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Medieval lamellar armour plate from the Penjikent. A contribution to the study of Mongol armour

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Abstract: *This article analyses the lamellae discovered in the Tajik village of Kuktoš in the territory of the mediaeval part of the city of Penjikent, published by F.Š. Aminov in Petersburg in 2017 and currently held in archives of the Historical Museum of Ancient Penjikent. This item, which dates to the pre-Mongol, most likely Karakhanid, period, provides an opportunity to look again on some already published finds of lamellar plates from Central Asia. It gives a chance to look again on the problem of the armour used by Mongols during their conquest of Asia and Eastern Europe.*

Key words: lamellae, armour, Penjikent, Sogdiana, Central Asia

On the territory of the mediaeval city of Penjikent (current Tajik village of Kuktoš, rus. Куктош, eastern part of the Penjikent), during groundwork carried out during the building of a housing estate, a significant number of material objects of the pre-Mongolian period have been discovered. In 2016, as part of the work of the Penjikent Archaeological Expedition, the study of the traces of the exposed Samanid and Karakhanid period part of the Penjikent has been provided. It should be noted that based on F.Š. Aminov's report, the construction works at the site were completed upon the archaeological expedition's arrival¹. Within the Kuktoš site, there have been discovered two new archaeological sites with interesting objects collected by the expedition of 2016. Both are located close to the Kuktoš site; namely site E, located to the west of Kuktoš where some fragments of interesting ceramics has been collected, and site D located even further west from it².

Among the one group of Kuktoš site objects numbered by F.Š. Aminov as Кш III. Бадраб No 587, published in 2017 in Petersburg, we can find fragments of glass objects, including a large glass bowl, iron knives, a bronze weight, bronze bell,

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¹ AMINOV 2017: 31.

² AMINOV 2017: 31.

bronze ornamented pendant, as well as an iron object firmly identified as an iron belt strap [Fig. 1]³. Those items, based on the soil, ceramics and other elements discovered there which can be dated to the 11th-12th century CE, and a find of a coin of the Karakhanid Khanate ruler Nasr ibn Ilek Khan minted at Samarkand at 1009-1010, clearly indicate a pre-Mongol period of the plate⁴. Based on information the current author could get from P.B. Lurje, there have been problems with the belt strap identification which was identified as a belt buckle or door butt. In 2017, courtesy of F.Š. Aminov, the current author could look closer on the mentioned find and would like to propose another identification of that piece which will shed some light not just on the Kuktoš site objects, but could be useful in the large ongoing discussion of Mongol period arms and armour evolution.

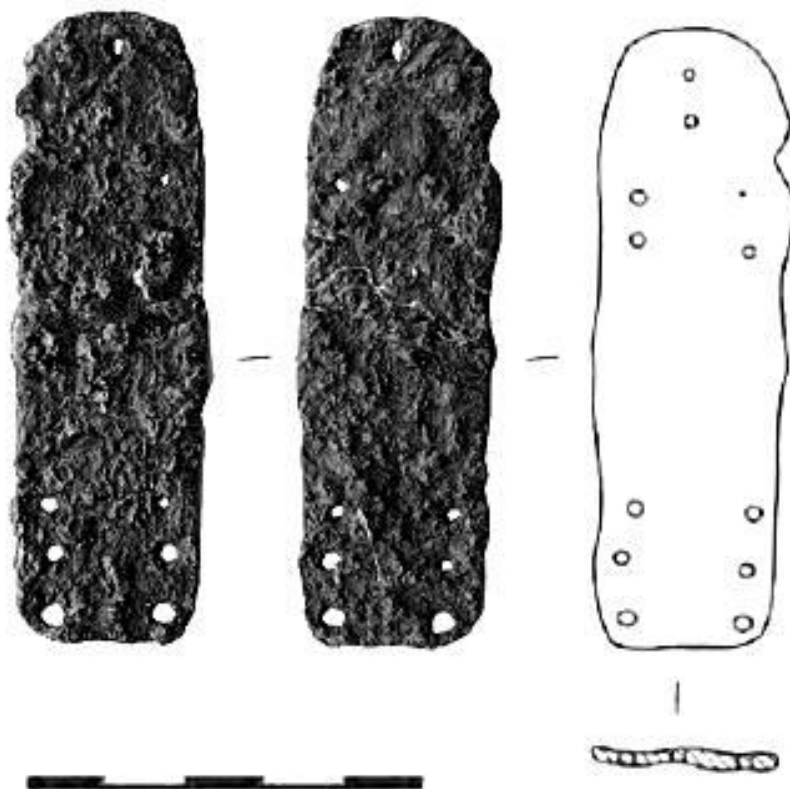


Fig. 1. Photo of the Kuktoš lamellae: front and back side, drawing of possible lacing system based on F.Š. Aminov's observation. Photos and drawings: F.Š. Aminov

³ AMINOV 2017: 205-207, il. 160-162.

⁴ AMINOV 2017: 37-38.

The heavily rusted item, a plate, is made of a flat piece of iron with clearly visible holes placed at the edges. It is rectangular in shape with an arched upper edge and clearly visible flat bottom edge, and the four corners on the edges of the plate are clearly rounded. It seems to be a little wider in the middle and narrower to the upper and bottom edges. The plate in the middle is nearly broken, which can be clearly observed on fig. 1. It is 7,8 cm long, 3,0 cm wide in the middle, and about 1,0-1,5 mm thick, with a hole diameter of about 1,5 mm. Still it is hard to tell exact measurements without proper conservation process. The iron plate form, as well as clearly visible holes, leave no space for speculation; we are clearly dealing here with a lame, and based on the shape and lacing system, most likely part of a body armour. It is currently held in the local Historical Museum of Ancient Penjikent (rus. Историко-культурный музей-заповедник древнего Пенджикента) in Tajikistan.

After closer study of the object, we can tell that there are groups of holes, clearly visible on the surface. We can group them in three groups (yet current author, without proper conservation, based on the known lamellae from similar period, cannot exclude that there could be a middle central hole which is currently hard to identify because of corrosion). The first group consists of six holes which were placed in two vertically aligned groups of three holes on the sides of the bottom edge of the lame. These holes were used to tie similar lamellae in rigid strips of plates and (what can't be excluded) to connect such strips with a next bottom strip of lamellar plates. The middle group consists of four holes aligned in two vertical groups of two holes and placed on the sides of the upper part of the lame, approximately three-fourths of the way up. These were used just to tie similar plates in a rigid strip. The third vertical group consists of two holes placed in the middle of the upper part of the plate. Those holes were used to connect each row of lamellar plates with an upper row. However, there are examples of such plates known to the author, where exactly the same form of the lacing system can be observed (with a lack of middle hole), discovered among plates with an extra middle hole⁵. There are of course two explanations of this matter. Firstly, we can tell that sometimes some lamellar holes are simply rusted to such a level that some holes are hard to identify without proper conservation or X-ray analysis. Secondly, there are sometimes some differences in visible lacing systems or even lamellar shapes in one set of armour, as some of the lamellar plates are simply used on the armour's edges and are fitted to functional purpose. It is quite often visible when those lamellae were used as a part of a very last row, which means that there weren't any strips placed beneath those lames. In that case, in this particular type, there was no need to make any extra hole in the middle of a lame, as in this particular form of lamellar lacing system, the middle hole (one hole placed in a very middle of the plate) was used to thread a long leather strap which was passing through the vertical group of two holes placed in the middle of the upper part of the lamellar

⁵ BELORYBKIN, GUSYNIN, IZMAYLOV 2020: ris. 93.

plate placed beneath and above it. This system made the armour flexible in a very similar way as, for example, the classical Roman armour called *lorica segmentata*⁶. In this lacing system form, both side groups were used solely to tie similar plates in a rigid strip. In fact, the two very bottom holes were used not just to tie the line of plates, but also to cover the bottom edge of the strip with a leather edging.

It should be noted that the lacing system is an important feature of lamellar plates, which gives a chance to date lamellae and to connect them with some specific cultural background⁷. Some similar plates to those of Kuktoš spread in Central Asia and Eastern Europe and are known, for example, from the finds of the south Siberian Khakass-Minusinsk Hollow (rus. Минусинская котловина or rus. Хакасско-Минусинская котловина), which dates to the pre-Mongol period⁸. Exactly the same lamellar type by the size and lacing system was discovered at Zolotarevskoe settlement (rus. Золотаревское поселение) and became part of a new typology proposed by G.N. Belorybkin, V.A. Gusynin and I.L. Izmailov in 2020, namely type IV of a 10th-mid 13th century CE lamellae typology of the south-western Volga–Kama Bulghar territory⁹.

The Kuktoš plate, based on its pre-Mongol period datation, gives an opportunity to look in a different way on some published lamellae. In 2002 M.V. Gorelik in his stunning work on Mongol arms and armour has published two plates discovered in Samarkand, and dated those objects to the 13th-14th century CE. He also notes those objects as part of a Mongol armour¹⁰. We need to state that the lamellar plates noted as nr. 7¹¹ share a clear correlation with the Kuktoš plate. Even if those plates came from the Mongol invasion period, based on the Kuktoš plate's datation and our current knowledge, we can tell that we are most likely dealing with a local Central Asian armour tradition which clearly precedes the Mongol invasion. The other ones noted as nr. 6 are even more interesting; they were first published by G.V. Šiškina in 1975¹². It is a long rectangular form, about 7,6 cm long and less than 2 cm wide. In the lower part of the plate we can observe a group of six holes in the form known from the Kuktoš lamellar. Yet the upper lacing system seems to be an exact copy of the bottom one; there is a group of six holes placed in two vertical groups of three. We can observe some differences between the crude drawings of M.V. Gorelik and the plates published by G.V. Šiškina. It seems likely that M.V. Gorelik has simplified the drawing of those plates, as the Samarkand lamellar published by G.V. Šiškina had a two-arch cut in the upper part of the plate.

⁶ See for example BISHOP 2002.

⁷ KUBIK 2016: 80-82, 93-98.

⁸ KHUDYAKOV 1980: 119-120; ŚWIĘTOSŁAWSKI 1996: 88.

⁹ BELORYBKIN, GUSYNIN, IZMAYLOV 2020: 51-52, ris. 25.

¹⁰ GORELIK 2002: 68.

¹¹ GORELIK 2002: 68, nr 7.

¹² SHISHKINA 1975: 38, ris. 7, the author would like to thank to Ū.A. Kulešov for a very productive conversation on that topic.

This feature makes those pieces unique in their primary appearance. Yet, based on Šiškina's paper we cannot provide any clear datation of those objects. Of course, we cannot exclude the datation proposed by M. V. Gorelik, yet we need to acknowledge that his proposal was not based on analysis of the archaeological context. Based on the unique form of these plates, we can state that some further study of these objects is needed.

As it was previously noted, the Kuktoš lame shares some common characteristics with lamellar armour pieces from the Volga Bulghar Zolotarevskoe settlement, where in 2010 ninety-five plates grouped together had been discovered¹³. The Zolotarevskoe settlement was burned during the siege by a Mongol army which occurred in 1237¹⁴. V.A. Gusynin has grouped the lamellar plates found there in four types¹⁵. In his type II group 1, we can observe plates with nearly the same form by their shape and lacing system as the Kuktoš lamellae. This type later becomes the type IV in mentioned typology of lamellar plates discovered on the south-western Volga-Kama Bulghar territory. The only difference comes from the extra middle hole [see Fig. 2].



Fig. 2. Example of the plates discovered together at Zolotarevskoe settlement, currently held in Museum of Zolotarevskoe hillfort (rus. Музей Золотаревского городища) placed in Zolotaryevka village (rus. Золотарёвка). From the left: pair of the lamellar plates of one, predominant type with clearly visible additional hole in a middle of the plate; pair of lamellar plates of the same type without visible middle hole, size, shape and other features are exactly the same; pair of lamellar plates of Kuktoš type with clearly visible middle hole (all photos no scale). Photos courtesy V.A. Gusynin

However, among other plates discovered on the Zolotarevskoe settlement territory, we can find those presented on the figure 2. In some cases, plates of exactly the same type, size, and form discovered together have no clearly visible middle hole.

¹³ GUSYNIN 2011: 206.

¹⁴ BELORYBKIN 2001: 181-182.

¹⁵ GUSYNIN 2011: 206-209.

It is hard to tell if those plates were used on the very last row of lamellar, or simply need some more conservation work to expose a currently rusted middle hole. Still, we can state that the lack of one hole, especially the one used as a lacing system in a bottom row of plates, cannot indicate a different type of lamellar.

The Volga Bulghar Zolotarevskoe settlement finds are unique in many ways. We are dealing here with a clear battlefield, where many arms and armour pieces dating to the first half of the 13th century CE were discovered over a large area around and inside of the Zolotarevskoe hillfort. This includes different sets of lamellar armour¹⁶. However, most interesting are those mentioned ninety-five lamellae (it should be noted that based on V.A. Gusynin's information, there are far more lames but heavily fragmented) which were found together in one place. Those plates which were firstly published by V.A. Gusynin represent several types. This includes the ones clearly related with the Mongol invasion period [Fig. 3]. Namely type Type 1 group 1 by V.A. Gusynin¹⁷ or later type IX by G.N. Belorybkin, V.A. Gusynin and I.L. Izmailov¹⁸. Similar forms of lamellar plates are one of the most frequent types of lamellae known from the Jušen settlements discovered on the current Primorsky Krai territory (rus. Приморский край), Russian Federation, where this type clearly predates the Mongols' final conquest of the Dōng Xià territory. These represents type I and type I subtype 1 of S.D. Prokopeč's Dōng Xià lamellar classification¹⁹ and are the most popular form which spread in the Jīn cháo period²⁰. Such lamellae were used nearly unchanged in form in north eastern Asia for a long period²¹. Such lames are known, for example, from the Jīn cháo dynasty period Krasnoyarskoe (rus. Красноярское городище)²², Šajginskoe (rus. Шайгинское городище)²³ or Gusevskoe (rus. Гусевское городище)²⁴ hillforts located on current Primorsky Krai territory. We can clearly state that type I of S.D. Prokopeč's Dōng Xià lamellar classification is not of Mongol origin. It should be noted that even M.V. Gorelik states that Mongol armour had roots in pre-Mongol northern Asiatic nomadic armours used by the Qidān people,²⁵ including the mentioned lamellar type²⁶. The Mongols are likely to be responsible for the spread of northern Chinese technological solutions. N.G. Artem'eva would like to connect eastern European finds, including the Zolotarevskoe settlement lamellae, with Jušen warriors which become a part of the Mongol army after

¹⁶ BELORYBKIN 2001: ris. 80-81.

¹⁷ GUSYNIN 2011: 206.

¹⁸ BELORYBKIN, GUSYNIN, IZMAYLOV 2020: ris. 25.

¹⁹ PROKOPECH 2009: 126-127, ris. 1, 2014: ris.23.

²⁰ PROKOPECH 2009: 130.

²¹ BOBROV, KHUDYAKOV 2003: tab.13.

²² ARTEM'YEVA 1999: ris.2, 2013: ris.3-7.

²³ GORELIK 1987: ris. 3.11.

²⁴ YEVMEYEV 2014: ris.7.

²⁵ GORELIK 1987: 163-164.

²⁶ GORELIK 1987: ris. 3.11.

the Mongol invasion of northern Chinese territory²⁷. However, we need to be aware that we are not dealing here with some margin examples of the Jušen technological innovations. In 2012 Ū.A. Kulešov started his series of publications on one type of Jīn cháo dynasty helmets²⁸ which spread over the territory of eastern Europe²⁹. Those hemispherical helmets consisted of a single part or segmented form of the bowl, and a two-piece lower band, where the forehead part of the lower band is quite often decorated with mascaron decoration with two very characteristic, massive, slanting eyes. This decoration sometimes spread onto the helmet's peak, like for example on the helmet from E. Gredunov's collection³⁰. It should be noted that this form of helmet spread even further east and clearly influenced some types of mediaeval Japanese helmets³¹. Based on archaeological finds from central Mongolia, L.A. Bobrov first proposed that during the Mongol conquest of Northern China, Mongols captured Jīn cháo dynasty arsenals and used helmets produced by Jušen craftsmen³². Bobrov's theory can be clearly used to explain the Zolotarevskoe settlement lamellar phenomenon and, lead us to some academic discussion on Mongol arms and armour development. Since 1979, M.V. Gorelik has developed his theory where the Mongols were shown as innovators in arms and armour technology, and they did invent groups of arms and armour characteristics which can be used as post-Mongol period indicators. Further, Mongol inventions become a core of Central Asiatic arms and armour development³³. His thesis was heavily criticized by Ū.A. Kulešov. Based on archaeological finds and written Chinese, Islamic and European sources, Ū.A. Kulešov showed that during the Great Conquest period, Mongols suffered from a deficiency of iron for armaments production³⁴. The great conquest of the Jīn cháo dynasty and Central Asian territories gave them access to mass weapons production. What's more, based on written sources, we know that conquered territories were obligated to deliver a certain amount of arms and armour³⁵.

²⁷ ARTEM'YEVA 2013: 125.

²⁸ BOBROV 2007.

²⁹ KULESHOV, GUSYNIN 2012; KULESHOV 2017; 2018.

³⁰ KULESHOV 2008: ris.3.

³¹ BOBROV 2007: 277.

³² BOBROV 2007: 279-281.

³³ GORELIK 1979; 1983; 1987; 2002; 2011.

³⁴ KULESHOV 2010; 2012.

³⁵ KULESHOV 2010: 83.

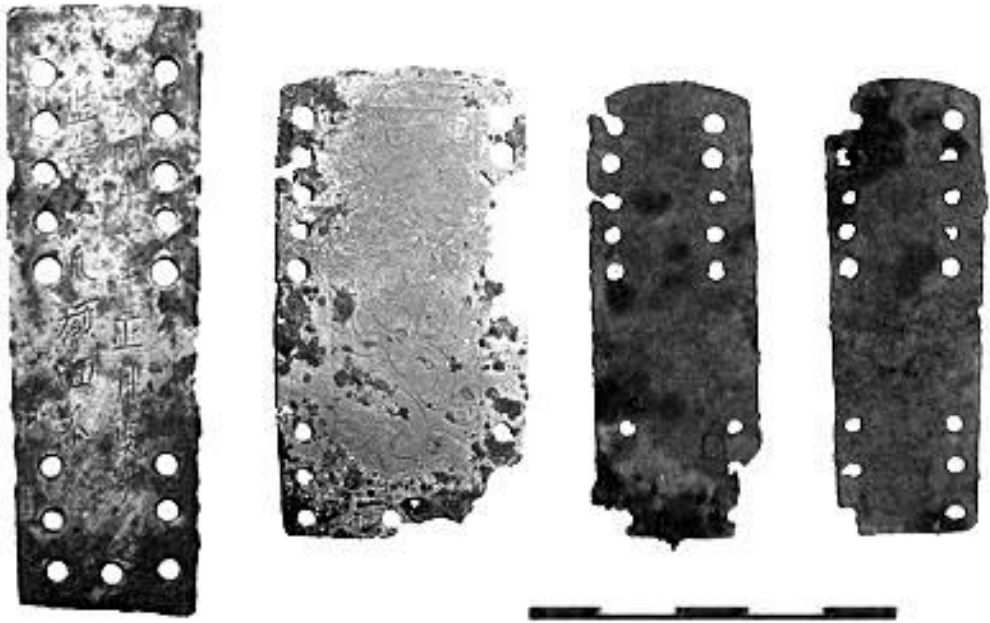


Fig. 3. Jušen type lamellae. From the left: Jīn cháo dynasty period Krasnoyarskoe hillfort find, date by inscription to the 1234, Primorsky Krai territory, after: ПИРОКОПЕЧ 2014: 25, ris. 3; decorate lamellae of the same type from Zolotarevskoe hillfort, date to the Mongol invasion period 1237, currently held in Museum of Zolotarevskoe hillfort, photo courtesy V.A. Gusynin; two more plates from Zolotarevskoe hillfort of the type I of S.D. Prokopeč Dōng Xià lamellae classification, currently held in Museum of Zolotarevskoe hillfort, photo courtesy V.A. Gusynin

There is still the unanswered question of lamellar plates of the Kuktoš type found together with a type clearly brought with the Mongol conquerors of the Zolotarevskoe hillfort. Is it possible that Central Asian lames were brought together with far Asiatic plates. Is there a chance that we are dealing here with some kind of hybrid armour, where some Central Asian parts were added later to the ones produced in Northern China? It should be noted that V.A. Gusynin clearly identifies all 95 Zolotarevskoe lamellae as part of one armour³⁶. In the current author's oral conversation V.A. Gusynin, the author notes that he is pretty sure of his thesis and he was present during the excavation of those objects, so there can be no doubt about a mistake: all of those forms were found together. During the discussion with the current author, Ū.A. Kulešov clearly disagreed with this thesis. He stated that we are dealing with a battle field, where bodies of fallen soldiers could easily be mixed, were placed close to each other or even one on another, and even during the process of removal of the dead bodies from the field some parts of armours could fall in the same place. We cannot even clearly state if the Kuktoš type lamellae found on Zolotarevskoe

³⁶ GUSYNIN 2011: 209.

battle field belonged to a conqueror or to a defender, as this form of armour clearly pre-dates the Mongol invasion. However, the current author believes that V.A. Gusynin's theory could be right. We need to note that this type of lamellar was known to the Dōng Xià craftsmen before the Mongol conquest of this territory, which become the type II subtype 1b of Prokopeč's classification³⁷. This clearly shows us some pre-Mongol connection in armour development in pre-Mongol Asia. The usage of all types of Zolotarevskoe lamellae in far Asia suggests that the whole cuirass could belong to a Mongol conqueror, and the armour as a whole could have been produced by Jušen craftsmen, without any mixture of Central Asian plates. However, all other options cannot be excluded.

What we can tell for sure is that based on our current knowledge, the Kuktoš type lamellar is of Central Asiatic origin. This type was established around the 11th century CE and later spread in Asia and eastern Europe. On Jušen territories it was used before the Mongol conquest, and this type cannot be used as an indicator of the post-Mongol invasion period, even if based on our current knowledge Mongols truly used such forms of lamellar plates.

Bibliography

- AMINOV F. SH. (2017), 'Otchet ob issledovaniyakh domongol'skikh sloyev v Kuktoshe v 2016 godu', in *Materialy Pendzhikentskoy arkheologicheskoy ekspeditsii. Vypusk XXI*, ed. P.B. LUR'Ye, St. Petersburg, 31-38 (in Russian)
- ARTEM'YEVA N.G. (1999), 'Predmety zashchitnogo vooruzheniya s Krasnoyarovskogo gorodishcha,' *Vestnik Dal'nevostochnogo otdeleniya Rossiyskoy akademii nauk* 5, 36-41. (in Russian)
- ARTEM'YEVA N.G. (2013), 'Chzhurchzhen'skiy pantsir' tipa korset-kirasa iz Krasnoyarovskogo gorodishcha (Primorskiy kray)', *Vestnik Dal'nevostochnogo otdeleniya Rossiyskoy akademii nauk* 1, 125-130. (in Russian)
- BELORYBKIN G.N. (2001), *Zolotarevskoye poseleniye*, Penza. (in Russian)
- BELORYBKIN G.N., GUSYNIN V.A., IZMAYLOV I.L. (2020), *Vooruzheniye naseleniya yugo-zapadnoy Bulgarii (X – seredina XIII veka)*, Kazan. (in Russian)
- BISHOP M.V. (2002), *Lorica Segmentata Volume I: A Handbook of Articulated Roman Plate Armour*, Braemar.
- BOBROV L.A. (2007), 'Shlemy „tszin'skogo“ tipa: konstruktivnyye osobennosti i voprosy evolyutsii', in *Istoriya i kul'tura Ulusa Dzhuchi 2006. Bertol'd Shpuler «Zolotoy Orda»: traditsii izucheniye i sovremennost*, eds. I.A. GILYAZOVA, I.L. IZMAYLOVA, Kazan, 267-287. (in Russian)
- BOBROV L.A., KHUDYAKOV Yu.S. (2003), 'Evolutsiya zashchitnogo vooruzheniya chzhurchzheney i man'chzhurov v periody razvitogo i pozdnego Srednevekov'ya i Novogo vremeni', in *Arkheologiya*

³⁷ PROKOPECH 2009: 127-128, ris. 1; 2014: ris. 23.

- Yuzhnoy Sibiri i Tsentral'noy Azii epokhi pozdnego Srednevekov'ya, eds. YU.S. KHUDYAKOV, S.G. SKOBELEV, Novosibirsk, 66-212. (in Russian)
- GORELIK M.V. (1979), 'Srednevekovyy mongol'skiy dospek', in *Tretiy mezhdunarodnyy kongress mongolovedov, T. I*, Ulaanbaatar, 90-101. (in Russian)
- GORELIK M.V. (1983), 'Mongolo-tatarskoye oboronitel'noye vooruzheniye vtoroy poloviny XIV – nachala XV v.', in *Kulikovskaya bitva v istorii nashey Rodiny (materialy yubileynoy nauchnoy konferentsii)*, ed. B.A. RYBAKOV, Moskva, 244-269. (in Russian)
- GORELIK M.V. (1987), 'Ranniy mongol'skiy dospek (IX – pervaya polovina XIV v.)', in *Arkheologiya, etnografiya i antropologiya Mongolii*, ed. A.P. DEREVYANKO, Novosibirsk, 163-208. (in Russian)
- GORELIK M.V. (2002), *Armii mongolo-tatar X–XIV vv. Voinskoye iskusstvo, oruzhiye, snaryazheniye*, Moskva. (in Russian)
- GORELIK M.V. (2011), 'Mongol'skaya latnaya konnitsa i yeyo sud'by v istoricheskoy perspektive', in *Voyennoye delo Zolotoy Ordyy: problemy i perspektivy izucheniya. Materialy Kruglogo stola, provedennogo v ramkakh Mezhdunarodnogo Zolotoordynskogo Foruma (Kazan', 30 marta 2011 g.)*, ed. I.M. MIRGALEYEV, Kazan, 47-58. (in Russian)
- GUSYNIN V.A. (2011) 'Dal'nevostochnyy kompleks dospelnykh plastin iz Zolotarevskogo poseleniya', in *Vestnik voyenno-istoricheskikh issledovaniy: Mezhdunarodnyy sbornik nauchnykh trudov*, ed. S.V. BELOUSOVA, Penza, 206-210. (in Russian)
- KHUDYAKOV Yu.S. (1980), *Vooruzheniye yeniseyskikh kyrgyzov v VI-XII vv.*, Moskva. (in Russian)
- KUBIK A.L. (2016), 'Introduction to studies on late Sasanian protective armour. The Yarysh-Mardy helmet', *Historia i Świat* 5, 77-105.
- KULESHOV Yu.A. (2010), 'Proizvodstvo i import oruzhiya kak puti formirovaniya zolotoordynskogo kompleksa vooruzheniy', *Zolotoordynskaya tsivilizatsiya* 3, 73-97. (in Russian)
- KULESHOV Yu.A. (2012), '«Mongol'skaya latnaya konnitsa» – istoricheskaya real'nost' ili nauchnaya spekulyatsiya?', *Zolotoordynskaya tsivilizatsiya* 5, 153-180. (in Russian)
- KULESHOV Yu.A. (2017), 'Ob odnoy serii rannikh zolotoordynskikh shlemov iz muzeynykh kollektsiy Ukrainy i Bolgarii', in *Sbornik v chest na 60 godini prof. d.i.n. Georgi Atanasov*, ed. V. YOTOV, Dobrudja, 537-558. (in Russian)
- KULESHOV Yu.A. (2018), 'Novaya nakhodka shlema «tszin'skogo» tipa v Vostochnoy Evrope', in *Voenni ekspeditsii, vŭorŭzhenie i snaryazhenie (antichnost i srednevekovie)*, ed. V. İOTOV, Varna, 53-62. (in Russian)
- KULESHOV Yu.A., GUSYNIN V.A. (2012), 'Nakhodki shlemov «tszin'skogo tipa» s territorii Vostochnoy Yevropy', in *Voyennoye delo v Aziatsko-Tikhookeanskom regione s drevneyshikh vremen do nachala XX v. Vyp. 2*, Vladivostok, 33-50. (in Russian)
- PROKOPECH S.D. (2009), 'Rekonstruktsiya sposoba krepleniya pantsirnykh plastin v dospeke chzhurchzhen'skogo voyna', *Vestnik Dal'nevostochnogo otdeleniya Rossiyskoy akademii nauk* 1, 125-131. (in Russian)
- PROKOPECH S.D. (2014), 'Zashchitnoye vooruzheniye chzhurchzheney', *Oykumena. Regionovedcheskiye issledovaniya* 1, 22-30. (in Russian)
- SHISHKINA G.V. (1975), 'Bukharskiye vorota srednevekovogo Samarkanda', *Afrasiab* 4, 23-41. (in Russian)
- ŚWIĘTOSŁAWSKI W. (1996), *Uzbrojenie koczownikŃ Wielkiego Stepu w czasach ekspansji MongołŃ (XII-XIV w.)*, Lodz.
- YEVMENYEV A.A. (2014), *Amurskiye chzhurchzheni. Zolotaya imperiya*, Novosibirsk. (in Russian)