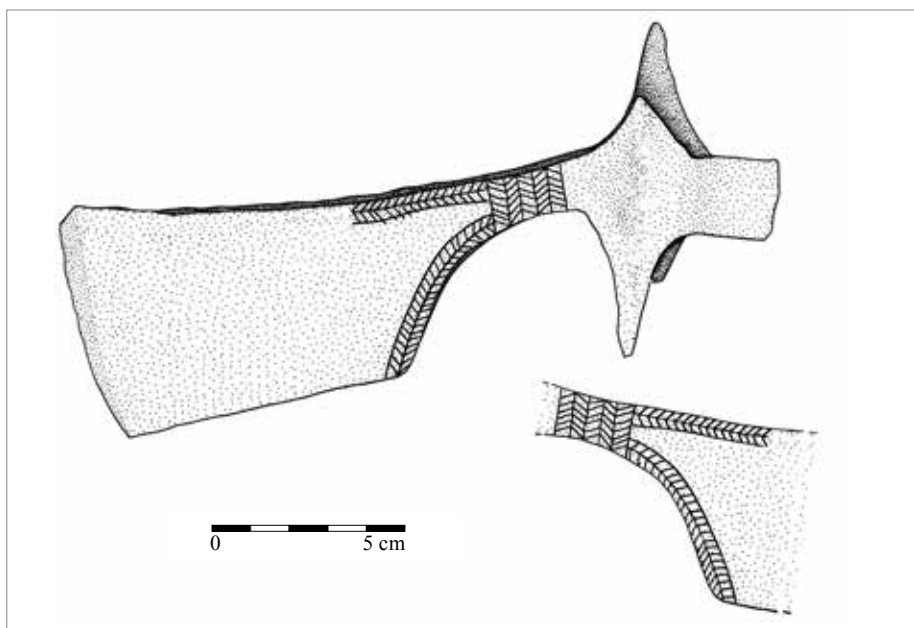


Fig. 7. Decoration of the battle-axe head as revealed by X-ray CT inspection. Drawing by Z. Vejtasová.

Obr. 7. Výzdoba sekery odkrytá průzkumem pomocí rtg. výpočetní tomografie. Kresba Z. Vejtasová.

typology, in which the Oblekovice find corresponds to type IB.5.30. This type determines narrow asymmetric bearded battle-axe heads with lugs and a hammer poll which tapers in the horizontal view (Kotowicz 2018, 107–9). We can also mention the definition of type IV.Ac, introduced by A. Bartošková (1986, 7) and used for Moravian bearded axe heads with lugs and a longer narrowing hammer poll, the end of which is vertical-rectangle in section. There are hundreds of axes of identical form, spread mainly in Moravia, Slovakia, Poland, and to a limited extent also in Bohemia, Hungary and the Balkans (Kotowicz 2018, 108). The Oblekovice find ranks among the larger known pieces. According to B. Dostál (1966, 70), the length of axe heads of this form is usually between 150 and 200 mm, according to M. Hanuliak (2004, 145) the most common length is 150–170 mm, with possible overlaps in either direction. A. Ruttkay (1976, 307) documented lengths varying between 138 and 207 mm, and V. Hrubý (1955, 170) documented lengths of up to 210 mm among axes discovered at Staré Město near Uherské Hradiště. The decoration is an unusual feature for bearded axes of this type and has not yet been documented for any bearded axe head from the territory of Moravia (Luňák 2018, 74–76). In Poland, where medieval axe heads have been systematically studied in detail (e.g. Kotowicz 2014; 2018), decoration has been revealed in only three percent of early medieval finds (Kotowicz 2011, 106). The geographically closest decorated specimen is the find from Bojná (Slovakia), the neck of which bears two transverse lines (Kouřil 2008, Fig. 3:7). Another analogy is a metal-detector find made in 2019 in the village of Bašnice (district Jičín). In contrast to the Oblekovice axe, the miniature axe head from Bašnice was decorated with silver and copper-alloy overlay taking the form of single and double lines, clusters of lines, little birds, crosses, twigs and triangles (Vlasatý 2020). However, the closest parallel in terms of size and appearance is the 9th-century bearded axe head from the Polish site of Barkowice Mokre (pow. Piotrków, Trybunalski; Góra–Kotowicz 2008–2009; Kotowicz 2011, 107; 2014, 15). This find is decorated with simple lines arranged in fields in such a way that the result matches the herringbone pattern. The second comparable piece that we can mention comes from the site of Bardy (pow. Kołobrzeg; Poland); the neck, lugs and part of the hammer poll of this 9th-century axe head are decorated with grooves inlaid with copper-alloy wire (Kotowicz 2014, 15). In addition, the axe head found in grave 221 at the Slovak site of Borovce represents another find apparently decorated with non-ferrous metal (Staššíková–Štukovská–Brziak 1995, 193–202).<sup>4</sup>

The herringbone motif, which can be seen on the axe heads from Znojmo–Oblekovice, Bašnice and Barkowice, was used to decorate weapons and other war gear from early Roman times to the 13th century (Kotowicz 2018, 39). It became extremely popular in central-western Europe during the Merovingian, Carolingian and Ottonian periods (e.g. Robak 2017, 125; Wachowski 1992, 80–81). In the territory of present-day Czech Republic during the Great Moravian and post-Great Moravian periods, this decorative motif was also used on swords (Hošek–Košta–Žákovský 2019, 245; Hrubý 1955, Fig. 27:2), helmets (Macků–Pilná 2021), belt buckles (Kalousek 197, Fig. 13:2) strap ends (Robak 2017, 144), sword-scabbard chapes (Profantová 2012, Fig. 12:1.), spurs and their strap sets (Profantová–Kavánová 2003, 120), crosses (Klanica 1974, Fig. 2), ceramic vessels (Sláma 1977, Abb. 5:58–61, 64, 69, 70), and even antler boxes (Beranová–Lutovský 2009, 182; Pochitonov 1972, 95–100).

In general terms, the Oblekovice find can be typologically dated from the second half of the 8th to the 10th century (Kotowicz 2018, 107–109), but in the Moravian context we can speak with a high degree of certainty about the Great Moravian period, i.e. the times when the stronghold of

4 Traces of inlaid or overlaid decoration were also identified on other types of axe heads, such as the so-called “nomadic axe” found in grave H 105 at the church cemetery of the north-eastern suburb of Břeclav–Pohansko (inv. no. P243606), an X-ray image of which revealed punched round points arranged into a cross, interpreted as a possible remnant of an inlay (Macháček–Dresler 2016, 120, 260–261). However, this find is not a Great Moravian bearded axe head but is closer in shape to the axe head found in grave 120 at Stará Kouřim (Macháček 2000, 162). Worthy of mention is the Czech-type axe head found in grave 22/05 at Klecany, which is decorated on the neck with two strips of different copper alloys (Profantová et al. 2010, 72–74; 2015, Tab. 18:3, Fototab. 16:6.), and to make the list complete, let us mention the broad-blade axe head found in grave 1994 at Mikulčice, which was decorated with an inlay of non-ferrous metal (inv. no. 341/90; Luňák 2018, 79–80). However, the axe head was severely damaged during the fire of the Mikulčice archaeological base in 2007.



Znojmo was functioning (Klíma 2000; 2009). In Moravia, bearded axes were undoubtedly typical of the entire 9th century (Luňák 2018, 151–153).

## Conclusion

The weapon found in the Oblekovice cadastre not far from “Palice” Hill can be characterized as a light battle-axe head, which can be in individual typological systems classified as type I (Poulik 1948, 33; Hanuliak 2004, 45–46), type IB.5.30 (Kotowicz 2018, 107–109), type IA (Hrubý 1955, 170, Fig. 28:1; B. Dostál 1966, 70; Ruttkay 1976, 306–307; Luňák 2018, 126–127), etc. Axe heads of this form were relatively widespread in Europe and the Znojmo-Oblekovice find can, with a high degree of certainty, be dated to the Great Moravian period (e.g. Klíma 2000; 2009). The axe ranked among functional and practical weapons but was unique for its decoration, which has not yet been recorded on any other bearded battle-axe head found in present-day Moravia (Luňák 2018, 74–76). We must therefore search for analogies in Poland (e.g. Kotowicz 2014; Kotowicz 2018) or Slovakia (Kouřil 2008, Fig. 3:7). Perceiving battle axes as weapons signifying the warrior status of their wearers was typical of the Great Moravian period. However, it is impossible to say today whether the function of the Oblekovice axe was mostly practical or, compared to the non-decorated variants, more symbolic.

## Literature

- BARTOŠKOVÁ, A., 1986: Slovánské depoty železných předmětů v Československu. Praha.
- BERANOVÁ, M.–LUTOVSKÝ, M., 2009: Slované v Čechách. Archeologie 6.–12. století. Praha.
- DOSTÁL, B., 1966: Slovánská pohřebiště ze střední doby hradištní na Moravě. Praha.
- HANULIAK, M., 2004: Veľkomoravské pohrebiská. Pochovávanie v 9.–10. storočí na území Slovenska. Nitra.
- HOŠEK, J.–KOŠTA, J.–ŽÁKOVSKÝ, P., 2019: Ninth to Mid-Sixteenth Century Swords from the Czech Republic in their European Context. Part I: The Finds. Prague – Brno.
- HRUBÝ, V., 1955: Staré Město. Velkomoravské pohřebiště „Na Valách“. Monumenta Archaeologica III. Praha.
- GÓRA, M.–KOTOWICZ, P. N., 2008–2009: Ornamentowane czekan z wczesnośredniowiecznej osady obronnej w Barkowicach Mokrych koło Sulejowa, Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi. Seria Archeologiczna 44, 237–263.
- KALOUSEK, F., 1971: Břeclav-Pohansko. 1. Velkomoravské pohřebiště u kostela. Archeologické prameny z pohřebiště. Brno.
- KLANICA, Z., 1974: Práce klenotníků na slovanských hradištích. Praha.
- KLÍMA, B. F., 2000: Slovánské výšinné hradiště sv. Hypolita ve Znojmě – velkomoravské mocenské centrum JZ Moravy. In: Staroslovanská Morava. Sylaby přednášek ze semináře pro učitele ZŠ a SŠ. Drobné studijní texty – svazek 2 (Klíma, B., ed.), 55–70. Brno.
- 2009: Jediněčný archeologický objev na Hradišti sv. Hypolita ve Znojmě, Sborník prací Pedagogické fakulty Masarykovy univerzity, řada společenských věd 23, 3–14.
- KOTOWICZ, P. N., 2011: Early Medieval Ornamented Axes from the Territory of Poland, *Studia Universitatis Cibiniensis, Series Historica – Supplementum No. 1*, 105–132.
- 2014: Topory wczesnośredniowieczne z ziem polskich. Katalog źródeł. Rzeszów.
- 2018: Early Medieval Axes from Territory of Poland. Kraków.
- KOUŘIL, P., 2008: Archeologické doklady nomádského vlivu a zásahu na území Moravy v závěru 9. a v 10. století. In: Bitka pri Bratislave v roku 907 a jej význam pre vývoj stredného Podunajska (Štefanovičová, T.–Hulínek, D., edd.), 113–135. Bratislava.
- LUŇÁK, P., 2018: Velkomoravské sekery. Unpublished PhD thesis. Masaryk university, Faculty of Arts. Ústav archeologie a muzeologie. Brno. Available at: <https://is.muni.cz/th/age1n/>.

- MACKŮ, P.–PILNÁ, V., 2021: An early-medieval helmet of the Stromovka–Gnezdovo–Bojná type from the collections of the Kozel chateau – Raně středověká přilba typu Stromovka–Gnězdovo–Bojná ze sbírek státního zámku Kozel, AH 46, 445–466.
- MACHÁČEK, J., 2000: 07.02.02. Streitaxt. In: Europas mitte um 1000. Katalog (Wieczorek, A.–Hinz, H. M., edd.), 162. Stuttgart.
- MACHÁČEK, J.–DRESLER P., 2016: Břeclav – Pohansko VII. Kostelní pohřebiště na Severovýchodním předhradí. Brno.
- NADOLSKI, A., 1954: Studia nad uzbrojeniem polskim w X, XI i XII wieku. Łódź.
- PLEINER, R., 1962: Staré evropské kovářství. Praha.
- 1967: Die Technologie des Schmiedes in der großmährischen Kultur, SIArch XV, 77–188.
- POLÁČEK, L.–MAREK, O.–SKOPAL, R., 2000: Holzfunde aus Mikulčice. In: Studien zum Burgwall von Mikulčice IV (Poláček, L., ed.), 177–302. Brno.
- POCHITONOV, E., 1972: Artefakt z jeleního parohu z libického hradiska, Acta regionalia 1970–1971, 95–100.
- POULÍK, J., 1948: Staroslovanská Morava. Praha.
- PROFANTOVÁ, N., 2012: Examples of the most important results of technological analyses of swords in the Czech Republic. In: Die Archäologie der frühen Ungarn. Chronologie, Technologie und Methodik (Bendeguz, T., ed.), 169–190. Mainz.
- PROFANTOVÁ, N.–KAVÁNOVÁ, B., 2003: Mikulčice – pohřebiště u 6. a 12. kostela. Brno.
- PROFANTOVÁ, N. et al., 2010: Klecany. Raně středověká pohřebiště. 1. svazek. Praha.
- PROFANTOVÁ, N. et al., 2015: Klecany. Raně středověká pohřebiště. 2. svazek. Praha.
- ROBAK, Z., 2017: The Origins and the Collapse of the Blatnica-Mikulčice Paradigm, SIArch LXV, 99–162.
- RUTTKAY, A., 1976: Waffen und Reiterausrüstung des 9. bis zur ersten Hälfte des 14. Jahrhunderts in der Slowakei II, SIArch XXIV, 245–395.
- SLÁMA, J., 1977: Mittelböhmen im frühen Mittelalter. I. Katalog der Grabfunde. Praha.
- STAŠÍKOVÁ-ŠTUKOVSKÁ, D.–BRZIAK, P., 1995: Pôvod povrchových vrstiev železnej sekery z pohrebiska v Borovciach, ŠZ AÚ SAV 31, 193–202.
- VLASATÝ, T., 2020: Zdobená bradatice z Hořicka, Projekt Forløg. Reenactment a věda. Accessible from: <https://sagy.vikingove.cz/sekera-z-horic/>, cit. 10 September 2022.
- WACHOWSKI, K., 1992: Kultura karolińska a Słowiańszczyzna Zachodnia. Wrocław.

## Shrnutí

### Nový nález velkomoravské zdobené sekery ze Znojma-Oblekovic

V květnu 2021 byl do Jihomoravského muzea ve Znojmě odevzdán náhodný nález sekery učiněný pomocí detektoru kovů. Jeho unikátnost je dána jednak aplikovanou výzdobou, jednak místem objevu, které spolupracující detektorář určil na katastru Oblekovic, tedy na zcela opačné straně Znojma, než odkud pochází velkomoravské nálezy spojené s tehdy významným znojemským hradištěm. Zbraň byla vyzvednuta z lesní hrabanky a označena jako povrchový nález do 20 cm. Následná detektorová prospekce provedená v místě nálezu a okolí nepřinesla žádné další artefakty či zjištění, které by s oblekovickou sekerou mohly souviset. Nález lze charakterizovat jako lehkou bojovou sekeru – bradatici, kterou lze v jednotlivých typologických systémech přiřadit k typu I (Poulik 1948, 33; Hanuliak 2004, 45–46), typu IB.5.30 (Kotowicz 2018, 107–109), typu IA (Hrubý 1955, 170, obr. 28:1; Dostál 1966, 70; Ruttkay 1976, 306–307; Luňák 2018, 126–127) atd. Sekery daného tvaru byly v Evropě poměrně rozšířené a nález ze Znojma-Oblekovic lze s vysokou mírou jistoty datovat do velkomoravského období (např. Klíma 2000; 2009), tedy do doby fungování nedalekého znojemského hradiště. Sekera se řadí mezi funkční a praktické zbraně, je však unikátní svou vybiženou výzdobou (viz obr. 7), která nebyla dosud zachycena na žádné jiné sekerě – bradatici nalezené na území dnešní Moravy (Luňák 2018, 74–6). Geograficky nejbližší

analogie tak musíme hledat v Polsku (např. Kotowicz 2014; 2018) a na Slovensku (Kouřil 2008, obr. 3:7). Vnímat bojové sekery jakožto zbraně vyjadřující válečnický status svého nositele bylo pro velkomoravské období typické. Dnes však již nelze posoudit, zda funkce oblekovické sekery byla převážně praktická, nebo – oproti nezdobeným variantám – spíše symbolická.

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