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Multisegmental Helmets on the Euro-Asiatic Frontier: A Reassessment Based on the helmet from the Relka Burial Site

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Abstract: *This article reassesses multisegmental helmets from the Euro-Asiatic frontier through a detailed study of the helmet from the Relka Burial Site in Siberia. Re-examination of the artefact shows that it belongs to a wider Eurasian group of spangenhelme characterised by tapering spangs, oval cut-outs, decorative rivet systems, and distinctive finial constructions. The Relka helmet, previously insufficiently analysed and inconsistently illustrated, is shown to be a key object for understanding the technological development of segmented helmets between the late 6th and early 8th centuries CE. By comparing the Relka specimen with helmets from Nineveh, Iran, Perm, Dyurso, Astrakhan, Moldavanskoe, and iconographic evidence from Afrasiab, the study proposes a refined typological sequence. It argues that these helmets developed from narrow-spanged Sasanian forms into wider-spanged variants and, ultimately, into four-part constructions known from the Caucasus and southern Russia. The article also considers the possible role of Iranian, Central Asian, Siberian, and Khazar networks in the transmission and transformation of this armour tradition. The Relka helmet thus provides important evidence for long-term technological continuity, regional adaptation, and cross-cultural exchange in arms and armour production during Late Antiquity, the Migration Period, and the Early Medieval Period.*

Keywords: Relka Burial Site, Arms and Armour, Helmets, Iran, Central Asia, Caucasus, Euro-Asiatic borderland, Siberia, Late Antiquity, Migration Period, Early Mediaeval Period

Introduction

Helmet finds from the Euro-Asiatic borderland constitute a distinctive and highly informative corpus of archaeological evidence, offering an unparalleled window into the technological, cultural, and military developments of the communities inhabiting this vast transitional zone. As one of the most essential elements of personal armour,

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helmets held both practical and symbolic significance: they protected the most vulnerable parts of the body during combat while simultaneously signalling status, identity, and affiliation. Their complex construction, material composition, and morphological variability serve as sensitive indicators of changing military strategies, local artisan traditions, and the circulation of technological knowledge across regions.

In this context, multisegmental helmets occupy a central place in discussions on cross-cultural transmission and innovation within Eurasian martial equipment from the 3rd till the 8th century CE. Detailed examination of such artefacts allows scholars to reconstruct the processes through which helmet-making techniques evolved, diversified, and adapted to new socio-political environments. These objects reveal not only technological shifts but also broader cultural dynamics, demonstrating how interactions between European and Asiatic communities shaped the development of armour in ways that transcended political borders.¹

The significance of these helmets extends beyond their immediate functional role. Their appearance, structural solutions, and decorative schemes provide direct insight into the aesthetic sensibilities, symbolic systems, and practical concerns of the societies that produced and used them. Consequently, they serve as tangible reflections of the realities, military, social, and ideological, of the periods to which they belong.

This study underscores the necessity of continuous re-evaluation of both newly excavated finds and previously published material. As archaeological research yields an ever-growing body of evidence, the reinterpretation of earlier discoveries through updated analytical frameworks, comparative datasets, and refined typological classifications can lead to substantial revisions of long-held assumptions. A fresh examination of helmets such as the Relka specimen² illustrates how integrating new discoveries enables scholars to identify previously unrecognised connections, refine chronological models, and offer more nuanced reconstructions of technological change across the Euro-Asiatic frontier. Through this approach, the paper highlights the enduring scholarly value of helmet analyses in reconstructing the complex, evolving landscape of ancient weaponry and armour production.

¹ The influence of the East on the transformation of Western European armament, and the gradual abandonment of earlier Roman military traditions, can be observed, for example, in the increasing adoption of weapon forms and defensive equipment that have no direct roots in the classical Mediterranean armoury. See for example: Henning, 1906; Ebert, 1910: 165; Alföldi, 1932; Grancsay, 1963: 276; Manojlović-Marijanski, 1973: 28-38; James, 1986: 131-133; Feugère, 2011: 153-163; Vogt, 2006; Negin, 2007; Miks, 2008, 2009; Skupniewicz, 2007, 2017; Coulston, 2013: 475; Kubik, 2016, 2017: 7, 2018; Kubik & Radyush, 2019: 84; and others.

² Chindina, 1977: ris. 10.8.

Helmet from Relka

In 1977, L. Chindina published a noteworthy and hitherto insufficiently analysed helmet from Tomsk,³ today housed in the collection of the Museum of Archaeology and Ethnography of Siberia at Tomsk State University [inv. 6942/638]. This artefact, although briefly noted in earlier scholarship, did not attract the degree of analytical attention justified by its technological and typological significance. Several decades after its initial publication, the present author had the opportunity to conduct a detailed examination of the helmet.⁴ This renewed engagement with the find has proven particularly fruitful. Close inspection revealed a set of structural and morphological characteristics that had not been addressed in previous literature, either due to limited methodological tools available at the time of its original publication or the absence of comparative material now known from more recent excavations across Eurasia. Through systematic analysis of the helmet's construction principles, segmentation, rivet distribution, and shaping techniques, the author was able to identify features that not only distinguish this object within its regional context but also illuminate technological tendencies observable in a broader Asiatic framework.

These observations led to the formulation of a coherent hypothesis concerning a previously unrecognised typological group of helmets in Asia.⁵ This group appears to have undergone a gradual but traceable process of transformation over several centuries, adapting to new functional requirements and aesthetic norms while simultaneously retaining a set of persistent design traits. Such continuity, combined with incremental modifications, suggests a stable yet flexible manufacturing tradition, one likely embedded within specific cultural and technological networks extending across parts of the Eurasian steppe and its borderland regions. The Tomsk helmet thus emerges not merely as an isolated curiosity but as a keystone object whose re-examination contributes meaningfully to our understanding of long-term developments in Asiatic armour. Its study underscores the importance of revisiting earlier discoveries with contemporary analytical frameworks, as even well-known artefacts may still possess unrealised potential to reshape typological classifications and deepen our knowledge of technological evolution in Late Antique Eurasia.

³ Chindina, 1977: 68-79.

⁴ Made possible through the generous assistance of E. Barsukov.

⁵ Earlier scholarship, most notably certain observations put forward in A. Kubik's publications, had already hinted at the possibility that a comparable helmet type was present within the Iran or broader steppe milieu, see for example: Kubik, 2016: 82-83, 2017: 77-79, 2018. However, these suggestions remained preliminary and were never elaborated into a comprehensive typological or contextual analysis. As a result, Kubik's remarks did not encompass the full range of extant specimens, nor did they attempt to situate the material within a broader chronological, cultural, or technological framework. Consequently, while his work provided an important point of departure, it left significant gaps that the present study seeks to address.

All of the finds published by Chindina from this site situated on the left bank of the Ob River, on a high, attached floodplain terrace forming a prominent promontory known locally as Relka, in the present-day settlement of Molchanovo, Molchanovsky District, Tomsk Oblast, in the Middle Ob region of western Siberia, Russian Federation [Fig. 1], are dated to the 6th-8th centuries CE,⁶ placing them within a period marked by significant cultural interaction and technological development across the Eurasian steppe zone. The helmet under discussion was recovered from Kurgan No. 2, a complex mortuary structure that contained eight individual graves. This mound was situated immediately to the north of the burial feature designated by Chindina as Kurgan No. 1, forming part of a larger funerary landscape that appears to have been used repeatedly over time.⁷

Kurgan No. 2 measured approximately 11 × 17 metres and rose to a height of 1.3 metres. Its eastern side was irregularly flattened, a deformation that may reflect later disturbances, differential erosion, or intentional modification during secondary burial phases. The mound yielded not only the formal grave assemblages associated with the eight interments but also a considerable number of stray finds dispersed throughout its fill. Among these were numerous fragments of horse bones, including the remains of at least three horse heads, discovered in various parts of the mound. These remains may indicate ritual depositions related to equestrian symbolism, a practice widely attested in steppe cultural traditions.⁸ In addition to the grave goods securely assigned to the individual burials, the excavation revealed a diverse array of bronze, iron, and bone objects whose precise attribution could not be established. The helmet in question belongs to this category of unassignable artefacts. It was found not within a clearly defined grave but in the interstitial area between graves 3 and 4. Its ambiguous spatial context complicates attempts to associate it with a specific individual or to interpret its role within funerary ritual; nevertheless, its presence within the mound contributes valuable information regarding the range and nature of objects deposited at the site [Fig. 2].⁹

The principal structure of the helmet consists of eight carefully shaped segments, surmounted by a small finial to which a functional loop is attached. This upper construction is complemented by a lower encircling band made of copper alloy, ornamented with a stamped pearl-bead pattern characteristic of decorative practices in late antique/early mediaeval metalworking. Although the helmet has attracted the attention of several Russian scholars over the decades, its published representations

⁶ Chindina, 1977: 3, 68-79.

⁷ Chindina, 1977: 32.

⁸ The cult of the horse, as well as the practice of including horse remains in funerary contexts associated with steppe cultures, is attested from as early as the Eneolithic period; see, for example: Anthony & Brown, 2000.

⁹ Chindina, 1977: 13-14.

have been marked by an unexpected and problematic degree of variation.¹⁰ Notably, the form and structural details depicted in these studies differ considerably from one publication to another, including even Chindina's own later schematic drawings, resulting in a progressive departure from the actual morphology of the artefact.¹¹ This inconsistency in the visual documentation has significantly impeded the accurate reconstruction and classification of the helmet. The successive reinterpretations appear to have been based not on renewed examination of the physical object but rather on the uncritical reproduction and reinterpretation of earlier drawings. In effect, each new publication perpetuated and amplified the inaccuracies of its predecessor, creating a cumulative "evolution" of schematic forms that diverged increasingly from the original construction principles of the helmet itself. Such a pattern underscores the methodological risks inherent in relying solely on secondary illustrations without direct reference to the artefact.



Fig. 1. Geographical location of the Relka site in Molchanovo settlement (by Adam Kubik).

¹⁰ Ozheredov, 1987: 117, ris. 3.3; Gemuev, Sagalaev & Solov'ev, 1989: 83.

¹¹ Chindina, 1977: ris. 10.8, 1991: 171, ris. 31.10.

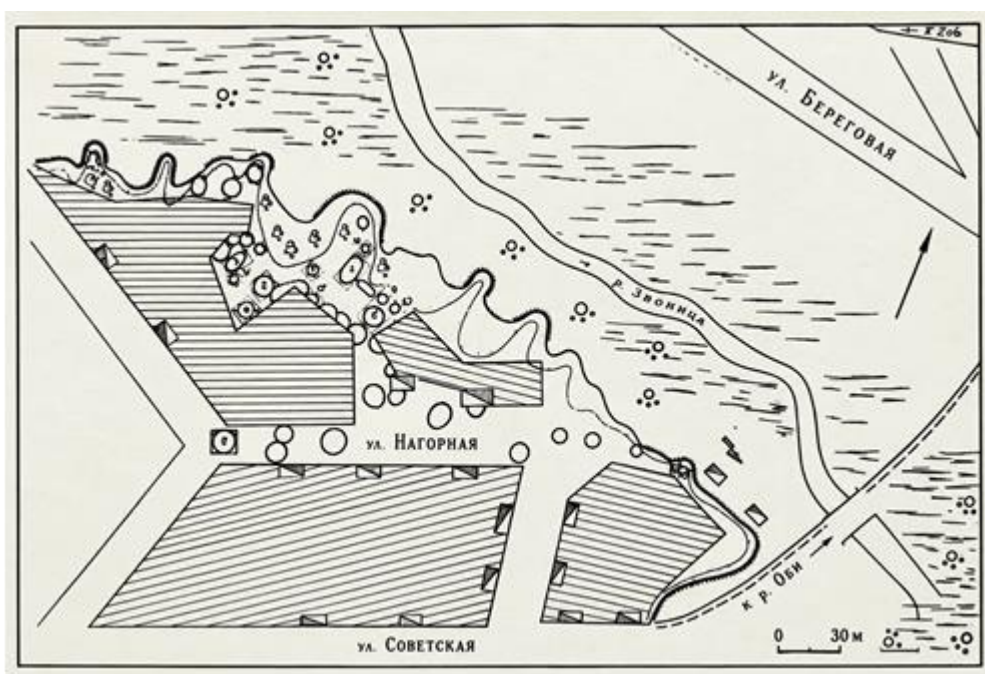


Fig. 2. Plan of the Relka burial ground (after Chindina, 1977: ris. 1).

As noted above, the author had the opportunity to closer examine the artefact, an experience that proved essential for clarifying its construction and typology. The helmet can be identified with confidence as a spangenhelm,¹² despite the fact that nearly half of its original structure has not survived. The preserved portions nevertheless display a sufficiently broad range of structural elements to enable a detailed reconstruction of its original form. The bowl of the helmet exhibits a slightly tapering silhouette towards the apex, producing a distinctly pear-shaped profile [Fig. 3-5].¹³ This effect is accentuated by the presence of a comparatively finial crowning the structure. The central part of the helmet bowl consisted of eight elements, corresponding to Chindina's description of four primary segments interspersed with four substantial spangs.¹⁴ These spangs show a marked narrowing toward the top, forming what may be described as a "spade-shaped" or "keyhole" contour,¹⁵ an attribute of typological value in comparative analyses. A decorative ridge is also discernible along the central axis of the spangs [Fig. 3 – visible on the right side],

¹² Vogt, 2006.

¹³ Even if the object has suffered deformation, a more detailed examination of its principal outline still allows these features to be distinguished. Careful observation of the surviving contours (despite corrosion, bending, or loss) reveals characteristic elements of the original form, which remain discernible enough to support typological assessment.

¹⁴ Chindina, 1977: 32.

¹⁵ Ahmad, 2015: 140, fig. 9-10; Kubik, 2017: 35-36, 107, 110.

despite the fact that the helmet has not yet undergone conservation or the removal of corrosion products, which continue to obscure much of its surface. Particularly noteworthy are the two rounded decorative cut-outs positioned centrally on each spang [Fig. 3-6]. Such cut-outs allow for meaningful comparison with a number of other Eurasian helmets that exhibit similar ornamental or symbolic perforations, thereby situating this specimen within a broader stylistic and technological tradition. Between these cut-outs, each spang preserves two groups of three rivets positioned vertically: six rivets per each side of a spang, indicating not only a robust method of securing the helmet segments but also the intentional use of rivet placement as a decoration. It is probable that an additional rivet was present at the lower edge of each spang side. However, due to extensive corrosion and the presence of modern conservation materials, its existence cannot be verified with certainty.

The finial itself is a composite structure comprising three distinct elements. The basal component is a conical socket that forms the primary point of attachment to the bowl. Inserted into its upper section is a small polygonal tube or sleeve, likely intended to receive feathers, a horsehair plume, or another form of crest. Attached to the exterior of the conical base is a functional loop [Fig. 3-6], which may have served multiple purposes: securing the helmet during transport, suspending it when not in use, or accommodating auxiliary decorative elements affixed in a non-standard arrangement. The finial was affixed to the helmet bowl using an unusually large number of rivets, twelve in total. Four of these are positioned at the upper termini of the four spangs, while the remaining eight are arranged in pairs between them. Such an abundance of rivets far exceeds structural necessity, strongly suggesting that they served an ornamental purpose or possibly symbolised a particular rank, affiliation, or aesthetic preference.

Along the lower edge of the helmet bowl is a continuous row of perforations. In addition, three separate holes are located on each side of the bowl [Fig. 7]. These apertures correspond to the attachment of the lower decorative copper-alloy band, which bears a stamped pearl-bead pattern. The band is affixed externally without extending the original vertical profile of the helmet, an unusual and noteworthy feature. However, close examination indicates that this band represents a later addition rather than part of the original design [Fig. 8]. Several rivets securing the band visibly cut through and damage the decorative pearl pattern, demonstrating that the artisan responsible for the modification was not the maker of the helmet itself. This strongly implies that the helmet's original conception did not include such a decorative lower band. The three side holes may originally have served an entirely different function. Their positioning suggests that they could have been used to attach cheekpieces or a fastening system intended to secure the helmet under the chin.



Fig. 3. The helmet from the Relka Burial Site (side view). Photo courtesy E. Barsukov.



Fig. 4. The helmet from the Relka Burial Site (side view). Photo courtesy E. Barsukov.



Fig. 5. The helmet from the Relka Burial Site. (The helmet exhibits the loss of nearly half of its original structure). Photo courtesy E. Barsukov.



Fig. 6. The helmet from the Relka Burial Site (upper view). Photo courtesy E. Barsukov.



Fig. 7. The helmet from the Relka Burial Site (inner view). Photo courtesy E. Barsukov.



Fig. 8. The helmet from the Relka Burial Site (view on copper alloy decorative band). Photo courtesy E. Barsukov.

Discussion

There is no doubt that this helmet should be assigned to the typological group defined by A. Kubik in his 2018 study on the composite helmet preserved in the David Collection in Copenhagen.¹⁶ The Tomsk specimen corresponds closely to the diagnostic features outlined by Kubik, both in its segmented construction and in several distinctive morphological traits, thus firmly situating it within this emerging category of early medieval Eurasian helmets. Its inclusion in this group not only strengthens the typology proposed by Kubik but also significantly broadens the comparative framework available for analysing such artefacts. The present find contributes valuable new data that refine our understanding of the group's variability, regional development, and chronological evolution. By clarifying previously misunderstood structural elements and identifying features not documented in earlier studies, it permits a more nuanced and comprehensive characterisation of the type. Furthermore, the detailed analysis of this specimen highlights traits that may serve as diagnostic markers for recognising further members of this group across the Euro-Asiatic cultural sphere. These include aspects of its segmental arrangement, the distinctive spang morphology,¹⁷ the decorative rivet patterns, and its characteristic finial construction. As more archaeological material continues to emerge, a well-established set of comparative criteria becomes essential for integrating newly

¹⁶ Kubik, 2018.

¹⁷ The earliest observations concerning the potential for classifying helmets from the Eurasian borderlands and broader Asian regions on the basis of decorative cut-outs in their segmented construction were put forward in the study by Bobrov and Khudyakov (2006). Their work represents the first systematic attempt to draw attention to this diagnostic feature and to consider its value for establishing internal subdivisions within the corpus of segmented helmets. Although preliminary in nature, their analysis laid important groundwork for subsequent typological discussions by highlighting the recurring presence, form, and distribution of these ornamental apertures.

discovered examples into a coherent technological and typological narrative. Thus, the Relka helmet plays a significant role not only in confirming the validity of the typological framework proposed by Kubik but also in expanding and refining that framework. Its study reinforces the importance of synthesising individual finds into broader analytical models that can accommodate both local particularities and wider supra-regional trends in armour development.

In the subsequent section of this study, the author will put forward a systematic proposal for the typological grouping of helmets exhibiting comparable structural and decorative characteristics. This classification is intended not only to synthesise the observations made to date, but also to refine and extend existing scholarly approaches by integrating newly examined material and previously overlooked diagnostic features.



Fig. 9. Helmet from Nineveh, Koyunjik, Iraq, Sasanian period. [BM, inv. 22495] © The Trustees of the British Museum.



Fig. 10. Helmet from Nineveh, Koyunjik, Iraq, Sasanian period. [BM, inv. 22495] © The Trustees of the British Museum.

The first subgroup (**Group I**) within this typological series comprises helmets of the spangenhelm form characterised by distinctly thin and narrow spangs. The earliest known example of this construction type originates from Nineveh and is presently held in the British Museum in London [Figs. 9-10].¹⁸ Discovered in the 19th century during large-scale excavations, the helmet was first published by H. Rawlinson in 1871, who presented it as an “iron helmet from Koyunjik” and interpreted it, incorrectly, as an Assyrian-period artefact.¹⁹ This attribution was accepted uncritically by early scholarship but has since been dismissed, as subsequent research has demonstrated that the helmet’s morphology does not correspond to any authentic Mesopotamian military tradition and instead belongs to a much later Eurasian technological context. The most reliable and detailed early description of the helmet is provided by S. Grancsay, who

¹⁸ See for example: Henning, 1907: 77-78; Gamber, 1982: 83; James, 1986: 118-119; Nicolle, 1996: fig. 34g; Simpson, 1996: 97-98; Vogt, 2006: 278; Kubik, 2017: 74-80, 2018: 148-149.

¹⁹ Rawlinson, 1871: 441.

documented several key features that are crucial for understanding its construction. According to Grancsay, the helmet consists of iron segments overlaid with copper sheathing, with the apex now missing and no evidence of an original browband. The lateral reinforcement bands are made of bronze, secured by bronze rivets with globular heads. Traces of a fabric lining were still observable at the time of his examination, providing rare insight into the internal padding system of such helmets. Additionally, two clusters of heavily corroded mail were adhering to the lower rim of the bowl, suggesting that the helmet may originally have been associated with a mail aventail or that it was found in direct contact with mail, possibly as part of an interconnected armour set.²⁰

The present author would add several observations regarding this specimen. Each of the four spangs exhibits a pronounced narrowing toward the apex, producing the characteristic “spade-shaped” or “keyhole” contour noted in comparable helmets. A decorative longitudinal ridge runs centrally along each spang, while both lateral edges display two oval perforations positioned mid-height. Between these perforations, massive, round decorative rivets are arranged in grouped formations. Structurally, each spang was secured to the helmet bowl by four rivets: one at the lower end of each side, two positioned above the first decorative perforation, one above the second, and a final rivet placed at the upper edge, which also served to anchor the finial. The distribution of surviving rivet holes indicates that the finial itself was attached by eight rivets, four aligned with the central zones of the spangs and four situated in the intermediate spaces between them.



Fig. 11. Helmet, Iran (front view). [The David Collection helmet, Copenhagen, inv. 24/2005]. Photo courtesy of the David Collection, Copenhagen, Pernille Klemp.



Fig. 12. Helmet, Iran (side view). [The David Collection helmet, Copenhagen, inv. 24/2005]. Photo courtesy of the David Collection, Copenhagen, Pernille Klemp.

²⁰ Grancsay, 1963: 256-259.

Another helmet that should be assigned to this group is the specimen from the David Collection Museum in Copenhagen [Figs. 11-12], published by A. Kubik in 2018.²¹ According to museum records, the helmet was reportedly found in present-day Iran. It represents yet another four-segment spangenhelm, in which four thin spangs connect the main segments of the bowl. Each spang closely resembles the form described above, displaying two oval cut-outs in its central zone. At the front, the spang extends downward to form a small nasal. A separate nasal piece with stylised eyebrows has been affixed over it, creating a double-layered nose guard. The entire construction is assembled with decorative copper-alloy rivets bearing semi-serrated heads. The nasal with eyebrows appears originally to have been attached by five rivets, three of which remain preserved. A notable variation in the arrangement of the spang rivets occurs in the frontal area, undoubtedly connected to the presence of the upper face guard, in the bottom of it there is group of two rivets at each side. From the remaining three spangs each secure their respective segments with seventeen rivets, arranged in a pattern comparable to that observed on the previously discussed helmets. A central decorative ridge runs along each spang. Below the first cut-out, a single rivet is placed on each side; above it, groups of four rivets are arranged vertically on both sides; above the second cut-out, groups of three rivets occur. At the upper end of each spang, a single rivet anchors it to the finial. A distinctive feature of this specimen is the slight narrowing of the spang below the first rivet group. The finial consists of two components: a cone-shaped base and a small tubular element intended for the attachment of plume-like decorations. It bears two deformations or loops (?) on its front and rear sides, possibly for securing the helmet during transport or for mounting additional ornaments. The finial was attached to the bowl by twenty-four rivets, four aligned with the centres of the spangs and groups of five positioned in the intervening spaces. Along the lower perimeter of the bowl, a continuous row of perforations is visible; on the sides, this transitions into two parallel rows. These holes most likely served to fasten internal padding, a neck guard, and/or cheekpieces.

At this stage, it is necessary to reflect on the dating of helmets belonging to this group. The specimen from Nineveh presents certain morphological divergences from the other known examples from there, which led S. James to propose that it may represent a later intrusion into the archaeological record.²² The present author does not find this interpretation convincing. By Late Antiquity, the settlement pattern around ancient Nineveh had undergone significant transformation. The historical city on the east bank of the Tigris had been much reduced in extent, whereas the west bank, previously uninhabited, gained strategic relevance when Khosrow II established

²¹ Kubik, 2018, 148-153.

²² James, 1986: 118-119.

a fortress there.²³ This development later facilitated the expansion of Arab settlement following the Islamic conquest, ultimately giving rise to the city known today as Mosul. Crucially, by the early Islamic period, Nineveh itself had already lost much of its administrative and military importance.²⁴ No securely documented battles or major military engagements took place directly at Nineveh after the Arab conquest that would plausibly explain the deposition of multiple helmets as part of a later assemblage. When valuable martial equipment such as helmets or mail is recovered from fortress sites, it is typically associated with sudden, disruptive events, most commonly sieges, battlefield losses, or natural disasters such as earthquakes.²⁵ For the region of Nineveh within the relevant time frame, only two historically attested events meet these criteria and could reasonably account for the presence of a group of helmets deposited together. The first is the Byzantine conquest of Nineveh during the campaign of Emperor Heraclius, culminating in the Battle of Nineveh in 627 AD,²⁶ in which Byzantine forces defeated the armies of the Sasanian Empire. The second is the Islamic conquest of the region between 637 and 641, traditionally associated with the general ‘Utba ibn Farqad.²⁷ Both events were characterised by rapid military action and large-scale movement of troops, conditions under which armour could readily be lost, abandoned, or deliberately deposited. Given this historical context, it is far more plausible that the helmets found at Nineveh entered the archaeological record during the second quarter of the 7th century CE, rather than representing a later intrusion. This timeframe accords well with the typological characteristics of the helmets and situates them within a period of intense military activity and technological exchange on the Late Antique-Early Islamic frontier.

²³ Web, 2018: 1078.

²⁴ A particularly strong Christian presence is attested on the hill of Koyunjik, where the community remained active at least until the 8th century CE, see: Simpson, 2005: 291.

²⁵ In the case of finds from settlement contexts, such assemblages are most plausibly interpreted as the result of losses incurred during sieges or battles, or alternatively as deposits associated with natural disasters. For examples of siege-related losses in Late Antiquity, see the helmets recovered from Dura-Europos and Petra, see: James, 1986: 121, 2004: 101-105; Mindorashvili, 2020: 205; 2021: 69; Kubik, Radyush & Vyazov, 2023: 55-56. For deposits attributable to natural catastrophes, particularly earthquakes or destructive fire, see the assemblage published by Biernacki (2012).

²⁶ See for example: Howard-Johnston, 1994: 57-87; 1999: 5; Ghodrat-Dizaji, 2011: 315-329; Sarris, 2011: 243-258; Maksymiuk, 2015: 92-95.

²⁷ See for example: Zarrinkūb, 1975; Hinds, 1984: 39-53; Pourshariati, 2008: 279; Daryaee, 2009, 37-38.



Fig. 13. Depiction of a segmented helmet. Head of a warrior, fragment of a wall painting from a palace at Afrasiab, Samarkand (see: Pugachenkova, Khakimov 1988: 95, pl. 71). Photo courtesy of Nadeem Ahmad.

Further support for the proposed dating of this helmet type is provided by another important piece of evidence. On the mural from Afrasiab, the pre-Mongol site of ancient Samarkand,²⁸ located at the left end of the southern wall, a group of “Iranian World” envoys is depicted, accompanied by an armed bodyguard (Sometimes interpreted as Chaganians).²⁹ The bodyguard is shown wearing armour made of plates (lamellar armour?) and a helmet that displays the same diagnostic features observed in the Nineveh and David Collection specimens [Fig. 13]. Although the Afrasiab helmet appears to be constructed from a larger number of segments, likely six spangs, this variation is entirely consistent with Late Antique tendencies toward increased multiplication of helmet segments. Nevertheless, the essential attributes are unmistakable: the thin, elongated spangs; the characteristic oval cut-outs in the spangs; the funnel-shaped finial base; and the presence of a small nasal. These elements correspond closely to those identified in the first group of helmets discussed above. The iconographic context of the Afrasiab mural reinforces the relevance of this comparison. The wall paintings represent the four known regions of the world as conceived in Sogdiana. The southern wall, where the helmeted figure appears, is generally understood to depict “Iranian World.” Regardless of the precise identification of those personages, the key point is chronological: the Afrasiab mural complex is dated to the mid-7th century, specifically between the second half and the third quarter

²⁸ See for example: Al’baum, 1971: 83-89, 1975; Marshak, 1994; Grenet, 2006; Bakry, 2025.

²⁹ See for example: Grenet, 2006: 15-17; Arzhantseva & Inevatkina, 2006.

of the century. This dating aligns closely with the historical window suggested for the deposition of the helmets from Nineveh. Taken together, the archaeological and iconographic evidence indicates that this helmet type was indeed in use in Sasanian Iran during the final phase of the empire's existence. Considering the earliest feasible point of manufacture, these helmets should be assigned a date between the late 6th and the mid- to late 7th (third quarter) century CE. Moreover, the Afrasiab mural suggests that such helmets may be associated particularly with the north-eastern territories of the Sasanian cultural sphere. This pattern is hardly surprising, as it is entirely plausible that military units were mobilised from across the breadth of the empire to defend its core territories during the protracted conflicts with Byzantium and, subsequently, with the Arab armies.

Group II comprises helmets in which the spangs are markedly widened, no longer functioning primarily as connective elements but instead forming a structural component in their own right. Within this group, two sub-types can be distinguished.

The first sub-type (a) retains several features characteristic of Group I: the multiplication of rivets, the presence of rivets employed for decorative rather than purely functional purposes, and ornamental motifs that align with the broader material culture of Sasanian Iran. At present, the author is aware of two helmets belonging to this sub-type. The first is the specimen from Relka discussed above; the second is housed in the Perm Museum. The latter was initially published by M. Gorelik, who described it as a Mongolian helmet, albeit without providing contextual information, archaeological justification, or a comparative analysis that would substantiate such an attribution.



Fig. 14. The helmet (front view). Perm Local History Museum,
Photo courtesy/archives O.A. Radyush.



Fig. 15. The helmet (back-sied view). Perm Local History Museum,
Photo courtesy/archives O.A. Radyush.

The helmet from the Perm Museum [Figs. 14-15] is a four-piece spangenhelm.³⁰ Its frontal section features a small nose-guard, affixed to the main bowl by three rivets, one centrally positioned and two placed symmetrically along the upper brow. Each spang is connected to the remaining components of the construction by fifteen rivets. As in the previous examples, the spangs contain two decorative oval cut-outs in their central portion, and a pronounced decorative ridge runs longitudinally through their middle. The distribution of rivets follows a familiar pattern: a single rivet on each side in the lower section, a group of three rivets positioned above the first cut-out, and another group of three above the second cut-out (at each side). A single rivet is located at the upper end of each spang, serving once again to secure the finial. The finial consists of two elements: a substantial conical base and a small tubular extension, the latter not preserved. The finial was attached to the bowl with eight rivets, four placed in the upper central area of the spangs and four situated between them. A particularly notable feature of this helmet is the presence of a lower band affixed to the interior of the bowl's lower edge. Large rivets were mounted on this band, arranged to form a pearl-like pattern reminiscent of the decorative band on the helmet from Relka. However, unlike the Tomsk Museum example, these rivets also served a structural function: they secured small loops, the fragmentary remains of which are still visible. These loops were employed for fastening mail to the helmet. Comparable systems of mail attachment are attested in Central Asia, the Caucasus, and Eastern Europe, and are typically associated with 'eastern helmets' with the beginning in the 4th century CE.³¹ The unusually dense arrangement of these loops, however, aligns more closely with helmets of the 6th century CE. One of the latest examples exhibiting similar features is the well-known helmet from Lagerevo, which A. Komar has dated to approximately 740-780 AD.³² Nevertheless, the robust, heavy character of the Perm rivets appears to reflect earlier developmental stages. At this point, the spangs on the Perm helmet have not yet assumed a dominant role in the surface area of the construction. Comparable tendencies toward gradual widening of structural segments have been observed in another helmet type from the Caucasus region, as discussed by A. Kubik.³³ This process of expansion eventually culminated in the emergence of four-part constructions by the late 8th century, in which the frontal and posterior spangs each account for roughly one-quarter of the helmet's circumference. Yet it must be noted that such widening was already observable in one of the helmets from Nineveh, specifically the cross-band construction model,³⁴ which

³⁰ Although the find lacks a clearly defined archaeological context, it was initially classified by Mikhail Gorelik (2002: 75) as a Mongolian helmet. In recent years, however, this attribution has been increasingly challenged in the scholarly literature: Kubik, 2018: 148-149.

³¹ Kubik, Radyush & Vyazov, 2023: 66-68.

³² Mazitov, 1981: Ris. 42; Ivanov, 1987; Komar, 2018: 129,132; Kubik, 2023: 47.

³³ Kubik, 2023.

³⁴ See helmet from The British Museum of London [BM, inv. 22497].

is thought to date, like the spangenhelme discussed above, to the second quarter of the 7th century CE. For these reasons, the most plausible chronological framework for the Perm and Relka helmets at the current state of research is the 7th century through the very beginning of the 8th century CE.

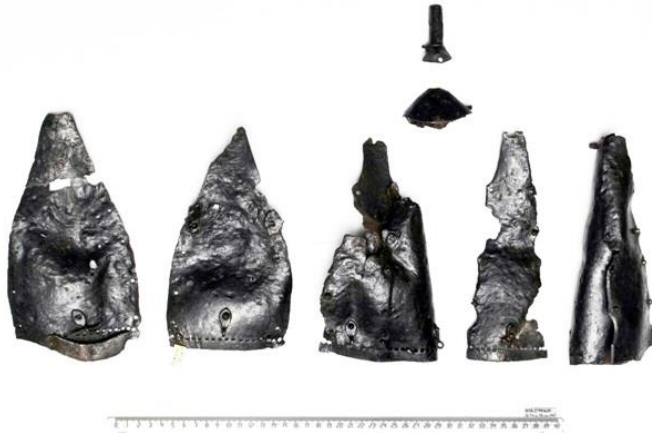


Fig. 16. The helmet from Dyurso necropolis, grave nr. 28. [Public domain: www.goskatalog.ru/portal/#/collections?id=30953660]

Another subtype (b) is represented by a single helmet known to the author. It differs from earlier examples both in the treatment and quantity of decorative rivets and in the system used to suspend the mail neck-guard. In this case, the neck-guard was attached by means of loosely hanging loops, an arrangement more typical of later helmets whose construction consists primarily of four enlarged segments rather than narrow spangs.

This specimen was discovered in the southwestern part of the Dyurso necropolis in grave nr. 28 [Fig. 16], Krasnodar Krai, North Caucasus, Russian Federation, square IV of the necropolis.³⁵ The grave pit itself was not identified during excavation. The burial represents a cremation deposit, placed in a small oval concentration of burned human remains measuring approximately 0.2×0.35 m. To the west of this deposit, at a depth 0.1 m below the level of the cremated bones, a rich assemblage of artefacts was recovered. The inventory included stacked, round bronze plates from horse harness, several exhibiting traces of blunt-force damage, along with two deformed stirrups, a spearhead with a crushed socket, an axe head broken across the eye, two bronze buckles and three iron buckles, bits, a large iron ring, and four knives of varying sizes. A strongly bent sabre (folded four times) with a broken tip was also present, together with numerous arrowheads, iron tweezers, and a detached iron straight cross-guard from a sabre. The cross-guard is gilded on its outer side and bears residues of melted

³⁵ Malyshev, 2021: ris. 47.

silvering on the inner side. Additional finds include a bronze conical harness fitting (possibly a browband element), a large decorated bronze plaque, two bronze belt dividers with three plates each, a bronze clasp, and melted silver plates likely originating from a scabbard, as well as a sabre hilt. Beneath these objects were the fragments of the helmet and substantial pieces of mail.³⁶ It should be emphasised that the form of the stirrups and the associated horse-tack recovered from this burial correspond well to the previously established chronology of the necropolis, namely the 9th century CE.³⁷ Their typological characteristics do not support an earlier dating.

The Dyurso helmet exhibits a set of fundamental construction features that align it with the previously discussed examples. Its bowl is composed of eight segments, four spangs and four primary bowl plates, adhering to the structural scheme characteristic of the broader group. However, several aspects of its construction reveal notable departures from the earlier forms. The finial, although likewise composed of two elements, differs markedly in design: a funnel-shaped tube is riveted to a similarly cone-shaped base, creating a more complex and elongated terminal fitting than the variants known from other finds. In this specimen, the rivets no longer fulfil a clearly defined decorative function. Their number has been significantly reduced when compared to earlier examples in which rivets served as both structural and ornamental elements. It should be noted that even in the helmet from Nineveh, where the overall number of rivets is limited, their decorative character was preserved through the use of exceptionally large, prominently displayed heads. In the Dyurso helmet, by contrast, such visual emphasis is entirely absent. Rivets occur only at structurally necessary points: along the edges of the cut-outs, and in the upper central portions of the spangs where they attach to the finial. The spangs themselves lack the distinctive decorative ridge observed in earlier representatives of the group. The finial is secured to the bowl by eight rivets: four positioned at the upper ends of the spangs and four placed between them. A row of holes is visible along the lower perimeter of the helmet, and a fragment of what appears to have been a decorative band (?) or brow reinforcement is also preserved. Of particular interest is the system for suspending the mail aventail. In the lower part of the bowl, loops intended for this purpose have been attached. Unlike the helmet from Perm, where the rivets securing these loops maintain a conspicuous size, the fastening rivets in the Dyurso helmet are reduced to extremely small dimensions. The loops themselves begin to assume a decorative character, indicating a shift in the treatment of functional components within the overall aesthetic program of the helmet.

Despite the fact that this helmet appears within a 9th-century archaeological context, it can reasonably be considered an anachronistic object by the time it was

³⁶ Malyshev, 2021: 68-73.

³⁷ Kazanskiy, 2001: 41-58.

deposited. This assessment is supported by the presence at Dyurso of two helmets representing a later phase in the evolution of the type: namely, specimens in which the bowl consists of only four segments due to the substantial widening of the anterior and posterior spangs.³⁸ Against this backdrop, the eight-segmented construction of the discussed helmet reflects an earlier developmental stage that had largely fallen out of use by the time of its burial. According to the author's current state of knowledge, the Dyurso helmet exhibits features more characteristic of helmets dating to the 8th century rather than the period to which the burial itself is attributed. This discrepancy further strengthens the argument that the object represents an earlier stage in the developmental sequence of the type. The technological and morphological transition from an eight-segment to a four-segment bowl, resulting primarily from the progressive widening of the anterior and posterior spangs, has been clearly outlined by A. Kubik on the basis of his analysis of the helmet from Bezhta. The Dyurso specimen aligns well with the earlier phase of this evolutionary trajectory, thereby offering important corroborative evidence for Kubik's proposed developmental model.³⁹

At this point, it is necessary to draw attention to yet another find belonging to this general typological group, although its precise attribution to any of the above-defined subtypes of Group II remains uncertain. This helmet reportedly originates from the Astrakhan region [Fig. 17] and subsequently entered a private collection, which has severely limited the possibilities for its systematic study.⁴⁰ Although fragmentary, this visual record nonetheless provides valuable supplementary evidence for the broader distribution and morphological variability of helmets of this type. Following its discovery, a reconstruction of the helmet was produced, visible in the available photograph; however, the degree to which this reconstruction reflects the original appearance of the object must remain uncertain. What can be stated with confidence concerns only the preserved structural elements. The helmet was composed of eight segments, including characteristic spangs exhibiting oval cut-outs in their central portions, features consistent with other representatives of this group. In contrast to the specimen from Dyurso, the Astrakhan example appears to show an additional set of rivets arranged as a triad of holes above the first cut-out. Unfortunately, no actual rivets are visible in the photograph, rendering it impossible to determine whether they possessed a decorative function or merely a structural one. Equally, the available documentation does not allow us to assess whether the spangs displayed any form of central decorative ridge, a feature that appears frequently on earlier examples. Loops for suspending the mail neck guard are preserved along the lower rim of the bowl;

³⁸ See for example grave nr. 13, Malyshev, 2021: ris. 20.

³⁹ Kubik, 2023.

⁴⁰ The sole surviving documentation consists of a single photograph, which the author was able to examine through the courtesy of G.V. Baranov, see: fig. 15.

however, their form differs markedly from the more elaborate Sasanian variants attested in the 7th century. In this specimen they appear loosely arranged and devoid of pronounced ornamental qualities, suggesting a departure from the decorative conventions of the late Sasanian period. The finial, by contrast, seems closer in form to earlier examples rather than to the more developed, structurally complex finial known from the Dyurso helmet. A loop is also preserved on the tube of the finial, an element documented on several earlier artefacts and likely associated with the transport or attachment of plumes. On the basis of the visible features, this helmet can be tentatively classified as a subtype b within Group II. Nevertheless, without direct access to the artefact itself, such a classification must be regarded as highly provisional. The combination of simplified mail suspension elements, reduced ornamental investment, and otherwise conservative structural features suggests a date within the 8th century CE. In particular, the abandonment of decorative motifs characteristic of the 7th-century Sasanian repertoire supports its placement within the transitional phase in which earlier forms were retained but gradually adapted to new technological and aesthetic norms. However, it must be emphasised that helmets, owing to their high material value and the technical labour invested in their manufacture, were often used over extended periods and could undergo multiple phases of repair, modification, or functional adaptation.⁴¹ The helmet from Relka provides a clear illustration of such a phenomenon, as its present form reflects a sequence of alterations rather than a single moment of production. Consequently, establishing a precise chronology on the basis of a single diagnostic feature, such as the method of suspending the mail neck guard, is inherently problematic. Without direct access to the artefact and a comprehensive technological, metallurgical, and contextual analysis, any dating attempt that relies exclusively on mail-suspension morphology must be regarded as highly tentative.

Although four-piece helmets constitute a distinct and more advanced developmental stage within the broader evolution of segmented defensive headgear, it is appropriate at this point to examine this form in greater detail, as it represents the culmination of the structural tendencies observed in the eight-piece helmets discussed above. Based on the present state of research, the author is aware of three securely identified examples: two from the Dyurso burial ground (graves 13⁴² and 161⁴³) and a third specimen from Moldavanskoe, Krasnodar Krai, Russian Federation, the latter likewise dated to the 8th-9th century CE.⁴⁴ Despite their varied archaeological contexts, these helmets

⁴¹ Cases are known in which medieval helmets remained in continuous use over extended periods, undergoing successive modifications from the medieval era into near-modern times; for example see: Kuleshov, 2009.

⁴² Malyshev, 2021: ris. 20.

⁴³ Malyshev, 2021: ris. 196.

⁴⁴ P'yankov, Tarabanov, 2004.

display a coherent suite of typological and technological features that strongly suggest a common developmental trajectory. A key point of continuity with earlier forms is the retention of two oval cut-outs in the front and rear segments, an element that appears to have remained symbolically or functionally significant even as the broader technological logic of the construction changed. What is absent, however, is the decorative ridge characteristic of earlier spangs; in these later helmets, the segments become visually and structurally more unified, reducing the emphasis on vertical articulation that had been a hallmark of the eight-piece type. Finial construction provides an additional marker of development. In two of the finds (Moldavanskoe and Dyurso grave 13⁴⁵), the finial retains the general two-part form known from the latest eight-segment helmets,⁴⁶ demonstrating continuity in both conceptual design and attachment method. In contrast, the helmet from Dyurso grave 161 exhibits a markedly simplified finial consisting of a single forged iron element, suggesting a gradual move towards functional austerity and perhaps reflecting shifting aesthetic norms in the late 8th to early 9th century CE. Another noteworthy feature is the presence, on both Djurso helmets, of narrow copper-alloy plates running along the edges of the segments. These plates are decorated with a stamped pearl-bead pattern, a motif known from later four-piece helmets in Poland and Ruthenia.⁴⁷ The recurrence of this decorative device across a broad geographic area raises the possibility of either technological diffusion or the persistence of a shared visual vocabulary across different cultural spheres. It may also indicate the presence of craft workshops with long-lived traditions or mobile artisans operating across the Eurasian frontier.



Fig. 17. The helmet from the Astrakhan region together with its reconstruction, photo courtesy of G. V. Baranov. Graphic processing of the photograph: Adam Kubik.

⁴⁵ Malyshev, 2021: 29-31.

⁴⁶ For example see also: Kainov, Men'shikov, Rukavishnikova, 2020.

⁴⁷ So called Polish helmets (Bocheński, 1930), Greater Poland helmets (Nadolski, 1960: 117), or type II according to A.N. Kirpichnikov (1971: 22) classification.



Fig. 18. The helmet from Dyurso necropolis, grave nr. 13. [Public domain: www.goskatalog.ru/portal/#!/collections?id=30644658/]

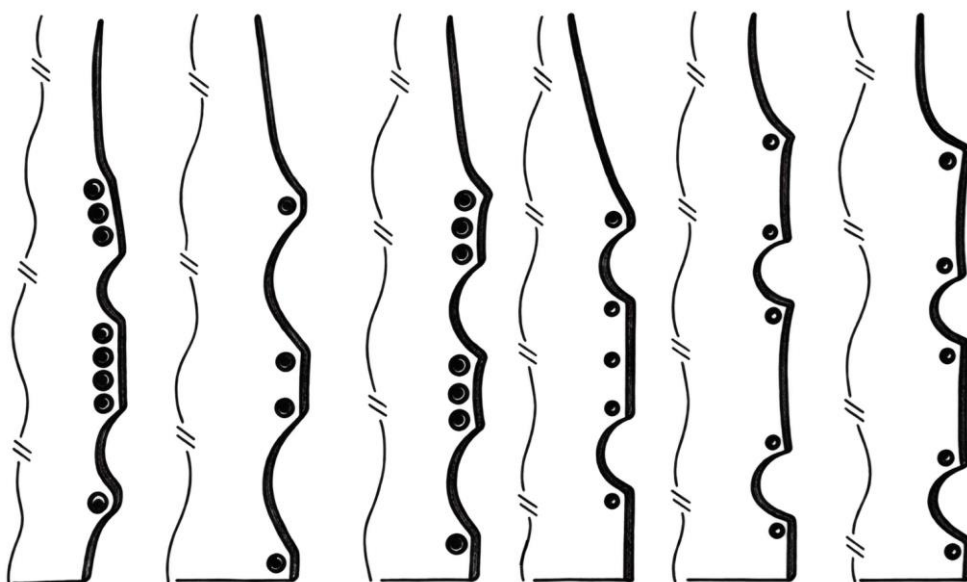


Fig. 19. Cut-outs in the lateral sections of helmet segments, from left: a specimen from present-day Iran in the collection of the David Collection, Nineveh, Perm, Astrakhan Oblast, Dyurso, and Moldavanovskoe; drawing commissioned by the author and executed by D. Russki. Graphic processing of the drawing: Adam Kubik.

Conslusion

On the basis of the observations presented above, it is now possible to formulate a generalised description of this helmet type and to outline the diagnostic features characteristic of spangenhelme belonging to this group. The most distinctive structural element is the form of the spangs. In all known examples, the spangs exhibit a pronounced narrowing toward the apex, creating what may be described as a “spade-shaped” or “keyhole” silhouette. A constant feature is the presence of two oval decorative cut-outs positioned symmetrically along the central section of each spang [Fig. 19]. The rivets placed along the sides of the spangs are arranged in three characteristic groups. Typically, a single rivet appears at the lowest point of each side, while the rivets located above the first and second cut-outs may vary in number. This variation seems to reflect an intentional decorative emphasis, particularly in earlier forms. Beginning in the late 8th and early 9th centuries, however, this decorative freedom becomes increasingly limited. Rivets lose their ornamental function and tend to be standardised, with their number often reduced to five per side. Earlier variants often exhibit a vertical decorative ridge running along the centre of each spang, further emphasising the helmet’s elongated, tapering shape. A single rivet consistently occupies the central upper portion of the spang, serving as the main attachment point for the finial. The finial itself is secured both by this rivet and by a set of additional rivets located between the spangs; although the number of these rivets may vary, their arrangement tends toward bilateral symmetry. In the frontal part of the helmet, a small nasal, sometimes accompanied by stylised “eyebrows”, may be present. The addition of this element can influence the distribution and quantity of rivets in the lower portion of the frontal spang. The finial, in its early form, possesses a fairly standardised construction: a substantial, funnel-shaped base surmounted by a small tubular attachment, presumably intended to hold feathers, a horsehair plume, or similar decorative elements. Occasional deformations of this tube occur, and loops may be found attached to the finial, features that may relate to methods of transport or the suspension of additional ornaments. This form of finials change in later forms, where a small tubular attachment is riveted to the top of a base. During the late Sasanian period, helmets of this group could feature spangs made of copper alloys, though iron examples are also attested. In later specimens, this feature (spangs made of copper alloy) appears to disappear. Some helmets include a lower band, which may serve a decorative function or serve as the structural foundation for a suspended mail and representations such as the Afrasiab mural indicate that lamellar neck guards were also possible. Nearly all helmets exhibit a row of holes along the lower edge of the bowl, which likely served for attaching padding, textile remains were indeed observed in the helmet from Nineveh, and/or fastening neck protection. Between the 7th and 9th centuries, this helmet type underwent a gradual yet significant

developmental trajectory. The connecting spangs became progressively wider, ultimately contributing to the emergence of a new category of four-part bowl helmets. The persistence of this construction form across regions straddling Europe and Asia points to a notable degree of technological continuity, unaffected by the profound political and cultural transformations brought about by the Islamic conquest of Iran and Central Asia. Up to the 8th century, the distribution of these helmets is concentrated in Siberia, Sasanian Iran, and depictions from Samarkand. Their modified forms subsequently spread during the 8th-9th centuries into the Caucasus and into the territories of the modern southern Russian Federation between the Black and Caspian Seas, likely as imports or through the movements of groups of warriors arriving from the southeast or east. What occurred thereafter remains uncertain. However, the evidence currently available suggests that the eight-part bowl type ceased to be produced at the beginning of the 9th century, and that the entire tradition appears to have vanished by the 10th century CE.

The provenance of this group of helmets remains an unresolved question, as does the issue of why, unlike several other well-known helmet forms from the Nineveh assemblage, this particular type appears to have continued in use after the collapse of the Sasanian Empire under Islamic rule. Nevertheless, certain indications can be gleaned from both the Afrasiab mural and the appearance of these helmets north of the Caucasus during the relevant period. The Afrasiab painter clearly associated the armoured guard with his western neighbours, and his representation reflects direct familiarity with analogous equipment. This suggests that such helmets were employed in the north-western provinces of the Sasanian Empire, where Iranian, Sogdian, and Transcaspian military traditions intersected. Following the Arab conquest of Merv and the death of Yazdegerd III, Khorasan rose to prominence within the emerging Islamic polity. In the 7th-8th centuries, the Khazar Khaganate fought a prolonged series of conflicts with the expanding Caliphate⁴⁸ and effectively halted the northward and westward advance of Arab armies along the Caucasian frontier. As a result, the Khaganate emerged as a crucial buffer state. Contacts between the Khazars and the Islamic world intensified in subsequent decades,⁴⁹ as evidenced by the growth of

⁴⁸ See for example: Tabari, 1989: 2667-68, 2889-91, 2889-92; Balāḍori, 1866: 194; Mako, 2010; and others.

⁴⁹ In fact, it should also be noted that Khazar warriors appear to have served within the armies of the Caliphate during this period. Consequently, it cannot be ruled out that the helmets discussed above represent not merely the material result of recruiting Islamic soldiers from territories under Muslim control, but rather the broader phenomenon of intensive military and political cooperation between the Islamic world and the Khazar Khaganate. Sources indicate that Khazar contingents were incorporated into the Islamic military structure already in the early, pre-Abbasid phase and early Abbasid phase of the Caliphate, that is at least from the turn of the 8th and 9th centuries CE. See for example: Golden, 2004: 280. The movement of warriors, technologies, and military equipment across these zones of contact would naturally have facilitated the transmission and adoption of specific armour forms, including the helmet type under consideration.

Muslim communities within Khazar territory and by diplomatic and commercial exchanges. Literary sources, including al-Mas'ūdi, explicitly note that Khwarazm provided military assistance to the Khaganate,⁵⁰ furnishing armoured troops equipped with helmets and defensive gear.⁵¹ The political trajectory of the Khazars, marked by defeats at the hands of the Rus, including the campaigns of Prince Sviatoslav in 965, the destruction of Itil and Sarkel, and their eventual subjugation by Vladimir the Great,⁵² converges chronologically with the decline of this helmet tradition. Likewise, the Seljuk conquest of Khurasan and Merv in the first half of the 11th century represents a further historical milestone coinciding with the disappearance of the helmet type discussed here. Taken together, these events allow us to formulate a coherent working hypothesis. It is plausible that the production of these helmets in the north-western regions of the Sasanian Empire played a role in their diffusion into Siberia, a pattern also observed for other Sasanian helmet types.⁵³ The Arab conquest did not terminate production; instead, the type continued to evolve, gradually shedding the specifically Sasanian decorative and technological features that characterised its early forms. The persistence of the Khazar Khaganate as a military power opposing Islamic expansion appears to have facilitated intensified contact, likely including trade, mercenary service, and diplomatic exchanges. Which, in turn, encouraged the spread of these helmets throughout Khazar territory in their later developmental stages. The final decline of the Khaganate, followed by the Seljuk advance into Khwarazm, appears to correspond closely with the termination of this helmet tradition. This reconstruction remains a hypothesis grounded in the current state of research. Future discoveries may refine, modify, or overturn aspects of this model as new evidence comes to light. Equally uncertain is the precise location of the workshops in which such helmets were manufactured. Although medieval sources attest to centres of high-quality arms production in cities such as Merv, no archaeological remains of specialised helmet-manufacturing facilities have yet been identified. For now, their exact place of production must remain an open question.

⁵⁰ So called Arsiyah (Lariçiyeh or al-Larisiya), see for example: Bubenok & Radivilov, 2004. We cannot exclude the possibility that the widespread use of similar helmets among the Khazars was connected to the presence within the Khaganate of the Arsiyah, or related groups – well-armed elite troops who are attested in the written sources as forming a significant component of the Khazar military establishment. Even if the helmets recovered archaeologically cannot be attributed directly to members of these units, the prominence of such professionally equipped contingents, many of whom are believed to have originated from or been closely linked to Khorezm, would almost certainly have exerted a strong influence on the broader material culture of warfare within the Khaganate. Their weaponry and armour, shaped by eastern Iranian traditions, could have served as a model or aspirational standard for other Khazar warriors, thereby contributing to the dissemination and popularity of specific forms of helmets across the wider military milieu of the Khazar state.

⁵¹ al-Mas'ūdi, 1862: 11.

⁵² Leonis diaconi Caloënsis, 1828: V 1-12; Georgius Cedrenus, 1839: 384; Abū al-Qāsim, 1939: 393; Nestor the Chronicler, 1950: 47-49.

⁵³ See for example: Belitskaya *et al.*, 2024.

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