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ON ONE SERIES OF THE VI CENTURY AD IRON ONE-PIECE ASIAN HELMETS*

Adam L. Kubik, Oleg A. Radyuš, Leonid A. Vyazov

Abstract
The article describes a series of helmets of a type that probably spread across Asia and Eastern Europe in the middle to the second half of the VI century AD. These helmets are characterised by a very particular construction: they have a bowl hammered from a single piece of iron, with an additional band in the lower part, connected to the inside or outside edge of the helmet. Additionally, a chainmail collar was attached to the lower part of the helmet. The attached chainmail provides additional protection around the entire circumference including the forehead above the eyes. This characteristic would remain unpopular in European armaments for quite a long period and was only popularised in central and eastern Europe around the XVI century AD [1: 130]. This article analyses a possible Iranian provenance of the helmets of this type as well as hypothesizes about the possible reason for the spread of these helmets on the territory of Eastern Europe and Asia.

Keywords: helmets, armament, Xosrow I Anuširwān, Sasanian state, artefact, army, Caucasus.

Introduction

Helmets with a bowl made from a single piece of metal were one of the most popular forms of head protection in the ancient period. Considering period of interest, namely late antiquity, this sort of armament is commonly associated in the European realm with the Roman Empire. During the III century AD, there is a major change in the forms of Roman armament. The phenomenon of the abandonment of one-piece iron construction in Roman helmets has become an important topic of arms and armour study strongly influencing current studies on Euro-Asiatic armament [2; 3; 4; 5; 6; 7; 8; and others]. It is widely accepted that the centuries-old tradition of European armour was replaced by new eastern multi-segment construction in an attempt to equip its armies in a more cost-effective manner, partly due to the economic problems of the Roman Empire in this period. The appearance of *fabricae armorum* and changes in Roman military system, which took place in the end of III and the beginning of the IV century AD [9; 10; 11; 12; 13; 14; and others], not only caused a change in the tradition of armaments, it actually changed the whole system of thinking about it. Previously highly individualised and decorated forms of arms and armour, made to specific orders and tailored to the needs of the

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individual, were replaced by mass production and a system of arms and armour management closer to the modern battlefield than to what we know from ancient or medieval times. Some return to individualised weaponry in Europe undoubtedly occurred during the medieval period. This is undoubtedly a period of return to single-piece bowl helmet designs, with the well-known so-called Norman helmets [15; 16; 17; 18: 64; 19; and others]. This raises the question of what happened to similar constructions on the territories of the enemies of the Roman Empire and further states of Europe? Can similar developmental patterns also be observed on the frontier of the Roman empire? The following paper will attempt to answer some of these questions. Some aspects of the use of one-piece helmets in Asia in the Islamic period were analysed in 2017 by D. Nicolle [20]. Since then, however, there have appeared new finds of similar armour and, currently, some of the finds analysed by D. Nicolle may be subject to a narrower chronology. We will try to analyse a group of objects that are, in our opinion, a series produced in a relatively short chronological period. They also belong to the pre-Islamic period, filling a gap in our knowledge of the development of a similar type of armour. These observations, in our opinion, also help to understand the late return to similar constructions in early medieval Europe.

A series of one-piece bowl helmets

The helmets the current authors will try to analyse belong to one very narrow type. Their bowl consists of a single piece of iron with an additional inner rim attached to the lower edge. On the lower band is attached a chainmail aventail, fixed onto the loops hanging from the line of decorative rivets. The chainmail is also situated above the eyes of the wearer. A similar characteristic is known from later head covers spread across Eastern and Central Europe from Ottoman Empire, after the medieval period. In Slavic countries occurring under the name *misiurka* (in Polish) or *misyurka* (in Russian and Ukrainian), these helmets undoubtedly appear in Central and Eastern Europe under the influence of contemporary oriental armament [1: 130]. In the case of these much later head protections, this attachment occurred directly to the small bowl. In contrast, the appearance of massive rivets arranged in a pearl pattern running along the entire circumference is one of the characteristic elements of the late antique / early medieval helmets this paper focuses on. These rivets were used to attach a chainmail aventail, creating a system of loops, separating the chainmail from the other structural elements of the helmet.

The first known find of this type is a helmet that is now in the collection of the Hermitage Museum (fig. 1). It was found at the very beginning of the XX century, along with a chainmail habergeon and a sword, during work at the so-called Velsov plant in Perm Governorate. The length of the straight edged sword, including the tang, was 87 cm [21: 92-93]. Its current condition is unknown; unlike the helmet, it is not on display. The authors were also unable to obtain information on whether the sword still remains in the museum.

The helmet from the Hermitage Museum consists of two structural elements: a spherical shaped bowl with slight lateral flattening, and a lower band riveted to the inner side of the bowl. The height of the helmet including the lower band is 18 cm. Its upper part has been preserved in almost perfect condition, with a small longitudinal loss in its side. Around the whole perimeter of the lower band there are massive, decorative iron rivets. These rivets attach loops also probably made of iron, and were used to attach the chainmail aventail. A fragment of the aventail is still attached to the helmet. In the case of all aventail remains from helmets discussed below, including the above find, all chainmail rings are woven in a 4-in-1 pattern, which is the predominant construction form in antiquity [22: 211]. It consists of a combination of riveted and solid rings [21: 92]. All rings are clearly flattened, including riveted ones. It is possible that the solid rings were punched from an iron sheet.

The helmet was originally dated to the XIII-XIV century AD due to its one-piece construction, but it is now displayed in the museum as a XII-XIII century AD helmet of Western European provenance. This dating of the object has already been criticised [7: 14].

Another well-known find is a helmet now in the collection of one of the local museums of the Tomsk Oblast (fig. 2,3). In August 1983, it was donated by a *kolkhoz* employee to the local historical museum of Kolpaševo, the administrative centre of Kolpaševsky district, Tomsk Oblast, Russian Federation [23: 114], where it is still located.

Along with the helmet, a sword was brought to the museum, which to the present day has not been subjected to serious comparative analysis. It consists of a 66 cm long blade and 13 cm straight form tang. According to Yu. Ožeredov's study, the blade was slightly curved [23: 115]. Ožeredov had a problem dating the objects, initially suggesting it be dated to the V to X centuries AD. At the same time, he narrowed this dating to the VII to X centuries without giving a more precise explanation [23: 119]. M.V. Gorelik without any further analysis date this helmet to the VII century AD [24: 273]. From the objects listed above, the sword draws particular attention. An interesting element of the sword is the hilt made of two halves. From the side view, it can be seen that it has a rectangular form, widening slightly towards its ends [23: ris. 1]. Its rhomboidal cross-section was deformed by flattening one of the ends. This rare characteristic probably appeared in the case of another find from western Siberia, namely on the sword from the Mokinskiy cemetery [25: 26-27; 26: 12, il. 2.2]. Excavations near the village of Mokino on the left bank of the lower Mulyanka River have been carried out since the second half of the 1980s, first under the leadership of V. Oborin and then of other researchers. They studied 310 burials of IV-V centuries AD, referred to as the so called late Gladenovsky period [27]. It can be concluded that the finding of the Tomsk Oblast site most likely belongs to a similar or close historical period to the Mokino find in which cross guards of a similar form were present. However, in order to refine the dating of the find, further comparative analyses are necessary.

The helmet from the historical museum of Kolpaševo consists of two structural elements: a hemispherical bowl with slight lateral flattening, and a lower band riveted to the inner side of the bowl. Ever since the first publication of the object, the absence of the upper part of the bowl has been clearly visible. Its condition appears to be stable and has not changed significantly to the present time. The height of the helmet is 16 cm, the bottom length from front to back is 22 cm, the width laterally is 20 cm. A 3.5 cm high band, attached to the bottom part of the helmet bell, consists of two uneven parts. It was covered with a row of rivets made presumably of iron (with visible corrosion, analysis has never been carried out), with a diameter of about 1 cm. These run along the entire circumference of the helmet bowl. These rivets attach loops also probably made of iron, and were used to attach the chainmail collar. Inside some of the loops, fragments of wire have been preserved. It is difficult to determine conclusively whether these are fragments of the chainmail rings or of the wire on which the chainmail was hung. The suspension system of the browband will be analysed later in the article.

A find that has significantly changed the outlook on this type of armament is a helmet discovered during archaeological work in the city of Petra, Georgia (fig. 4,5,6). It was published by D. Mindorashvili in 2020 [28; 29], along with information about the discovery of another helmet in the Petra fortress area. According to the publication, a second helmet was discovered in the burn layer, in the 1960s [29: 69]. The fate of this find or its form is unknown to the authors.

The object published by Mindorashvili in 2020 has an unambiguous archaeological context. It was in the remains of a tower located between the double-wall that connects the north and south hills of Tsikhisdziri acropolis which was built on the west side of the city wall [28: 205; 29: 69]. The aforementioned tower was destroyed and possesses a trace of a burnt layer due to military activities. The defenders of the tower were unable to take anything out and were also unable to even leave the tower themselves. The clear evidence of this fact is the discovery of a large number of burnt human remains, weapons, and armour. After the demolition of the tower, there were no traces of attempts to rebuild it [28: 206]. 98 silver coins were found in the tower. Four of them were scattered in different places, while 94 in the form of a hoard were found in the centre of the fallen building in a small pit cut into the ground floor. The earliest is a coin of Peroz (458-488). Then come the Wardāxš (484-488) and Kawād I (488-531) coins. The most recent are those of Xosrow I Anuširwān (531-579) [29: 73]. Along with the coins, given the historical background, data from written sources, and parallels to the artefacts found in the tower, the excavation material should be considered to date to the middle of the VI century AD, namely to the year 551. According to the coins the identities of the tower guards are also clarified: all 98 coins are Sasanian and have not been mixed with any other [28: 231]. Mindorashvili states that these coins in his opinion were intended as payments to the Iranian garrison of the fortress and were allegedly hidden before the battle by an Iranian officer [28: 232]. The archaeological context clearly points to events that happened in Petra during the siege by Justinian's army of a fortress defended by a Persian garrison [29: 75] described by Procopius:

(...) These were all burned to death, and their charred bodies fell, some inside the wall, others outside where the engines stood with the Romans about them. Then the other Romans also who were fighting at the fallen part of the wall, since the enemy were giving way before them in utter despair and strove no longer to resist, got inside the fortifications, and Petra was captured completely.

So about five hundred of the Persians ran up to the acropolis, and seizing the stronghold there remained quiet (...) (Procopius, *Bella* VIII, 11.62-63, [30: 171])

(...) Then, as the flames spread in great volume, the barbarians, with disaster before their eyes and knowing full well that they would speedily be burned to ashes, and having no hope, nor yet seeing any possibility of saving themselves by fighting, still even in that situation would not consent to fall into the power of their enemy, but they were immediately burned to death, every man of them, together with the acropolis, while the Roman army marvelled at what was taking place (...) (Procopius, *Bella* VIII, 12.16-17, [30: 177])

The events described by Procopius, as well as the archaeological context, clearly indicate that this helmet belonged to one of the burned defenders of Petra, a soldier belonging to the Sasanian army of Xosrow I Anuširwān. This is an extremely important find in the context of knowledge regarding the armour used by the Sasanian army. Until now only one Sasanian helmet has been subject to such strict dating, namely the find from Dura Europos [3; 31: 104, fig. 47; 6: fig. 90-91].

The helmet from Petra is made of two components: a one-piece bowl and a lower rim attached to the inner edge of the helmet bowl. At present, we are only dealing with the lower part of the helmet, as the upper part has not survived. We need to be aware that the helmet, along with other items found in this location, were squashed by fragments of the falling defence tower. The bowl was thus slightly deformed. Based on Mindorashvili publication, the remains of the helmet are 12 cm tall and 25 cm long [29: 20]. Only limited measurement was possible due to the fact that the helmet was not preserved in its entirety. It is difficult to say unequivocally whether we are dealing with the width or the length of the helmet. Due to the exposure to very high temperatures and severe corrosion, which led to the fragmentation of the helmet, it is difficult to observe the joining of the lower band which could suggest that back part of it has been preserved. To determine this conclusively, an X-ray would have to be taken. On the lower rim there is a clearly visible line of the massive decorative rivets made of copper alloy (green patina) running around the entire circumference of the helmet. These rivets attach the loops used to suspend the chainmail aventail. In addition, the bottom edge of the bowl was decorated with a thin copper alloy band (green patina). One visible chainmail ring from the collar, rusted to the lower edge of the helmet, has survived. It has a visibly flattened cross-section. According to the archaeological context, it reached Petra with the Iranian garrison at the very end of the second quarter of the VI century AD. It can be considered as a form of armour used by Xosrow I's army during his campaigns.

One more helmet of this type was found in the south of Tatarstan around 2018 (fig. 7,8,9). It was placed for auction on the black finds' website Rewiedetector.ru. After a search and apprehension, the helmet was seized from the looters by Russian state intelligence services in 2019. In 2020, it was transferred for storage and restoration to the Samara Regional Historical Museum. In November 2020, the authors were given access to the find and studied it prior to restoration. The authors would like to thank all the people and organisations involved in the recovery of the object, and the possibility to study it.

In 2019, based on information reported by the looters to the Russian state services the site of the find was surveyed by a group of archaeologists, L. Vyazov, Yu. Salova, and D. Petrova. They explored the area and localized the exact location of the illegal excavations. The site is situated near the village Butaikha, at the source of the Kairpy gully, watered by a small unnamed stream, the right tributary of the river Bolšaya Sulča, the right tributary of the river Bolšoy Čeremšan, the right tributary of the Volga. No archaeological sites were previously investigated in this area, except for a hoard dated to the Medieval Volga Bulgaria [32]. The Butaikha surroundings are covered by deciduous forest that has been subjected to logging activities. This poses significant challenges for surface investigations due to the presence of numerous shrubs and young trees that obscure previous clearings. The survey revealed a cluster of multi-phase occupation sites, including large promontory hillfort with earthen fortification system characteristic for the Volga Bulgaria period (920-1250 CE). The soil surface within the hillfort area has suffered considerable disturbance due to the illicit activities of treasure hunters. From the plateau side of the hillfort, a group of dwelling-pits was recorded, rectangular in shape, 8x8 meters in size and up to 1meter depth, surrounded by shallow embankment, marking the occupation area of the Migration period settlement attributed to the Imen'kovo archaeological culture [33; 34; 35; 36; and others). Preserved dwelling-pits of the Imen'kovo population were recorded in various forested and scarcely ploughed locations of the Mid-Volga region [see: 37, for a LIDAR plan of one of those]. This observation supports the idea that the Volga Bulgarian hillfort was established on the area of previous fortification of the Imen'kovo culture, as it was usual in the Mid-Volga region.

Based on surviving photo documentation made by treasure hunters as well as information provided by the field survey we conclude that the helmet was probably found at the area of the Imen'kovo culture settlement. We can also state that in one pit there was found a short-sleeved chainmail (fig. 10), the remains of a chainmail aventail, a helmet, and a belt buckle. At the moment, we are not able to say with certainty that the buckle was found together with the helmet. It is difficult to regard the information obtained from the looters as unquestionably reliable. The photographic documentation taken clearly shows the finding of the assembled chainmail and the helmet that was laid on top of it. If the buckle was indeed found with the chainmail and helmet, then it can be used to date the objects. We note that various artefacts, including buckles and belt plates, were destroyed in the past as part of the

widespread funerary traditions of the Imen'kovo population [38]. These items were later recovered by illegal excavations and looters at the Butaikha sites with signs of destruction. It can be hypothesized, therefore, that the robbers discovered and disturbed an Imen'kovo burial site located in close proximity to the settlement area. This type of spatial organization, where burial grounds with cremations are situated between settlements, is characteristic of the Imen'kovo population. Similar arrangements have been observed at other clusters of Imen'kovo culture sites, such as Maklašeevka, Komarovka, Rožd̆estveno, and others [34]. In this particular case, it is reasonable to assume that the helmet and chainmail were part of the grave goods associated with this burial site.

The copper-alloy buckle, which was possibly found together with the helmet and chainmail, was cast in a solid-form (fig. 11). It consists of a B-shaped loop, 3 cm long, 1.9 cm wide, and a rhomboid plate that is 1.5 cm in width, with a clearly marked "onion shape" ending. It has a rounded hole in the central part, through which a short rectangular tongue is inserted. The tongue extends slightly beyond the contours of the buckle and is not bent at the end. The buckle was inspected prior to restoration, so the presence or absence of ornamentation has not been established. Judging by the size, it could have been used for straps or a harness or, less likely, a shoe buckle.

B-shaped buckles appeared in Eastern Europe in the Late Roman period, within the chronological horizon D, according to K. Godlovski (350-400 CE), as derivative forms from the Late Roman buckles with zoomorphic endings. In the Early Middle Ages they can be considered as derivatives of the Early Byzantine one-piece forms [39: 546-551]. According to L. Traikova, they belong to the Ca-Cb types dated to the IV century AD [40: 76-77, Tab. 47]. At the same time, on the territory of Eastern Europe solid-form buckle construction is not very typical for such an early period. Such forms became more widespread in later centuries. The later forms of this group continue developing until the early VII century AD [41; 42; 43] Closer analogies to the buckle under discussion were found close to the Ščerbet-Ostrovnoe settlement (Spassky district, Republic of Tatarstan); the dating of the find in the publication of E.P. Kazakov was slightly overestimated to VII century [44: Fig. 6:2]. Judging by the morphology of our specimen from Nurlatsky district of Tatarstan they belong to the earlier "pre-Heraldic" period. The most common dating of such belt buckles is the second half of the V century AD - first half of the VI century AD, i.e. the post-Hunnic period and the period up to the Avar invasion. The earliest closed complexes are dated to the second half of the V century AD (457-483) (Hynysly, Republic of Azerbaijan). On the whole, this type is widespread throughout Eastern Europe, including in the inventory of warrior burials of post-Hunnic period in the North Caucasus, north-eastern Black Sea region, Crimea, the middle part of the Oka River, the Kama region (Durso, Lermontovskaya, Kugul', Saharnaya Golovka, Borok, Undrikh, Zarečye, Podbolotye and others).

Based on the above, we can conclude that the helmet and chainmail found at Butaikha were located in the occupational area of the Imen'kovo culture settlement

and dated to 450-550 CE. This period is associated with the Imen'kovo population in the region.

The earliest sites attributed to the Imen'kovo culture were introduced to the Mid-Volga not later than in the II century CE [45], when they are recorded only in the Samara Luka area on the right bank of the Volga. At that time, the Imen'kovo was one of the many competing cultural groups in the forest-steppe area of the region. In 250-400 CE, the Trans-Volga was occupied by the sedentary population of Mid-Volga Kyiv cultural group [46] while the Cis-Volga evidenced a mosaic pattern of the Imen'kovo sites, sites of the Lbisče type, and some other types. All these groups were involved in intensive interaction with the Late Sarmatian nomads, which is evidenced in many other excavated sites by inhumation burials with cranial deformations in storage pits of the settlements, and specific Sarmatian-like pottery. The Lbisče hillfort at the Samara Luka is the only fortified settlement that existed in the Mid-Volga region before the Hun invasion of East Europe. Noticeably, it is the only one that yielded blacksmith tools, while all other simultaneous sites even hardly contained iron slags.

The Hun invasion at the end of the IV century deeply impacted the Mid-Volga and destroyed the symbiosis of the sedentary groups with the Late Sarmatians that existed during the previous period. Not later than 450 CE, the three processes started:

1) rapid construction of numerous (100 are known at the moment) well-fortified hillforts;

2) increase in iron metallurgy and blacksmith production;

3) shift of population from low terraces and floodplains to elevated and forested riverbanks and gulleys.

Instead of chains of settlements elongated on the banks of small rivers, a new spatial pattern was based on clusters of small but long-habituated settlements, clustered around well-fortified hillforts. The manner how those hillforts were fortified supports the idea that they were unlikely to be effective as shelters or military fortresses but probably served as symbols of power and political independence of the local groups. At least some of those groups grew into local centres of political power. We can name at least several clusters of occupation sites that are associated with prestigious ornaments, markers of trade and craft, which could serve as political centres. Two of them were situated at the Kama-Volga confluence. The Komintern cluster is well known after the rich necropolis with inhumations [44], and the Sčerbet' cluster contained a rich cemetery, Novoslavka-2 [47], and a craft centre on the Sčerbet' Island site, where dozens of narrow-bladed shaft-hole axes and rod-shaped brass ingots [48] illustrate the commodity production in quantities beyond local demand. The Sherbet' sites as well as the Komintern-2 burial ground are dated to 450-550 CE, based on the seriation of artefacts and some radiocarbon dates. Another centre to be observed was established in the middle reaches of the Belaya River, where several mounds neighbouring the Ufa-2 hillfort contained numerous luxury items and ornaments. Some of the sites associated with local centres of

power in the Mid-Volga region yielded evidence of interaction with Iran or with the areas impacted by Iranian influence. Those contacts are marked by finds of Sasanian drachmas at the Karmaly, Troitsky Uray, and Imen'kovo [49], (map 1), and even more brightly by the golden plates of the parade belt from the Komintern "hoard" - a set of illegally collected items suspected to provenance from one of the destroyed burials of the Komintern burial ground [50]. All centres of power were associated with multicultural, and maybe also multinational populations. In Komintern and Novoslavka, the bi-ritual funeral rites are non-typical for the Imen'kovo population, who used cremation rather than burials. In the Ufa-2 surroundings, the distinct nomadic presence is evidenced by kurgan burials while the variety in pottery in the occupational layers detects mixed sedentary groups.

The military equipment of the Mid-Volga military elite included a bow with bone or antler plates and a knife. Only after Avarian migration and the replacement of the military elite a new set of weapons was introduced to the region, including spears, Avar-type single-bladed long swords, and armours made from small plates [38].

A brief look at the other regions of the forest-steppe zone of East Europe demonstrates a universal character of this type of social and political organization that spread after the Hun invasion. Among the centres of production and trade formed in 370-450 CE, Tanais on the Lower Don, the Čertovitskoye-Zamyatino group of sites on the Middle Don, and the Stayevo archaeological site complex could be mentioned. Their production included iron tools and weapons, ingots and artefacts made of bronze and brass, as well as ornaments. They were interconnected by trade routes [51], which were paths of movement not only of goods, but probably also of groups of craftsmen, creating a network of cultural communication. These observations make possible to suggest the existence of one of the local centres of power in Butaikha. Alongside with others, this centre was established by mixed population included Hun military elite and local sedentary groups, and influenced by Sasanian Iran. The distinctive Hunnic presence in the nearby area is marked by finds of two Hun-type cauldrons as close as at 20 km from the Butaikha site [32].

The last find clearly of this type known to the authors was sold to a private collection at domongol.ru site auction (fig. 12). It was most likely discovered during illegal excavations in the Russian Federation. Along with the helmet, according to the previous owner, a chainmail aventail, three bracelets, and a Sasanian coin of Xosrow I Anuširwān were discovered (fig. 13). Based on auction photographs of the object, we can conclude that the helmet construction consisted of two components: a one-piece helmet bowl and a lower band riveted to the inner part of the bowl. Massive, decorative rivets made of copper alloy (green patina visible) were spread along the entire circumference of the lower band. These rivets attach loops also probably made of copper alloy (green patina visible), and were used to attach the chainmail aventail. Judging by the photos of the helmet, the aventail's rings were flat. It is likely that they were of the same form as the ones known from the

Hermitage Museum object. The photos also show the remains of fabric that has rusted to the outer part of the chainmail. It is hard to say conclusively if the chainmail was covered with textile, the helmet was deposited on textile, or whether it was packed in some form of bag. Unfortunately, the subsequent fate of this helmet is currently unknown to the authors.

Two other finds that may relate to this series of helmets

During archaeological work carried out by Kyoto University at the site of the fortified village of Chaqalaq Tepe in Northern Afganistan, in Kunduz province south of the Oxus river, situated about 6 km south-west of Kunduz city, some interesting objects were discovered. During the archaeological survey conducted by Kyoto University in 1964 [52], an iron helmet of oblong form was discovered. Unfortunately, authors of this publication provide only brief information about the discovered object:

A helmet which has an oblong bowl-like shape: length 25 cm, width 18 cm, the original height 11 cm. Found upside down in the layer of the Middle Period J8. [52: 17]

It should be noted that the upper part of the bowl is missing and based on the published photographs [52: 13, il.1-2], we can also conclude that the object may be deformed due to its state of preservation. Based on the size of the finds analysed above, we cannot exclude the possibility that we are dealing with the upper part of a helmet, namely the helmet bowl, with a missing lower rim. According to the information in the publication, the term J8 [52: 17] refers to the trench placed in a central J-sector of the fortified village. Based on further information it was found in so-called room i, placed somewhere between sector K14 and K13 [52: 6-8]. Based on the Authors description, in this area researchers discovered a great quantity of potsherds, stone tools such as rotary-querns and saddle-querns, a stone Budda head, two post-Sasanian coins, copper coins, an iron helmet, and iron and glass objects. It should be noted that the items listed refers to the entire trench. The helmet, on the other hand, has been identified as coming from the middle period. There is some problem in defining what the author actually meant by the middle period. At the same time authors moves quite seamlessly between the ceramics' chronology classifications and the dating of Dyakonov and Gardin [53; 54; 52: 10], showing also a classification of Bactrian art divided into four periods [52: 27]. At the same time, they conclude that based on the examined material, including coins, Chaqalaq Tepe was occupied from about the IV until the VIII century AD [52: 26]. If we can consider the middle period as between the V and VII century AD, given the dating of the previously analysed objects, the possible helmet from Chaqalaq Tepe can be considered chronologically analogous. Its dimensions are similar to those of the helmet bowls of the discussed type. Based on the chronology and measurements we cannot exclude the possibility that we are in fact dealing with the remains of the helmet of the discussed series.

The last helmet which may relate to the aforementioned type was published in 1999 by A. Berdimuradov and M. Samibaev [55]. During the work carried out on

the temple Jartepe II in Uzbekistan, located in the countryside on the caravan route from Samarkand to Penjikent in the area that in ancient times was called Rustak Varagšar, a significant amount of weaponry was discovered. It is interesting to note that at this point we are not dealing with a fortified area or a battle site, these items were deposited as donations to gods. The collection of gifts thus created has largely survived in the remains of the temple despite the events of the early VIII century AD that brought it to an end, which can be linked to the Islamisation of these territories [55: 7]. Among the excavated objects, an unusual piece seems to be the one labelled by Berdimuradov and Samibaev as a helmet. In room 3 of complex VI, belonging to the fifth period of the temple, an iron object with a slightly deformed form was discovered. Its dimensions were 23 cm long by 18 cm wide and 12.5 cm high. According to the information given by the authors chainmail rings were rusted to the lower edge of the helmet. Interestingly, they were visible around the entire circumference of the helmet [55: 47, ris. 83,13]. It must be admitted that dating the objects stored in the temple appears to be problematic. The rebuilding of the temple, achieved without first destroying it, may have involved the relocation of gifts that had been stored for many years. Similar cases are well known to scholarship. As an example, we can mention the Ossetian temple of Rekom situated in the Tsei valley near Georgia [56: 88]. Pieces of medieval weaponry donated to the temple were kept there until the XIX century. According to Berdimuradov and Samibaev's work, the Jartepe II temple functioned from the V century AD until the very beginning of the VIII century AD. It cannot be excluded then that this helmet was deposited in the temple during any period within the range given. Both the dating of the object, its size and the observed chainmail remains attached around the entire circumference of the bowl indicate that the object may relate to the discussed helmet series. Unfortunately, the current authors have not been able to determine where the find is currently located. According to the information available to us, this helmet went missing after one of the local exhibitions. It is therefore impossible to observe if we are dealing here with a deformed helmet or just with a deformed helmet bowl. According to the information given by Samibaev, in the bottom part there were visible holes. In addition, the entire lower edge was covered with severe corrosion. However, it is impossible for now to tell whether these were holes used to attach the lower band, rivets, or if those holes had some other function. Based on chronology and measurements once again we cannot exclude the possibility that we are in fact dealing with the remains of a helmet of the discussed type.

Evolution of this type in Asia

An interesting aspect of the above analysis is the dating of the objects. Assuming a certain degree of scepticism and taking into consideration that the helmet that could be dated the earliest from those mentioned above, i.e. the find from Chaqalaq Tepe, would have come from the earliest period of the middle stage of the fortified settlement, we can state that in the VI century AD some events occurred in Asia

that led to the spread of similar helmets. Based on this dating, we obtain the information that iron one-piece bowl helmets appeared in Asia long after Rome had abandoned similar solutions. However, do we actually have a sudden return to these constructions? It is difficult to state this unequivocally. Unfortunately, the level of knowledge about armaments in so-called Greater Iran is decidedly unsatisfactory. Similar discoveries like the one from Petra [29: 69], or earlier from Dura Europos [3], should be considered revolutionary from the point of view of our knowledge of Iran's armament. They allow us to compare those objects to specific groups of archaeological finds, mostly with numerous archaeological finds from European territories. Thus, we cannot exclude the possibility that, for the moment, we simply do not have knowledge of the earlier evolution of iron one-piece bowl helmets in Asia during the Parthian and early Sasanian periods. Some evidence that a similar evolution may have occurred is the finding from the Kušān period city of Sirkap on the bank opposite to the city of Taxila, Punjab, Pakistan (fig. 14), approximately 25 km northwest of the Islamabad–Rawalpindi metropolitan area. It was published by J. Marshal in 1951 [57]. Based on information provided by Marshal the helmet belonged to the stratum II finds and should be dated to the I century AD [57: 538, 550]. He wrote that it was found with a cheek-piece rusted to one side, attached seemingly by a hinge, making it movable. There was just one side of the helmet still preserved, the other one was missing. The helmet bowl was made of one piece of iron, beaten out like an oval bowl and afterwards deepened by means of horizontal bands hammered on it. On the summit there was a finial intended for the attachment of a ring, spike or crest [57: 550]. Based on his further information he wanted to see foreign importations in the appearance of the helmets, armour for men, horses and elephants found in the Taxila area. Those were supposed to be attested by firstly the appearance of conical and three-bladed arrowheads in Sirkap stratum II, which in his opinion were introduced by the Parthians [57: 208]. The Taxila find shows us that at the same time as the still popular one-piece iron helmet designs in Europe, similar solutions were used in the Parthian period in the territory of Central Asia. What happened with similar structures in the territory of Kušānšāhr in the period between the I and supposedly the V or VI century AD? At present, we do not know the answer to this question. The current authors cannot exclude the possibility that there was a gradual evolution of iron one-piece bowl helmets, which eventually evolved into the form of analysed finds. The current authors hope that future finds will emerge to answer this question and will fill this chronological gap.

A number of later findings provide us with interesting conclusions. Two studies on early mediaeval one-piece bowl iron helmets were published in the works of Nicolle and Kubik in 2017 [20; 7: 13-17]. The authors therefore see no need to analyse all objects of this type from the early Islamic period. The most important from the point of view of close analogies seem to be two helmets.

The first helmet was published in 1992 by D. Alexander [58: 302]. The object belongs to the famous Nasser D. Khalili Collection of Islamic Art. According to

the publication, it is an Iranian helmet from the VIII-IX century AD. It's hard to say unequivocally what was the basis for such dating of the helmet. It is possible that Alexander was aware of details about the location of the find or the archaeological context, which may have influenced his statements. Interestingly, he states that the helmet made of one-piece of iron is decorated in relief with large and small strapwork roundels inhabited with animals and birds carrying branches. He also pointed out that such decoration is based on clear Sasanian influence and relates to the designs depicted on textiles of the period [58: 302]. This helmet has interesting dimensions. Its length is 21 cm, while its height is about ~13 cm. If we compare its size with the other objects discussed above we can say that the bowl has not been deformed. Its low height of ~13 cm, comparable to the upper part of the helmets discussed above, allows us to speculate that we are dealing not with a helmet but with its upper part – the main helmet bowl. The helmet was therefore found during the production process or with the lower band removed. It should be noted that A. Kubik in 2017 pointed out that the geometry of the helmet from The Nasser D. Khalili Collection of Islamic Art appears to be the same as geometry of the drawings of the aforementioned helmet from the temple Jartepe II [7: 15, rys.2]. Comparing it with the other discussed helmets we can state that the helmet published by Alexander is unusual because of the decoration. It has a strongly individualized form and because of that it was not included in the analysed series. Still, its form and size seem extremely similar to the helmets under discussion, and it is possible that it represents the closest later analogue to the series of finds in question.

The second helmet to be mentioned here is a find firstly published in the 2011 in the work of H. Tofighian, F. Nadooshan and S. Mousavi [59: 17, ris. 4]. It was recovered from a shipwreck off the Iranian coast at Bandar Rig in the Persian Gulf. It was initially recognized as a helmet of the Sasanian period. In 2017 D. Nicolle, however, published another one-piece helmet undoubtedly of a similar type to the find from the shipwreck [20: 224-225, 233-237]. So, it is not possible to disagree that we are dealing with a find from the early Islamic period. In D. Nicolle's opinion it should be dated to the VIII-IX century AD. The current authors do agree with this theory, while adding that the finial of the Bandar Rig helmet shares some similarities with the one known from the helmet found close to the Kazazovo settlement [60: 148-158]. Based on O. Komar's work, the find from Kazazovo should be dated to the VIII century AD [61: 178]. Despite the differences between the helmet discovered in the Persian Gulf shipwreck and the type in question, it still shares some similarities indicative of continuity of the Sasanian armament tradition in the early Islamic period. Namely, to the single-piece bowl of the helmet, there is attached a lower rim, in this case to the outside part of the edge. It is covered by a silver plate decorated with a pattern in the form of two rows of pyramidal spikes running around the entire circumference of the helmet. Thus, it can be said that both construction and aesthetic influences similar to the helmet series under discussion are still visible in this helmet. It should be noted, however, that the bowl of the helmet from the Persian Gulf is visibly higher, which has resulted in the lack of a

need to extend the length of the bowl with a chainmail aventail. Based on the finds from The Nasser D. Khalili Collection of Islamic Art and the Persian Gulf find we can conclude that there was a gradual evolution of this type of protective weaponry in early Islamic Iran.

Discussion of the technical aspects related with this form of helmets

Below is an illustrative table of the mentioned helmets indicating their similarities in size, while also highlighting some marginal differences.

nr	Finding location	High [cm]	Length - forehead to occiput [cm]	Length - between the temples [cm]	material from which decorative rivets and loops were made	Presence of an additional bronze strap on the lower edge of the helmet bowl
1	Velsov plant, current settlement Vels, Krasnovišersky District, Perm Krai, Russian Federation	18 [including lower rim]	?	?	iron	no
2	Current settlement Staritsa, Parabelsky District, Tomsk Oblast, Russian Federation	19 [including lower rim]	22	20	iron	no
3	Petra Fortress, current settlement Tsikhisdziri, Adjara region, Kobuleti municipality, Georgia	12 [lack of upper part of the helmet bowl]	25(?)	?	copper alloy	yes
4	Butaikha village, Republic of Tatarstan, Russian Federation	17	23,3	21	copper alloy	yes
5	? Russian Federation, sold on domongol.ru auction	18 [including lower rim]	23	20	copper alloy	no
7	Chaqalaq Tepe, close to the	11 [without lower rim,	25	18	?	?

	Kunduz city, Kunduz Province, northern Afganistan	judging by the photos about a third part of the helmet has been lost]				
8	Jartepe II, Samarkand Region, Uzbekistan	12,5 cm [? based on the size we are dealing just main bowl]	23	18	?	?

Tab. 1. Summary of known sizes.

Based on the table above, bearing in mind that some of these helmets have severe cavities and may have been subject to deformation, we can state that these helmets were not significantly different from each other. The height of the helmet bowl varied around 13 and 15 cm, and including the lower band around 17 and 19 cm +/- 1 cm. The length from frontal to occipital part varied between 22 and 25 cm +/- 1 cm, noting that the included object from Chaqalaq Tepe was deformed. The length between the temples varied between 18 and 20 cm +/- 1 cm, noting again that objects with a size of 18 cm were also deformed. The measure may have deformed by 1 or 2 centimetres. In each case, the aventail is attached to the helmet rim all the way around, on the loops attached by decorative rivets. In all analysed objects the bottom rim is riveted to the helmet bowl from the inside. The aforementioned decorative rivets, placed on the lower rim, can vary and can be made of copper alloy or iron. In addition, there may be a decorative element in the form of a thin copper alloy band riveted to the bottom edge of the bowl. This element only appears in the case of two helmets and only when copper alloy rivets are present.

From a technical point of view, an important element of these helmets is their relatively short main bowl. The presence of the lower band, as well as the chainmail collar running around the entire circumference of the helmet, are clearly an element used to extend the height of the helmet bowl. Bearing in mind that it was also necessary to use some form of padding or cap to absorb energy of the impacts, the helmet was therefore slightly raised in relation to the head of the wearer. A 13 cm bowl +- 1 cm would not guarantee protection of the head. According to the current authors, the form of a series of these helmets indicates some technological problems of being able to produce taller bowls hammered from a single piece of iron or indicates a desire to speed up the production process. This impression is intensified when comparing the height of the analysed group of objects with other Sasanian helmets. For example, the height of a helmet from Dura Europos is 25 cm (rim to top of the skull [3: 123]), the height of a helmet from Nineveh, currently held in The British Museum of London, mus. Nr. 22498 is 23 cm (at the browband), the height of a helmet from Nineveh, currently held in The British Museum

of London, mus. Nr. 22497 is 22 cm. As mentioned above the tallest helmets in the type analysed are 3 cm lower than the helmet from Nineveh BM 22497. In contrast, the difference between the height of the helmet from Dura Europos and the almost completely preserved helmet discovered in Tatarstan is as much as 8 cm(!). Based on this characteristic, we can conclude that we are in fact dealing with a kind of proto-*misiurka* head protections.

An interesting feature of the construction of helmets of this type is the chainmail mounting system. It is attached to the bowl by loops mounted with decorative rivets. At the moment, it is difficult to say conclusively whether the chainmail was mounted directly to the loops or, what seems more likely, was mounted via a wire threaded into the loop line. In the case of at least the helmet from the Hermitage Museum, its first descriptions indicate a direct attachment on the loops. On the other hand, the loops visible on helmets of this type appear to be made of very thin metal sheets. Although some of them have been preserved in excellent condition, the vast majority of them bear no trace of chainmail rings in them. As will be mentioned below the chainmail aventail consisted of flattened half solid rings and only half riveted rings. It would then be expected that the removal of an aventail attached directly by the loops should only occur by breaking the loop system. We can consider this method to be extremely non-functional. In the case of a helmet found near Staritsa settlement some remains of the fragments of the wire are still preserved (fig. 17). And although these are small fragments it is rather unlikely that in this case we are dealing with a torn and bent piece of chainmail ring, especially despite the lack of damage to the surrounding loops. Of course, we cannot exclude the possibility that we are dealing with repairs or experiments in the evolution of this kind of suspension system and that those two systems of suspension, at least for a period of time, coexisted. The system of suspending armour elements to the helmets on wire stuck into loops riveted to the bowl also appears in Sasanian art. We can observe it on the well-known heavily armoured rider from *Ṭāq-e Bostān [62: pl. XXXV-XXXIX; 63: 67, fig. 12; 64; 65; and others], (fig. 16)*. It also appears in Vendel-era Scandinavia, for example in the famous helmet from the Valsgärde-8 burial [66]. Similar forms of chainmail helmet attachments have been known since at least the V century AD.

An extremely interesting item found with the helmets is the chainmail. As stated earlier, they are made of rings with a flattened rectangular cross-section. It should also be noted that, in the case of the Nineveh helmet, currently held in The British Museum of London, mus. Nr. 22495, a fragment of a chainmail with similar characteristics has also been preserved, rusted to the lower edge of the bowl (fig. 15). We must say here that a fragment of a chainmail shirt with similar characteristics and apparently flat rings was also found in the mentioned fallen tower from Petra. The construction in question therefore applies not only to chainmail coifs but to body armours as well. We can conclude that a similar method of making chainmail in Iran must have been popular. Half of the rings were most likely punched [22: 197-199] and solid. A further batch of rings were made to rivet together the

previously created solid rings. It is difficult to say unequivocally how the rings used for joining construction were made, those also are clearly flattened. It should be noted that the flattened form of the rings gives the impression of reducing the empty spaces between them. We cannot exclude the possibility that the way in which those chainmails were produced is not only related to the production difference associated with Sasanian Iran. The presence of solid rings, as well as their flattened form, undoubtedly increased the resistance of this type of armour against arrows and pole weapons. The form of the chainmail may therefore be related to the necessary functionality associated with the form of conflict, the type of opponents and the weapons they used. It is difficult to say unequivocally when armour in such form began to be used in Iran. Unfortunately, the chainmail fragments from Dura Europos in their condition at the time they were found did not allow similar observations [3: 126; 22: 236]. Currently we can unquestionably conclude that similar forms of chainmail armour were used in Sasanian Iran from at least VI century AD. We should state here that similar forms of armour, consists of combination of riveted and solid clearly flattened rings, also appear outside Greater Iran territory. For example, such chainmail remains were found at the mountain pass Gurzufskoye Sedlo in Crimea, dating to the I century BCE to I century AD [67: 276]; close to the Fedorovka village, Samara Oblast, and date to the Hunnic period [68: 136]; or Stari Jankovci village in Croatia date to the IV-V century AD [22: 288, 374]. Interestingly, at present we are unable to confirm any other form of the chainmail aventail was used in the type of helmets under discussion. Furthermore, based on the Nineveh find, we can conclude that a similar form of neck guard was used on various types of helmets in late Sasanian Iran, and it is not known whether any other form of the chainmail than 4-in-1 pattern, consists of combination of riveted and solid clearly flattened and most likely punched rings, were used on the territory of Greater Iran in that particular period.

Conclusion and spread of this type of helmets

Based on the objects mentioned above we can try to determine the provenance as well as a period of popularisation of this type of helmet. The most important object here for our analysis is the helmet from Petra because its archaeological context clearly indicates by whom the artefact was worn, as well as clearly identifying the date of the historical event to which it is associated - a warrior in the Sassanid army burned in the Petra fortress in 551. We must also note that the helmet sold at auction on domongol.ru was discovered with a coin of Xosrow I Anuširwān, indicating the presence of links to Iran (direct or indirect) at the site where the object was found.

The dating of all the objects, their geographical occurrence, as well as their later analogies, allow us to propose the hypothesis that we are dealing here with a series of helmets used and produced for the army of Xosrow I Anuširwān in the VI century AD, for the armed conflicts he conducted. In the case of the helmets from Jartepe II and Chaqualaq Tepe, we are dealing with the territory of the so-called

Greater Iran. Their geographical distribution undoubtedly coincides with Xosrow I's war policy and his campaigns resulting in the recapture of the Empire's eastern frontiers and the Caucasus conflict [69: 141-147; 70: 115-122; 71: 532-550; 72; 73; 74: 72; 75: 118-121 and others], (map 2).

The distribution of helmets can be found in two different environments: Siberia, and the border regions of the Sasanian state in Central Asia and the Caucasus. It should be borne in mind that finds of arms and armour in the case of the Roman Empire are concentrated along borders, as exemplified by the finds of *spangenhelm* type helmets [76; 77; and others]. This is related to the fact that most of the found weaponry is associated with battle sites, places of military concentration and sometimes with cataclysmic events in the form of massive fires or earthquake collapses [see for example: 78]. On the other hand, we can say that most of the finds come from the eastern part of what is known as Greater Iran. It is difficult to say unequivocally whether this is related to the production of similar helmets in the eastern territories. The Petra find, however, clearly indicates that similar weaponry was used in the event of conflicts with Rome. The level of our knowledge of the distribution of similar armour pieces is undoubtedly influenced by the level of archaeological investigation of sites associated with the armed conflicts waged by Sasanian Iran, which we may consider unsatisfactory.

If this theory is correct then it changes the outlook on Iran's army during this period. As we have tried to demonstrate, these objects bear the signs of mass production. The dimensions appear to be similar and, unlike the more commonly known finds of complicated, decorative forms, they do not significantly differ from each other. We cannot consider the change in rivets as a significant difference, nor the thin copper alloy band riveted to the bottom edge of the bowl. It could be concluded that those wearing similar helmets were not particularly different from each other, creating the impression of a certain unified unit. Can we hypothesize then, that there were some kind of armaments factories created by Xosrow I Anuširwān in a form similar to Roman *fabricae armorum*? We cannot exclude this possibility. We must remember that after the Mazdakid revolt, Xosrow I Anuširwān undertook a series of reforms aimed to reduce the power of the great feudal lords [79; 80; 81; 82; and others). His tax reforms significantly increased revenues to the central budget [83: 367; 82: 237-239, 279-284). A series of Xosrow's military reforms [83: 364-373; 84; 85; 86; 87: 240; 75: 118; 72: 93-95; and others] lead to the creation of new elite and cavalry units directly dependent on the ruler and paid, at least during campaigns, by the state. He thus created what we could call the foundations of a regular military formation or professional army [82: 228]. Is it possible that we are dealing with helmets belonging to a new centrally dependent military formation formed as a result of Xosrow I's reforms? Was mass production of unified armaments for these units established during this time? We cannot exclude this, however currently the authors of the publication are not aware of sources that could prove such a theory.

The question remains as to how they spread beyond the territory of so-called Greater Iran to Siberia? It is difficult to answer conclusively on that question. It is possible that we are dealing with trade relations. Nor can we exclude the possibility that, according to the information provided by Procopius, we are dealing with the effects of the conflict in the Caucasus and the use of mercenaries described by Procopius as Sabiri Huns by both warring sides:

(...) Now by some chance it so fell out that there were in this Roman army a small number of the barbarians called Sabiri, for the following reason. The Sabiri are a Hunnic nation and live in the region of the Caucasus, being a very numerous people and properly divided among many different rulers. And some of the rulers from ancient times have had relations with the Roman emperor, and others with the king of Persia. (...) (Procopius, *Bella* VIII, 11.22-24, [30:157])

(...) And Huns also came to them as allies from the nation of the Sabiri, as they are called, to the number of twelve thousand. But Mermeroes, fearing lest these barbarians, being in such numbers, would not only be altogether unwilling to obey his commands, but would actually do some terrible thing to the Persian army, permitted only four thousand to march with him, while he sent all the rest away to their homes after making them a generous present of money (...) (Procopius, *Bella* VIII, 13.6-7, [30: 189])

We should also state that according to the information presented by Procopius, during the Sasanid-Byzantine wars in the Caucasus, considerable amounts of Persian arms and armour fell into the hands of the Romans. This is described, for example, in the cited events of the capture of the fortress of Petra:

(...) And at that time it became manifest how much importance Chosroes placed upon Lazica; for he had chosen out the most notable of all his soldiers and assigned them the garrison of Petra, and deposited there such an abundance of weapons that when the Romans took possession of them as plunder, five men's equipment fellow to each soldier, and this too in spite of the fact that many weapons had been burned on the acropolis (...) (Procopius, *Bella* VIII, 17, [30: 177])

It is difficult to clearly state who the Hun tribes described by Procopius fighting on the side of Rome actually were and whether the Huns fighting on the side of the Sasanid army actually came from the same tribes and geographical regions. In the case of the Roman army, he mentions tribes living in the Caucasian region (we can suggest that he meant those living on the territory of the North Caucasus), while at the same time stating that numerous tribes ruled by many different rulers participated in mercenary armies. It is not hard to imagine that a long conflict attracted all kinds of warriors looking to make money from participating in it. We can state that armaments as trophies or gifts, depending on the side of the conflict, returned behind the Caucasus along with the warriors on their return home from campaigns. Being of a high material value, it could therefore have been resold or deposited in the burials of so-called Hun warriors involved in the Caucasian war or their relatives.

BIBLIOGRAPHY

1. Gradowski M., Żygulski Z., Słownik uzbrojenia historycznego, Warszawa, 2010.
2. Klumbach H., Spätrömische Gardehelme, München, 1973.
3. James S., Evidence from Dura-Europos for the origin of Late Roman helmets, Syria, 63(1), 1986, pp. 107-134.
4. Negin A.E., Позднеримские шлемы: проблемы генезиса [Pozdnerimskie šlemy: problem genezisa], Antiqvitas Aeterna. Поволжский антиковедческий журнал [Povolžskiy antikovedčeskiy žurnal], 2, 2007, с. 335-359.
5. Miks Ch., Spätrömische Kammhelme mit hoher Kammscheibe, Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz, 55, 2008, S. 449-482.
6. Miks Ch., Ein spätrömischer Depotfund aus Koblenz am Rhein. Studien zu Kammhelmen der späten Kaiserzeit, 2014, Mainz.
7. Kubik A.L., Hełmy Azji Południowo-Zachodniej pomiędzy VI-VIII w. n. e. zarys problematyki, Siedlce, 2017.
8. Kubik A.L., Radyuš O.A., Шлемы многосегментной конструкции у восточных врагов поздней Римской империи: находки из Царицыно (Рязанская обл.) и их место в оружиеведческом дискурсе [Šelmy mnogosegmentnoy konstrukčii u vostočnykh vragov pozdney Rimskoy imperii: nakhodki iz Čaričino (Ryazanskaya obl.) i ikh mesto v oruževedčeskom diskurse]. In Gavritukhin I.O., Vorončov A.M. (eds.) Лесная и лесостепная зоны восточной Европы в эпохи римских влияний и великого переселения народов [Lesnaya i lesostepnaya zony vostočnoy Evropy v epokhi rimskikh vliyaniy i velikogo preseleniya narodov], T. 2, Tula, 2019, с. 84-102.
9. Mommsen T., Das Römische Militärwesen seit Diocletian, Hermes, 24, 1899, S. 195-279.
10. Grosse R., Römische Militärgeschichte von Gallienus bis zum Beginn der byzantinischen Themenverfassung, 1920, Berlin.
11. Nischer E.C., The Army Reforms of Diocletian and Constantine and Their Modification up to the Time of the Notitia Dignitatum, Journal of Roman Studies, 13, 1923, pp. 1-55.
12. Baynes N.H., Three Notes on the Reforms of Diocletian and Constantine, Journal of Roman Studies, 15, 1925, pp. 195-208.
13. Demandt A., Diokletian als Reformer. In: Demandt A., Goltz A., Schlange-Schöningen H. (eds.) Diokletian und die Tetrarchie: Aspekte einer Zeitenwerde, Berlin, 2004, S. 1-10.
14. Letki P., The state factories (fabricate) during the time of tetrarchy, Studia nad Kulturą Antyczną, 5, 2009, pp. 49-64.
15. Kirpičnikov A.N., Шлем XI в. из Юго-Западной Руси [Šlem XI v. iz Yugo-Zapadnoy Rusi], Советская археология [Sovetskaya arkheologiya], 2, 1962, с. 230-234.
16. Hejdová D., Přilba zvaná „svatováclavská“, *Sborník Národního muzea v Praze, 1-2, 1962, 1-106.*
17. Rajewski Z., O niektórych hełmach wczesnośredniowiecznych, Wiadomości archeologiczne, XXXVIII, 2, 1973, s. 349-359.
18. Nadolski A., Lądowa technika wojskowa od połowy X do połowy XII wieku. In Nadolski A. (eds.) Polska technika wojskowa do 1500 roku, 1994, s. 31-107.

19. Eaves I., A decorated "Norman" helmet, The Journal of the Arms and Armour Society, Vol. XXII, 5, 2018, s. 242-255.
20. Nicolle D., One-piece Sasanian and Early Islamic Helmets. In Maksymiuk K., Karamian G. (eds.) Crowns, hats, turbans and helmets. The headgear in Iranian history, Siedlce - Tehran, 2017, pp. 223-253.
21. Lenč von E., *Предметы вооружения* и конского убора, *найденные* близ села Демьяновки Мелитопольского уезда [Predmety vooruženiya i konskogo ubora, naydennye bliz sela Dem'yanovki Melitopol'skogo uezda], *Известия Императорской Археологической Комиссии [Izvestiya Imperskoy Arkheologičeskoy Komissii], 2*, 1902, c. 81-94.
22. Wijnhoven M.A., European Mail Armour, Amsterdam, 2022.
23. Ožeredov Yu.I., *Старицинские находки' [Staričinskie nakhodki]. In Medvedev V.E., Khudyakov Yu.S. Военное дело древнего населения Северной Азии [Voenno Delo drevnego naseleniya Severnoy Azii]*, Novosybirsk, 1987, c. 114-120.
24. Gorelik M.V., Латная конница древних венгров [Latnaya konniča drevnikh vengrov], *Археология Евразийских степей [Arkheologiya Evraziyskikh stepey], 5, 2017, c. 272-279.*
25. Malyh O.O., Пути проникновения мечей в пермское Предуралье в первой половине i тыс. Н. Э. [Puti pronikoveniya mečey v permskoe Predural'e v pervoy polovine I tys. N.E.], Труды Камской археолого-этнографической экспедиции [Trudy Kamskoy arkheologo-etnografičeskoy ekspedičii], XIII, 2017, c. 26-36.
26. Radyuš O.A., Мечи эпохи Великого переселения народов в музейных собраниях центральной России [Meči epokhi Velikogo pereseleniya narodov v muzeynykh sobrniyakh čentralnoy Rossii]. In Vorotnikova I.A., Novoselov V.R. (eds.) *Историческое оружие в музейных и частных собраниях [Istoričeskoe oružie v muzeynykh i častnykh sobraniyakh]*, 2, Moskva, 2018, c. 10-29.
27. Korenyuk S.N., Mel'ničuk A.F., Pereskokov, M.L., Погребальный обряд поздней части Мокинского могильника в Среднем Прикамье (по материалам раскопок 1994 г.) [Pogrebal'nyy obryad pozdney časti Mokinskogo mogilnika v Srednem Prikam'e (po materialam raskopok 1994 g.], Вестник Пермского университета. Серия «История» [Vestnik Permskogo Universiteta. Seriya «Istoriya»], 2011, 1 (15), c. 65-80.
28. Mindorashvili D., Archaeological Excavations in Tsikhisdziri and the Issue of Identity of Petra-Tsikhisdziri (in Georgian), Chronos Journal of the Ivane Javakhishvili Institute of History and Ethnology, 1, 2020, pp. 204-234.
29. Mindorashvili D., Archeological Excavations at Petra-Tsikisdziri, Batumi, 2021.
30. Procopius, Bella: Procopius, History of the Wars, eds./tr. Dewing H.B., vol. V, Cambridge, Mass. 1928.
31. James S., T*he Excavations at Dura-Europos, 1928 to 1937: Final Report VII*, London, 2004.
32. Khalikov A. Kh. ed., *Археологические памятники бассейна* р. Черемшан [Arkheologičeskie pamyatniki basseyna r. Čeremšan], Kazan, 1990.
33. Starostin P.N., Памятники именьковской культуры [Pamyatniki imen'kovskoy kultury], Moskva, 1967.
34. Starostin P.N., Именьковские могильники [Imen'kovskie mogilniki]. In Matveeva G.I. (eds.) Культуры Восточной Европы I тысячелетия [Kultury Vostočnoy Evropy I tysyačletiya], Kuybyšev, 1986, c. 90-104.

35. Matveeva G.I., О происхождении именьковской культуры [O proishoždenii imen'kovskoy kul'tury]. In Matveeva G.I. (eds.) Древние и средневековые культуры Поволжья [Drevnie i srednevekov'e kul'tury Povolž'ya], Kuybyšev, 1981, c. 52-73.
36. Matveeva G.I., Среднее Поволжье в IV-VII вв.: именьковская культура [Srednee Povolž'e v IV-VII vv.: imen'kovskaya kul'tura], Samara, 2004.
37. Vyazov L.A., Asylgaraeva G.S., Gismatullin M.R., A study of the archaeozoological collection from the Ashna-Pando hillfort in the Middle Sura region, Stratum Plus, 4, 2021, pp. 125-140.
38. Vyazov L.A., Petrova D.A., Kondrašin V.V., Salova Yu.A., A collection of weapons from the site near Komarovka in the Ulyanovsk region: a case study of melee weapons of the Imen'kovo culture population, *Археология Евразийских степей [Arkheologiya Evraziyskikh stepey]*, 6, 2020, pp. 99-130.
39. Shulze-Dörrlamm M., Byzantinishe gürtelschnallen und gürtelbeschlage im Römisch-Germanischen Zentralmuseum, I. Die Schnallen ohne Beschlag, mit laschen Beschlag und mit festem Beschlag des 5. bis 7. Jahrhunderts (Kataloge RGZM, 30: 1), Mainz, 2002.
40. Trajkova L.A., The belt south of Lower Danube - the end of the 3rd c. - the beginning of the 7th c., Sofia, 2017.
41. Gavritukhin I.O., К изучению ременных гарнитур Поволжья VI-VII вв. [K izučeniyu remennykh garnitur Povolž'ya VI-VII v.v.]. In D.A. Stašenkov (eds.) Культуры Евразийских степей второй половины I тысячелетия н.э. [Kul'tury Evraziyskikh stepey vtoroy poloviny I tysyačeletiya n.e.], Samara, 1996, c. 115-133.
42. Gavritukhin I.O., Пряжки, отлитые вместе со щитовидной обоймой [Pryažki, otlitye vmeste so šitovidnoy oboymoy]. In A.G. Ivanov (eds.) Пермский мир в раннем Средневековье [Permskiy mir v rannem Srednevekov'e], Iževsk, 1999, c. 160-209.
43. Gavritukhin I.O., Belt sets from Alanic graves: Chronology and cultural Links'. In A.B. Belinskij, H. Härke (eds.) Ritual, society and population at Klin-Yar (North Caucasus): Excavations 1994-1996 in the Iron Age to early medieval cemetery (Archäologie in Eurasien. 36), Bonn; Habelt Verlag, 2018, pp. 49-96, 217-236, 241-244, 246-247, 255, 258-259, 262, 272, 278-279, 281-283, 289, 292-294, 297-299, 301, 308, 310-314, 316-317, 321-324, 334, 340, 357-359, 371, 376, 378, 382, 387, 392, 394, 399, 401, 403, 407, 409, 412, pl. 5.
44. Kazakov E.P., Щербетьский комплекс турбаслинско-именьковских памятников VI-VII вв. н.э. [Šerbet'skiy kompleks turbaslinsko-imen'kovskikh pamyatnikov VI-VII vv. n.e.]. In T.B. Nikitina (eds.) Археология евразийских степей [Arkheologiya evraziyskikh stepey], 1, Kazan, 2018, c. 200-210.
45. Stašenkov D.A., О ранней дате именьковской культуры [O ranney date imen'kovskoy kul'tury]. In L.N. Kuznečova (eds.) 40 лет Средневолжской археологической экспедиции [40 let Srednevolžskoy arkheologičeskoy ekspedičii], 15, Samara, 2010, c. 111-125.
46. Stašenkov D.A., Оседлое население Самарского лесостепного Поволжья в I-V вв. н.з. [Osedloe naselenie Samarskogo lesostepnogo Povolž'ya v I-V vv. n.e.], Moskva, 2005.

47. Valiev R.R., Новый памятник “Коминтерновского типа” именьковской культуры [Novyy pamyatnik 'Komin-ternovskogo tipa' imen'kovskoy kultury, *Археология Евразийских степей [Arkheologiya Evraziyskikh stepey],* 1, 2018, с. 211-226.
48. Starostin P.N., Khomutova L.S., Железообработка у племен именьковской культуры [Železoobrabotka u plemen imen’kovskoy kul'tury], Советская археология [Sovetskaya arkheologiya], 3, 1981, с. 208-217.
49. Morozov V.Yu., *Топография находок* Сасанидских драхм в Урало-Поволжском регионе [Topografiya nakhodok sasanidskikh drakhm v Uralo-Povolžskom regione]. In Краеведческие записки *СОИКМ им. П.В. Алабина* [Kraevedčeskie zapiski SOIKM im. P.V. Alabina], 12. Samara, 2005, с. 81-98.
50. Baranov V.S., Bugrov D.G., Sitdikov A.G., Музей Болгарской цивилизации. История тюрко-болгарской цивилизации [Muzei Bolgarskoy čivilizačii. Istoriya tyurko-bolgarskoy čivilizačii], t.2, Kazan, 2016.
51. Oblomsky A.M., *Торговый путь* из Причерноморья в Поочье в конце IV - VII в [Torgovy put' iz Pričernomor'ya v Pooč'e v konče 4 - 7 v.], Материалы по археологии, истории и этнографии Таврии [Materialy po arkheologii, istorii i etnografii Tavrii], 27, 2022, с. 113-138.
52. Higuchi T., Mizuno S., Kuwayama S., Chaqalaq tepe: fortified village in North Afghanistan excavated in 1964-1967, Kyoto, 1970.
53. Dyakonov M.M., Археологические работы в нижнем течении реки Кафирнигана (Кобадиан) (1950-1951 гг.) [Arkheologičeskie raboty v nižnem tečenii reki Kafirnigana (Kobadian) (1950-1951 gg.)], Материалы и исследования по *археологии* СССР [Materialy i issledovaniya po arkheologii SSSR], 37, 1953, с. 253-293.
54. Gardin J.C., *Céramiques de Bactres*. *Mémoires de la Délégation archéologique française* en Afghanistan, T. XV, Paris, 1957.
55. Berdimuradov A.E., Samibaev M.K., The Temple of Jartepa-II (The problems of cultural life of Sogdiana in the 4th-8th c. A.D.), Tashkent, 1999.
56. Tsurtsumia M., The Helmet from the Wawel Royal Castle Museum and its Place in the Evolution of Oriental Helmet, Acta Militaria Mediaevalia, VII, 2011, pp. 79-103.
57. Marshal J., Taxila. An illustrated account of archaeological excavations carried out at Taxila under the orders of the government of India between the years 1913 and 1934, Delhi-Patna-Varanasi, 1951.
58. Alexander D., The Arts of War. Arms and Armour of the 7th to 19th Centuries, The Nasser D. Khalili Collection of Islamic Art, 21, London, 1992.
59. Tofighian H., Nadooshan F., Mousavi S., Sasanians in the Persian Gulf According to Archaeological Data, Sasanika Archaeology, 4, 1-5 [http://www.sasanika.org/wp-content/uploads/sas-arch211.pdf access: 1.01.2020].
60. Tarabanov V.A., *Средневековый могильник* у аула *Казазово.* Историческая этнография [Srednevekovyy mogil’nik u aula Kazazovo. Istoričeskaya etnografiya]. In Chistov K.V., Its R.F., Gablo A.V., Sainov A.G., Tomilov M.A. (eds.) Традиции и современность (Межвузовский сборник) [Tradičii i sovremennost (Mseževuzovskiy sbornik)’], Leningrad, 1983, с. 148-155.
61. Komar O.V., История и археология древних мадьяр в эпоху миграции [Istoriya I arkheologiya drevnikh mad’yar v epokhu migračii], Budapest, 2018.
62. Fukai S., Horiuchi K., Taq-I Bustan II, plates, Tokyo, 1972.
63. Mielczarek M., Cataphracti and Clibanarii. Studies on the Heavy Armoured Cavalry of the Ancient World, Łódź, 1993.

64. Mode M., Art and Ideology at Taq-I Bustan: The Armoured Equestrian. In Mode M., Tubach J., Vashalomidze G. S. (eds.) Arms and Armour as Indicators of Cultural Transfer. The Steppes and the Ancient World from Hellenistic Times to the Early Middle Ages. Proceedings of the International Conference Held at Wittenberg, November 25-27, 2003, Wiesbaden, 2006, pp. 393-413.
65. Skupniewicz P.N., The bullae of the spahbedan. Iconographic remarks. In Maksymiuk K., Karamian G. (eds.) Crowns, hats, turbans and helmets. The headgear in Iranian history, Siedlce - Tehran, 2017, pp. 107-120.
66. Arwidsson G., Valsgärde acht, Uppsala-Stockholm, 1954.
67. Novičenkova M.V., Римська кольчуга Lorica Hamata I ст. до н.е. - I ст. н.е. з ритуального комплексу святилища біля перевалу Гурзуфське Сідло [Rims'ka kol'čuga Lorica Hamata I st. do n.e. - I st. n.e. z ritualnogo kompleksu svyatiliša bilya perevalu Gurzufs'ke Sidlo], Боспорские исследования [Bosporskie issledovaniya], XXV, 2011, c. 271-297.
68. Bogačev A.V., Древности кочевников гуннского и постгуннского времени (V - VI вв.) [Drevnosti kočevnikov gunnskogo i postgunnskogo vremeni (V-VI vv.)]. In Vasil'eva I.N., Matveeva G.I. (eds.) История Самарского Поволжья с древнейших времен до наших дней (Ранний железный век и средневековье) [Istoriya Samarskogo Povolž'ya s drevnejših vremen do naših dney (Ranniy železnyy vek i srednevekov'e)], Moskva, 2000, c. 135-154.
69. Litvinsky B.A., The Hephthalite Empire. In Litvinsky B.A. (eds.) History of civilizations of Central Asia, v. 3: The Crossroads of civilizations, A.D. 250 to 750, Paris, 1996, pp. 138-165.
70. Greatrex G., Lieu S., The Roman Eastern Frontier and the Persian Wars Part II AD 363–630, London, 2002.
71. Elton H., *Army and Battle in the Age of Justinian (527-65*). In Erdkamp P. (eds.) A Companion to the Roman Army, Oxford, 2007, pp. 532-550.
72. Maksymiuk K., Pogranicze persko-rzymskie w działaniach Husrowa I Anuszirwana (531-579), Siedlce, 2011.
73. Maksymiuk K., Działania militarne w Lazyce (541-556) - znaczenie Kaukazu w relacjach irańsko - bizantyjskich. In Zadunajski V., Dzidzojew W., Maslowa D. (eds.) Kavkaz-Przeszłość-Teraźniejszość-Przyszłość, 1, Rzeszów, 2015, c. 128-138.
74. Maksymiuk K., Geography of Roman-Iranian wars Military operations of Rome and Sasanian Iran, Siedlce, 2015.
75. Kolesnikov A.I., Сасанидский Иран. История и культура [Sasanidskiy Iran. Istoriya i kultura], St. Petersburg, 2012.
76. Werner J., Zur Herkunf der frühmittelalterlichen Spangenhelme, Praehistorische Zeitschrift, 34/35, 1949/1950, S. 178-193.
77. Vogt M., Spangenhelme. Bandenheim und verwandte typen, Mainz, 2008.
78. Biernacki A., Early Byzantine iron helmets from Novae, Byzas, 15, 2012, pp. 91-104.
79. Christiansen A., Le règne du rois Kawadh I et le communisme Mazdakite, Copenhagen, 1925.
80. Pigulevskaya N.V., К вопросу о податной реформе Хосроя Анушервана [K voprosu o podatnoy reforme Khosroya Anuševana], Вестник древней истории [Vestnik drevney istorii], 1, 1937, c. 143-154.
81. Altheim F., Stiehl R., Ein asiatischer Staat. Feudalismus unter den Sasaniden und ihren Nachbaren, vol. 1, Wiesbaden, 1954.

82. Rubin Z., The Reforms of Khusro Anushirwān. In Cameron A. (eds.). The Byzantine and Early Islamic Near East *III*. States Resources and Armies, Princeton, 1995, pp. 225-297.
83. Christiansen A., L'Iran sous les Sassanides, second edition, Copenhagen, 1944.
84. Gyselen R., The Four Generals of the Sasanian Empire: Some Sigillographic Evidence, Rome, 2001.
85. Gyselen R., La designation territoriale des quatre Spahbed des l'empire sasanide. D'après les sources primaires sigillographique, Studia Iranica, 30, 2001, pp. 137-141.
86. Gyselen R., Sasanian Bullae and Sealings in the A. Saeedi Collection, Leuven, 2007.
87. Składanek B., Historia Persji, T. 1, Warszawa, 2004.

Adam L. Kubik
University of Siedce
kubik.adam.wroc@gmail.com

ORCID: 0000-0002-3112-0043

Oleg A. Radyuš
Russian Academy of Sciences
radjush@mail.ru

ORCID: 0000-0003-0311-7389

Leonid A. Vyazov
University of Ostrava; Centre for Baltic and Scandinavian Archaeology - ZBSA, Schleswig
L.A.Vyazov@gmail.com

ORCID: 0000-0002-2074-9276

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Fig. 1 **Fig. 2**

Fig. 3

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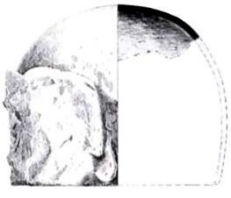


Fig. 15

Fig. 16

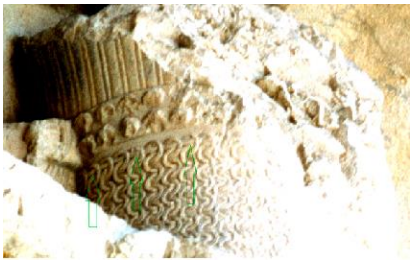
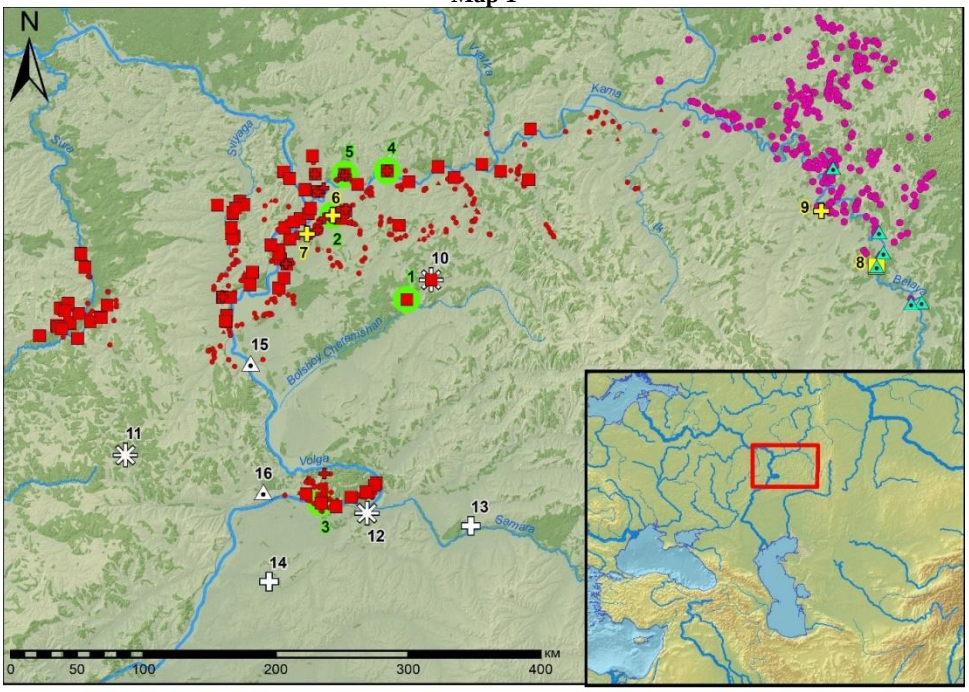


Fig. 17

Map 1



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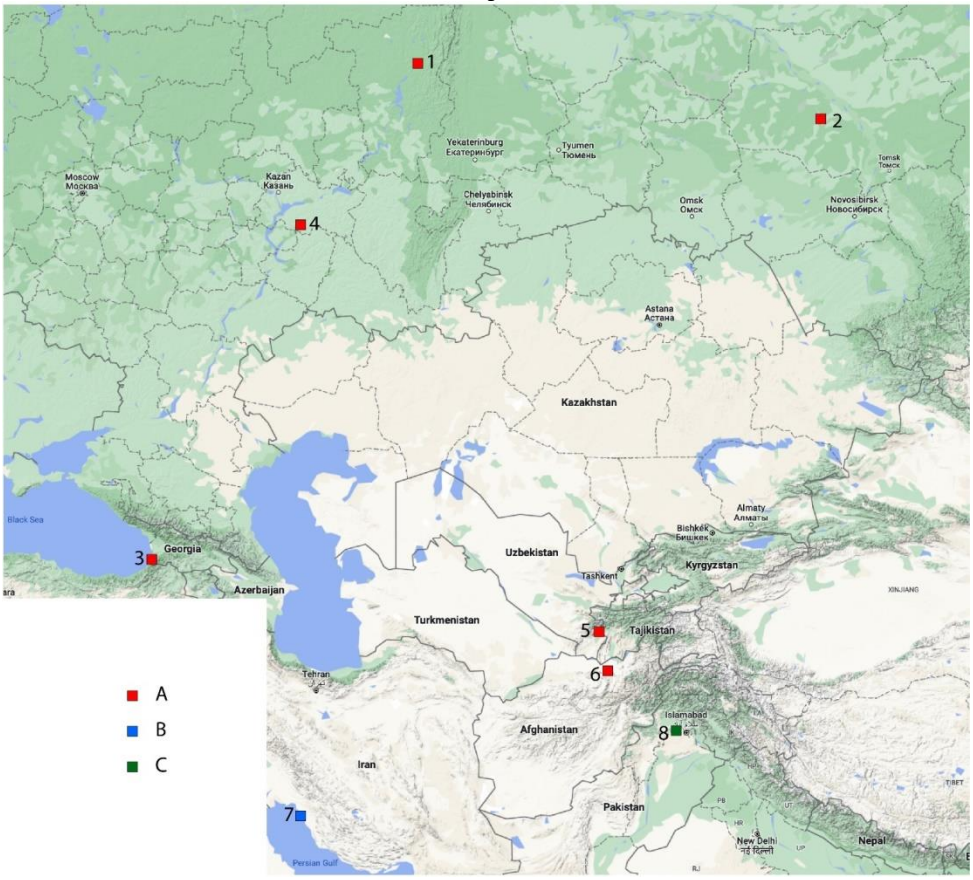

VI ԴԱՐԻ ԱՍԻԱԿԱՆ ԱՄԲՈՂՋԱԿԱՆ ԵՐԿԱԹԵ ՍԱՂԱՎԱՐՏՆԵՐԻ ՄԻ ՇԱՐՔԻ ՄԱՍԻՆ

Ադամ Լ. Կուբիկ, Օլեգ Ա. Ռադյուշ, Լեոնիդ Ա. Վյազով

Բանալի բառեր՝ սաղավարտ, սպառազինություն, Խոսրով I Անուշիրվան, Սասանյան պետություն, գտածո, Կովկաս:

Հոդվածում նկարագրվում է սաղավարտների մի տեսակ, որը հավանաբար տարածվել է Ասիայում և Արևելյան Եվրոպայում VI դարի կեսերից մինչև դարի երկրորդ կեսը ընկած ժամանակահատվածում: Այդ սաղավարտները բնութագրվում են առանձնահատուկ կառուցվածքով. նրանք պատրաստված են երկաթե մեկ ամբողջական թասանման կտորից, որի ստորին մասում կա լրացուցիչ կապ, որը ամրակցված է սաղավարտի ներսի կամ դրսի եզրին: Բացի

այդ, սաղավարտի ստորին մասում ամրացվել է օձիքանման օղազրահ: Կցված օղազրահը ապահովում է լրացուցիչ պաշտպանություն սաղավարտի ամբողջ շրջագծով մեկ, ներառյալ՝ ճակատամասի:

Սաղավարտների այս հատկանիշը բավականին երկար ժամանակ հանրաճանաչ չէր եվրոպական սպառազինության մեջ և Կենտրոնական և Արևելյան Եվրոպայում տարածվեց միայն XVI դարում: Հոդվածում քննարկման առարկա է դարձել նաև սաղավարտների այդ տեսակի իրանական ծագման մասին վարկածը, ինչպես նաև առաջ են քաշվում տեսություններ Արևելյան Եվրոպայում և Ասիայում այդ սաղավարտների տարածման հնարավոր պատճառների մասին: