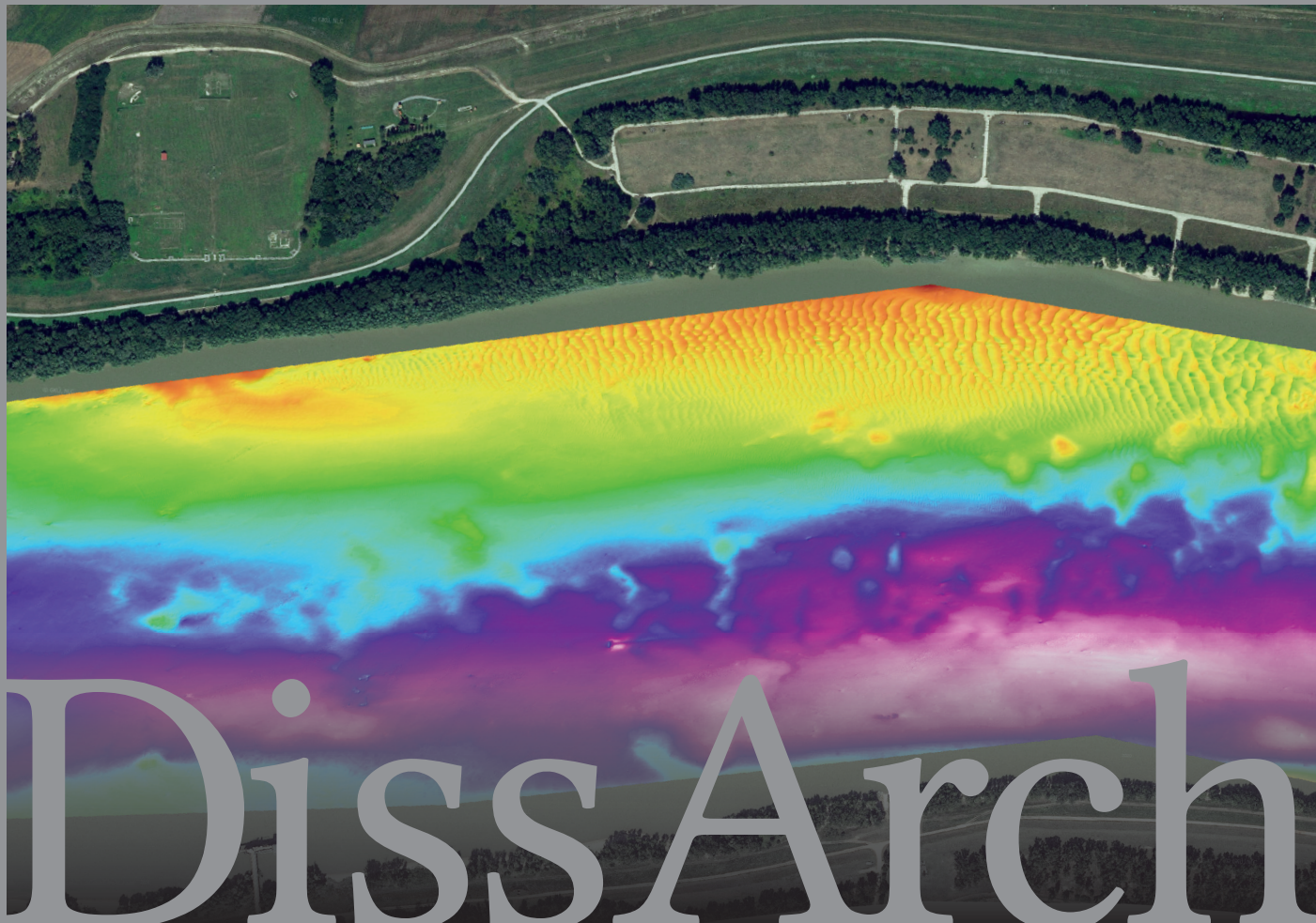


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A stirrup type with Byzantine provenience in Central and Eastern Europe

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Abstract: In this paper, we analyse a certain stirrup type that is rare in Central and Eastern Europe. It is characterized by a flat, narrow platform, strongly curved arms, and a rectangular eye. Based on the examination of the assemblages, these stirrups most likely developed in the Balkans in the first decades of the 7th century and were in use in the first half of the century.

Keywords: horse tack, stirrups, Byzantine Empire, Avars, eastern European steppe, early Middle Ages

Introduction

One of the most important innovations in the early medieval cavalry warfare was the introduction of the stirrup, that appeared in Europe in the 6th century AD. Although the importance of this object type has been exaggerated by Anglo-Saxon research,¹ their case clearly demonstrates the role of steppe peoples in the spread of innovations: they may have appeared in the Merovingian and Byzantine world with the help of the Avars.² Proving the hypothesis is made difficult by the fact that only a few stirrups are known from the Byzantine Empire. The reason for this is experts focusing on the Mediterranean region in the early Byzantine period pay little attention to small finds.³ In the following, we deal with a special type of early medieval stirrups, which we named the Caričin Grad type after their very first occurrence.⁴ Their common features are strongly curved arms and a rectangular eye. Following a general historical overview of 6th–7th century stirrups, we analyse in detail the distribution of the type, the typological variations, and dating of the type. Then, finally we consider the possibilities regarding its origin.

1 Lynn White linked the emergence of feudalism to the spread of professional heavy cavalry, which he explained by the appearance of stirrups (WHITE 1962, 1–38).

2 SCHULZE-DÖRRLAMM 2006, 490–491; CURTA 2008, 315–317. Manfred Nawroth emphasized the role of Byzantium in connection with their appearance in southern Germany (NAWROTH 2001, 137), while according to Uta von Freeden, the origin of European stirrups is unclear (VON FREEDEN 1991, 621–622).

3 Cp. BOLLÓK 2015, 266, note 12.

4 This corresponds to Type III as defined by Oleksiy Komar (KOMAR 2006, 96).

Overview of research history

Despite the importance of stirrups, their detailed analysis has not been available before. Ilona Kovrig analyzed high-quality Early Avar stirrups with an elongated eye in the Carpathian Basin; she identified them as the Inner Asian legacy of the Avars.⁵ Her opinion was later accepted also by Éva Garam.⁶ Csanád Bálint criticized the theory of Kovrig; according to him, stirrups were in use for a much longer period than the last third of the 6th century, therefore they cannot be considered as a chronological point.⁷ Florin Curta examined the chronological position of the stirrups with elongated eye, concluding that they were mainly common in the first half of the 7th century. He compared the stirrup types of the Avar Khaganate and Western Europe, discussing their distribution in details.⁸ Gergely Csiky expanded the viewpoint of Curta and examined the Avar stirrups within an Eurasian context. He also attempted to examine the typology of individual pieces, although he did not analyse each type in equal detail.⁹



Fig. 1. Distribution of the Caričin Grad-type stirrups and the Aphrodisias specimen. 1 – Caričin Grad, 2 – Khrisosotira, 3 – Szegvár-Oromdűlő, 4 – Deszk-Site G, 5 – Voznesenka, 6 – Kalininskaya, 7 – Aphrodisias (Base map made by Zita Hrabák).

The few analyses published on Eastern European steppe pieces also focused on chronology. In his ambitious analysis, Anatoliy Ambroz examined Eastern European stirrups in a Eurasian context and outlined the development of each type.¹⁰ Aleksandr Aybabin noted that stirrups appeared in the Eastern European steppes in the second half of the 6th century.¹¹ Nikolay Khrisimov collected

5 KOVRIG 1955.

6 GARAM 1990, 253, 261, Abb. 1.

7 BÁLINT 1993, 210–212.

8 CURTA 2008.

9 CSIKY 2021.

10 AMBROZ 1973.

11 AYBABIN 1974.

the burial mounds in the Pontic region that contained stirrups. He concluded that these had been incorrectly dated to the 7th century, but in several cases, a 6th-century date cannot be ruled out.¹² Oleksiy Komar created typology of stirrups found in the region, distinguishing five main groups.¹³

Stirrups probably appeared in the Byzantine Empire under Avar influence, for which the *Strategikon* provides indirect written evidences.¹⁴ In this context, stirrups found in the Byzantine Empire were often compared to those found in the Carpathian Basin. Ivan Bugarski examined Balkan specimens in connection with the stirrup from Strezhevo (North Macedonia),¹⁵ although it was later clear that most of them dated back to the 10th–11th centuries.¹⁶ Vujadin Ivanišević and Ivan Bugarski collected Eastern European analogies of the stirrups from Caričin Grad but did not undertake a detailed analysis.¹⁷ In the context of an Anatolian piece, Tim Penn, Ben Russell, and Andrew Wilson reviewed early Byzantine stirrups, specifically those of the Caričin Grad type, although they mentioned only two sites.¹⁸

Distribution

After reviewing research history, we will move on to examining the narrower topic of the paper, namely Caričin Grad-type stirrups. This type occurred in three major regions: the Balkans, the Eastern European steppe, and the Carpathian Basin (Fig. 1). The eponymous site is located in Central Serbia. The settlement is identified with the city of Iustiniana Prima, known from written sources, which was founded by Justinian I near his birthplace. The city consisted of several parts—a citadel, an upper town, and a lower town. Numerous basilicae, public buildings, aqueducts, and craft workshops have been discovered in the area, indicating the former importance of Caričin Grad. Based on archaeological research, the settlement was abandoned at the beginning of the 7th century, which can be tentatively linked to the Slavic incursions.¹⁹ The first stirrup in the settlement was discovered in 1984 by Đorđe Mano-Zisi on the eastern wall of the Acropolis, in a building located southwest of a circular plaza (Fig. 2.6).²⁰ The other stirrup was unveiled in the Lower Town in 2002. Its design differs slightly from the first one, being lower and wider (Fig. 2.5). The *terminus post quem* date of layer containing the find is given by the folles minted between 596–597 and 602–610 under the reign of Maurice and Phocas respectively.²¹

The fortress of Khrisosotira, located on the Black Sea in the province of Haemimontius, is situated near Sozopol and served as an administrative and ecclesiastical centre in the 6th century. According to Ivan Khristov, the fortress was built in the second half of the 5th century to defend the coastal cities and was in use for about 150 years.²² In the fall of 2022, two stirrups and an iron snaffle bit were found in Building 6 (Fig. 2.7).²³ This type of bit was quite common in the steppe environment, although similar pieces are also known from Byzantine contexts.²⁴

12 KHRISIMOV 2014.

13 KOMAR 2006, 96.

14 CSIKY 2021, 21.

15 BUGARSKI 2007.

16 BUGARSKI 2013.

17 IVANIŠEVIĆ – BUGARSKI 2012, 138.

18 PENN *et al.* 2021.

19 IVANIŠEVIĆ 2010.

20 WERNER 1984, 147.

21 IVANIŠEVIĆ 2010, 771; IVANIŠEVIĆ – BUGARSKI 2012, 136.

22 KHRISTOV 2024, 96–97.

23 KHRISTOV 2024, 258–259.

24 E.g. Ilich, Taman Peninsula (NIKOLAEVA 1986, 184, ris. 1.10); Petra-Tsikhisdziri, Georgia (MINDORASHVILI 2021, 114, 27.1).

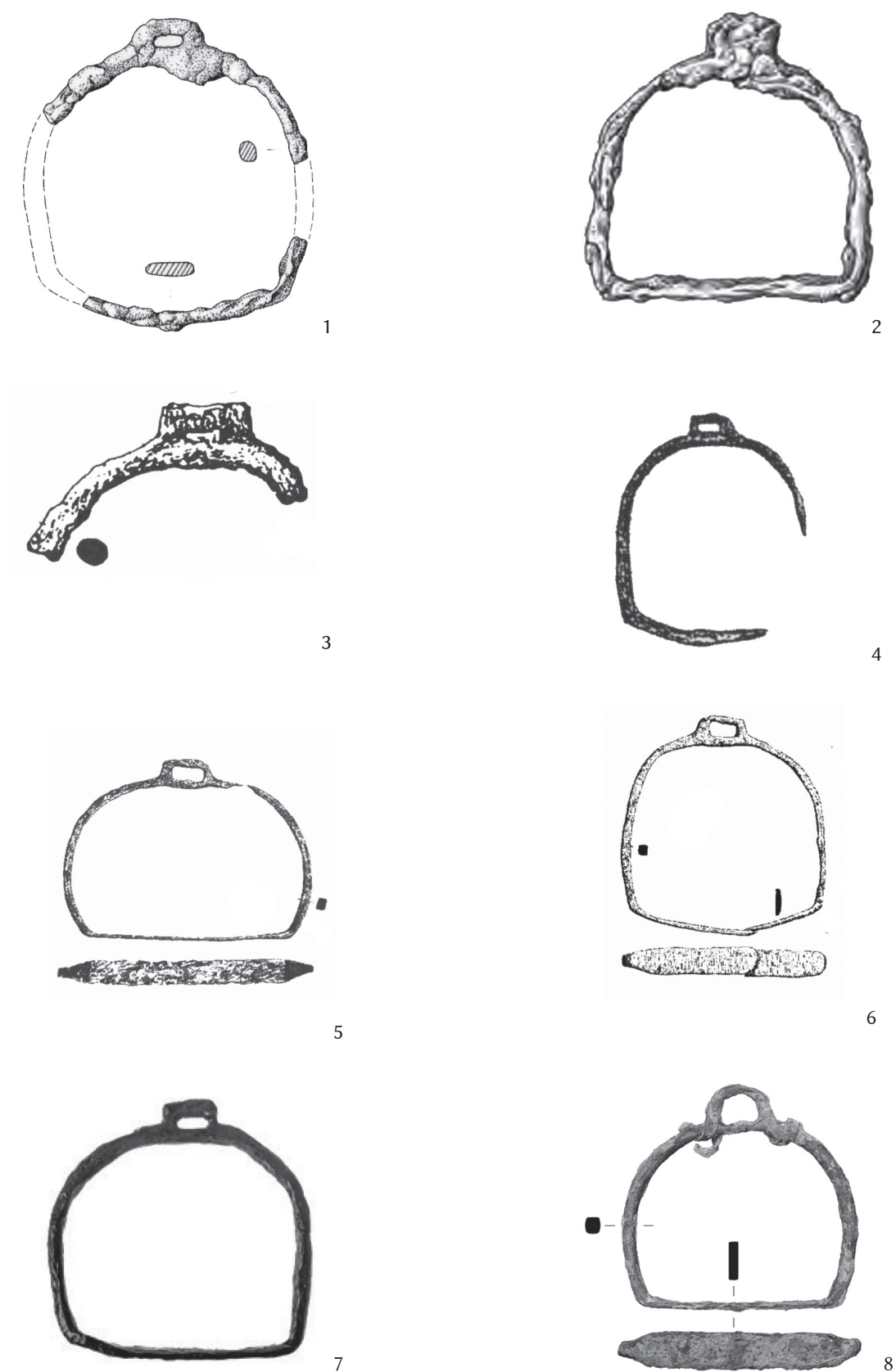


Fig. 2. Stirrups mentioned in the text. 1 – Grave 16 of Deszk-Site G (after [STRAUB 2006](#)), 2 – Grave 755 of Szegvár-Oromdúló (after [LŐRINCZY 2020](#)), 3 – Grave 10 of Mound 4 at Kalininskaya (after [ATAVIN 2008](#)), 4 – Voznesenka (after [KHRISIMOV 2009](#)), 5–6 – Caričin Grad (after [IVANIŠEVIĆ 2012](#)), 7 – Khrisosotira ([KHRISTOV 2024](#)), 8 – Aphrodisias ([PENN *et al.* 2021](#)).

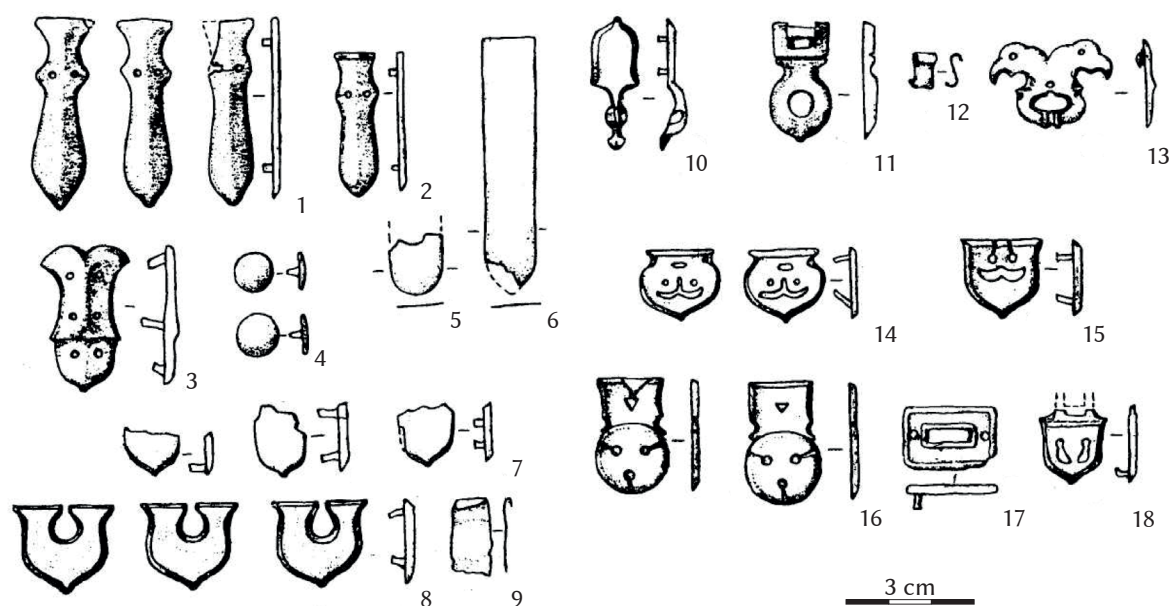


Fig. 3. Grave 10 of Mound 4 at Kalininskaya (after [ATAVIN 2008](#)).

Two Caričin Grad-type stirrups have been also found in the Eastern European steppe. Grave 10 of Mound 4 at Kalininskaya in the Kuban region has not yet been fully published. The grave was NE–SW oriented; above the deceased—in the same orientation as the human skeleton—a horse’s skull and truncated leg bones were found. Among other things, a fragmentary iron stirrup was found in the burial, but the preliminary report does not mention its exact position within the grave.²⁵ The deceased was buried with belt fittings of a belt, antler utensils and a broken mirror ([Figs 3–4](#)). The grave belongs to the so-called Syvashivka-type burials. This group includes early medieval steppe finds spread across a vast area between the Dniester and the tributaries of the Volga.²⁶ While Western researchers date Syvashivka-type burials to between the second half of the 6th century and the middle of the 7th century, Ukrainian and Russian research extends the upper chronological limit of the group to the beginning of the 8th century.²⁷

The other site was found near Voznesenka, on the bank of the Dnipro River, on the outskirts of the present-day city of Zaporizhzhya. At the site, an area measuring 82 × 51 m was observed, surrounded by an earth-and-stone rampart.²⁸ A total of 58 stirrups, 40 horse bits, various types of gold and silver coins, and swords were found on a burnt surface measuring 3.5 × 2.5 m and in two pits.²⁹ Several hypotheses have been put forward regarding the interpretation of the finds. According to the theory of Anatoliy Ambroz, which is still accepted today, the Voznesenka structure can be linked to the sacrificial sites of the Inner Asian Turks.³⁰

Caričin Grad-type stirrups are known from two burials in the Carpathian Basin, namely Grave 755 in Szegvár-Oromdúló and Grave 16 in the Deszk-G site cemeteries. Both sites are located east of the Tisza River, in the Great Hungarian Plain, where a special group settled in the early Avar period,

25 [ATAVIN 2008](#), 40.

26 [ORLOV 1985](#); [GULYÁS 2023](#). Oleksy Komar considers these burials to be part of the so-called Malaya Pereshchepina culture ([KOMAR 2006](#)).

27 Cp. [SOMOGYI 1997](#), 106; [KOMAR 2006](#).

28 [AMBROZ 1982](#), 204.

29 [BÁLINT 1989](#), 92–94.

30 [AMBROZ 1982](#), 212–216. For a summary of the different theories, see [KHRISIMOV 2009](#), 31–37.

which, based on their rituals, can be linked to Syvashivka-type burials.³¹ These communities are mainly characterized by small cemeteries and solitary burials. The largest cemetery associated with these groups is located on the left bank of the Tisza River, not far from the mouth of the Körös River, in Szegvár-Oromdűlő. A total of 467 Avar burials were uncovered at the site, all of which, with the exception of two, can be dated to the early Avar period (567–approx. 650). What is striking about the site is the large number of graves with a side-wall niche and an end-wall shaft, as well as the number of animal sacrifices consisting of skulls and their accompanying extremities.³² The Grave 755 that was analysed is a grave with an end-wall shaft oriented NE–SW. Skulls and extremities of three horses were documented in the entrance pit, one of which

was harnessed. In addition to horse remains, there also skulls and extremities of a cattle and a sheep. The deceased was buried in a log coffin placed in the end-wall shaft (Fig. 5.1). The deceased wore a belt decorated with silver fittings made with the repoussé technique around his waist (Figs 5–6).³³

Deszk-Site G is located on the lower reaches of the Maros River, which was one of the most important trade routes during the Avar period, as reflected in the wealth of the cemeteries found here.³⁴ 58 early Avar period graves were found at the site, 44 of which contained grave goods. Regarding burial rites, the cemetery is very similar to Szegvár-Oromdűlő.³⁵ Grave 16 was an E–W oriented grave with a side-wall niche. The remains of an entire horse were discovered in the entrance pit, while sheep bones were laid behind the skull. Antler plates belonged to two bows and a quiver were in the grave. The poorly preserved fittings belonged to a belt and horse tack (Figs 3–4).³⁶

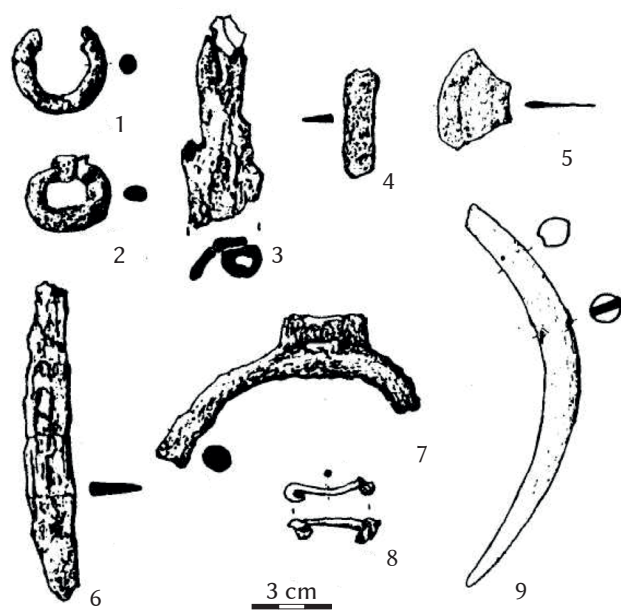


Fig. 4. Grave 10 of Mound 4 at Kalininskaya (after [ATAVIN 2008](#)).

Formal variations and the issue of function

Caričin Grad-type stirrups show a variety of shapes, but they can still be considered a uniform group due to certain characteristics like a narrow, flat platform, strongly arched arms with a circular cross-section, and a rectangular or D-shaped eye. Several subgroups can be distinguished based on their shape and proportions. In the first group, the platform and arms form roughly right angles. The Szegvár and Khrisosotira specimens can be classified in this group (Fig. 2.2,7). In case of the second stirrup from Caričin Grad, the piece from Voznesenka, and probably the piece from Deszk, the shape is more irregularly circular (Fig. 2.1,4,6); the platform and the arm form an obtuse angle. First stirrup of Caričin Grad represent a separate group with its short, wide shape (Fig. 2.5). Due to its fragmentary nature, the Kalininskaya stirrup cannot be classified into any group (Fig. 2.3).

31 For more information, see [GULYÁS 2023](#).

32 [STROKOV et al. 2024](#), 406.

33 [LŐRINCZY 2020](#), 265–266.

34 [GULYÁS 2023](#), 746.

35 [KÜRTI 2002](#).

36 [STRAUB 2006](#), 167–168.

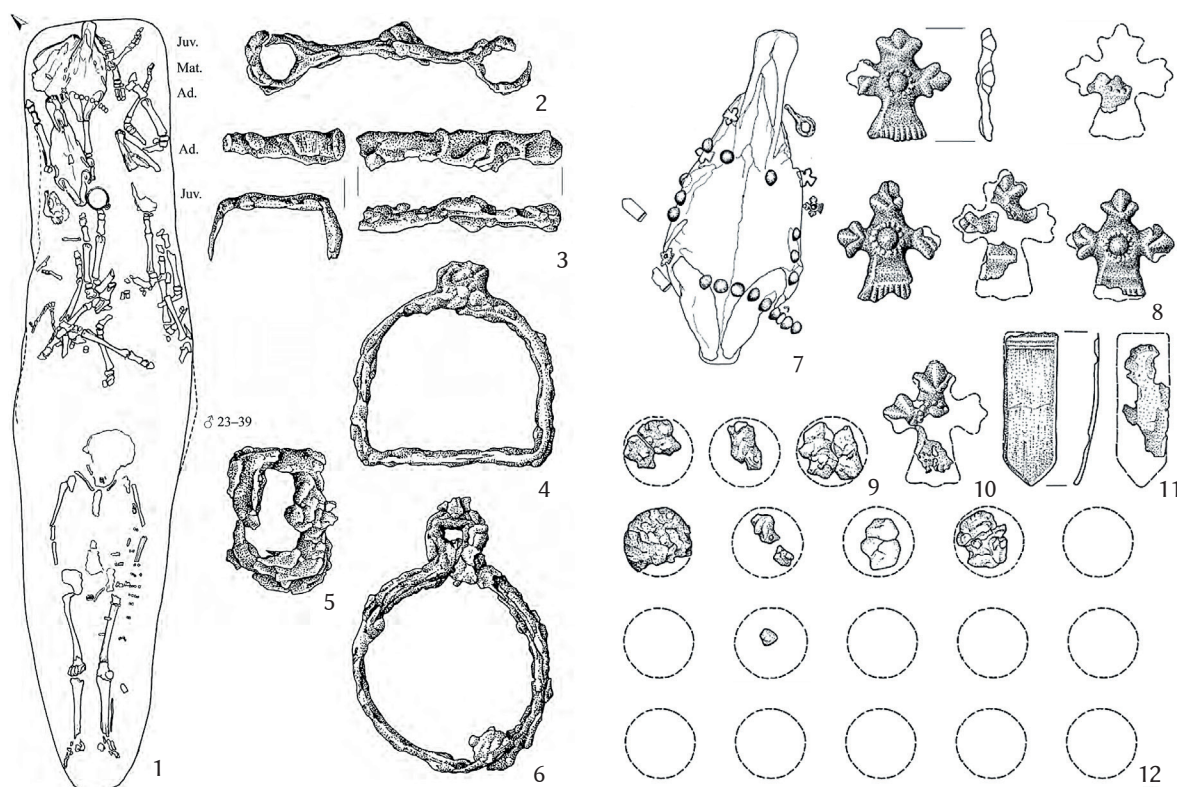


Fig. 5. Grave 755 of Szegvár-Oromdűlő (after LÓRINCZY 2020).

Vujadin Ivanišević and Ivan Bugarski suggested that the Caričin Grad stirrups were developed when this object type first appeared in Byzantium, thus reflecting an initial experimental phase.³⁷ This may also explain their less uniform design. In terms of their function, it is widely believed that, as these pieces are less solidly constructed than the Avar ones, they were not stirrups in the traditional sense but served only as footrests.³⁸ Due to their shape, it has been suggested that they were used for a different riding style than we are accustomed to with Avar stirrups: only the tip of the foot could be placed in them.³⁹ The specimens from the Carpathian Basin were found in pairs with stirrups with an eight-shaped eye, which could help with reconstruction.⁴⁰ However, the Deszk specimen originates from an old excavation where the exact position of the stirrups was not documented. In the Szegvár grave, the Caričin Grad-type stirrup was on the left side.

Chronology

The specimen found in Hrisosotira came from the same layer of the room where a solidus of Heraclius was also found.⁴¹ The destruction of the fortress was linked to an Avar campaign between 617 and 626, even though a follis of Constans II (reigned from 641 to 668) were found in the area.⁴² We do not have reliable information about when the stirrups from Caričin Grad stirrups were buried. As it was aforementioned, the abandonment of the settlement is dated to the beginning of the 7th century, which also marks the upper dating of the the objects.⁴³

37 IVANIŠEVIĆ – BUGARSKI 2012, 138.

38 WERNER 1984, 147–148; CURTA 2008, 307.

39 SCHULZE-DÖRRLAMM 2006, 491.

40 STRAUB 2006, 169, 5. kép 10; LÓRINCZY 2020, 689, 325. kép 6.

41 KHRISTOV 2024, 258.

42 KHRISTOV 2024, 317.

43 IVANIŠEVIĆ 2010, 747.

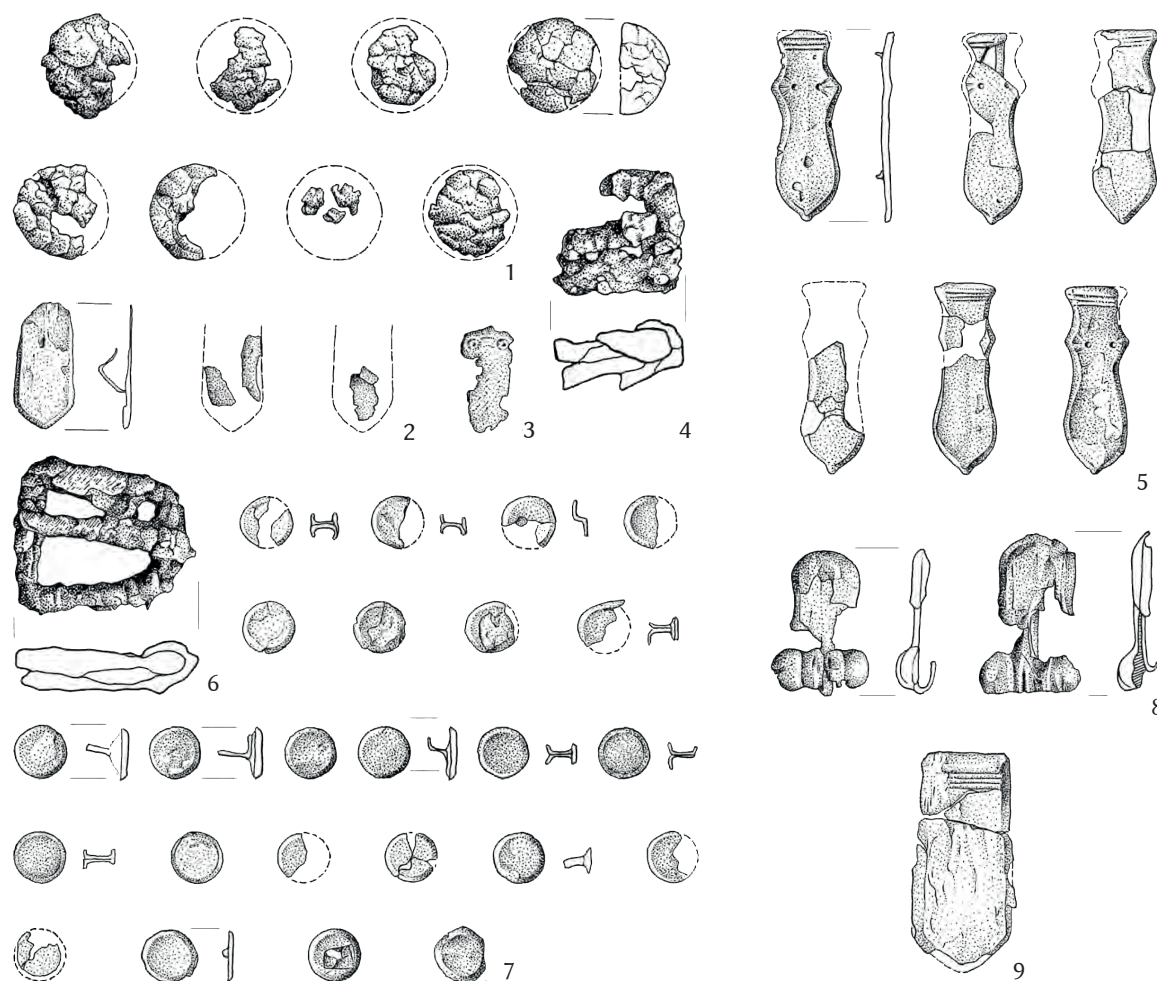


Fig. 6. Grave 755 of Szegvár-Oromdúló (after LŐRINCZY 2020).

There is no consensus among researchers regarding the dating of Eastern European pieces. Andrey Atavin dated the Kalininskaya stirrup to the second or third quarter of the 7th century, which was later accepted by Igor Gavritukhin and Andrey Oblomskiy.⁴⁴ However, Oleksiy Komar linked the burial to the so-called Üch-Tepe–Kelegey horizon of the Malaya Pereshchepina culture and dated it to between 685 and 704.⁴⁵ Aleksandr Aybabin also suggested a similarly late date, dating the assemblage to the end of the 7th century and the first half of the 8th century.⁴⁶ Several object types from the grave have good analogies in the Carpathian Basin. Csilla Balogh dated the rectangular belt fittings with (Fig. 3.17) a rectangular perforation in the middle to the first half of the 7th century, more specifically to the first decades of that period.⁴⁷ Analogies of the concave-stemmed scutiform belt fitting (Fig. 3.10) can be found in the burials of the so-called Kunbábony–Bócsa circle, belonging to the Avar elite, which date back to the middle of the 7th century.⁴⁸ Russian and Ukrainian research dates the Voznesenka site to the second half of the 7th century and the first half of the 8th century.⁴⁹ In contrast, Nikolay Khrisimov linked the site to the existence of Kuvrat's state of Magna Bulgaria and

44 ATAVIN 2008, 40; GAVRITUKHIN – OBLOMSKIY 1996, 92–94.

45 KOMAR 2006, 136, 238.

46 AJBABIN 2011, 160.

47 BALOGH 2016, 197.

48 SZENTHE 2015, 356–357.

49 For a summary, see KHRISIMOV 2009, 29–30.

dated it to the 620s and 630s.⁵⁰ In our opinion, this conclusion definitely needs to be refined. Although the best counterparts of these object types can indeed be dated to the early Avar period, certain finds allow for a later dating as well. Akalan-type belt buckles, for example, can be dated mainly to the middle third of the 7th century in the Carpathian Basin, but the motif can still be observed at the end of the century.⁵¹ In addition, we can mention the horse bits with S-shaped cheekpieces, which became widespread in the Avar finds mainly from the 8th century onwards.⁵² However, it should be emphasized that due to the nature of the site, there may be significant differences in the dates of production of the objects, as evidenced by a few extreme examples from the 5th century.⁵³

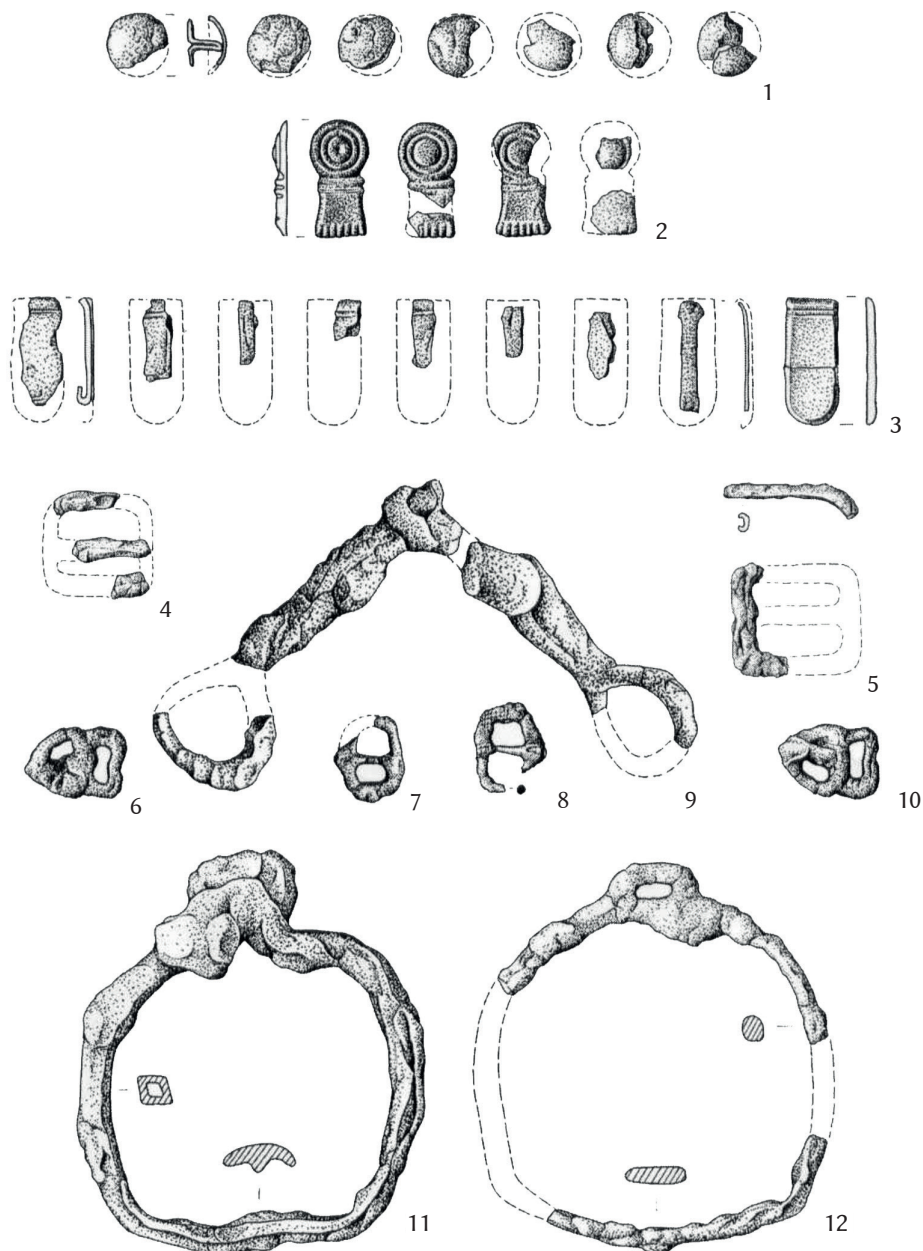


Fig. 7. Grave 16 of Deszk-Site G (after STRAUB 2006).

50 KHRISIMOV 2009, 37–38.

51 KHRISIMOV 2009, 28, ris. 15; BALOGH 2016, 99.

52 GARAM 2018, 272.

53 KHRISIMOV 2009, 10–12.

The pieces from the Carpathian Basin are traditionally dated earlier than those from Eastern Europe. Examining the Deszk burial, Péter Straub concluded that the antler quiver fittings (Fig. 3.8, 11–12) found here represent the earliest type,⁵⁴ which he dated to the beginning or more precisely, to first third of the 7th century.⁵⁵ Gábor Lőrinczy dated the belt and horse harness fittings found in the Szegvár grave to the second third of the 7th century on the basis of their typology.⁵⁶ The clover-shaped horse harness fittings (Fig. 5.8, 10) found mainly in the early Avar period, but their exact date is uncertain.⁵⁷ Csilla Balogh dated the masque-type belt fittings made with the repoussé technique (Fig. 6.5, 8) found in the grave to between the very beginning of the and the middle third of the 7th century.⁵⁸ Radiocarbon dating is available for six of the graves containing masque-type belt fitts in Szegvár-Oromdűlő. Most of these can be dated to the end of the 6th century and the first decades of the 7th century.⁵⁹ Based on the above, we can assume that Grave 755 in Szegvár is also older than it was presumed earlier, but this question can only be answered by radiocarbon analysis.

To sum up the above, we can conclude that the dating of Caričin Grad-type stirrups is consistent despite the great distance between them: they probably developed in the first decades of the 7th century and were buried in the first half of the same century.

The question of origin

Caričin Grad-type stirrups have been found in even numbers across a large area, which makes it difficult to determine their provenance. Although stirrups were common and well researched in the Carpathian Basin in the 6th–7th centuries, only two examples of the type examined are known. For this reason, more recent summaries do not take Caričin Grad-type stirrups into account.⁶⁰

Only nine finds containing stirrups are known from the Eastern European steppes in the 7th century.⁶¹ The difficulty lies in the fact that there are only four sets of finds for which the exact type can be determined: the Zhurvalikha and Zaplavka graves contained pieces with an eight-shaped eye, the Zhirnokleevskiy grave contained pieces with an elongated eye, while the Kaliniskaya burial contained a fragment of a Caričin Grad-type stirrup discussed in the article.⁶² Recently, three horse burials were discovered at sites near Kravchenko in the Kuban region, all three of which contained stirrups with an eight-shaped eye.⁶³

It should be noted that the research highlighted the multicultural background of both sites in the Balkans. In the case of Ivan Khristov Khريسотира, he basically assumed a Byzantine population, but he also believed that certain types of objects—bow brooch, horse tack—could also be of Slavic or Avar origin.⁶⁴ Regarding Caričin Grad, Vujadin Ivanišević also identified a find horizon associated

54 STRAUB 2006, 163–165.

55 STRAUB 1997, 123–124.

56 LŐRINCZY 2022, 246.

57 CSUTHY 2013, 113

58 BALOGH 2004, 263–264.

59 STROKOV *et al.* 2024, 405–406.

60 Gergely Csiky called these stirrups with pierced eyes, but showed only the pieces from Caričin Grad and Kalininskaya on his distribution map (CSIKY 2021, 17, Fig. 1).

61 KHRISIMOV 2014, 217. The Shevchenkova burial mentioned by Nikolay Khрисимов can be dated later based on more recent data (verbal information provided by Oleksiy Komar).

62 KHRISIMOV 2014, 220, ris. 2.2, 221, ris. 3.2, 223, ris. 10.10–11.

63 LARENOK 2025, 38–40, ris. 7–9.

64 KHRISTOV 2024, 316.

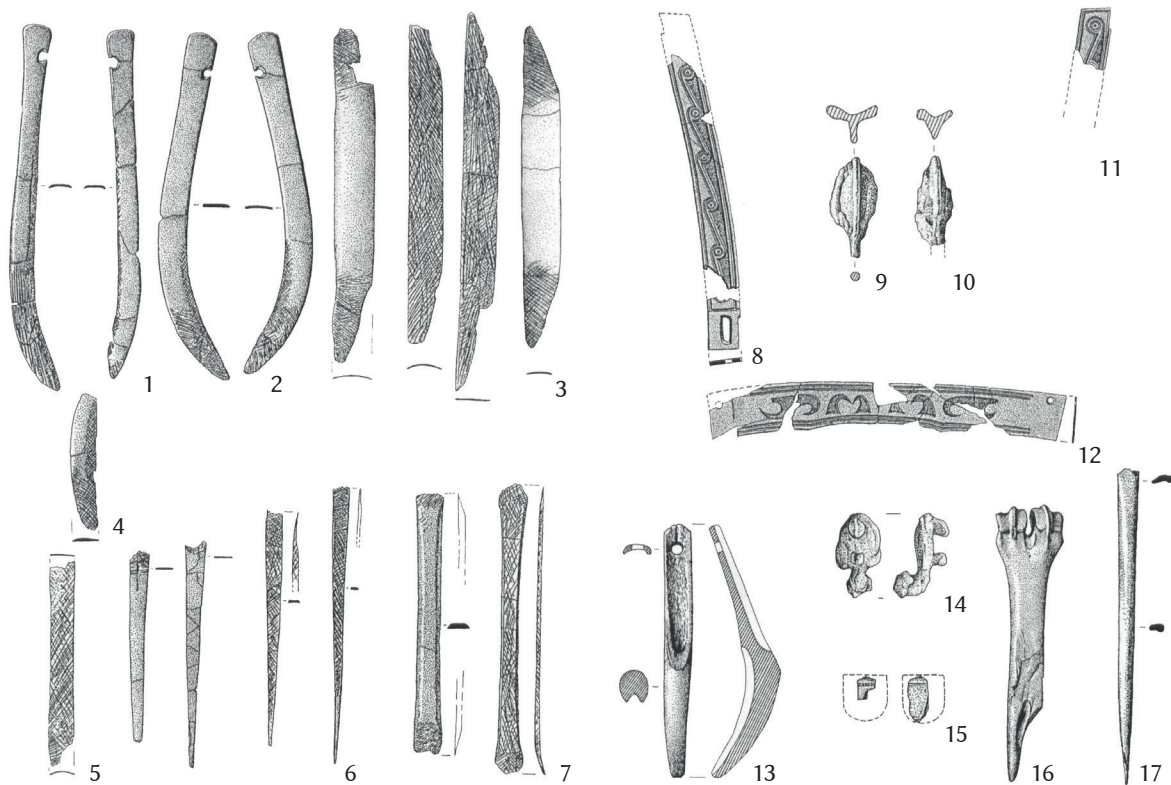


Fig. 8. Grave 16 of Deszk-Site G (after STRAUB 2006).

with separate Slavic, Germanic, and steppe (Avar?) groups.⁶⁵ Nevertheless, partly due to their rarity in the Carpathian Basin and Eastern Europe, we can still consider the Byzantine origin of Caričin Grad-type stirrups to be the most likely. This idea is supported by the stirrup found in Aphrodisias in southwestern Anatolia. In 1990, a piece was found along with several weapons in a pool in the centre of the city plaza known as the ‘Place of Palms,’ previously identified as the Southern Agora. According to the publishers, it is most likely to be associated with the Persian attack of 615/616, although coins of Constans II from 643/4 were found in the destruction layer.⁶⁶ The stirrup found here has a D-shape, with the D-shaped eye made of a rod with a round cross-section, which was coiled on the arms (Fig. 2.8).⁶⁷ In terms of shape, the stirrup from Aphrodisias differs from the Caričin Grad type only in the design of the eye, so the authors have linked it to the Serbian specimens. In their opinion, the shape is the result of the same Byzantine experimentation that produced the Caričin Grad pieces.⁶⁸ At first glance, it may seem that the Aphrodisias find, with its irregularly shaped eye, could be the prototype of the Caričin Grad type, but the dating does not support this: it is likely that the two types developed in parallel, both typologically and chronologically.

Summary

The Caričin Grad type represents a small group of Central and Eastern European stirrups, which occurred in three regions: the Balkans, the Eastern part of the Great Hungarian Plain, and the Eastern European steppe. They are formally diverse, but their most important common features are

⁶⁵ IVANIŠEVIĆ 2012.

⁶⁶ PENN *et al.* 2021, 131.

⁶⁷ PENN *et al.* 2021, 131.

⁶⁸ PENN *et al.* 2021, 137.

the narrow, flat platform, strongly arched arms and the rectangular eye. They probably appeared in the first decades of the 7th century, and most of them were probably buried in the first half of the century. Since they are present in equal numbers in the three regions mentioned above, their provenance is in question. Despite the numerous Avar stirrups, only two examples are known in the Carpathian Basin, so we can rule out Avar origin. We consider Byzantine origin to be the most likely, from where they spread further north and northeast. Although few pieces are known, we cannot share the opinion that the form of the Caričin Grad specimens was the result of local experimentation. It is much more likely that their scattered distribution in the Balkans can be attributed to the peculiarities of early Byzantine archaeology. In our opinion, Caričin Grad-type stirrups are excellent examples of how innovations in horse riding did not only come to Byzantium from the barbarians, but in some cases we can also observe processes in the opposite direction.

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