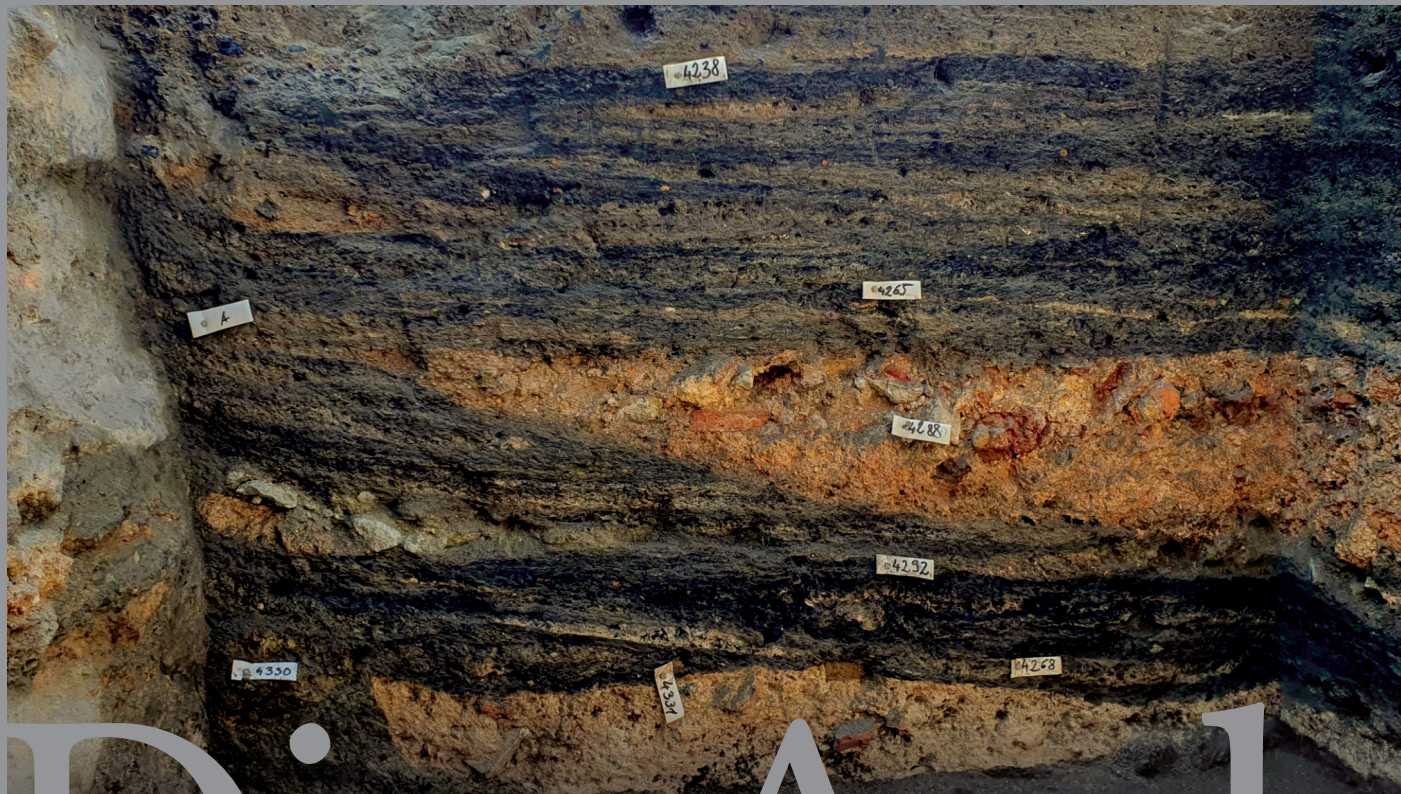


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The concept of the ancient homeland of the Fenno-Ugric-speaking peoples
in light of complex research

Some remarks on the absolute chronology of heraldic belt fittings

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Abstract: The article examines the absolute chronology of heraldic belt sets. The main challenges researchers face with these belt sets are their wide geographic distribution and the low number of assemblages with determinable calendar age. The radiocarbon dates of wood samples from Grave 62 of the Borisovo cemetery (northeastern Black Sea region) and the find material of the burial are also published here for the first time. Additionally, we collected radiocarbon dates from other graves with similar heraldic belt fittings to estimate their absolute chronological positions.

Keywords: Borisovo, Central Europe, Eastern Europe, heraldic belt fittings, radiocarbon dating

Introduction

The so-called heraldic belt fittings (also known as mask-decorated belt fittings)¹ are amongst the best-researched object types in the early medieval archaeological record of Central and Eastern Europe. Despite numerous studies, their chronology remains subject to debate. Western scholars date heraldic belt fittings to the second half of the 6th or early 7th century AD. In contrast, Ukrainian and Russian researchers believe that the heyday of their fashion dates back to the second half of the 7th or even the beginning of the 8th century AD.² The biggest problem is that although many assemblages with such belt fittings have been unearthed, only a few contain coins or other grave goods the calendar age of which can be determined. Besides, the large distances make cross-dating

1 The term ‘mask-decorated’ or, incorrectly, ‘masque-type’ belt fittings is used by Hungarian scholars, while Russian and Ukrainian scholars in the Soviet and post-Soviet areas prefer ‘heraldic belt fittings’.

2 GULYÁS *et al.* 2021 with further literature.

highly uncertain. Radiocarbon analysis can add a new perspective to the discussion; however, only a few dates have been published yet. In the following, we examine a radiocarbon-dated grave from the cemetery of Borisovo.

The Borisovo cemetery

The cemetery is located in the northeastern Black Sea region (Fig. 1), near the resort town of Gelendzhik (Krasnodar Krai). In 1911–1912, V. V. Sakhanov excavated 135 graves of the site on behalf of the Imperial Archaeological Commission. In 1913–1914, he unearthed 74 more scattered cremation and inhumation graves of the biritual cemetery. He determined three periods of Borisovo, connecting the oldest to the so-called ‘Justinian culture’ characterised by heraldic belt fittings.³ This group contains 55 inhumation burials, including fifty stone slab cysts and five simple pit burials.⁴ The cemetery belongs to the so-called Pashkovskiy–Karpovka group occupying the Lower Kuban region and the northeastern coast of the Black Sea (the burial grounds of Dyurso, Sopino, Agoy (Karpovka) and Bzhid are located in the latter). The interpretation of these sites is subject to debate; they have been linked with various local proto-Adyghe tribes, including the Zikhs, the Kasogi, and the so-called Tetraxite Goths.⁵ Byzantine fortresses were excavated in the area of Novomikhailovskoe and Verkhnegostagaevskoe, suggesting that the local population might have been allies of the Empire.⁶



Fig. 1. Sites mentioned in the text. 1 – Borisovo, 2 – Freundorf, 3 – Szegvár, 4 – Klin-Yar.

3 SAKHANEV 1914; GAVRITUKHIN – PIANKOV 2003, 195.

4 SAKHANEV 1914, 123–124.

5 DMITRIEV 2003, 205; GAVRITUKHIN – KAZANSKI 2010; MASTYKOVA *et al.* 2016, 99–106.

6 ANFIMOV 1980; MALYSHEV *et al.* 2017.

Grave 62

Inhumation grave.⁷ Orientation: WSW–ENE. Length: 1.64 m; width: 0.47 m; depth: 0.51 m. The simple grave pit is oval. The skeleton was laid on its back, facing front, with the arms along the body and the legs stretched.

1. A pair of silver crescent earrings at the temporal bones on both sides of the skull (Fig. 3.1–2, Fig. 4.8–9). They have irregular, roundish cross-section and tapered ends. $2.2 \times 1.7 \times 0.6$ cm (Inv. Nr. 49272, B-505/103/1–2).
2. A silver buckle behind the skull (Fig. 2.3, Fig. 4.2). It consists of a B-shaped frame cast together with a shield-shaped plate with bevelled edges. The pin is curved, extending beyond the frame. The buckle was fastened to the strap with a rivet, now broken. Frame: 2.4×1.4 cm, plate: 1.5×1.4 cm, pin: 1.6×0.2 cm (Inv. Nr. 49272, B-505/104).
3. P-shaped suspension loop found left of the skull (Fig. 2.2, Fig. 4.1). The front sheet is made of silver, the backplate is bronze, both having three rivet holes. The wooden plate is partly preserved. Dimensions: $5 \times 1.2 \times 0.5$ cm (Inv. Nr. 49272, B-505/112).
4. A single-edged straight-back iron knife on the left side of the skull (Fig. 2.1). Wood remains preserved on one side of the tang, and some remains of a wooden sheath are corroded onto the blade. Length: 18.9 cm, blade width: 2.4 cm (Inv. Nr. 49272, B-505/106).

The following findings were found stacked together, also near the head, left of the skull:

5. Cast mirror made of 'white' bronze (Fig. 3.11, Fig. 4.18). Round, with a loop on its back, its front is smooth, and the backside is decorated with two concentric ribs with six smaller circles with bulging centres between them. Fragmented. Diameter 6.3 cm (Inv. Nr. 49272, B-505/107).
6. Silver brooch with a flat bow and a slightly widening foot (missing).⁸
7. Fragmented bronze strainer spoon (?) (Fig. 3.10, Fig. 4.14). The lower third is made of a rod with a round cross-section, and the end is broken. The upper part of the item is flat, ornamented with an incised grid pattern. The upper end is bent back. Length: 8.2 cm (Inv. Nr. 49272, B-505/108/1).
8. Fragmented bronze strainer spoon (?) (Fig. 3.9, Fig. 4.15). Its lower third is a round rod with a broken end, while the upper part is flat and has an incised grid pattern. The upper end is rolled back. Length: 8.6 cm (Inv. Nr. 49272, B-505/108/2).
9. Large, irregular disc-shaped amber bead (Fig. 3.3, Fig. 4.10). Dimensions: 3.2×1.3 cm (Inv. Nr. 49272, B-505/98).
10. Small silver fitting (Fig. 2.5, Fig. 4.4). Rectangular, decorated with two smooth, longitudinal ribs. Slightly curved, fastened with a rivet at one end. Its edges are chipped. Dimensions: $3.7 \times 0.8 \times 0.1$ cm (Inv. Nr. 49272, B-505/101).
11. Animal claw or tooth pendant with a copper ring (Fig. 3.4, Fig. 4.13). The wider upper part is perforated, and a loop made of round wire is inserted into the hole. Pendant: 4.8×2 cm, ring: $2.8 \times 2.1 \times 0.3$ cm (Inv. Nr. 49272, B-505/111).
12. Fragmented bronze 'box-shaped' strap end from under the skull (Fig. 2.7, Fig. 4.7). It consists of two metal sheets held together by a metal side band and a rivet. Only one sheet survived. The edges of the sheet are chipped, and the rivet is missing. Sheet: $1.4 \times 1.4 \times 0.05$ cm, band: $1.7 \times 1.4 \times 0.4 \times 0.1$ cm (Inv. Nr. 49272, B-505/110).
13. Silver strap end near the left shoulder (Fig. 2.6, Fig. 4.5). Consists of two rounded metal sheets inserted into a side band and held together with two rivets. The front sheet has a rectangular perforation. The edges of the sheets are chipped, and the rivets are missing. Plates: $3.6 \times 2.5 \times 0.05$ cm; $3.5 \times 2.1 \times 0.05$ cm; side band fragments: $3.6 \times 0.5 \times 0.05$ cm; $3.3 \times 0.6 \times 0.01$ cm (Inv. Nr. 49272, B-505/105).
14. Silver(?) plates on the left collarbone (Fig. 2.8, Fig. 4.6). Fragmented, heavily corroded, with a single rivet hole. Dimensions: $2.8 \times 1.4 \times 0.05$ cm; $2.2 \times 0.9 \times 0.05$ cm; 1.9×1.1 cm (Inv. Nr. 49272, B-505/102).
15. A bronze bracelet on the left arm (Fig. 3.7, Fig. 4.16). Bent of a smooth, round rod. Dimensions: $6.1 \times 6.3 \times 0.5$ cm (Inv. Nr. 49272, B-505/113).

7 Several authors mentioned the grave earlier; however, its find assemblage was mixed with another grave (ERDÉLYI 1982, Tab. 6; GAVRITUKHIN – PIANKOV 2003, 245, Tab. 78). The description of the grave is based on Sakhanav's article and the inventory book of the State Historical Museum in Moscow.

8 We used Sakhanav's description in this case.

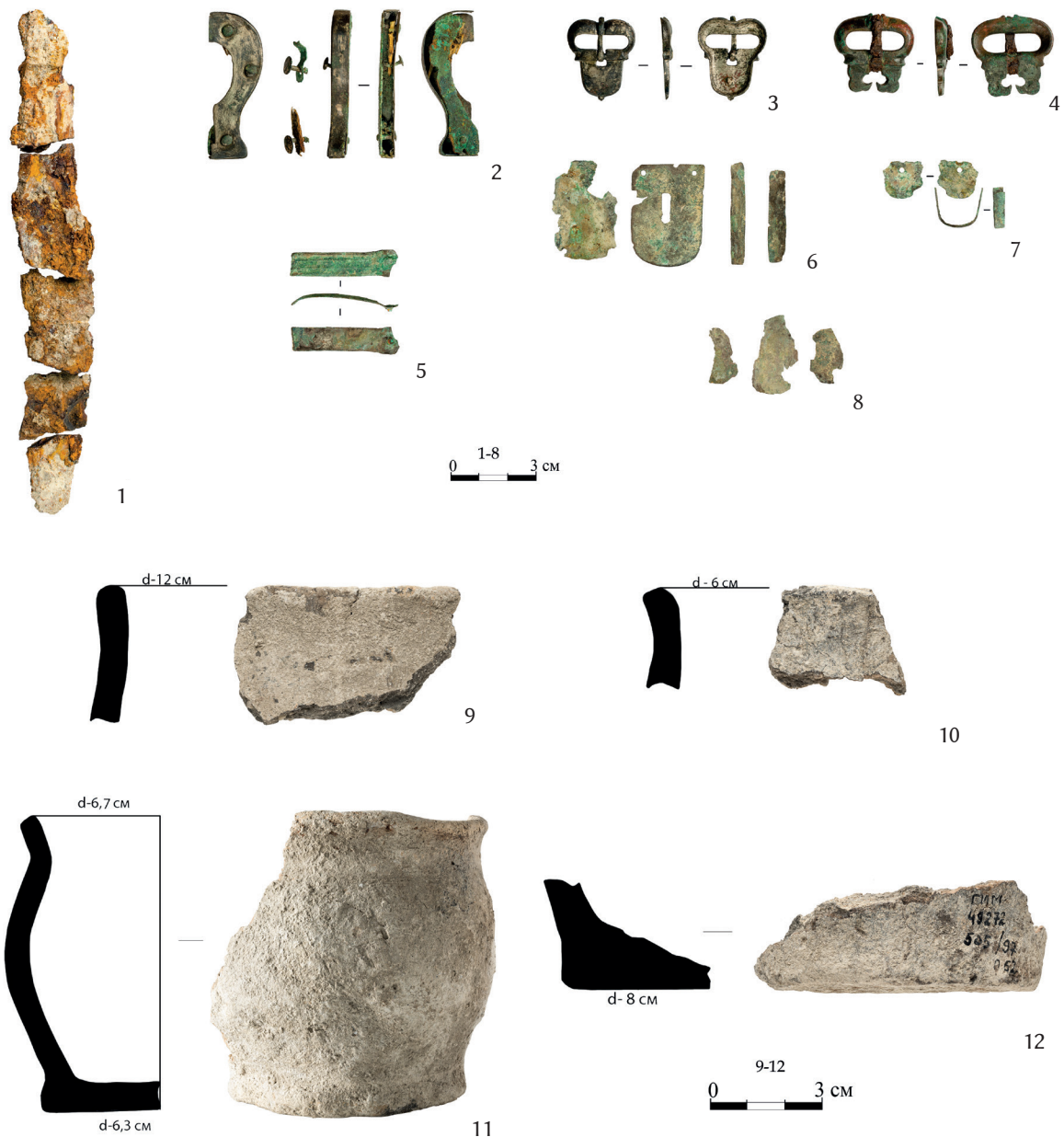


Fig. 2. Finds from Grave 62 of Borisovo (photos by A. Strokov, M. Krasilnikov).

16. A bronze bracelet on the right arm (Fig. 3.8, Fig. 4.17). Bent of a smooth, round rod; one end is decorated with oblique notches. Dimensions: 5.60 × 6.10 × 0.45 cm (Inv. Nr. 49272, B-505/114).

17. Bronze buckle on the waist (Fig. 2.4, Fig. 4.3). Its oval frame was cast in one with the buckle plate in the shape of two heads of birds of prey facing each other. It has bevelled edges. The iron pin extends beyond the frame. The buckle was fastened to the strap with two rivets that broke off. Frame: 2.9 × 1.8 cm, buckle plate: 1 × 1.9 cm, pin: 2.1 × 0.3 cm (Inv. Nr. 49272, B-505/100).

18. Blue faience amulet or pendant near the left knee (Fig. 3.6, Fig. 4.12). Round, with a wide, ribbed loop and a flat backside. The embossed image depicts Horus as a child with pearls(?) on his neck. The item's surface is heavily worn. Dimensions: 2.6 × 2.4 cm (Inv. Nr. 49272, B-505/99).

19. Fragments of small amber bead(s) on the left foot (Fig. 3.5, Fig. 4.11). Dimensions: 0.9 × 0.8 cm; 0.8 × 0.5 cm; 0.5 × 0.4 cm (Inv. Nr. 49272, B-505/109).

20. A hand-formed ceramic pot at the feet (Fig. 2.11). Its straight rim is slightly bent outwards, the body is rounded, and the bottom is flat. Height: 7.9 cm, diameter at the shoulder: 6.7 cm, at the bottom: 6.8 cm (Inv. Nr. 49272, B-505/97).

The following items are not mentioned in Sakhaney's grave description:

21. Flat bottom fragment of a hand-formed pottery vessel (Fig. 2.12). Diameter: 7.5 cm (Inv. Nr. 49272, Б-505/97).
 22. Rim fragment of a hand-formed pottery vessel (Fig. 2.9). Diameter: 12 cm. 23. Rim fragment of a hand-formed pottery vessel (Fig. 2.10). Diameter: 6 cm.



Fig. 3. Finds from Grave 62 of Borisovo (photos by A. Stokov).

Burial rite

The feature in focus is an inhumation grave representing a type common in the first period of Borisovo.⁹ The grave pit was oriented W–E, with a slight inclination towards WSW–ENE, a phenomenon also observed in the Pashkovskiy–Karpovka group (Meshoko, Gorodskoy, and Psekups from the Kuban Region, as well as Bzhid and Sopino).¹⁰ The second phase of the Dyurso cemetery, characterised by a preference for NW–SE orientation, is contemporaneous with the first period of

⁹ SAKHANEV 1914, 123.

¹⁰ MASTYKOVA *et al.* 2016, 92.

Borisovo.¹¹ The grave contained a pottery vessel placed to the feet, which is very uncommon in the first period of the cemetery (only three other burials have similar grave goods). Pottery was also found in half of the graves in Sopino,¹² and some vessels (pots and bowls) are known from Phase 2 of the Dyurso cemetery, too.¹³

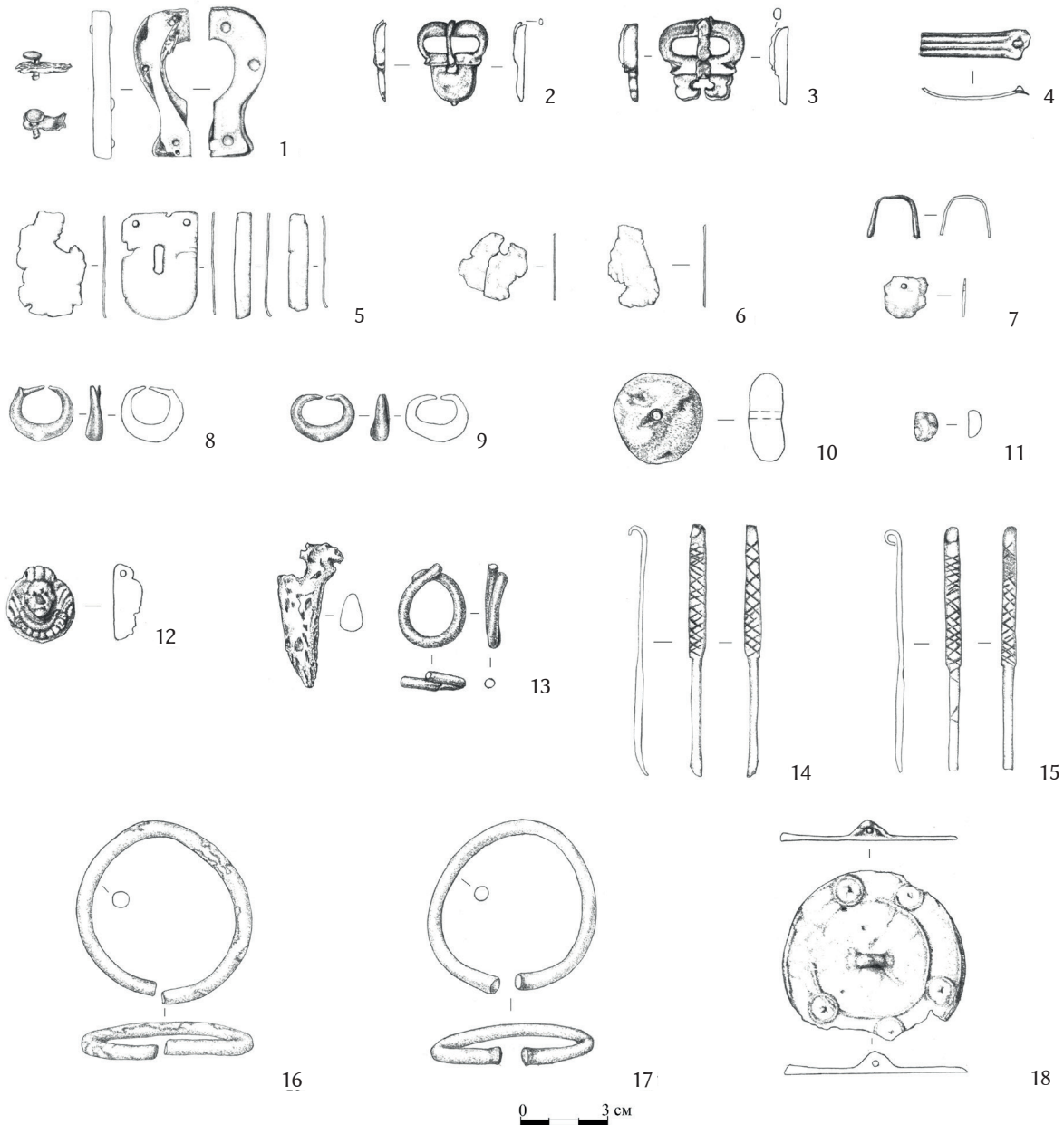


Fig. 4. Finds from Grave 62 of Borisovo (drawings by S. Tishenko).

No anthropological analysis of the human remains has been carried out, and it is difficult to tell from the grave finds alone whether the deceased was a man or a woman. While the bracelets are typical for women, the strap ends and the long knives with a P-shaped suspension loop suggest a man. However, the fact that the earrings, the bracelets, the amulet, and one of the amber beads were discovered in a wearing position but the knife and the strap ends were found next and under

11 [DMITRIEV 2003, 201.](#)

12 [LOVPACHE 1984, 139.](#)

13 [DMITRIEV 2003, 202.](#)

the skull, or at the shoulder (i.e. not in a wearing position) point to a woman. these so-called ‘funerary gifts’ are typical of Dyurso cemetery, where the graves of males often contained jewellery associated with females, including beads, brooches, and cosmetic tools, usually placed in the head area in a heap.¹⁴ The examined grave from Borisovo likely features a similar custom in a ‘reversed’ form: the interred woman was provided with a gift package comprising items associated with males and females.

Analysis of the grave goods

Crescent earrings

A pair of crescent earrings (Fig. 3.1–2, Fig. 4.8–9) were found on the two sides of the skull. According to Anna Mastyskova, this type appeared in the last centuries BC but only became popular in the 4th–6th centuries AD.¹⁵ Their main distribution area was the wider North Black Sea region and the Carpathian Basin.¹⁶ Crescent earrings remained in fashion for a very long time; specimens were found in closed contexts with not only items typical of the Hunnic and Post-Hunnic period but also heraldic belt fittings in a find assemblage at Belovode, Grave 1 of Mound 5 at Lebedi–IV, and Grave 277 of Dyurso.¹⁷

Amber beads

The grave contained two amber beads, one a large, slightly irregular discoid piece (Fig. 3.3, Fig. 4.10) representing a type very popular in the western Ciscaucasus during the Migration Period.¹⁸ Such a bead is also known from a younger context, Grave 81 of Bzhid.¹⁹ The smaller bead was broken into several pieces (Fig. 3.5, Fig. 4.11), and its original shape could not be reconstructed. No amber bead has been found in the 6th–7th-century AD cemeteries of the Pashkovskiy–Karpovka group, but some are known from nomadic graves in the Lower Kuban region (e.g., Grave 19 of Mound 5 at Lebedi–I and Grave 5 of Mound 1 at Bugundyr).²⁰

Faience pendant

The assemblage contains a light blue faience pendant with a depiction of the infant Horus (Fig. 3.6, Fig. 4.12). This type appeared mainly in the 1st century AD, but it is also known from 2nd-century AD contexts, predominantly in the Mediterranean, with some specimens from Chersonnesos and Tanais.²¹ This item is considered an ‘*Altstück*’ (archaica); therefore, it cannot help in dating the burial.

Bracelets

The pair of undecorated, open bracelets were bent of round bronze rods (Fig. 3.7–8, Fig. 4.16–17). This simple type was present during the entire 1st millennium AD. Such bracelets are known from many graves, mainly of women and girls, in Dyurso, Bzhid, and Sopino.²² Accordingly, this jewellery type has barely any dating value.

14 E.g., Graves 300 and 479 (DMITRIEV 1979, 222–226).

15 MASTYSKOVA 2009, 72.

16 MASTYSKOVA 2009, 72; TEJRAL 2011, 220–223.

17 GULYÁS *et al.* 2021; SKARBOVENKO – LIFANOV 2012, 26–27; MALYSHEV 2021, 409–410.

18 MASTYSKOVA 2009, 95; MASTYSKOVA *et al.* 2016, 28.

19 GAVRITUKHIN – PIANKOV 2003, 244, Tab. 77.63.

20 CHKHAIDZE 2010, 54; CHKHAIDZE 2020, 319.

21 ALEKSEEVA 1975, 40–41.

22 MASTYSKOVA 2009, 66–67.

Mirror

The artefact belongs to a very rare variant of nomadic mirrors: round mirrors with a loop on their back (Fig. 3.11, Fig. 4.18). The variant the Borisovo specimen represents developed from Karpovka and Anke's Type 4, decorated with concentric circles on the back, which appeared in the Roman Period in the Caucasus and Tanais and remained in fashion even in the 8th–9th centuries AD, although it was the most popular in the 4th–6th centuries AD.²³ Several graves assigned to the Pashkovskiy–Karpovka group contained such mirrors in Dyurso, just like Grave 57 of Bzhid-1 and Graves 3 and 11 of Sopino. They equally appear in burials of women and men in the region.²⁴ The mirrors in Graves 15 and 30 of Borisovo are accompanied by heraldic belt mounts, indicating a relatively young dating.²⁵ The mirror from Grave 66 of Bzhid is remarkably similar to the Borisovo specimen, save for its backside, which is covered with small circles.²⁶

Cosmetic kit (strainer spoons?)

Identifying the primary function of the two fragmented bronze utensils has been difficult. Based on their wider upper part, they might have been strainer spoons (Fig. 3.9–10, Fig. 4.14–15). Two- and three-part cosmetic kits were common additions in graves of females in the Migration Period²⁷ in the northwestern Caucasus and Abkhazia.²⁸ Utensils with flattened ends were recovered from Grave 516 of Dyurso, Grave 9 of Chmi-1, and Tyrny-Auz.²⁹ A strainer spoon was found together with a Szegvár-type pyramid pendant earring and heraldic belt fittings in Catacomb 107 of Mokraya Balka. Based on these, the assemblage could be dated to the end of the 6th or the first half of the 7th century AD.³⁰

Buckle with a shield-shaped buckle plate

Buckles with a B-shaped frame (Fig. 2.3, Fig. 4.2) and a shield-shaped buckle plate were common in Eastern Europe during the Migration Period.³¹ Igor Gavritukhin classified some based on their forms and proportions. The buckle found in Borisovo belongs to the Caucasian variant, featuring a buckle plate with a small pointy protrusion at its end,³² known primarily from the Caucasus, with some specimens found in western Ciscaucasia, Crimea, and nomadic graves.³³ Later, Gavritukhin classified these buckles based on their size.³⁴ According to him, the type appeared in the second half of the 6th century AD but only became popular in the second and third quarters of the 7th century AD.³⁵

23 MASTYKOVA 2009, 83–84.

24 MASTYKOVA 2009, 84.

25 MASTYKOVA *et al.* 2016, 19.

26 GAVRITUKHIN – PIANKOV 2003, 244, Tab. 77.66.

27 MASTYKOVA 2009, 90.

28 MASTYKOVA 2009, 90.

29 MASTYKOVA 2009, 312, ris. 109.2, ris. 110.1, 313, ris. 111.2.

30 Gennadiy Afanas'ev dated the catacomb between the second half of the 7th and the turn of the 7th–8th centuries AD (AFANAS'EV – RUNICH 2001, 207–209, ris. 133–135). However, Csilla Balogh believed the earrings to be much older (BALOGH 2014, 108–109).

31 See GAVRITUKHIN 1999.

32 GAVRITUKHIN 1999, 163.

33 GAVRITUKHIN 1999, 164.

34 GAVRITUKHIN 2018, 57–58.

35 GAVRITUKHIN 2018, 58.

Buckle with a pair of bird heads

This buckle (Fig. 2.4, Fig. 4.3) belongs to Type 5 in Aleksandr Aibabin's typological framework of lyre-shaped buckles.³⁶ This variant is quite rare; some examples are known from nomadic graves (e.g., Kostohryzove, Dymovka, and Epifanov khutor), Zadalisk, and Catacomb 2 at Chmi in the north Caucasus. In the northeast Black Sea region, only Grave 412 of Dyurso and the Borisovo burial discussed here contained such buckles.³⁷ Il'ia Akhmedov assessed this type variant in the evaluation of Grave 235 of Nikitino (Middle Oka region) and dated it to the second half of the 7th century or even the turn of the 7th–8th centuries AD.³⁸ Florin Curta suggested an older dating: according to him, the specimens in the steppe zone were in use between the second half of the 6th and the first half of the 7th century AD.³⁹ The only specimen from the Carpathian Basin is known from Grave 13 of Deszk-L. Csilla Balogh linked it to the earliest Avar generations.⁴⁰

Strap ends

The burial contained two so-called 'box-shaped strap ends' consisting of two thin metal sheets connected with rivets and a side band covering the edges (Fig. 2.7, Fig. 4.7). Of the smaller one, only one sheet and the sideband persisted. Igor Gavritukhin classified box-shaped strap ends based on their proportions.⁴¹ Small variants are quite rare; the silver specimen from Grave 12 in Mound 1 at Vostochnyi Malai-II measures 2.85×2 cm,⁴² and the strap ends from Grave 2 in Mound 3 at Sivashivka are even smaller, only 1 cm long and 0.8 cm wide.⁴³ Based on its small size, the item from Borisovo could belong to an auxiliary strap. According to Gavritukhin, these were popular on the fringes of the Byzantine Empire.⁴⁴ Undecorated box-shaped strap ends first appeared in the middle third of the 6th century AD, but most were used in the 7th century AD.⁴⁵

The front sheet of the larger strap end features a rectangular perforation (Fig. 2.6, Fig. 4.5). Albeit the cutout technique was common in the 6th–7th centuries AD, the pattern has only a few analogies. The proportion of the bronze strap end from Grave 2 in Mound 2 at Sivashske is closely similar to the Borisovo specimen (2.5×1.2 cm) but the piece is decorated with a 'tooth-shaped' perforation.⁴⁶ The strap end from Catacomb 419 of Skalistoe has a very narrow, rectangular perforation, but this object is much longer than the one in focus.⁴⁷ Box-shaped strap ends with cut-out patterns have been dated to the 7th century AD.⁴⁸

Dagger(?) with a P-shaped suspension loop

A fragmented single-edged knife, perhaps a dagger (Fig. 2.1), and a P-shaped suspension loop (Fig. 2.2, Fig. 4.1) were found by the left side of the skull. P-shaped suspension loops were fairly common throughout Eurasia, although the variant found in Borisovo appeared only in Eastern Europe and

36 AIBABIN 1990, 41.

37 KOMAR *et al.* 2006, 328.

38 AKHMEDOV 2013, 11.

39 Cp. CURTA 2019, 55, Tab. 1.

40 BALOGH 2004, 262.

41 GAVRITUKHIN 2018, 76.

42 LIMBERIS – MARCHENKO 2011, 427.

43 KOMAR *et al.* 2006, 278.

44 GAVRITUKHIN 2018, 78.

45 See GULYÁS *et al.* 2021.

46 KOMAR *et al.* 2006, 317.

47 See VEIMARN – AIBABIN 1993, 100, ris. 71.22.

48 GAVRITUKHIN 2018, 80.

the Carpathian Basin.⁴⁹ A suspension loop identical to the one in focus was found in Leninskyi Put' in the Kuban region,⁵⁰ and nomadic burials in Eastern Europe also contained similar items (Grave 2 of Mound 3 at Sivashivka, Grave 12 at Matyukhin Bugor, and Grave 3 of Mound 5 Vinohradne).⁵¹ Gergely Csiky classified similar suspension loops into his Type S.4.a.⁵² According to him, the variant was in use in the Avar Khaganate from the end of the 6th until the second third of the 7th century AD.⁵³ In contrast, Oleksii Komar linked the specimens found in the steppe zone to the assemblage from Mala Pereshchepina and the younger phase of the Middle Avar Period, dating them to the end of the 7th century AD.⁵⁴

As daggers with P-shaped suspension loops are known from Longobard (Lombard) Italy, they are considered Mediterranean weapons.⁵⁵ The only seax with such a fitting in the steppe zone was found in Grave 2 in Mound 3 at Ilovatka.⁵⁶ Similar P-shaped suspension loops decorated the sheaths of the daggers in Graves 335 and 815 of Szegvár-Oromdűlő.⁵⁷ It is worth mentioning that both were connected to the sheaths with ribbed bands similar to the silver item found in Borisovo, which may have also belonged to the sheath.

Interpretation of the radiocarbon data from the grave and the dating of the burial assemblage

The pistachio wood plate in the suspension loop was radiocarbon-dated in the Moscow laboratory of the Institute of Geography of the Russian Academy of Science.⁵⁸ A. A. Strokov and G. A. Kamelina calibrated its 1540 ± 20 BP conventional date using the OxCal v4.4.4 program and the IntCal20 calibration curve. The probability distribution plots of the samples were not included in the publication, only the 2σ calibration ranges and their probability values. The oldest three intervals were excluded in light of the general dating of the cemetery (based on the find material), leaving the AD 529–594 period (69.8%) as the likely calendar age of the suspension loop. Although even this is too old compared to the 7th century AD dating of Grave 62, the authors accepted it without reservation.⁵⁹

As the accepted dating of Grave 62 of Borisovo is definitely younger than AD 500, a model was created with a *terminus post quem* set to AD 500–501 (Fig. 5). This way, the calendar age of the pistachio wood inside the suspension loop was narrowed down to AD 529–588, with a confidence level of 88.3% instead of 69.8% (Fig. 6).

A. A. Strokov and G. A. Kamelina ignored the fact that the radiocarbon dates obtained from organic grave goods, akin to the minting date of coins, only represent a *terminus post quem*. Accordingly, one can only tell from the date that Grave 62 was dug with an 88.3% probability after AD 529.

49 CSIKY 2015, 311–314.

50 GAVRITUKHIN – PIANKOV 2003, 240, Tab. 73.27.

51 KOMAR *et al.* 2006, 280, ris. 18; ISHAEV – SMOLIAK 2017, 165, ris. 7.24; ORLOV – RASSAMAKIN 1996, 109, ris. 5.1.3.

52 CSIKY 2015, 274–276.

53 CSIKY 2015, 276.

54 KOMAR *et al.* 2006, 282.

55 E.g., Grave 84 of Nocera Umbra or Grave F at Castel Trosino (RUPP 2005, 283, Taf. 100.17; PAROLI – RICCI 2005, tav. 3.2).

56 SMIRNOV 1959, 221, ris. 7. However, in our opinion, this interpretation is subject to debate.

57 CSIKY 2022, 612, 3. kép 5.6.

58 STROKOV – KAMELINA 2023, 188, Tab. 1, No. 9.

59 STROKOV – KAMELINA 2023, 185–186.

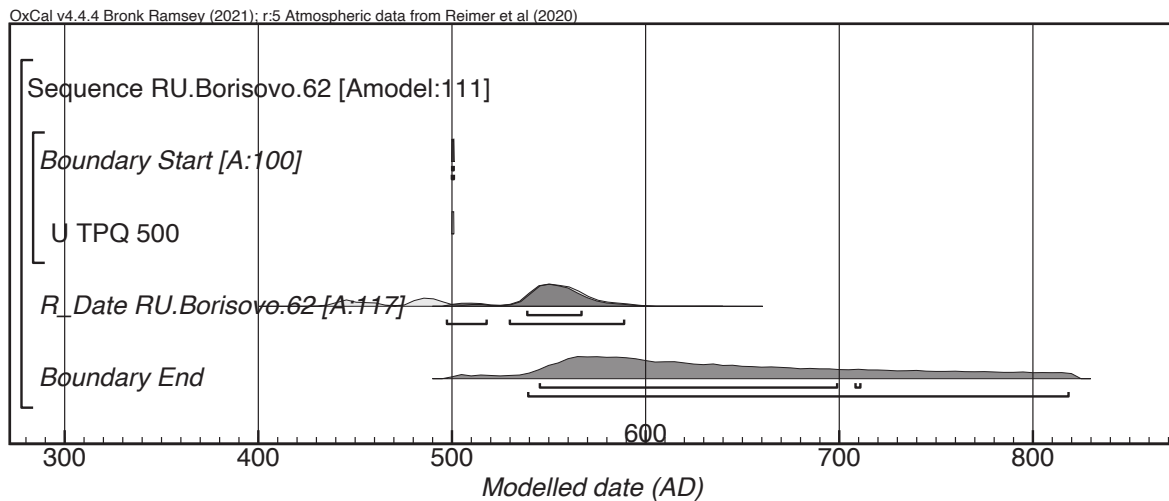


Fig. 5. Radiocarbon data from Grave 62 of Borisovo with a *terminus post quem* of AD 500.

Moreover, the fact that the knife with the suspension loop was added to the grave as a funerary gift suggests that the felling of the tree preceded the funeral by decades. Besides, the old wood effect must also be considered: the wooden core of the suspension loop was carved perhaps from an inner (and significantly older) part of the pistachio tree, which could have been several hundred years old upon felling, thus distorting the radiocarbon result.

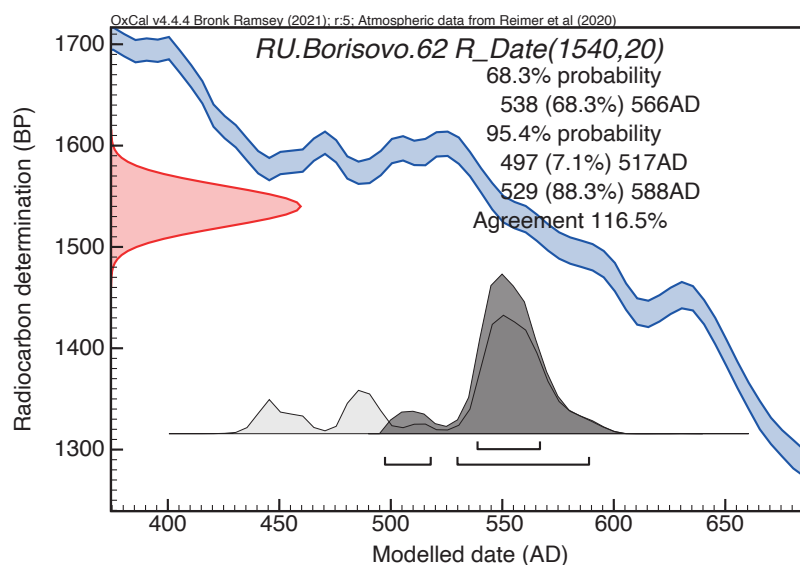


Fig. 6. Calibration plot of the data from Grave 62 of Borisovo.

It is important to emphasise that as the radiocarbon date at hand marks, at best, the point in time when the pistachio tree was felled, it can only be used as a *terminus post quem* when it comes to dating the grave. Of the grave finds, the heraldic strap ends are traditionally considered to have high dating value. A big difference can be observed in the accepted dating of these accessories between Central and Eastern Europe: while in Central Europe, most such strap ends have been dated to the second half of the 6th and the beginning of the 7th century AD, Russian and Ukrainian academic consensus holds that they were characteristic mainly of the 7th century AD and even remained in use at the beginning of the 8th century AD.⁶⁰ Based on the evaluation of the archae-

60 SOMOGYI 1987, 135–138.

ological material, the grave was most probably established in the first half of the 7th century AD (although the available data are inconclusive).

Radiocarbon dating of graves with heraldic belt fittings from Central and Eastern Europe

A small Longobard cemetery was excavated near a Roman *villa rustica* in Freundorf (Tulln District, Lower Austria) in 2003. Ten graves were unearthed in the courtyard of the former farm, and the grave of a 30–40-year-old, armed man (Feature 60 = Grave 1 by Benedix) and another with a horse and a dog skeleton (Feature 59 = Grave 1 by Benedix) were found within the foundations of a building 50 m to the southeast. All graves but one in the small cemetery had been plundered. The undisturbed grave (Feature 422 = Grave 6 by Benedix) contained the remains of a 20–30-year-old woman in a lavish attire, with a golden *solidus* of Justinian I (AD 527–565) hanging on a suspension loop from her neck (Fig. 9.1). The coin was struck in Constantinople between AD 527 and 537 (MIB 5).⁶¹ In the publication of the cemetery Judith Benedix dated both graves to the last third of the 6th century AD.⁶²

Peter Stadler conducted a radiocarbon analysis of rib samples of the man and the woman in 2009. The unpublished results (MA 100008: 1614±23 BP and MA 100009: 1614±25 BP) were recently made available for us, for which we are grateful.

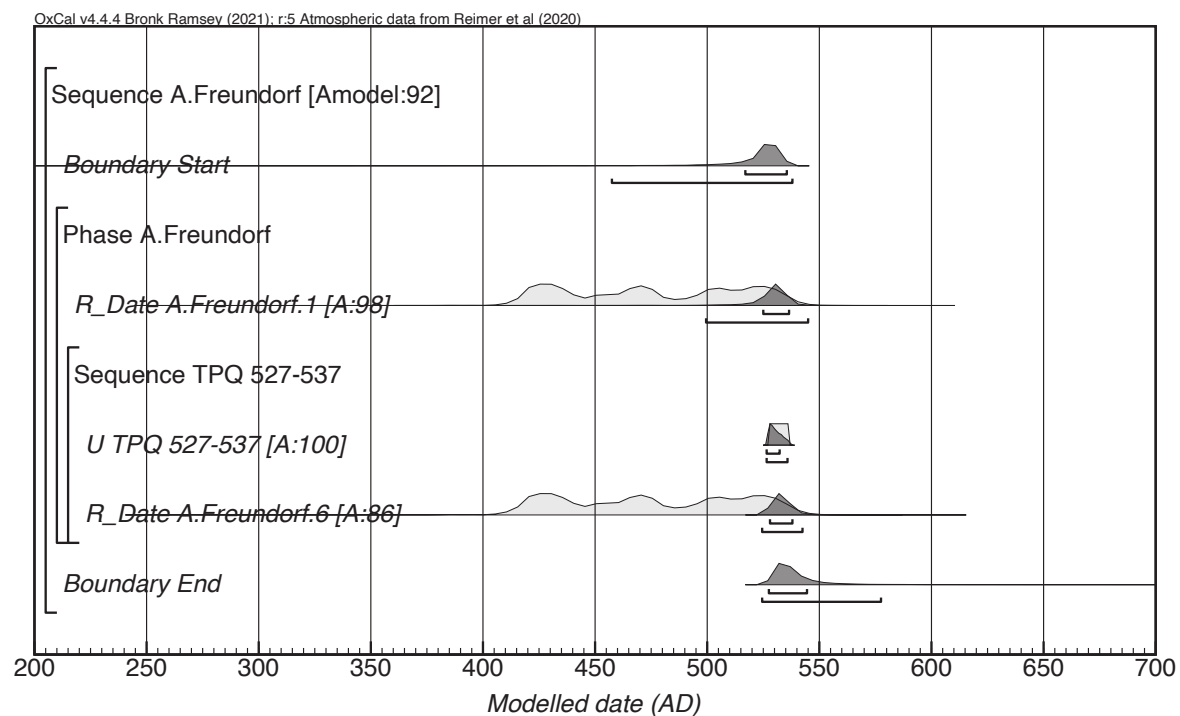


Fig. 7. Single-phase model of graves of Freundorf with a *terminus post quem* (AD 527–537, the minting date of the solidus from Grave 6).

The two radiocarbon dates come from archaeologically related graves, so they could be modelled in one phase, with the restriction that the woman could only be buried after AD 527–537 (introduced in the model as a *terminus post quem*, a boundary represented by a probability variable with uniform distribution; see Fig. 7). Thus, the possible temporal ranges are AD 499–545 (2σ) for Grave 1

61 SOMOGYI 2014, 235, 241, Fig. 1.2.

62 BENEDIX 2024, 67, 77.

and AD 527–542 (2σ) for Grave 6, respectively (Fig. 8). Accordingly, the calendar age of the woman's grave could be narrowed down to fifteen years and the man's grave's to 44 years. This not only represents precision out of reach before but also reveals that the graves were likely established much earlier than estimated based on the results of typochronological evaluation (second quarter of the 6th century AD).

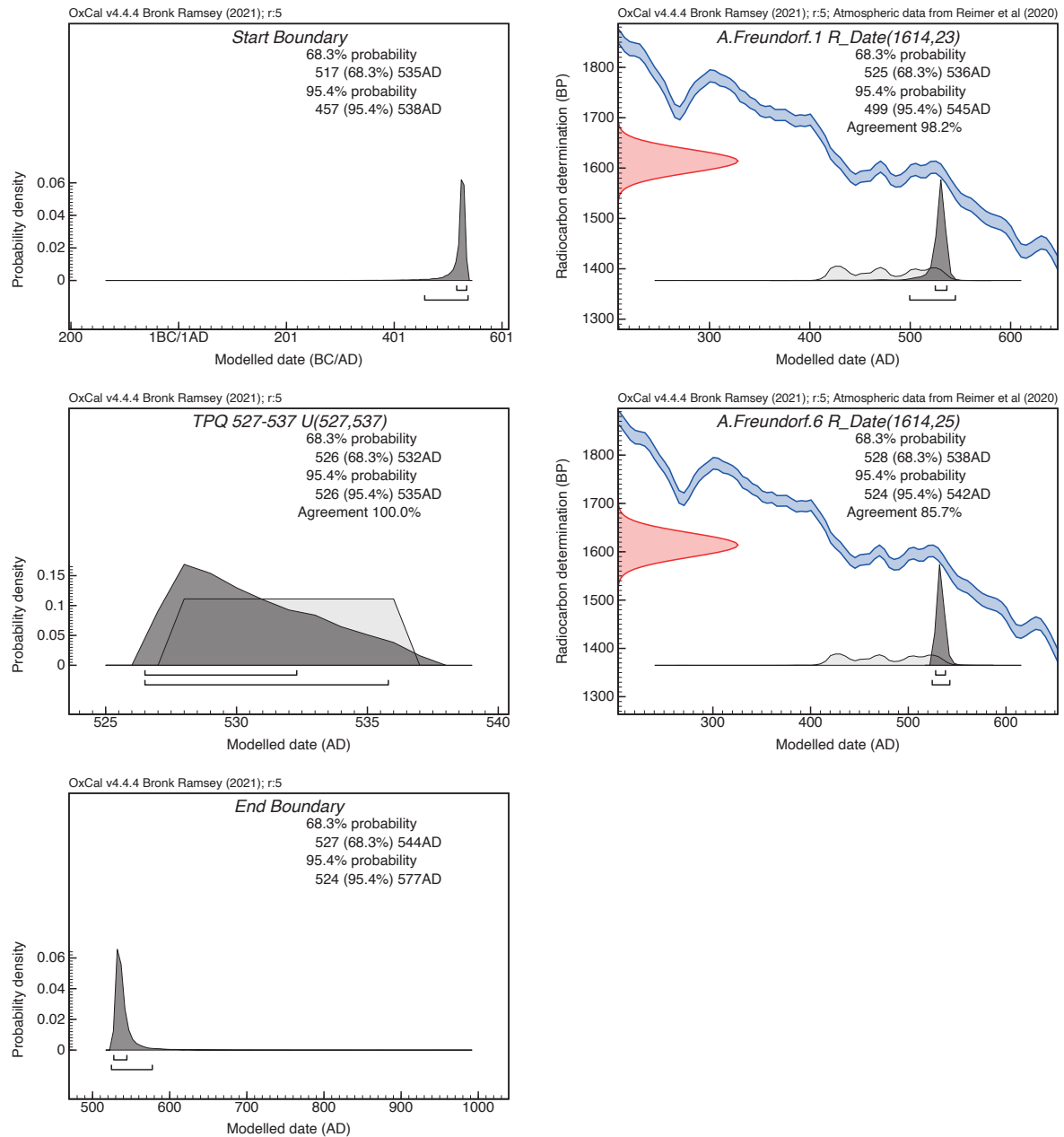


Fig. 8. Calibration plots of the radiocarbon data from Graves 1 and 6 of Freundorf.

The unusually short temporal ranges are explained by the fact that the probability distribution curves of the two measurements plummet around AD 542–545. Since the woman could only be buried after AD 527 based on the minting date of the *solidus* in her grave, the probability distribution calculated with this restriction falls within the original (unrestricted) range which only just covers the years after AD 527 (in fact, AD 524). In contrast, the 2σ -highest posterior density interval (not limited by a *terminus post quem*) of the man's grave covers the years before AD 527, but by only a few decades due to the limitations set for the dating of the woman's grave, modelled in the same phase.

Szegvár-Oromdűlő is the biggest Early Avar Period cemetery in the Trans-Tisza region in Hungary. Altogether 467 graves, only two of which can be dated to the Middle Avar Period, were unearthed there between 1980 and 1997. The characteristic elements of the burial rite—the NE–SW and E–W orientation, the relatively high occurrence of graves with a side-wall niche, an end-wall shaft, or longitudinal ledges, the huge amount of skull and leg deposits of flayed horses, cattle, or small ruminants, and the frequent presence of pots—connect this community with contemporary people in the Eastern European steppe.⁶³ Radiocarbon analysis was carried out on the remains of 21 individuals, including four children, eight women, and nine men.⁶⁴ In their article, Zsuzsanna Siklósi and Gábor Lőrinczy created a Bayesian model of the results and compared their radiocarbon ages against the traditional archaeological (typochronological) dating of the site.

Six of the radiocarbon-dated graves of Szegvár contained heraldic belt fittings (Fig. 9.2–16). Grave 65 contained cast, openwork heraldic fittings, while the others (Graves 1, 121, 194, 540 and 626) held pressed ones. The burials with heraldic fittings were modelled in a single phase, the start of which was determined by the historical date of the Avar conquest (AD 567/8) (Fig. 10). The results obtained indicate that all six funerals took place after AD 567, the oldest before AD 597 (Grave 65) and at the youngest before AD 619 (Grave 626) (Fig. 11). In other words, the community of the Szegvár cemetery must have been using cast and pressed heraldic fittings in the first three or four decades of the Avar Period. However, it cannot be excluded that the radiocarbon dates of other graves with heraldic fittings at Szegvár will provide evidence in the future of the presence of such mounts in even younger phases.

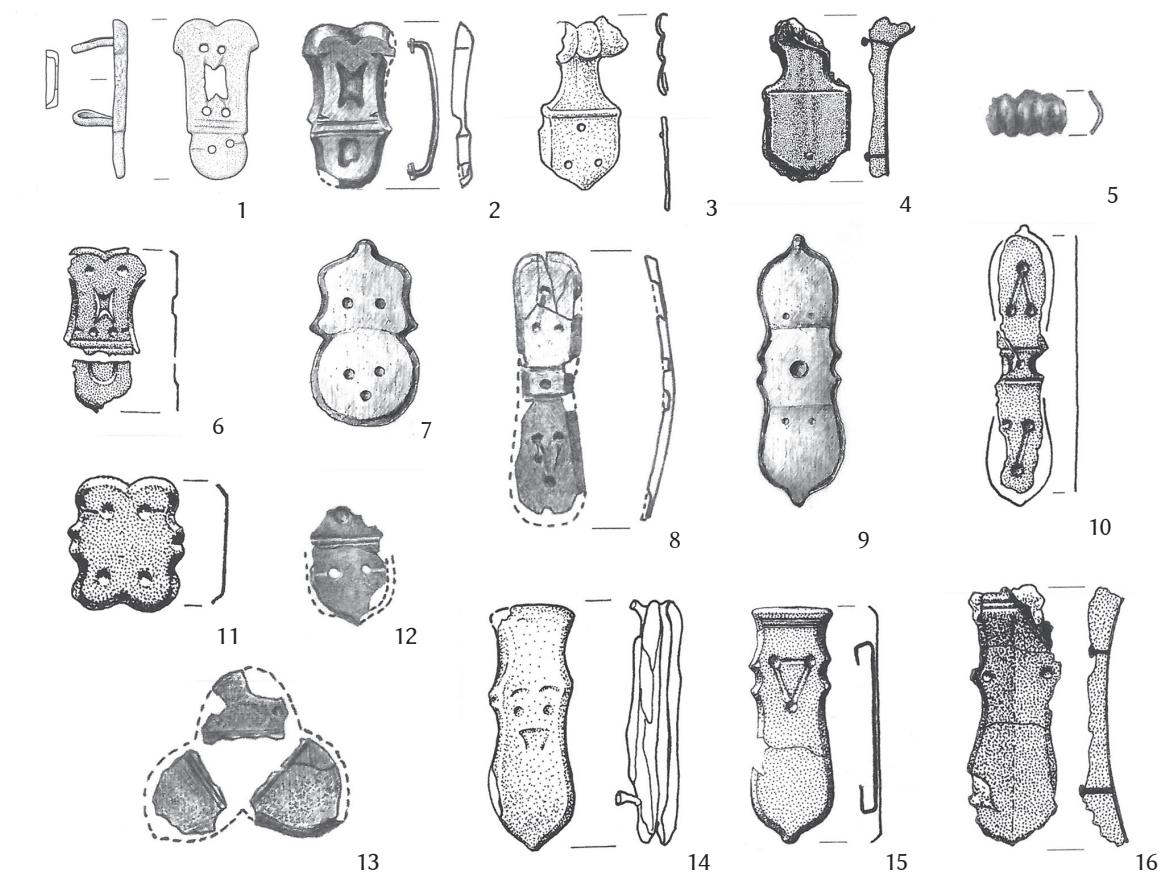


Fig. 9. Heraldic belt mounts from Szegvár. 1 – Grave 6 of Freundorf, 2, 5, 8, 12, 13 – Grave 1, 3 – Grave 626, 4, 16 – Grave 196, 6, 10, 11, 15 – Grave 121, 7, 9 – Grave 65, 14 – Grave 540 (1: after [BENEDIX 2024](#); 2–16: [LŐRINCZY 2020](#)).

⁶³ [LŐRINCZY 2020](#); [LŐRINCZY 2022](#).

⁶⁴ [LŐRINCZY – SIKLÓSI 2022](#), 669.

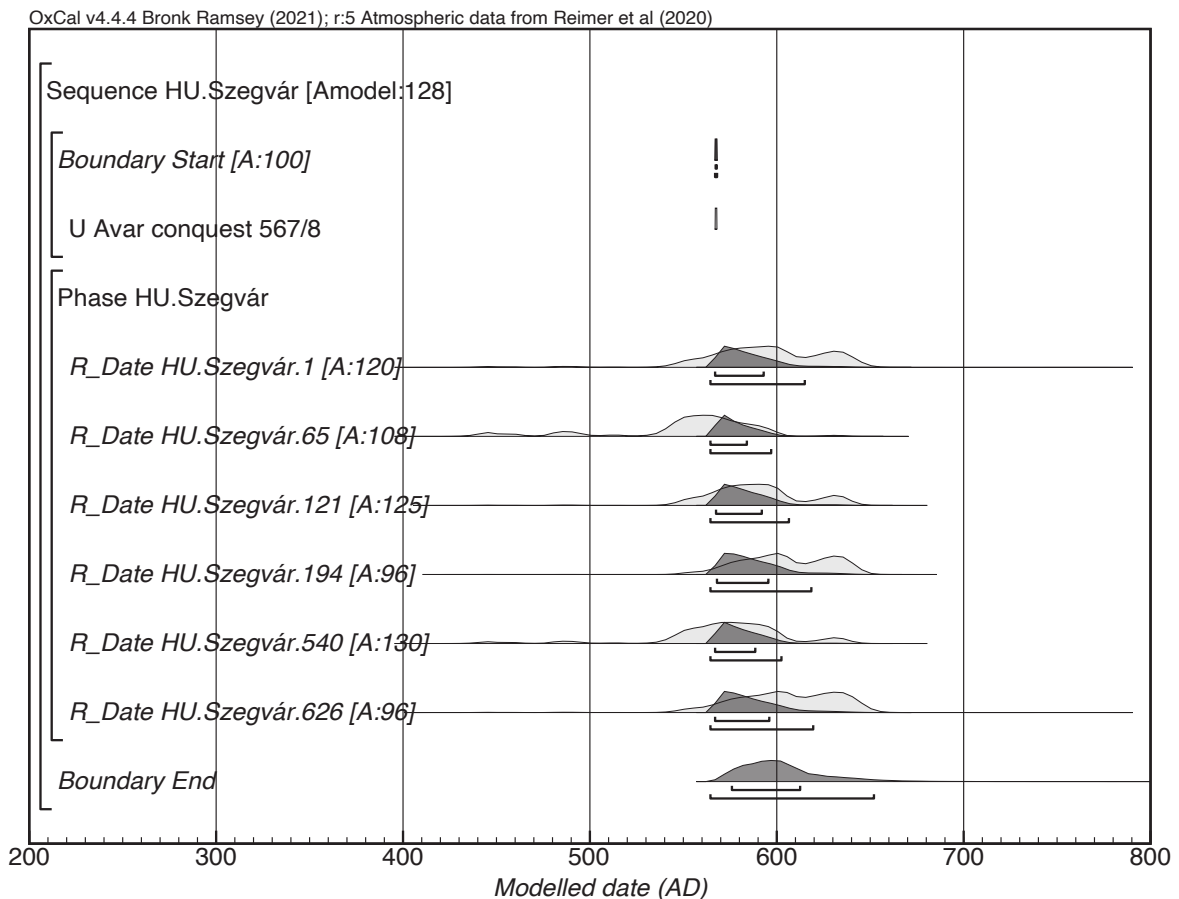


Fig. 10. Single-phase model of graves with heraldic belt mounts at Szegvár.

The Kislovodsk Basin (Stavropol Krai, Russia) in the northwestern foothills of the Caucasus is an area rich in both mineral water and archaeological sites. The site of Klin-Yar, 4 km west of the town of Kislovodsk, is located on a limestone plateau surrounded by a winding valley and spotted with settlements and cemeteries of the Late Bronze/Early Iron Age Koban culture and the early medieval Alanian Period, as well as Late Iron Age Sarmatian cemeteries. The joint Anglo-Russian excavation led by Heinrich Härke and Andrej B. Belinskij discovered seventeen graves of the Koban culture, as well as nine Sarmatian Period graves and 24 Alanian Period catacomb burials in Klin-Yar, Cemetery III, in 1994–1996 (Fig. 12). The excavation results and the related scientific analyses were published in a monograph in 2018.⁶⁵ The individually calibrated radiocarbon dates of all human bone samples proved to be much older than the archaeological (typochronological) dating of the respective graves, which the authors explain with the freshwater reservoir effect. In addition to the results of the isotope analyses, this explanation is supported by the fact that the control samples of animal bones from the same graves yielded dates that did not contradict the typochronological timeframe.⁶⁶

Four catacombs from the early medieval Alanian cemetery were selected for radiocarbon dating, two of them because of the Byzantine *solidi* they contained. These measurements were also the firsts obtained from the early medieval archaeological record of the region. The starting hypothesis was that the animals whose skull and leg remains were found in the *dromoi* of the catacombs had been slaughtered about the time when the people buried there died, and, thus, the graves can be dated by radiocarbon dating samples taken from these animal bones.⁶⁷

65 BELINSKIJ – HÄRKE 2018.

66 WARREN – HIGHAM 2018.

67 WARREN – HIGHAM 2018, 130–131.

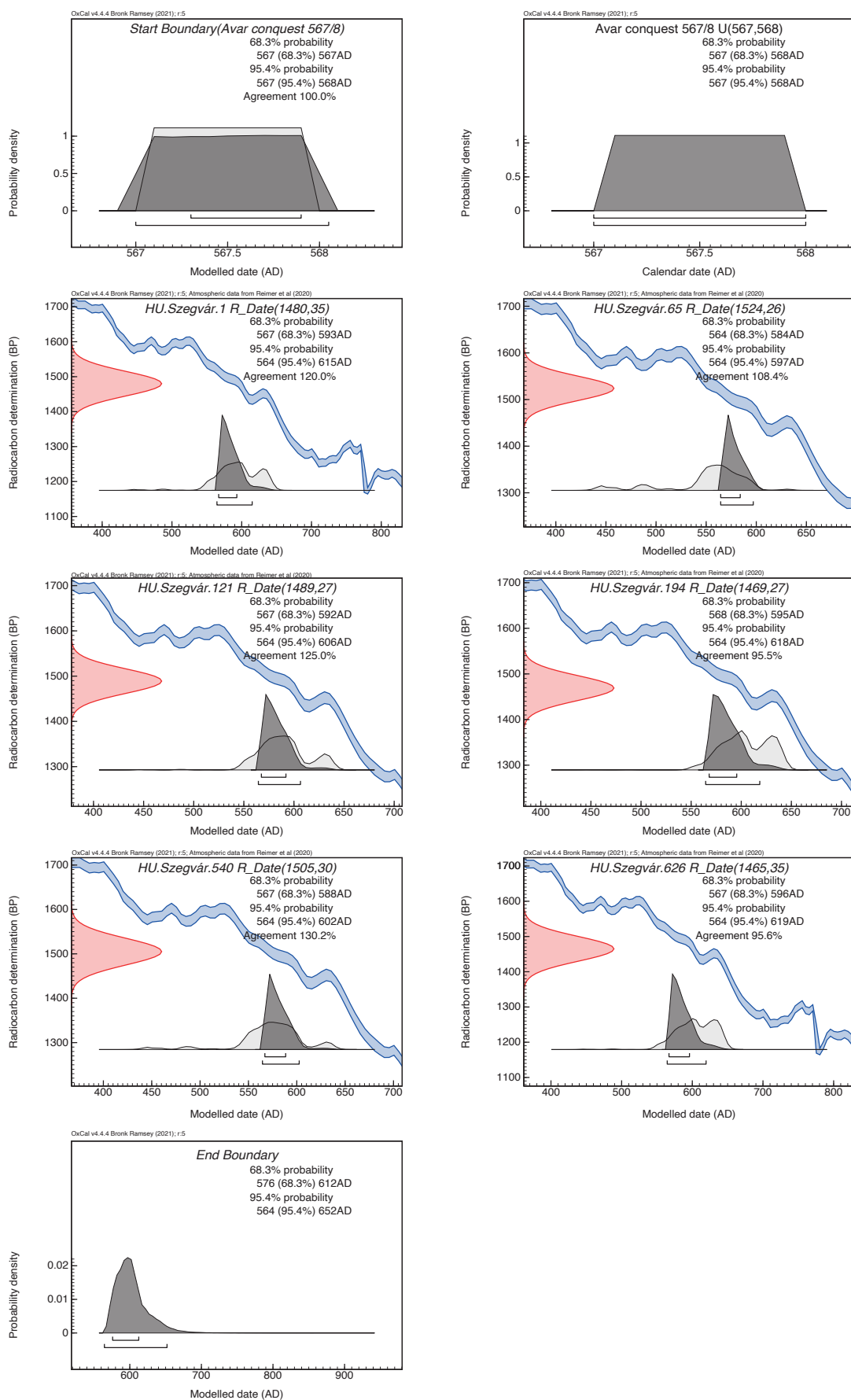


Fig. 11. Calibration plots of radiocarbon data from graves with heraldic belt mounts at Szegvár.

A horse bone sample was measured from four Alanian Period graves each (Catacombs 341, 357, 360, and 363B), together with a cattle bone sample from Catacomb 360. All conventional dates were only calibrated individually, and the results have been compared with the archaeological dates of the respective features estimated based on their find material, which, in the case of Catacombs 341 and 363B, included two identical 20-carat *solidi* of Mauricius Tiberius (MIB 14E, AD 583–602, Constantinople mint, officina 10) and a pierced 23-carat *solidus* of Heraclius (MIB 44 is the number of the 24-carat version because the 23-carat version is not in the MIB, AD 637–641, Constantinople mint, officina 9).⁶⁸

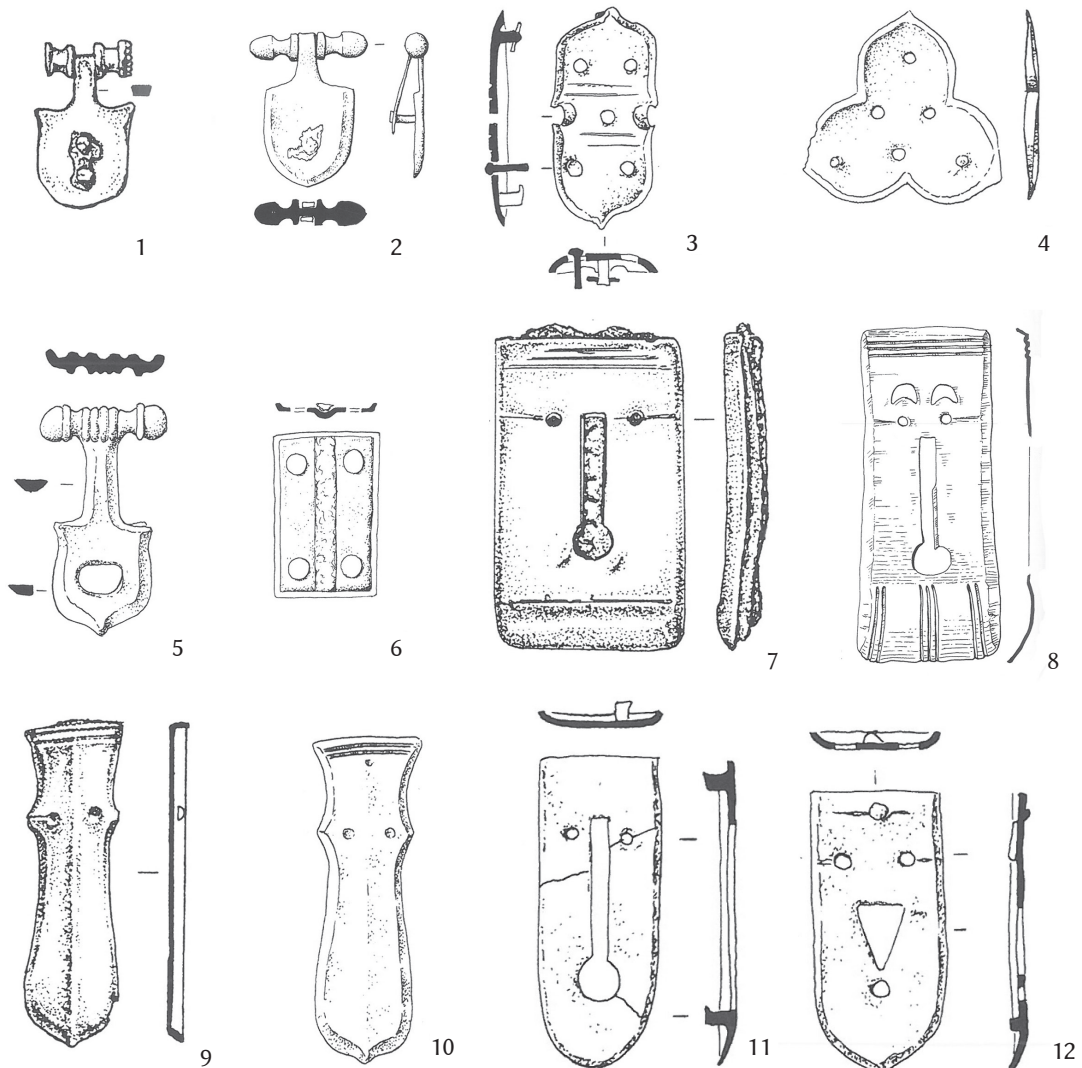


Fig 12. Heraldic belt mounts from Klin-Yar. 1, 3–5, 7, 9–12 – Grave 360, 2, 6 – Grave 357, 8 – Grave 341 (after [BELINSKIJ – HÄRKE 2018](#)).

Three people were buried in Catacomb 341, and two, a woman and a man, in each of the rest. In Catacombs 360 and 363B, the position of the bones upon discovery revealed that the woman was placed there first and the man later; however, even these do not contain any information about how much time has passed between the two burials. However, the similarity of the finds indicates that the difference was hardly more than a decade or two. Therefore, the authors' assumption that the human and animal burials are roughly coeval could be accepted. Accordingly, the uncalibrated dates from the four catacombs (which undoubtedly belong to the same period) were rendered into

68 [WARREN – HIGHAM 2018](#), 128, Tab. 2; [BELINSKIJ – HÄRKE 2018](#), 99, 101, Tab. 5, 336, 240, Pl. 7.1–3.

a single-phase model. Since the minting dates of the Byzantine *solidi* recovered from Catacombs 341 and 363B provide a *terminus post quem* for the slaughter of the animals, which were the last to be placed in the *dromoi*, we could take them into account for two catacombs, which was done by adding the AD 583–602 and AD 637–641 minting periods of the *solidi* as *terminus post quem*s, boundaries introduced as probability variables with uniform distribution, to the model. In addition, the uncalibrated dates of the horse and cattle bone samples from Catacomb 360 were entered into the model using the Combine function of OxCal (recommended for combining samples related to one or more simultaneous events but not physically) (Fig. 13).

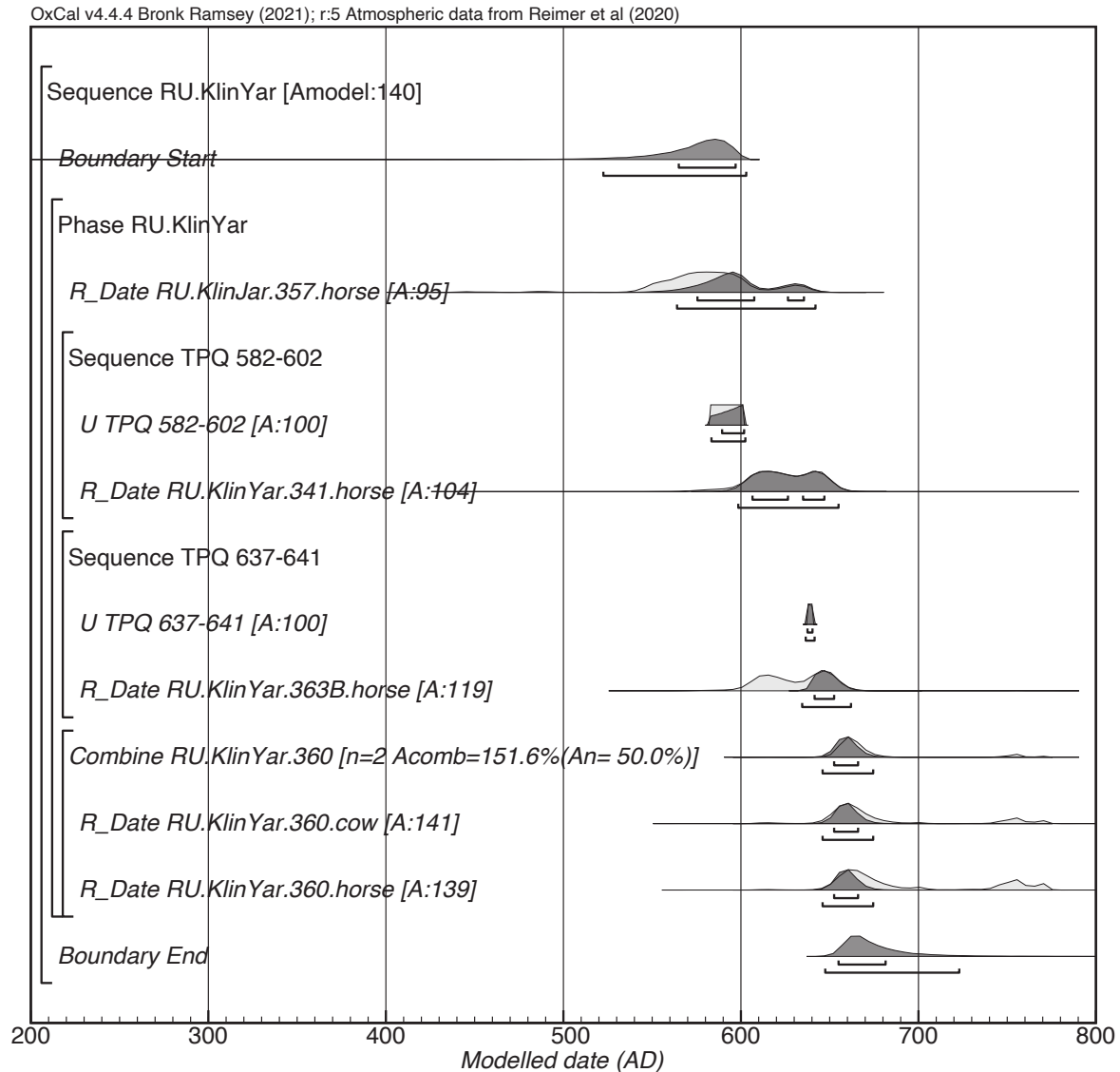


Fig. 13. Single-phase model of catacombs with heraldic belt mounts at Klin-Yar with *terminus post quem*s (Catacomb 341: AD 582–602 and Catacomb 363B: AD 637–641, minting dates of *solidi*).

The radiocarbon age of Catacomb 357 was thus narrowed down in the model to AD 564–642 (2σ). The radiocarbon age obtained by the individual calibration of the respective dates was AD 542–641 (2σ), starting two decades earlier. The radiocarbon age of Catacomb 341 was determined in the model as AD 598–655 (2σ), which is similar to the AD 590–658 (2σ) range determined by the individual calibration of the respective conventional date. Individual calibration of the horse and cattle bone dates from Catacomb 360 yielded AD 610–774 and AD 645–774 (2σ), which were narrowed down to AD 646–674 (2σ) in the model. The original AD 500–660 (2σ) radiocarbon age of Catacomb 363B

was narrowed down in the model to AD 634–662 (2σ). The obtained temporal ranges are 78, 57, 28 and 28 years (with a probability of 95.4%), the last two of which can be considered very precise in an early medieval context (Fig. 14).

Conclusions

There are only a few assemblages from 6th–7th-century AD Eastern Europe with a known radiocarbon age. One of them is Grave 62 of the Borisovo cemetery. Based on the radiocarbon analysis of the wooden plate in the P-shaped suspension loop of the dagger's sheath, the pistachio tree of which it was made was felled in the second or last third of the 6th century AD. However, this date can only be used as a *terminus post quem*. Based on the grave finds, the feature itself can be dated most probably to the first half of the 7th century AD. The heraldic strap ends are one of the flagship types of the 6th–7th-century AD archaeological record, appearing on similar belt mounts from Italy to Siberia. To specify the chronological position of the Borisovo grave, it was compared to graves with similar belt fittings and available radiocarbon dates from Central and Eastern Europe.

The lavish grave assemblage of the young woman in Grave 6 of Freundorf included a cast, openwork heraldic belt mount with a fishtail-shaped upper part.⁶⁹ Based on the radiocarbon date of the feature (AD 527–542 [2σ]), it cannot be excluded that the mount was in use already in the first half of the 6th century AD. Cast openwork and pressed heraldic fittings have also been found among the grave goods of Catacomb 360 at Klin-Yar III.⁷⁰ In terms of technology and workmanship, the cast openwork fittings found around the foot of the woman in this grave are the closest analogies to the mount found at Freundorf.⁷¹ These fittings once decorated the straps of her footwear, each set consisting of two three-way strap dividers, a strap end, and a buckle. Based on typological characteristics, they are considered products of the same period. However, based on the samples from the horse and cattle bones found in the *dromos*, the radiocarbon age of the catacomb is AD 646–674 (2σ). If the woman, who was between 35 and 44 years old at death, died around this time, then the decorative fittings on the straps were in use in the second third of the 7th century AD, more than a century later than the piece found at Freundorf. Since the radiocarbon dating of both burials is reliable, one must accept that cast, openwork heraldic mounts of identical design were in circulation and buried as part of the funerary costume with such a large time difference between the Central Danube Basin and the northwestern foothills of the Caucasus. According to the radiocarbon dates of the respective burials, the pressed heraldic fittings from Catacomb 341⁷² were probably used in the first half of the 7th century AD, and the cast, openwork rectangular fitting with four round holes from Catacomb 357⁷³ was in use as early as the second half of the 6th century AD.

As the radiocarbon model of the graves of the Szegvár cemetery (which also contains heraldic fittings) has revealed, there is evidence that both the cast and the pressed variants were in use there in the first three or four decades following the Avar conquest. Elongated, shield-shaped, curved longitudinal strap ends pressed from a metal sheet, with two small circular depressions imitating the eyes in the mask-like pattern, nearly identical to the pieces recovered from Graves 194, 540, and 626 of the Szegvár cemetery are also known from Catacomb 360.⁷⁴ However, despite the similarity in design and technology, the specimens in the Caucasus may have been buried up to 100 years later than the ones in Szegvár.

69 SOMOGYI 2014, 236, 241, Fig. 1.1.

70 BELINSKIY – HÄRKE 2018, 304–325, Figs 128–130, 133, 135–136, 138.

71 BELINSKIY – HÄRKE 2018, Fig. 128.18, Fig. 129.19–20.

72 BELINSKIY – HÄRKE 2018, 248, Fig. 62.41–42.

73 BELINSKIY – HÄRKE 2018, 302, Fig. 114.32; GULYÁS *et al.* 2021, 162.

74 LŐRINCZY 2020, 104–105, Fig. 124.4–12, 170, Fig. 212.8–12, 198, Fig. 244.14; BELINSKIY – HÄRKE 2018, 324–325, Fig. 135.62, Fig. 138.87.

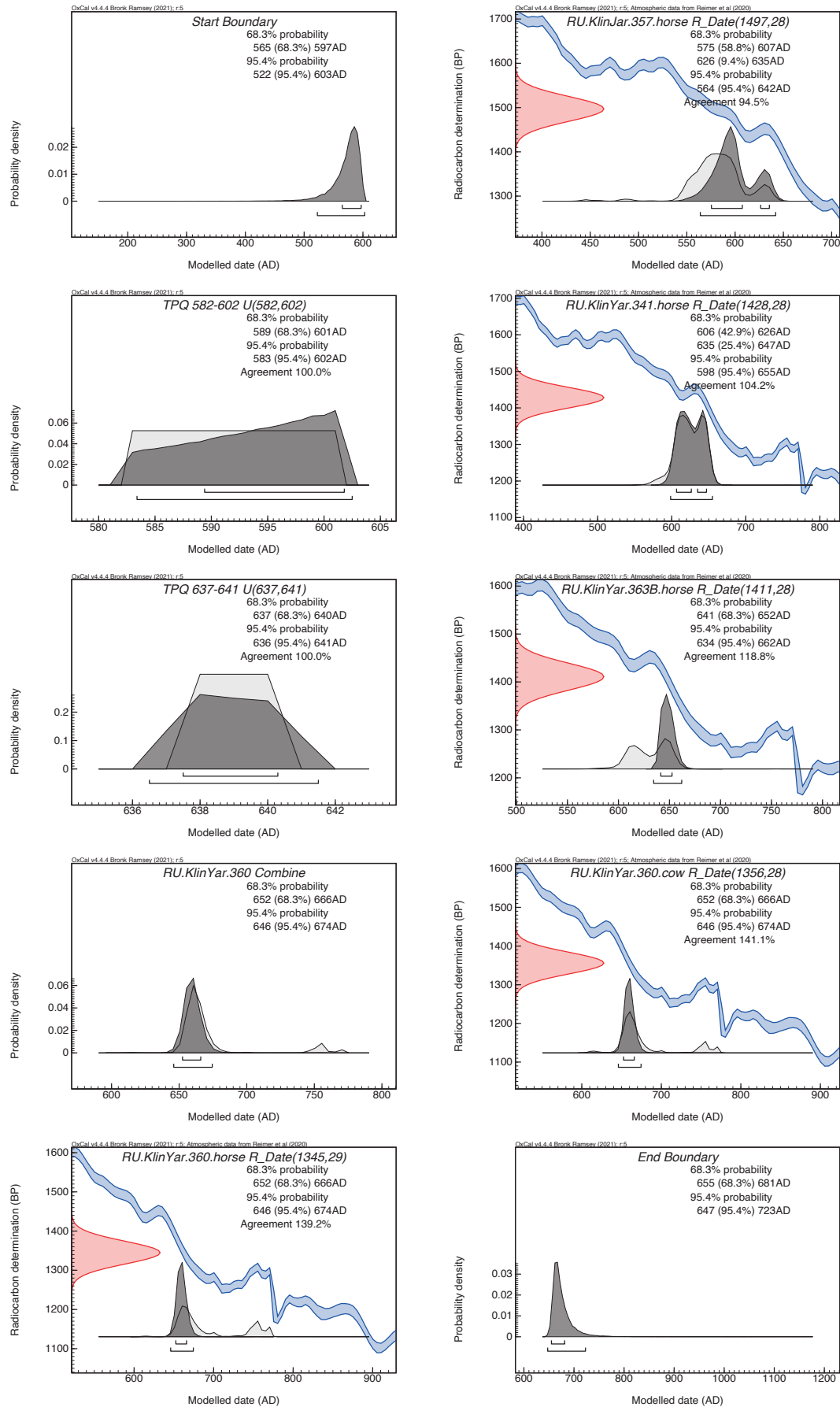


Fig. 14. Calibration plots of radiocarbon data from graves with heraldic belt mounts at Klin-Yar.

These results are in line with the current picture of the distribution of cast, openwork heraldic mounts in Central and Eastern Europe, albeit in Central Europe, most pieces have been dated to the 6th, while in the East to the 7th century AD. This seeming discrepancy raises serious questions about the validity of traditional typochronological dating, used in both areas up to this day, as it is based on the assumption that identical or closely similar finds, even if they come from distant sites, automatically imply that the related sites are contemporaneous, and can therefore be used to synchronise the local chronological frameworks developed for Central and Eastern Europe, respectively. We are convinced that the key to explaining and possibly resolving the significant ‘asynchronicity’ between the chronological framework developed for the 6th and 7th-century AD finds of the Pontic Steppe, the Crimea and the Caucasus and the one of the Avar Period in Central Europe is the well-designed and systematic radiocarbon dating of the related finds. It can only be hoped that the dozen or so radiocarbon dates published so far and re-evaluated in this paper will be followed by more in the future.⁷⁵

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