ACROSS FRONTIERS AND CHANGING WORLDS

ARCHAEOLOGICAL PERSPECTIVES ON LATE ANTIQUITY AND THE EARLY MIDDLE AGES

Studies Dedicated to Dr. Ioan Stanciu on His 65th Birthday

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Dr. Ioan Stanciu

CUPRINS

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THE END OF TYPOCHRONOLOGY? DATING GRAVE 113 WITH THE PARTIAL HORSE BURIAL FROM VĂLCANI-VAMĂ[1]

Erwin GÁLL, Zsuzsanna KOPECZNY, Róbert GINDELE, Ștefan POPA

Abstract: *The largest 10th–11th century funerary site in Banat, located in Vălcani-Vamă (with 196 graves uncovered), comprises graves with W–E orientation, but in some cases, E–W orientations were also registered. The deceased were found in a variety of positions, primarily with regard to their arms. Some parts of the animals, probably sheep bones, were placed in the graves as the result of food preparation. The material culture and ritual practices are both very heterogeneous. Some aspects of the material culture have connections with the material culture of the Late Avar Age, such as the needle case. Burials with parts of the horses (skull and the four tibiae) were documented in ten cases, in four cases only the horse trappings were deposited in the graves (stirrups, bits, harness buckles). Grave 113 was radiocarbon-dated to obtain a more precise dating. Thus, the sample from the human skeleton conventionally indicates 1060±18. Calibration using the Oxcal 4.4 Interface program indicated a 95.4% probability that the death occurred between 992 and 1027 and a 68.3% probability that it occurred between 995 and 1022. The calibration suggests a high-probability date at the last decade of the 10th century and the first quarter of the 11th century. Based on the results of the 14C samples' taken from the 30–40-year-old individual, as well as the typochronological analysis of the finds, grave no. 113 was most likely dug in the first quarter of the 11th century, around the years 995–1022. This also means that, based on the available scientific researches, the life course of the adult person begun around the years 960–990. In conclusion, his life might have ended between approximately 992 and 1027. These data also demonstrate the persistence of the horse burial ritual in the first decades of the 11th century at the Vălcani burial site.*

Vălcani-Vamă grave 113, along with sites with similar characteristics, such as Békés-Povádzug, Csanytelek-Dilitor, Sarkadkeresztúr-Csapháti legelő, and perhaps Dabas-Paphegy, Ópusztaszer-Kiszner tanya, Tiszabercel-Újsor, demonstrate that this "prestige phenomenon" was still relevant in the 11th century, particularly in peripheral (geographical and social meaning) communities that had not yet been deeply affected by Christianity. At the same time, through the 14C analysis, we were able to prove that those types of objects that were suitable for identification in the burial sites of the first two thirds of the 10th century were still in use towards the end of the 10th century and the beginning of the 11th century (simple lock rings, bow, arrowheads, quiver, pear-shaped stirrup). Thus, the 14C result also led to the title of our study "The End of Typochronology?"

Keywords: *10–11th centuries, Vălcani, partial horse burial, 14C analyses, material culture*

[1] This work was supported by a grant of the Ministry of Education and Research, CCCDI – UEFISCDI, project number PN-IV-P6–6.1-CoEx–2024-0042, within PNCDI IV.

Introduction and motivation

The scientific and technical revolution of the late 20th–the early 21st centuries[2] has brought about several significant changes in the results of scientific endeavours in a multitude of fields – including archaeology. The implementation of research methods from the field of natural sciences in archaeological analyses dates back to the 20th century; however, their application in the archaeology of early medieval Eastern Europe has been more limited. Nonetheless, in recent years, the integration of different disciplines, including absolute radiocarbon dating, has brought important results, in some cases even questioning the entire system of typochronology of the early medieval era.

Bearing this in mind, we consider that it is worthwhile to approach an aspect of funerary rites with the help of natural sciences, namely the burial with horse remains, considered almost unanimously a characteristic of the pagan era. The partial horse burial represents one of the most typical pagan socio-cultural characteristics, virtually the cultural symbol of the 10th century, but at the same time, it is also a manifestation of social prestige dedicated to the deceased in that century.[3]

However, given that since the 1960s, we only have knowledge of one case in which the horse remains in a grave were dated to the 11th century based on the internal context of the necropolis (Békés-Povád),[4] we considered that it is necessary to ask the question whether at Vălcani-Vamă each grave with horse remains is dated mainly or exclusively to the 10th century. We would like to add that the necropolis was previously/up to our days dated to the 10th–11th centuries, with coins from Stephen I, Andrew I, and Solomon deposited in graves.[5]

Our endeavour is also methodological. We consider that the criticism of the uniformizing thinking deeply embedded in the method of analysis, under the overall influence of the typochronological thinking system (which in turn is the product of the modernist uniformizing thinking)[6] is useful and relevant. In order to nuance this uniform image, we also utilised radiocarbon analyses of the graves with the horse remains and with pieces of horse harness from Vălcani-Vamă. We carried out analyses in the case of 6 such burials (graves 17, 22, 54, 91, 107, 113), and the analysis would also be performed on another sample taken from grave 161.

Based on the individual calibration of the graves, grave 113's results are out of the ordinary, which is why we propose to debate the results, observations, and questions that follow these investigations.

A. The ritual of partial horse burial. Statistical data

Partial horse burials[7] are rightfully considered the most characteristic ritual of the pagan era (10th century). On the other hand, it is also the most debated funerary ritual in the scholarly

[2] On this aspect, see for example: Narayanamurti, Tsao 2021.

[3] AH 1996, 38.

[4] It is worth mentioning that grave 58, dated by an Árpád-era-coin, had in its inventory a bow and a quiver of arrows: Trogmayer 1960–1962, 18, 20, Fig. VI. This ritual, in its turn, characterizes pagan era burials.

[5] Considering that we have addressed this issue in other works, we will only cite: Gáll, Gindele, Blaskó 2021, 69–88.

[6] See in this sense the modern paradigm influenced by nationalism: Ariès 1997, 7–15.

[7] Some data about remains of two horses, see: Vörös 2013, 328. Apart from two vague discoveries from Rusovce grave 42 and from Kiszombor-funerary site "E" grave 43, we do not know of any other discoveries of an entire skeleton of a horse deposited in a grave: See: Bálint 1968, 43, 91, note 265.

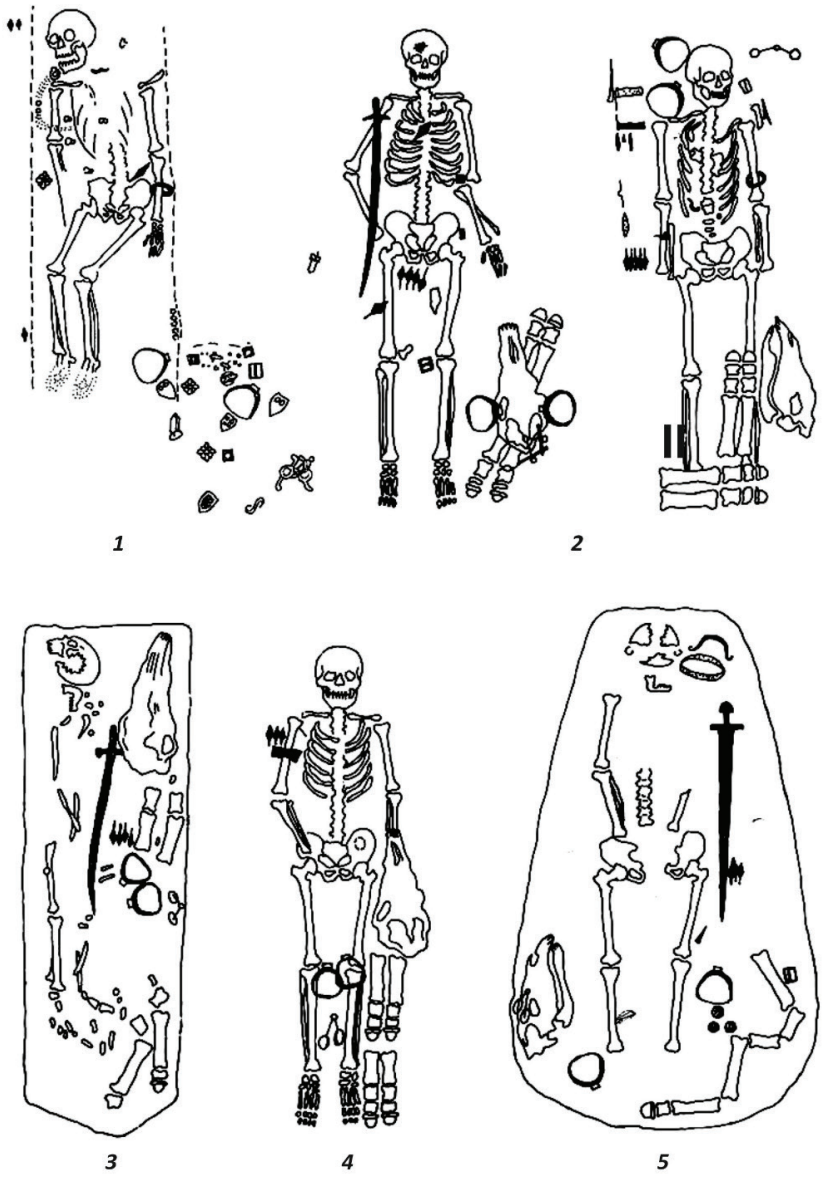


Fig. 1. Csanád Bálint's proposed classification of horse burial forms and with horse harness (Bálint 1969, I. tábla)

literature from the Carpathian Basin on the funerary archaeology of the 10th century. Researchers have been discussing the ritual of depositing the remains of the horse since the 19th century,[8] but the first more rigorous analyses were carried out by Gyula László. Among the funerary customs of the conquest period, a primary classification of horse burials remains is linked to the name of the Transylvanian-origin archaeologist.[9] However, the classification that is eventually in use today is linked to the name of Csanád Bálint, who distinguished 5 groups.

[8] Nagy 1893a, 105–117; Nagy 1893b, 223–224; Nagy 1893c, 313–323. The horse's head and tibiae bones, i.e., partial horse burial, were identified in the first grave discovered at Ladánybene-Benepuszta (1834): Langó 2007, 62–68.

[9] László 1943, 46–60. He identifies two main groups of burials with horse remains.

Bálint's classification is simple and easy to follow. From a quantitative aspect, Bálint overwhelmingly classified the graves into groups 1 (*symbolic*, i.e. only the harness was deposited in the grave: 101 cases) and 2 (*the head and four tibiae of the horse wrapped in its hide* (?), *deposited along the feet of the human deceased*: 136 graves) (partial horse burials with the hide deposited at the feet). In his classification, a significantly smaller number of graves represent groups 3 (*the remains of the stuffed horse, which consists of positioning the tibiae and the head of the horse along the entire length of the grave in anatomical position, with the intention of representing the living animal*), 4 (*the remains of a horse with folded hide*), and 5 (*burials featuring a laid-out horse hide*).[10] Bálint interpreted groups 1 and 2 from an ethno-cultural aspect, as a representation of the population of the "*Hungarian conquerors*" from the 10th century, and those in groups 3–5 as members of a *Turkic* population.[11]

Bálint's results were accepted, or at least tacitly acknowledged, in the archaeological literature.[12] Some completions were proposed by László Révész in 1996. According to him, Bálint's group 5 is actually a variant of group 2.[13]

Csanád Bálint's classification was later completed and to some extent critiqued by the archaeozoologist István Vörös on the basis of a comprehensive summary of the data from the Upper Tisa region.[14]

More recently, István Vörös also reviewed the research history on this subject, their formal systematization, and some additional aspects (e.g. religious) in a detailed analysis.[15] In his paper, Vörös actually proposed a new typology, which, however, in our opinion, on the one hand remained unsubstantiated, and on the other hand, if applied to the entire set of finds, would create total chaos.

Vörös distinguished the versions of *burials with horsehide* (I) and *without horsehide* (II), and in the first group, he included three subgroups: *folded* (1), *rolled* (2), and *stretched* (3).[16] However, we must mention that in the majority of the cases, we do not have any clear evidence regarding the skin left on the horse's bones,[17] so this classification involves a lot of uncertainty, and would inherently lead to a chain of mistakes.

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[10] Bálint 1969, 107–114.

[11] This interpretation was argued by István Fodor, who demonstrated that these two groups have common roots and appear much earlier than the 10th century; for example, the second group is documented as early as the 14th century BC, at Sintașta: Fodor 1977, 104, note 53; Fodor 2009, 24, fig. on the middle of the page.

[12] In the following years, Bálint returned to the topic, publishing studies in the 1970s and 1980s. He took up the issue of the graves that he classified in Bálint Group 2, comparing them with those in Groups 3–5: *"A sztyeppei lovasnomádok emlékei között nem találni „lábhoz tett lóbőrös" temetkezést. Másrészt a sztyeppén — az egész ló eltemetése mellett — a „kitömött lóbőrös" változat fordul elő". „Foglaljuk össze, mit tudunk — szórványos adataink alapján — a „kitömött lóbőrös" temetkezési szokásról: a) legkorábban a IV—VI. században, a Kazah hátságon és a Felső-Ob mentén fordul elő; b) igen kis számban megvan a VI—VII. századi avaroknál és c) a IX—X. századi magyarok egy csoportját jellemzi. d) Dél-Oroszországban a IX. sz. vége előtt ismeretlen. A IX. sz. végéről való a Vereckétől mintegy 100 km-re talált két kryloszi sír, melyeket kutatásunk egyhangúan Árpád népéhez köt. Ebben az időben kezdtek el temetkezni a sarkeli kurgántemetőbe is. e) A X—XI. sz. folyamán besenyő emlékanyaggal kísérve, szélesen elterjedt a sztyeppén, f) Belső-Ázsiában csak jóval a IX. sz. után jelentkezik"*. Bálint 1971, 97, 99. See also Bálint 1982, 7–35.

[13] Révész 1996, note 62.

[14] Vörös 2001, 569–601.

[15] Vörös 2013, 321–336.

[16] Vörös 2013, 327–328, 2. táblázat.

[17] A reconstruction and 3D-Modelling of a partial horse burial, see: Langó, Réti, Türk 2011, 348–355.

One of the authors of this article proposed in a previous paper 17 variants of the manner of deposition of horse bones within group 2 (as a completion to Bálint's work), while still accepting the systematization proposed by the renowned Budapest archaeologist regarding groups 1, 3–5.[18]

Thus, after more than 55 years since the systematization proposed by Bálint, namely the form of deposition of horse remains, we consider that it is still valid today. Their quantity has obviously changed: compared to Bálint's rituals of this type, we were able to record in 705 sites 1506 graves/funerary contexts.[19] Csanád Bálint's observations are also valid regarding the quantity of cases: groups 1 and 2 are still quantitatively the most highly represented today. However, in a significant number of cases, we merely dispose of indirect data regarding *burials with horse remains and/or (symbolic) harness*.[20]

Another aspect regarding *burials with horse remains* that is, in our opinion, important to mention, is the problem of the persistence of the ritual in the 11th century. So far, a very small number of cases were dated to the 11th century.[21] Until today, we do not know of any work in which such burials have been catalogued and analysed. The scholarly literature does not present discussions of this kind, since in the majority of cases, specialists – in the absence of coins, i.e. a certain *post quem* dating – lacked unambiguous arguments. One example can be cited from the experience of one of the authors of this paper. Microtopographically, at Hodoni site, grave 3 (with a pear-shaped stirrup in its inventory) was identified next to graves 2 and 4 dated with the coins *H1* of Stephen I, i.e. certainly dated after the year 1001. However, we date it with certainty based only on the microtopography of a grave (in this case, to the 11th century)?[22]

Thus, this ritual was usually inherently linked to the pagan century,[23] although there also have been opinions on the opposite side. This pagan practice, according to László Kovács, can be documented in the 11th century in the Dabas-Paphegy funerary site (**Pl. 4**).[24]

B. The funerary site from the 10th–11th centuries

The funerary site from Vălcani-Vamă dated to the 10th–11th centuries exhibits significantly great diversity. The 196 unearthed graves represent the most extensive funerary site in the western part of present-day Romania. The majority of the graves were oriented, with minor variations, W–E, while some were oriented E–W.

In similar way to the ritual practice, the material culture record of this era is rather heterogeneous, as evidenced by the diversity of jewelry types (earrings, lock rings, finger rings, bracelets), weapons (bows, quivers, arrowheads), horse harness accessories (pear- and trapeze-shaped

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[18] Gáll 2013, Vol. I, 617–629, Vol. II, Pl. 304–306.

[19] Gáll, Fülöp, Nagy 2025, Annex 1.

[20] Gáll, Fülöp, Nagy 2025, Annex 1.

[21] Vályi 1994, 395–396.

[22] Gáll 2013, Vol. I, 230, 235.

[23] *"…Az érmek tanúsága szerint a temetőt a XI. sz. első harmadától a XII. század első harmadának végéig használták. A temetkezési szokások és a tárgyi anyag egy része azonban régibb időre utal, a temetőnek jóval előbbi telepítését valószínűsíti… A 45. sír temetkezési módját és a mellékleteket vizsgálva, első pillanatra szembetűnik, hogy pogány módon eltemetett, s a X. századnál semmi esetre sem fiatalabb sírt találtunk."* Trogmayer 1960–1962, 34, 36. *"…mely szerint lócsontokat is találtak, s feltételezzük, hogy a Banner Benedek által kibontott lókoponya és lólábak sírból származnak, akkor a temető használata esetleg már a 10. század végén elkezdődött"*. Medgyessy 1992–1995, 202.

[24] Kovács 1985, 380, 382.

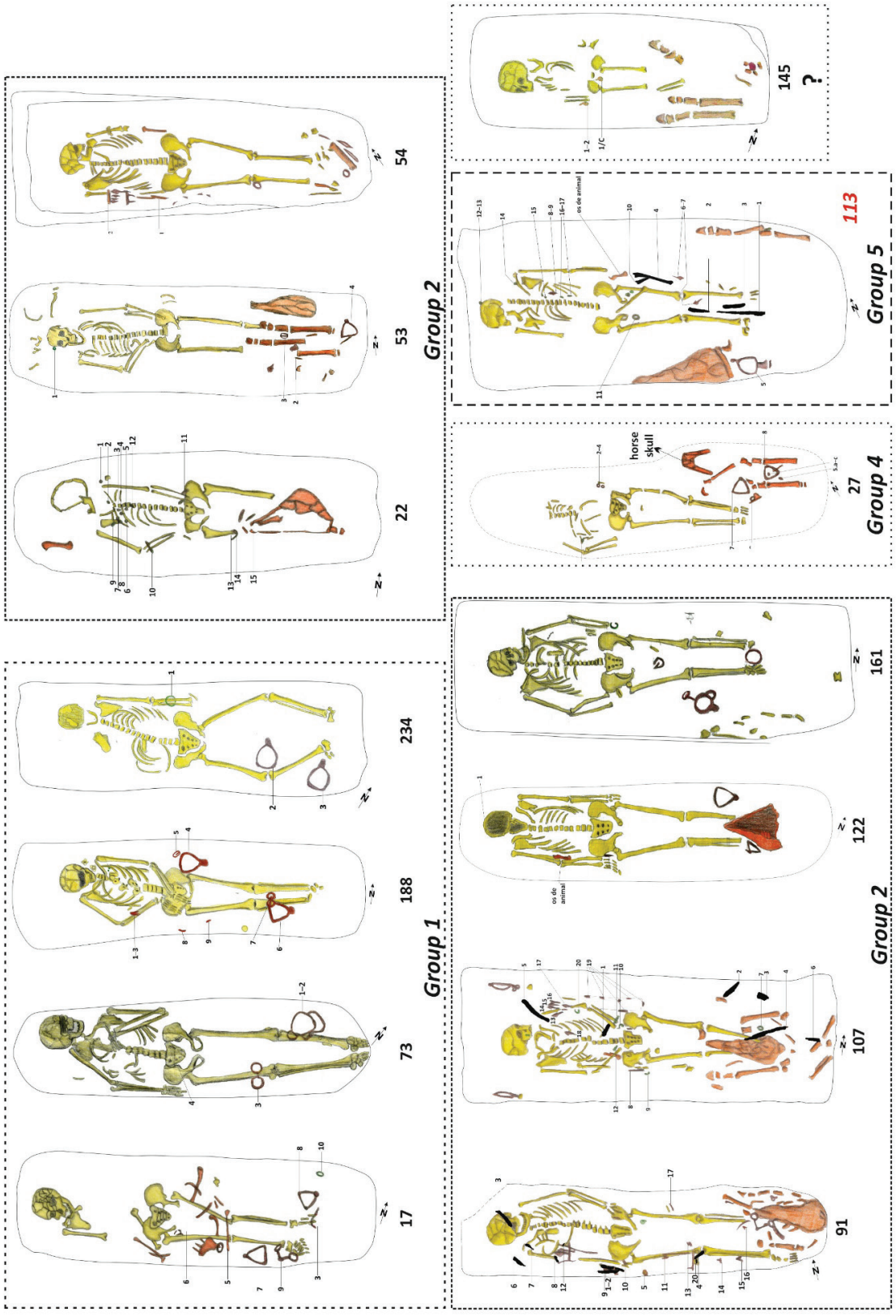


Fig. 2. Horse burials (partial and symbolic/with horse harness) from Vălcani-Vamă, classified according to the system of Csanád Bálint (1969)

stirrups, horse bits, strap buckles), tools (needle cases, needles, strike-a-lights), and coins issued by the Árpádian kings. Certain aspects of the material culture reveal connections to the Late Avar Period. Based on occurring artefact types and particularly the coins issued in the 11th century AD, the funerary site was in use from the last decades of the 10th century AD to the 1070s.

The main characteristic of the burial site is the rather high number of horse burials (graves no. 22, 27, 53, 54, 91, 107, 113, 122, 145, 161), accounting for 5.07% of the total graves.[25] However, this percentage would likely be significantly higher if the exact number of graves from the pagan phase of the necropolis were known. This places Vălcani within the broader phenomenon of horse burials, specific to the 10th century[26] and the first half of the 11th century, which is a nomadic cultural habitus.[27]

Regarding their position no distinct spatial pattern or concentration of the graves could be discerned within the cemetery. The burials containing partial horse burials and/or harness pieces tended to occur in the northern and southern areas, being largely absent from the central part (with grave 234, which contained harness pieces, as an exception).

Applying Csanád Bálint's classification, most of the 14 graves from Vălcani-Vamă containing partial horse burials or/and harness could be classified numbered in groups 1–2 (11) and only two in groups 4 and 5 proposed by the Hungarian archaeologist:

Table 1. Horse burials (partial and symbolic/with horse harness) from Vălcani-Vamă, classified according to the system of Csanád Bálint (1969, 108, 110)

Group	Description	No. of grave
Group no. 1	*Symbolic horse burial (horse harness deposited in the grave)*	Graves no. 17, 73, 188, 234
Group no. 2	*Horse burials with the horse hide deposited at the feet (the head and the 4 tibias of the horse in its hide)*	Graves no. 22, 53, 54, 91, 107, 122, 161*
Group no. 4	*Burial with folded horsehide: the head of the horse is followed by the horse's four shins*	Grave no. 27
Group no. 5	*Burials featuring a laid-out horse hide*	*Grave no. 113*
Unclassified/unclassifiable burial	Burial containing only the lower portions of two horse legs**	Grave no. 145

* The grave was severely disturbed by agricultural work.

** It should be noted that only two horse legs are preserved. The issue remains whether a horse skull was originally present, and whether it may have been displaced by plowing or other soil disturbances.

C. Microtopography of grave 113 (Pl. 1)

The grave was discovered in the southern part of the cemetery. Right next to it, grave no. 1 was documented, relatively close to graves 69, 72, and 116 (5–9 metres). The inventory of grave 1 included an iron knife, while graves 69 (*Infant I*) and 72 (*adult* person) had no grave goods. Instead, grave 116 contained a cast wire-like bracelet with rhomboidal cross-section (a typical

[25] On the Christian cemeteries and burials, see: Vargha 2022, 43–69.

[26] Kovács 2013, 511–604 (with bibliography).

[27] Szenthe, Gáll 2022b, 315–335.

element of the material culture of the 11th century).[28] Thus, it can be observed that the burials surrounding grave 113 were characterized by poor or absent grave goods. Grave 116 most likely dates to the 11th century. To the south of these burials, graves 73 (with horse harness/Group 1) and 75 were recorded at a distance of approximately 15–20 m from grave 113 (**Pl. 1**).

D. Description of grave 113 (Pl. 2–3)

Level of grave shape contouring: 77.81 m; depth: 77.49 m. Depth from the contour: 32 cm.

Adult skeleton. Sex: male. Age: 30–40 years old. Orientation: WNW–ESE (290°). **Shape of the burial pit:** rectangular, with rounded corners, gradually narrowing and tapering towards the bottom. **Dimensions:** length 230 cm; maximum width 102 cm.

The skeleton was supine, with the skull displaced onto its right (southern) side. The left arm and forearm lay alongside the body, as did the right arm, whereas the right forearm was dislocated between the thighs. The legs were extended and positioned close together at the knees.

The length of the skeleton (from the head to the heels): 162 cm.

Funerary ritual: I. The horse's head was placed 25–30 cm above the human skeletal remains, positioned against the southern edge of the grave pit, parallel to it, with the snout facing west. The horse's tibiae were placed beneath its head, whereas the remaining two tibiae were registered near the northern edge of the burial pit. Classification: group 5[29] (Fig. 1). An iron stirrup was discovered on the eastern side of the horse's skull. The location of this stirrup, combined with the absence of its pair, suggests that the grave did not contain a full saddle; II. The bone of an animal, deposited near the left arm.

Grave goods:

1. Bone lateral tip curved plate at the end of the bow. It was positioned between the tibiae, parallel with item no. 3. Towards one of its end, lateral, we can record a semicircular groove where the bowstring was placed. The plate is curved. The length of the plate: 25.97 cm; maximum width: 2.19 cm; thickness: 0.28 cm (**Pl. 2/113.1**).

2. Bone lateral tip plate at the end of the bow, with a nearly straight profile, found, similarly, between the tibiae. One end was rounded, while the other – where the semicircular groove for the placed of the bowstring is positioned – rounded and narrowed. The length of the plate: 13.74 cm; maximum width: 2.01 cm; thickness: 0.20 cm (**Pl. 2/113.2; Pl. 3/113.2**).

3. A curved lath from the side of a bow-tip, made of bone, positioned near item no.1, similarly between the tibiae. On one of the fragments a semicircular groove can be observed The length of the plate: 17.53 cm; maximum width: 2 cm; thickness: 0.24 cm (**Pl. 2/113.3; Pl. 3/113.3**).

4. Partially restorable fragments of a *curved lath from the side of a bow-tip*, made of bone. A semicircular groove can be observed on one end. The length of the plate (approx.): 17.53 cm; maximum width: 1.95 cm; thickness: 0.25 cm (**Pl. 2/113.4; Pl. 3/113.4**).

5. A *pear-shaped stirrup* (type 1c1[30]) was discovered at the eastern proximity of the horse skull. The lug has a truncated conical shape, while the opening for the stirrup leather is rectangular. The lug connects directly (without a neck-piece) to the shoulder of the stirrup. The branches have a flattened rectangular cross-section. The footplate is semicircular. Height:

[28] Szabó 1978–1979, 66; Giesler 1981, 120, type 7; Langó 2000, 40.

[29] Bálint 1969, I. tábla.

[30] Gáll 2015, 400, pl. 1.

16.44 cm; maximum width of the stirrup: 12 cm; dimensions of the rectangular opening: 1.0 × 0.8 cm; width of the sidebar: 1.0 × 0.6 cm; width of the footplate: 0.35 cm. Weight: 261.7 grams (**Pl. 2/113.5; Pl. 3/113.5**).

6–7. Two iron rhomboid arrowheads in the area of the left knee (**Pl. 2/113.6–7**).

8–9. Two iron rhomboid arrowheads were discovered among the ribs on the left side (**Pl. 2/113.8–9**).

10. An iron knife in the upper area of the left femur, under the pelvis. The tool was deposited with its tip pointing towards the feet (**Pl. 2/113.10**).

11. Iron belt buckle on the right side, under the pelvis (**Pl. 2/113.11**).

12–13. Two lock rings, made of copper alloy, recovered from beneath the human skull (**Pl. 2/113.12–13**).

14–17. Four buttons, made of copper alloy, positioned in a row, spanning from the left shoulder to the upper-left side of the spinal column (**Pl. 2/113.14–17**).

E. Typochronological dating of the inventory of grave 113

The inventory of grave 113 exhibits the characteristics of a simple male grave, with the deceased interred with weapons characteristic to the 10th century funerary assemblages.[31] The bow in the grave, which was deteriorated and broken during the burial ceremony, is generally dated mainly to the 10th century.[32] It is interesting that the four arrowheads were discovered in two places, these being characteristic rhomboidal types of the 10th century.[33]

A single piece of pear-shaped stirrup was identified in the grave; this is a typical inventory of burials with horse remains from the 10th century.[34] On the other hand, this type of stirrup is usually dated mainly to the first two thirds of the 10th century.

The other grave goods (loop rings, buttons, buckle) do not provide a more precise dating within the 10th–11th centuries.

In conclusion: typochronology only allows for



Fig. 3. Grave 113 from Vălcani-Vamă

[31] Among the regions in the Carpathian Basin, a comprehensive regional catalogue has been compiled discussing only the Transylvanian Basin, Partium/Crișana, and Banat (Gáll 2013, Vol. I, 719–755, vol. II, pl. 318–319). For smaller regional units (at county level), see the series of volumes on burial sites from the 10th–11th centuries: https://ri.abtk.hu/hu/cikkek/51-kiadvanyok/84-monographs/85-series/88-corpus/116-mhkas/1082-mhkas-hu. Thus, based on these data, we believe we can discuss over 1300 burials with bow and quivers for the arrows. In this sense: Bíró 2013, 373–422.

[32] Cs. Sebestyén 1932, 180–255; Bíró 2013, 373–422. For a comprehensive analysis of the damage and destruction of the bows in the 10th century graves', see: Bíró 2016, 605–621. About the phenomenon of weapon destruction, see also: Szenthe, Gáll 2022a, 132–133, 135.

[33] Cs. Sebestyén 1932, 193–206.

[34] Gáll 2015, 370, Fig. 15.

a broad dating, spanning a century, which is why we decided – once again – to carry out radiocarbon analyses.

F. ^{14}C dating of grave 113

Since the grave inventory is chronologically very poor, as shown in the typochronological analysis, we proposed verifying its chronological placement using radiocarbon dating. It should be noted that radiocarbon dating has only recently become a widely used method in the archaeological research of the Early Middle Ages;[35] therefore, each new sample is relevant.

Within the framework of a research program,[36] we performed AMS radiocarbon analysis.[37] The sample taken from the human skeleton in grave 113 conventionally indicates 1060±18, placing the death of the male individual, a young adult (30–40 years), between the years 900 and 1030 AD. Calibration in the *Oxcal 4.4. Interface* program indicates, with a 95.4% probability, that the year of death occurred between 992 and 1027 AD, and with a 68.3% probability, between 995 and 1022 AD (**Fig. 4**).

Thus, based on the ^{14}C analysis, grave 113 was most likely dug during the final years of the 10th century or, much more probably, in the first quarter of the 11th century. This scientific finding also suggests that the adult male's life likely began between approximately 960 and 990 AD.

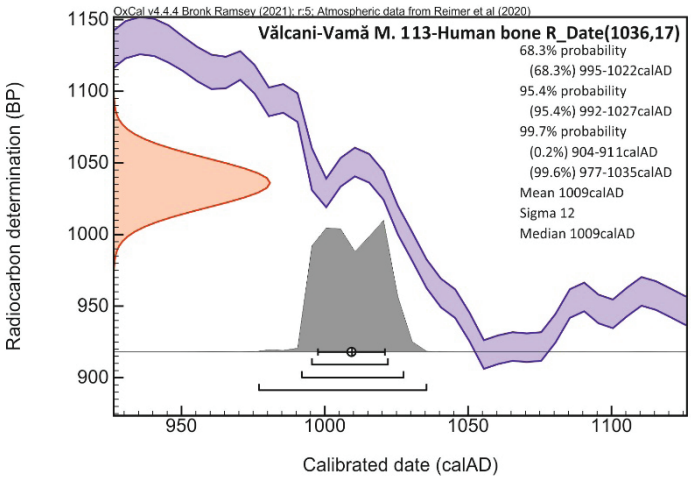


Fig. 4. Calibrated radiocarbon date of the human sample from Vălcani-Vamă Grave 113

Conclusions and questions

1. The burial in grave 113 of an adult male (30–40 years old) with weapons and horse remains (group 5: burial featuring a laid-out horse hide) was almost certainly carried out during

[35] Szenthe, Faragó, Gáll 2024, 443–492.

[36] Project no. TKP2021-NKTA–24 has been implemented with the support provided by the Ministry of Innovation and Technology of Hungary from the National Research, Development and Innovation Fund, financed under the TKP2021 funding scheme.

[37] The measurements were performed by Isotoptech Zrt. Laboratory, Debrecen, Hungary. At the same time, we sought to filter out the possible influence of the so-called reservoir effect by taking 13C and 15N measurements from the bones in question in laboratory from Debrecen.

the first two decades of the 11th century. He was born "pagan" in around 970–980/990–1000 – died "pagan" (?), but he was definitely buried according to the pagan ritual probably in the first decades of the 11th century! At the same time, this pagan ritual practice raises questions about the extent degree of process of the Christianization in the Cenad area, given that the cemetery in Vălcani is located 22 km away from the catholic religious center, which also has an earlier, Eastern Christian establishment under Ahtum's rule.

2. Through the ^{14}C analysis, we were able to prove that those types of objects that were suitable for identification in the burial sites of the first two thirds of the 10th century were still in use towards the end of the 10th century and the beginning of the 11th century. Here, we mean not only the jewellery (simple lock rings), but especially harness, such as the pear-shaped stirrup that is vastly associated with the first part of the 10th century in the archaeological literature. Had we based our dating only on classical typochronology analyses, without ^{14}C analyses, we would have dated the grave to an earlier date (which would have been a false scientific result)! The ^{14}C result also suggested the title of our paper *"The End of Typochronology?"*, namely how much longer can we believe in the uniformity of typochronology? Accordingly, it is obvious how absolute contextual dating faces us with new questions.[38]

3. As we mentioned before, up to these days, no analysis has been carried out on the burials with horse remains from the 11th century – i.e. the so-called Christian era (see *section A*). This fact can be objectively explained, since we did not have any reliable arguments in this regard. Thus, only a few cases could be dated with certainty to the 11th century, but even there, some doubts remain. For example, even if László Kovács dated Dabas-Paphegy grave 1 to the 11th century, its orientation is different from those that can be dated with certainty to the 11th century (see Pl. 4). In consequence, we cannot exclude another interpretation: in the 11th century, a Christian or proto-Christian burial site was established around the single 10th-century grave.[39]

4. In a recent paper, we have compiled a catalogue of 10th–11th-century graves with partial horse burials.[40] Of the 1506 funerary contexts identified in 705 burial sites, we can date with certainty to the 11th century only grave 45 from Békés-Povád, grave 12 from Csanytelek-Dilitor, grave 117 from Sarkadkeresztúr-Csapháti-legelő, apart from grave 113 from Vălcani-Vamă.[41] Grave 45 from Békés-Povád, with trapezoidal stirrups in its inventory, certainly is part of an 11th–12th-century necropolis (see Pl. 5),[42] while grave 117 from Sarkadkeresztúr-Csapháti legelő can be dated by an H1 coin from Stephen I's period (1001–1038)[43] along with an S-ended loop

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[38] Szenthe, Faragó, Gáll 2024, 443–492.

[39] Kovács 1985, 380, 382.

[40] Gáll, Fülöp, Nagy 2025, Annex 1, Fig. 2.

[41] Grave 1 at Dabas-Paphegy, grave 1 at Ópusztaszer-Kiszner-tanya (see Pl. 8), and graves 2, 3, 12, and 36 at Tiszabercel-Újsor raise certain questions regarding their dating in the 11th century. Kovács 1985, 380, 382; Vályi 1994, 387–404; Istvánovits 2003, 200, 202, 345.

[42] Trogmayer 1962, 34: the first coins dating the graves *post quem* were issued by Béla dux, respectively Solomon (1063–1074), and the last issue is by Béla II (1131–1141).

[43] *"A szintén Békés megyében, a Sarkadkeresztúr, Csapháti-legelő, Barna-tanya lelőhelyen feltárt 10–11. századi temető 117. sírjában íjászfelszereléssel, lószerszámmal eltemetett halott sírjában I. István pénze került elő"*. ("In grave 117 of a deceased buried with archery equipment and horse harness, excavated at the 10th–11th-century burial in Sarkadkeresztúr, Csapháti-legelő, and Barna-tanya sites (also in Békés County), Stephen I's coins were discovered." [translated by the authors]). Medgyesi 2002, 162.

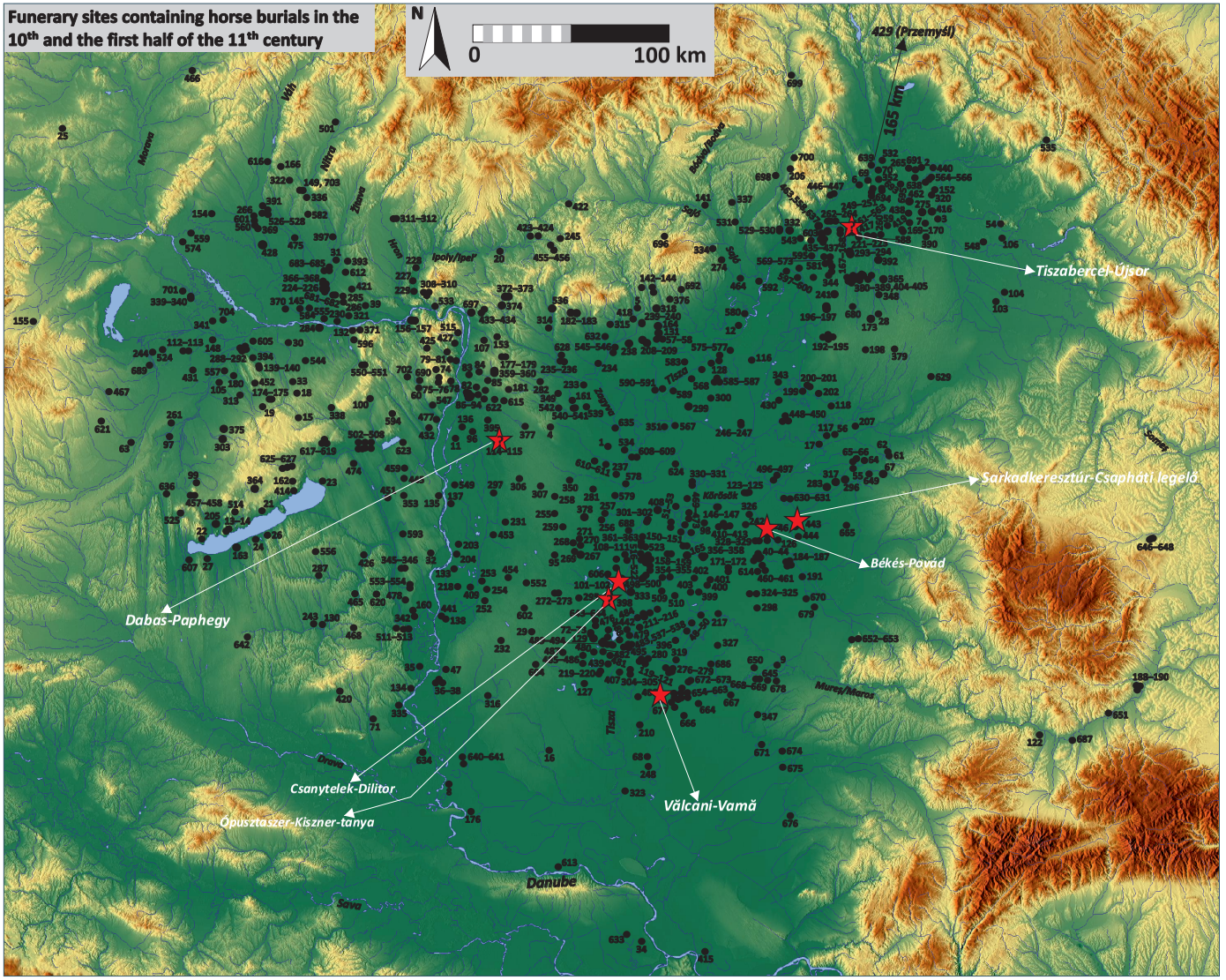


Fig. 5. Horse burials (partial and symbolic / with horse harness) in the 10th–11th centuries from the Middle Danube Basin (burial sites with graves dating with certainty to the 11th century are marked with a red star) (the map and the list of the distribution of the horse graves after Gáll, Fülöp, Nagy 2025, Fig. 1, Annex 1)

ring, and trapezoidal stirrups (Pl. 6–7).[44] Grave 12 from Csanytelek-Dilitor, with harness pieces and weapons (remains of a quiver and arrowheads) as inventory, comes from a necropolis dated by Peter Orseolo's coins. In grave 54, next to the arrow quiver, Peter Orseolo's coin (1038–1041, 1044–1046) was recorded (H9).[45]

In conclusion, only a small number of graves with horse remains can be safely dated to the 11th century, but in reality, their number must have been much higher. We consider that their accurate identification – in the absence of more reliable dating elements, such as coins – would be possible only through radiocarbon dating in the future. This can undoubtedly become a very interesting research topic!

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[44] Medgyesi 1993, X–XI. tábla.

[45] Széll 1941, 246, 249.

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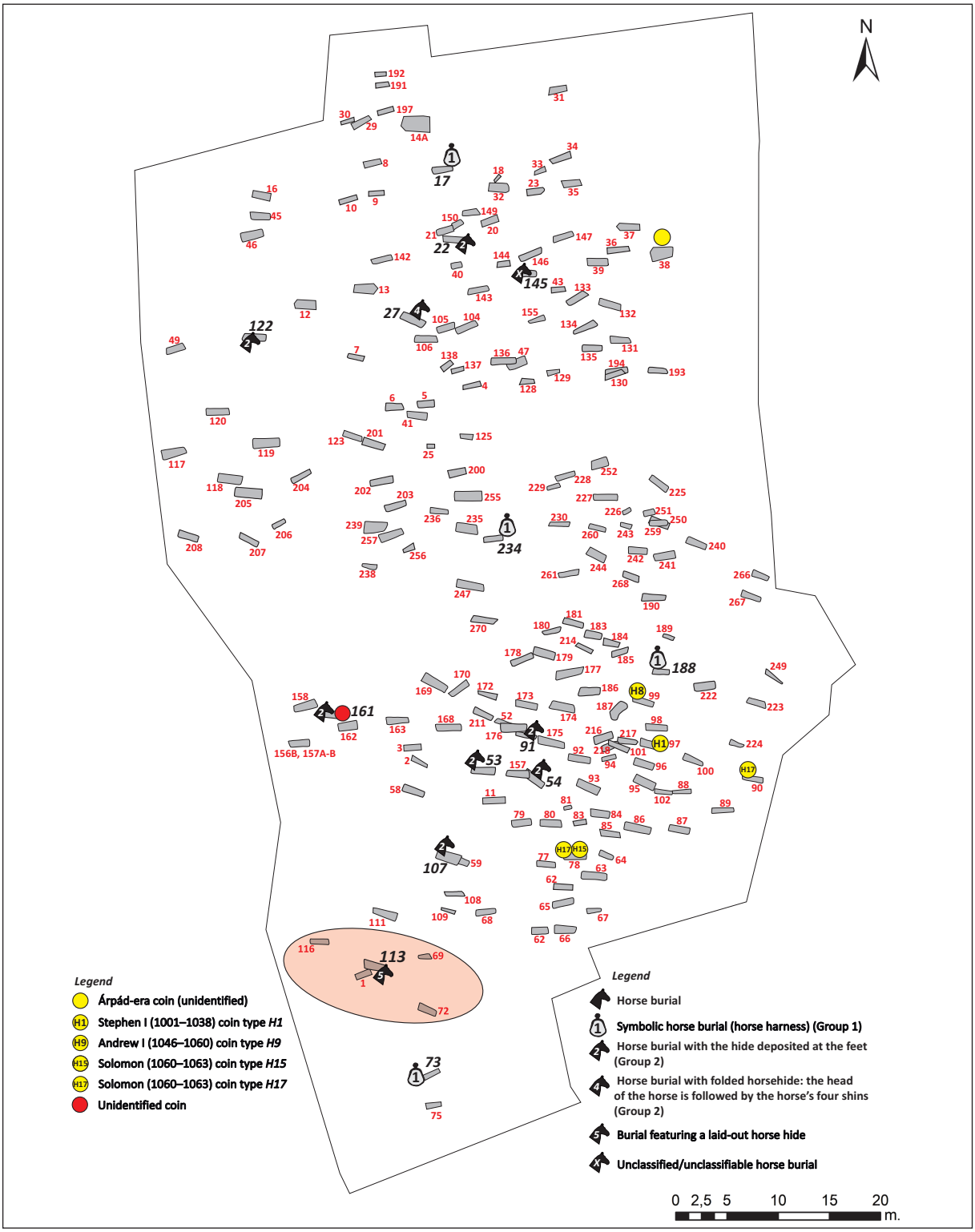


Plate 1. Survey map of the 10th–11th century funerary site (with big numbers the graves with horses and harness)

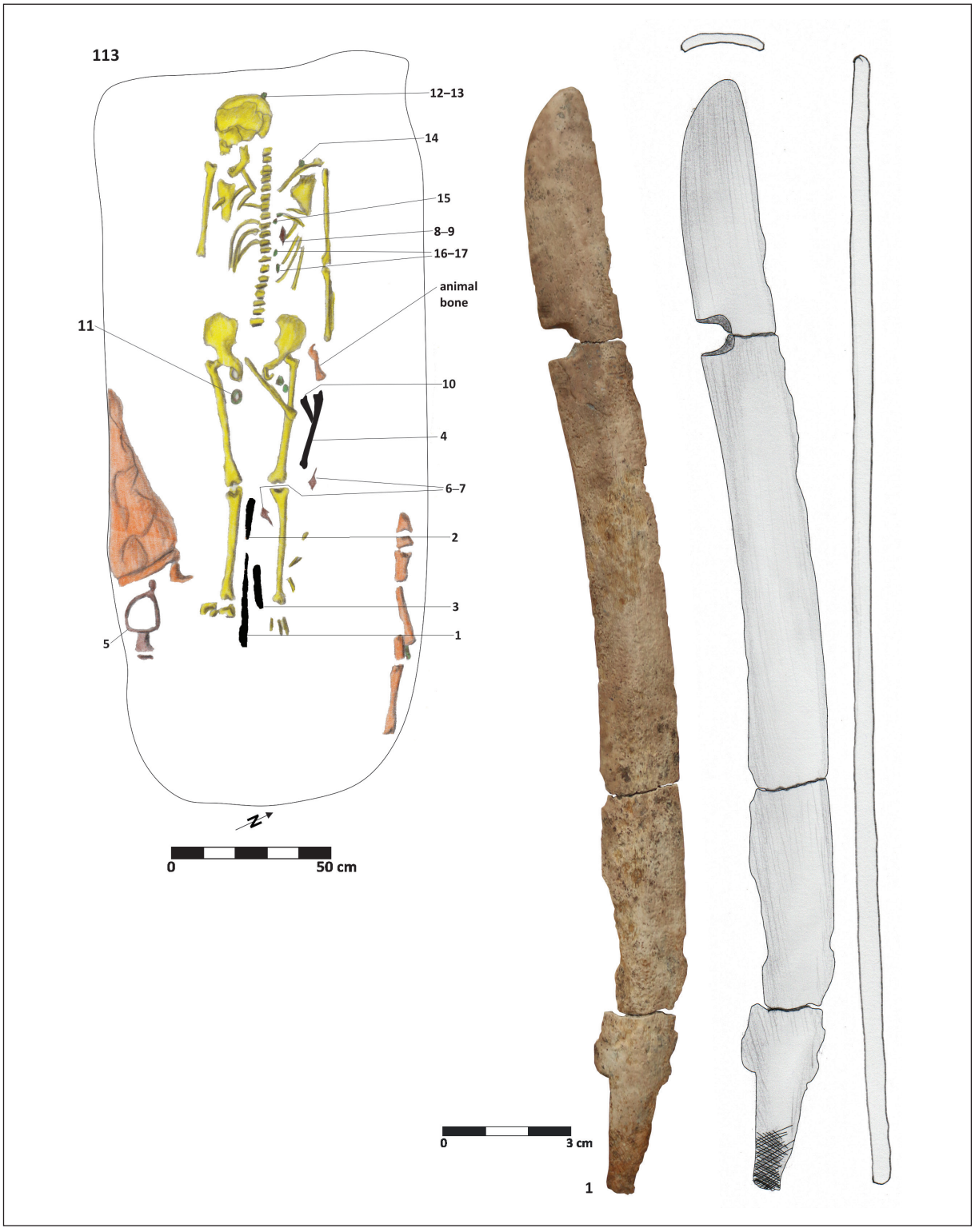


Plate 2. Funerary inventory in grave no. 113



Plate 3. Funerary inventory in grave no. 113

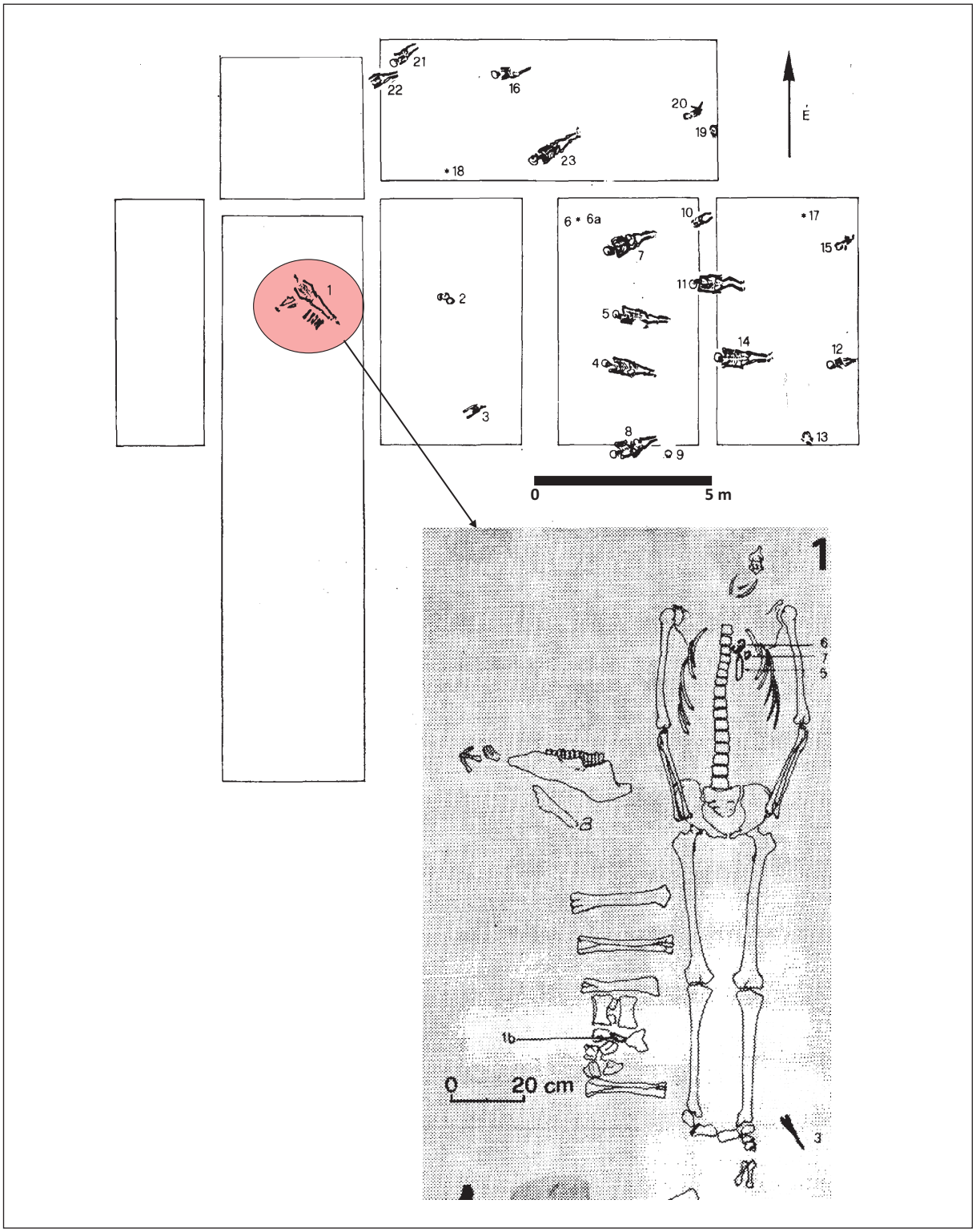


Plate 4. Survey map of the funerary site from Dabas-Paphegy and the grave no. 1 (after Kovács 1985, 2–3. kép)

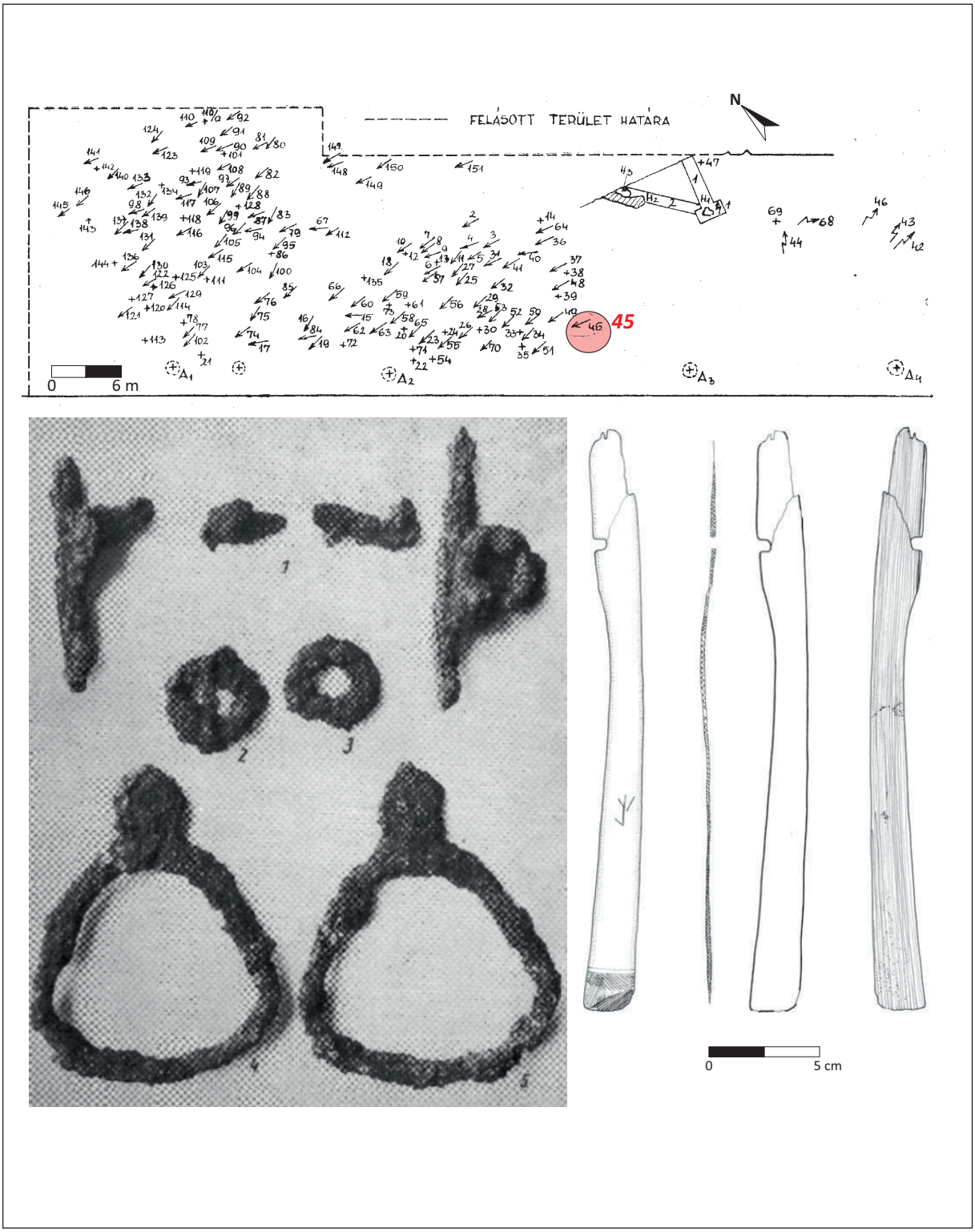


Plate 5. Survey map of the funerary site from Békés-Povádzug and inventories of the grave 45: horse bit, stirrups and the tip plate of the bow end ornamented with *tamga* (after Trogmayer 1962, Map of the burial site and Fig. VII; Bíró 2016, Fig. 3)

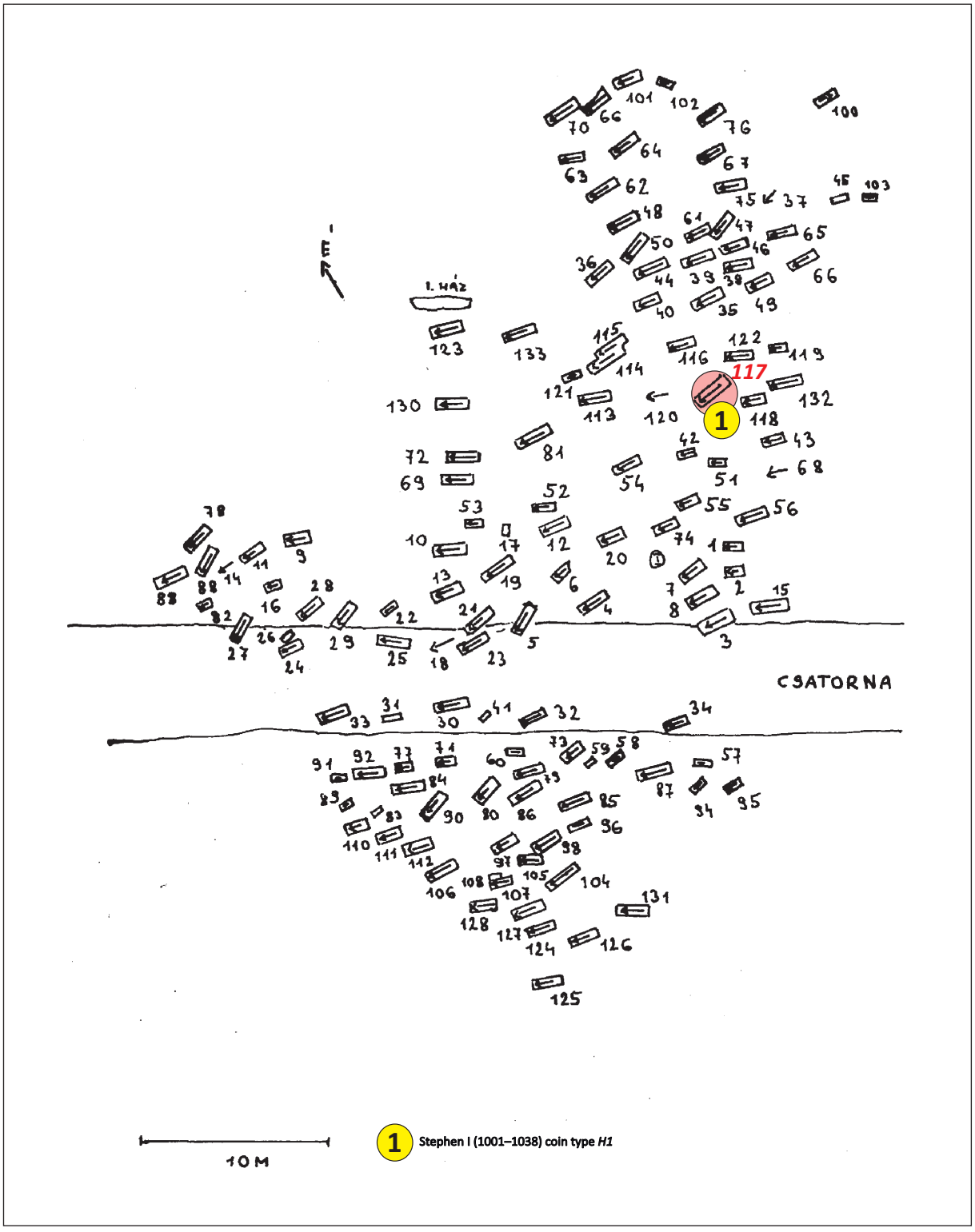


Plate 6. Survey map of the funerary site from Sarkadkeresztúr-Csapháti legelő (after Medgyesi 1993, I. tábla)

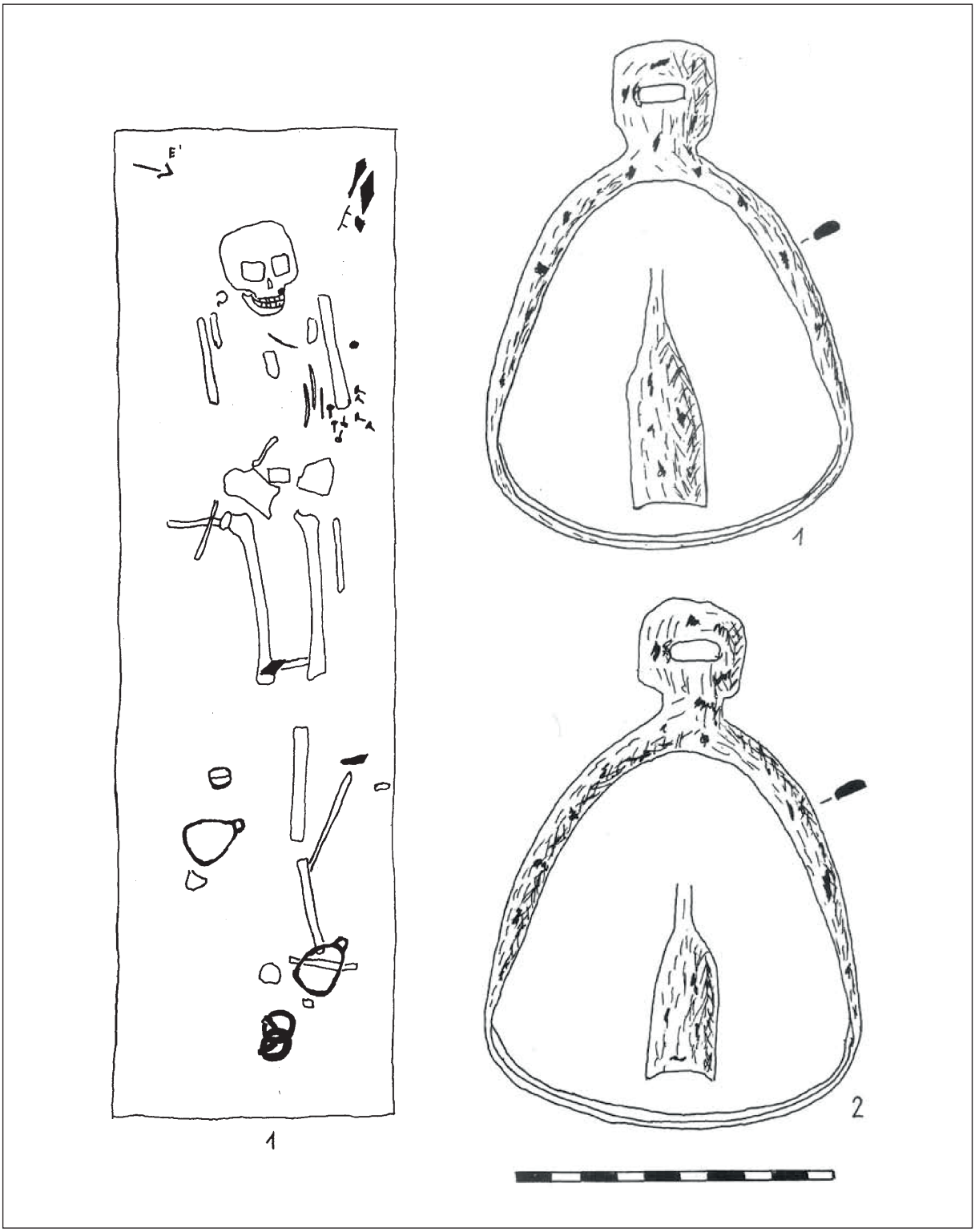


Plate 7. Sarkadkeresztúr-Csapháti legelő grave no. 117 (after Medgyesi 1993, IV, XI. tábla)

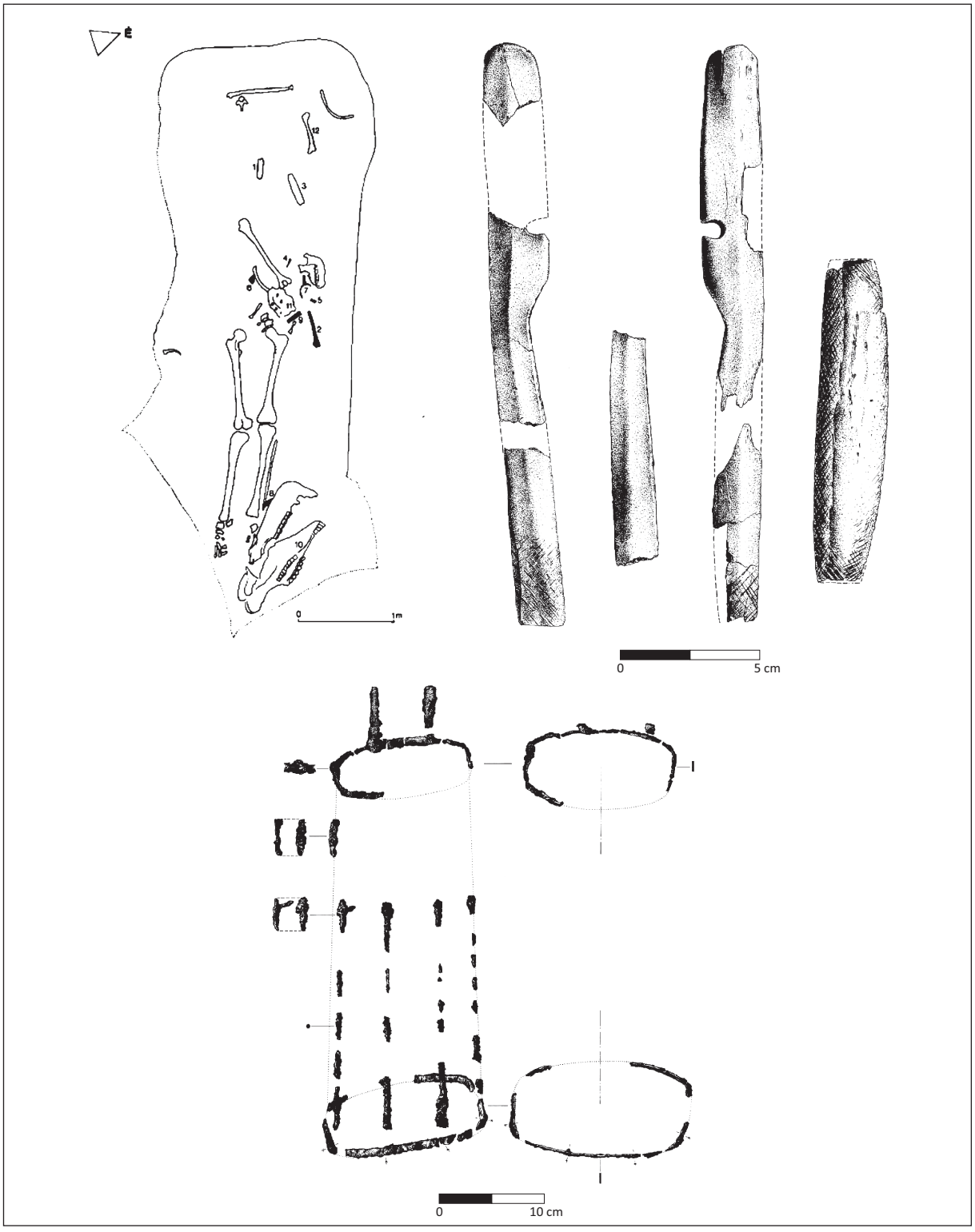


Plate 8. Ópusztaszer-Kiszner-tanya grave 1 (after Vályi 1994, 2. kép, 3. kép/1–2)