

# A UNIQUE FUNERARY ASSEMBLAGE FROM THE LATE AVAR PERIOD. A RARE IRON TOOL AND THE ISSUE OF SALT EXTRACTION IN TRANSYLVANIAN IN THE EARLY MIDDLE AGES

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**Cuvinte-cheie:** *arheologie avară, perioadă avară târzie, unelte din fier ca inventar funerar, distribuția sării, extragerea sării, organizarea producției.*

**Keywords:** *Avar archaeology, Late Avar period, iron tools as grave good, distribution of salt, salt mining, organisation of production.*

**Rezumat:** *Autorul încearcă să identifice funcția unui instrument rar, din fier, care apare într-un context al unui mormânt din perioada avară târzie din bazinul Carpaților și în mai multe depozite de unelte din fier din bazinul Donețk. Contextele arheologice și locațiile geografice ale acestor unelte, împreună cu funcția lor reconstituită, oferă o oportunitate tentantă de a construi un model istoric. Concluzionează că mormântul „Mártély” ar fi putut aparține unui individ care s-a ocupat cu exploatarea și distribuirea unor resurse minerale din Transilvania, probabil sarea. Autorul folosește o metodă deductivă pentru investigarea modalităților de exploatare și distribuire a resurselor minerale, în perioadă medievală timpurie.*

**Abstract:** *The author attempts to identify the function of a rare iron implement type, which occurs in a Late Avar period grave assemblage in the Carpathian Basin and several iron tool depots in the Donetsk Basin. The archaeological contexts and the geographical locations of these tools, together with their reconstructed function offer a tempting opportunity to build a historical model. I conclude that the “Mártély” grave may have contained the remains of an individual who played a role in the exploitation and distribution of mineral resources, probably salt from Transylvania. The study uses a deductive method to investigate the social modalities of extraction and distribution during the early medieval period.*

This study<sup>1</sup> presents a grave assemblage and one of its artefacts in particular, and the economic and social structures it implicates about the Carpathian Basin in the Late Avar period (ca. 8<sup>th</sup> century AD.).

In the first publication, József Hampel identified the iron artefact as a spear-head (**Fig. 1**, Hungarian National Museum, Inv. no. 61.182)<sup>2</sup>. The total length of the

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<sup>2</sup> HAMPEL 1905, vol. II, p. 106–107, vol. III, taf. 85.

object is 27.4 cm. Its socket (length: 8.5 cm, diameter: 3.3 cm) was created from the two wings of the triangular, flat-hammered lower part of the body, folded over each other to form a tube that is open at both ends. There is no trace of fastening or a nail hole on the socket. Over the socket, the body of the artefact is rectangular in cross-section in its whole length, narrowing to the tip, ending in a short edge perpendicular to the flat face of the blade (length of the blade: 19.5 cm; largest body width over the socket: 2.76 cm; width of the edge: 1.7 cm).

### Comparative study of the artefact

There is another specimen of this artefact type, today of unknown provenance, kept in the Hungarian National Museum (**Fig. 2**). Besides minor differences in the proportions of the blade and the socket, it resembles the Mártély artefact in every detail (total length: 23.1 cm; diameter of the socket: 3.75 cm; width of the blade at the socket: 2.84 cm; width of the edge: 11.4 cm; Inv. no. 62.120). Originally, this specimen may have belonged to a large group of objects, which were re-inventoried during the 1950s and '60s, owing to the ill-planned museological activity during the period of cultural plan management in the Communist era. The Mártély specimen and other, currently finds of unknown provenance, were taken out of their context (if there was any) most probably in the first part of the 20<sup>th</sup> century and remained so in the Collection during the forced revision after WWII. The Mártély specimen was re-inventoried as of unknown provenance in 1961. Based on early documentation, inventory books and publications, the original context of several objects – among them of the Mártély artefact – has been identified in the past decade. In the case of the other iron object, repeated attempts to the identification were unsuccessful, at least until recently. Considering the composition of the collection, it was probably cut off from an Avar grave assemblage (95 per cent of the 20<sup>th</sup> century material of the “Migration Period Collection” in the HNM comprises Avar period grave assemblages).

The other known parallels are recorded in early medieval hoards of iron implements<sup>3</sup>. All hoards comprise different agricultural and woodworking tools as well as horse gear and weaponry. The few cases focus on the eastern periphery of the East and Central European depot horizon at the Donetsk River, in the Donbas region (Ukraine). Following a downpour, several iron tools were collected from the Sidorove hillfort as surface finds, probably originating from a hoard. Among them, an analogue of the Mártély artefact can be recorded (**Fig. 3**)<sup>4</sup>. From the Mokhnach *gorodishche*, V. V. Koloda published several hoards of iron implements, with one specimen of the object type (**Fig. 4**)<sup>5</sup>. Here, Koloda discussed the artefact as a chisel, among other special woodworking tools. Another hoard came to light from the Majaki hillfort at the Severniy Donetsk in 1981, which comprised two specimens of the object type (**Fig. 5**)<sup>6</sup>. The last case is known from the Gosudarev Yar–1 assemblage

<sup>3</sup> I would like to express my gratitude to Bence Gulyás, who called my attention to the analogues in the Donetsk Basin.

<sup>4</sup> MIKHEEV 1985, fig. 17; KRAVCHENKO 2020, p. 114–115, Ris. 203/12; 297/12–13, 14, 16.

<sup>5</sup> KOLODA 2006, p. 213–216; for the depot with the iron tool, see KOLODA 2015, p. 114, 127, Ris. 7/1.

<sup>6</sup> KRAVCHENKO 2020, p. 64, Ris. 163.

from the vicinity of the village Bohorodichne (**Fig. 6**)<sup>7</sup>. As a specific trait of the latter, a tubular bone piece was inserted into its socket.

The object type has more distant typological parallels from a wider chronological and geographical range. A socketed iron artefact with a similar rectangular blade cross-section but with a rounded, blunt edge and a nail hole in its socket was found in the Sklabiňa (Slovakia, okr. Martin) depot (**Fig. 7**)<sup>8</sup>. The publisher, I. Hrubec identified the long, narrow object as the head of a pole used for moving heavy objects, e. g. trunks. F. Curta listed it as a socketed ploughshare<sup>9</sup>. While the typical object categories of the East-Central European depot horizon (ploughshare, coulter, hollow axe, and spearhead) are present in the Sklabiňa depot, its two iron implements resembling axes with long bodies are extraordinary types. Both tools differ markedly in their massive body from the axe-shaped ingots of the period. According to I. Hrubec's opinion, both were used for breaking/cutting relatively hard materials (in fact, the shape of the two tools corresponds with that of high medieval mining tools<sup>10</sup>).

Four distant parallels to the Mártyly iron implement from the Sebenje depot assemblage (**Fig. 8**) (Slovenia) bear some importance for our argument. The socketed artefacts have short, thin, pointed, slightly curved bodies, two of them terminate in spoon-like tips. The sockets are closed and perforated in all four cases. T. Knific identified them among other agricultural tools as socketed ploughshares<sup>11</sup>.

### Questions about the function

There are some uncertainties in the literature concerning the functions of the listed artefacts. As mentioned before, T. Knific discussed the four analogous objects among agricultural tools. Slightly less robust, socketed implements with elongated, asymmetrical bodies terminating in a short edge occur also in Roman contexts, where the type is defined as a mortise chisel<sup>12</sup>. Socketed mortises were used in early medieval times as well, however, differing in shape from the Mártyly-type artefacts. One specimen may be identified in the find material of the Velem-Szent Vid prehistoric hilltop settlement. Among the predominantly prehistoric artefacts which entered the museum collection without known finding circumstances in the early 20<sup>th</sup> century, published by necessity as an unstructured mass of objects by baron Kálmán Miske, there is a group of iron tools morphologically identical to those found in early medieval depot assemblages<sup>13</sup>. These and some other objects in the assemblage, like a Carolingian stirrup and a strap end with bimetallic inlays<sup>14</sup> suggest that the prehistoric fortifications were reoccupied during the 9<sup>th</sup> century AD. The

<sup>7</sup> KOLODA 2013, fig. 3, fig. 5/4.

<sup>8</sup> HRUBEC 1965, p. 415–417, Obr. 4/4; BARTOŠKOVÁ 1986, Obr. 16.

<sup>9</sup> CURTA 2011, p. 331, Cat. no. 69.

<sup>10</sup> Georgius Agricola: *De re metallurgica libri XII*, Lib. 6.

<sup>11</sup> PLETERSKI 1987; KNIFIC 2010, p. 85, fig. 1.

<sup>12</sup> RUPNIK 2015, p. 196–199, and fig. 3, 9–13; Similar tools were left unnoticed in the thorough study of HENNING 1987, see the typological table abb. 13.

<sup>13</sup> Among other objects of unidentified function, see MISKE 1907, XLVII/2, 12, 14–17, 19; XLVIII/1–2, 17; LI/14.

<sup>14</sup> MISKE 1907, XLVIII/16: a strap end with metal inlay; XLIX/14: stirrup.

reconstructed depot assemblage comprised a long, thin mortise chisel (**Fig. 9**)<sup>15</sup>, that differed in shape from the Mártély type significantly. At the same time, solid iron chisels of different sizes are relatively well-known in early medieval iron tool depot assemblages. This makes the identification of the rare Mártély type as a simple chisel quite improbable<sup>16</sup>.

The composition of early medieval depots<sup>17</sup>, again, does not contribute much to the identification of the object function. The type occurs in the Ukrainian depots listed above among woodworking and agricultural implements (sickles, plough-share, coulter, axe, and adze), riding gear (stirrup, horse-bit), and weaponry (spear-heads), as well as with multifunctional tools, like long knives. Early medieval depots comprise such a wide variety of tools for everyday life that their functional heterogeneity seems to be of utmost importance in their compilation. This subjectivity assumes a ritual character of their burial and is probably due to the actual requirements or purpose of the deposition. Thus, the functional variability of the items in these assemblages hinders the identification of this tool type's function.

V. Koloda considered the Mokhnach artefact a woodworking tool<sup>18</sup>. In another study, however, he interpreted the Bohorodichne specimen otherwise, as in his opinion, the tubular bone piece inside the socket was unsuitable for hammering, and contradicted the chisel function. He argued that the bone piece could have been used to fix the tool on a shaft, and he determined the object's function in cutting soft stone material or even ice<sup>19</sup>. If we consider the rare and geographically restricted occurrence of the type as an argument against its identification with a simple mortise chisel, Koloda's interpretation may bring us closer to a solution.

The morphology of the Mártély artefact type is almost identical to the Bronze Age and the Early Iron Age mining picks from the Alpine copper and salt mines in Hallstatt and Mitterberg, today Austria (**Fig. 10**)<sup>20</sup>. The shape itself, with its elongated body and the short edge at its tip, corresponds with the high medieval pickaxes as well, which were used by miners to cut around larger blocks. The Roman pick<sup>21</sup> that came to light from an iron depot in a Roman salt mine complex in Hispania was a shafted, symmetrical specimen, with a straight blade on both sides ending in a short edge. Although the Roman type was the typological predecessor of recent picks, the shape of its tips is identical to that of the prehistoric socketed tools-and our early medieval artefacts as well.

The strong, relatively long and thick body of the discussed artefact type is fitting for a percussive hand tool, as in the case of prehistoric mining tools. For this purpose, the straight shaft of a chisel-like tool would not have been convenient or practical. Similar to prehistoric mining tools, and, more importantly, early medieval

<sup>15</sup> MISKE 1907, XLVII/T. 30.

<sup>16</sup> In several assemblages: BARTOSKOVA 1986, Obr. 10, 36–38; Obr. 15A/15; Obr. 16C/3; Obr. 18B/11.

<sup>17</sup> To the problem of the composition of the depot assemblages, see ATANASOV 2000; CURTA 2011, tab. 7; MÜLLEROVÁ 2014.

<sup>18</sup> KOLODA 2006, p. 213–216.

<sup>19</sup> KOLODA 2013, p. 75.

<sup>20</sup> THOMAS 2018, p. 164 (shafted picks), p. 228–232 (typological table).

<sup>21</sup> MONTERO 2022, p. 35.

socketed adzes<sup>22</sup> from Eastern Europe and the Carpathian Basin, the shaft was most probably carved from a branch junction that allowed a (nearly) right-angled position of the shaft and the head, in this case, the pick. This hafting technique seems to have disappeared in Europe and the Mediterranean for a long time, until the Late Iron Age. However, according to the occurrence of socketed axes in “wealth deposits”, the hafting method was widely used in the Baltic region and Eastern Europe also during the Great Migration Period and the Early Middle Ages<sup>23</sup>. Based on the analysis of László Kovács, socketed adzes were used continuously in Siberia and the Eurasian steppe from prehistoric times until the Middle Ages<sup>24</sup>. This could result in the early medieval emergence of this hafting method in Eastern Europe and the Carpathian Basin and allow us to reconstruct a new artefact category, namely, a socketed pick, following Eastern European, Siberian and steppic technical traditions.

The spatial distribution of the discussed artefact type offers another key aspect of our study. As a marginal component of East-Central European deposits, the type occurs only in the Donetsk Basin (**Fig. 11**). While the composition of the four assemblages from this region corresponds in every other detail with the East-Central and Southern European deposits of the 8<sup>th</sup>–10<sup>th</sup> centuries AD., the presence of the discussed artefact type creates a regional group at the eastern periphery of the early medieval iron tool depot horizon.

We formulate the working hypothesis that Mártély-type tools occur in or near important regions of mining and their distribution network. The enormous Soledar salt mine complex is situated in the same region of the Donetsk Basin as the mentioned assemblages. The Sklabiňa depot assemblage, with one of the closest analogies of the tool type, is situated near the Carpathian copper and silver ore deposits in the vicinity of Banská Bystrica (Slovakia), and the Blatnica elite burial (9<sup>th</sup> century AD.)<sup>25</sup>.

Taking all of the aforementioned aspects into consideration, we conclude that the analysed tool type probably served as a mining pick instead of a woodworking chisel. If this assumption is correct, the socketed mounting of the pick to the shaft resembles that of the socketed adzes of the period. This solution was alien to the post-Roman contexts surrounding the Carpathian Basin and can be traced back to Eastern European and steppe cultural environments.

### **The cultural and social context of the Mártély tool as a grave find**

Following a probable functional identification of the Mártély artefact, a series of deductive arguments helps us to interpret its find context and its regional significance. The uniqueness of the assemblage suggests that the iron artefact—the assumed pick—reflected equally high prestige as the other artefacts in the set, derived from their function as grave goods. Questions arise concerning the placement of the artefact in one of the best-equipped graves of the Late Avar period comprising several rare (gold earrings, gold braid ornaments) or even unique

<sup>22</sup> KOVÁCS 1981.

<sup>23</sup> ORAS 2015, in several depots (see the catalogue).

<sup>24</sup> KOVÁCS 1981, p. 91–94; BALOGH 2016, p. 269, the latter quotes Kovács's conclusions.

<sup>25</sup> HAMPEL 1905, taf. 321–322.

(gold coin imitation with punched ornament, belt set) find types, presented by József Hampel on his plate "B"<sup>26</sup> (Fig. 12).

### The burial ground

Among the numerous Avar-period sites surrounding the present-day settlements of Csongrád and Mártély (Fig. 13)<sup>27</sup>, the "Csanyi part" burial ground on the left bank of the Tisza River stands out with its rich find material. The first two supposed grave assemblages (Graves "A" and "B") have been found and destroyed in 1887 during dam construction works. The planned excavations were carried out in three campaigns during the following years (1891<sup>28</sup>, 1894<sup>29</sup>, 1897–1898<sup>30</sup>). The finds of the first seasons were brought to the Hungarian National Museum, and the finds from the graves excavated in 1897–1898, most of them poorly furnished, to the local museum in Hódmezővásárhely. Although some of the graves may have been destroyed by the Tisza as the cemetery was located along its outer bank, the burial ground is considered fully excavated. With a total number of no more than one hundred graves, it is one of the smaller cemeteries of the period. Based on available data, it was established around 650 (dated by a rare gilt bronze buckle with an Animal Style II carved ornament<sup>31</sup>). Compared to its size, the relatively high number of gold ornaments in the cemetery is extraordinary for the Late Avar period (thick gold obolus, gold foil braid ornaments, and four pairs of gold earrings with bead pendants<sup>32</sup>).

### Grave "B" of Mártély

Among the finds of the first, destroyed burials the publisher distinguished two assemblages, which were treated separately already at the time when the finds were handed over to the National Museum in Budapest. Contrary to the explicit statement of the finders recorded by Hampel, the finds presented on Plate "A" (taf. 84), however, can be attributed to two or even three graves. At least a female and a male set of costume accessories can be distinguished among them that, if the finders were right, may represent a double grave. At the same time, the finds on Plate "B" (taf. 85; Fig. 12) may belong to one remarkable grave assemblage, except one cast bronze strap end (bottom right), which is, most probably, a component of the assemblage presented on the previous plate. Apart from that, every object is extraordinary to some extent: most of them are unique (obolus and braid ornament with punched decoration, gilt bronze belt set), and/or made of gold (obolus, braid ornament, earrings). To get an impression of the true significance of this assemblage – a reconstructed Grave "B" – it is worth examining its components briefly.

The round earrings made of two wires twisted together, with their bead

<sup>26</sup> HAMPEL 1892, p. 413–416; HAMPEL 1905, II/106–107, III/taf. 85.

<sup>27</sup> According to the data published in ADAM.

<sup>28</sup> FARKAS 1892, p. 417–426.

<sup>29</sup> SZEREMLEI 1900, p. 461–463.

<sup>30</sup> PÁRDUCZ 1937.

<sup>31</sup> GARAM 2005, p. 420–422.

<sup>32</sup> „A” (HAMPEL 1905, taf. 85/9–10); „B” (HAMPEL 1905, taf. 86/11); Grave 8 (HAMPEL 1905, taf. 90/15–16); Grave 11 (HAMPEL 1905, p. 112, taf. 91/4–5).

pendants missing, are dated to the initial phase of the Late Avar period at the latest<sup>33</sup>. Golden earrings are rare finds in the Late Avar period<sup>34</sup>. The obolus has irregular contours. It was cut from a thick gold plate. The thin gold foil braid ornaments are embellished with the same C-shaped punch marks. This indicates that both were made on the same occasion, in concert with the low quality of the goldsmith's work for the funeral. Analogues of both objects occur only sporadically in the Carpathian Basin, in the so-called "Middle Avar period" (second half of the 7<sup>th</sup> century)<sup>35</sup>. Compared to these objects, the cast bronze and gilt belt set (**Fig. 14**) represents the next typo-chronological phase, the first phase of the Late Avar period. The morphological characteristics of the belt set have been presented in detail elsewhere<sup>36</sup>: here, it is enough to emphasize that both the scroll ornament and the figural scene of the large strap end lead to the Mediterranean elite culture of the 7<sup>th</sup> century, dominated by Byzantine style<sup>37</sup>. The complex scene on the large strap end refers to the iconography of late antique carved ivory panels, depicting Heracles and the Ceryneian hind in a corrupted scheme, blended with other iconographic elements-animal bodies, a gryphon, peacocks with palm tree etc.-of antique origin<sup>38</sup>. This mixture of iconographic elements was created in an identical form already in the Byzantine culture, which had a direct impact on the Mártély belt set as well. The belt set has an Avar character regarding its technology and shape, and it is of relatively low worth compared to goldsmith's artefacts circulating in elite networks. Thus, its manufacturer was probably active in the Carpathian Basin. The unique decoration of the belt set can stem from the creative copying of various artefacts-in this case, probably furniture embellished with carved ivory panels (?) – held in the treasuries of the elite<sup>39</sup>. Yet the belt set differs markedly from all identified elements of the elite culture by its material and casting technique. To our knowledge, the Late Avar elite culture mostly used complex goldsmith's products made of precious metals<sup>40</sup>. The "row grave cemetery" in which the burial was found, the lack of weaponry and horse or horse harness (both playing an important role in Avar-type funerary representation), and the modest belt set the owner of assemblage "B" apart from high society.

Taken together, we identify the owner of assemblage "B" as a prominent person in his community or an important member of a prominent family. However, the richness of the assemblage and the connection network it represents do not allow him to be simply placed among the leaders of contemporary local communities, who were buried mostly without precious metal ornaments, with simple belt sets, rather

<sup>33</sup> GARAM 1993, p. 27. The round earrings are dated by CILINSKÁ 1975, p. 77–78.

<sup>34</sup> SZENTHE 2021, p. 420.

<sup>35</sup> To the oboli: BALOGH 2016, p. 323–326; to the braid ornaments: ANDRÁSI 1997. A good analogue of the Mártély braid ornaments came to light from Kisköre-Halastó, Grave 41 with a scroll ornament: GARAM 1979, taf. 35/9–10. The specimens are dated to the first decades of the Late Avar period.

<sup>36</sup> On the hinged strap ends: SZENTHE 2013a; to various other issues concerning the set, see the following notes.

<sup>37</sup> SZENTHE 2020, p. 363–368.

<sup>38</sup> SZENTHE 2013b, p. 151–154.

<sup>39</sup> To the problem of uniqueness in the context of the Avar material culture: SZENTHE 2020, p. 86–103.

<sup>40</sup> On Late Avar period precious metal artefacts: SZENTHE 2021.

few weapons and, occasionally, a horse<sup>41</sup>. The character<sup>42</sup> of Grave “B” is extraordinary compared to the assemblages dating from the first half of the Late Avar period in other cemeteries. This indicates a strong subjective factor behind the burial, such as personal significance, influence, and, based on the golden objects, probably wealth. Among the object categories of the grave, we do not find any real Avar-type status symbols such as weapons, drinking vessels, horses, or horse harnesses. Instead, the belt set can be considered a visual indication of sociocultural relations with probably exclusive access to elite cultural goods. If this differentiation is even conceivable in the period when kinship seem to play a decisive role in the social structure<sup>43</sup>, burial complex “B” reflects rather a person whose status was achieved through social connections and wealth than one with inherited rank/family prestige. This assumption is corroborated by other graves in the cemetery. Except for one burial with a horse, no other male grave possesses even comparable representative value to Grave “B”. The representative female burials with golden earrings are dated to a much later phase, to the end of the Late Avar period, and as such, their problem deserves a separate discussion about the changes in funerary representation at the end of the Avar age<sup>44</sup>. These female burials and Grave “B” certainly share traits which belong to the same topic of high social investment in funerary representation in one single cemetery, but due to their late dating, they should not be discussed here further.

### The presence of tools in grave assemblages

Iron tools seldom occur in Avar-period graves. Besides multifunctional ones like axes and large knives/daggers, special craft tools that were placed more often in graves are usually sickles and socketed adzes. “Hammers” are present in a few cases<sup>45</sup>, which could have been percussive weapons as well<sup>46</sup>. Sickles, being pointy or sharp tools, are regularly interpreted as apotropaic objects<sup>47</sup>, laying mostly cross-wise on the body, in two third of the cases in male graves<sup>48</sup>. Socketed adzes are present in the 7<sup>th</sup>–8<sup>th</sup> centuries Avar material without regional focus<sup>49</sup>. According to the analysis of László Kovács, adzes equally occur in burials with weapons, horses, and ornate belts, as well as in poorly furnished graves. In one case (Grave 63, Prša)<sup>50</sup>, a socketed adze came to light in an iron depot together with a spearhead, near a female grave. In the case of sickles and axes, we cannot be confident whether their deposition was related to the practical functions of the tools, or whether they had a symbolic meaning in a hitherto unknown rite. Both reasons are conceivable. Besides

<sup>41</sup> SZENTHE, GÁLL 2022b identifies local leaders in these deceased.

<sup>42</sup> By the first half of the Late Avar period, the placing of precious metals and costume elements in graves largely disappears from the cemeteries of the Carpathian Basin. See SZENTHE 2021, p. 418–419.

<sup>43</sup> For the lineage organization of the Avar-period elite, see CSÁKY *et alii* 2020.

<sup>44</sup> SZENTHE 2021, p. 426; SZENTHE, GÁLL 2022a, p. 258–263.

<sup>45</sup> BENDE 2017, p. 295; TOBIAS 2020, p. 37–39.

<sup>46</sup> E.g., Szentes-Kaján, Grave 159 (MADARAS 1991, pl. 17).

<sup>47</sup> SOMOGYI 1982, p. 194; BENDE 2017, p. 296.

<sup>48</sup> BENDE 2017, p. 296.

<sup>49</sup> KOVÁCS 1981, abb. 7.

<sup>50</sup> TOČIK 1963, p. 136.

the aforementioned two categories, the assemblages of goldsmith's and blacksmith's implements must be discussed in the present context<sup>51</sup>. Exceptional assemblages of everyday items and weaponry are known from "goldsmith" and "blacksmith" burials. These are armor lamellae, harpoons, weapons, and a belt set with the blacksmith's tools in Kölked-Feketekapu cemetery "B", Grave 80<sup>52</sup>. Even more spectacular finds are the "goldsmith's grave" at Kunszentmárton<sup>53</sup>, and the Band / Mezőbánd (Romania) grave with the goldsmith's tools and a *bandhelm* (spherical helmet)<sup>54</sup>.

Based on the sex of the deceased and other finds in the graves, the motivation for the burial of these tools was probably their practical function in the majority of the cases. The physical strength required for their use probably correlates with their placement in male graves in the Avar culture. Blacksmith's tools were buried exclusively, adzes mostly, and sickles in many cases with males. On the other hand, blacksmiths and goldsmith's tools are predominantly found in above-average equipped graves. There is a significant chronological and spatial variability in the contexts of grave assemblages and there is no general answer to the question whether the tools were placed into the grave as craft symbols, or they served different magical, or even social purposes, e.g., they were elite status markers<sup>55</sup>.

In many graves of the Early Avar period, different combinations of three groups of finds-weapons, ornate belts and horses (horse harness sets)<sup>56</sup>-appear. Among these graves, elite burials are distinguished by the accumulation of precious metal and luxury artefacts that demonstrate extensive communication networks (e.g., complex goldwork, glass vessels, amphorae, etc.). Thus, the control of strategic resources or craftsmen did not have a direct role in the display of elite status. Rather, the goldsmith's or blacksmith's tools in graves indicated the owner's craftsmanship during their lives. Consequently, valuables like jewellery and otherwise rare weapon categories such as armor elements displayed the high status of the person connected to their special skills.

The exceptional/unique finds in the Mártély "B" assemblage certainly resemble the burials with blacksmiths or goldsmith's tools. In the context of the unique grave goods, the iron tool in assemblage "B" may signify a special activity that brought prestige, and probably, wealth, to its practitioner. However, one must keep in mind the lack of elite status markers of the deceased or his community.

This prestigious activity was probably not woodworking or-as V. Koloda puts it-cutting holes in the ice for fishing, nor can the tool type be associated with metalworking. The high prestige probably derives from the strategic importance of the craft the tool represents. This draws attention to mining, more specifically, to salt mining, as we presume the discussed artefact type as a pickaxe. Objects of symbolic value in metalworking were tools for processing metals rather than ones for extracting ores. If identified as a salt mining pick indeed, the presence of this tool in the

<sup>51</sup> RÁCZ 2014.

<sup>52</sup> KISS 2001, taf. 24–27.

<sup>53</sup> CSALLÁNY 1933.

<sup>54</sup> KOVÁCS 1913, p. 280–290.

<sup>55</sup> HENNING 2007, p. 51–59 (on ploughshares); in general, and about blacksmith's tools in the burials of women and children. See also RÁCZ 2014, p. 18–19.

<sup>56</sup> An analysis of the problem by statistic means, see SZENTHE, GÁLL 2022b, p. 324–327.

Mártély grave and the Donetsk Basin depots makes sense as there is no other object which could better symbolise the possession, extraction, and redistribution of this important natural resource. This idea is corroborated by the prominence of the grave assemblage, which could have been interdependent with the symbolic value of the tool. Salt is vital for human life, food conservation as well as animal breeding. The control of salt deposits and trade routes was a source of wealth and social power in all historical periods<sup>57</sup>.

In summary:

a) based on its occurrences, the artefact was a rare but well-discernible tool type, most probably used for a special purpose;

b) according to the other elements of the grave assemblage, the tool symbolized an activity that was important for the well-being or success of the deceased or their community;

c) the socketed mounting on a shaft branching at right angles, which is required for its use as a pick, was widespread in early medieval times in the Eurasian steppe and Eastern Europe;

d) by its morphology and analogues, the tool was suitable for cutting blocks from rock salt;

e) due to the fundamental importance of salt, the tool for its extraction probably became an important symbol in the socio-cultural system of relations;

f) the functional reconstruction is further supported by the clustering of this tool in the vicinity of the salt deposits at today's Soledar.

Based on these arguments, it is possible to construct a hypothetical model of artefact function, which, however, arises several questions. If we hypothesize a link between the tool type and salt extraction, we have to answer two further questions, namely, how the tool has got into a grave far from any salt occurrences by the Tisza, and, secondly, whether we do find evidence of the distribution of halite blocks-cubes-in the given territories. I address these issues in the two final chapters of my paper.

### **Salt deposits and salt extraction in the vicinity of the Mártély site in the early medieval Carpathian Basin**

The most probable depositional context of the tool type in the Mártély grave was the extraction of halite deposits in central and southern Transylvania. In early medieval Europe, evaporation techniques were dominantly used to get pure salt from brine. By contrast, concerning the distribution of Transylvanian salt, early written sources (11<sup>th</sup>–13<sup>th</sup> centuries) refer only salt blocks transported on water or wheel. It seems that Transylvanian rock salt was much appreciated for its high purity, and it was extracted in blocks<sup>58</sup>. These data correspond with the analyzed tool type.

<sup>57</sup> See e.g., HARDING 2021, p. 66–72. Exploitation and trade of salt is discussed by most of the works dealing with early medieval economy and trade. See the studies in HENNING 2007a (GELICHI 2007, p. 84–90; HAMEROW 2007, p. 225; BUKO 2007, p. 434–435; also, about the issue of Transylvanian salt in POLÁČEK 2007, p. 499–500, 518).

<sup>58</sup> ROMHÁNYI 2017, p. 2.

The Mártyély site lies on the important and well-documented medieval salt route<sup>59</sup>, through which central- and southern-Transylvanian salt was redistributed towards the west<sup>60</sup>. According to the distribution of Avar-period archaeological sites, this route has already been important in the late 7<sup>th</sup> and 8<sup>th</sup> centuries, which resulted in the emergence of a centre of settlement along the lower course of the river Tisza, the river Körös/Criş, and the river Maros/Mureş<sup>61</sup>. Early medieval Carpathian salt extraction sites are, however, still “by-products” of projects aimed at the research of prehistoric salt mining<sup>62</sup>. There is one 8<sup>th</sup>–9<sup>th</sup> centuries date available from the “Királyvölgy” (Solone) salt deposit (Ukraine), among a series of samples from the Bronze Age<sup>63</sup>. Another, 5<sup>th</sup>–6<sup>th</sup> centuries date is known from the Someş Valley salt mine at Băile Figa<sup>64</sup>. For the present study, the Királyvölgy/Solone site is of special importance as it may explain the distribution and character of Avar sites between the upper and middle course of the river Tisza/Tisa. The occupation along the east-west land route leading from Satu Mare and Mátészalka through Debrecen towards the river crossing at Tiszafüred was characterised by a seemingly strong elite presence (Hortobágy-Árkus, Mátészalka), a series of smaller burial sites with equestrian and weapon graves, and the Tiszafüred-Majoroshalom cemetery (1200 graves) showing a strong impact of east-west communication with Transdanubia<sup>65</sup>. By contrast, there is no clear indication of Transylvanian salt extraction in the Avar period. After the 6<sup>th</sup> century date from Băile Figa, the exploitation of the Someş valley deposits is documented only in the written records from the early Árpád era<sup>66</sup>, although 10<sup>th</sup> century Hungarian occupation of the microregion is generally explained by the control of salt mining<sup>67</sup>. Unfortunately, we have even less information about possible early medieval salt exploitation in central and southern Transylvania (Turda, Ocna Mureş, and Ocnişoara), the first-written-records date back to the 11<sup>th</sup>–12<sup>th</sup> centuries<sup>68</sup>. Based on the archaeological sources, Avar-type cemeteries in Transylvania, mainly small and sporadic burial places, are restricted to the zone around the salt deposits on the Lopad plateau between Turda and Ocnişoara. However, the research on Avar settlement activity in the area is still in its initial phase. Thus, scholarship bounds the considerable settlement density at the lower course of the river Maros / Mureş only hypothetically to the communication with Transylvania, and, especially, among other goods, with the possible distribution of Transylvanian salt<sup>69</sup>.

<sup>59</sup> The issue of medieval salt routes in the Carpathian Basin is discussed, with further literature, in ROMHÁNYI 2017, p. 13–22.

<sup>60</sup> Concerning the salt deposits of the northern Mureş valley, see LAZAROVICI, LAZAROVICI 2015, p. 144–147.

<sup>61</sup> SZENTHE, GÁLL 2021, p. 357–360.

<sup>62</sup> Summarized in CAVRUC, HARDING 2012.

<sup>63</sup> HARDING 2011, p. 41–44.

<sup>64</sup> HARDING, KAVRUK 2010, p. 150–153.

<sup>65</sup> To the east-west route across the plains south of the Tisza (today’s Hortobágy), see SZENTHE, GÁLL 2022a, p. 298–303.

<sup>66</sup> ROMHÁNYI 2017.

<sup>67</sup> GÁLL 2013, p. 822.

<sup>68</sup> DRASKÓCZY 2014, p. 827; ROMHÁNYI 2016, p. 284–289.

<sup>69</sup> HORED T 1986, p. 71–72, abb. 33; FIEDLER 2008, p. 162 (mentioning Ocnişoara); SZENTHE 2019, p. 240.

## A tentative socio-economic model explaining early medieval salt redistribution in the Carpathian Basin

While subjective motives possibly led to the placement of the iron artefact in the Mártély grave, contextual patterns contradict this assumption. The pattern explained in points a-f above, presents a strong argument for identifying the Mártély “B” assemblage as a rare, but not extraordinary phenomenon, defined and understood on a comprehensive level in Late Avar society. The other analogous object in the collection of the Hungarian National Museum also fits this narrative. According to the relatively high representative value of the grave assemblage, the deposition of the iron artefact was motivated rather by its symbolic value than its function.

Building upon these arguments, we continue our deduction and draw a preliminary hypothetical historical model<sup>70</sup> concerning sociocultural structures working behind the creation of such a grave assemblage.

The Transylvanian salt deposits are located in a relatively inaccessible, closed geological setting, without major settlement centres, factors that are important to consider when researching the extraction and distribution of salt. There are hardly any signs of urbanisation<sup>71</sup> even in the relatively densely populated, central regions of the Carpathian Basin until the 9<sup>th</sup> century. The main factors in the emergence of a complex centre, such as a focal position in the east-west and north-south route systems, significant craft and agricultural production potential, and the presence of elites, are documented in the settlement centre along the southern course of the Tisza and the Maros-Tisza-Körös interfluvium. However, the settlements there were dispersed over a too large area and lacked the criteria of a real “central place”, including a fortified settlement focus with dense habitation. In Transylvania, at the eastern periphery of the Avar socio-economic system, in a rather sparsely inhabited area, the requirements for the emergence of a local centre were even less prevalent. In this regard, the structures built around salt exploitation had to be the result of “exogenous growth”<sup>72</sup> out of the Avar socio-economical system, where resource access and transport safety could have been the main bottlenecks of the redistribution<sup>73</sup>. We know practically next to nothing about early medieval salt extraction in the Carpathian Arch and Transylvania. Permanent extraction infrastructure sustained by local specialists must have existed, but their role in the redistribution system and their control over it are unknown. The sporadic but regularly dispersed cemeteries of militant communities are certainly the residues of a system controlling the area for Avar elites. Without information about the political system, we do not know whether transportation was guarded by military force and if so, how strong their presence was.

In our hypothetical model, we assume expeditionary salt redistribution, delivering the quantity needed to the home area, and the inner regions of the Carpathian

<sup>70</sup> Distinguished from general models. See PARKINSON 2010.

<sup>71</sup> To the problem of urbanisation in the period see the studies. For a complex analysis of Moravian fortified settlements see MACHÁČEK 2010.

<sup>72</sup> RENFREW 1975, p. 32–33.

<sup>73</sup> For this approach, see EARLE 2011.

Basin (or: to the redistribution area) by caravans. In the medieval system of salt transportation, the main route leading from southern Transylvania to the west crossed the river Tisza near Mártyély, south of the estuary of the Körös/Criş<sup>74</sup>. Interestingly enough, people taking part in salt distribution (*mansiones*, servants in dependent status) are mentioned in 11<sup>th</sup>–13<sup>th</sup> centuries written sources. They inhabited various settlements along the salt transportation routes, from which they departed and to which they returned carrying out expeditions for salt. As specialised servants, they collected salt according to the privileges and/or needs of their masters from Transylvania, then they redistributed it locally in their area. Even if the charters themselves are often later transcripts or fakes since their purpose is to secure the right of various ecclesiastical institutions, the practical details they describe have to be truthful, otherwise, the right claimed by the holder of the charter would have been discredited<sup>75</sup>. It seems, therefore, that salt distribution was carried out in the early period of the Hungarian kingdom by certain groups of servants, living along the salt road system enmeshing the Carpathian Basin. Due to the similarities between the 8<sup>th</sup> century and 10<sup>th</sup>–11<sup>th</sup> centuries locations of settlement hubs and road networks<sup>76</sup>, the early Árpád-period and Late-Avar-period systems are well comparable. The settlement cluster along the lower course of the Tisza/Tisa and the Maros/Mureş rivers emerged in the late 7<sup>th</sup> century and reached its full development by the end of the Late Avar period. This massive settlement hub must have been continuously inhabited during the 9<sup>th</sup> century. Otherwise, the 10<sup>th</sup> century settlement pattern would have emerged there without any antecedents<sup>77</sup>. This does not mean that social structures and redistribution systems would have remained unchanged since Avar's social and power structures disintegrated after the fall of the Avar Khaganate. The need for salt as a vital resource persisted, and, as local populations adapted to the changing conditions, rock salt extraction and distribution must have been maintained.

Early medieval economies are expected to be poorly organised systems. Thus, a relatively simple supply system is presumed even for salt, a strategic resource, which played an important role in generating social complexity in every historical era<sup>78</sup>. The early Árpád-age system fits this condition in general, although the system of royal storage houses shows an emergent complexity. We learn from Árpád-age written sources that the basic structures were modified and restructured by the elite, by royal and ecclesiastical power, as servants in dependent status provided salt for their lords who distributed parts of that further.

In the lack of written records, the Avar period structures are obscure. Similar to Árpád-era elites, Avar's central power and elites probably controlled the circulation of certain resources as well as communication. The aforementioned salt route

<sup>74</sup> ROMHÁNYI 2016, p. 270.

<sup>75</sup> ROMHÁNYI 2016, p. 271–274.

<sup>76</sup> See ROMHÁNYI 2017.

<sup>77</sup> Suggested already in BÁLINT 1991, p. 98–100. Recent studies provide new and decisive arguments for this continuity. Based on cerealia pollen distribution in the Carpathian Basin, see TÓRÓCSIK, SÜMEGI 2019, interpreted by SZENTHE, GÁLL 2021, p. 356–357.

<sup>78</sup> Salt occurrences are concentrated and relatively rare, which, together with the importance of the raw material, facilitate hierarchisation, concentration of power and specialisation. See HARDING 2021, p. 66–72.

may be an example of that, which led from Királyvölgy/Solone across the northern Transisza region towards the west, on which the Hortobágy-Árku cemetery occupied a strategic position<sup>79</sup>. This route indicates the existence of a redistribution system, with hubs held by specialised, militant communities probably under elite control<sup>80</sup>. Late Avar social structures are barely known, but there is strong evidence for the existence of specialist groups<sup>81</sup>. We presume that certain persons or communities in the Carpathian Basin population were more or less specialised in salt extraction and supply, as the Mártély Grave “B” may show. Even if these specialists enjoyed a particular position in Avar society, as Grave “B” again suggests, this had, however, nothing to do with elite status. In our opinion, the grave assemblage reflects an identity that was based on merely a close connection with the elite, not membership. The presence of gold reflects unusually high funerary representation. Access to the visual world of the elite is also shown by the iconography and shape of the belt ornaments, which, however, are made of cheap material with simple technology. Different from the elite, it was rather tied to the copper alloy ornaments widely used in the period.

In our model, all the special traits of the assemblage suggest special identity and social status, the direct symbol of which was the supposed mining pick. The three main attributes of this identity are: a) an activity expressed by a special tool; b) wealth; and c) communication with powerholders, indicating a person engaged in redistribution (trade?) as an entrepreneur, gaining profit from his activity. It is not clear, however, to what extent this activity was subjected to the control of the elite. Compared to the merchants in written Carolingian sources engaged in long-distance trade (*mercatores* or *negotiatores*, merchants operating partly independently, partly with the direct mandate of their lord)<sup>82</sup>, they could act either independently or under the control of a lord, or the khagan himself.

If the person in the Mártély Grave “B” was engaged in salt distribution (trade) he could have travelled with his caravans on the routes leading across the Tisza at Csongrád, in a northwesterly direction to the Danube bend or westward, through the Danube-Tisza Interfluve and the Roman river crossing on the Danube, to Transdanubia. These land routes were indicated by the distribution of Avar sites already from the late 7<sup>th</sup> century<sup>83</sup>, anticipating the medieval salt roads of the same area, because the main population hubs and redistribution centres retained their place and probably their importance in this region from the 8<sup>th</sup> century until the late 11<sup>th</sup> century.

The character of this reconstructed supply system depends on the situation of the salt sources in Transylvania. To draw a relevant model, information would be necessary on the settlement and power structures surrounding salt deposits, and the ways the local population used this resource. There are no traces of settlement in the vicinity of the “Királyvölgy”/Solone salt mine (Ukraine). Considering elevation and relief energy, the presence of a significant self-sustaining population in the 8<sup>th</sup>–9<sup>th</sup>

<sup>79</sup> See above.

<sup>80</sup> SZENTHE 2019, p. 238–240.

<sup>81</sup> A statistical analysis on the changes of Avar society see SZENTHE, GÁLL 2022b.

<sup>82</sup> MCCORMICK 2001, p. 11.

<sup>83</sup> For the details of the reconstruction, see SZENTHE, GÁLL 2021.

centuries there is highly improbable. In central and southern Transylvania, the terrain is much more favorable for human settlement, and there is abundant evidence of the Avar-period population<sup>84</sup>. However, the settlement patterns near the Turda, Ocna Mureș and Ocnișoara salt deposits still need further investigation.

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<sup>84</sup> Most recently COSMA 2017; DOBOS 2023.

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Fig. 1. The iron artefact from Mártély Grave „B” (Hungarian National Museum, photos by the author).



Fig. 2. The iron artefact of unknown provenance from the Carpathian Basin (Hungarian National Museum, photos by the author).

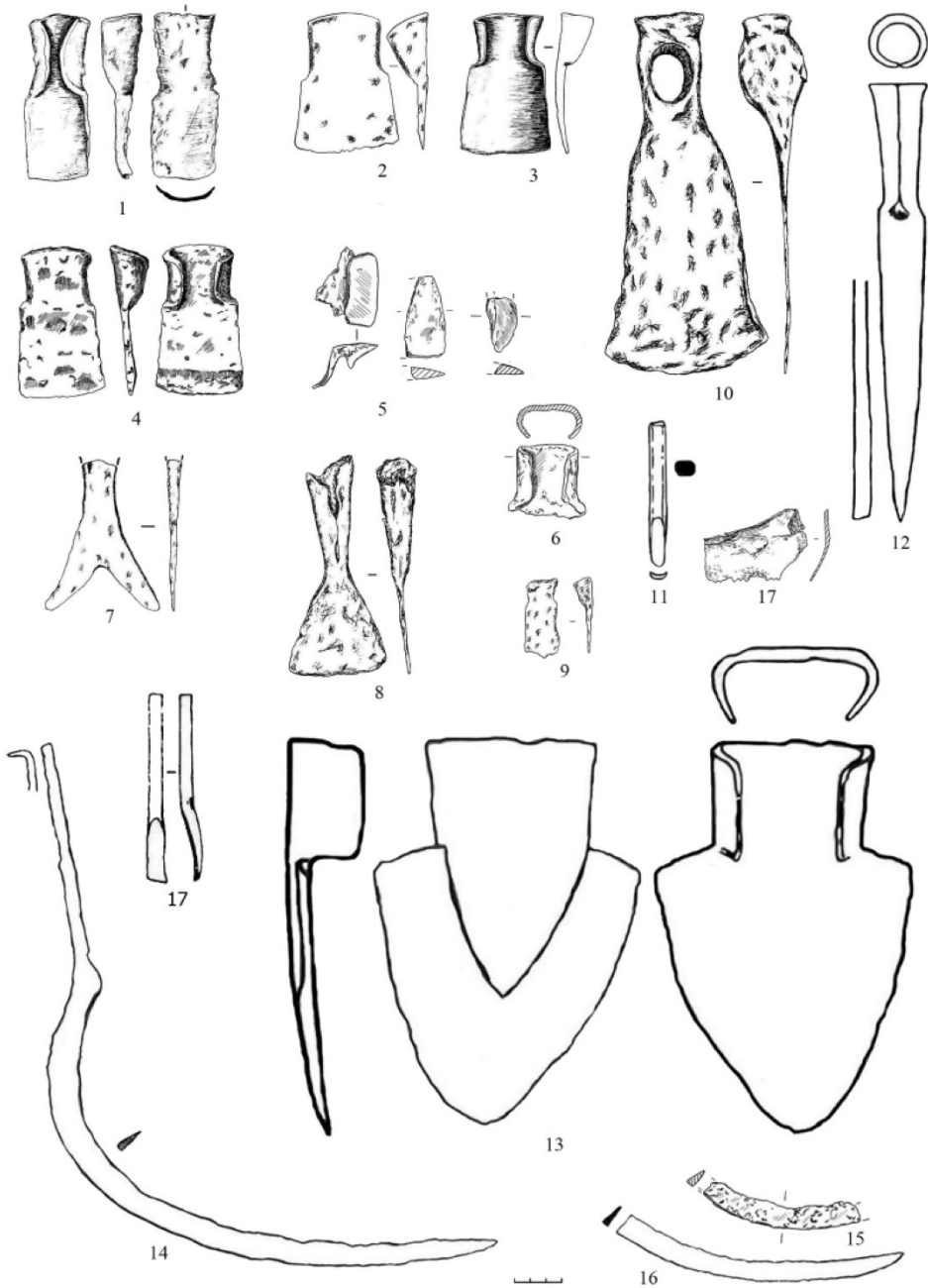


Fig. 3. The Sidorove depot assemblage (after KRAVCHENKO 2020, p. 114–115, Ris. 203).

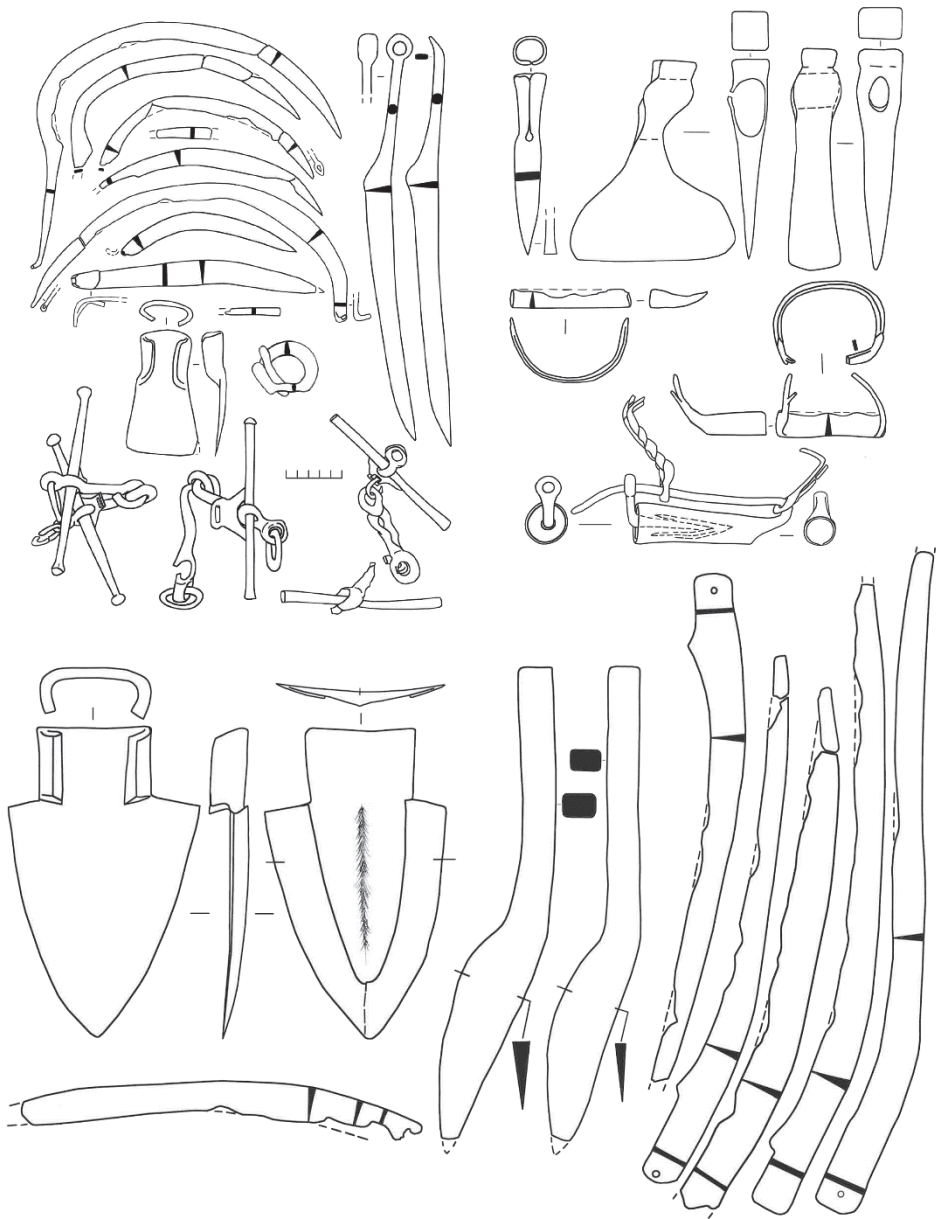


Fig. 4. The Mokhnach depot assemblage (after KOLODA 2015, Ris. 7).



Fig. 5. The Majaki depot assemblage (after KRAVCHENKO 2020, Ris. 163).

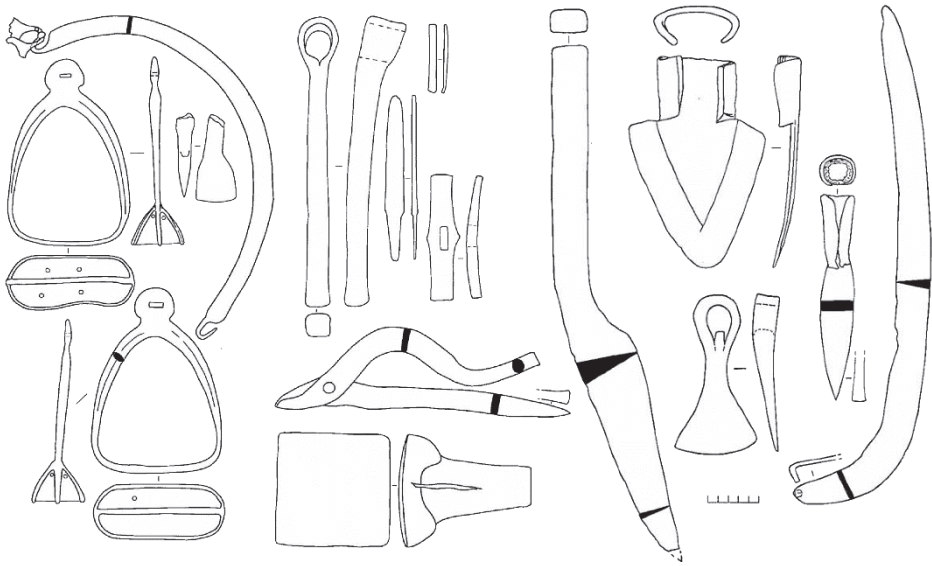


Fig. 6. The Bohorodichne depot assemblage (after KOLODA 2013, fig. 3, fig. 5).

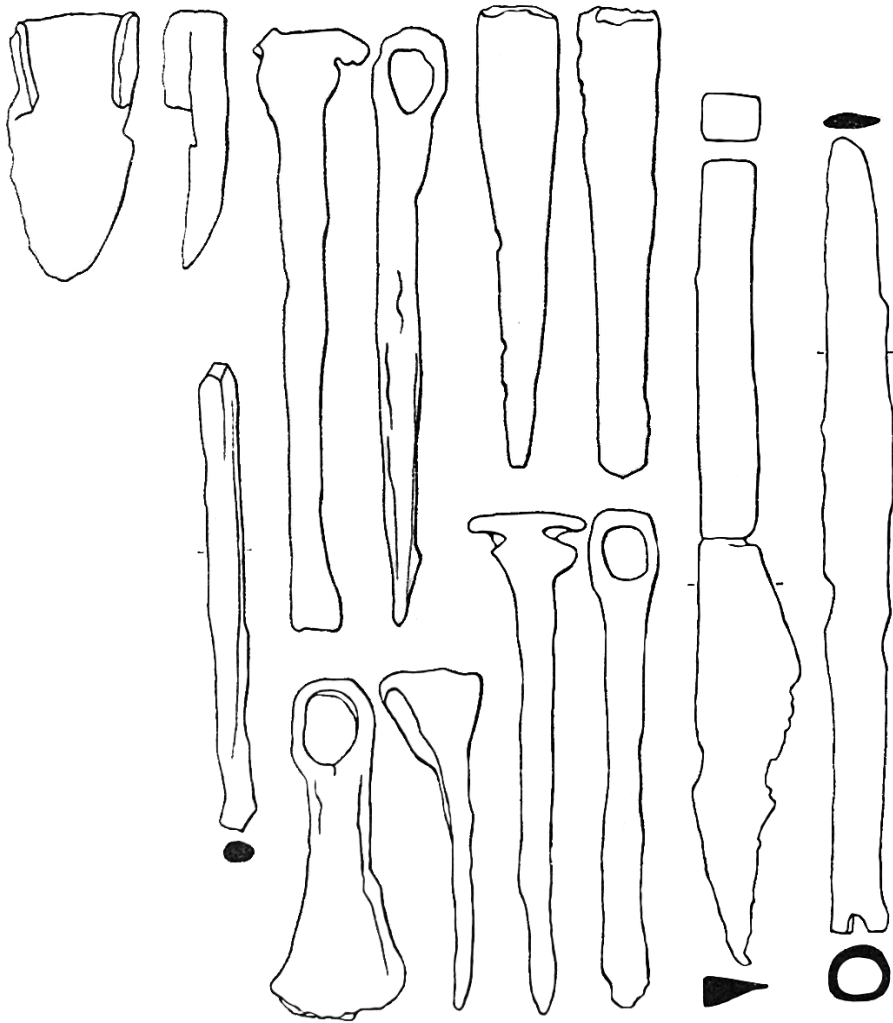


Fig. 7. The Sklabiňa depot assemblage (after BARTOŠKOVÁ 1986, Obr. 16, no scale in original publication).

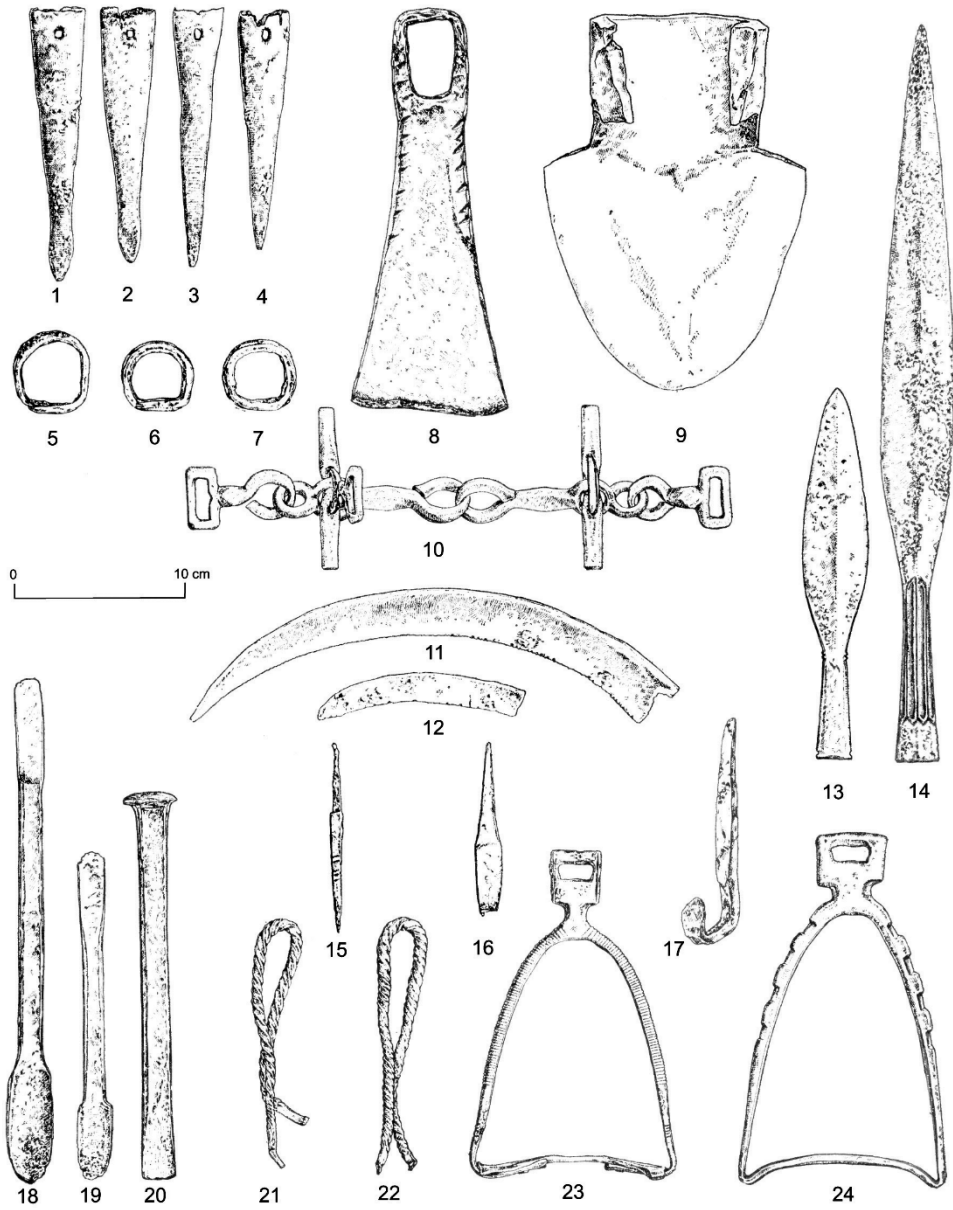


Fig. 8. The Sebenje depot assemblage (after KNIFIC 2010, p. 85, fig. 1).



Fig. 9. The supposed depot assemblage from Velem-Szent Vid (after MISKE 1907, XLVII/2, 12, 14–17, 19; XLVIII/1–2, 17; LI/14, no scale in original publication).

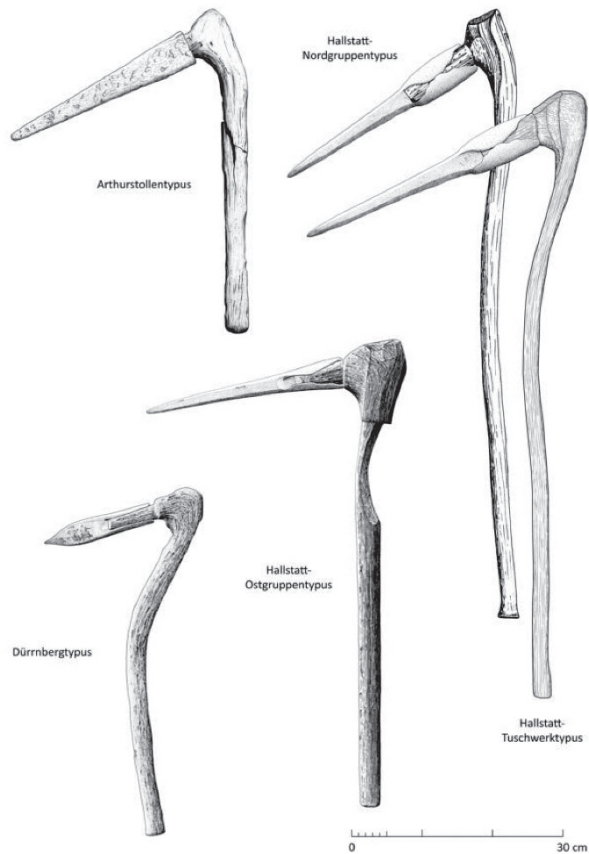
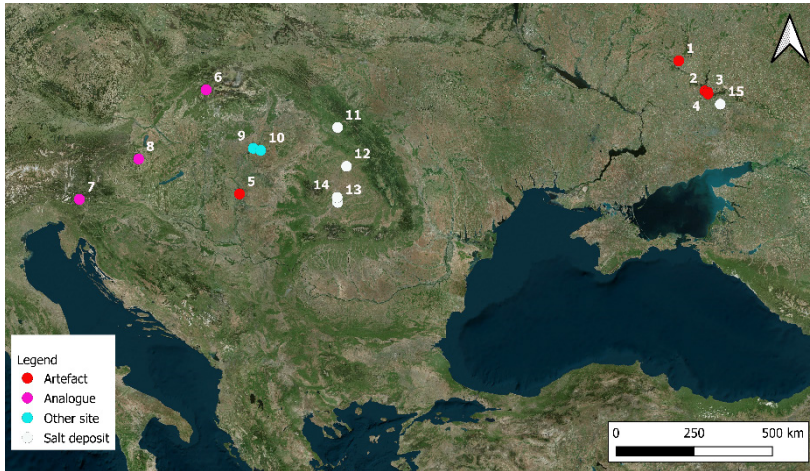
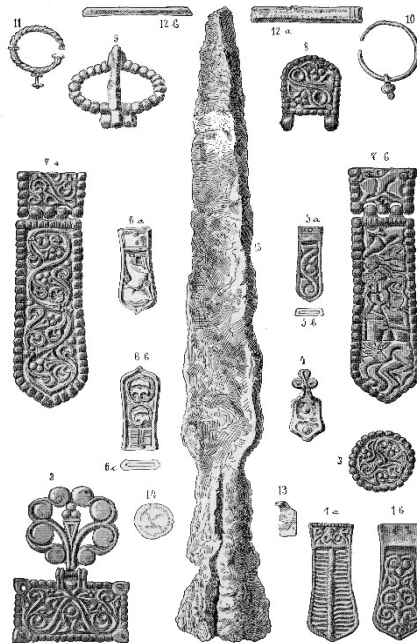


Fig. 10. Bronze Age analogues of the reconstructed pickaxe (after THOMAS 2018, p. 164).



**Fig. 11.** Regional distribution of the artefact and sites mentioned in the text: 1. Mokhnach; 2. Bohorodychne; 3. Sidorove; 4. Majaki; 5. Mártély; 6. Sklabiňa; 7. Sebenje; 8. Velem-Szent Vid; 9. Tiszafüred-Majoros; 10. Hortobágy-Árkus; 11. Solone; 12. Băile Figa; 13. Očnișoara; 14. Ocna Mureș; 15. Soledar (source: Bing satellite map).



**Fig. 12.** Assemblage „B” in the volume of József Hampel (after HAMPEL 1905, III/taf. 85, no scale in original publication).

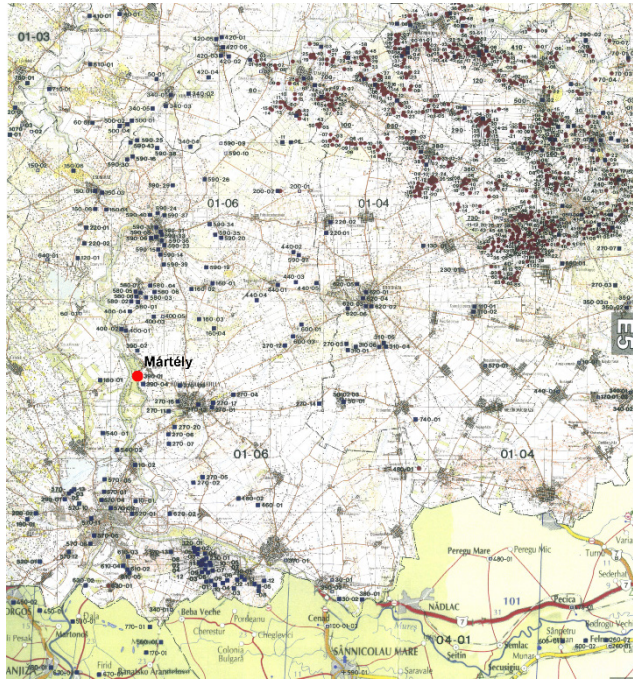


Fig. 13. Avar-period sites surrounding the present-day settlements of Csongrád and Mártély (after ADAM, map no. E5 and F5, the blue squares mark Late Avar period funeral sites).



Fig. 14. The belt set from Mártély Grave „B” (Hungarian National Museum, photos of the author).