

№0.15 (2019)

ARHEOLOGIJA I PRIRODNE NAUK E ARCHAEOLOGY & SCIENC E



ARHEOLOGIJA I
PRIRODNE NAUKE

ARCHAEOLOGY
AND SCIENCE

Center for New Technology
Institute of Archaeology Belgrade

ARCHAEOLOGY
AND SCIENCE
15
2019

Belgrade 2019

Centar za nove tehnologije
Arheološki institut Beograd

ARHEOLOGIJA I
PRIRODNE NAUKE
15
2019

Beograd 2019.

Published:
Center for New Technology Viminacium
Institute of Archaeology Belgrade
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11000 Belgrade, Serbia
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Print:
Digital Art Company Beograd

Printed in:
500 copies

ISSN 1452-7448

Izdavači:
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Nemanja Mrđić

Štampa:
Digital Art Company Beograd

Tiraž:
500 primeraka

ISSN 1452-7448

Korice:

Prednja strana: Kompozicija sa ženskom figurom i stubovima, savremena fotografija ambijenta arheološkog parka Viminacijum (fotografija Nemanja Mrđić)

Zadnja strana: "Kompozicija sa ženskom figurom i stubovima", slika Milene Pavlović Barilli (Galerija Milene Pavlović Barilli)

Book cover:

Front cover: Subconscious mutual connection of the archetypes and unconscious acts, both well known in surrealism and recognized in the painting "Composition with a Female Figure and Columns" can be also noticed in the ambient of the contemporary building in Viminacium Archaeological Park (photo by Nemanja Mrđić).

Back cover: Milena Pavlović Barilli: "Composition with a Female Figure and Columns", 1933 (reproduction from the Milena Pavlović Barilli Gallery).

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UDC 904:359"652"(38)

Original research article

Received: 1st November 2019Accepted: 15th November 2019

COULD A TRIREME TRANSPORTS WAR HORSES: THE MISUNDERSTANDING BEHIND THE INTERPRETATION OF THE ANCIENT GREEK TERM ἵππαγωγὰ “HIPPAOGOGA”.

ABSTRACT

Many scholars argue that the type of ancient Greek ship ἵππαγωγόν ‘hippagogon’ (plur. ἵππαγωγὰ ‘hippagoga’), during the Classic period, was nothing more than the result of a modified old trireme and that any effort to determine the design of this specific type of vessel has been based solely on this conclusion. However, even if convertible, could a trireme have transported horses? Where is such a testimony written in ancient texts and how could translation possibly disorient a researcher?

This paper attempts to shed new light on all the above mentioned potential issues.

KEYWORDS: ANCIENT GREEK SHIPS, HORSE TRANSPORTATION BY SEA, HIPPAOGOGON, “ἵππαγωγόν”.

THE NECESSITY FOR BUILDING A NEW CLASS OF SHIP FOR TRANSFERRING WAR HORSES

The transport of just riders and cavalry was one of the most important operational necessities of the landing operations of the ancient Greeks. The construction of ‘hippagogon’¹ was a substantial technological development in the shipbuilding of the day and was developed according to the requirements of the military conflicts of the time. However, due to limited use and the fact that the operation of the ‘hippagogon’ vessels presented technological difficulties, several problems arose at the tactical level.

The ‘ἵππαγωγόν’ during the Classic and Hellenistic period could not disembark armoured equestrian units ready to enter into battle. She was only able to carry individual groups of riders or

an extremely limited number of war horses. This limitation removed from the attacker, inter alia, the possibility of mounting a surprise attack on the battlefield. Generally, the ‘hippagogon’ causes great interest both because it is related to the difficult task of transporting war horses and secondly because there is a great lack of sufficient details concerning its construction and operation.

THE FIRST WRITTEN REFERENCES OF THE TERM

The first written mention of the term ἵππαγωγὰ “hippagoga” comes from Herodotus. In his sixth book we read about a programme of the construction of naval ships that included ‘hippagoga’. That programme was ordered by the king of Persia, Darius, to the Greek City States, which were tributaries of the Persian Empire (Herodotus: 6, 48).

The same type of ship is again mentioned with

¹ ἵππαγωγό derives from the ancient Greek words: ἵππος (horse) + ἄγω (to conduct, to drive). Also ἵππηγός or ἵππηγός (Stamatakis, 1999: p. 471, Ioannidou, 2014: 94).



Fig. 1 Could a trireme transports war horses; humorous collage-photo from Christy E. Ioannidou.

regard the campaign against Greece led by Xerxes, but unfortunately with no additional information:

[Besides the triremes, there was an assemblage of thirty-oared and fifty-oared galleys, of *cercuri*, and transports for conveying horses, amounting in all to three thousand].

«...τριηκόντεροι δὲ καὶ πεντηκόντεροι καὶ κέρκουροι καὶ ἵππαγωγὰ πλοῖα μακρὰ συνελθόντα ἐς τὸν ἀριθμὸν ἐφάνη τρισχίλια. » (Herodotus: 7, 97).

Later, during the Peloponnesian War (431 BC-404 BC), the *ἵππαγωγὰ* were mentioned again, about which Thucydides mentions it was first built in Greece at that time.

[...and three hundred cavalry in horse transports, and then for the first time made out of old galleys;]

«καὶ ἵππεας τριακοσίους ἐν ναυσὶν ἵππαγωγαῖς πρῶτον τότε ἐκ τῶν παλαιῶν νεῶν ποιηθείσαις»

(Thucydides: 2, 56).

During the Sicilian expedition (415-413 BC), Athens sent the Athenian fleet to Syracuse originally with a “hippagogo”, carrying 30 riders:

[...and one horse-transport carrying thirty riders.].

«...καὶ ἵππαγωγῶ μιᾷ τριάκοντα ἀγούσῃ ἵππεας» (Thucydides: 6, 43).

APPROACHING THE TEXTS

When studying the first text of Thucydides (2, 56), it is quite obvious that there is no mention of a modified trireme or, generally, of any warship. As many people are aware, the word *ναῦς* ‘nafs’ has the general meaning of a ship. It might, therefore, be any type of vessel, such as a sailing ship (like a cargo ship), for example, or a galley (like a pentecontor). In earlier times, there was a dis-

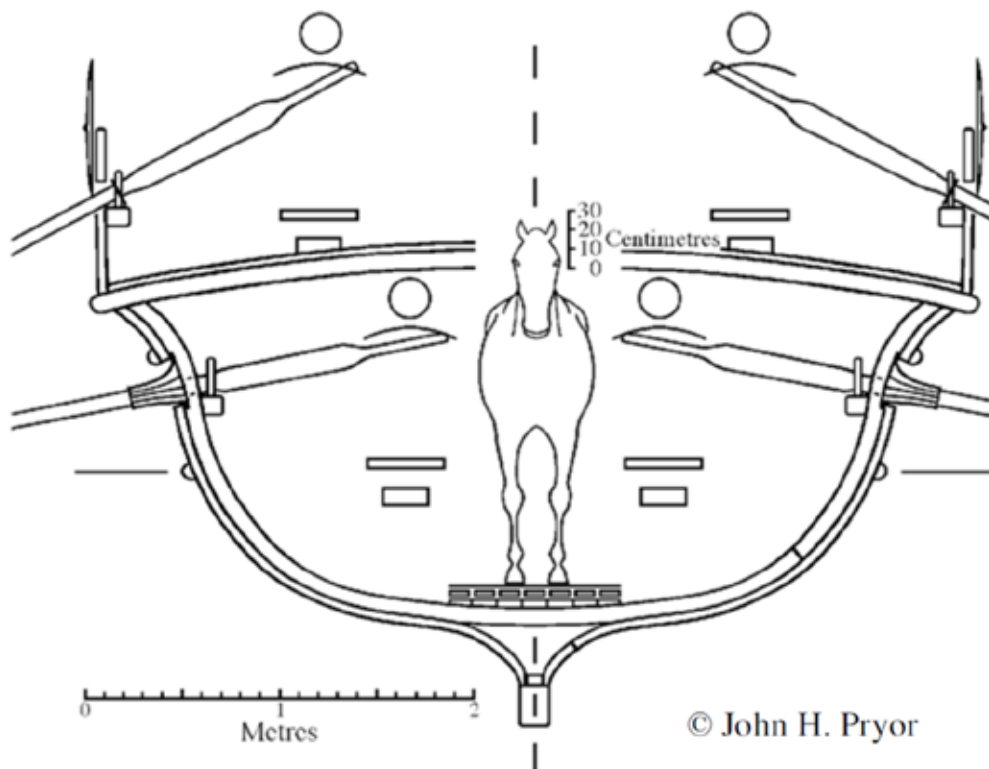


Fig. 2 Horse transport of the era of Macedonian Emperors I: Standard bireme dromon with a fifteen-hand horse. (Illustration by John H. Pryor. Pryor, J.H. – E.M. Jeffreys, 2006, 321).

tion made by using the word long μακρα νηαι for warships and round στρογγύλαι νηαι for merchant ships. If the converted vessel originated as a specific type of ship, i.e. a trireme, Thucydides would surely have mentioned this fact. Could it be that a misunderstanding appeared in later Greek translations?

As mentioned above, in the ancient text we see “παλαιών νεών”, which means old ships (any type of an old ship). The first person to translate Thucydides from the ancient text into pre contemporary Greek was Neofytos Doukas, in 1805. In his translation of the second book of Thucydides (paragraph 56), it becomes clear that “hippagoga” were, indeed, converted old ships:

«...τὰ ὁποῖα ἐκατασκεύασαν τότε πρῶτον ἀπὸ ἄλλας ναῦς παλαιάς» (Doukas, 1805: νς ‘125).

In 1940, Thucydides was first published in modern Greek by the Oxford University Press. The translation was done by Elefthérios K. Venizélos, the Prime Minister of Greece, serving from 1910-

1915, 1917-1920, and 1928-1933. In this edition, Venizelos was also the first to translate “παλαιών νεών” as “old war ships”. By adding the word ‘war’ in front of the word ‘ship’ he completely changed the meaning, as he encourages readers to think more about triremes, less about any other warship (pentekontors or triakontors, for example) and not at all about any other type of vessel. It is not difficult to see how people who are unfamiliar with ancient texts adopted the translation of Venizelos and, as time passed, to copy this information or to translate ‘war ships’ directly as ‘triremes’.

The question remains as to what happen before 1940 with the English translations?

The first translation ever from the ancient Greek text was by the Italian humanist, rhetorician, and educator Lorenzo Valla (1452 – 1483). Valla translated Thucydides into Latin. In the 1538 edition of his translation we read that “hippagoga” were constructed from old vessels, given that the Latin word “navis” has the general mean-

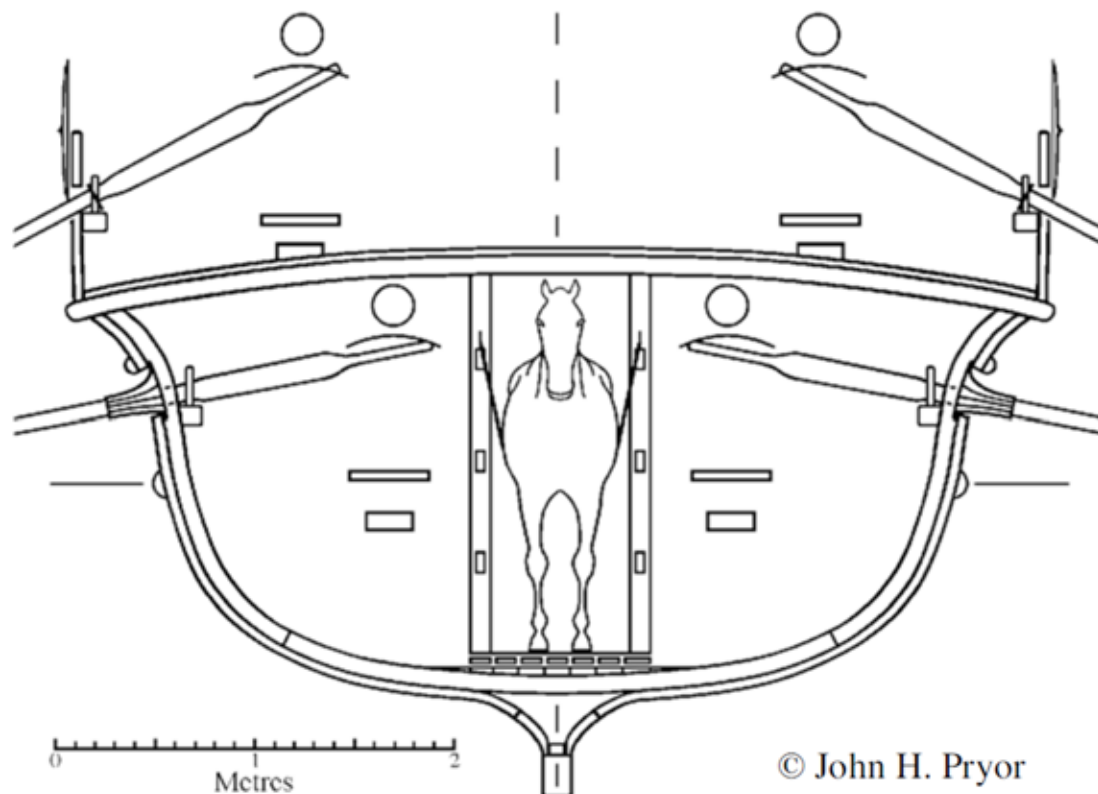


Fig. 3 Horse transport of the era of Macedonian Emperors II: Modified dromon/chelandion with a fifteen-hand horse. (Illustration by John H. Pryor. Pryor, J.H. – E.M. Jeffreys, 2006, 323).

ing of ship: “...trecentos equites in hippaginibus, quas tunc primum ex vetustis nauigiis fecerant” (Valla, 1538: 136).

The first translation from ancient Greek to English was rendered by the English philosopher Thomas Hobbes, in 1628-9. Hobbes, out of deference to the ancient Greek historian, gave the meaning by using the word “vessel”, keeping the generally meaning of any type of ship:

“...In these galleys he had four thousand men of arms; and in vessels then purposely first made to carry horses, three hundred riders” [Hobbes].

It seems that for hundreds of years similar translations were preserved until the arrival of an opposing opinion. In 1829, S.T. Bloomfield opposed the opinion of Hobbes by translating “the old vessels” as “old galleys” and provided a footnote: “Hobbes wrongly renders, ‘vessels then purposely made’ “without any further explanation as to why Hobbes made, according to his contention,

such a mistake (Bloomfield, 1829: 428). From this point, it was easy for scholars to either oppose or to agree with Bloomfield’s point of view. By using the word ‘gallie’ (galley) he changed the reference to warships. From there it was only a small step for everyone to reach to the conclusion that these ships were triremes.

It would be quite easy for somebody to become confused after searching the texts. There is, although, a slight distinction between *nafs* (ναῦς) for a warship and *ploion* (πλοῖον) for general use (including warships). Thucydides, in one part, distinguishes these two types of ships (Thucydides: 4, 116). However, in Diodorus, about the term *ippigos nafs* (ἵππιγος ναῦς) is used for a part of the fleet but for all ships of the fleet (including ἵππιγος ναῦς) the general term *πλοῖον* is used.

[...and he had the transports for men and horses follow, towed by the ships that used oarsmen; and last of all came also the cargo-ships of the pi-



Fig. 4 Artistic representation of a 13th century horse-transportation galley (tarida).
(Illustration by Yannis Nakas).

rates and of the merchants and traders, which as we have already said, were exceedingly numerous, so that the whole space between the island and the opposite shore was seen to be filled with his vessels, which brought great fear and panic to those who were watching from the city].

«...ἐπακολουθεῖν δὲ τὰς στρατιωτικὰς καὶ τὰς ἱππηγὸς ῥυμουλκουμένας ὑπὸ τῶν ταῖς εἰρεσίαις χρωμένων, ἐπὶ πᾶσι δὲ καὶ τὰ τῶν πειρατῶν πόρια καὶ τὰ τῶν ἐμπόρων καὶ ἀγοραίων, ὑπεράγοντα τῷ πλήθει, καθάπερ προεῖρηται, ὥστε πάντα τὸν ἀνὰ μέσον τόπον τῆς τε νήσου καὶ τῆς ἀντικειμένης παραλίας συμπληρωμένον φαίνεσθαι τοῖς πλοίοις καὶ πολὺν φόβον καὶ κατάπληξιν παρέχεσθαι τοῖς ἀπὸ τῆς πόλεως θεωροῦσιν» (Diodorus: 20, 83).

The term *ippigos nafs* (ἱππηγὸς ναῦς) was also used by Polybios (Plb: 1.27.9), while in ancient inscriptions from the 4th century BC we read about *ippigos* (ἱππηγὸς) and the names of that type of ship, such as Ἰππάρχη (IG,II2 1629. 64) or

Ἀξιονίκη (IG,II2 1629. 76). However, in these inscriptions it is clearly understood that these ships are not triremes as the term “*trireme ippigos*” *τριήρης ἱππηγὸς* (IG,II2 1628. 423, 1629. 722, 944) exists for them. From the above it can be assumed that *ippagogo* could be any kind of ship and, in the case of trireme, there is often a further explanation, such as the term «*τριήρης ἱππηγὸς*».

CARRYING HORSES OR RIDERS?

In the first text of Thucydides (2, 56) it is not altogether if “*hippagoga*” simultaneously transferred horses and riders, but in the text at 6, 43 it is quite obvious that *ippagoga* transported only riders (*ἱππέας*>*ἱππεῖς* = *horseman/riders*). However, a mistranslation could potentially have big implications, but more often than not it leads to an awkward translation that makes no sense or trans-

forms a historical fact. For example, Bloomfield, in his book published in 1829, translated into English the phrase *τριάκοντα ἰππέας*, as “thirty cavalry” which means soldiers or warriors who fight mounted on horseback, instead of “thirty riders” or “thirty horsemen” which is the correct translation (Bloomfield, S.T., 1829: 78).

Next followed Rev Henry Dale who, in his book “The history of the Peloponnesian war”, published in 1873, wrote “thirty horses” (Dale, 1873: 407), as did Richard Crawley (Crawley, 1914: 432), while Benjamin Jowett wrote “thirty horsemen and horses” (Jowett, 1881: 440). The same mistake was repeated by others, including some Greek authors who failed to check the ancient text but, instead, blindly followed the English mistranslation.

If we read further Thucydides texts we are surprised by the apocalypse that “hippagoga” at that time only carrying riders.

In the speech by Athenagoras of Syracuse to the Syracusan Assembly, it becomes clear that the Athenians sent “hippagoga” but without horses as they were sure these would be obtained in their allied cities of Sicily like Egesta:

[I know that they will not have horses with them, or get any here, except a few perhaps from the Egestaeans].

«οἷς γ' ἐπίσταμαι οὐθ' ἵππους ἀκολουθήσοντας, οὐδ' αὐτόθεν πορισθησομένους εἰ μὴ ὀλίγους τινὰς παρ' Ἐγεσταιῶν» (Thucydides: 6, 37).

Indeed, at the beginning of the Sicilian Expedition, the Athenians faced serious operational problems because they lacked the cavalry that their rivals had. For this reason, during the winter of 415-14 BC they sent a letter to Athens, demanding more money and cavalry. Athens' response to the urgent request was to send two hundred and fifty riders with their equipment, but without their horses for the reasons mentioned above:

[Upon their return to Catana they found the riders arrived from Athens, to the number of two hundred and fifty (with their equipment, but without their horses which were to be procured upon the

spot), and thirty mounted archers and three hundred talents of silver].

«καὶ ἀφικόμενοι ἐς Κατάνην καταλαμβάνουσι τοὺς τε ἰππέας ἥκοντας ἐκ τῶν Ἀθηνῶν πεντήκοντα καὶ διακοσίους ἄνευ τῶν ἵππων μετὰ σκευῆς, ὥς αὐτόθεν ἵππων πορισθησομένων, καὶ ἵπποτοξότας τριάκοντα καὶ τάλαντα ἀργυρίου τριακόσια» (Thucydides: 6, 94).

So far, it is clear that nowhere does there appear any reference to converted triremes or horse transportation by open sea. The Athenians did not actually attempt to transport war horses by the sea all the way to Sicily. Strange though it may appear, the reason is simple. They did not have the capability to do so (Pryor-Jeffreys, 2006: 305). The appearance of the term “hippagoga trireme” in ancient texts leads to the explanation that the specific trireme was capable of carrying only horse riders, as Demosthenes underlines:

[...In addition, you must prepare transport (hippagogous triremes) for half our horsemen, and a sufficient number of boats].

«...τοῖς ἡμίσεσι τῶν ἰππέων ἵππαγωγὸς τριήρεις καὶ πλοῖ' ἱκανὰ εὐτρεπίσαι κελεύω» (Demosthenes/Philippic 1.16).

THE PROBLEM OF TRANSPORTING HORSES BY SEA

Horse transportation by ἵππαγωγά, at that time, was possibly undertaken with an extremely limited number of horses and exclusively on short coastal routes. John H. Pryor offers an interesting analysis of ἵππαγωγά in Macedonian in the medieval period, mentioning the problems that could have occurred with such transportation (Pryor, J.H. – E.M. Jeffreys, 2006). The transport of war horses by ship requires a series of studies to achieve the safe construction of such a vessel. Here, for example, are some points that should be seriously taken into consideration when an old ship is to be converted into a ‘hippagoga’:

a) The weight of the horses, riders and acces-

sories in relation to the new draft and the ship's stability.

The size and weight of horses differs according to breed. Light (small) horses for horse riding usually weigh between 380 and 550 kg (Bongianni, 1988: entry 1, 68, 69) while large ones 500-600 kg (Bongianni, 1988: entry 12, 30, 31, 32, 75). Pryor mentions that a medieval warhorse weighed around 650 kg. (Pryor, 2004: 116). The common Greek Thessaly horses of today are around 1.40 m tall and weigh between 350 and 450 kg.

b) Bays and oar holes (if dealing with triremes) need to be watertight.

c) The minimum safe distance between horses.

d) The minimum safe distance between horses and oarsmen. It is better that they are separated and if possible without visibility of the oarsmen in order to avoid injury to the oarsmen or themselves, or to be panicked and cause chaos on the vessel.

e) The increase in the strength of the superstructure, if necessary.

The additional weight should not significantly affect the speed. To prevent accidents and the risk of the ship capsizing, special attention is required to maintain calm on board and vessel stability so that skittish horses do not become excessively agitated during the voyage.

In addition, food and water storage are of great importance. In Pryor's analysis we derive the information that during the summer months, a horse would consume 8 gallons (36 litres) of water daily (Pryor-Jeffreys, 2006: 327). One of the first reports of a Byzantine 'hippagogon' comes from Theophanes the Confessor. He wrote that Constantine V, in 763 A.D., had, among others, a fleet of 800 'chelandia' for his campaign against the Bulgarians. 'Chelandia' (χελάνδια)² were initially commercial vessels which were later construct-

ed as auxiliary vessels for fleets for transporting mainly soldiers. The 'chelandia' of Constantine V carried 12 horses each:

«τῇ δὲ ἐς τοῦ Ἰουνίου μηνὸς ἐξῆλθεν ὁ βασιλεὺς ἐπὶ τὴν Θράκην ἀποστείλας καὶ πλώϊμον διὰ τοῦ Εὐξείνου Πόντου ἕως ὧς χελανδίων ἐπιφερομένων ἀνὰ ἰβ' ἵππων» (Theophanes, *Chronographia*, A.M. 6254 (vol. 1, 432-3).

As a rough calculation regarding the drinking water consumption of horses using the text above, it can be concluded that the 12 horses of a 'chel-andion' would have consumed about 432 litres of water a day. For a voyage, for example, of four days, they would have consumed around 1.73 tons of water (Pryor-Jeffreys, 2006: 329).

Another important factor was the construction of a small platform that a horse could stand on without hurting its legs, which it otherwise would if standing directly on the floor of the ship, and a system of drainage ports, which the dung and the urine would be thrown overboard through (Hayes, 1902: 195). One could assume that for hygiene reasons a horse could not stay for a long on a floor covered in dung and urine.

The above leads to the following conclusions:

Could a trireme (which was narrow, light and often had to come ashore to dry its timbers) be modified to a 'hippagogo' for horse transportation? Anyone who has visited the trireme "Olympias" in Faliro Bay, Greece, can imagine the difficulties with such a ship carrying horses, especially as many as thirty as some translators have written. A 'Hippagogo' requires a different kind of shipbuilding timber and construction in order to be capable of withstanding the weight of the horse, the weight of the minimum quantities of water and food and also to be able to be at sea for long periods.

The large quantities of water and food could be carried by accompanying cargo ships. However, inside a 'trireme-hippagogo' there would have been a requirement for a minimum quantity of clean drinking water to cover the expected number of hours at sea. This would certainly have created some difficulties.

² The term Chelandion is derived from the Greek word «κέλης» kelēs, «courser». It was a fast-sailing yacht with one bank of oars, Hdt.8.94, Th.4.9, 8.38, X.HG1.6.36, Ephipp.5.17 (anap.), Plb.5.94.8, Plin. HN7.208, etc. The Chelandion first appeared during the early 8th century (Pryor-Jeffreys 2006, 166–169).

In addition to coastal and short-haul travel, it is unclear if any longer equine transport trips were made by these vessels further offshore.

During Alexander the Great's campaign in India (327-326 BC) there is a reference to horse transport vessels constructed specifically for this purpose. The horses were visible from shore, which leads to the conclusion that they were placed on the decks (or at least some of them were).

[The horses which were visible on the decks of the transports struck the barbarians who saw them with such surprise that those of them who were present at the starting of the fleet accompanied it a long way from the place of embarkation. For horses had never before been seen on board ships in the country of India].

«οἱ τε ἵπποι διαφαινόμενοι διὰ τῶν ἵππαγωγῶν πλοίων, οὐ πρόσθεν ἵπποι ἐπὶ νεῶν ὀφθέντες ἐν τῇ Ἰνδῶν γῇ (καὶ γὰρ καὶ τὸν Διονύσου ἐπ' Ἰνδοῦς στόλον οὐκ ἐμέμνητο γενέσθαι ναυτικόν), ἔκπληξιν παρεῖχον τοῖς θεωμένοις τῶν βαρβάρων, ὥστε οἱ μὲν αὐτόθεν τῇ ἀναγωγῇ παραγενόμενοι ἐπὶ πολὺ ἐρωμάρτου» (Arrian, Alexander: 6.3).

Undoubtedly, these 'hippagoga' were not converted triremes, but ships that, from the beginning were designed and built to withstand the weight and the specificity of transporting war horses. This interpretation is supported by the fact that in the occupation of Tyre (332 BC) hippagoga were used that carried heavy siege engines (Arrian, Alexander: 2.21).

The use of 'hippagogon' continued with other forces that competed for supremacy in the Mediterranean (such as the Romans who, during the First Punic War (264-241 BC), brought 'hippagoga' by means of towing (Polybios: 1. 26-28). However, there appear to be no further insights regarding their use, beyond what we have already covered.

Despite the development of warships and the need to carry more horses and riders, the process of their usage (by that time) remained the same. The horses were landed carefully down ramps and thereupon the riders rode them to join the battle. The disembarkation of mounted riders began to

appear in 960 AD, when Nikephoros Phokas took over as head of the campaign for the liberation of Crete from the Saracens. According to the testimony of the Byzantine historian and chronicler Leo the Deacon, Nikephoros Phokas, who had distinguished experience in naval projects, disembarked a fully armed and mounted army directly from the sea to the land:

[Accordingly, Nikephoros, upon the order of the emperor, mustered the army of Asia and embarked them on ships, and after a swift voyage he also brought up a large number of fire-bearing triremes (the Romans call these dromones) to anchor at Crete. When it seemed to be an opportune moment for disembarkation, he displayed in deed the experience that he had in military affairs. For he had brought ramps with him on the transport ships, which he set up on the beach, and thus transferred the army, fully armed and mounted, from the sea on to dry land].

«οὗτος τοίνυν ὁ Νικηφόρος, τὴν τῆς Ἀσίας στρατιὰν τῷ βασιλικῷ συνειλοχῶς κελεύσματος καὶ ναυσὶν ἐμβιβάσας, καὶ ταχυπλοήσας, πυρφόρους τε τριήρεις πλείστας ἐπαγόμενος (δρόμονας ταύτας Ῥωμαῖοι καλοῦσι), τῇ Κρήτῃ προσώρμισεν. ἐπεὶ δὲ τῆς ἀποβάσεως ἐδόκει καιρὸς, ἔδειξε πρακτικῶς, ἣν εἶχεν ἐμπειρίαν ἔργων πολεμικῶν. κλίμακας γὰρ ἐπὶ τῶν πορθμείων ἐπιφερόμενος, ταύτας ἐπὶ τὴν ἡῖονα προσυφαπλῶν, τὴν στρατιὰν ἔνοπλόν τε καὶ ἐφιππον ἀπὸ τῆς ὑγρᾶς ἐπὶ τὴν ξηρὰν μετεβίβαζε» (Leo the Deacon, Historiae: 1.3).

It is quite remarkable that Leo referred to the ships of the Phokas fleet using the classical term 'fire-bearing triremes'. As he explains, these triremes were dromons. One might well doubt that explanation, but it has to be said that some writers until the 13th and 14th century referred to dromons as 'triremes', perhaps as a result of the dominant tendency of classicism, or because of the three oarsmen per oar, like the 'alla sensile' oarage system on galea. It is undeniable that it can not be a reference to a galley ship with the construction and the limitations of the triremes of the 5th century BC.

CONCLUSIONS

Bearing all the above mentioned in mind, one can reach the conclusion that the ‘ἵππαγωγά’ of Classic Greece were converted older ships and later some of them were triremes. These ships transported mainly riders or a very small number of horses but, as “hippagoga triremes”, carried only riders. It defies logic that a “trireme hippagagon” or any “hippagagon” of that period could carry from Athens to Corcyra and on to Sicily the thirty horses that some have assumed, probably as a result of a mistranslation. Later, during the Hellenistic period ships were built that were designed exclusively for horse transportation, but these ships sailed close to the shore or were only able to travel a relatively short distance. Information concerning the “hippagoga” being capable of traveling in the open sea with mounted riders is drawn mostly from the 10th century AD.

Subsequently, Venice, and then other Western powers, developed the ability to transport horses for long distances for the Crusades, using both sailboats and galleys. With the construction of ‘tarides’ (12th century AD) the direct disembarkation of large number of troops on horseback became possible (Pryor, 2004: 107).

* * *

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REZIME

MOŽE LI TRIREMA DA PREVOZI KONJE U RATNIM POHODIMA: NESUGLASICE OKO INTERPRETACIJE STAROGRČKOG IZRAZA ΪΠΠΑΓΩΓΟΝ I “HIPPAOGON“

KLJUČNE REČI: GRČKI BRODOVI, TRANSPORT KONJA MOREM, “HIPPAOGON“ ΪΠΠΑΓΩΓΟΝ.

Mnogi naučnici smatraju da je tip grčkog broda *ιππαγωγον* ‘hippagogon’ (plur. *Ιππαγωγα* ‘hippagoga’) tokom klasičnog perioda bio ništa drugo do rezultat modifikovane stare trireme i da je bilo kakav napor da se utvrdi izgled ovog specifičnog tipa plovila zasnovan još uvek na pretpostavkama. Među istraživačima se postavlja pitanje, može li trirema prevoziti konje? Gde je takvo svedočenje zapisano u starim rukopisima i da li bi prevod mogao da donese odgovor na ovo pitanje ili možda još više zbuni istraživače.

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UDC 355.318.1(398)''-03''
 355.422(398)''-03''

Original research article
 Received: 1st November 2019
 Accepted: 15th November 2019

THE HYPASPIST CORPS: EVOLUTION AND STATUS OF THE ELITE MACEDONIAN INFANTRY UNIT

ABSTRACT

*The Hypaspist corps was an elite unit, most probably established by Philip II and inherited by Alexander the Great along with the other components of the Macedonian army. These troops were actively involved in every operation, be it pitched battle or light infantry mission, throughout the Asian campaign and with distinction, thus igniting the interest and curiosity of many scholars. However, in many respects, the nature of the corps remains elusive. The absence of contemporary literature together with the huge time gap to the most militarily literate source available, Arrian's *Anabasis of Alexander*, combine with the evolving organisation and the restructuring of the Macedonian army under Alexander to shadow the facts. Before being reformed, as *Argyraspides*' elite line infantry, the Corps, which was different from the two guard formations, fulfilled a double mission, had a wider choice of weaponry and tactics and was organised into three units, while retaining double the strength of the conventional phalanx formations, the *Taxeis* of sarissa-wielding line infantry. This paper aims to review some of the basic problems of this Corps's identity, highlighting its origins, status, functional deployment, organisation, weaponry and evolution.*

KEYWORDS: THE HYPASPIST CORPS, PHILIP II, ALEXANDER THE GREAT, MACEDONIAN ARMY.

INTRODUCTION

The elite Hypaspist corps was a special unit, inherited by Alexander along with the other components of the Macedonian army. The paramount importance of these troops not only during the great battles of Philip and Alexander, but in almost every battle during the campaign of the latter, ignited the interest and curiosity of many scholars. However, the absence of contemporary literature, the huge time gap from the events to our most reliable source, Arrian's *Anabasis* (approx 500 years), the vague descriptions of Arrian and the frequent reorganisation and restructuring of the Macedo-

nian army under Alexander have given rise to extremely diverse opinions. Although the unit was renamed *Argyraspides* (inferred by combining Arrian VII.11,3¹ & Justin XII.7,4-5 and accepted by modern scholarship, i.e. Anson, 1981) and, most probably, re-oriented towards strictly line infantry operations (retaining an elite status but not its former special-warfare capability status), its functions and internal organisation were rather straightforward before this restructure. A logical answer is attempted herein, to the problem which caused disagreement between Profs Hammond (Ancient

¹ Arrian mentions the corps of *Argyraspides* in VII.11,3 although for the same period he also mentions *Hypaspists* (VII.8,3)

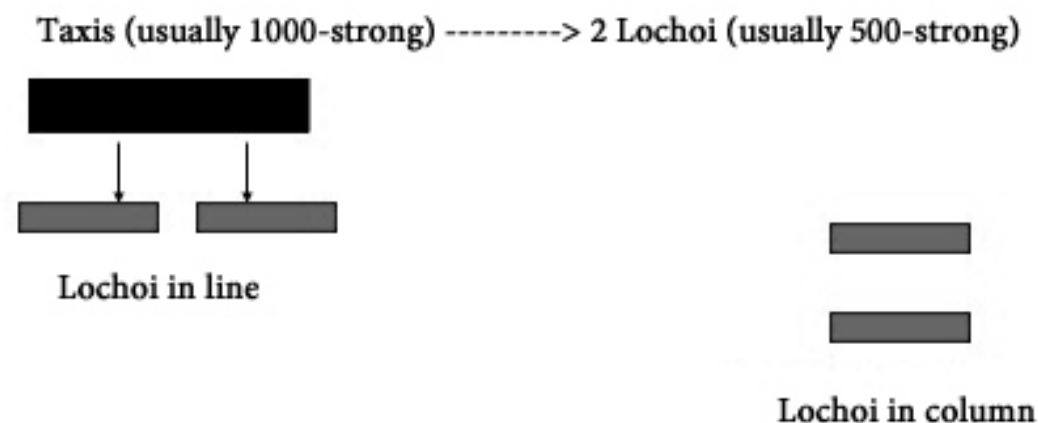


Fig. 1 Greek standard Phalanx unit structure

History Bulletin 11.1 /1997) and Bosworth (Ancient History Bulletin 11.2-3 /1997), i.e. whether there were one or two special infantry units in the Macedonian army, functioning in much the same way as the Napoleonic “Guard” Units. To tackle this problem one is found committed to cope with the problem of the organisation of the Hypaspist corps and of the bodyguard unit(s) in the Macedonian army. The references are, by default, to Arrian’s *Anabasis Alexandri*.

CREATION & EVOLUTION

There are some basic things to remember when dealing with the Hypaspists:

First, when Philip ascended to the throne, the unit, or its precursor, the Pezeteroi/Foot-Companions (if Theopompus, F348 is to be trusted) might have been, at first, some 500 strong. It expanded until it was 3,000 strong during the campaign of Alexander (‘three Chiliarcies’, Arr. An V.23,7). This reference also resolves any issue on the possible organisation of the Corps: Its total of 3,000 was divided to three 1,000 strong units-*Chiliarcies* (Arr. An III.29,7), each commanded by a *Chiliarches* (Arr. An I.22,7),² unlike the 1,500

² Addeus was his name and is mentioned as a casualty, along with the *toxarches*-leader of the archers. Arrian here makes a careful distinction. Usually he speaks of “archers’ chiliarch”, since they numbered one chiliarchy but in here

strong *Taxeis* of the Foot-Companions.

Secondly, the name of the unit means “shield-bearers” and in such capacity they should be associated (loosely?) with the Companion cavalry, at the beginning of Philip’s reign, just 600 strong (Diod. XVI.4, 3), probably one 100-man *Illa* from each conscription territory of Lower Macedon. Before detached from the Companions and reformed as a Corps *per se*, the Hypaspists might well have been embedded in the cavalry, and followed the cavalymen, carrying the heavy hoplite shield (*aspis*) of the Companions. Not only had this been a practice well-followed by southern Greek hoplite and cavalry troops, who had squires called Hypaspists (Xen. An IV.2,20), but a task force composed of Companions and Bodyguards (most probably Royal Bodyguards) were specifically ordered by Alexander in one instance to “take on their shields, half of them dismount and charge on foot mixed with the other, mounted half” (Arr. An I.6,5). This means that they had shields (for cases where they had to fight on foot, i.e. sieges), which were not carried when

he changes the term to distinguish from another chiliarch. Since, for the light troops, like javelineers (mostly allied Greeks and Thracians) he refers to *Hegemons*, and the term *chiliarchy* is used only for Macedonian army proper units and for the archers, which were a mix of Macedonian and non-Macedonian – at the beginning Cretan – ones (IV. 24, 10), we should rather conclude that Addeus was a chiliarch of the Hypaspists.

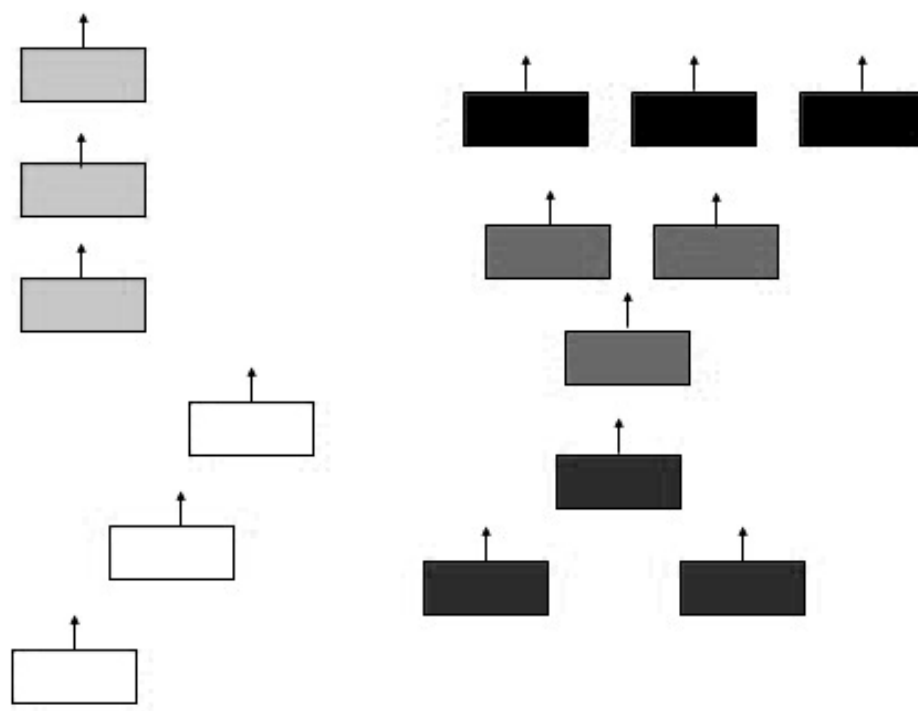


Fig. 2 Possible tactical deployment of the Macedonian foot-companion Taxeis

fighting mounted. One cannot refrain from an association with the hoplite-type shield found by Prof. Andronicos in Vergina, which would fulfill well to such a task for its royal owner. Southern Greek cavalrymen also owned shields, as the elite and usually wealthy cavalrymen (i.e. Kimon, Alcibiades the Younger) might be called to serve as hoplites, either *ad hoc* or on a yearly basis.

The core of the Hypaspists might have once been the followers/ squires of the Companions, following their masters into battle (perhaps in the way of the southern *hamippoi*) and carrying their shields- at least in forced marches. From this point to their using the shield in battle, when their master has no use for it fighting mounted, the distance is rather short. To further enhance this view, Arrian himself specifically talks about the “Companions’ Hypaspists” under Nicanor (Arr. An I.14,2) referring rather to the whole of the corps in Granicus. This corps might well have been a standing army, at least since Philip reorganised it to a special, independent unit (Anson, 1985), very much like the southern *Epilektoi*, units, which

first appeared in Argos in 418 BC (1000-strong, Thucydides V.67) and then spread to many states and confederacies, the best example being the 5,000-strong Arcadian *Eparittoi* (Xen. Hell. VII.4,22-5 & 33-4). Diodorus at least twice (Diod XVI.4,3 & XVI.86,1) uses this term for describing Macedonian Army units understood to be the Hypaspists. Such a relationship could also make their training in hoplite tactics (phalanx and the new, skirmishing and mobile kind of hoplite warfare of the 4th century BC) much more probable and explicable. The hoplite-style warfare ability of the Hypaspists is demonstrated in Alexander’s sarcophagus, with both nude (light) and panoply wearing infantry troops with a hoplite shield and phrygian helmet. This fact, along with the multi-dimensional training inherent to standing *Epilektoi* units of southern Greece, as repeatedly mentioned by Xenophon in *Hellenica*, contradicts the opinion of Milns (Milns R.D. 1967 & 1971) and others (including, but not restricted to Tarn W. W. 1948) that the only difference to the phalanx rank and file was the Esprit-de-corps, recruitment

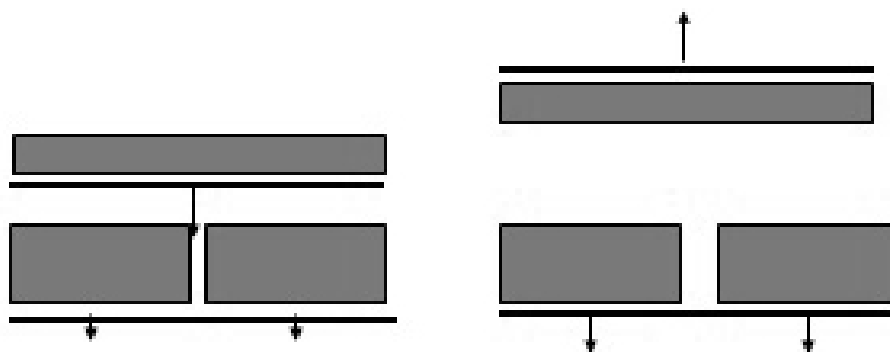


Fig. 3 Double Phalanx Hypaspist Corp deployment in Gaugamela. The second echelon, being in this case the third chiliarchy of the “The Roal Hypaspists”, is deployed in standard density, double front, half file depth behind the other two chiliarchies (“The Agema”, and the “Rest of the Hypaspists”) and may about-turn to face any attack from the rear (“μεταβαλόντων την τάξιν”, Arrian *Anabasis Alexandri* III, 14, 4), possibly using the Macedonian counter-march, thus producing a double phalanx.

and training and discipline. One must not forget the coincidence of size between Hypaspists’ Chiliarchies and the southern hoplite units as the Athenian *Taxeis*, being 1,000-strong. Thus, the Hypaspists, being a standing, professional army, once they had become a Corps, they would have been trained in hoplite warfare (phalanx, mobile and combined operations with cavalry) and in their state-standard sarissa-armed phalanx, fighting as such at least in Hydaspes (Arr. An V.12,2).

During Alexander’s reign, we know of a 3,000 strong corps (Arr. An V.23,7). One may suppose that the first step would have been from the first 500 to 1,000 and then to 3,000 in one or two successive steps. After all, during this time, the Companion strength was 2,000 (accounting for the Royal Squadron-maybe 300-strong- the six first-line squadrons of the campaign and the second-line squadrons left to Antipater, each at 150 cavalymen³), from the original 600 in Erigon Valley in 358 BC, a 350% increase.

Thirdly, during Alexander’s campaign we hear of missions assigned to detachments of 500 and 1,000 Hypaspists (Arr. An III.29,7), which are, logically, whole units of the corps. This binary organisation differs from the foot-companion *Taxeis*,

1,500 strong each and consisting of three 512-troop units or six 256-troop *Syntagmata* (the term for the latter might also have been *Lochoi*). However, under the tactical level, which denotes the units able to assume independent battlefield missions (*Taxis* and chiliarchy), the scheme may well have been common. The organisation could well be binary to both line infantry corps (Foot-Companions and Hypaspists) up to 500 men, and from then on the Hypaspists retained a binary organisation all the way to the tactical level (1,000-strong *Chiliarchies*), whereas the foot-companions changed to a tertiary organisation (1,500-strong *Taxis*, which allowed for an independent infantry line with two “*kerata*” (“horns”) and one centre, compared to the ancient binary division between left and right, which Polyainos ascribes to Pan, the goat-legged Godlink (Pol. *Stratagems* I.2,1).

On the other hand, the binary division is much more suitable for the kind of mobile medium infantry missions the Hypaspists usually undertook. Three subunits offer more tactical combinations and flexibility (which is the reason to adopt it in line units) but two subunits are easier to command in mobile operations than three; this posed no problem for the foot-companions, for, despite regularly used for operations on uneven ground, they were primarily infantry of the line and not elite/special infantry.

3 In II. 9,4 Arrian specifies 300 cavalymen as a precaution in Issus, for a Persian force lurking in the hills, whereas a little earlier he names two *ilai* of the companion cavalry being tasked with this, which leads to each squadron-*ile* being 300:2 = 150 strong.

IDENTITY

To begin with, Philip inaugurated the unit of the Companions' Hypaspists, 500-strong, detaching it from the Companion Cavalry and practically assigning these men under his auspices to an Elite unit, similar to those found in Southern Greece during the 4th Century BC (*Epilektoi*). Their name, in an army full of esprit-de-corps and special units (the simple line infantry was given the prestigious name "Foot-companions") was associated with their "ante-detachment" status. This same unit must have been originally doubled to 1,000 by Philip (maybe concurrently to the doubling of the Companion cavalry force). When the second Chiliarchy joined, once more doubling the strength, it probably got another name, despite joining the very same Hypaspist Corps. Possibly this name was *Basilikoi Hypaspistes* (Royal Hypaspists),⁴ to emphasise the difference in origin from the more senior *chiliarchy*. These men (Royal Hypaspists) did not come from any kind of association with the Companion noble cavalry, which probably meant they were "men of the King" and quite possibly of aristocratic stock- although still from the whole of the realm. The third unit of the corps was the *Agema*. One cannot be sure about the seniority of the three Chiliarchies, which might well have not been associated directly to their year of establishment; perhaps troopers that excelled in the two first Chiliarchies, were honourably promoted to the *Agema*. This view contradicts Milns (Milns R.D. 1971), who assigns temporal precedence to the *Agema*, that is to say that the *Agema* was the first unit of the Corps. The word of Diodorus (XVI.4,4) for the elite Macedonian infantry in the Battle of Erigon Valley, "*Epilektoi*" ("picked" or "best"), is an admittedly distant synonym for the *Agema*, thus being the only real evidence in favour of Milns's view of the *Agema* preceding other chiliarchies.

⁴ "*Vasilikoi*" in Greek may well mean, in different contexts: "royal", "belonging to the king", "kingly", "king-like", "royalist" or "worthy of a king".

The corps being recruited geographically from the whole of Macedonia, as Theopompus F348 mentions and as the standard practice of *Epilektoi* units prescribed, contrary to the territory-based recruitment of the foot-companion *Taxeis* (and Companion Cavalry *Ilae*), explains the sporadic use of the term "*Macedonon Agema*", which literally translates to "the best among the Macedonians".⁵ At this point, it is important to notice that Diodorus mentions (XVI.4,4) a picked unit of the Macedonian infantry at the battle of Erigon Valley against Bardylis (most probably in 358 BC) positioned to the right of the phalanx. This unit, which may or may not have fought as the phalanx did, led by Philip himself, broke the Illyrian line to allow a decisive Companion cavalry charge. The role, the status and the positioning are reminiscent of the Hypaspists and the word Diodorus used ("*Epilektoi*"- "picked" or "best") is a distant synonym for the *Agema* and the proper term for equivalent southern standing units. Interestingly, though, in Chaeronia in 338 BC, Philip was identically placed to the right, heading the Hypaspists/ "*Epilektoi*" (Diod. XVI.86,1) but the actual strength of the unit at the battle of Erigon Valley cannot be determined. It might well have been up to 1,000, as the ideal army organisation called for a 10,000 heavy infantry force and the Elites to be 1/10 of it. Alternatively, at just onelochos (500-man) might have been the maximum Philip could have afforded at the time, in terms of Elite, professional troops.

FUNCTION AND DEPLOYMENT

The other important aspect on the subject is the use of the corps in battle. Arrian may refer in different words to the *Agema*, sometimes just "*Agema*", other times as "*Royal Agema*" and even "*Macedonon Agema*". However, he is rather cautious, not forgetting that he writes half a millennium later, regarding the use of "the rest of the *Hypaspists*" and the "*Royal Hypaspists*". He con-

⁵ Since joining by virtue and enrolled from the whole of Macedon

fuses these two terms only twice, in Thebes (Arr. An I.8, 3-4) and in Arr. An IV.24,10 (more on these cases to follow). This really points to three, distinctively named *Chiliarchies* forming the corps. Alternatively, one might think that one '*pentacosiarchia*' is the *Agema*, another is the Royal Hypaspists and the remaining four are 'the rest of the Hypaspists'. The latter view is neither proven nor disproven in the text of Arrian; it is, however, indirectly contradicted by the description of the battle outside Thebes and also in V.13,4, as will be shown later.

The command held by Nicanor, son of Parmenion, who usually commanded the Hypaspists (his brother Philotas commanded the Companions) was reported by Arrian to comprise only two units in some cases, Gaugamela being one of them (another example is Issus, see Arr. An II.8,3). Prof. Bosworth rightly noticed this case, which, however, proves nothing in terms of the total strength of the Corps. When the need arises, even nowadays, a battalion or brigade can still be detached and assigned a separate mission, either independently or under the command of another, higher, echelon. This might well have been the case in both Issus and Gaugamela, and thus the *chiliarchies* of Hypaspists posted in the battleline under Nicanor might have been part of the total strength of the Corps. However, especially in Gaugamela, contrary to some suggestions, the third *chiliarchy*, which is not reported in the battle line, should not be assumed missing, nor deployed to guard the major, ditched and palisaded camp, some distance to the rear (III.9,1). This is not where an elite unit would have been left by Alexander during a battle deciding the control of Western Asia.

At the same battle, the first-line heavy infantry of Alexander appears to have comprised only 9,000 Foot-companions plus two or three thousand Hypaspists (III. 11,9). This is far below the maximum, in a battle where Alexander fielded some 47,000 troops (III.12,5). The difference can not only have been due to light infantry, engineering and medical corpses and the Cavalry.

The latter is estimated at 7,000 by Arrian himself (III.12,5); thus leaving some 28,000 of uncommitted troops, a little too many for guards in the camp(s). The balance must be partly in the flank guards, where Arrian explicitly states that light foot (Archers, javelineers, Thracians) were posted (III.12,2-5). Even with this, a large number of troops is still missing.

One possibility emerges from some unclear parts of the text. Arrian speaks (III.11,1) of a "*phalanx amphistomon*" 'double-edged phalanx' and "*hegemosi ton epitagmenon*" 'commanders of the troops at the rear' (Arr. An III.12,1). He also explains the lack of resistance against the Persian cavalry onslaught in the Macedonian camp as being due to the fact that nobody there expected the enemy cavalry to breach the 'double phalanx' (Arr. An III.14,5). The above should lead to the conclusion that there was indeed a second line of heavy infantry, exactly behind the first line (Macedonian phalanx). This second line must have been distributed to commands, each shadowing a Taxis of foot-companions and covering equal space as the foot-companion Taxis to which it was attached. It was to follow the movements of the front command, so a delay of one Taxis, that of Simmias, would cause a breach in both the lines (Arr. An III.14,4-6) but at a distance from its rear. This distance permitted, as Alexander had ordered - and as actually happened - the uncommitted second line units to about-face and cope with any danger at the army's rear (Arr. An III.12,1 and III.14,6) while at the same time the front line units (Taxeis of foot-companions) were engaging, uninterrupted, the Persian line frontally (Arr. An III.14,3). This scheme is somewhat reminiscent of the different Roman maniples of a cohort, although in the case of Gaugamela the rear units were not organically associated with the front units: the arrangement was *ad hoc*.

The second solution is that the phalanx Taxeis turned a part of their strength to meet the evolving threat. The very popular thought, that they about-faced the rear halves of the files, is outrageous:

About-facing the *men* would not create a valid front, as the file was not simply one man behind the other but there was a “polarity” to it, based on virtue, age, armament, experience, etc. Reversing the rear half of each file would disrupt the cohesion of the advancing unit and probably cause confusion, a recipe for defeat, especially if under pressure. It is both impractical and in contrast to the passage, which speaks for rear commanders being tasked to reverse and stand. If, though, a whole unit of each Taxis is stationed to its rear, perhaps in a vic formation (two units at the front echelon and one at the rear echelon) the picture changes. The rear unit has its own commanding officer - *Hegemon* as specified in the text; clearly subordinate to the General of the Taxis. It can be arranged at a distance, so as not to cause confusion when drilling, and also afford some space in between the two echelons for command, decision-making, communications, but also for back-stepping and evacuating casualties. Such distanced units would easily about-turn to face a flanking opponent and perhaps charge to meet him head-on. In order to cover the same frontage assigned to their preceding echelon, which is the quintessence of the whole idea of the ‘double-phalanx’, they just have to be drawn to less depth, most probably half. This is enough for a defensive and holding action against a flying enemy force.

If this double line per Taxis is accepted, there is absolutely no problem where to look for the third Hypaspist chiliarchy (the Royal Hypaspists) in Gaugamela. It must have been placed to the right edge of the second line, behind the two chiliarchies posted in the first echelon.

Behind the phalanx, there were squires (grooms),⁶ who “arrested” the Persian scythed chariots which made their way through the corridors the phalanx opened when faced with their onslaught (Arr. An III.13,6). Needless to say, the

division of the rear line to units closely attached and following the Taxeis of the first line permitted the opening of these corridors with excellent efficiency compared to the capabilities offered by a possible unified, “monoblock” command of the rear line. This latter arrangement might have been a common, if not usual, practice during the 4th century, as described by Xenophon for both “The Ten Thousand” and for Agesilaus at the Battle of Sardis, 395 BC (Xen. An VII.3,46 and Xen. Ages I.31 respectively).

Moreover, in that same part (Arr. An III.13,6) Arrian specifically mentions the Royal Hypaspists along with the grooms arresting the chariots that had passed harmlessly through the phalanx to its rear. So, Royal Hypaspists (not Companions Hypaspists, or the *Agema*) were in such a position as to operate at the rear of the phalanx. It is intriguing to think that Nicanor’s immediate command comprised all three Hypaspists’ Chiliarchies, in a very modern two in front, one, to the rear arrangement. The inconsistency in numbers (two units in the front, one to the rear) could well have been remedied by the rear unit being deployed in half the front one’s depth, thus equalising the front of both echelons of a division. This concept, if followed for all the heavy infantry deployment, meant a 2:1 distribution of manpower in favour of the first line; this adds to the ferocity of the charge as mentioned. This would lead to an 8,000 strong first line (two Chiliarchies of Hypaspists and the 1,000 men of each of the six Taxeis of foot-companions) and a 4,000-strong second line (half of the first), resulting in a 12,000 strong infantry.

Another issue is the battle outside Thebes. Prof. Bosworth’s view, that the second Macedonian infantry line might have been the whole (of the rest) of the phalanx is not necessarily valid. Indeed, the engagement of two Taxeis left four more uncommitted. However, the breach to the Theban defensive position cannot have allowed for more than a two Taxeis deployment, otherwise the remaining Taxeis would have taken the Theban flanks from the very beginning, not to men-

⁶ Most probably the grooms of the Phalangites and of the Hypaspists; Philip allowed one for every 10 Phalangites, compared to 1:1 for Hoplites in southern armies and 7:1 in some Spartan task forces. This produces a very hefty 9,000-man rear line, initially behind the phalanx and then between the two echelons.

tion the Macedonian cavalry who would have done the same. The very nature and positioning of the stockade and trench must have hampered deployment, even when breached, so Alexander should not have been able to deploy his line infantry to this width, even outside the trenches. He must have been restricted to a similar number of men, at least if he was to use them to some effect. The two Taxeis probably numbered 2,000 men altogether, if fully mobilised. The two mentioned Chiliarchies, (Royal) Hypaspists and *Agema* numbered 2,000. The latter, with double-width spaces between successive files allowed the men of the front line, who were repulsed by the Thebans, to retreat, catch their breath and regroup by passing through such lanes to the rear. This retreat *through* the second line could explain Diodorus' account (Diod. XVII.11,1-12,4) of the Thebans receiving the attacks of two Macedonian lines before breaking with the attack of the third. One can imagine that the third part of the army (Diod. XVII.11,1) would comprise the rest of the Taxeis of foot-companions and the rest of Hypaspists (one Chiliarchy), that is if indeed the second line comprised only two Chiliarchies; a substantial number of troops were deployed to other parts of the circuit and assaulted it as the battle at the breach intensified.

ORGANISATION

The problem is that this seems to be one of the very few (just two) parts where Arrian indiscriminately uses the terms "Royal Hypaspists" and "Hypaspists". In I.8,3 he mentions the latter being posted next to the *Agema*, while in I.8,4, just a few lines later, he mentions that the fleeing Foot-Companions were received by the *Agema* and the Royal Hypaspists. However, this is rather vague; the reference could very well mean that in this case all three Chiliarchies of the Hypaspist Corps were lined up, with the *Agema* in the middle. Due to ground factors, the retreating Foot-Companions might well have retired through two of the

three lined up Hypaspist Chiliarchies.

The other section where "Royal Hypaspists" is supposedly used *sensu lato* and thought to refer to the whole Hypaspist Corps, is IV.24,10. Here, Arrian says that a third of the Royal Hypaspists were dispatched to a certain task. This is widely thought to mean a third of the Hypaspist corps, i.e. 1,000 Hypaspists (Milns R. D. 1971). Things might be a little more complicated. If this had been the case, it would have been prudent to dispatch a whole unit and not a collection of individual troopers, or small units. In such case, however, Arrian would have clearly stated that a Chiliarchy of the Hypaspists was assigned a task; as he did in III.29,7. So, it may well be that Arrian is very accurate in his terminology in this case and does not refer to a mission undertaken by a whole Chiliarchy of the Hypaspist Corps (1,000 men out of 3,000), but to a detachment of one *specific* Chiliarchy: the one-third of the Royal Hypaspists (300 men out of 1,000).

The passage about Hydaspes (Arr. An V.13,4) that is mentioned by Prof. Bosworth simply verifies this opinion. All three Chiliarchies are mentioned one by one, and we also learn of another commander, Seleucus. Could he have been in charge of the Royal Hypaspists in Gaugamela as well or is he replacing Nicanor as commander of the Corps? This passage speaks about Royal Hypaspists under Seleucus, the *Agema* and then the rest of the Hypaspists being deployed according to the order of the day. This implies more than one separately commanded units apart from the two already mentioned. So, he could well be speaking about the 500-strong units of the corps, of which there were six (coupled into three Chiliarchies). This is the only part of Arrian's account that could be taken to imply that the Royal Hypaspists and *Agema* were actually 500-strong units of the Hypaspist Corps and not full Chiliarchies, as believed by Berve I, 127 (1926).

This leaves some other questions open regarding Arrian's style. Prof. Bosworth rightly points out that there is only one mention of the "*Mace-*

donon Agema” and numerous of the “*Agema*” and “Hypaspists’ *Agema*”, and the “Royal *Agema*”. The same is true with the third Chiliarchy of the Hypaspists and the Corps. In Granicus there is mention of “Companions’ Hypaspists” (I.14,2), and from then on usually just “Hypaspists”. As far as the *Agema* is concerned, it could be considered that by clearly mentioning “Hypaspists’ *Agema*”, Arrian is reminding his reader that this *Agema* unit is part of the Hypaspist corps.⁷

However, from this point on, there are two distinct possibilities:

The full name of the *Agema* was indeed the “*Macedonon Agema*” and once mentioned, to inform the reader of the full name, Arrian shifts to the simpler version of “*Agema*”, from time to time reminding that it was a unit of the Hypaspist Corps.

The name of the unit is simply the *Agema*. This leads Arrian to define, just once, that it is a Macedonian unit (and most probably recruited from the whole of the realm) to prevent any confusion with the *Agema* of the Spartan army (which must have been the prototype) or of any other Greek army which had such a unit.

As far as the “Companions’ Hypaspists” are concerned, the solution might well be a similar one. Arrian mentions this name just once because he does not know which of the following might be correct:

The first alternative: the whole Hypaspist Corps is called “Hypaspists” and comprise three Chiliarchies: the *Agema*, the *Royal Hypaspists* and the *Companions’ Hypaspists*”, the latter being the first unit of the corps to have been formed.

The second alternative: the originally formed unit was the *Companions’ Hypaspists*” (Arrian attests to this in I.14,2) but when the Corps expanded, this title described the whole corps, the original unit being then called simply the *Hypaspists*

and comprising only a third of the corps, along with the *Royal Hypaspists* and the *Agema*. This Chiliarchy, the *Hypaspists* (former *Companions’ Hypaspists*), Arrian refers to as *the rest of the Hypaspists* for lack of a suitable and accurate characterisation or epithet.

Regarding the polymorphism in Arrian’s language, which is a central argument of Prof. Bosworth’s account of the “guard units” of the Macedonian army, one could remark that he is the author of a tactical treatise (“The Art of Tactics”), where terms are used strictly and systematically. In other words, Arrian might be expected to use such linguistic behaviour in every part of his narrative BUT the military terminology. This does not mean he is always accurate. Comparing and creating consensus from more than one source (he has at least two major ones) is by no means an easy task, resulting in his vague comprehension in many passages; at the crossing of the Hydaspes, for example, he places half of the Hypaspists in the same small *triakondoros* vessel with Alexander (V.13,1).

(ROYAL) BODYGUARDS

Prof. Bosworth’s view of the *Somato-phylakes* (‘bodyguards’) and the *Vasilikoi Somatophylakes* (‘royal bodyguards’) being one and the same is also ill-substantiated. There were only seven Bodyguards and an eighth was added as an honour for saving Alexander’s life in the citadel of Malli; this was Peucestas (Arr. An VI.28.3). Bosworth’s view of them belonging to the *Companions* is not contested here, but Peucestas must, or might, have been a Hypaspist.⁸ On the other hand, the *Royal Bodyguard* is stated to have followed

8 In I. 11,8, Arrian says that the sacred arms taken from Troy were borne by the Hypaspists before Alexander in battles and, in VI.28, 3-4, Peucestas is supposed to have assisted Alexander at the Malli citadel bearing the shield taken from Troy, which makes him very probably a Hypaspist. Moreover, in VI.9,4, Arrian specifically states that the Hypaspists were following Alexander in his assault to the walls and, furthermore, Diodorus, in XVII.99,4, calls Peucestas a Hypaspist.

⁷ It could also be very bold to propose that the “*Agema*” proper was a chiliarchy and comprised two pentacosarchies, the “*Makedonon Agema*” and the “*Royal Agema*”. This would explain the plural of “*Agemata*” outside Thebes in I. 8,3.

Alexander himself on a special mission, against the Uxians, along with some Hypaspists and “8,000 of the other infantry” (Arr. An III.17,2). This means that the Royal Bodyguard was a unit by itself, for there would have been no reason for Arrian to enumerate just seven bodyguards along with other units (Hypaspists and other types of infantry). This Royal Bodyguard must have been some hundred strong and been able to assume battlefield assignments, much like the Guard units of the Napoleonic Era. Moreover, in IV.30, 3, Arrian states that Alexander took the “Bodyguards and Hypaspists up to 700” to occupy the a position, called Rock, abandoned by its defenders. This readily reads as a unit of Hypaspists (500, since their major unit was the “thousand”- chiliarchy) and the Bodyguards (700-500=200). However, its primary function would have been, understandably and again like European Renaissance Guard units, to attend to a variety of duties, such as the guarding of the palace in peacetime or whenever the king was in residence, as well as secret police/military police functions. It is very tempting, almost compelling, to identify them with the Royal pages, an institution possibly copied from the Persians (as proposed by Keinast, 1973), and described as such by Xenophon (Xen. An I.9,3-4). Arrian mentions the pages as bodyguards in the chapter regarding their conspiracy (Arr. An IV.13), and the duties that he details to them fall squarely into the jurisdiction of a bodyguard. Moreover, when Diodoros says that Hephastion was wounded at Gaugamela while leading the Bodyguards (Diod XVII.61,3), he most probably means the Royal Bodyguards, who followed, as always, the king and, in this instance, fought on horseback, as he did; when the king fought on foot (IV.30,3), so did they. This also explains the elusive unit of “the other friends” under Philotas in his description of the battle order (Diod XVII.57,1): this unit is not named but it followed the Royal Ile under Cleitus the Black and preceded the other seven Companion Hipparchies (the latter name is most probably anachronistic).

The reason for inconsistent referencing in Arrian (Royal Bodyguard vs Royal page) may be a drastic change in Alexander’s court. Alexander loved changing things and maintaining a dynamic condition to his establishment, in order to allow adaptations and also to negate the establishment of local focal points of personal power and might, which was a difficult job in the traditionalist Macedonian Army. Thus, after the conspiracy the Pages might have been renamed, as after Philotas’ conspiracy the Companion Cavalry was divided to two under Cleitus and Hephestion (Arr. An III.27,4). Unfortunately, as the Royal Bodyguard is mentioned both before (Arr. An III.17,2) and after (Arr. An IV.30,3) the Conspiracy of the Pages (Arr. An IV.13), this idea might have to be reconsidered; Arrian’s change of the source he followed, whereupon he might have opted to follow the terminology of each, might be the true, although much less appealing, reason. Another possibility is the Royal Bodyguard to have been the final stage and, thus, the culmination of Page duty. Royal Bodyguards were Royal Pages, but not all Pages were in the Royal Bodyguard at the same time. Moreover, it is very probable that the Pages, after graduating, joined the Royal Hypaspists if inclined to a military career. Heckel (1986) supports the transition from the Royal Bodyguard to the *Agema*, (for no evident reason but the notion that the *Agema* and the Royal Hypaspists were one and the same), or the Companion Cavalry as a territorial army if joining their families back in their estates or if assuming government positions. It is entirely possible that the Companions, after the first generation which were handpicked and invited by Philip to expand the Corps, were admitted after service as Royal Hypaspists, to solidify their loyalty to the head of state and familiarise themselves with infantry support and warfare, which they would be required to depend on or to command. It is very tempting to identify Aretes, the squire who passed his spear (*xyston*) to Alexander in Granicus (Arr. An I.15,6), and obviously a Royal Page given that squiring to the King was

among their duties (Arr. An IV.13,1), with Aretes the leader of the mounted scouts in Gaugamela, (Arr. An III.12,3) thus showing the professional potential of the Royal Pages.

INNOVATING AND CONSERVING

A pivotal part in this study is the idea of Macedonian main units being of a tertiary structure. The Hypasist Corps included three units. Is this the case with the Phalanx and the Companion Cavalry? The Macedonian army followed, in the most part, the southern Greek golden rule of a 1:10 ratio between cavalry and infantry and special/standing units and levies. Thus, the *Taxeis* must have been 10 times larger than the *Ilae*, following the same structure, the Hypaspists must have been 10 times the strength of the Royal *Ila* and the cavalry must have been equal in strength to the Hypaspists. Although this is difficult to prove, as half the army stayed in Macedon with Antipater, the basic idea remains valid: it is no coincidence that in Gordium (Arr. An I.29.4) the ratio of Macedonian cavalry and infantry reinforcements was 1:10. The notion of the *Ilae* being 150-strong comes from the battle of Issus in II.9.4 and II.9.3. Prior to that, both in Pelium (Arr. An I.6.1) and in western Asia Minor, after Granicus (Arr. An I.18.1), a figure of 200 for detachments of Companions is reported. This cannot accord with a 150-strong *Ilae*; they are obviously 100-strong and of a binary structure as with standard Greek practice. The key are the reinforcements arriving at Gordium (Arr. An I.29.4): the 300 new cavalry would have been sufficient for one more 50-horse sub-unit for each of the six Companion *Ilae*, and the same would have been true for the 3,000 fresh phalanx troops: one more 500-strong subunit for each of the six *Taxeis*. It is at this point, before the obvious showdown with Darius and the imperial Persian army that Alexander changed the structure of his army, to enhance its tactical flexibility; he would do so once more after Gaugame-

la, again after receiving massive reinforcements under Amyntas in Susa (Arrian III.16,10; Curtius V.1.40), returning to a binary structure, better suited to mountain and unorthodox warfare. On this occasion it would remain thus to the end of the Macedonian state, almost two centuries later.

For the cavalry, Arrian is resolute; Companion *Ilae* were augmented from 150 to 200 cavalrymen and divided into two *Lochoi* (Arr. An III.6,11), supposedly 100-strong; for this, the 500 cavalry brought by Amyntas (Curt V.1,41) were more than enough. For the Infantry, a degree of conjecture is required: the existing six *Taxeis* were augmented from 1,500 to 2,000 by one more 500-man *Lochos* (Curt V.2,3) and divided into two Chiliarchies each; this transformation required at least 3,000 phalangites, the product of the fourth *Lochos* of 500 by the six pre-existing *Taxeis*. With the Taxiarchs being automatically assigned one of the two Chiliarchies of their respective *Taxis*, six new commanders, *Chiliarches*, were required, who were elected as described in Curt V.2,3-5. Another two commanders were needed for the command of the two *chiliarchies* of the newly established seventh *Taxis*; its establishment required another 2,000 troops, bringing the total to 5,000 phalangites, whereas 6,000 had been brought by Amyntas (Curt V.1,40).

* * *

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REZIME

KORPUS HIPASPISTA: EVOLUCIJA I STATUS MAKEDONSKIH ELITNIH PEŠADIJSKIH JEDINICA

KLJUČNE REČI: KORPUS HIPASPISTA, FILIP II, ALEKSANDAR VELIKI, MAKEDONSKA VOJSKA.

Korpus Hipaspista je bio elitna jedinica, koju je verovatno osnovao Filip II, a nasledio ga je Aleksandar Veliki, zajedno sa ostalim komponentama makedonske vojske. Te su trupe bile aktivno uključene u svaku ratnu operaciju, bilo da se radi o velikoj bitci ili nekoj manjoj pešadijskoj misiji tokom velikih ratnih pohoda na azijskom kontinentu, probudivši interes mnogih naučnika koji su se bavili ovom temom da bliže odrede njihovu ulogu i značaj. Međutim, u mnogim aspektima, priroda korpusa još uvek nije dovoljno rasvetljena. Ovaj rad je pokušao da postavi neke osnovne probleme karaktera ovih jedinica, ističući njeno poreklo, status, funkcionalno raspoređivanje, organizaciju, oružje i evoluciju.

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UDC 904:551.23"652"(497.11-11)

Original research article
Received: 16th September 2019
Accepted: 15th November 2019

ARCHAEOLOGICAL TESTIMONIES FROM THE ANCIENT PERIOD RELATED TO THE KNOWLEDGE AND USE OF HEALING SPRINGS IN EASTERN SERBIA

ABSTRACT

The topic of this paper is ancient finds discovered in the vicinity of healing springs in the territory of present-day Serbia. The finds testify that the healing springs in this area were known, used and revered in the ancient period. Finds from sites in Milutinovac, Boljetin, Šarbanovac, Sumrakovac, Nikoličevo, Felix Romuliana and Sokobanja are presented.

KEYWORDS: HEALING SPRINGS, ANTIQUITY, SCULPTURES, GEM, SANCTUARIES, EASTERN SERBIA.

The aim of this paper is to establish whether healing springs were known and used during Antiquity in the area of today's Eastern Serbia. One of the best confirmations of this possibility is presented by the archaeological testimonies of the worship of the cult of Roman deities with iatric and/or soteriological characteristics (Asclepius, Hygieia, Hercules, Dionysus, Dioscuri, etc.), discovered in the close vicinity of the healing springs.

The importance of thermal and mineral springs in Antiquity is evidenced by the conclusion of S. Krunić, who, in her doctoral dissertation entitled "Roman Medical, Pharmaceutical and Cosmetic Instruments in the Upper Moesia Territory," made the following observation: "Healthy water, a communal network, public baths, space for gymnastic exercises, healing springs and thermal waters were the prerequisites for maintaining personal hygiene" (Крунић 2000: 3).

Extending the role of thermal and mineral waters from the practical to the sacral sphere, the same author also states that: "... it is no wonder that we most often find votive plates and sculptures in gratitude for healing and salvation right beside the ther-

mal and healing springs" (Крунић 2000: 223).

It is reasonable to assume that a similar situation can also be expected near the healing springs in Eastern Serbia, which abound with extremely significant archaeological sites. This paper will cover the territories of the cities of Zaječar and Bor and the municipalities of Kladovo, Negotin, Knjaževac, Majdanpek, Boljevac and Sokobanja.

Archaeological evidence from Antiquity found close to healing springs regarding the worship of ancient deities with iatric and soteriological features was established in Milutinovac, Boljetin, Šarbanovac, Sumrakovac, Nikoličevo, Felix Romuliana and Sokobanja (Васиљевић 2014).

Information will be presented about the sites that can be associated with the topic of this work on the following pages.

Milutinovac is a settlement in the municipality of Kladovo in the Bor administration district. F. Kanitz recorded the existence there of a former healing water spring. The travel writer records evidence of a spring beneath the Čuka Mare hill (altitude 366 metres), northwest of Milutinovac, where there were remains of an earthen fortifi-

cation from the First Serbian Uprising that was built on ancient foundations: "At the foot of this sharply profiled hill, there is a spring of rather tasty warm salt water, for which, not far from the village inhabited by Montenegrins three decades ago, exploratory drilling was performed 18 years ago in the hope that salt could be found, but without results" (Каниц 1989: 481–482).

Kanitz also noted that in the village of Milutinovac, there is a rectangular castle, approximately 50 x 60 metres in size, with some walls that are preserved up to a height of two metres. He goes on to say that he thought that traces of the castle would disappear in a very short time (Каниц 1989: 481–482).

P. Milošević and M. Jeremić conditionally identified the fortification, whose local name is not known, as Timena, as documented by Procopius. It was built at the point where the Danube is narrowest, to allow control of the large bank nearby, the existence of which further facilitated passage across the Danube. Since the site was threatened by the construction of the Đerdap II hydroelectric power plant, archaeological excavations were carried out (Milošević, Jeremić 1986: 245).

Research has shown that it was an early Byzantine fortification from the 6th century, with approximate internal dimensions of 48–49.90 x 54 m, and external dimensions of 51.80–53.30 x 57.80 m. The corners of the fortifications are reinforced with one circular tower (the southern tower) and three ellipsoidal towers. In the middle of the coastal rampart, it was noted that there was a rectangular tower where the entrance to the fort was probably located. Portions of the staircase structures and exits to the walkway were discovered inside the ramparts. The thickness of the ramparts is 1.90–1.95 m. Finds such as fragments of early Byzantine amphorae and a semifollis of Justin II, dated in the seventh decade of the 6th century, have been discovered (Milošević, Jeremić 1986: 246–249).

The selection of the location of the fortification in Milutinovac was certainly influenced by strategic reasons, primarily by the fact that it was

built at the point where the Danubian Ključ is narrowest. However, it is believed that the existence of a nearby mineral spring had significance in the daily life of the fortification's inhabitants, so this site may be included in the list of sites associated with healing springs. The recorded existence of the former mineral spring in Milutinovac leads to conclusion that similar, today non-existent, springs could also have existed close to other sites within the area (Vasiljević 2018: 47–48).

Boljetin is a settlement in the Majdanpek Municipality. The existence of a healing spring there was also recorded by Felix Kanitz. However, the existence of springs is not recorded in contemporary literature. Kanitz noted that the ancient fortification, not far from the confluence of the Boljetin River and the Danube, is "on the opposite side of the hot spring that originates from the very river, not far from the bank" (Каниц 1985: 214).

The existence of a military camp, used from the 1st to the 6th century, was ascertained in the Boljetin area. It was built in the first half of the 1st century, as an earthen fortification with palisades. During the second half of the 1st century, masonry ramparts were constructed. The fortification was abandoned in the 2nd century, perhaps during Hadrian's reign. It was restored for the first time, just before Aurelian's withdrawal from Dacia. It was devastated in a fire during the first decades of the 5th century and was rebuilt for the second time during the great Justinian restoration in the 6th century (Зотовић 1982/1983: 211).

The dimensions and interior decoration of the earthen castle are unknown. The conclusion about its existence is made on the basis of stratigraphy and analysis of architectural remains from the 1st century. Remains of fortifications from the second half of the 1st century were only found in the southeastern half of the camp (Fig. 1). The dimensions of the oldest masonry fortification have not been precisely determined. It is known that the northeast - southwest axis corresponded to the length of the axis of the reconstructed fortification, while the northwest - southeast axis was slightly longer

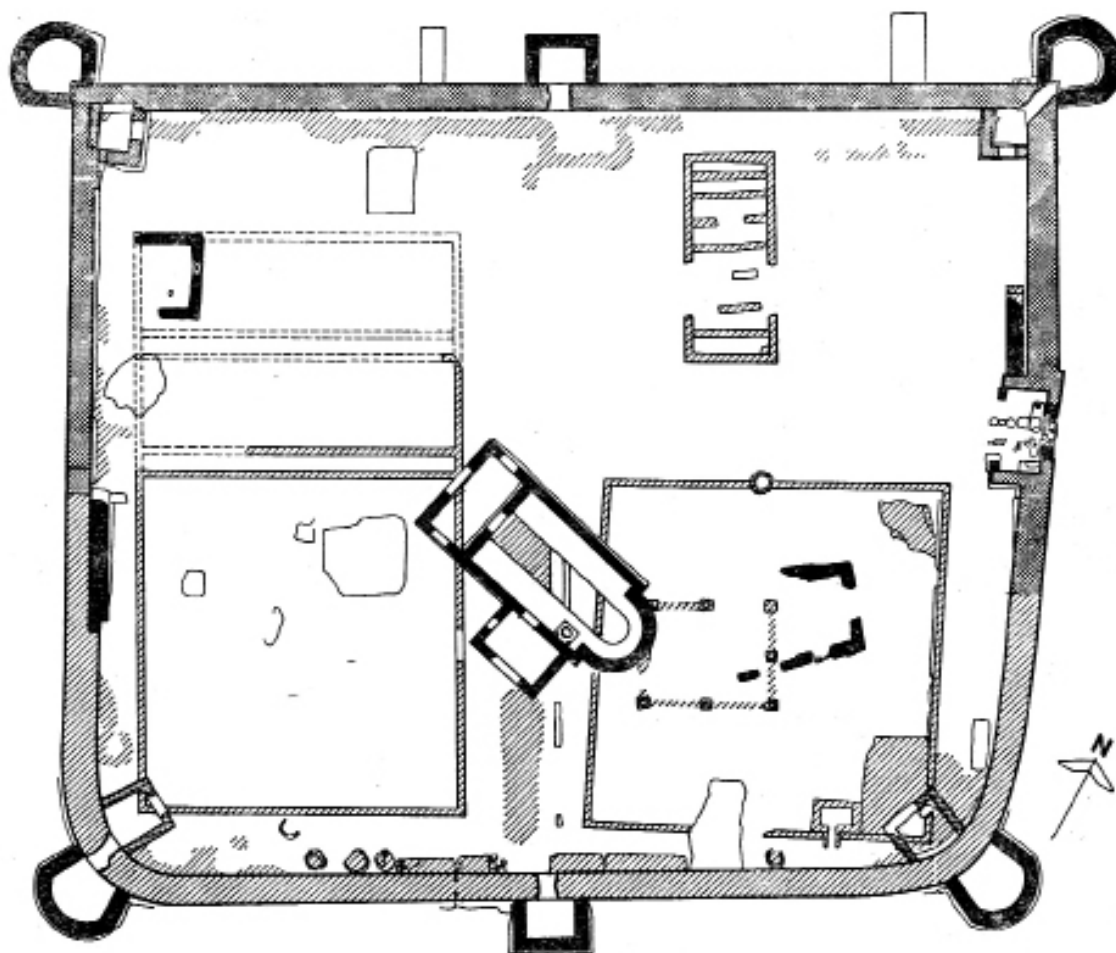


Fig.1 Plan of the fortification in Boljetin (according to: Зотовић Љ. 1982/1983: 213, сл. 2).

than the fortification axis of the subsequent construction phase. During this phase, the fortification inhabitants consisted of members of the Legion IV Flavia. The fortification was demolished from the north-western side, from the direction of the Boljetin River, at the part near its confluence into the Danube. (Зотовић 1983: 214–215).

Several structures from this period have been preserved inside the fortification. Of particular interest is building I, made of polygonally cut stone blocks, secured with mortar. It is clear that these are remains of a Roman bath over which a Christian religious building was constructed, bearing in mind its shape, but perhaps also there is a suggestion that it was associated with a cult related to the use of hot water from a nearby thermal spring (Зотовић 1983: 215–216).

During the first renewal of the fortification, just before Aurelian's withdrawal from Dacia, the three preserved ramparts were rebuilt, and a north-western rampart and the northern half of the north-eastern rampart were built from the base. The inner towers of the fortification were also built on this occasion. The interior of the fortification was filled in this phase with tents, arranged in an almost regular series of northeast-southwest directions. It is assumed that during this period the camp's inhabitants consisted of part of the Legion VII Claudia. It is considered that the camp was abandoned in the first decades of the 5th century. The time when the camp was abandoned is marked by a layer of demolition, while traces of fire are only visible in the eastern part (Зотовић 1983: 220–222).

During the early Byzantine restoration of the

limes, the fortification at Boljetin was also renewed. It is believed that on this occasion only relatively well-preserved ramparts from the older phases were extended and partially renewed, and that adaptations on the gates were made as well, while the outer towers were built from the foundations. As already mentioned above, in the central part of the fortification, above the Roman bath, a church was built. All parts of the church were built using alternating masonry of cut and broken stone and brick. The church, in its restored or only levelled, devastated condition, was a cult site related to a medieval necropolis. It is possible that the remains of the church were not visible during this period, but it only remained in the minds of the inhabitants as a cult place where burials were performed (Зотовић 1983: 223–224).

According to numismatic finds, it is concluded that cessation of life in the fortification occurred during the last years of the 6th century, when the camp was devastated by a large fire (Зотовић 1983: 225). V. Kondić identified the fortification in Boljetin as Smorna, recorded by Procopius (Кондић 1971: 54–58).

During the exploration of the medieval necropolis formed within the ramparts of the ancient fortification, the existence of 97 skeletal graves was recorded. It was found that one grave, marked as number 72, originates from the Roman period. It is a child's grave, oriented southeast-northwest, with the head facing northwest. It was discovered beneath an intact daub construction. There were no grave goods. The other graves belong to a medieval necropolis dated from the 12th – 14th centuries (Ерцеговић-Павловић 1983: 227–230).

During the exploration of the necropolis, within the Early Byzantine layer, a hoard was discovered, consisting of eleven crescent shaped copper and bronze earrings decorated with a filigree technique, which S. Ercegović Pavlović attributes to the Slavic population and dates to the 10th – 11th century (Eadem 1969: 83–95).

Previously, we described being convinced of the longevity and continuity of life in Boljetin,

that is, the ancient and Byzantine Smorna. An answer has yet to be found to the question of the importance of the thermal spring, recorded by Kanitz, for the functioning of the fortification. It is probable that the strategic importance of the location was a primary factor in selecting the site for building the castrum. Nevertheless, it is supposed that for the daily life of soldiers and all others residing in the castrum or its immediate vicinity, an easily accessible thermal spring was of great importance. The existence of a Roman bath almost at the centre of the fortification, with a relatively small area with hypocaust heating, indicates the possibility that thermal water from the spring was used in the bath. It is easy to assume that in this case, a certain cultic worship for thermal waters had developed, creating such a relationship also to the place where the waters were used, that is, the balneum. The significance of the cult site extended through the early Byzantine basilica and medieval necropolis (Vasiljević 2018: 48–51).

The Šarbanovac settlement is located in the territory of the municipality of Bor. Some of the ancient sites in Šarbanovac can be associated with the presence of healing waters. From the Early Iron Age there are random metal finds from a hoard or a grave. One of the hot springs in Šarbanovac might have represented, in ancient times, a cult place where votive offerings were placed and access to this area was protected by two ancient fortifications (Gradiška čuka and Zdravi kamen). Two settlements from the Middle Ages (the 10th–11th and the 15th century) have been recorded there.

The frequently cited F. Kanitz states that Roman arrows, tools and coins were found near the Šarbanovac hot spring (Kanitz 1989: 406). A. Jovanović considers that it is possible that the cult goods by the thermal springs marked sacred centres of an iatric character. Findings of coins are common in such contexts, while arrows can represent a kind of monetary equivalent. The finding of tools in a cult setting is peculiar, however. It may be possible to draw parallels with the mining ingots laid at the foundations of buildings as a

prophylactic element. The same author comments that the place of worship of a local cult of iatric character associated with thermal springs is probably an interpretatio romana of the cult of Apollo or Artemis (Јовановић 2004: 193).

S. Jovanović recorded the remains of two ancient fortifications near Šarbanovac, in the Jelašnica River gorge. One is on the Gradiška čuka hill (907 metres above sea level) recorded by Kanitz. There was probably an ore processing centre within the fortification. Another fortification was found on Zdravi kamen (altitude of about 600 metres). The fortification at Zdravi kamen was built on a plateau accessible only from the south-western side. The preserved parts of the ramparts are generally recognised by the terrain configuration. The ancient fortifications near Šarbanovac can be associated with the provision of ancient mines and communications for the transportation of ores to the Timacum Minus mining station (Јовановић 1986: 195–197; Gacović 2010: 47).

It can be assumed that the inhabitants of the aforementioned fortifications knew, used, and probably attached cult significance to the nearby healing springs. Perhaps in this way, the emergence of arrows as cult offerings can be explained.

At this point it can be concluded that the spring in Šarbanovac represented a place where iatric cults were worshiped, to which votive gifts were offered. Unfortunately, no remains of Roman immovable objects or objects of the cult have been discovered, on the basis of which could be determined the mode of healing water use and the specific cults worshipped at this place.

Sumrakovac is a settlement in the territory of the Boljevac municipality. In this area, from the ancient period, a villa rustica and a random find of a gem with a representation of Dioscuri were registered (Fig. 2). At the Selište site, in an area of approximately one square kilometre, there are remains of Roman structures, including bricks measuring 40 x 40 cm (Гарашанин, М., Гарашанин Д. 1951: 133).

This is probably the same site where A. Jo-



Fig. 2 Roman gem with a depiction of Dioscuri, from Sumrakovac, 3rd century (according to: Јовановић А. 2004: 205, сл. 114).

vanović recorded the remains of an ancient villa rustica. The villa in Sumrakovac was built on a convenient extension above the river, similar to other buildings of this type in the surrounding area (Јовановић 2004: 183, 187; Gacović 2010: 61).

An accidental find of a gem with a representation of Dioscuri in a standing position leaning on a sceptre originates from Sumrakovac. The composition has a very interesting concept: the heraldic axis is accentuated by the sceptres, and the curved figures follow the oval edge of the object. A. Jovanović believes the reason for such a presentation could be the deification of Antinous or the introduction of the young Caesars, Caracalla and Geta, into the imperial programme of Emperor Septimius Severus. The author finds confirmation for the second assumption in the arrangement with a section on the base, which is why the gem resembles coins of the 3rd century, and it is dated accordingly. (Јовановић 2004: 213).

It is believed that the aforementioned location of the find near the spring in Sumrakovac was certainly not accidental. The Dioscuri cult had

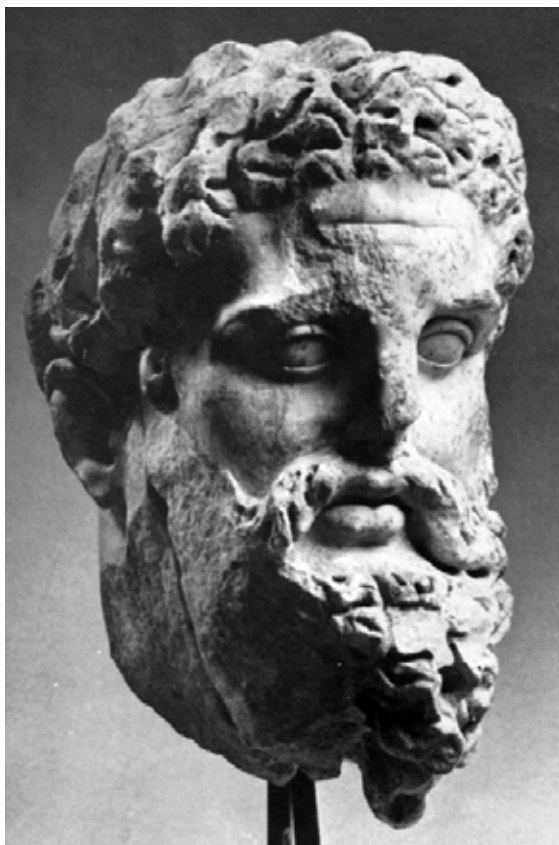


Fig. 3 Head of Hercules from Felix Romuliana
(according to: Живић 2003: 36, сл. 18).

significant iatric and *soteriological* elements and could have been worshipped in the environment of healing springs.

The remains of a small single naved church dated to the 14th – 15th century are in the vicinity of Sumrakovac (Јанковић, Вуксан 2004: 271). Unfortunately, the denomination of the church is not known.

The indications are sufficient to conclude that the waters in Sumrakovac were used in the ancient period and that their healing properties were known, as evidenced by the find of the gem with the representation of Dioscuri. To date, the remains of a Roman bath within the aforementioned villa rustica have not been confirmed, but it is believed that the existence of a *thermae* can be assumed.

Nikolićevo is a settlement in the municipality of Zaječar. In the area of Nikolićevo no archaeological sites have been registered, but the find of

an unfinished statue of Heracles in Rgotina has led A. Jovanović to the notion that the deity could have been worshiped as the patron saint of thermal springs in the nearby Nikolićevo (Јовановић 2004: 193), (Fig.3).

The aforementioned assumption remains in the theoretical domain, but it is believed that it sufficiently points to the possibility of use, as well as the cultic reverence of the spring in Nikolićevo in Antiquity.

Gamzigradska Banja is located 11 kilometres west of Zaječar. One of the oldest hydroelectric power plants in Serbia is in Gamzigradska Banja.

The Crna reka valley, where the Gamzigrad site and the Imperial Palace of Felix Romuliana are located, is surrounded by mountains of volcanic origin and offers all the conveniences for life. Among the many natural benefits there, the thermal springs also stand out, through which the locals of these area, as M. Lazić wrote, “gained vitality and encouraged their pagan religiosity” (Лазич 2010: 21).

The first evidence of prehistoric cultures in the area of Gamzigrad were discovered during the 1970s, during the exploration of the Roman imperial palace. Several prehistoric sites have been explored in the vicinity of Gamzigrad: the Eneolithic site (Bubanj – Sălcuta – Krivodol) on Beligovo hill, near Gamzigradska Banja; the Bronze Age necropolis on Magura hill (Gamzigrad culture); a multi-layered prehistoric site on Banjska stena, near Gamzigradska Banja (Bubanj- Sălcuta -Krivodol, Coțofeni – Kostolac Culture); a Bronze Age settlement in a rock shelter near Gamzigradska Banja; a Bronze Age and Early Iron Age settlement on the route to Miletov bunar, near a Roman quarry; and a Bronze Age settlement in the village of Zvezdan (Gamzigrad culture). More than thirty sites from various prehistoric epochs were registered by field surveys in the vicinity of the imperial palace.

Archaeological research at Gamzigrad confirmed the existence of a Roman settlement before the construction of the monumental Felix Romuliana, the palace of the Emperor Galerius.

In older literature, the Roman remains from the period before the palace was built had been interpreted as an ancient villa rustica (Петковић 2010: 33; Srežović, Vasić 1994: 56–57).

Felix Romuliana is a topic that numerous researchers have been occupied with. At this point, only finds and immovable objects which can be associated with the use of nearby healing springs will be taken into consideration.

The creation of a bibliography of works dedicated to the site of the Imperial Palace, Felix Romuliana, the later Slavic Gamzigrad, would be a great challenge for any researcher. One of the most important sites that the Roman Empire left to humanity as part of its legacy has been investigated from many aspects, but the possibility of its connection to nearby healing springs in today's Gamzigradska Banja remains difficult to establish.

Regarding the immovable finds, the most significant for this paper is the building with remains of a hypocaust heating system. It is located below the entrance to the south tower of the western gate of the younger fortification. This is a late antique *thermae* built on the most south-eastern part of the palace, at the lowest elevation of the terrain. Two construction phases and alterations were observed. The bath covers an area of approximately 28.5 metres (north-south direction) and 14.6 metres (east-west direction), that is 403.56 m². Originally, there were two niches in the western wall of the *thermae* hall, plastered and painted, provided perhaps for sculptures of Asclepius and Hygieia (Fig. 4). There is a possibility that a white marble Asclepius statue, discovered in the north-western part of the site was originally located in this place (Чанак-Медић, Стојковић-Павелка 2010: 100).

Several finds were discovered within the palace that testify to the worship of deities with iatric-soteriological functions. Attention should be drawn to parts of the Hercules statue (though, in the general context, it may rather be associated with the imperial cult) and the torso of Asclepius (the existence of the statue of Hygieia in the same spatial and cult context was also assumed), while M. Živić believes



Fig. 4 Statuette of Asclepius from Felix Romuliana (according to: Живић 2003: 79).

that there are sufficient indications confirming the worship of the Apollo cult. Also added to this list will be a famous mosaic with a presentation of Dionysus (Живић 2010: 107–134).

It should be emphasised that all stated finds can be considered as expected in the complex of the great imperial palace, but without the missing elements (inscriptions or direct allusions), they

cannot be used as definitive proof of the knowledge and worship of the nearby healing springs. However, regarding the discovery of direct confirmation of the use of springs from Gamzigradska Banja at the time of the existence of the ancient site, the aforementioned finds could also be viewed in this context.

The undisputed fact is that Emperor Galerius built a palace and a mausoleum near the place of his birth. As a well-grounded assumption, the possibility can be stated that the choice of the precise location of the imperial complex was influenced by the presence of nearby healing springs, as a place filled with mysticism and numerous beliefs. The long-term belief in the miraculous properties of healing springs in Gamzigradska Banja is testified to by the Wallachian song for the farewell of the deceased, cited by A Jovanović, as an example of the belief that the deceased should be washed in fairy water (in this case, certainly, healing water) in order that the body, with a certain mummification process, stay preserved until Apollo's return from the land of Hyperborean (Јовановић 2012: 159–160).

The conclusion is that it is very likely that healing springs in today's Gamzigradska Banja were known and used by the inhabitants of ancient Romuliana, who may have left material traces regarding the significance and meaning of the springs in their time, which may be discovered in the future.

Sokobanja is a town and spa in the municipality of the same name. It is located at an altitude of 400 metres. The Moravica River runs through Sokobanja.

Literature records the information that a find of coinage of Justin II originates from the Gradište site in Čitluk and Trubarevac, near Sokobanja (Рашковић 2010: 177). A Maurice solidus (582–602), minted in Constantinople, was found at the Gradište site in Ozren, near Sokobanja (Рашковић и Гаврић 2011: 463).

Near the bath in Sokobanja, F. Kanitz recorded the existence of ancient finds and walls, as well

as a Roman vaulted canal. The travel writer states that he observed the existence of a drainage canal with a semi-circular vault of thick, burnt bricks, dating it to an ancient period. Based on these observations, it is concluded that springs in Sokobanja were used as early as the ancient period. The same author believed that the medieval Soko Grad, as well as the adjacent city of Tatomir, were built on ancient grounds. (Каниц 1989: 114–115).

The existence of an ancient fresco-decorated building is possible at the Glogan site, 2.5 kilometres southeast of Sokobanja, or about 400 metres east of Soko Grad. The structure has not been archaeologically researched, so no definitive conclusions can be drawn about it (Милојевић, Милошевић, Кајтез 2013: 47–52).

The Trebič site is located five kilometres west of Sokobanja, on a shallow slope between the homonymous stream and the Sokobanja – Aleksinac road. It covers an area of 200 x 100 metres. It was not mentioned in the literature until 1968, although finds from the ancient and early Byzantine period (statue of Mercury, fibulae, pottery, building material), were known, including coins from the 1st–6th centuries, today in a private collection (Petrović 1968: 132–133, 135).

The motive for archaeological excavations was the activity of amateur archaeologists and the discovery of two gold rings, two massive bronze buttons filled with lead, and a brick with the inscription MAXIMUS, when a walled tomb was excavated. The tomb, built of bricks and dug into the subsoil, is oriented north - south. The external dimensions are 2.46 x 1.70 m. It was paved with square-shaped bricks. The aforementioned brick with an inscription was found in the floor of the tomb. The larger number of discovered roof tiles (*tegulae*) suggests that the tomb was covered with a double-pitch roof. The remains of carbonised bones were found in the excavated earth, so it was probably an incineration tomb. Above the row of bricks on the north side is a pebble and broken stone wall joined with lime mortar, which, together with identical walls discovered nearby, is part of

a building functionally and chronologically separated from the tomb (Petrović 1968: 133–134).

Two bronze buttons identical to those found earlier, a small ring made of bent bronze wire with endings in the form of stylised snake heads, bronze cosmetic tweezers, and the upper part of a bone overlay ornamented with incisions were found in the earth that was illegally dug from the grave. According to the construction and finds, the tomb is dated to the 2nd – 3rd centuries. The assumption about the existence of a Roman necropolis has not been confirmed, so it was probably a road-side tomb. The building above the tomb, based on analogies in the method of construction and earlier finds of coins from the 6th century, is determined to be from the early Byzantine period. It should be mentioned that the find of a flint knife and several pottery fragments testifies to the existence of a prehistoric settlement (Petrović 1968: 134–135). Although there is no archaeological evidence to support Kanitz's assumptions regarding the use of local thermal waters in the Roman period, it is believed that the theory is not ungrounded and that the travel writer noted traces of the use of springs in ancient times. In accordance with this assumption, it is reasonable to consider the possibility that the medieval Soko Grad was built on the remains of an ancient fortification that protected thermal springs.

An overview of the sites and finds indicates that, during the ancient period, the healing springs were known, used and worshipped in the area which is the topic of this paper. Future research will certainly expand the list of sites known to the population in Antiquity, and also provide interpretations that will broaden the knowledge of the situation in places where ritual worship and gratitude for the healing properties of mineral spring water have already been established.

* * *

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REZIME

ARHEOLOŠKA SVEDOČANSTVA IZ ANTIČKOG PERIODA VEŽANA ZA POZNAVANJE I KORIŠĆENJE LEKOVITIH IZVORA U ISTOČNOJ SRBIJI

KLJUČNE REČI: LEKOVITI IZVORI, ANTIKA, SKULPTURE, GEMA, SVETILIŠTA, ISTOČNA SRBIJA.

Lekoviti izvori oduvek su privlačili pažnju stanovništva, koje je koristilo njihove blagodeti, a često se dešavalo i da svoje naseobine podignu u njihovom neposrednom okruženju. To sigurno nije bio izuzetak ni kod stanovništva koje je, u antičkom periodu, naseljavalo prostore današnje Istočne Srbije, što nagoveštavaju i brojni arheološki nalazi otkriveni u navedenom kontekstu.

Putopisac F. Kanic zabeležio je da su se, u blizini utvrđenja u Milutinovcu i Boljetinu, nalazili izvori lekovite vode. Isti autor beleži da se, kod toplog izvora u Šarbanovcu, nalaze rimske strelice, oružje i novac, koji se mogu smatrati za kultne priloge. Savremeni autori pretpostavljaju da se u Šarbanovcu nalazilo mesto poštovanja lokalnog kulta ijatričkog karaktera, verovatno *interpretatio romana* kulta Apolona ili Dijane. Kanic je smatrao i da su Rimljani poznavali i koristili izvore u Soko Banji, o čemu svedoče brojni antički lokaliteti u okruženju.

U blizini vile rustike u Sumrakovcu otkrivena je gema sa predstavom Dioskura, što ukazuje na mogućnost poštovanja božanstava vezanih za obližnje lekovite izvore. Nalaz nedovršene statue Herkula nagoveštava da bi on mogao biti zaštitnik izvorišta u Nikoličevu. Priča se zaokružuje osvrtom na caru palatu, Feliks Romulijanu, podignutu nadomak izvora u Gamzigradskoj Banji.

Pregled lokaliteta registrovanih u blizini lekovitih izvora na teritoriji današnje Istočne Srbije, pokazao je postojanje velikog spektra nalazišta koja se, direktno ili posredno, mogu povezati sa eksploatacijom njihovih voda.

Stanje istraženosti većine lokaliteta nije dovoljno da bi se stekle precizne slike o nekadašnjim banjskim kompleksima i kulturnim mestima pored lekovitih izvora, ali određene indicije više nego jasno ukazuju da su blagodeti pojedinih vrela bile poznate, korišćene i poštovane tokom antičke epohe.

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UDC 904"652"(497.11)
94:63(398)

Original research article
Received: 5th September 2019
Accepted: 15th November 2019

ROMAN AGRICULTURE: A CASE STUDY FROM VIMINACIUM AND ITS SURROUNDINGS

ABSTRACT

This paper is a brief overview of the research at Viminacium and in its surroundings performed so far that are related to agricultural activities. Aside from villae rusticae, which were registered in large numbers within the ager of the city, the discoveries of which have broadened our knowledge on the subject in the last few years, numerous archaeological remains of farming tools from various locations in Viminacium indicate the existence of larger agricultural estates of the municipal aristocracy. Archaeobotanical analyses have a special importance, because they show if there were any changes in regional vegetation, which, in turn, can point towards a continuity or discontinuity in the settling of a given region.

KEYWORDS: AGRICULTURAL PRODUCTION, VILLAE RUSTICAE, AGRICULTURAL TOOLS, ARCHAEOBOTANICAL ANALYSES, VIMINACIUM, ROMAN PERIOD.

Agriculture was a fundamental activity of the Balkan indigenous population, even before these territories fell under the Roman domination. The new Roman reign brought new organisation methods, more or less successfully including the local population, which depended on the Romanisation level of the newly established Roman provinces. Therefore, the reconstruction of agriculture in all its aspects represents one of the main factors for the understanding of the course of Roman influence in provinces formed in these areas.¹

Until recently, little was known about the agricultural activities in *Viminacium* and its surround-

ings during the Roman period. The last few years of research in this area, however, have expanded the knowledge on the importance of rural economy. We can, therefore, speak of farming as a basic economic activity which lead to the development and significant prosperity of the city, especially during the 2nd and 3rd century AD.

During a field survey of the route of the Antique road between *Viminacium* and *Lederata* in 2003-2004, archaeologists from the National Museum of Požarevac, Dragana Spasić-Đurić and Dragan Jacanović, recognised the problem of insufficient research and study of content related to every-day life outside the urban part of the city (Spasić-Đurić, Jacanović 2007: 123–164). By locating the route of the road and registering sites on the left and the right side of the road, they provided a solid foundation to grasp, through analyses

¹ The article is a result of the project: *Viminacium, Roman city and military camp – research of the material and non material culture of inhabitants by using the modern technologies of remote detection, geophysics, GIS, digitalization and 3D visualization (no 47018)*, funded by The Ministry of Education, Science and Technological Development of the Republic of Serbia.



Map 1 – The area of Stig plain.

of topographic data and archaeological finds, the actual scope of ancient *Viminacium* and its spatial organisation.

The marginalisation of topics regarding rural settlements (*vici*, *villae rusticae*), economics of agricultural estates, changes in the demographic structure, socio-economic aspects of life, etc. has been partially reduced in the last few years through discoveries of villas on several sites in the wider area of the city territory of *Viminacium* (Jovičić, Redžić 2012: 369–385). These discoveries in the immediate urban surroundings are indicative of the importance of agriculture to the inhabitants of *Viminacium*, but they still do not provide answers to questions related to the scope and structure of the ager of *Viminacium*.

Also worth mentioning is an article by A. Medović, which provided results of the archaeobotanical analyses obtained during archaeological research in *Viminacium* performed after 2000. Even though the main goal of these archaeobotanical analyses was to show which type of timber was used for the construction of the amphitheatre, the results obtained showed, among other things, a richness of cereals and weeds at the site, which indicated intensive farming production on the wider

territory of the city (Medović 2014: 95–99, T. I).

The ancient city and military camp of *Viminacium* was situated in the fertile plains of Stig. When the city had the status of a *municipium* (117 AD), its territory covered a larger part of the plain in the lower course of the Mlava River, on the Stig plain while, after acquiring the status of a colony (239 AD), *Viminacium* expanded to cover the entire Stig plain and Veliko Gradište (*Pincum*) (Popović 1968: 30).

The area of Stig was a very important agrarian area in Antiquity, just as it is today. It is the second largest plain in Serbia, with its northern border the Danube, to the west the Mlava and in the east and south-east the Homolje mountain range (Map 1). The fertile valley at the confluence of the Mlava and the Danube provided conditions for intensive settling activity in this area during prehistory, as well as later, during Antiquity. The valley of the Dunavac often flooded, thus creating fertile ploughland, providing suitable living conditions which, in turn, resulted in dense settling in this area. Good communications with other city centres, first and foremost with *Singidunum*, on one side, and the Morava river valley on the other, together with the fortification system along the Danubian limes,



Map 2 – Roman road Singidunum-Viminacium.

enabled the continuous transit of merchandise and safe markets (Map 2).

In order to obtain more reliable data on the development of Roman agriculture in the wider area of *Viminacium*, it is necessary to perform extensive research, starting with climate, relief, soil, and archaeobotanical analyses.

Concerning climate change in the Roman period, we know that, at the beginning of the 1st millennium AD, climatic conditions in some parts of Europe were not the same as today. The Climatic Optimum of the Roman period was reached in the 1st century AD. The average annual temperature in Europe was higher than today by 1–1.5°C. According to research, the Alps were green in that period and the boundary of the glacier was at least 300 m higher than today (Schlüchter 2004: 34–47).

As the period for which there is available meteorological data is brief, historical information regarding migrating plant species should be considered. By tracking the history of vegetation, it can be established whether the climate changed and, if so, when this happened. As evidence of this, data shows that, in the early Middle Ages, the inhab-

itants of Greenland were still engaged in animal husbandry and farming, and that cooling started at some point in the 13th century (Opra 1998: 166). However, this change in the average annual temperature of the Earth is not accompanied by uniform changes in all parts of the globe. Regarding global climate variations, the changes were greater in areas closer to the poles. Usually, major changes in the climate of regions with a higher latitude are followed by the moving of the borders of plants and the withdrawal of animals from these regions to areas with warmer climates, or vice versa.

Based on paleobotanical research, it can be concluded that the climate in the Mediterranean has been stable for the last few thousand years. Consequently, the southern border of the grape growing region and the olive growing region's northern border have not changed since biblical times. According to scientific knowledge, the northern border of the region of olive cultivation in Italy is in the same place today as it was during the ancient period (Opra 1998, 165). From data on global climate variations and its change around Greenland and its stability in the Mediterranean,



Fig. 1 – Villae rusticae at Viminacium and its surroundings (Doc. of the Institute of Archaeology, Belgrade, Project Viminacium, the author: Mladen Jovičić).

nothing can be concluded regarding climate variations in the area of the Central Balkans. Grapes and chestnuts are characteristic of hot regions. Oak thrives in colder areas and can withstand

very low temperatures, but bears little fruit. According to historical data, oak forests existed in the Balkans before the arrival of the Romans. The 5th century Byzantine historian Priscus speaks

of dense woods north of *Naissus* (Остророски 1955, Прискок, Фрг. 8: 291). The fruits of the forest are used for animal feed, but also for people. Bearing in mind the presence of these cultures today, we can conclude that the climate in the Balkans has not changed much in the last two thousand years.

Several decades long rescue excavations of the Antique city of *Viminacium* have brought to light a large number of findings with a variety of functions. Since the archaeological excavations are conditioned by the works on the Drmno surface mine, the discoveries of city necropolises and other urban structure have provided the most visible results so far. However, in the last few years the scope of research has been broadened into the wider area of the city territory, which has resulted in very the important discoveries of several villas. The founding of agricultural estates outside of the city is linked to the period of economic prosperity during the 2nd and the first half of the 3rd century, when most of the inhabitants of the wider city territory lived and worked on them. Relative political security in this period enabled, among other things, the development of farming, which represented one of the basic activities in the area of the fertile plain of Stig in the province of *Moesia Superior*. In an indirect manner, dedications to agricultural deities also bear witness to this fact: to Liber and Libera (Pilipović 2006: 89; Mirković 1986: 73, no. 27) and Silvanus (Mirković 1986: 198, no. 300).

This remarkably favourable micro-unit represented an ideal place for agricultural estates of the *villa rustica* type with the farm buildings and manufacturing workshops necessary on such homesteads. As the political, military, economic and religious centre of a wider territory, the city certainly depended on its rural area, which represented the basic source of food for the city population. The remains of villas have been discovered at various locations within the city ager in the course of archaeological research at *Viminacium* in recent years (Jovičić, Redžić 2012: 369–385; Korać, Golubović, Mrđić 2018: 41–71), (Fig. 1).

A confirmation of intensive farming activities in the wider city area of *Viminacium* can also be seen with the finds of farming tools, discovered in various different locations. These are mostly tools used in farming production: spades, sickles, bill-hooks, picks, mattocks, axes and pickaxes (Fig. 2, 3). The finding conditions show that a large number of these tools have been present at locations where objects intended for farming activities were registered.²

The agricultural orientation of the area of *Viminacium* required a large number of people to work on the land. It is probable that the workforce consisted mostly of free peasants at first, who lived on the estates or in their vicinity. In this context, it should be mentioned that the role of the free peasants/tenants has yet to be defined, and all the information related to this topic is based on assumptions. The peasants/tenants most probably cultivated the land of the municipal aristocracy, but afterwards, with the progress of Romanisation, their numbers diminished, first and foremost because of their ever increasing participation in military service. We may, therefore, assume that the use of a slave workforce increased. This is supported by epigraphic data from the 3rd century, where it is stated that when land was assigned to soldiers, they would also receive, at the same time, slaves and cattle (Mirković 1968: 138, note 14).

More information on the development of farming activities in the wider city territory of *Viminacium* is also provided by the results of archaeobotanical analyses performed within archaeological research in the last few years (Medović 2014: 95–99). On the basis of results obtained from *Viminacium*, together with other sites in Serbia from which earth samples have been taken, it is possible to enumerate all the important cereals which were grown in the Roman period (Medović 2008: 151–173; Medović 2010: 101–113). The first analyses have shown that the area around

² An especially large number of farming tools has come from the site of Nad Klepečkom, where a large villa was registered.

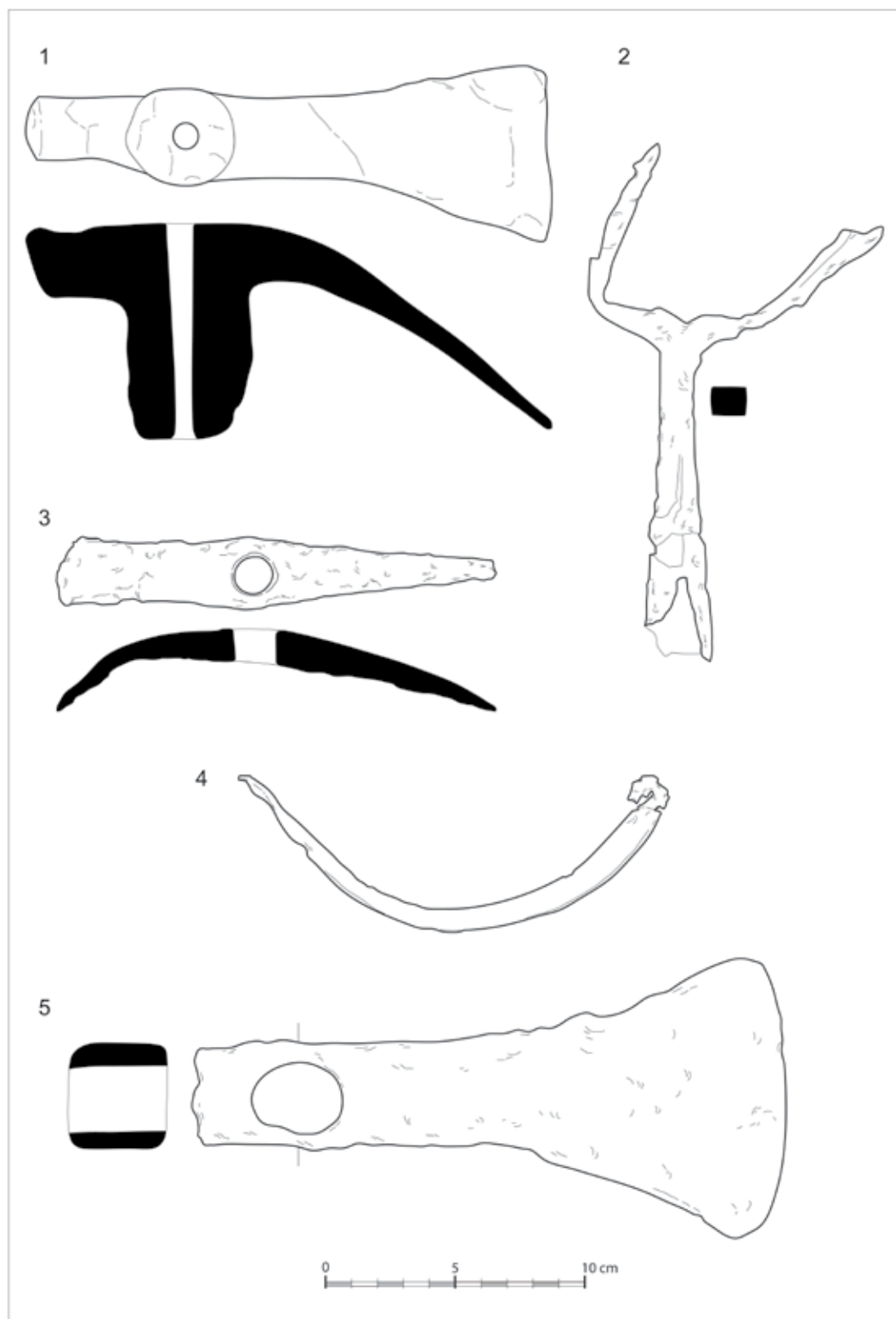


Fig. 2 – Agricultural tools from the sites: 1, 2, 4, 5 – Nad Klepečkom; 3 – Pećine (Doc. of the Institute of Archaeology, Belgrade, Project Viminacium, drawings).



Fig. 3 – Agricultural tools from the sites: 1 – Burdelj; 2 – Rit; 3, 4. – Nad Klepečkom
(Doc. of the Institute of Archaeology, Belgrade, Project Viminacium, photos).

Viminacium was very suitable for plant economy. Even though the main goal of these archaeobotanical analyses was to show which type of timber had been used for the construction of the amphitheatre, the analysis provided data on the presence of cereals and weeds as well. The results showed the presence of five cereals (loose six-row barley, rye, bread wheat, oats and broomcorn millet) and one cultivated pulse crop, lentil. Three fruit species were identified: woodland strawberries (*Fragaria vesca*), hazel (*Corylus avellana*) and common fig (*Ficus carica*). The list of weeds includes 25 plant names (Medović 2014: 97, T.1). All of these plants, with the exception of millet, can be seen even today in the ploughland of the valley of Stig. This ancient crop was suppressed, over a just a few centuries, by maize and, thus, virtually vanished from ploughlands.

These types of analyses has a special importance, for they can show if there had been any changes in the regional vegetation, which, in turn, could point to a continuity or discontinuity in the settling and usage of a given area.

CONCLUSION

Even though we are still far from having a complete overview of the actual scope and structure of the ager of *Viminacium*, the more recent research of the wider city territory does shed, however, a new light on the pre-existing knowledge on agricultural activities and the importance of the rural economy in providing provisions for the city population of *Viminacium* during the Roman period. Through analyses of available material we can conclude that agriculture played an important role in the wider territory of *Viminacium*. Aside from *villae rusticae*, which were registered in large numbers within the city ager, the development and improvement of tools intended for the cultivation of cereals certainly had an influence on the intensity of agricultural production and increase in yields. Additionally, numerous archaeological

remains of agricultural tools at various locations in *Viminacium* suggest the existence of larger agricultural estates of the municipal aristocracy, on which the autochthonous free population of the area was most probably hired at first, although over time, with the progress of Romanisation, the number of free peasants who worked the land gradually decreased, since a large part of the Roman army was recruited from within their ranks. Thus, we may assume that, over time, the usage of a slave workforce increased.

Numerous archaeological remains of agricultural tools at different locations in *Viminacium* and throughout the territory of Stig indicate the existence of estates of landowners, a fact that is entirely understandable given that the fertile Stig plain was suitable for farming, especially for growing grains. Furthermore, these remains are similar to the tools recorded in the fortifications on the Danube Limes in the province of *Moesia Superior* (Ilić 2016: 31–42; Поповић 1988: 33–108). This indicates the importance of the production of grain as the basic food intended for the inhabitants of *Viminacium*, but also the military stationed in the castrum of *Viminacium* and in the numerous fortresses along the Danube.

Finally, we can say that there has been a tendency in the recent years among the investigators of the archaeological site of *Viminacium* to carry out a more detailed analysis of the mentioned villas, but also the other objects used in agriculture, including topographic and typological determinations. However, it seems that some even more comprehensive studies are still required.

* * *

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REZIME

**RIMSKA POLJOPRIVREDA:
PRIMER VIMINACIJUMA
I NJEGOVE OKOLINE**

**KLJUČNE REČI: POLJOPRIVREDNA PROIZ-
VODNJA, VILLAE RUSTICAE, POLJOPRIV-
REDNA ORUĐA, ARHEOBOTANIČKE ANALI-
ZE, VIMINACIUM.**

Novija istraživanja šire gradske teritorije Viminacijuma daju novu svetlost na dosadašnja saznanja o poljoprivrednoj aktivnosti i značaju ruralne ekonomije u snabdevanju gradskog stanovništva Viminacijuma tokom rimskog perioda.

Pored vila rustika koje su konstatovane u većem broju u okviru gradskog agera, razvoj i usavršavanje oruđa namenjenog kultivaciji žitarica uticali su, svakako, na intenzitet poljoprivredne proizvodnje i povećanje prinosa. Brojni ostaci poljoprivrednog oruđa na različitim lokacijama u Viminacijumu i njegovoj okolini, ukazuju na postojanje većih poljoprivrednih imanja municipalne aristokratije, što je sasvim razumljivo imajući u vidu činjenicu da areal Stiga obuhvata jednu plodnu ravnicu pogodnu za poljoprivrednu proizvodnju, naročito za uzgoj žitarica, što je potvrđeno i arheobotaničkim analizama. Ovakve analize imaju poseban značaj, jer mogu da pokažu da li je dolazilo do promena u regionalnoj vegetaciji, a koje bi dalje mogle da ukažu na kontinuitet ili diskontinuitet u naseljavanju šireg područja Viminacijuma tokom čitavog perioda rimske dominacije.

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UDC 904"653"(497.11)
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Original research article
Received: 18th March 2019
Accepted: 15th November 2019

THE GRAC – GORNJAK SPRING ARCHAEOLOGICAL SITE IN THE GORNJAK GORGE

ABSTRACT

The remains of the fortifications and sacral monuments in the wider area of the Gornjak gorge that have been explored to date are, in terms of chronology, determined in our science to be from the Late Middle Ages. The results of archaeological surveys, which have been carried out on several occasions in this area, also indicate settlement during the Late Antiquity and Early Byzantine period. Presented in this paper is the Grac – Gornjak spring archaeological site located at the very centre of the Gornjak gorge, and its immediate surroundings. Judging by the collected finds, this site was most probably inhabited during the period from the 4th to the 6th century, without excluding the possibility of settlement during other historical periods.

KEYWORDS: GORNJAK GORGE, GRAC PEAK, FORTIFICATION, LATE ANTIQUITY, EARLY BYZANTINE.

INTRODUCTION

The first interest of travel writers in the fortifications and sacral monuments in the wider Gornjak gorge area, as far as is known, started during the first half of the 19th century. Travelers' attention was mostly focused on the fortified complex of the medieval town of Ždrelo. In addition to the defensive walls, the first Antiquity admirers who passed through this area left significant data regarding the sacral monuments as well (Миловановић, in print). These include church buildings popularly known as the Metropolitanate, the Annunciation (Blagoveštenje) and Gornjak. Their origin was determined to be in the Late Middle Ages, based on archaeological excavations that were performed between 1979 and 1984. During these explorations, the dating of the settlement of Gornjak gorge was also established for the first time to be in prehistoric times, more precisely, during the Iron Age (Мадас и Гајић

1983, 221-222 1; Цуњак 2000).¹

The settlement of the Gornjak gorge during the Roman and Early Byzantine periods was first assumed during a field survey of this area at the very beginning of the 1990s. The heads of the research were Mlađan Cunjak and Milorad Miljković. At that time, in front of the so-called Velika pećina (large cave), on the right bank of the Mlava, at the foot of Mali Vukan, a wall was recorded, which, according to the aforementioned researchers, indicates that this place was inhabited during the Roman and Early Byzantine periods. In addition to prehistoric pottery sherds, one Roman coin was also found at this site (Цуњак и Миљковић 1992: 102).²

The settlement of Gornjak gorge occurring in the 4th to 6th century has been confirmed at the site

¹ During later visits to the Gornjak gorge terrain, findings from the Copper and Bronze Age were also discovered, Стојић и Јацановић 2008: 357.

² Indications of settlement during the 4th-6th century also exist on the Šetaće site in the Gornjak gorge on Mali Vukan, cf. Јацановић 2013: 14.



Fig. 1 Grac – Gornjak spring site (1), geographic location.

of the Grac – Gornjak spring, based on recently collected surface finds. To date, there have been no serious attempts to investigate this archaeological site in any more detail. In the literature, this part of the gorge was also referred to as *Gradac* (Дероко 1950: 114). However, on topographic maps the peak above the Gornjak monastery is marked as Grac.³ Unfortunately, the remains of fortifications, now visible in the field, have been largely destroyed by the activities of illegal excavators, especially in the central and southern parts.

GEOGRAPHIC LOCATION OF THE SITE

Gornjak gorge is located in the southern part of the Braničevo district, at the very entrance to the Homolje micro region. The Mlava river flows through the gorge, intersecting the fertile Stig plain downstream from the village of Ždrelo (Марковић 1988: 81, 150). The nearest town is Petrovac na Mlavi, 14 kilometres to the northwest

(Fig. 1). The Grac - Gornjak spring site is located on the left bank of the Mlava river in the very centre of the Gornjak gorge, next to the Petrovac - Žagubica road (Fig. 2). The visible remains of the fortifications were recorded on the eastern slopes of the Grac peak (405 m) which represents one of the peaks of the Ježevac mountain (675 m) (Fig 3). Spread on the right bank of the Mlava river is the Veliki Vukan mountain massif (825 m). These are limestone mountains where layers of red sandstone can be also found (Петковић 1935: 39-42). The site itself is surrounded by the Mlava, except on the western side, from where a rocky limestone massif rises to the Grac peak.

Southwest of the Grac - Gornjak spring site, at a distance of about 400 m, there is the late medieval Gornjak monastery (Fig. 4). Between the monastery and the site is a monastic cemetery whose burial space has been used since the second half of the 20th century.⁴ On the right bank of the Mla-

⁴ In a discussion with hegumenia Veronika, we obtained information about a legend telling of the original use of this area for the burial of inhabitants of the nearby villages, most probably during the 19th century. The notes of Joakim Vujić, who noticed the *monastery cemetery* in this place

³ Edition of the Military Geographical Institute 1970, sheet number 481/4, 482/3, scale = 1:50.000.

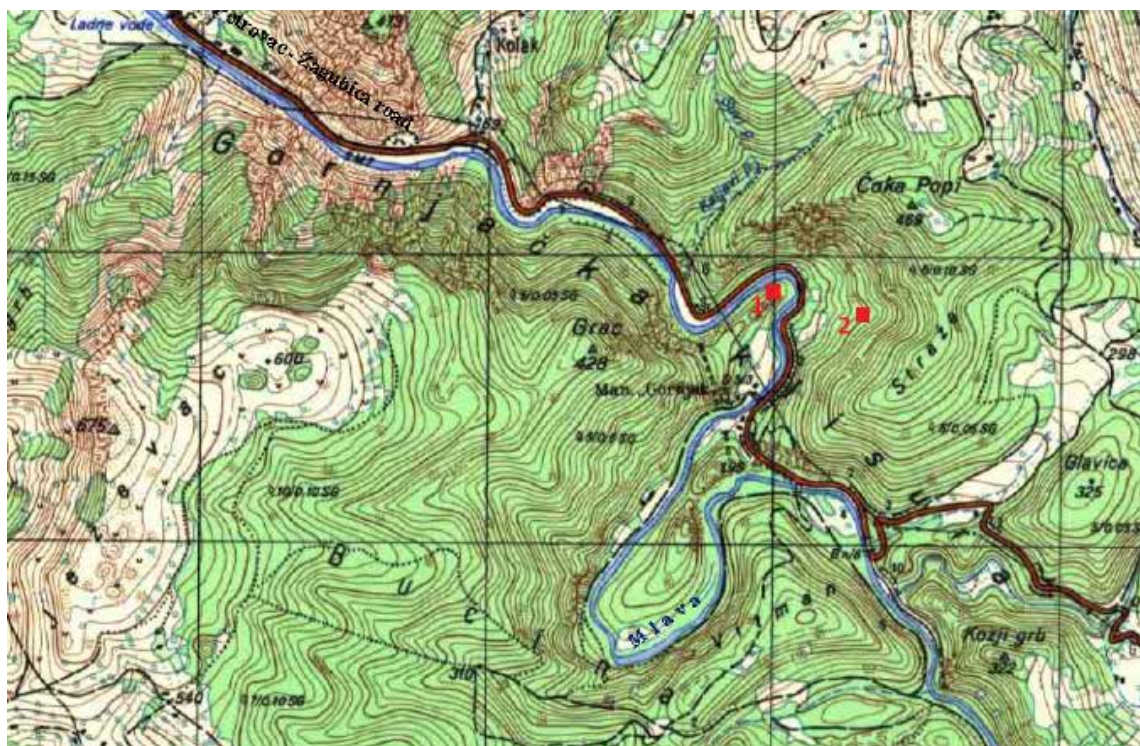


Fig. 2 Grac – Gornjak spring site (1), and Straža (2) site location on a topographic map
(Scale = 1:25000, Edition of the Military Geographical Institute, second edition, 1971, sheet number 482-1-3.)

va river, opposite the place where the remains of the fortifications have been recorded, there is the Gornjak spring, which is currently used for clean drinking water.⁵ The site is overgrown with forest, so the remains of the walls are hardly visible from the road and the spring. Further to the east, the dominant peaks are Čoka Popi (469 m) and Straža (Guard) (400 m). On the western, steep slopes of the aforementioned Straža peak (Fig. 5), visible remains of the architecture were found during field surveys, which will also be discussed in this paper.

SITE EXPLORATIONS TO DATE

The earliest data about the existence of the ramparts on the left bank of the Mlava river in the

during his visit to the Gornjak monastery in 1826, should also be mentioned (Byjuih 1901: 98). Archaeological finds that would indicate a possible chronological determination of this area have not been recorded to date.

⁵ This spring is also more recently known as the “St. Gregory Spring”.

Gornjak gorge, are in the itineraries of the teacher Todor Vlajić, the professor Josif Veselić, and Liceum pupils during the second third of the 19th century. In their notes, information can be found about a certain “town” on Ježevac (Влаић 1850: 32-35; Веселић 1867: 119-121; Поповић 1867: 41). At this moment, albeit is not possible to say with certainty if the travel writers were referring to the remains of the fortifications on the eastern slopes of the Grac peak, or to some other place on Ježevac. Milan Đ. Milićević also mentions the ramparts on the left river bank in *Манастири у Србији* (*Monasteries in Serbia*) from 1867, in which he states that “there are still remains of the towers and old towns on both sides of the Mlava” (Милићевић 1867: 57). In his other work, *Кнежевина Србија* (*Principality of Serbia*) from 1876, the clerk of various professions emphasises the existence of the rampart remains on the slopes of Ježevac, descending to the Mlava river (Милићевић 1876: 1032).

Professor Jovan Dragašević visited the left bank of the Mlava while studying the valleys and



Fig. 3 A view of Grac peak from the western slopes of Straža peak.

mountains at Homolje, beginning in 1872. In his notes can be found information on the ramparts situated “within a stone’s throw of Ježevac” (Драгашевић 1876: 312-313; Драгашевић 1874: 60-61, 63). In addition, Vladimir Karić, a jurist, mentions the fortifications along the Mlava river in the Gornjak gorge. In his paper from 1887, he wrote about dividing walls and towers located close to the river in the Gornjak gorge (Капић 1991: 38, 849). Felix Kanitz also provides similar data. During his visit to the gorge in the last quarter of the 19th century, he noticed the walls of the strong fortifications on Ježevac close off Ždrelo in Braničevo (Каниц 1885: 266). However, based on the observations of writers from the second half of the 19th century, it cannot be said with any certainty whether they left in their records information on the wall of the Grac - spring in the Gornjak gorge.

The site was mentioned for the first time under the name *Gradac*, by Aleksandar Deroko in 1950. It was recorded that 15 km from Petrovac na Mlavi

to the south there are remains of a town (Дероко 1950: 114). Subsequent interest in the fortifications on the eastern slopes of Ježevac occurs during the 1950s. At that time, the Gornjak gorge was the subject of interest of Nikola Krstić (Fig. 6), a physical education teacher from Petrovac na Mlavi (Јацановић и Живковић 2000: 111, 120) and an associate of the Požarevac Museum (Dragojević 1983: 55). Nikola Krstić also named the site, which is the subject of this paper, Gradac. In his notes, among other things, he also wrote: “A lot has been written about Gornjak. However, it has not been recorded that on hills overgrown by woods, around which the Mlava bends, there are the remains of the walls of some fortification. The most striking are the remains of the Gradac walls, which are located on the conical hill rising above the monastery. It is difficult to reach those ruins, because there is no road to the top of the hill, which is overgrown by thick forest. People believe that these green mossy walls are the hermitage of Saint Gregory of Sinai”



Fig. 4 A wider surrounding of the Grac – Gornjak spring site.

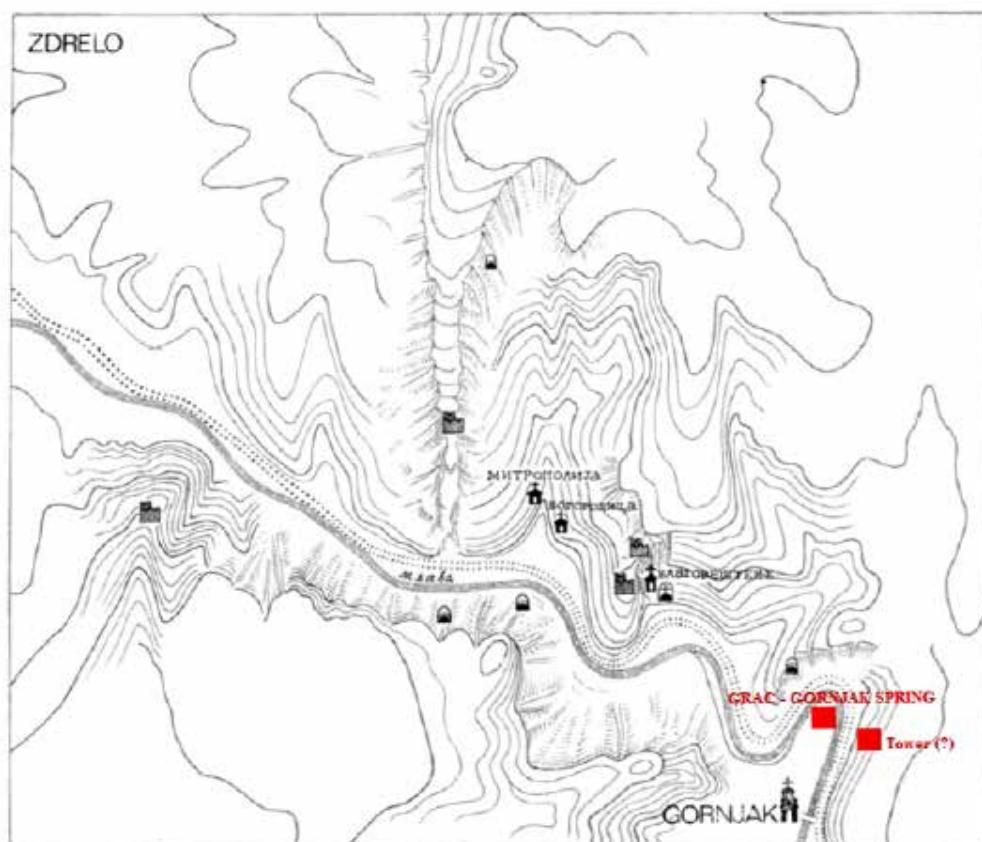


Fig. 5 Location of the Grac – Gornjak spring site and Straža in relation to the fortifications and sacral buildings explored and registered so far in Gornjak gorge (According to: Мадас и Гајић 1983: 240).

(Јацановић и Живковић 2000: 126).

Visits to the Grac – Gornjak spring site were carried out in the period between 1979 and 1981, when remains of the smaller fortification were recorded. During these years, excavations of the Late Middle Age sacral buildings on the foothills of Mali Vukan were also performed (Мадас и Гајић 1983: 222). The area of the Gornjak gorge was also surveyed at the beginning of the 1990s by M. Cunjak and M. Miljković. Judging by the brief report, the fortification remains are recorded on Ježevac, but it cannot be concluded based on the presented data if the ramparts by the left bank of the Mlava were the aim of this visit (Џуњак и Миљковић 1992: 101-102).

Several findings from this site were published for the first time in the book *Насеља Браничева. Географско – археолошко – историјска монографија* (*Braničevo Settlements. Geographic – Archaeological – Historical Monograph*) by Ben Mladenović and Dragan Jacanović from 2002.⁶ These are pottery vessels which, according to their shape, might belong approximately to the Late Antiquity.⁷ The site itself is characterised

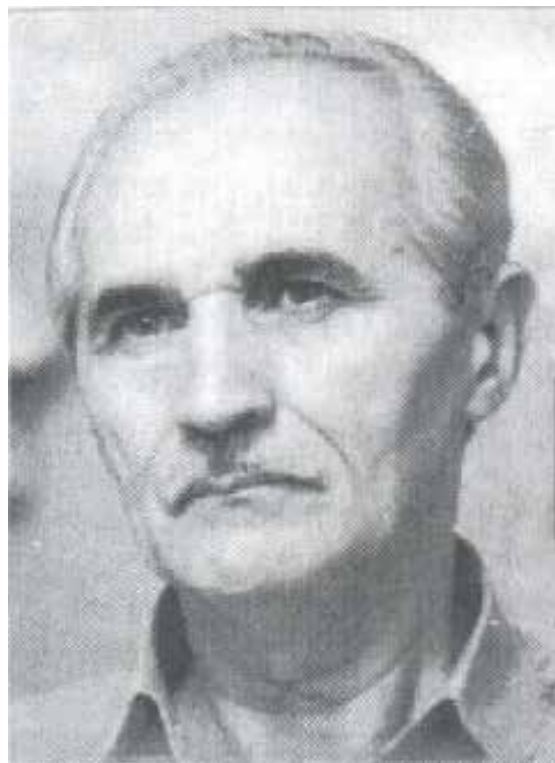


Fig. 6 Nikola Krstić, antiquity admirer from Petrovac na Mlavi and in his time associate of the Požarevac Museum.

⁶ For the time being, we do not have adequate information indicating exactly when the Grac – Gornjak spring site was registered for the first time by the archaeologists from the National Museum in Požarevac, cf. Јацановић 2013: 13-14. In the report on the work of the Požarevac museum for 1999, there is information that at that time the Gradac site in Krepoljin (?) was registered, during the realisation of the *Old Cultures of Homolje* project. In addition, the Gradac site in the village of Ribar was recorded, Манојловић 2001a: 329-330; Манојловић 2001b: 332. At this moment it is difficult to determine if Gradac in Krepoljin is actually the site in the Gornjak gorge on the left bank of the Mlava, described by N. Krstić. It should be noted that the property of the Gornjak monastery, according to certain authors, is also located in Krepoljin, Радовановић 1997: 241-242, 255; In this case, it cannot be ruled out that the Grac – Gornjak spring site was also visited during the realisation of the *Old Cultures of Homolje* project. Final confirmation of this will be obtained when the entire report from these studies is published for an academic audience, and the report on the work of the Požarevac Museum for 1999 is supplemented in a more detailed and precise manner.

⁷ The vessel sherds originate from illegal excavations. They were collected in 2000 by D. Jacanović. Detailed information about this visit is not known, Миловановић 2016a: 118.

as a *Roman metallurgy centre* (Младеновић и Јацановић 2002: 122, 129). A survey of the Grac – Gornjak spring site was conducted in 2015 by the signatory of this text. On that occasion, a short tour of the eastern slopes of Ježevac was carried out, as well as of the foothills of the Čoka Popi peak and the slopes of the Straža peak on the right bank of the Mlava river. Across from the Gornjak spring, on the slopes of the Grac peak, the fortified wall was examined (Fig. 7), and illegal excavations were also recorded (Миловановић 2016a: 42-43). A report from these brief field surveys was submitted to the National Museum in Požarevac.⁸ A smaller number of atypical pottery sherds found during the visit was handed over to the Homolje Homeland Museum in Žagubica.⁹

⁸ Report 413 and 419, National Museum of Požarevac, No. 843, 12/12/ 2016.

⁹ Official note No. 11, 16/01/2018, Homeland Museum of Homolje in Žagubica.



Fig. 7 The outer face of the defensive wall.



Fig. 8 Damage to the defensive wall on the northern part.

FORTIFICATION REMAINS AND PRESENT CONDITION

The remains of the fortifications at the Grac – Gornjak spring site are located at an altitude of about 160 m. They are reached by a path next to today's monastic cemetery, which is located in front of the Gornjak monastery. The path further leads to the limestone ridge on which the site is located, around which the Mlava makes a bend. At the top of the ridge is a smaller flattened plateau. To the north, there are remains of fortifications from which the slope gradually descends towards the Mlava. On the eastern side of the plateau is a sharp cliff, while on the western side are the slopes of the Grac peak. Slightly milder slopes are on the southern side where access to the site is the most convenient. From the top of the plateau, there is a view towards the Gornjak monastery yard and the mountain peaks of Mali Vukan and Ježevac.

The orientation of the preserved defensive wall is north – south (Figs. 8, 9). Its southern side

was built on a rock of the ridge below the plateau itself. From there, the route of the wall is adapted to the configuration of the terrain and follows the surface of the slope, which gradually descends towards the Mlava. The length of the preserved building is 12.85 m. The maximum preserved external height is 4.90 m, the inner height is 1.25 m, while the thickness is 1.60 m. The wall is made of broken and cut limestone, which is bound with a lime mortar of a whitish colour (Figs. 10, 11, 12). Traces of unauthorised digging can be observed on the inner side of the wall and in its immediate vicinity. The wall itself has been damaged in the northern and southern part by illegal searchers (Figs. 8, 13). The greatest damage to the wall is in the central part, where a large opening of an elongated irregular semi-circular shape was created by the illegal activities. The width of the opening is 1.04 m, while the height is 1.22 m. The rampart route below ground level can be followed for another 2 m in a northerly direction. Within the outer face of the wall, in the upper part, a smaller

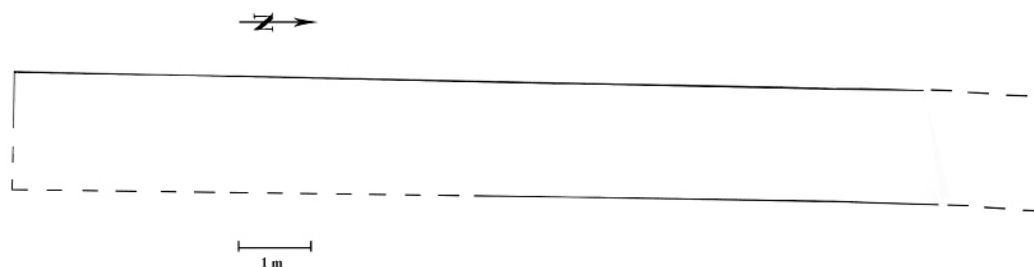


Fig. 9 Drawing of the defensive wall.

opening of an irregular square shape measuring 15 x 15 cm (location for a well fence?) can be observed. In addition to the dense vegetation, the site was largely covered with fallen leaves during the 2015 visit, so no visible traces of architecture were observed in the wider area. It should be noted that the terrain configuration at the base of the described wall, towards the Mlava, indicates the possible existence of remnants of the walls below ground. During the visit, a smaller number of atypical fragments of Late Antiquity pottery and one tegula sherd were found.

At this point, a brief overview of the closer surroundings of the Grac - Gornjak spring archaeological site is in order. First of all, reference is made to the reports of a teacher, Mihajlo St. Riznić, from 1885. While visiting the Gornjak monastery and its surroundings, he recorded the legends he had collected from the monks and locals of this region about Prince Lazar and St. Gregory. The tale, among other things, says that the Serbian prince built a cell for a hermit on Ježevac, before going to the battle of Kosovo (Ризнић 1886: 60). The information about some ruins of a cell and a church in Ježevac, recorded by Riznić and not studied to date, are of particular importance to us (Ризнић 1886: 60; Миловановић, in print). It is difficult to say where the ruins of these sacral structures were, since the entire area of this mountain, together with the wider surrounding area, have not been fully examined to date.

It is worth reminding ourselves, for a moment, of the story of St. Gregory, recorded by N. Krstić

in the 1950s. After describing the location of the Gradac site, that is, the Grac - Gornjak spring, he wrote that *the people believe that these walls, covered with green moss, are the hermitage of St. Gregory of Sinai* (Јацановић и Живковић 2000: 123, 126). Is M. St. Riznić considering this place on Ježevac when he talks about the ruins of sacral buildings? As a member of the Serbian Archaeological Society and an associate of the journal *Starinar*,¹⁰ he visited the archaeological sites in the Zvižd area where, among other things, he also recorded the sacral buildings. Together with descriptions of some sites, he also provided sketches of churches, such as in the wider area of the Čukarelja site in Kaona (Ризнић 1888: 37-38, T. V). Based on his published reports, it can be concluded that Riznić knew very well how to recognise the church buildings that were in the ruins. However, today the supposed remains of the sacral buildings in the Grac - Gornjak spring site are not identified.

It is necessary to also draw attention to the walls below the top of the Straža peak, on the right bank of the Mlava river, which are about 250 m from the Gornjak spring in a south-easterly direction. The remains of the architecture are recorded on the steep, western slopes of the peak and are visible from the Petrovac – Žagubica asphalt road (Fig. 14). The altitude of the site is about 200 m. The preserved wall is oriented north – south, made of broken and cut rubble, and bound with lime mortar of a whitish colour. Its length is 5 m, its preserved height is 2 m, and its width is 0.70 m

¹⁰ See journal *Starinar* for 1884, page 5.



Fig. 10 The inner face of the defensive wall with visible traces of damage.



Fig. 11 Damage to the defensive wall in the middle part.



Fig. 12 The external face of the defensive wall at the central part.

(Миловановић 2016b: 18-19, сл. 8).¹¹ This place

¹¹ See also Report No. 413, National Museum of Požarevac, No. 843, 12/12/2016; See also the topographic map scale=1:25000, Edition of the Military Geographical

can be reached through the north-western, milder slopes of the Straža peak. Between the road and the walls, there is a sharp, impassable slope, while on Institute, second edition, 1971, sheet number 482-1-3.



Fig. 13 Damage to the southern part of the defensive wall at the external face.



Fig. 14 Wall remains at the western slopes of the Straža peak.

the opposite side there is a smaller plateau above which the vertical cliffs rise. The place where this wall is located was skilfully selected, since it provides a view to the peaks of Ježevac and Mali Vukan. It is possible that these are the remains of some observation tower, which was included in the wider fortification system at the Grac – Gornjak spring site. Both the terrain configuration and the Straža toponym itself lean in favour of this assumption. When visiting this area, no archaeological finds were discovered that would indicate the probable chronological determination of the wall.

The reason for the construction of the defensive wall at the Grac - Gornjak spring site remains, for the time being, in the domain of assumptions. At this moment, the entire fortification's dimensions or the exact time of construction are not available, so it is difficult to talk about the possible type of fortified settlement, as long as archaeological excavations are being carried out.¹² It is possible that these walls, together with the supposed observation tower on the Straža mount, formed a joint fortified complex. The publication of the entire archaeological surveys report of this site performed by colleagues from the National Museum in Požarevac would be of great benefit to science (Јацановић 2013: 13-14).¹³ It is a distinct possibility that the defensive wall in front of the Gornjak monastery

was in better condition during these visits than it is today. It should not be ruled out that there were some other structures that were most likely visible on the terrain at that time. The site itself is defined as a *Roman metallurgical centre* (Младеновић и Јацановић 2002: 129) which is probably to be concluded from archaeological finds discovered on the surface of the site (slag, vessels, mining tools?).

FINDS

To date, two vessels from the Grac – Gornjak spring site have been presented to the public, which, based on their shape, may belong to Late Antiquity.¹⁴ These are a pot and an amphora (Fig. 15/1-2). Based on the attached photo, it can be concluded that the pot had two handles, of which one is completely preserved. The handles are located at the junction of the upper belly and the shorter neck below the rim. The rounded belly gradually descends to the smaller base. The rim of the vessel was probably profiled. Since data is only available about the vessel shape, final conclusions must be taken with reservations when it comes to dating. Judging by the shape, analogies can be found in Singidunum, where such specimens of pots are roughly determined to be in the

¹² The possibility that the dividing wall sloping to the Mlava river (?) is in question here should not be ruled out.

¹³ See footnotes No. 6 and 7 in this paper.

¹⁴ These are photos without scale. We also do not have data with a more detailed description regarding the quality of pottery and baking colour of these vessels, cf. Младеновић и Јацановић 2002: 122, 129.

period from the middle of the 2nd to the beginning of the 5th century. According to the typology set forth by Snežana Nikolić-Đorđević, a specimen from the Graz–Gornjak spring site could most likely belong to type II/9. Usually, vessels of this type are made of sandy clay, with a yellowish or white baking colour. The handle is mostly ribbed, while the dimensions themselves vary from the size of pithoi, to quite small, miniature vessels. Pots of this typological group may also have one handle (Nikolić-Đorđević 2000: 69-70, 211, *Tip II/9*).

The amphora from the Graz – Gornjak spring site has a slightly funnel-shaped neck. The shoulders and neck of the vessel are connected by two handles. The belly is approximately ball-shaped and gradually descends to a smaller base. The rim, according to the attached photograph, was probably profiled (Fig. 15/2). As in the first case, the proposed dating must be taken with caution, since no information is available to facilitate a chronological determination. According to the typology of Ljiljana Bjelajac, it is possible that they are locally produced amphorae, which should most likely be classified in type XXXII (Bjelajac 1996: 101-103, sl. XXXVI, kat. 200-203). This type of vessel is characterised by a profiled rim and twisted handles, which can also have a circular cross section. The belly is spherical or oval, while the base is straight or concave. The height of these vessels is between 40 and 50 cm and the baking colour is grey or reddish. Amphorae of this type are dated roughly between the 4th and 6th century. They have their origins in the locally produced amphorae of the 2nd-3rd century and, therefore, Lj. Bjelajac assumes their continuous production in the area of the Upper Moesia, Danube region (Bjelajac 1996: 101-102). Territorially, the closest analogies to vessels with local production of this type can be found in Viminacium, whose vessels were recorded as being in the layers of the 4th century. Some specimens were also discovered at the fortifications in Đerdap within the same cultural strata (Bjelajac 1996: 102-103, sl. XXXVI/199, kat. 199; Jevremović 1987: 51, T. XI/IV/1).

In addition to the above-mentioned vessels, some pottery fragments originating from this site can be dated approximately, with some caution to the late antiquity or the early Byzantine period. These are fragments of pots and pithoi.¹⁵ Several fragments of pots have been collected, and for this occasion one has been selected for which it can be said with certainty that it belongs to the period from the 4th to the 6th century. The fragment is made of dark grey clay with some quartz. Even though this pot type occurs at late antiquity sites, certain analogies point to its production during the early Byzantine period as well. The form of this fragment has similarities with pots found within late antiquity layers at the Đerdap fortifications (Цвјетићанин 2016: 89, тип Л/53; Кораћ 2018: 89, сл. 35/66). A pot fragment with a similar rim was found at the Jerinin grad – Gornja Crnuća site in the vicinity of Gornji Milanovac. This vessel is chronologically determined to be from the end of the 4th and the beginning of the 5th century (Људажих, Поповић и Миљинковић 1986: 87, Т. VIII/1-2). When it comes to early Byzantine archaeological sites, parallels with the pot fragment from Grac can be found in the Liška čava fortified settlement near Guča (Радичевић 2006: 42, 44, сл. 6/3-4). It seems that we also have analogies at the Viča – Stojkovića Gradina archaeological site, which is also near Guča. During test excavation, a pot was found within early Byzantine cultural strata, which by its shape and form has certain similarities with the specimen discovered in Grac. (Марковић, Петрашиновић и Људажих 1986: 69-70: Т. IV/2). Vessels of this type which belong to the older phases of pottery production on this early Byzantine site were also found in the Caričin grad site (Bjelajac 1983: 55, TIP I/16). However, the closest territorial analogies to the pot can be found at the Pregrada – Podkrš site in Žagubica. Based on micro-location and accidental finds, it is assumed that this site existed during the 6th century (Миловановић 2016а: 138, Т. VIII/6; Миловановић 2017: 33, 44, сл. 10/1;

¹⁵ The objects are kept in the National Museum in Požarevac, cf. Миловановић 2016а: 7, 41.

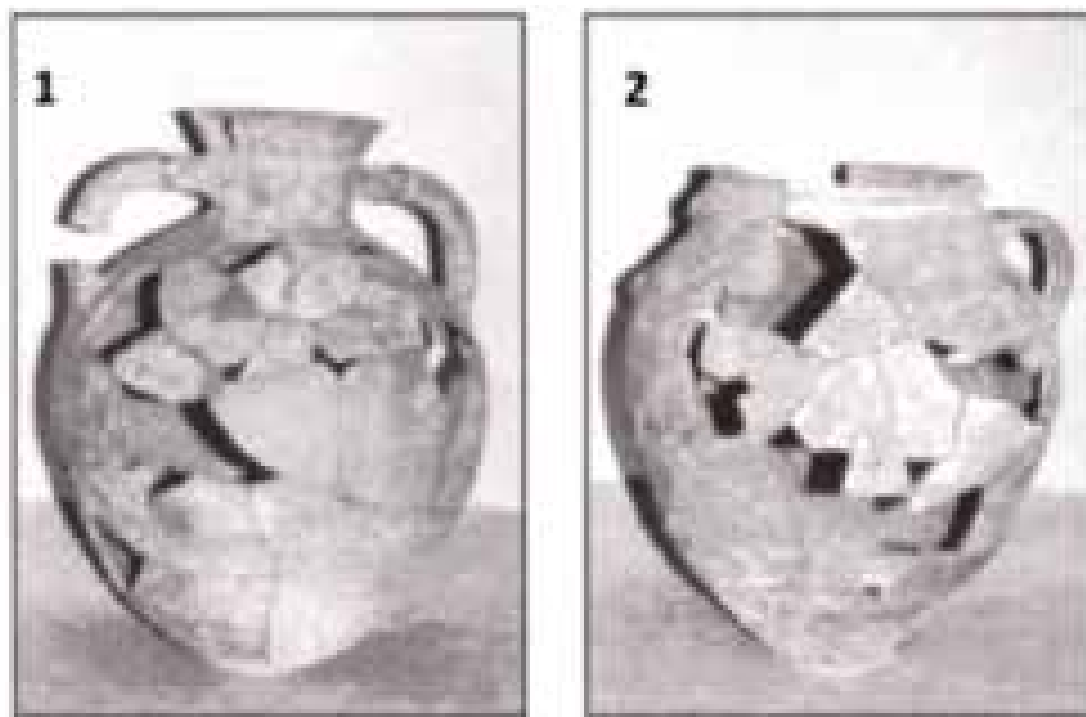


Fig. 15 Pottery vessels from the Grac – Gornjak spring site (According to: Младеновић – Јацановић 2002, 122).

Милинковић 2015: 55: сл. 13).

A fragment of a pithos from the Grac – Gornjak spring site has a flat rim with a thickened and rounded mouth. Below the flat rim, a semi-circular projection extends along the entire inner surface of the rim. The neck of the vessel is short, and the walls are thick (Fig. 16/2). It is clay with mixtures of quartz and sand, with a light grey baking colour (Миловановић 2016a: 118, T. VIII/4). Similar pithoi sherds were accidentally found at Pčelinji krš near Žagubica (Миловановић и Филиповић 2018: 3–4, 34, кат. 58). That is the site that had been settled in the period from the 4th to the 6th century (Мишић и Селаковић 2018: 19), with the assumption that the fortifications that remain visible today were built during the great Justinian restoration after 527 AD (Миловановић 2018a: 10; Milovanović 2018b: 29: ref. 2). One pithos fragment also originates from the above-mentioned Pregrada – Podkrš site in Žagubica (Миловановић и Филиповић 2018: 4, 35, кат. 62). Analogies for this type of pithos have been found within the early Byzantine cultural strata at Gradina above

Pazarište, near Novi Pazar (Popović 1999: 106 sl. 54/4, kat. br. 54/4.).

CONCLUSION

The archaeological site of the Grac – Gornjak spring, according to accidentally discovered findings, testifies to the settlement of this part of the Gornjak gorge during the period of the 4th to the 6th century (Јацановић 2013: 13-14). Since a pot from the site can also be determined to be in an earlier period, on the basis of the attached photograph, it should not be ruled out that this part of the gorge was inhabited even during the antiquity period. Travellers from the second half of the 19th century left information regarding the fortifications on Ježevac and the left bank of the Mlava river, but it cannot be said for certain whether they visited the wall presented in this paper. Nikola Krstić provided the most significant information on the location of this archaeological site in the 1950s. It is possible that his notes led experts from the National Museum

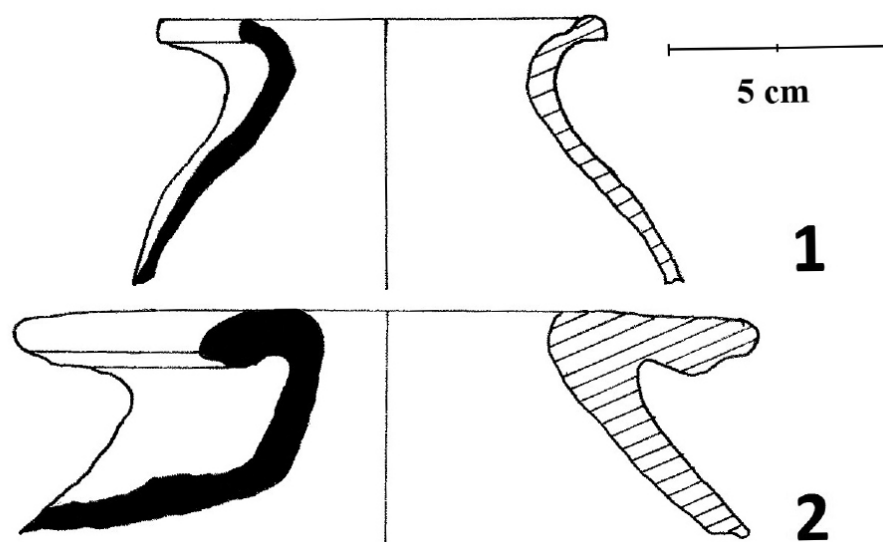


Fig. 16 Pottery sherds from the Grac – Gornjak spring site: a pot (1), a pithos (2).

in Požarevac to make a survey of this area, which was most likely conducted in 1999. Photographs of the vessels, as well as the provided sherds, indicate settlement of this part of the Gornjak gorge between the 4th and the 6th century, noting that continuity of life there during other periods of history is also possible. At this point, it is difficult to determine the type and overall surface of the supposed fortified settlement not far from the Gornjak monastery. As the site is prone to destruction by illegal searchers, the primary aim of this paper is to point out the need for protective archaeological excavations so that the remains of the fortifications will not be completely destroyed and the cultural layers disturbed. The indications of the existence of sacral monuments and necropolises on this site should not be forgotten, though they have yet to be studied in an archaeological context. The same is true of the wall discovered at the top with the indicative name Straža (Guard), across from the Gornjak spring, on the right bank of the Mlava. For the time being, there is no evidence suggesting that this area was inhabited during the medieval era. Only future archaeological excavations will provide answers as to whether the remains of the fortifications on the eastern slopes of the Grac peak and its immediate surroundings were in use during the Middle Ages, when the nearby Ždrelo fortress was mentioned in written sources.

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REZIME
ARHEOLOŠKI LOKALITET
GRAC – GORNJAČKI IZVOR U
GORNJAČKOJ KLISURI

KLJUČNE REČI: GORNJAČKA KLISURA, FORTIFIKACIJA, VRH GRAC, KASNA ANTIKA, RANA VIZANTIJA.

Ostaci fortifikacija i sakralnih spomenika na širem području Gornjačke klisure, nedaleko od Petrovca na Mlavi, u hronološkom smislu se u našoj nauci opredeljuju u vreme poznog srednjeg veka. Rezultati arheoloških rekognosciranja, koja su u nekoliko navrata vršena na ovom prostoru, ukazuju i na naseljavanje tokom kasnoantičkog i ranovizantijskog perioda. U ovom radu je predstavljen arheološki lokalitet Grac – Gornjački izvor koji se nalazi u samom središtu Gornjačke klisure, i njegova bliža okolina. Vidljivi ostaci odbrambenog zida nalaze se na levoj obali reke Mlave, ispred poznosrednjovekovnog manastira Gornjak, odnosno na istočnim obroncima vrha Grac koji predstavlja jedan od visova planine Ježevac. Na suprotnoj strani Mlave, tačnije preko puta samog lokaliteta, nalazi se Gornjački izvor. Odbrambeni zid je sagrađen na stenovitom grebenu, na nadmorskoj visini od oko 160 m. Putopisci druge polovine 19. veka ostavili su podatke o fortifikacijama na Ježevcu i levoj obali Mlave, ali ne možemo sa sigurnošću reći da li su oni obišli zid koji je predstavljen u ovom radu. Pedesetih godina 20. veka, N. Krstić iz Petrovca na Mlavi, zaljubljenik u starine i saradnik požarevačkog Muzeja, ostavlja značajne podatke o odbrambenom zidu ispred manastira. Sudeći po prikupljenim nalazima, lokalitet Grac–Gornjački izvor je bio naseljen u periodu 4-6. veka, ne isključujući mogućnost naseljavanja i tokom drugih perioda istorije. Budući da je lokalitet podložan destruktiji od strane ilegalnih tragača, cilj ovog rada je, pre svega, da ukaže na potrebu za zaštitnim arheološkim iskopavanjima, kako ostaci fortifikacija ne bi bili u potpunosti uništeni, a kulturni slojevi poremećeni.

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UDC 904:737.1.032(37)"00"
904"653"(497.11)
902.2(497.11)"1986"

Original research article
Received: August 24th 2019
Accepted: November 15th 2019

NERO TETRADRACHM MINTED IN ALEXANDRIA FOUND AT PEĆINE NECROPOLIS (VIMINACIUM)

ABSTRACT

During the rescue archaeological investigations of the southern necropolises at Viminacium, at one of them, Pećine, a silver Nero tetradrachm was discovered in one inhumation grave. The tetradrachm belongs to the series of the provincial mint of Alexandria (Egypt) and represents the only piece from this mint discovered so far in Viminacium.

KEYWORDS: ROMAN PROVINCIAL COINAGE, ALEXANDRIA, NERO, PEĆINE, VIMINACIUM.

Due to the required construction of TPP Kostolac 2, from the end of the 1970s until 1990, large-scale rescue archaeological investigations were conducted in the area comprising the southern necropolises of Viminacium.² In the course of the aforementioned investigations at the necropolises of the site of Pećine, a total of 5,626 inhumation burials and 1,153 cremation burials were discovered. Of the total number of numismatic finds (3,865),³ 1,388 coins were recorded in 840 inhu-

mation burials, and 541 coins in 457 cremation burials. 1,936 coins originate from layers, which comprise the spaces between the graves and sacrificial areas formed above individual or groups of graves. Of the total number of discovered coins (3,865), 3,497 coins were available for processing, ranging from 32/31 BC (Marcus Antonius) to 423 AD (Theodosius II).⁴ Imperial coinage comprises 84.38% and provincial 15.58%.⁵

In an inhumation grave (marked as G – 4923) an adult was buried without a coffin. The following grave goods were noted: next to the skull there was a perforated silver tetradrachm of Nero; some 60 cm from the skull, towards the south, there was

¹ The study results from the project: *IRS – Viminacium, Roman city and legionary camp – research of the material and non-material culture of inhabitants using the modern technologies of remote detection, geophysics, GIS, digitalisation and 3D visualisation* (No. 47018) – funded by The Ministry of Education, Science and Technological Development of the Republic of Serbia.

² Зотовић 1986: 41; Golubović 2008: 15; Vojvoda, Mrđić 2015: 9; Vojvoda, Mrđić 2017: 9.

³ Coins originate from graves and from layers at the necropolis. The entire numismatic material from the aforementioned rescue investigations was inventoried during 2005 and 2006 at the National Museum in Požarevac (M. Vojvoda, D. Spasić-Đurić). It was ascertained that a number of specimens had been lost or were ruined during the process of conservation (367 coins). A similar situation, as

encountered during the inventorying, was also observed among specimens from the Više Grobalja necropolis – based on the fieldwork documentation, 3,161 specimens were discovered, of which 2,736 were preserved (cf. Vojvoda, Mrđić 2015: 10, ref. 6). On this occasion kind thanks are due to our colleague Dragana Spasić-Đurić for the material provided and her cooperation.

⁴ Vojvoda, Mrđić 2017: 10, Table 1.

⁵ Vojvoda, Mrđić 2017: 10, Graph 1.



Fig. 1 obverse, reverse

a bronze key-ring;⁶ near the feet there was a red painted oil lamp with the stamp FLAVI7 and a bronze ring.

Coin description (Fig.1):⁸

Mint of Alexandria (Egypt)

Silver tetradrachm

Obv. [N]EPΩ ΚΛΑΥ Κ-ΑΙΣ Σ[ΕΒ] [ΓΕΡ]

Bust draped with aegis, right, head radiate.

Rv. ΑΥΤΟ-ΚΡΑ; in field right – LIB

Alexandria bust draped right, with elephant skin headdress.

Weight 13.33 gr; Size 24.02 mm; Axis N

Reference: RPC I, p. 709, no. 5289

Date: 65-66 AD (year 12)

Inventory no. C - 11960

The silver Nero tetradrachm dated to the year 65–66 belongs to the series of the provincial mint

of Alexandria and represents the only piece from this mint discovered so far in Viminacium. On the obverse there is an emperor's bust with an Aegis and a radial crown, while on the reverse there is the bust of the personification of Alexandria with an elephant skin headdress. It is one of 45 perforated coins discovered at the Pećine necropolis.⁹

The perforation is circular, made from the obverse side, from an aesthetic point of view indicating that the obverse was meant to be seen. However, the obverse axis compared to the reverse axis measures 0 degrees, also indicating that the reverse side was meant to be seen. The perforation edges were polished on both sides and show only very small traces of perforating.¹⁰ The coin was discovered next to the skull, but independently, without other perforated objects or beads. The position of the coin find could indicate its role on a string around the neck, as an independent pendant.¹¹

Specimens of provincial coinage at the necropolis of Pećine (total number 545) appear from the 1st to the 3rd century, the highest incidence

6 Милановић, Мрђић 2016, 250, Table 1, no. 22; 253, ref. 12; T. I.22. According to Milanović and Mrđić key-ring (C-11961) belongs to the type II/1 and was dated widely from the 2nd to the 4th century.

7 The name of this craftsman (FLAVI) is connected to the middle and lower Danube provinces, specifically Pannonia, Dacia, Moesia Superior and Moesia Inferior. It is concluded that they were produced from the end of the second or at the beginning of the 3rd century; cf. Korać 2018: 429-430, ref. 135-146.

8 Vojvoda, Mrđić 2017: 417, cat. no. 3110.

9 23 coins were discovered in skeletal burials, six were discovered in cremations, while 22 come from the layers of the necropolis; cf. Vojvoda 2018: 65-87.

10 Vojvoda 2018: 68, Pl. I/2.

11 About perforated coins from the Više Grobalja and Pećine necropolises and their role in funerary rituals, cf. Vojvoda 2015: 53-78; Vojvoda 2018: 65-87.

being those of the 3rd century (83.26%), followed by specimens from the 2nd century (7.40%) and 1st century (3.50%).¹² Among 545 specimens, coins from 13 provinces and 27 mints were recorded and between them only one coin from the Egyptian mint of Alexandria.

It is obvious that there is a huge time span between the silver Nero tetradrachm and the oil lamp with the FLAVI stamp (around 150 years). This is not the only example of a large time span, since at the Viminacium cemeteries there were several such cases with even greater time spans between several coins discovered in the same grave.¹³ The presence of coins from the Julio–Claudian dynasty in graves from the 3rd century is rare, but it is not an exception.¹⁴ A similar occurrence was noticed with some hoard-finds of coins from the Danube and the Balkan provinces. Coins of triumvir Marcus Antonius and the members of the Julio–Claudian dynasty are represented in some hoards as late as the fourth decade of the 3rd century.¹⁵ Particularly conspicuous are coin issues of *divus augustus pater* (minting during the reign of Tiberius), which represent common finds at the Viminacium cemeteries of Više Grobalja and Pećine.¹⁶

12 5.84% belong to undetermined provincial coins from the 1st to 3rd century; cf. Vojvoda, Mrđić 2017: 16–17.

13 Vojvoda, Mrđić 2015: 28–29; Vojvoda 2018: 69.

14 Gorecki 1979: 55–56, Fig. 1; Fitz 1980: 37, Tab. a, b; Istenič 1999: 203, ref. 2; Găzdac-Alföldy, Găzdac 2009: 164, ref. 13.

15 Kos 1986: 74–78; Borić-Brešković, Crnobrnja 2005: 13–14; Borić-Brešković, Crnobrnja 2008: 14–15; Borić-Brešković, Arsenijević 2008: 101–103, Table 2–4; Borić-Brešković, Vojvoda 2010: 22–23, ref. 10, 12–13, 31–35; Table 3–6b; Borić-Brešković, Vojvoda 2011: 15–18, Table 1–3, Graph 1–2, 19, ref. 29; Borić-Brešković, Vojvoda 2012: 23–26; ref. 10, Table 1–2, Graph 1.

16 At the necropolis of Više Grobalja, a total of 37 pieces were discovered that belong to the issues of *divus augustus pater*: of that number, 26 were unearthed from graves while 11 come from the necropolis layers. Of the total number unearthed, six coins were perforated (cf. Vojvoda 2015: 53–78). At the necropolis of Pećine, a total of 19 pieces were unearthed, 14 came from graves and five from the necropolis layers. Three of them were perforated (cf. Vojvoda 2018: 69). The cult of the divine Augustus was one of the most important phenomena within ideological propaganda. It was initiated during the reign of the Julio–Claudian dynasty and later, during the Principate.

We do not know when the Nero tetradrachm from this grave was perforated, but it is possible that, for a while, it was used as a pendant (on a necklace). The fact is however, that it was kept around 150 years and then deposited into a grave. Considering all the known dating information (coin, oil lamp and key-ring) it is plausible to say that the time of the funeral was from the end of the 2nd to the first decades of the 3rd century.

The only piece from the Alexandria mint discovered so far in Viminacium cannot be an indicator of coin circulation between Egypt and Moesia Superior. Rather, we can attribute the appearance of this coin in one grave at the Pećine necropolis to some private reasons.

* * *

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REZIME

NERONOVA TETRADRAHMA KOVNICE ALEKSANDRIJA PRONAĐENA NA NEKROPOLI PEĆINE (VIMINACIJUM)

KLJUČNE REČI: RIMSKE PROVNICIJSKE KOVNICE, ALEKSANDRIJA, NERON, PEĆINE, VIMINACIUM.

Tokom zaštitnih arheoloških istraživanja južnih nekropola Viminacijuma 1986. godine na jednoj od njih (Pećine), pronađena je perforirana srebrna tetradrachma Nerona. Pripada emisijama provincijalne kovnice Aleksandrija (Egipat) i iskovan je 65-66. godine. Predstavlja jedini do sada zabeleženi nalaz ove kovnice na Viminacijumu.

Pronađena je u okviru grobne celine (G – 4923) pored lobanje pokojnika. Od ostalih nalaza u grobu: zabeleženi su i: ključ-prsten; keramički žižak sa pečatom FLAVI i bronzana alka.

Na aversu je bista cara sa egidom i radijalnom krunom, a na reversu bista personifikacije Aleksandrije sa slonovom kožom na glavi. Perforacija je okruglog oblika, načinjena sa strane aversa, što iz estetskih razloga upućuje da je pogledu bio izložen avers. Međutim, osa reversa u odnosu na osu aversa je na 0 stepeni, što znači da je pogledu mogao biti izložen kako avers, tako i revers, jer su ivice perforacije sa strane reversa obrađene i tek neznatno pokazuju tragove bušenja.

Jednom perforirana tetradrachma pronađena je pored lobanje, samostalno bez drugih perforiranih predmeta ili perli. Mesto nalaza može upućivati na funkciju priveska na vrvici oko vrata.

Na osnovu drugih nalaza iz groba (keramički žižak i ključ-prsten) i njihovog datovanja, možemo pretpostaviti da je sahrana obavljena krajem 2. ili tokom prvih dekada 3. veka. Ne znamo kada je novčić bio perforiran, ali možemo pretpostaviti da je neko vreme korišćen kao privezak oko vrata, pre nego što je položen u grob.

Jedini primerak novca iz kovnice Aleksandrija otkriven na Viminacijumu do sada, ne može biti indikator cirkulacije novca između Egipta i Gornje Mezije. Pojava ovog novca u grobu na Pećinama, pre možemo pripisati nekim privatnim razlozima.

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Received: 25th October 2019Accepted: 15th November 2019

MILENA PAVLOVIĆ BARILLI'S PICTORIAL POETICS AND VIMINACIUM LANDSCAPE

ABSTRACT

Since the effects of a landscape go further than geography and beyond the time line, this paper questions the possibility that the Viminacium landscape, the archaeological area near the Danube in Serbia, inspired the art of the internationally recognised painter and poet Milena Pavlović Barilli. One can try to trace the relationship between Viminacium and Milena's art primarily in the motifs that are associated with Antiquity. Architectural elements, statues or human figures that resemble statues, as well as compositions that refer to the mythological patterns are an indicative part of Milena's pictorial poetics. The greatest influence of ancient material and immaterial heritage on Milena's art is visible in paintings and drawings from the 1930s.

KEYWORDS: MILENA PAVLOVIĆ BARILLI, ANTIQUITY, VIMINACIUM, SURREALISM, LANDSCAPE, PAINTING, POETICS.

INTRODUCTION¹

Whether talking about the UNESCO category of the *associative cultural landscape* (UNESCO 2019, Annex 3, par. 10), the inspirational landscape as a category developed by certain heritage organisations (Brown 2008, 2; Context Pty Ltd 2003; Beazley 2004, 1-14; Deacon and Beazley 2007, 93-108; ICOMOS 1995; ICOMOS-IFLA 2017, 33, 60; US-ICOMOS 2004) or the different interpretative landscape categories proposed by anthropologists (Knapp and Ashmore 1999, 1-30), descriptions of these experiential and imaginative

landscapes are always related to their religious, artistic and cultural meanings. One of the deepest human needs is that for "a sense of identity and belonging", and is found commonly in the landscape seen with the eye, but interpreted with the mind, as was written by Kan Taylor (Taylor 2008, 1). For the painter Milena Pavlović Barilli (1909 - 1945), the landscape that she was related to in the previously mentioned way was the wider area of the archaeological site of Viminacium, once a Roman city and legionary fortress, founded in the 1st century AD, whose protected remains today lie in the territories of the Kostolac and Drmno villages in Serbia (Fig. 1), presented within the area of the Viminacium Archaeological Park (Fig. 6b).²

¹ The article is a result of the project: *Viminacium, Roman city and military camp – research of the material and non material culture of inhabitants by using the modern technologies of remote detection, geophysics, GIS, digitalization and 3D visualization* (no 47018), funded by The Ministry of Education, Science and Technological Development of the Republic of Serbia.

² On today's landscape and the site of Viminacium, see: Nikolić and Roter-Blagojević 2017, 188-204; Nikolić et al. 2017, 573-583; Nikolić et al. 2013, 260-271; Nikolić and Roter-Blagojević 2018, 785-792; Golubović and Korać 2013, 65-73; Anđelković Grašar, Rogić and Niko-



Fig. 1 Viminacium landscape today with ancient remains covered by soil (photo by Emilija Nikolić).

It is widely known that Milena Pavlović Barilli was born in the town of Požarevac in today's Serbia, about 20 km from the Viminacium archaeological site, as the daughter of the Serbian Danica Pavlović (1883-1965) and Italian Bruno Barilli (1880-1952) (Fig.2). She spent her childhood in Požarevac, but also in many large European cities, completed her studies in painting in Belgrade and Munich, and continued her work in Paris and New York (Fig.3). In 1962, a legacy gallery was opened at her birth house in Požarevac with about nine hundred of her works, as well as many items from her life.³

MILENA PAVLOVIĆ BARILLI AND VIMINACIUM

The period of the end of the 19th century and the beginning of the 20th century was the time of the first archaeological excavations at Viminaci-

um, conducted by Mihailo Valtrović (1939-1915) a Serbian architect and art historian, and later by Miloje Vasić (1869-1956) the first Serbian educated archaeologist (Валтровић 1884; Васић 1903a/b). Milena belonged to an aristocratic family; her mother Danica was a descendent of the royal Serbian family of Karađorđević, while her father Bruno was an Italian composer and a music critic. From a young age, she was taught foreign languages, a variety of skills and etiquette, all while travelling throughout Europe with her family. Based on the given preferences, it would be reasonable to suppose that the young Milena probably had an opportunity to visit archaeological sites in the vicinity of her hometown.

It is testified in historical sources and photographs that royals and intellectuals were very much interested in the research of antiquities in 19th century Serbia. Queen Draga Obrenović and King Aleksandar visited Viminacium with their escort during the excavations of Miloje Vasić and donated one hundred ducats to future research (Korać, Golubović 2009, 12) (Fig.4).

lić. 2013, 9-14.

³ Gallery 2019.



Fig. 2 Milena Pavlović Barilli with her family in 1910 (Galerija Milene Pavlović Barilli. "Galerija slika – porodične fotografije", <http://galerijamilenepavlovicbarilli.rs/galerija-slika/>, accessed on December, 6th 2019).

The wealthy industrialists of the time, as antique lovers and collectors, tried in many ways to preserve valuable artefacts of the past. At the time of the development of archaeology in Serbia and the beginnings of industrialisation (Спасић 2015, 14), both of which started in Kostolac village, sites were not protected and much depended on the will of individuals. During their work in the Kostolac underground coal mine of Đorđe Vajfert (1850-1937) in the 19th and the beginning of the 20th century, workers would find various artefacts, as well as the remains of architecture, which were collected and later handed over by administrators, engineers, and Vajfert to various institutions, as Mihailo Valtrović, Miloje Vasić and Felix Kanitz (1829-1904) wrote (Валтровић 1886a, 26; Валтровић 1886b, 71-72; Валтровић 1886c, 116; Валтровић 1886d; Валтровић 1890, 56; Васић 1903b, 205; Каниц 1989, 85, 184-185, 190; Сариа 1934, 73-75). In the administration

building of the Vajfert mine, Kanitz saw fragments of sarcophagi, sculptures and architecture (Каниц 1989, 85, 184-185). The Danube ship's captain, Dragutin Todić, who transported Kostolac coal, was also a passionate collector of Viminacium antiquities, and he set up a lapidarium of stone monuments with Vajfert, near his villa in the village of Kostolac, wishing to establish a museum there (Спасић-Ђурић 2015, 73-75). In 1934, it was written that finds from Viminacium were housed in the Gymnasium in Požarevac and National Museum in Belgrade, as well as within the Vajfert collection (Миленковић, Протић 1936, 43). Todić and Vajfert left their collections to the National Museum in Požarevac, the National Museum in Belgrade and the National Museum in Pančevo (Спасић-Ђурић, 2015, 14) (Fig. 5). The artefacts in the Gymnasium were housed in the building from 1893 and the first museum was founded there in 1895. As it was robbed and ruined during



Fig. 3 Milena Pavlović Barilli at the opening of her exhibition in New York in 1943 (Galerija Milene Pavlović Barilli. "Galerija slika – porodične fotografije", <http://galerijamilenepavlovicbarilli.rs/galerija-slika/>, accessed on December, 6th 2019).

the First World War, it did not function from 1915 to 1930. During the 1930s the museum activities were renewed. In 1947, the museum was opened in one of the city houses, while from 1951, the collections have been housed in the present-day museum building (Манојловић 1996, 9, 10, 30, 31; Драгојевић 1996, 41, 44).

Even if Milena did not have an opportunity to visit Viminacium, she probably had a chance to see the artefacts from the site within the previously mentioned private collections and the inventory of the Gymnasium. Milena was a student of the Gymnasium after the First World War (Protić 1979, 10), that is, during the period when the museum was closed, but she probably could see some ancient fragments left. She could also see the artefacts being sold in the antiquities markets in the Požarevac

area, which was a common practice among the local population during the 19th and 20th century. Today, many artefacts from Viminacium are in some private or even museum collections around the world. Although it is hard to trace their exact routes it could be supposed that the closeness of Danube was important, especially during the 19th and beginning of the 20th century, as a fast connection with Central and Western Europe. At the same time, the young Milena with her family had begun her journeys from the Danube port in the nearby Dubravica village, ancient *Margum*.⁴

Everything mentioned above coincides with a source very important to this study. The source, which can be considered first-hand, is the last let-

⁴ About Požarevac and its vicinity and Milena's early life in: Bulajić 2010, 262-279.



Fig. 4 King Aleksandar Obrenović and Queen Draga visiting Viminacium in 1902 (Спасић-Ђурић 2015, 16, Сл. 13)

ter that Milena sent to her mother in 1943, where she wrote: “My dear mum... The most beautiful sunset is in our garden in Požarevac. People think that only in past times did I look for patterns for my paintings, but they emerged from the freeze of my childhood days for grasses, clouds, birds, butterflies, for our fields and woodlands... In my imagination, our stories about forest fairies which you used to tell me came together with the poems of Valéry, and the broken Roman sculptures and sarcophagi, which I watched with enthusiasm and admiration in the archaeological sites near Požarevac, and led me to the visions of Botticelli and De Chirico” (Jovanović 2019). A similar observation was made by Miodrag B. Protić (1922-2014), the artist and art historian, who wrote, obviously influenced by the previous letter regarding the great influence on Milena’s painting made by her personal experiences she gained in her home-

town during childhood, namely the antiquities she saw. Protić wrote: “Childhood and youth in this landscape rich, among other, with the archaeological sites – broken Roman sculptures and sarcophagi – influenced Milena’s sentimental education and prepared materials for the encyclopaedia of her artistic symbols” (Protić 1979, 16-17).

ANCIENT ARCHITECTURAL AND SCULPTURAL ELEMENTS IN THE PAINTING OF MILENA PAVLOVIĆ BARILI

The period between 1932 and 1936, Miodrag B. Protić referred to as Milena’s “linear” or “Parisian and Roman” period and characterised it as the period when her poetic or magical relationism was formulated, which would be present as a base



Fig. 5 National Museum in Požarevac and its lapidarium today (photo by Emilija Nikolić).

in all later phases of her work (Protić 1979, 7). Jelica Milojković called this period her “linear-ancient” period, describing it as a formed whole within which the irrational and fantastic enriched the iconography created by symbolic motifs and allegories, with the content and topic as the most important parts of the painting (Милојковић 2009, 49-90). During this period, a note of secret fiction is present in Milena’s painting, as well as in the drawings named *Surrealistic compositions* or *Surrealistic drawings*. In this iconography, a disturbed relationship between objects is noticeable, and images are transferred from the realm of reality into the realm of dreams, hallucinations or enigmatic narratives, while in the artistic manner the line is dominant and used for the describing and creation of all forms (Protić 1979, 19). The linear phase of Milena’s painting, rich in its use of antique motifs, framed within the mentioned

years, is the period during which Milena often used to visit her mother in Požarevac. In 1936, Milena left Požarevac and never returned.

One can primarily try to trace the visible and material relationship between Viminacium and Milena’s art in motifs that are associated with Antiquity. The architectural elements and fragments, statues or human figures that resemble statues, as well as compositions that refer to the mythological patterns are an indicative part of Milena’s pictorial poetics.⁵ Within Milena’s paintings in the technique of oil on canvas, human figures are often represented as statues, mostly torsoi. Male and female figures are equally represented, while androgyny is also present in several paintings.⁶

⁵ Since the legacy of Milena’s art comprises more than 600 works of art, the paintings that are already well known and analysed by experts are used as reference examples in this paper.

⁶ On androgyny and emancipation in Milena’s art see:



Fig. 6 a. Milena Pavlović Barilli: “Composition with a Female Fig. and Columns”, 1933 (reproduction from the Milena Pavlović Barilli Gallery); b. Subconscious mutual connection of the archetypes and unconscious acts, both well known in surrealism and recognized in the painting “Composition with a Female Fig. and Columns” can be also noticed in the ambient of the contemporary building in Viminacium Archaeological Park (photo by Nemanja Mrđić).

Wings are often painted instead of arms, while heads and faces are rendered more or less with a human look, but more often characterised with a sculptural modelling - an ancient one (“Torso with the Wing”/“Torzo sa krilom”; “Male Figure with Wings”/“Muška figura sa krilima”; “A Woman with Holey Leaf”/“Žena sa probušenim listom”; “Torso with a Black Hand”/“Torzo s crnom rukom”; “Composition with Hands”/“Kompozicija sa rukama” - 1932; “Female Winged Torso”/“Ženski krilati torso”; “Composition with Two Figures”/“Kompozicija sa dva lika”; “A Black Woman with a Figure”/“Crna žena sa figurom”; “Female Bust”/“Žensko poprsje”; “Semi-nude and a Portrait”/“Poluakt i portret” – 1933; “A Portrait with a Black Glove”/“Portret sa crnom rukavicom”; “Self-Portrait as a Still Life”/“Au-

toportret kao mrtva priroda” – 1935; “A Doll (Composition with a Ball)”/“Lutka (kompozicija sa loptom)” - 1936). The whole female figure rendered in the manner of the ancient sculpture is noticeable in two paintings from 1933 - “Composition with a Female Figure and Columns”/“Kompozicija sa ženskom figurom i stubovima” (Fig. 6a) and “Composition with a Female Figure, a Column and a Tree”/“Kompozicija sa ženskom figurom, stubom i drvetom” (Fig. 7a). In the last one, the female figure, based on the posture, resembles the Venus sculpture type, while the male bust possesses the solemnity and iconography of a Roman imperial bust, resembling the emperor Caracalla (Fig. 7b-7f), especially his bust from the National Archaeological Museum of Naples (211-217). It is hard to suppose that Milena was interested in the history of Viminacium’s *Legion*



Fig. 7 a. Milena Pavlović Barilli: “Composition with a Female Fig., a Column and a Tree”, 1933 (reproduction from the Milena Pavlović Barilli Gallery); Caracalla bust from: b. Museo dei Marmi, palazzo Medici-Riccardi, Firenze (Used and cropped by Emilija Nikolić © Sailko / Wikimedia Commons / CC BY-SA 3.0, https://commons.wikimedia.org/wiki/File:Arte_romana_busto_di_caracalla_III_sec._ca._05.JPG, accessed on December, 6th 2019); c. Metropolitan Museum of Art (Used and cropped by Emilija Nikolić © Samuel D. Lee Fund, 1940 / Wikimedia Commons / CC0 1.0, https://commons.wikimedia.org/wiki/File:Marble_portrait_of_the_emperor_Caracalla_MET_DP333082.jpg, accessed on December, 6th 2019); d. The Department of Greek, Etruscan and Roman antiquities, The Louvre, Paris (Used and cropped by Emilija Nikolić; Public auction Hirsh, 1957, Marie-Lan Nguyen (2005) / Wikimedia Commons / No license / https://commons.wikimedia.org/wiki/File:Caracalla_Louvre.jpg, accessed on December, 6th 2019); e. Naples National Archaeological Museum, Naples (Used and cropped by Emilija Nikolić © Marie-Lan Nguyen (2011) / Wikimedia Commons / CC BY 2.5, https://commons.wikimedia.org/wiki/File:Caracalla_MAN_Napoli_Inv6033_n06.jpg, accessed on December, 6th 2019); f. The British Museum, London (Used and cropped by Emilija Nikolić © Hypsaosines / Flickr / CC BY-SA 2.0, <https://www.flickr.com/photos/12371736@N00/37023768113>, accessed on December, 6th 2019); g. The Altes Museum, Berlin (Used and cropped by Emilija Nikolić © Hypsaosines / Flickr / CC BY-SA 2.0, <https://www.flickr.com/photos/12371736@N00/30182073661/in/album-72157634095284442/>, accessed on December, 6th 2019).

VII Claudia, which participated in military campaigns against the Parthians organised by the emperors Septimius Severus and Caracalla (Спасић-Ђурић 2015, 26), and the fact that Caracalla was proclaimed Caesar in Viminacium in 196 AD (Mócsy 2014, 201), but it would be possible to suggest the notion that the emperor's bust might once have existed among the lost treasures of Viminacium art that she was able to see.

Floating sculptural fragments, busts, torsi or arms belong to some petrified characters or revived ancient sculptures which, owing to their floating, lose the heaviness of material things and become disembodied. The diluted colours that she used in paintings ruin the well known visual features of the real world and, together with images of immobile characters or their metamorphoses - from living to petrified or dead, suggest the psychological reality that created them (Janković 2001, 34).

Columns are present in several of Milena's paintings as well. They usually unequivocally refer to Antiquity, resembling Greek and Roman architectural orders. In Greek and Roman architecture, Ionic order was considered female, while Doric was associate with the male gender. This can be considered an important part of the column symbolism together with its symbolism generally. Since the shaft of a Greek Doric column is always fluted and it has no base, and the bases of the Roman Doric and Tuscan order columns are differently shaped, according to the painted flat surface of the shaft and its base it can be assumed that the column depicted in the painting "Male Figure with Wings"/"Muška figura sa krilima" could belong to the more decorative Ionic, Corinthian or Composite order. However, the base mostly resembles a Roman Ionic base. Columns with capitals and bases resembling the less decorative Roman Doric or Tuscan order, broken or sometimes as part of architecture with architraves suggesting temples, are present in Milena's paintings as well, but combined with female figures ("Composition with a female figure and columns"/"Kompozicija sa ženskom figurom i stubovima" (Fig. 6a), "Com-

position with a Female Figure, a Column and a Tree"/"Kompozicija sa ženskom figurom, stubom i drvetom" (Fig. 7a) – 1933, "La lettura" – 1935).

Usually, columns in Milena's works are painted without capitals. A column fracture can endanger the whole structure (architectural, social or personal), it is the connection between the sky and earth, while in Roman mythology it had a phallic significance in the cult of the goddess Ceres, symbolising fertility (Gerbran, Ševalije 2004, 889-894). Since the capital is considered the head of the column, beheaded columns together with statues can participate in the complicated narrative of Milena's fantasies, dreams, unconscious fears and questions regarding the unsettled relationships within her personal life. As Jelica Milojković wrote, a column is an element that gives life to the building it supports. Broken column shafts, without the capital or the base, "evoke the damaged power of life and creation, the absence of happiness and the impossibility of progress" (Милојковић 1992, 145).

"The Portrait of Reynold Gonzales", from 1933, represents a realistically portrayed man leaning on a column. The fallen column, whose shaft is visible together with other motifs among which is a sculptured male body similar to the ancient Apollo, can be analysed using phantasms and symbols of the unconscious, which create the image. The interpretation of the motifs in the painting named "A Doll" is associated with symbols of transformation and playing with the gender identities, while the column and the male figure are interpreted in the same manner corresponding with broken rules and stereotypes, as well as reinforcing the idea of the ambivalent relationship of the "male" and "female" positions (Јовичић и Башић 2015, 395-410). A column without a capital and with an architrave is painted as a background in the painting "Double Face"/"Dvostruki lik" from 1934, while a winged portrait and mask are depicted in the foreground (Fig. 8a). Olivera Janković described this composition as a continuation of the process of the metamorphosis of



Fig. 8. a. Milena Pavlović Barilli: "Double Face", 1934 (reproduction from the Milena Pavlović Barilli Gallery); b. Fragment with Medusa from the Nimnik monastery (Milovanović and Anđelković Grašar 2017, 117, Fig. 20); c. Fragment with Medusa from the Rukumija monastery (Milovanović and Anđelković Grašar 2017, 177, Fig. 19).

the abstract mesh on the woman's head into an intimation of death and, in this specific example, transformed into a superior and rampant winged figure hovering over a frightened face, painted in the bluish tones of veins as a sign of the cheerless fate that has befallen it (Janković 2010, 170. cf. Protić 1979, 23). Although the author recognised the form of Medusa's face in the painting named "A Girl with a guitar"/"Devojka sa gitarom", in the painting "Double face" - where this reference can be used even more clearly, she did not mention such a connection. In the décor, inspired by Antiquity, in front of the ruined architecture and a blue, cloudy sky, ancient motifs are placed, with complex symbolical connotations. The dreamy face, with curly, dishevelled hair and wings on the top of the head unequivocally resemble the popular Roman Medusa image, while the mask like face above it can be associated with ancient warrior masks. In such a constellation it would be reasonable to suppose that this was Milena's personal interpretation of the myth of Medusa and the brave Perseus who killed the monster, since the artist was well educated, minded toward myth interpretations in her work and often inspired by popular ancient motifs. This interpretation of the depicted motifs can be built on the ever present dualism in Milena's art and, in this case, specifically the relationship between male and female, as well as questions of the gender roles within society, since the Medusa has always signified the wild female force, protective towards women and frightening to men, and which was finally defeated by the male strength of Perseus killing her (Milovanović and Andelković Grašar 2017, 167-182).

Fragments of Roman monuments with representations of Medusa have been built into the walls of several historic buildings in the immediate and wider surroundings of Viminacium. The Church of the Assumption of the Blessed Virgin Mary in the Old Smederevo Cemetery is believed to have been built in the mid-15th century but has been restored several times since the beginning of the 18th century, but the origin of the built-in fragment is unknown

(Цуњак 1984, 249, 257; Радовановић 1997, 248-249; Цветковић 2009, 41-42). A tombstone called "The Return of Alkesta", built into the wall of the Smederevo fortress, from the mid-15th century, probably originates from Viminacium (Цветковић 2009, 36-37; Pilipović 2011, 598-599, 611). At two opposite ends of the plain of Stig, on which Viminacium was located, there are two monasteries, the monastery of Rukumija and the monastery of Nimnik, whose foundation is linked to Prince Lazar and the 14th century, and reconstruction to Prince Miloš and the 19th century (Бојковић и Ђокић 2016, 88, 90, 99, 104). The fragment embedded in the church of St. Nicholas of the Nimnik Monastery (Fig. 8b) probably originates from one of the settlements that belonged to Viminacium territorially and administratively (Спасић 1998, 316, 318), while the fragment embedded in the wall of the Church of the Holy Ascension of the Rukumija Monastery (Fig. 8c) is assumed to have originated from Viminacium itself (Спасић 1996, 222). The embedded fragments in these two churches are very important elements of the oral intangible heritage of the Viminacium area, as the characters of Medusa were interpreted as personifications of female characters of folk songs and traditions (Радовановић 1997, 238; Milovanović and Andelković Grašar 2017, 176-177; Бојковић и Ђокић 2016, 90). It is interesting to mention here that the largest number of Roman tombstones found in the territory of the former Province of Upper Moesia, with a tympanum, have a rosette in the middle, while the next motif by number is the head of Medusa, and all the monuments found with this motif come from Viminacium (Pilipović 2004, 362):

Some of Milena's compositions are interpreted according to a surrealistic ideology and her pictorial poetics. In such a way, the connection between the small watercolour on paper "Vase with Carnations"/"Vaza sa karanfilima" (Fig. 9a) and the painting "Winged Anthropomorphic Vase"/"Krilata antropomorfna vaza" (Fig. 9b), both from 1935, is described by Olivera Janković with a homonym – a stylistic device that includes



Fig. 9. a. Milena Pavlović Barilli: “Vase with Carnations”, 1935 (reproduction from the Milena Pavlović Barilli Gallery); b. Milena Pavlović Barilli: “Winged Anthropomorphic Vase”, 1935 (reproduction from the Milena Pavlović Barilli Gallery); c. Prosopomorphic Vessels from Moesia Superior (Nikolić and Raičković 2008, 139, Fig. 2).

the same forms with different meanings and allows seemingly absurd combinations or metamorphoses of objects (Janković 2010, 174. *cf.* Protić 1979, 23). Analysing the two compositions she wrote: “In the former, two little angles are taking away a framed photograph of the artist, a realistic self-portrait of Milena Pavlović Barilli, while

in the latter, a less significant detail in this work, a vase with carnations, which stands next to the photo, is transformed into a key figure, that is, into the form of a human face with added wings with which it flies like a cherub... Taken together, these two works show how one picture becomes an impulse for the creation of another, or indicates the



Fig. 10. Milena Pavlović Barilli: "Self-portrait with Antiquity Head", 1936
(reproduction from the Milena Pavlović Barilli Gallery).

process of an imaginary migration of signs from one work to another in accordance with free associations" (Janković 2010, 174, 176). The last sentence and the idea of the impulse for the creation or imaginary migration of signs stands correctly, but allows the further interpretation of migrating signs and impulses, especially knowing that Milena possessed a knowledge of art history, visited

international museums and had an opportunity to be in live contact with the archaeological heritage in the vicinity of her hometown.

The compositional structure of the watercolour work "Vase with Carnations" can be associated with the ancient composition known as *imago clipeata*, usually represented on Roman sarcophagi, when a portrait of the deceased is depicted in a

framed field, often flanked by the image of small winged boys - not angels, but Cupids. The motif of the anthropomorphic vase from the painting "Winged Anthropomorphic Vase" is not so surrealistic if we look back to Roman pottery production from the territory of Moesia Superior, and see that the largest number of this type of "vessel with a face" has been discovered at Viminacium (Nikolić and Raičković 2008, 136) (Fig. 9c). Thus, the motif itself does not necessarily have to be interpreted as Milena's vision, while the added wings and the ambient of the painting refer to the artist's well known pictorial poetics. The modern staging as a reinterpretation of the ancient *imago clipeata* and the ancient artefact of a prosopomorphic vessel that flies over time and space make the conclusion given by Olivera Janković universal, no matter what the correct interpretation of the symbols is: "Using the experience of what was seen before, intuited or recorded in another picture or another medium represented the means used in this art to represent the uncertainty of scenes seen in the mind's eye, which, at the very next moment, under the influence of a new element that enters the mind's field of vision, transforms into something else." (Janković 2010, 176)

Finally, it should be mentioned that Milena's poetry can be considered an echo and a source of the symbols she used in her painting (Pešikan-Ljuštanović 2010, 242). Few of her poems mention architecture, statues or Antiquity generally. However, some associations can be found in her Italian poems, where she wrote on marble caryatides, columns and arches.

SURREALISM: A METHOD FOR THE ASSOCIATION BETWEEN MILENA AND THE LANDSCAPE

As a cultural movement, surrealism originates from the curative mechanisms used in psychoanalysis. It is based on the subconscious, stimulating the inner experiences. Surrealism as a

super reality i.e. absolute reality, is based on the contradictory conditions of dream and reality, defined as pure psychic automatism by André Breton in his *Surrealist Manifesto* from 1924 (Breton 1961). Surrealistic paintings do not represent the real world visible to the eye, but the inner reality, dreams and mind of the artist (Waldberg 1970, 5-7). The movement was revolutionary in art and, from the 1920s onwards, it became globally recognised. Based on the inner being and experiences that originate from the real world, dreams and memories shaped in the unique mind of an individual artist, surrealism can be used as a method to connect the pictorial poetics of Milena Pavlović Barilli and the Viminacium landscape.

Various realistic objects were an important part of surrealistic compositions, but without a real and accurate context. These objects could have referred to psychological associations or even collective subconscious archetypes. These subconscious associations between realistic objects and spaces provide surrealistic compositions with symbolical and mystic meanings, as well as dream-narratives that highlight the presence of the otherness (Aspley 19-24). Based on the surrealistic ideology, it can be said that Milena's fascination with Antiquity and the use of ancient poetics during the "linear phase" of her work had its echo in the personal subconscious filled with the realistic, physical stimulations she had encountered in her childhood. Additionally, some ancient objects and interpretations of the antique heritage refer to the collective subconscious and archetypes which Milena used to reinforce the symbolical significance of her compositions.

It is also known that besides surrealism, the great influence in Milena's painting was Giorgio de Chirico (1888 - 1978), who founded Metaphysical art in 1911, which, in turn, influenced the formation of surrealism. Metaphysics does not rely upon real world experiences, but is more about the core of the world, which is beyond the real. In de Chirico's paintings, empty streets of Italian towns are combined with antique statues or Roman mythology,

together with objects of everyday life. These enigmatic compositions can be understood only spiritually and be experienced only ingeniously (Calvesi 2006, 29-34). The same could be said about the comprehension of Milena's painting, which her intimate world brought to light owing to the mysterious and symbolical compositions created with ancient motifs, objects of everyday life, portraits and self-portraits within the interior and exterior of her life spaces. To understand Milena's art, a grasp of the symbols, signs, enigmas and metaphors is crucial, but only combined with her biography (Subotić 2010b, 40, with ref. 37). The strongest association between Milena's and de Chirico's art can be found in the combination of self-portraits and ancient portrait heads. "Self-Portrait with Antiquity Head" from 1936 (Fig. 10), concludes the linear period, but did not break with Antiquity as a source for its inspiration. It is based upon the methodology of producing a work from other works, where nothing other than remembrance can be created (Merenik 2009, 26-32).

CONCLUSION

The art of Milena Pavlović Barilli was deeply self-reflective, confessional and melancholic, in the spirit of post-metaphysical art, filled with symbols and metaphors, poetics and narration with reminiscences of Antiquity and the Renaissance - in which the achievements of Antiquity were praised as the peak of human art (Subotić 2010a, 286). Her paintings represent fragments of her personal experiences, transposed owing to the archaic-ancient motifs and united with the artistic imagination into a visual narrative, pointing toward the creation of a new vision of reality. The artist's creativity united the external and internal, dream and reality, past and future, intimate and the universally human (Јовичић и Башић 2015, 395-410). Among other features that shaped her personality and art were nomadism, interdisciplinarity, transnationality, as well as a specific return to some of the values of

traditional art (Janković 2001, 6, 8).

Although Milena spent most of her life traveling the world, and was often considered a nomad, it seemed that her childhood and stay in her family house in Požarevac was an important part of her life and work, noted in her letters, poetry and paintings in the form of an elusive and unfulfilled dream of her home.⁷ This combination of global traveller, nomad and sentimental dreamer traditionally linked with the family, allowed Milena to create her individual pictorial poetics that rested upon the ideology of surrealism and metaphysical art. It is certain that the works of the old masters whose creations she had the chance to see during her visits or stays in several European and American artistic centres, together with the personal experiences she gained in her childhood, contributed to her specific poetics (Subotić 2000, 27-37; Subotić 2010b, 7-54).

An alternative interpretation of some of the motifs in Milena's compositions, which is based on knowledge of ancient iconography and symbolism, led the authors of this paper to the assumption that, subconsciously, ancient artefacts that Milena saw in her childhood and youth, quite possibly from Viminacium, were a very important part of her pictorial poetics in the latter years of her work. The authors wished to link the wider meaning of the term of *Antiquity* with the landscape of ancient Viminacium and suggest that, based on surrealistic ideology, Milena's strong love for her home town and its rich archaeological heritage or even some specific motifs in her art, show that this kind of association could be considered. The first researcher of Milena's art, the person who recognised the potential of her legacy and the one who helped Milena's mother open the legacy gallery in Požarevac in 1962, was Miodrag B. Protić. In his book (i.e. catalogue of an exhibition) dedicated to Milena, Protić wrote that her art was an inseparable part of her homeland legacy and, among other influences on her painting, as was written before, he mentioned the archaeological sites in the vicinity of Požarevac, dealing with

⁷ Janković 2001, 111. On Milena's nomadism and various identities in: Bakić 2010, 300-317.

the details from the last letter she sent to her mother. His association should also be taken as relevant because of the fact that he spent significant time with Milena's mother Danica, discussing and interpreting Milena's work and life.⁸ Olivera Janković considered the Viminacium monuments a potential "ancient" inspiration for Milena, together with the vast cultural heritage of Rome, as well as artistic models during her education in Europe, concluding that by painting the sculptural and column remains, symbolical body analogies and previous events, "an artist acts as an archaeologist or philologist, who is trying, based on the traces of living, and the remains of some everyday life, to reconstruct forever lost artwork or an unknown world." (Janković 2001, 38). However, as Jelica Milojković wrote, Milena's symbols have "the suggestive and evocative power", can "widen the aspects of our previous knowledge", "revive the imagination" and "encourage us to further thinking." (Милојковић 1992, 41). From these reasons, it is very important to state at the end of this paper that all the assumptions given in it are only possible meanings of Milena's art. Her paintings provide the researchers in art, archaeology or architecture with an immense amount of inspiration for the work, whose results offer the most precious conclusions when sublimated into joint research.

ACKNOWLEDGEMENTS:

The authors of the paper are grateful to the Milena Pavlović Barilli Gallery in Požarevac for the reproductions of Milena's works and permission to publish them. Special gratitude is owed to Violeta Tomić, the Gallery's curator, for the productive collaboration and unselfish help, as well as Jelica Milojković, Professor Simona Čupić, Dragan Jacanović and Dragana Spasić-Đurić for their valuable advice on the analyses and conclusions given in the paper. The authors would also

like to thank their dear colleague Nemanja Mrđić and Dragana Pavlović for the creation of the photograph in the Viminacium Archaeological Park that is used in this paper.

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REZIME

PIKTORALNA POETIKA MILENE PAVLOVIĆ BARILI I PREDEO VIMINACIJUMA

Валтровић, М. 1886c

Римско олово са жиговима, *Старинар*, 3/2: 71-72.

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Rimsko olovo sa žigovima, *Starinar*, 3/2: 71-72.)

KLJUČNE REČI: MILENA PAVLOVIĆ BARILI, VIMINACIJUM, PREDEO, ANTIKA, NADREALIZAM, SLIKARSTVO, POETIKA.

Валтровић, М. 1886d

Старине из Костоца. *Старинар* 3/3(1886): 116.

(Valtrović, M. 1886d

Starine iz Kostoca. *Starinar* 3/3(1886): 116.)

Asocijativni i inspirativni predeo kao kategorije kulturnih predela u oblasti zaštite kulturnog nasleđa omogućavaju da se za određen istorijski predeo vežu tragovi različitih vrsta umetnosti na čiji nastanak je predeo uticao, a koji nisu nužno hronološki uslovljeni. U ovom radu je prikazana interakcija predela i umetnosti/umetnika, na primeru arheološkog nalazišta Viminacijum nadomak Požarevca i svetski priznate slikarke Milene Pavlović Barili rođene u ovom gradu.

Валтровић, М. 1890

Римски натписи, *Старинар* VII/1: 52-56.

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U pismima koja je slala majci Danici, Milena je uvek sa najvećom ljubavi pisala o rodnom kraju i sa toplom emocijom se sećala detinjstva provedenog u njemu, što se zaključuje i na osnovu zapisanih majčinih sećanja. Period Mileni-

nog likovnog stvaralaštva između 1932. i 1936. godine, Miodrag B. Protić nazvao je „linearnim“, odnosno „parisko-rimskim“ periodom, dok ga Jelica Milojković naslovljava kao „linearno-antički“ period. Period je tematski najviše određen antičkim nasleđem, a tokom njega Milenina piktoralna poetika referira na antičku prošlost upotrebom motiva arhitektonskih elemenata, kao i skulptura ili ljudskih figura u formi skulptura, te kompozicijskim rešenjima koja za potku imaju mitološke obrasce.

Obrazovanje koje je sticala u evropskim metropolama, posete velikim muzejima, kao i poznavanje savremenih umetničkih tokova metafizičkog realizma i nadrealizma, zasigurno su doprineli ovakvoj Mileninoj poetici. Ipak, tragom Mileninog pisma majci Danici iz 1943. godine

i Protićevog zapažanja da je u detinjstvu mogla videti ostatke antičke arhitekture i umetnosti na području Požarevca bogatom arheološkim nalazištima, autorke ovog rada iznose mogućnost da je upravo Viminacijum mesto u čijem je materijalnom, ali i nematerijalnom nasleđu Milena našla motive i inspiraciju za dela nastala u periodu između 1932. i 1936. godine. Ovakav vid asocijativne veze u saglasnosti je sa konceptom nadrealizma koji je u ovom radu iskorišćen kao metod za povezivanje predela Viminacijuma i piktoralne poetike Milene Pavlović Barili. Shodno tome, određeni motivi Mileninih slika dobili su drugačiju interpretaciju koja na podsvesnom nivou sugerise da ono što je umetnica videla u detinjstvu i mladosti kasnije u njenom slikarstvu izranja kao deo imaginarnog narativa.

PREDRAG ŠKUNDRIĆ

UDC 004.383.2.056.53

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Original research article

Received: 15th October 2019Accepted: 15th November 2019

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IMPLEMENTATION AND MANAGEMENT OF SECURITY INFORMATION AND EVENT MANAGEMENT TOOLS IN INFORMATION SYSTEMS THROUGH THE MSSP MODEL

ABSTRACT

This paper presents a solution which can be applicable to most small and medium companies having to deal with cyber threats and a lack of staff who would be in charge of the safe management of the infrastructure, whilst also delivering with acceptable costs. The aim of this paper is to create the general initial architecture of a SIEM solution, with the goal of positioning it as a MSSP system for the centralised collection and analysis of system records collected from various forms. Through a general overview of the solution, which comprehends a detailed analysis of connecting components, the management of security information and events tools in information systems is shown as a MSSP model. Additionally, the advantages and disadvantages related to the suggested solution are given.

KEYWORDS: MSSP, MANAGED SECURITY SERVICE PROVIDER, PROCESSING SYSTEM RECORDS, COLLECTING SYSTEM RECORDS, SIEM.

We have been witness, in the more recent past, to various types of attacks on information systems of different organisations. When we say “different”, we really mean it in the fullest sense of the word. The attacks are no longer related only to large corporations such as oil companies, water-supply systems, pharmaceutical companies, etc.; nowadays, attacks can be expected even by the smallest business entity. Regardless of their level of protection, it can be said that the common denominator of all systems is separate manage-

ment consoles, which prevent not only an integrative monitoring of the system, but also a detailed analysis of the any attacks that have occurred, that is to say, a correlation of system records from a large number of systems with the goal of decreasing false positive detections. Solutions which enable all of these activities are called SIEM, which is, in fact, an acronym of the English term Security Information and Event Management. The importance of such systems can be seen from the following example: after performing an illegal activ-

ity, the perpetrator would try to cover his tracks, because traces of whatever happens on the OS are left in logs. It is possible to do a backtrace based on the logs and identify, through forensic analysis, who it was that performed the illegal activity. Considering the fact that attackers try to erase log files as well while covering their tracks, it is recommended that the logging take place on special log servers so that the attacker is unable to delete the files. This is precisely why the already mentioned SIEM (Security Information and Event Management) solutions or log management systems exist in large corporations, to collect logs, so that even if the attacker erases the logs, they have already been forwarded to the log management system. It is vital to point out that with these management systems it is extremely important to carefully configure the synchronisation of the logs with log management. If the synchronisation time is poorly defined, a malevolent attacker can take advantage of that delay and, if he makes a malicious script which deletes the logs on a local computer during the “defined synchronisation period”, the log will never reach log management and the alarm will not be activated (Korać and Prlja 2018).

From this, it can be concluded that tracking system records from a single place does not represent a luxury, rather that it is, in fact, obligatory for every business system.

When it comes to achieving a safe work environment, notable efforts have been present on a global level for some time (NIST directive, GDPR, international standards ISO27001, ISO27552, etc.). Aside from the global approach, local efforts have also been made to secure a safe business framework by adopting relevant legal regulations (Law on Information Security, Law on Protection of Personal Data, etc.), as well as relevant accompanying documents (Strategy for the Development of Information Security, Decision on Minimum Information System Management Standards for Financial Institutions, etc.).

All the aforementioned legal regulations essentially represent the “transfer” of business re-

quirements into a legal framework, which enables a heightened level of security.

This paper does not comprise an evaluation of the complete set of needs of information security in the technological sphere; the focus is, instead, on the segment concerning the implementation of SIEM solutions through MSSP models.

The solution presented here can be applicable for most small and medium companies having to deal with both cyber threats and a lack of staff who would be in charge of the safe management of the infrastructure, whilst also delivering with acceptable costs.

The aim of this paper is to create the general initial architecture of a SIEM solution, with the goal of positioning it as a MSSP system for the centralised collection and analysis of system records collected from various forms. The paper is subdivided into the following topics:

- description of the MSSP and a general overview of the solution,

- a detailed analysis of connecting components, advantages and flaws of the MSSP approach.

The paper will not deal with the implementation of the necessary network resources regarding the equipment and licences needed by the provider of the hardware infrastructure nor the client for whom the monitoring of system records would be performed. The paper will show, instead, evaluations of specific SIEM solutions.

MANAGE SECURITY SERVICE PROVIDER – DESCRIPTION

Before moving on to the actual description of the solution, it is necessary to explain the exact meaning of the term Managed Security Service Provider (MSSP). The MSSP is, in fact, a provider of IT services that enables an organisation to track and manage information security in a particular manner, which can facilitate virus and spam mail blocking, break-in detection, management of firewall devices, and virtual private network (VPN)

management. The MSSP can also manage system changes, modifications and upgrades (Rouse 2018).

An organisation can manage all aspects of its IT security functions either separately or by sending them to a MSSP. The MSSP usually provides a certain level of continuous tracking of the entire information security of an organisation/company, vulnerability risk assessment, threat notification and similar activities.

After reviewing the Serbian market, it can be concluded that the majority of companies in this area are small and medium enterprises (hereinafter:

big ones, while the attack vectors remain the same.

Upon observing the systems with SIEM, it can be fairly easily concluded that the already mentioned business entities run even greater risks than big companies.

If the needs of business entities are observed while analysing, at the same time, the challenges placed before the MSSPs by conducting empirical research, the summed up results can be seen in the following table:

Service	On-premise	MSSP
Monitors system records and network communication	×	×
Helps achieve the necessary goals of information security		×
Enables a 24x7 analysis		×
Stores system records outside of the organisation seat in the safest way possible		×
Provides security intelligence and expertise as part of the service		×
Provides DR and BCP mechanisms as part of the service		×
Provides predictable costs		×
Provides flexible licensing according to the current needs of the organisation	×	
Requires initial infrastructure investment by the organisation	×	
Requires infrastructure upgrade investment	×	
Requires staff investment	×	

SME – Small and Medium Enterprises). The main trait, when it comes to information security, of this type of business organisation is a lack of expertise in the sense of information security, but also a lack of funds or very small sums allocated for the development of information security as a whole.

Regardless of whether a company is big or small, the initial risks in terms of business are identical. Malicious users attack organisations regardless of their size, but exclusively on the basis of the manner in which they can take advantage of the victim. If this axiom and the previous statement are combined, it can be concluded that small and medium enterprises are in a far worse position than

GENERAL SOLUTION DIAGRAM – ARCHITECTURE

The following segment will show a general solution, with a special overview of its architecture.

The application and management of tools of security information and events management (SIEM) enables MSSPs to quickly collect and review event logs, correlate events and generate alerts for familiar threat and incident patterns for managed networks.

Emphasis is placed on the technically best solution needed to cover the largest number of scenarios as well as the possibility of rapid di-

saster recovery. Also, this chapter will show the minimal configuration which can meet the minimal users' needs, although it would not provide the necessary redundancy level or quick recovery in the case of a problem.

An initial configuration is based on All-in-one IBM Security QRadar devices. So as to achieve the greatest efficiency and increased scalability, for users and also for future system expansions, the suggestion is to use a virtualisation platform. With the arrival of version 7.3.x, all the virtualisation platforms are supported, including Microsoft Hyper-V platform, i.e. KVM. As VMWare is the most widespread virtualisation platform, the said platform will be used for the creation of a solution; one should also bear in mind the fact that the said model can easily be applied on other platforms as well.

The technically superior and safest solution for the implementation of a system with wide accessibility is the implementation of the VMWare cluster platform. For this, it is necessary to provide two identical hardware servers which will be

located in the virtualisation cluster.

On the mentioned servers, an installation of All-in-one (hereinafter: AiO console) consoles for IBM Security QRadar will be performed. In order to reduce initial expenses for small MSSP providers, it is suggested that every user have his own AiO console for processing system records. This way, the simplest administration per user will be enabled, with the possibility of upgrading the system and increasing capacities in accordance with the demands of the users and implemented MSSP support package.

On the location, a necessary number of system record collectors (event collectors) would be installed, as well as flow collectors.

Aside from the initial console, the IBM Security QRadar's portfolio also includes two additional modules:

IBM Security QRadar Vulnerability and Risk module, and

QNI (Forensic module).

The first module will not be taken into consideration here, because there are significantly

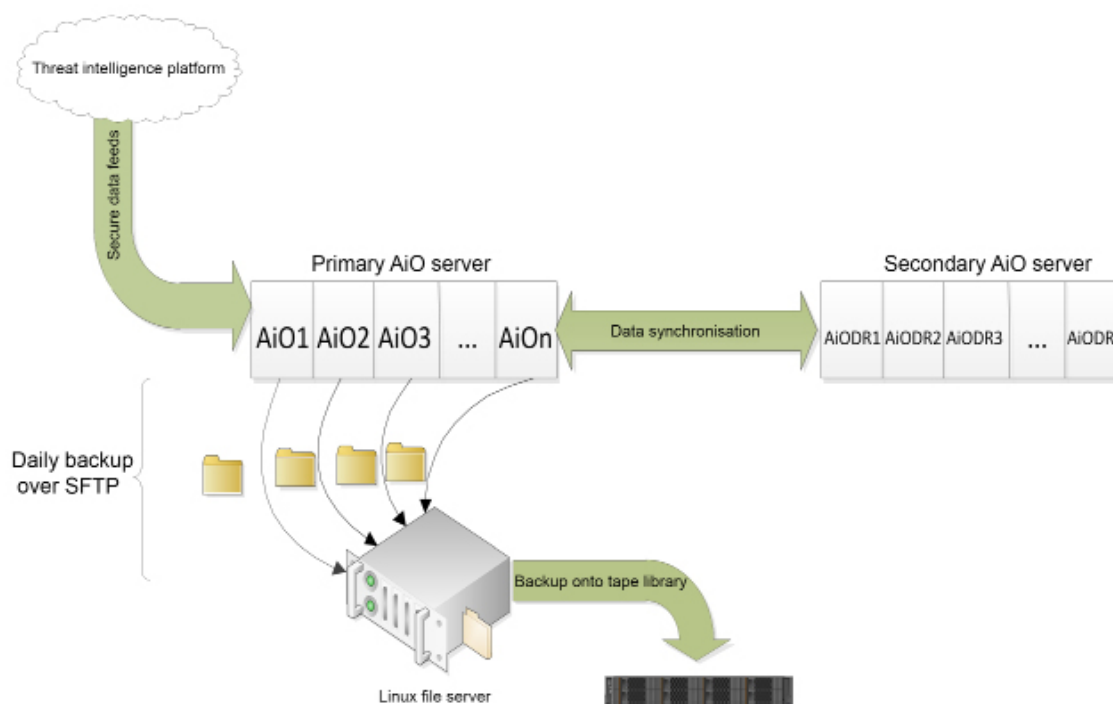


Fig. 1

less costly and probably better solutions which are exclusively intended for system vulnerability testing.

The forensic module will not be taken into consideration either, because of the high initial implementation costs (a separate physical device is needed), but also a significant increase in network traffic between the client's infrastructure and the AiO console. It would be appropriate to take into consideration both of those modules when it comes to the implementation of solutions which would be completely within the infrastructure of the user.

With the implementation of the AiO console as a threat intelligence platform, the licence also provides the IBM X-Force Security feed. Should it be necessary, there is the possibility of implementing additional security feeds, either commercially produced or open source types, which are based on STIX and TAXII communication formats or through specific API calls.

and more often manually, should it be necessary, depending on system activities. As with the AiO servers, the backup servers should also be kept in a high accessibility regime (Fig. 1).

In accordance with the legal regulations and demands of the ISO27001 standard, it is necessary to provide disaster recovery as well, i.e. recovery in cases of a disaster occurring on the primary site. For this reason, it is necessary to provide tape backup for system records, as well as system configurations. In order to optimise the time taken, the tape backup would use a tape library device which would enable the management of a number of tapes at the same time. Every user would have the required number of tapes based on the internal procedures of the user and the potential of the organisation that provides the MSSP services.

As a third level of security against system failure, it is necessary to provide replication of primary data on a DR location. It is possible to achieve this by transferring the infrastructure onto a remote

Description	Values
Maximum capacity	200,000 FPM 5,000 EPS
Memory	64 GB 8x 8 GB 1600 MHz RDIMM
Storage	9 x 3.5 inch 1 TB 7.2 K rpm NL SAS, 9 TB total, 4.9 TB usable (RAID 6)
Dimensions	29.5 inches deep x 17.7 inches wide x 2.4 inches high
Included components	Event Collector Event Processor for processing events and flows Internal storage for events and flows

In order to provide an adequate level of backup, it is necessary to configure a FTP server on the CentOS platform for more permanent data storage of users' systems. Every user system should have a separate folder for storing system records. Retention of logs/system records on AiO devices would be for up to 6 months, while the records would be kept on a backup server for up to 2 years. Aside from retention, system configuration per user would also be stored for the same period of time. The listed backup processes would be performed automatically at least once a day,

location, which would require redundancy from the company providing the hardware resources for the implementation of the MSSP service.

In the second case, it is necessary to provide a disaster recovery licence for the AiO component of the system.

For all the systems mentioned, it is necessary to provide rapid communication links.

For a minimal, though insufficiently safe configuration, it is necessary to provide the following:

A server on which the AiO console, as well as a Linux backup server would be installed.

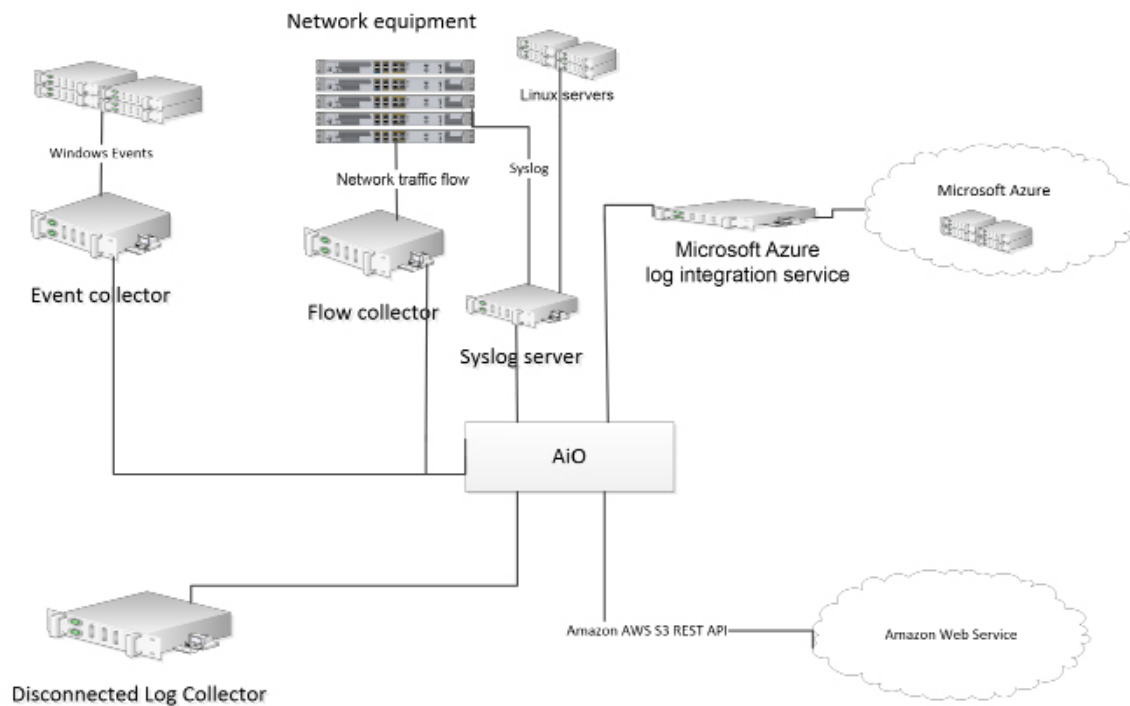


Fig. 1 Noah work vineyard. Fresco from monastery Decani. Gallery of frescoes, Belgrad.

This configuration does not allow for the option of restoring from tapes, or the long-term storage of system records. Additionally, another big risk that should be mentioned is the fact that there is no option which would enable high accessibility for the system. All of this means that in case of unforeseen events, such as a system failure or works on the system, users would not be able to access contracted services. Since local data collection is enabled, the user would be able to perform the collection, but not the evaluation of collected system records until the system is fully restored.

Based on empirical experiences, the quantity of EPS and Flow records for users ranked in SIEM environments can easily be handled by configurations which support up to 5,000 EPS, i.e. 200,000 FPM.

As for the dimensions of the system, the basic model used would be the AiO console IBM QRadar 3105 (IBM Knowledge Center 2019). This console is intended for small and medium-sized

implementations. A description is provided in the following table.¹

Should every user opt for the said console, it would be necessary to also increase, for the listed values, hardware demands for the said system.

A downside of these solutions is the exponential increase of needs for IOPS capacities for the storage of collected records.

A DETAILED CONFIGURATION OF THE AIO COMPONENT AND CONNECTIONS TO DIFFERENT ENVIRONMENTS

In order to collect system records from users' equipment, it is necessary to install systems for system record collection on the users' side.

In order to access his own AiO console, the

¹ https://www.ibm.com/support/knowledgecenter/en/SS42VS_7.2.8/com.ibm.qradar.doc/c_hwg_3105_alone_base.html

user would use the fixNAT access. It is also necessary to stress the fact that it is recommended that local accounts be used for accessing the system, without integration with the existing access rights management systems located on the user's side.

The image below provides an example of the implementation with a user who has all the aforementioned systems and a much diversified infrastructure, which is split between an on-premise installation and a cloud environment.

In this particular case, it is necessary to obtain licences for the following systems:

- AiO console,
- Event collector,
- Flow collector.

It is necessary to point out here that for the Event and Flow collector only Node licences should be obtained, while the quantity of EPS/Flow records is defined exclusively via the AiO console.

CONCLUSION

The MSSPs can provide real value to organisations of all sizes, by offering them the visibility needed in their environment as well as the possibility to fulfil the demands of legislative regulations, implemented standards and, probably most importantly, the demands of their work. Along with the particular solution presented here, there is always the possibility of upgrading such solutions in accordance with the needs of particular business activities with additional systems, such as a solution for vulnerability testing and analysis. That is to say, they can be scaled in accordance with the needs of the implemented systems.

* * *

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REZIME
PRIMENA I UPRAVLJANJE
ALATOM ZA BEZBEDNOSNE
INFORMACIJE I DOGAĐAJE U
INFORMACIONIM SISTEMIMA U
VIDU MSSP MODELA

KLJUČNE REČI: MSSP, PROVAJDER UPRAVLJANJA BEZBEDNOSNIM INFORMACIJAMA, OBRADA SISTEMSKIH ZAPISA, PRIKUPLJANJE SISTEMSKIH ZAPISA, SIEM, UPRAVLJANJE BEZBEDNOSNIM DOGAĐAJIMA.

Ovim radom obuhvaćeno je kreiranje opšte inicijalne arhitekture SIEM rešenja koji je koncipiran kao MSSP model za centralizovano prikupljanje i analizu sistemskih zapisa prikupljenih sa različitih formi. Dat je opšti prikaz rešenja, pri-

kazana je detaljna analiza povezivanja komponenti u predloženom rešenju i istaknute su prednosti i mane MSSP pristupa. Prikazane su evaluacije određenih SIEM rešenja, a fokus je postavljen na tehnički najbolje rešenje koje pokriva najveći broj scenarija i poseduje mogućnost brzog oporavka od katastrofe. U ovom radu je prikazano kako najbezbednije rešenje za implementaciju sistema sa visokom dostupnošću tako i jedna minimalna konfiguracija koja može zadovoljiti minimalne korisničke zahteve, ali neće obezbediti neophodan nivo redundanse i brz oporavak u slučaju problema. Ono što treba napomenuti jeste da se ovakva rešenja mogu nadograđivati u skladu sa potrebama poslovnih aktivnosti sa određenim dodatnim sistemima (analiza i testiranje ranjivosti) i skalirati u skladu sa potrebama implementiranih sistema.

PRIKAZI - REVIEWS

ANĐELKA PUTICA, VIKTORIJA UZELAC, SO-ARHEO 2012, REZULTATI ZAŠTITNIH ARHEOLOŠKIH ISKOPAVANJA NA TRASI GASOVODA U OPŠTINI SOMBOR (KATALOG ISTOIMENE IZLOŽBE), IZDANJE GRADSKI MUZEJ SOMBOR, SOMBOR 2017.

Publikacija sadrži 40 stranica (uvodni tekst, pregled istraživanih lokaliteta i dobijenih rezultata, bibliografija, katalog), 188 kataloških jedinica (64 ilustrovane kolor fotografijama), 15 terenskih snimaka i geografska karta arheoloških lokaliteta.

Katalog i izložba, pod zajedničkim nazivom *So-arheo 2012*, predstavljaju autorski izraz arheologa Anđelke Putice i Viktorije Uzelac, putem kojih su predstavljeni rezultati zaštitnih arheoloških istraživanja sprovedenih na trasi gasovoda u Somboru i njeovom neposrednom okruženju..

Arheološka iskopavanja, iako zaštitnog karaktera, potvrdila su postojanje velikog broja lokaliteta na ugroženom području. Neka od istraživanih lokacija pokazala su veliki arheološki potencijal, koji je nametnuo potrebu novih istraživanja sa ciljem daljeg rasvetljavanja bogate prošlosti somborskog kraja.

Autorski tandem je, tokom realizacije projekta, imao podršku tima saradnika. Na prvom mestu, ističemo ulogu recenzenta, mr Jovana Koledina (Muzej Vojvodine, Novi Sad), i stručnih saradnika, prof. dr Sofije Stefanović i dr Ivane Živaljević (Laboratorija za bioarheologiju Filozofskog fakulteta u Beogradu).

Posebne pohvale zaslužuje dizajnerska priprema izložbe i kataloga, koja je pružila karakterističan pečat čitavom projektu. Dizajn izložbe predstavlja zajedničko delo Anđelke Putice, Viktorije Uzelac, Pavla Karabasila (potpisnik autorstva dizajna kataloga), Nenada Jončića i Olivera Damjanović.

Konzervaciju eksponata uradili su Joška Erdelji i Pavle Karabasil, dok su izradu rekonstrukcija izveli Dimitrije Mirko Čelić, Đorđe Šipoš i Viktorija Uzelac. Fotografije predstavljaju autorski prilog Dragana Anđelića, Dragana Radojevića i Pavla Karabasila. Pohvale zaslužuje i Aleksandra

Herceg–Raonić, za ispunjenje lektorskih zadataka.

Na izložbi su prikazani rezultati zaštitnih arheoloških istraživanja na trasi gasovoda, realizovanih u periodu od aprila do septembra 2012. godine. Iskopavanja je sproveo Pokrajinski zavod za zaštitu spomenika kulture iz Petrovaradina, u saradnji sa Gradskim muzejom Sombor. Rukovodilac istraživanja bio je Dragan Anđelić, arheolog Pokrajinskog zavoda, dok su stručnu ekipu sačinjavali i arheolozi somborskog muzeja Dragan Radojević i Anđelka Putica.

Istraživana trasa obuhvatala je arheološke lokalitete na teritoriji Sombora (Lugovo, Žarkovac, Čičovi i Gradina), Čonoplje, Doroslova, Kljajićeva, Jagnjeva, Stanišića, Stapara, Svetozar Miletića i Telečke. Rezultati istraživanja su definisali stratigrafsku sliku pojedinih nalazišta i ukazali na postojanje višeslojnih lokaliteta, koji su egzistirali u širokom hronološkom rasponu, od neolita do novog veka.

Katalog otvara uvodna reč Branimira Mašulovića, direktora Gradskog muzeja Sombor. Uvod predočava da je izložba upriličena povodom obeležavanja 135 godina od osnivanja Istorijskog društva Bač-bodroške županije, datuma početka muzeološkog rada na ovom prostoru. U narednim redovima uvodnog teksta naglašen je značaj sprovedenih istraživanja i predočene su mogućnosti za dalja multidisciplinarna istraživanja i prezentaciju ostvarenih rezultata.

Katalog izložbe je konceptijski podeljen na dva osnovna dela. U prvom opisani su lokaliteti na kojima je vršeno iskopavanje, dok druga

polovina navodi kataloške jedinice sa podacima o otkrivenim pokretnim nalazima.

Prvonavedeni lokaliteti, Mašića salaš i Ekonomija, nalaze se pet kilometra udaljeni od Stanišića. Na pomenutim nalazištima istraživani su veći broj objekata. Nalazi srednjovekovne keramike, otkriveni u pećima na lokalitetu Ekonomija, ukazuju da je reč o ekonomskom i radnom prostoru srednjovekovnog naselja (XIV–XVI vek).

Naselje Svetozar Miletić nalazi se na oko dvadeset kilometara severoistočno od Sombora. Potes Konopljište prostire se na jugozapadnom kraju sela. Na ovom potesu, duž trase gasovoda, postoje tri lokaliteta: Konopljanska ulica I, Konopljanska ulica II i Atarski put.

Na Konopljanskom putu I delimično je istražen stambeni objekat iz kasnog bronzanog doba (kultura Val–Dalj). Objekat je oštećen mlađim ukopom (rovom) iz srednjeg veka.

Istraživanjima lokaliteta Konopljanski put II obuhvaćeno je pet objekata, nekoliko jama, jedan rov i jedno pozajmište za glinu. U objektima prevladavaju nalazi keramike koji se pripisuju kulturi grobnih humki (bronzano doba).

Više od dvadeset nepokretnih arheoloških objekata otkriveno je na lokalitetu Atarski put. Prvi tragovi naseljavanja potiču iz bakarnog doba (kultura Rec–Gejari). Najbrojniji su objekti iz kasnog bronzanog doba, konstatovani na čitavom istraživanom području. Reč je o jamama, trapovima, rovovima i pozajmištima za glinu. Pokretni arheološki materijal pripada kasnoj fazi kulture grobnih humki. Uticaj kulture polja sa urnama (Val–Dalj) ogleda se na novim oblicima posuda, sporadično otkrivanim unutar objekata. Karakteristični nalazi (kalup za izradu scolikih privezaka i fragmentovana duvaljka) upućuju na postojanje radionice za livenje bronzanih predmeta. Istraženo je i nekoliko objekata datovanih u mlađe gvozdeno doba. Iz istog perioda potiče i skeletni grob ženske osobe, sa karakterističnim nakitom kao grobnim prilogom.

U Čonoplji, na lokalitetu Vodice, nalazi se manja crkva, izgrađena 1894. godine. Objekti i

pokretni arheološki materijal iz okruženja crkve svedoče o više horizonata naseljavanja, od srednjeg bronzanog doba, preko antike, do srednjovekovnog naselja iz perioda od XI do XIV veka. Iz istog naselja potiče i lokalitet raširen duž potesa Ciglana, Kosovska ulica i Ulica Stanka Opsenice. U Kosovskoj ulici istražen je jedan objekat sa keramikom sarmatske provenijencije iz III–IV veka, dok su iskopavanja na Ciglani pokazala samo recentne ukope.

Iskopavanja su obuhvatila i četiri ulice (Okotbarske revolucije, Dože Đerđa, Kiš Ferenc i Maršala Tita) u centru naselja Telečka, gde je istraženo ukupno jedanaest objekata. Na lokalitetu u Ulici Maršala Tita otkriveni su trapovi sa sarmatskom keramikom. Usamljeni dečiji grob, bez priloga, konstatovan je u istočnom delu Ulice Dože Đerđa.

U ataru Kljajićeve istraživanje je sprovedeno na dva mesta. Lokalitet Ulica Milana Tepića smešten je na periferiji sela. Srednjovekovnom periodu pripada poluukopana kuća sa arheološkim materijalom iz XII–XIV veka. U zapadnom delu objekta otkriven je sarmatski skeletni grob. Ispod srednjovekovnog rova, pronađen je još jedan kasnoantički grob.

Lokalitet Jagnjevo nalazi se na putu Kljajićevo–Sivac. Od sedam registrovanih objekata, u celosti su istražene jame i rov. U ispuni ovih objekata nalazio se arheološki materijal, od koga najveći broj čine fragmenti keramike iz kasnoantičkog perioda.

Na prostoru samog Sombora istraživana su četiri nalazišta. Lokalitet Gradina pruža se pored puta Sombor–Gradina. Od ukupno deset istraženih objekata, sedam je bez arheološkog konteksta. Otkriveni pokretni arheološki materijal, iz ostalih objekata, pripada periodu bronzanog doba.

Lokalitet Čičovi nalazi se u okviru istoimenog salaškog naselja, udaljenog šest kilometara južno od Sombora i kanala Dunav–Tisa–Dunav. Istražena su 33 objekta iz više horizonata nastanjivanja. Periodu kasnog bronzanog doba pripadaju ukopane zemunice. Istražen je i deo ranosrednjovekovne nekropole na redove, sa otkrivenim

skeletnim grobovima iz srednjoavarskog i kasnoavarskog perioda.

Tekstualni deo kataloga posebnu pažnju posvećuje čičovskim nekropolama. Preliminarna analiza pokretnog materijala ukazuje na odsutnost ratničke i konjaničke opreme, dok većina grobnih priloga pripada zanatskim proizvodima, korišćenim u svakodnevnom životu. Konstatovane su i dve kalotaste peći, koje pripadaju srednjovekovnom naselju iz perioda XIV–XVII veka.

Lokalitet Lugovo smešten je u okviru salašarskog naselja Lugumerci (Lugovo), na putu Sombor–Stapar. Istražena je poluzemunica sa kraja bronzanog doba. Objekat je presečen kasnijim ukopom, u kome je pronađen antički materijal.

Na jedanaest kilometara jugoistočno od Sombora leži lokalitet Žarkovac. Istraživanja su sprovedena u dve ulice: Partizanskoj i Zadružnoj. Ponađeni su samo fragmenti recentne keramike, bez arheološkog konteksta.

Selo Stapar leži na trinaest kilometara južno od Sombora. Istraživanja su, putem kontrolnih rovova, vršena u ulicama Atanaska Lazića i Jovana Cvijića. U Ulici Jovana Cvijića pronađeni su fragmenti posuda iz XVIII–XIX veka (mohačka keramika).

Istraživanja atara Doroslova dovela su do značajnih nalaza. Neposredno pored toka Velikog bačkog kanala prostire se lokalitet Ulica Marka Zrenjanina, smešten u samom centru naselja. Istraženo je ukupno 27 objekata iz praistorijskog i srednjovekovnog perioda. Epohi praistorije pripada sedam kružnih jama sa keramikom iz srednjeg i kasnog bronzanog doba (transdanubijska inkrustovana keramika i, ređe, materijal vezan za kulturu Belegiš i Val–Dalj). Objekat, zaveden pod brojem 20, pripada tipu tzv. ritualnih jama, sa položenim skeletom konja. Istoj epohi pripadaju i konstatovani rovovi i pozajmište za glinu. U srednjovekovni period određuje se pet objekata, uključujući i kalotastu peć sa ložištem (XVI–XIX vek) i veću otpadnu jamu.

Istraživanja su sprovedena i na lokalitetu Sekeš. Otkriven je 201 objekat sa pokretnim materijalom, datovanim od poznog bronzanog doba do

XVI veka. Utvrđeno je postojanje šest horizonata nastanjivanja. Najstarije naselje pripada periodu ranog bronzanog doba (Mako kultura). Iz ovog horizonta otkriven je jedan građevinski objekat i nekoliko jama.

Najdominantniji horizont pripada prelaznom periodu iz kasnog bronzanog u rano gvozdeno doba. Ukupno je istraženo 108 objekata. Severni i zapadni deo Bačke je, krajem bronzanog doba, pripadao kulturnom kompleksu kulture grobnih humki (Higelgreber kultura). U okviru ovog horizonta, na lokalitetu Sekeš, javlja se i inkrustovana keramika južne Transdanubije, kao i keramički oblici kulture Belegiš i Val–Dalj. Naredni horizont vezuje se za naselje iz mlađeg gvođenog doba, od koga su otkrivena tri stambena objekta. Naselje se vezuje za Skordiske ili autohtono panonsko stanovništvo.

Istraženo je šest objekata za stanovanje iz srednjeg veka, koji pripadaju periodu od kraja VI do početka XII veka. Primetno je da se naselje deli na ekonomski i stambeni deo. Nalazi koji datuju ranosrednjovekovni horizont u period od VI do IX veka, po svojim osobinama, vezuju se za slovensku materijalnu kulturu. Periodu kasnog srednjeg veka pripadaju jame različitog oblika i namene, pozajmišta za glinu i plitko ukopana kuća pravougaonog oblika.

Nakon opisa lokaliteta, predstavljena je *Bibliografija*, gde je naveden spisak korišćene stručne literatura, sa 56 bibliografskih jedinica.

Kataloški deo prezentuje, uz detaljne opise, ukupno 188 kataloških jedinica. Nalazi su razvrstani po lokalitetima. Fotografijama u boji ilustrirane su 64 kataloške jedinice.

Autori iznose zaključak da su, osvetljavanjem rezultata istraživanja i izlaganjem dela otkrivenog arheološkog materijala, pruženi podaci za razumevanje procesa naseljavanja i kretanja stanovništva od praistorije do srednjeg veka na prostoru Bačke. Dalje se navodi da je kampanja iskopavanja, sprovedena 2012. godine, potvrdila potencijal za buduća sistematska istraživanja na lokalitetima u Somboru (Granita i Čičovi), Svetozar Miletiću (Avarski put) i Doroslovu (Sekeš).

Putem kataloga i izložbe, autorski tandem, Anđelka Putica i Viktorija Uzelac, zajedno sa respektabilnim timom saradnika, više nego uspešno je predočio aktivnosti somborskih arheologa i predstavio rezultate istraživanja sprovedenih 2012. godine. Istraživanja su pružila zapažene rezultate, uspešno prezentovane putem izložbe i kataloga. Dosegnuti rezultati razložno su doveli do uspostavljanja novih ciljeva, vezanih za produbljivanje saznanja o registrovanim lokalitetima i dalju prezentaciju dometa novih istraživanja. Verujemo da će kolege iz Gradskog muzeja Sombor nastaviti uspešnu delatnost i da će, stručna i šira javnost, biti u prilici da se upozna sa rezultatima novih istraživanja.

Ljubiša VASILJEVIĆ

CULT AND VOTIVE MONUMENTS IN THE ROMAN PROVINCES, PROCEEDINGS OF THE 13TH INTERNATIONAL COLLOQUIUM ON ROMAN PROVINCIAL ART, BUCHAREST – ALBA IULIA – CONSTANTA, WITHIN THE FRAMEWORK OF *CORPUS SIGNORUM IMPERII ROMANI*, INSTITUTUL DE ARCHAEOLOGIE „VASILE PARVAN“ & THE AUTHORS, CLUJ-NAPOCA 2015.

Publikacija sadrži 384 stranice – uvodni tekst sa podacima o istorijatu Kolokvijuma, 32 članka razvrstana u okviru šest tematskih celina, program rada Trinaestog kolokvijuma, informacija o organizatorima i spisak učesnika.

Počev od 1989. godine, Međunarodni kolokvijum o rimskoj provincijskoj umetnosti održava se svake druge godine, uvek u novom gradu i novoj državi. Težnja je da kolokvijum uvek bude organizovan na prostoru druge nekadašnje rimske provincije i da predstavljene teme budu povezane sa rimskom umetnošću, prvenstveno skulpturi izrađenoj u kamenu. Od 27. maja do 3. juna 2013. godine, po prvi put, domaćin Kolokvijuma bila je Rumunija. Učešće je uzelo je više od sto stručnjaka iz devetnaest zemalja.

Osnovne teme na Trinaestom kolokvijumu predstavljali su kult i votivni spomenici u rimskim provincijama. Naglasak je bio na skulpturalnim tehnikama, izvorištima kamenog materijala, veštinama zanatlija i povezanošću korišćenih dekoracija sa religijskom ikonografijom i simbolizmom.

Deo prezentovanih tema publikovan je u Aktima Kolokvijuma. Nakon uvodnih izlaganja, Akta su podeljena u sledeće tematske celine: kult i votivni spomenici; ikonografija i simbolizam; „afterlajf“ – spomenici u sekundarnoj upotrebi; arhitektonska dekoracija; varia i novi nalazi i projekti.

Prva tematska celina:

Claudina Romero Mayorga, *A new interpretation of a mithraic sculpture in Augusta Emerita, Hispania*. Iskopavanja sprovedena početkom XX veka (1903-1913. godine) u Meridi, dovela su do izuzetnih saznanja vezanih za religijski život na mestu nekadašnje Kolonije Julije Avguste Emerite. Zahvaljujući ikonografiji otkrivenih nalaza, istraživači su brzo izašli sa pretpostavkom o pos-

tojanju velikog mitreuma ili hrama posvećenog orijentalnim božanstvima. Ovaj rad je zasnovan na analizi i mogućim interpretacijama ikonografije kamene skulpture mladića, koja je u starijoj literaturi navođena kao „Kautopates“ ili „mitraistička predstava“. Kroz analizu skulpture, i njene moguće interpretacije, autorka predstavlja nove poglede vezane za razvoj mitraizma na prostorima rimskog sveta.

Jasna Jeličić Radonić, *The Cult of Dionysus or Liber – Votive Monuments in Salona*. Rad je posvećen razvoju kulta Dionisa, ili Libera, u antičkoj Saloni. U okviru glavnog grada rimske provincije Dalmacije, ovaj kult posvedočen je nalazima skulptura i, prvenstveno, hrama posvećenom Dionisu ili Liberu. Hram je, zajedno sa naknadno podignutim objektom pozorišta, činio jedinstveni arhitektonski kompleks. U radu su predstavljene skulpture i votivni spomenici posvećeni Dionisu/Liberu, otkriveni u okviru pomenutog svetilišta, ali i na drugim mestima u Saloni i njenom neposrednom okruženju (često u okviru nekropola, čime je naglašena uloga Dionisa u zagrobnom kultu).

Marija Kolega, *Sculptures and votive monuments of deities in Aenona*. Veliki broj votivnih spomenika posvećenih lokalnim, rimskim i orijentalnim božanstvima pronađen je na prostoru antičkog municipijuma Enone. Prvi iznet primer je lokalna liburnska boginja Anzotika, koja je kroz proces *interpretatio romana*, poštovana kao Venera Anzotika. Njena jedinstvena statua, zajedno sa predstavom Prijapa, kao i votivni natpis, pronađeni su izvan gradskih bedema. Skulpture i votivni natpisi svedoče i o poštovanju kultova Silvana, Jupitera, Janusa, Neptuna, Vulkana, Dijane i

Dionisa. Putem analize votivnih spomenika dat je i pokušaj da se bolje objasni proces romanizacije na ovom području.

Ante Rendić Miočević, *A reconstruction of the central part of the Nymphaeum (fountain) at Varaždinske Toplice (Aquae Iassae) with a relief depiction of Nymphs*. Rimsko naselje Akve Jase (današnje Varaždinske Toplice) predstavlja, uz Akve Balise (Municipum Iassorum, današnji Daruvar), najznačajniji banjski centar na teritoriji panonskih Jasa. Rad je posvećen određenju i rekonstrukciji građevinskog objekta (*nimfeuma*) iz ovog naselja, uključujući i pitanje otkrivenog reljefnog spomenika sa predstavom nimfi.

Adriana Antal, *Consecratio in formam Veneris in Roman Dacia*. Rad je posvećen pitanju kulturnih funkcija boginje Venere, vezanih za verovanje u zagrobni život. Naglašena je i kulturna razlika između rimske Venere i grčke boginje Afrodite. Tekst obogaćuju primeri vezani za nalaze sa lokaliteta u rimskoj provinciji Dakiji.

Iphigeneia Leventi, *The relief statue base of Nummius Nigreinos, sacred herald of the Eleusinian mysteries. The iconography of Eleusinian cult initiates and officials in Roman Imperial times*. Portretna statua Lucija Numija Nigreinosia iz antičke deme Gargetos, podignuta je, neposredno nakon njegove smrti, u okviru svetilišta u Eleusini. Nalaz statue jednog od najviše rangiranih sveštenika kulta, predstavlja povod za razmatranje o značaju i simbolici eleusinskih misterija u rimskom periodu.

Georgia Aristodemou, *Mars Victor, Victoria and Nemesis Invicta. Three votive reliefs from the ancient theatre of Philippi (Kavala) reconsidered*. Antičko pozorište u Filipima (okruženje današnje Kavale), podignuto je u IV veku pre nove ere. Tokom II veka nove ere preoblikovano je u rimski teatar, dok je, krajem III veka, preimenovano u arenu za gladijatorske borbe. U okviru objekta pronađena su tri votivna reljefa posvećena Viktoriji, Nemezi i Marsu. Reljefe je posvetio Marko Velejus Zosim, Nemezin sveštenik. Rad posebnu pažnju posvećuje značaju kulta Nemeze.

Aleksandra Nikoloska, *The world of Dionysos on monuments from the Republic of Macedonia*. Cilj rada predstavlja osvrt na ikonografiju kulta Dionisa na teritoriji današnje Severne Makedonije. Spomenici kulta javljaju se u vidu slobodnostojećih skulptura i reljefnih predstava. Naglasak je stavljen na pitanje koliko su spomenici Dionisa i njegove kultne zajednice uticali na razvoj religijskih shvatanja lokalnog stanovništva.

Exhlale Dobruna-Salih, *Three significant reliefs of grapevine and forest deities in Dardania*. Na prostoru antičke Dardanije, pojedina božanstva, iako su poštovana pod italjsko-rimskim imenima, zadržavala su karakteristike starosedelačkih verovanja. Primer se nalazi u tri votivna spomenika sa predstavama kulturnih zajednica povezanih sa vinom i šumskim prostranstvima (Dionis, Liber, Silvan, Arijadna).

Wolfgang Wohlmayr, *Gottheiten und Kulte im nördlichen Teil Noricums nach Aussage der Weihedenkmäler. Ein Blick auf Juvavum (Salzburg) und sein Umland*. Natpisi na antičkim votivnim spomenicima, u provinciji Norik, često sadrže podatke značajne za njihovo hronološko određenje. U radu su predstavljeni nalazi sa lokaliteta Juvavum (današnji Salzburg) i njegovog okruženja. Postavlja se pitanje identifikacije predstavljenih božanstava i mogućnost povezivanja spomenika sa ostalim arheološkim i istorijskim podacima.

Druge tematska celina:

Ilona Skupinska-Løvset, *Incense Altars and Visualization of Incense Offerings in Roman Syria*. Postavljaju se pitanja vezana za kult i ritualne darove na prostoru rimske Sirije. Naglašava se značaj upotrebe tamjana u ritualne svrhe, što potvrđuju arheološki i pisani izvori. Bogat arheološki materijal povezan sa tamjanom svedoči o lakoj dostupnosti ove materije, što se objašnjava blizinom Arabije, kao mestom njenog porekla.

Sorin Nemeti, *I rilievi dei Cavalieri Danubiani. Spunti per l'interpretazione diacronica*

delle varianti regionali. Raznovrsnost regionalnih interpretacija vezanih za kult podunavskog konanika predstavlja temu rada. Usled nepostojanja pisanih izvora, jedina saznanja o kultu mogu se dobiti iz predstava na spomenicima. Pružen je osvrt na kamene reljefe iz Dakije i olovne ikone, koje autor vezuje za Panoniju. U radu se razmatraju regionalne varijante ikonografije i pokušava da se prikaže hronološki razvoj kulturnih predstava.

Mirjana Sanader, *Der Januskult in den Provinzen des Römischen Reiches unter besonderer Berücksichtigung der Ikonographie zweier Reliefs aus Dalmatien und Dakien*. Veliki broj spomenika kulta Janusa, otkrivenih na teritoriji rimske provincije Dalmacije, naveo je autorku na razmišljanje da li je kult na navedenom prostoru bio zastupljeniji u odnosu na ostale delove Rimskog carstva. Dve različite reljefne predstave Janusa (iz Palanke kod Gračaca u Dalmaciji i Alburnus Maiora u Dakiji), poslužile su za povod analize ikonografskih varijacija vezanih za ovaj kult.

Nade Proeva, *Les croyances funéraires des Macédoniens: l'héroïsation et la divinisation des défunts à l'époque romaine*. Ikonografske predstave heroizovanog pokojnika, na prostoru antičke Makedonije, izvođene su dvojako – na realističan ili shematizovan način. Na realističan način, pokojnik je prikazivan kao konjanik ili samo putem poprsja. Putem shematizovanog načina predstave su rađene u vidu bora, rozete ili sunčevog diska. Motivi su karakteristični za prostor koji predstavlja temu rada.

Delphine Seigneuret, *Les panneaux sculptés de Khirbet edh-Dharih (Jordanie centrale): remarques sur la restitution, la technique et l'iconographie*. Posvećena je pažnja delu ikonografije zastupljene u hramu Dharih (Jordan). Dekorativni reljefi, izvedeni na fasadi građevine, uništeni su tokom ikonoboračkih sukoba. Otkriveno je 67 ukrašenih blokova, koji pružaju nova saznanja o nabatejskoj kulturi.

Luca Bianchi, *Edifici in miniatura ed esigenze d'apparato: l'edicola funeraria pannonicodacica*. Rad je posvećen pogrebnim edikulama pozna-

tim sa prostora Donje Panonije i Gornje Dakije. Skrenuta je pažnja na razlike u motivima zastupljenim u pomenutim provincijama, ali i na uzore iz glavnih umetničkih centara, koje su lokalni majstori sledili prilikom izrade svojih rukotvorina.

Maria Weiss, *Der bärtige Ruhende auf den Seitenregistern der Mithrasmonumente*. Postavlja se pitanje identifikacije bradatog muškarca, predstavljenog nagog ili u rimskoj odeći, najčešće zastupljenoj na mitraističkim spomenicima. U literaturi se ova predstava identifikuje sa Jupiterom ili Saturnom.

Treća tematska celina:

Piotr Dyczek, *Sculptures from the "templum Aesculapii et Hygiae" in the Legionary Hospital at Novae (Moesia Inferior)*. Vojna bolnica (valetudinarium), otkrivena na lokalitetu Nove (Bugarska), provincija Donja Mezija, predstavlja jedno od najznačajnijih otkrića poljskih arheologa koji deluju pri Centru za istraživanje antike jugoistočne Evrope (Univerzitet u Varšavi). Rad se bavi nalazima skulptura koje su mogle pripadati hramu posvećenom Asklepiju i Higiji.

Jutta Ronke, *Fortuna-Fragmente aus der Germania superior. Zur 'antiken Glücksgöttin von der Baustelle'*. Predmet proučavanju su tri fragmenta reljefne ženske predstave. Figura, odevena u peplos, prikazana je frontalno. Pored fragmenta figure, pronađeno je postolje od peščara, karakteristično za male hramove u okviru vila rustika iz rimske provincije Gornje Germanije. Raspravlja se o pitanju predložene identifikacije ženske predstave sa Fortunom.

Četvrta tematska celina:

Walburg Boppert – Christine Ertel, *Ein frühkaiserzeitliches Konsolengesims aus dem Theater in Mogontiacum (Mainz, Germania Superior)*. Tokom iskopavanja kasnoantičkog teatra na lokalitetu Mogontiakum (Majnc), otkriven je, u sekundarnoj upotrebi, deo arhitektonskog ukrasa

iz avgustovskog perioda. Teatar iz vremena Avgusta pripadao je velikom memorijalnom centru posvećenom Druzu Starijem, koji je postao centar carskog kulta u Gornjoj Germaniji.

Klaus Stefan Freyberger, *Funktion und Bedeutung monumentaler Steinmale in Heiligtümern der östlichen Mittelmeerwelt aus römischer Zeit*. Tradicionalni idol u istočnomediteranskim svetišlima bio je kameni blok sa grčkim nazivom *baityilos*. Na osnovu natpisa na aramejskom jeziku, gde se naziva *Hamânâ*, zaključuje se da idol označava prisustvo božanstva i božansku kuću. Mogao je stajati izolovano u okviru temenosa ili unutar hrama. Smatran je za "svetinju nad svetinjama".

Peta tematska celina:

Florina Panait Bîrzescu, *Local cult statues or itinerant coin-types? Some remarks on the iconography of the Western-Pontic coinage*. Predstave božanstava na novcu postaju predmet proučavanja još od početka XIX veka. Prvobitni zadatak izučavanja bila je rekonstrukcija izgleda spomenika, od kojih su sačuvani samo fragmenti ili su bili poznati samo iz pisanih izvora. Naredni periodi pružili su nove aspekte ovim studijama. Rad se bavi pitanjima predstava božanstava na zapadnopontijskim kovanjima. Razmatra se pitanje da li su neke od predstava božanstava izrađivane na osnovu izgleda lokalnih statua.

Manfred Hainzmann, *SAGUM* – Zu problematischen Datierungsansätzen eines keltisch-römischen Kleidungsstückes. Možda najpopularniji rimski muški odevni predmet bio je sagum. Ovaj odevni predmet nije bio samo deo nošnje u keltskim oblastima, nego je postao i deo odeće vojnog osoblja. Najverovatnije tokom vladavijne Karakale, sagum postaje uobičajena odeća rimskog vojnika. Rad se bavi analizom relevantnih epigrafskih i ikonografskih svedočenja u vezi sa korišćenjem saguma.

Šesta tematska celina:

Lea Stirling – Nejib Ben Lazreg, *A new portrait of Septimius Severus in the Musée Archéologique de Lamta (Tunisia)*. Portret Septimija Severa iz Arheološkog muzeja u Lamti, prikazuje imperatora sa raskošnom kosom, račvastom bradom i lovorovim vencom. Pored ovog dela, poznato je još jedanaest portreta Septimija Severa iz Severne Afrike. Portreti su analizirani u okviru imperijalnog i geografskog (afričkog) konteksta.

Fulvia Ciliberto, *Un rilievo con zodiaco nabateo a Gerusalemme*. U sastavu zbirke franjevačkog Arheološkog muzeja u Jerusalimu, nalazi se i reljefni prikaz nabatejskog zodijaka. Rad se bavi pitanjem porekla reljefa, njegove ikonografije, hronologije i položaja u okviru arhitektonske dekoracije hrama u Kirbet et-Tanuru (Jordan).

Irina Nemeti – Luminița Săsăran – Emanuel Săsăran, *Monumenti scultorei nelle collezioni del Museo Nazionale di Storia della Transilvania. Studio sulle officine e le cave di pietra della Dacia Porolissensis*. Rimski lapidarij u Nacionalnom istorijskom muzeju Transilvanije u Kluž-Napoki, sastoji se od oko 700 skulptura i arhitektonskih elemenata. Ekspoziti su izrađeni od različitih vrsta kamena, poreklom iz kamenoloma rimske Dakije. Rad pokušava da identifikuje lokalne klesarske radionice i kamenolome u ovoj provinciji.

Alexandru Gh. Sonoc – Mihai Chiriac, *Brief comments on some Roman provincial sculptures from the Sibiu County*. U okviru istraživanja arheološkog nasleđa okruženja Sabinja (Sibiu) u Rumuniji, sprovedenog u okviru velikog međunarodnog projekta otkriven je, ili detaljnije proučen, veliki broj nalaza rimske provincijske skulpture i epigrafskih spomenika. Rad je posvećen boljem razumevanju različitih aspekata života, tokom antičkog perioda, u Južnoj Transilvaniji.

Adam Jakub Jarych, *How the Romans looted works of art from the third to the first century B.C. – the case of Ambracia's plunder in 189 B.C.* Pljačkanje umetničkih dela iz osvojenih gradova,

u mediteranskom kulturnom krugu, predstavljalo je važan deo rimskih ratnih kampanja. Kao najstariji primer navedeno je veliko pljačkanje umetnina, koje je sproveo Marko Klaudije Marcel, 212. godine pne, na osvojenoj Siciliji. Ovaj primer sledile su brojne rimske vojskovođe. Rad je posvećen pljačkanju grada Ambracije u Epiru, 189. godine p.n.e., kao i sudbini opljačkanih umetničkih dela.

Filomena Limão – Miguel Pessoa, *Sculpting Space – The iconography of the architectural sculpture in the Roman Villa of Rabaçal (Portugal)*. Rimska vila u Rabačalu bila je predmet sistematskih arheoloških istraživanja, koja su otkrila podatke vezane za arhitekturu, arhitektonsku skulpturu i mozaičku dekoraciju ovog lokaliteta. Posebna pažnja posvećena je reljefnoj dekoraciji, otkrivenoj u okviru triklinijuma vile.

Judit Zöldföldi, *Conditions for successful provenance studies on marble*. Rad se bavi načinima utvrđivanja porekla uzoraka mermera, za koje ne postoje pouzdani podaci. Najčešće se koristi kombinacija različitih metoda istraživanja. Rezultati zavise od kvaliteta uzorka, ali i načina uzimanja uzorka, kao i korišćenih metoda istraživanja. Naglašava se da mnogi poznati antički kamenolomi još nisu arheometrički ispitani, što otežava mogućnosti precizne identifikacije uzoraka.

Paola Ventura – Annalisa Giovannini, *Sorelle, spose, madri. Il mondo al femminile nei monumenti funerari di Aquileia*. U okviru bogatog skulptoralnog nasleđa Akvileje, značajne su i predstave ženskih figura kao nadgrobnog obeležja. Detaljnim proučavanjem ikonografije, autori pokušavaju da dopru do najvećeg mogućeg stepena lične identifikacije predstavljenih osoba.

Guntram Koch, *Some Considerations on the Sarcophagi of Roman Imperial Times in the Provinces of the Balkans, especially Moesia Inferior*. Sačuvan je relativno veliki broj sarkofaga u okviru rimskih provincija na Balkanu. Rad pruža informacije vezane za sarkofage iz Donje Mezije i Dakije. Akcenat je stavljen na tri aspekta: import sarkofaga, lokalne kopije i imitacije importovanih

komada i kopije i imitacije polufabrikata poreklom iz maloazijskih kamenoloma.

Publikacija se okončava programom Trinaestog kolokvijuma, informacijom o organizatorima i spiskom učesnika.

Akta Trinaestog međunarodnog Kolokvijuma o rimskoj provincijskoj umetnosti sadrže značajne članke, koji pružaju obilje podataka neophodnih za sve istraživače antičke arheologije, istorije i istorije umetnosti.

Ljubiša VASILJEVIĆ

UREĐIVAČKA POLITIKA ČASOPISA ARHEOLOGIJA I PRIRODNE NAUKE

Časopis *Arheologija i prirodne nauke* posvećen je temama iz naučnih oblasti: arheologije, istorije arhitekture, istorije umetnosti, antropologije, arheozoologije, arheobotanike, geofizike, računarskog inženjerstva i ostalih srodnih disciplina.

Časopis *Arheologija i prirodne nauke* je kao samostalno izdanje počeo da izlazi 2005. godine kao glasilo Centra za nove tehnologije Viminacium i Arheološkog instituta iz Beograda.

Časopis *Arheologija i prirodne nauke* objavljuje originalne, prethodno neobjavljene radove: originalne naučne radove, pregledne radove, izveštaje sa iskopavanja, kritike i prikaze.

Časopis *Arheologija i prirodne nauke* je dostupan u režimu otvorenog pristupa.

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Radove pripremljene za štampu treba predati sekretaru redakcije, od 01. do 30. juna za svesku koja izlazi do kraja tekuće godine. Redakcija se sastaje nakon predaje svih radova i na prvom sastanku redakcije biraju se recenzenti.

OBAVEZE UREDNIKA I REDAKCIJE

Redakcija časopisa *Arheologija i prirodne nauke* donosi konačnu odluku o tome koji će se rukopisi objaviti. Prilikom donošenja odluke redakcija se rukovodi uređivačkom politikom vodeći računa o zakonskim propisima koji se odnose na klevetu, kršenja autorskih prava i plagiranje.

Redakcija zadržava diskreciono pravo da primljene rukopise proceni i ne objavi, ukoliko utvrdi da ne odgovaraju propisanim sadržinskim i formalnim kriterijumima. U redovnim okolnostima, redakcija obaveštava autora o tome da li je prihvatila tekst najduže u roku od 120 dana od datuma prijema rukopisa.

OBAVEZE AUTORA

Autori garantuju da rukopis predstavlja njihov originalan doprinos, da nije objavljen ranije i da se ne razmatra za objavljivanje na drugom mestu. Istovremeno predavanje istog rukopisa u više časopisa predstavlja kršenje etičkih standarda. Takav rukopis se momentalno isključuje iz daljeg razmatranja.

Ako autori delimično ili u potpunosti prenose prava na izdavača: Autori takođe garantuju da nakon objavljivanja u časopisu *Arheologija i prirodne nauke*, rukopis neće biti objavljen u drugoj publikaciji na nekom drugom jeziku bez saglasnosti izdavača.

U slučaju da je poslati rukopis rezultat naučno-istraživačkog projekta ili da je, u prethodnoj verziji, bio izložen na skupu u vidu usmenog saopštenja (pod istim ili sličnim naslovom), detaljniji podaci o projektu, konferenciji i slično, navode se u odeljku ispred prve fusnote rada, koji treba označiti zvezdicom. Rad koji je već objavljen u nekom časopisu ne može biti preštampan u časopisu *Arheologija i prirodne nauke*.

Autori su dužni da se pridržavaju etičkih standarda koji se odnose na naučnoistraživački rad. Autori garantuju i da rukopis ne sadrži neosnovane ili nezakonite tvrdnje i ne krši prava drugih. Izdavač neće snositi nikakvu odgovornost u slučaju ispostavljanja bilo kakvih zahteva za naknadu štete.

Sadržaj rada

Rad treba da sadrži dovoljno detalja i referenci kako bi se recenzentima, a potom i čitaocima omogućilo da provere tvrdnje koje su u njemu iznesene. Namerno iznošenje netačnih tvrdnji predstavlja kršenje etičkih standarda. Prikazi, kritike i stručni članci moraju biti precizni i objektivni. Ovi radovi se takođe recenziraju i odluku o njihovom prihvatanju donosi redakcija, na osnovu pozitivnih recenzija.

Autori snose svu odgovornost za sadržaj predatih rukopisa i dužni su da, ako je to potrebno, pre njihovog objavljivanja pribave saglasnost svih lica ili institucija koje su neposredno učestvovala u istraživanju koje je u rukopisu predstavljeno.

Autori koji žele da u rad uključe ilustracije, tabele ili druge materijale koji su već negde objavljeni dužni su da za to pribave saglasnost nosilaca autorskih prava. Materijal za koji takvi dokazi nisu dostavljeni smatraće se originalnim delom autora.

Autorstvo

Autori su dužni da kao autore navedu samo ona lica koja su značajno doprinela sadržaju rukopisa, odnosno dužni su da sva lica koja su značajno doprinela sadržaju rukopisa navedu kao autore. Ako su u bitnim aspektima istraživačkog projekta i pripreme rukopisa učestvovala i druga lica koja nisu autori, njihov doprinos treba pomenuti u napomeni ili zahvalnici.

Navođenje izvora

Autori su dužni da ispravno citiraju izvore koji su bitno uticali na sadržaj istraživanja i rukopisa. Informacije koje su dobili u privatnom razgovoru

ili korespondenciji sa trećim licima, prilikom recenziranja prijava projekata ili rukopisa i slično, ne smeju se koristiti bez izričite pisane dozvole izvora.

Plagijarizam

Plagiranje, odnosno preuzimanje tuđih ideja, reči ili drugih oblika kreativnog izraza i predstavljanje kao svojih, predstavlja grubo kršenje naučne i izdavačke etike. Plagiranje može da uključuje i kršenje autorskih prava, što je zakonom kažnjivo.

Plagijat obuhvata sledeće:

- doslovno ili gotovo doslovno preuzimanje ili smišljeno parafraziranje (u cilju prikrivanja plagijata) delova tekstova drugih autora bez jasnog ukazivanja na izvor ili obeležavanje kopiranih fragmenata (na primer, korišćenjem navodnika);
- kopiranje slika ili tabela iz tuđih radova bez pravilnog navođenja izvora i/ili bez dozvole autora ili nosilaca autorskih prava.

Rukopisi kod kojih postoje jasne indicije da se radi o plagijatu biće automatski odbijeni i autorima će biti privremeno zabranjeno da objavljuju u časopisu *Arheologija i prirodne nauke*.

Ako se ustanovi da je rad koji je objavljen u časopisu plagijat, isti će biti povučen u skladu sa procedurom opisanom pod *Povlačenje već objavljenih radova*, a autorima će biti privremeno zabranjeno da objavljuju u časopisu *Arheologija i prirodne nauke*.

Sukob interesa

Autori su dužni da u radu ukažu na finansijske ili bilo koje druge sukobe interesa koji bi mogli da utiču na iznesene rezultate i interpretacije.

Greške u objavljenim radovima

U slučaju da autori otkriju važnu grešku u svom radu nakon njegovog objavljivanja, dužni su da momentalno o tome obaveste urednika ili izdavača i da sa njima sarađuju kako bi se rad povukao ili ispravio.

Predavanjem rukopisa redakciji *Arheologija i prirodne nauke* autori se obavezuju na poštovanje navedenih obaveza.

OBAVEZE RECENZENATA

Recenzenti su dužni da stručno, argumentovano, nepristrasno i u zadatim rokovima dostave uredniku ocenu naučne vrednosti rukopisa.

Recenzenti evaluiraju radove u odnosu na usklađenost teme rada sa profilom časopisa, relevantnost istraživanja oblasti i primenjenih metoda, originalnost i naučnu relevantnost podataka iznesenih u rukopisu, stil naučnog izlaganja i opremljenost teksta naučnim aparatom.

Recenzent koji ima osnovane sumnje ili saznanja o kršenju etičkih standarda od strane autora dužan je da o tome obavesti urednika. Recenzent treba da prepozna važne objavljene radove koje autori nisu citirali. On treba da upozori urednika i na bitne sličnosti i podudarnosti između rukopisa koji se razmatra i bilo kojeg drugog objavljenog rada ili rukopisa koji je u postupku recenzije u nekom drugom časopisu, ako o tome ima lična saznanja. Ako ima saznanja da je isti rukopis razmatra u više časopisa u isto vreme, recenzent je dužan da o tome obavesti urednika.

Recenzent ne sme da bude u sukobu interesa sa autorima ili finansijerom istraživanja. Ukoliko postoji sukob interesa, recenzent je dužan da o tome momentalno obavesti urednika.

Recenzent koji sebe smatra nekompetentnim za temu ili oblast kojom se rukopis bavi dužan je da o tome obavesti urednika.

Recenzija mora biti objektivna. Komentari koji se tiču ličnosti autora smatraju se neprimernim. Sud recenzenata mora biti jasan i potkrepljen argumentima.

Rukopisi koji su poslani recenzentu smatraju se poverljivim dokumentima. Recenzenti ne smeju da koriste neobjavljen materijal iz predatih rukopisa za svoja istraživanja bez izričite pisane dozvole autora, a informacije i ideje iznesene u predatim rukopisima moraju se čuvati kao poverljive i ne smeju se koristiti za sticanje lične koristi.

POSTUPAK RECENZIJJE

Primljeni radovi podležu recenziji. Cilj recenzije je da redakciji pomogne u donošenju odluke o tome da li rad treba prihvatiti ili odbiti i da kroz proces komunikacije sa autorima poboljša kvalitet rukopisa.

Svaki rad predat redakciji časopisa *Arheolo-*

gija i prirodne nauke dobija po dva recenzenta. Recenzenti su istaknuti istraživači, u naučnom zvanju istom ili višem od autora rukopisa, kompetentni u oblasti kojom se rukopis bavi. Predlog recenzenata daje redakcija, a usvaja glavni i odgovorni urednik.

Rukopisi se recenziraju po sistemu *double-blind*, koji podrazumeva anonimnu recenziju: identitet autora je nepoznat recenzentima i obrnuto.

Recenzent je dužan da recenziju pošalje redakciji najkasnije u roku od 30 dana nakon prijema rukopisa. Recenzenti za svoj rad ne dobijaju honorare.

Ukoliko recenzenti traže izmene u rukopisu, autori su dužni da u roku od 30 dana redakciji vrte izmenjen rukopis, ili ukoliko ne izmene, uz rukopis dostave argumentovano obrazloženje zašto izmena nije učinjena. Isto važi i za radove koji nisu pripremljeni u skladu sa uputstvom za autore.

Odluku o prihvatanju rukopisa za štampu donosi redakcija časopisa *Arheologija i prirodne nauke* većinom glasova na predlog recenzenata, a u skladu sa izmenama na rukopisu koje su autori izvršili ili u skladu sa dostavljenim obrazloženjem.

Nakon konačnog formiranja sadržaja broja, rukopisi idu na lekturu, a potom se šalju grafičkom dizajneru koji treba da uradi prelom za štampu. Pre odlaska u štampu rade se još dve korekture u PDF formatu. Konačno odobrenje za štampanje časopisa *Arheologija i prirodne nauke* daje glavni i odgovorni urednik. Rukopis celog broja u štampariji treba da bude do 30. novembra.

Predloženi recenzenti od strane redakcije, dobijaju recenzentski obrazac koji sadrži niz pitanja na koja treba odgovoriti, a koja recenzentima ukazuju koji su to aspekti koje treba obuhvatiti kako bi se donela odluka o sudbini jednog rukopisa. U završnom delu obrasca, recenzenti moraju da navedu svoja zapažanja i predloge kako da se podneti rukopis poboljša. Identitet recenzenata ostaje nepoznat autorima pre, tokom i nakon postupka recenzije. Autorima se preporučuje da prilikom pisanja radova izbegavaju formulacije koje bi mogle otkriti njihov identitet. Redakcija garantuje da će pre slanja rukopisa na recenziju iz njega biti uklonjeni lični podaci autora (pre svega, ime i afilijacija) i da će se preduzeti sve razumne mere kako bi identitet autora ostao nepoznat recenzentima do okončanja postupka recenzije.

Izbor recenzenata spada u diskreciona prava redakcije. Recenzenti moraju da raspolažu relevantnim znanjima u vezi sa oblašću kojom se rukopis

bavi i poželjno je da to ne budu autori koji su u skorije vreme objavljivali publikacije zajedno (kao koautori) sa bilo kojim od autora podnesenog rada.

Tokom čitavog procesa, recenzenti deluju nezavisno jedni od drugih. Recenzentima nije poznat identitet drugih recenzenata. Ako odluke recenzenata nisu iste (prihvatiti / odbiti), glavni urednik može da traži mišljenje drugih recenzenata.

Tokom postupka recenzije urednik može da zahteva od autora da dostave dodatne informacije, ako su one potrebne za donošenje suda o naučnom doprinosu rukopisa. Urednik i recenzenti moraju da čuvaju takve informacije kao poverljive i ne smeju ih koristiti za sticanje lične koristi.

Redakcija je dužna da obezbedi kontrolu kvaliteta recenzije. U slučaju da autori imaju ozbiljne i osnovane zamerke na račun recenzije, redakcija će proveriti da li je recenzija objektivna i da li zadovoljava akademske standarde. Ako se pojavi sumnja u objektivnost ili kvalitet recenzije, urednik će tražiti mišljenje drugih recenzenata.

RAZREŠAVANJE SPORNIH SITUACIJA

Svaki pojedinac ili institucija mogu u bilo kom trenutku da uredniku i/ili redakciji prijave saznanja o kršenju etičkih standarda i drugim nepravilnostima i da o tome dostave neophodne informacije/dokaze.

Provera iznesenih navoda i dokaza

- Urednik će u dogovoru sa redakcijom odlučiti o pokretanju postupka koji ima za cilj proveru iznesenih navoda i dokaza.

- Tokom tog postupka svi izneseni dokazi smatraće se poverljivim materijalom i biće predloženi samo onim licima koja su direktno uključena u postupak.

- Licima za koja se sumnja da su prekršila etičke standarde biće data mogućnost da odgovore na optužbe iznesene protiv njih.

- Ako se ustanovi da je zaista došlo do nepravilnosti, proceniće se da li ih treba okarakterisati ako manji prekršaj ili grubo kršenje etičkih standarda.

Manji prekršaj

Situacije okarakterisane kao manji prekršaj rešavaće se u direktnoj komunikaciji sa licima

koja su prekršaj učinila, bez uključivanja trećih lica, npr.:

- obaveštavanjem autora/recenzenata da je došlo do manjeg prekršaja koji je proistekao iz nerazumevanja ili pogrešne primene akademskih standarda;

- pismo upozorenja autoru/recenzentu koji je učinio manji prekršaj.

Grubo kršenje etičkih standarda

Odluke u vezi sa grubim kršenjem etičkih standarda donosi urednik u saradnji sa redakcijom i, ako je to potrebno, malom grupom stručnjaka. Mere koje će preduzeti mogu biti sledeće (i mogu se primenjivati pojedinačno ili istovremeno):

- objavljivanje saopštenja ili uvodnika u kom se opisuje slučaj kršenja etičkih standarda;

- slanje službenog obaveštenja rukovodiocima ili poslodavcima autora/recenzenata;

- povlačenje objavljenog rada u skladu sa procedurom opisanom pod *Povlačenje već objavljenih radova*;

- autorima će biti zabranjeno da tokom određenog perioda šalju radove u časopis;

- upoznavanje relevantnih stručnih organizacija ili nadležnih organa sa slučajem kako bi mogli da preduzmu odgovarajuće mere.

Prilikom razrešavanja spornih situacija redakcija časopisa se rukovodi smernicama i preporukama Odbora za etiku u izdavaštvu (Committee on Publication Ethics – COPE): <http://publicationethics.org/resources/>.

POVLAČENJE VEĆ OBJAVLJENIH RADOVA

U slučaju kršenja prava izdavača, nosilaca autorskih prava ili autora, povrede profesionalnih etičkih kodeksa, tj. u slučaju slanja istog rukopisa u više časopisa u isto vreme, lažne tvrdnje o autorstvu, plagijata, manipulacije podacima u cilju prevare, kao i u svim drugim slučajevima grubog kršenja etičkih standarda, objavljeni rad se mora povući. U nekim slučajevima već objavljeni rad se može povući i kako bi se ispravile naknadno uočene greške.

Standardi za razrešavanje situacija kada mora doći do povlačenja rada definisani su od strane biblioteka i naučnih tela, a ista praksa je usvojena i od strane časopisa *Arheologija i prirodne nauke*:

u elektronskoj verziji izvornog članka (onog koji se povlači) uspostavlja se veza (HTML link) sa obaveštenjem o povlačenju. Povučeni članak se čuva u izvornoj formi, ali sa vodenim žigom na PDF dokumentu, na svakoj stranici, koji ukazuje da je članak povučen (RETRACTED).

OTVORENI PRISTUP

Časopis *Arheologija i prirodne nauke* je dostupan u režimu otvorenog pristupa. Članci objavljeni u časopisu mogu se besplatno preuzeti sa sajta i koristiti u skladu sa licencom Creative Commons — Autorstvo-Nekomercijalno-Bez prerada 3.0 Srbija (<https://creativecommons.org/licenses/by-nc-nd/3.0/rs/>).

Postupak predavanja rukopisa, recenzija i objavljivanje radova su besplatni.

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Časopis *Arheologija i prirodne nauke* omogućava autorima da prihvaćena, recenzirana verzija rukopisa, kao i finalna, objavljena verzija u PDF formatu deponuju u institucionalni repozitorijum i/ili nekomercijalne baze podataka, ili da rad objave na ličnim veb stranicama (uključujući i profile ne društvenim mrežama za naučnike, kao što su ResearchGate, Academia.edu itd.) i/ili na sajtu institucije u kojoj su zaposleni, a u skladu sa odredbama licence Creative Commons Autorstvo-Nekomercijalno-Bez prerada 3.0 Srbija (<http://creativecommons.org/licenses/by-nc-nd/3.0/rs/>), u bilo koje vreme nakon objavljivanja u časopisu. Pri tome se moraju navesti osnovni bibliografski podaci o članku objavljenom u časopisu (autori, naslov rada, naslov časopisa, volumen, sveska, paginacija), a mora se navesti i digitalni identifikator objekta – DOI objavljenog članka u formi HTML linka.

AUTORSKA PRAVA

Kada je rukopis prihvaćen za objavljivanje, autori prenose autorska prava na izdavača.

Na izdavača se prenose sledeća prava na rukopis, uključujući i dodatne materijale, i sve delove, izvode ili elemente rukopisa:

- pravo da reprodukuje i distribuira rukopis u štampanom obliku, uključujući i štampanje na zahtev;
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- pravo da sačuva rukopis u bazama podataka, uključujući i onlajn baze podataka, kao i pravo prenosa rukopisa u svim tehničkim sistemima i režimima;
- pravo da rukopis učini dostupnim javnosti ili zatvorenim grupama korisnika na osnovu pojedinačnih zahteva za upotrebu na monitoru ili drugim čitačima (uključujući i čitače elektronskih knjiga), i u štampanoj formi za korisnike, bilo putem interneta, onlajn servisa, ili putem internih ili eksternih mreža.

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Izneseni stavovi u objavljenim radovima ne izražavaju stavove urednika i članova redakcije časopisa. Autori preuzimaju pravnu i moralnu odgovornost za ideje iznesene u svojim radovima. Izdavač neće snositi nikakvu odgovornost u slučaju ispostavljanja bilo kakvih zahteva za naknadu štete.

Redakcija časopisa *Arheologija i prirodne nauke* odlučila je da primenom *Akta o uređivanju naučnih časopisa* Ministarstva za nauku i tehnološki razvoj Republike Srbije, kojim se uređuje opremanje naučnih časopisa u celini, unapredi dosadašnji kvalitet časopisa i na taj način doprinese njegovom potpunijem uključivanju u međunarodni sistem razmene naučnih informacija.

UPUTSTVO AUTORIMA O NAČINU PRIPREME ČLANKA ZA ČASOPIS ARHEOLOGIJA I PIRODNE NAUKE

Redakcija časopisa *Arheologija i prirodne nauke* odlučila je da primenom *Akta o uređivanju naučnih časopisa* Ministarstva za nauku i tehnološki razvoj Republike Srbije, kojim se uređuje opremanje naučnih časopisa u celini, unapredi dosadašnji kvalitet časopisa i na taj način doprinese njegovom potpunijem uključivanju u međunarodni sistem razmene naučnih informacija.

Časopis *Arheologija i prirodne nauke* posvećen je temama iz naučnih oblasti arheologije, istorije arhitekture, istorije umetnosti, antropologije, arheozoologije, arheobotanike, geofizike, računarskog inženjerstva i ostalih naučnih disciplina i tehnika.

Časopis *Arheologija i prirodne nauke* objavljuje originalne, prethodno neobjavljene radove: originalne naučne radove, pregledne radove, izveštaje sa iskopavanja, kritike i prikaze.

Jezici na kojima se mogu predati članci su engleski, nemački ili francuski. Ukoliko je rad napisan na engleskom jeziku, rezime može biti na srpskom (za domaće autore) ili engleskom (za strane autore), dok kod članaka predatih na nemačkom ili francuskom, rezimei moraju biti na engleskom jeziku.

Članci koji se predaju redakciji časopisa *Arheologija i prirodne nauke* moraju biti opremljeni na standardni način. Svaki tekst koji se predaje treba da sadrži: naslov; ime autora; naziv ustanove (afilijacija); apstrakt; ključne reči; osnovni tekst; rezime; grafičke priloge sa listom ilustracija; bibliografiju; kontakt podatke.

1. Naslov treba da bude kratak i jasan, i da što vernije opiše sadržaj članka. U naslovu treba da se koriste reči prikladne za indeksiranje i pretraživanje. Ako takvih reči nema u naslovu, poželjno je da se naslovu pridoda podnaslov. Naslov se piše u petom ili šestom redu ispod gornje margine velikim masnim (bold) slovima veličine 14 (pts).

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3. Autor ili autori treba da navedu zvaničan naziv i sedište ustanove u kojoj su zaposleni, a eventualno naziv i sedište ustanove u kojoj su obavili istraživanja čije rezultate sada objavljuju. Kod složenih institucija navodi se ukupan naziv (na pr.: Univerzitet u Beogradu, Filozofski fakultet, Odeljenje za arheologiju, Beograd).

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Način navođenja u bibliografiji:

Popović, I. 2009

Gilt Fibula with Christogram from Imperial Palace in Sirmium (Резиме: Позлаћена фибула са христограмом из царске палате у Сирмијуму) *Starinar* LVII (2007): 101-112.

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Citat u tekstu/fusnoti: (Поповић 1988: 67)

Način navođenja u bibliografiji:

Поповић, И. 1988

Античко оруђе од гвожђа у Србију, Београд: Народни музеј.

(Popović, I. 1988

Античко оруђе од гвожђа у Србији, Београд: Народни музеј).

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1. Autorizovane knjige

a. jedan autor

u tekstu: (Popović 2006)

u literaturi:

Prezime, Inicijal imena. Godina

Naslov monografije (u kurzivu), Mesto izdanja:

Izdavač.

Popović, I. 2006

Roma aeterna inter Savum et Danubium, Works of Roman Art from the Petrović-Vasić Collection, Belgrade: Archaeological Institute.

- Potrebno je navesti i naziv serije i broj:

Mirković, M. 1968

Rimski gradovi na Dunavu u Gornjoj Meziji, Dissertationes 6, Beograd: Arheološko društvo Jugoslavije.

Papazoglu, F. 1969

Srednjobalkanska plemena u predrimsko doba (Tribali, Autarijati, Dardanci, Skordisci i Mezi), Djela 30, Centar za balkanološka ispitivanja 1, Sarajevo: Akademija nauka i umjetnosti Bosne i Hercegovine.

b. dva ili tri autora

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u tekstu: (Popović i Borić-Brešković 1994: 16-18)

u literaturi:

Popović, I. i Borić-Brešković B. 1994

Ostava iz Bele Reke, Arheološke monografije 7, Beograd: Narodni muzej.

Ivanišević, V., Kazanski, M. and Mastykova, A. 2006

Les necropoles de Viminacium a l'Epoque des Grandes Migrations, Monographies 22, Paris: Association des Amis du Centre d'Histoire et Civilisation de Byzance.

c. četiri i više autora

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2. Autorizovane knjige sa pridodatim imenom urednika

u tekstu: (Jeremić 2009: 40)

u Literaturi:

Jeremić, G. 2009

Saldum, Roman and Early Byzantine Fortification, ed. S. Perić, Cahiers des Portes de Fer, Monographies 6, Belgrade: Institute of Archaeology.

3. Priredene knjige (umesto autora - urednik, priređivač, prevodilac) - (ur.), (ed., eds.), (prev.).

u tekstu: (Popović 1994)

u Literaturi:

Popović, I. (ur.) 1994

Античко сребро у Србији, Београд: Народни музеј.

u tekstu: (Morris 2002)

u Literaturi:

Morris, I. (ed.) 2002

Classical Greece-Ancient Histories and Modern Archaeologies, Cambridge: Cambridge University Press.

u tekstu: (Hurst and Owen 2005)

u Literaturi:

Hurst, H. and Owen, S. (eds) 2005

Ancient Colonizations-Analogy, Similarity and Difference, London: Duckworth.

u tekstu: (Радојчић 1960)

u Literaturi:

Радојчић, Н. (prev.) 1960

Законик цара Стефана Душана 1349. и 1354. Београд: Српска академија наука и уметности.

4. Knjiga bez naznačenog autora

u tekstu: (Anon. 1985)

u Literaturi:

Anon. 1985

Anonymi Peri strategias, The Anonymous Byzantine Treatise on Strategy, *Three Byzantine Military Treatise* (trans. G.T. Dennis), Washington DC.

5. Istovremeno citiranje i navođenje više knjiga istog autora

a. pisanih različitim pismom

u tekstu: (Поповић 2002: 23-26; Popović 2006: 33)

u Literaturi:

Поповић, И. 2002

Накит са Јухора, остава или сакрални тезаурус, Археолошке монографије 14, Посебна издања 36, Београд: Народни музеј и Археолошки институт.

Popović, I. 2006

Roma Aeterna inter Savum et Danubium, Works of Roman Art from the Petrović-Vasić Collection, Belgrade: Archaeological Institute.

b. pisanih iste godine

u tekstu: (Dawkins 1996a; Dawkins 1996b)

u Literaturi:

Dawkins, R. 1996a

Climbing Mount Improbable, London: Viking.

Dawkins, R. 1996b

River out of Eden, London: Pfoenix.

6. Citiranje i navođenja poglavlja i odeljka u knjizi (zborniku radova)

u tekstu: (Петровић 1997: 87-90)

u Literaturi:

Петровић, Б. 1997

Накит, у: *Античка бронза Сингидунума*, ур. С. Крунић, Београд: Музеј града, 85-117.

u tekstu: (Samson 1970: 44-68)

u Literaturi:

Samson, C. 1970

Problems of information studies in history, in: *Humanities information research*, S. Stone, ed., Sheffield: CRUS, 44-68.

7. Prevedene knjige

u Literaturi:

Bajron, Dž. G. 2005 (1812)

Čajld Harold, predgovor Z. Paunović, prevod i predgovor N. Tučev, Београд: Zavod za udžbenike i nastavna sredstva.

8. Knjige i članci objavljeni u elektronskom obliku

u tekstu: (Fishman 2005: 11)

u Literaturi:

Fishman, R. 2005

The rise and fall of suburbia, [e-book], Chester: Casle Press. Available through Anglia Ruskin University Library. <http://libweb.anglia.ac.uk>>[pristupljeno 5 juna 2005].

II RADOVI OBJAVLJENI U ZBORNICIMA, AKTIMA KONGRESA I SLIČNO

Prezime, Inicijal imena. Godina

Naslov rada, Naslov zbornika (kurziv), ur. Inicijal imena. Prezime, Mesto izdanja: Izdavač, broj strane.

Брукнер, О. 1987

Импортована и панонска керамичка продукција са аспекта друштвено-економских промена, у: *Почеци романизације у југоисточном делу провинције Паноније*, ур. М. Стојанов: Нови Сад: Матица српска, 25-44.

Potrebno je navesti i podatke o seriji:

Петровић, П. 1997

Римљани на Тимоку, у: *Археологија источне Србије* (Научни скуп Археологија источне Србије, Београд-Доњи Милановац, децембар 1995), ур. М. Лазић, Центар за археолошка истраживања 18: Београд: Филозофски факултет, 115-131.

III PERIODIKA

Prezime, Inicijal imena. Godina

Naslov rada, Naziv časopisa (kurziv) broj časopisa: broj strane.

Бајаловић-Хаџи-Пешић, М. 2001

Налази хабанске и постхабанске керамике у Србији, *Годишњак града Београда* 47-48 (2000-2001): 107-121.

- За часописе чији су називи слични, иза назива часописа у загради треба навести место изданја:

Анђелковић, Б. 1988

Праисторијски налази са локалитета Јелица-Градина, *Зборник радова Народног музеја* (Чачак) 18: 81-85.

Анђелковић, Б. 1994

Први резултати анализе мумије из Народног музеја у Београду, *Зборник Народног музеја* (Београд) 15-1: 153-159.

- *Старинар* се, зависно од године издања, наводи пуним називом:

године 1884-1895 *Старинар Српског археолошког друштва*

године 1906-1914 [новог реда] *Старинар* (н.р.)

године 1922-1942 [трећа серија] *Старинар* (т.с.)

године 1950-2010 [нова серија] *Старинар* (т.с.)

- Уколико се година излажења и година за коју часопис излази разликују, навести и другу годину у загради:

Жеравица, З., и Жеравица, Л. 1979

Средњовековно насеље у Поповици код Неготина, *Старинар* (н.с.) 28-29 (1977-1978): 201-211.

Rad u štampi / u pripremi

- (у штампи), у тексту на енглеском језику (in press)

- (у припреми), у тексту на енглеском језику (forthcoming).

у тексту: (Јовановић, у штампи)

у литератури:

Јовановић, А. (у штампи)

Бор и околина у античком периоду, у: *Бор и околина у праисторији, антици и средњем веку*, ур. М. Лазић, Бор и Београд: Музеј рударства и металургије и Филозофски факултет.

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Umesto mesta izdanja i izdavača navodi se naziv fakulteta/univerziteta gde je teza odbranjena.

у литератури:

Илић, О. 2005

Ranohrišćanski pokretni nalazi na području dijeceze Dakije od IV do početka VII veka, Magistrski rad, Filozofski fakultet, Univerzitet u Beogradu.

Patch, D. C. 1991

The Origin and Early Development of Urbanism in Ancient Egypt: A regional Study, Ph.D thesis, University of Pennsylvania.

VI Popularni magazini/časopisi i novinski članci

u tekstu: Кашанин, М. 1929

u literaturi:

Кашанин, М. 1929

Музеј савремене уметности, *Политика*, 23. јул, 7-8.

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ARHEOLOGIJA I PRIRODNE NAUKE

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Authors must make sure that all only contributors who have significantly contributed to the submission are listed as authors and, conversely, that all contributors who have significantly contributed to the submission are listed as authors. If persons other than authors were involved in important aspects of the research project and the preparation of the manuscript, their contribution

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Authors are required to properly cite sources that have significantly influenced their research and their manuscript. Information received in a private conversation or correspondence with third parties, in reviewing project applications, manuscripts and similar materials, must not be used without the express written consent of the information source.

Plagiarism

Plagiarism, where someone assumes another's ideas, words, or other creative expression as one's own, is a clear violation of scientific ethics. Plagiarism may also involve a violation of copyright law, punishable by legal action.

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Please note that all submissions are thoroughly checked for plagiarism. Any paper which shows obvious signs of plagiarism will be automatically rejected and authors will be temporarily permitted to publish in *Arheologija i prirodne nauke* (*Archaeology and Science*).

In case plagiarism is discovered in a paper that has already been published by the journal, it will be retracted in accordance with the procedure described below under *Retraction policy*, and authors will be temporarily permitted to publish in *Arheologija i prirodne nauke* (*Archaeology and Science*).

Conflict of interest

Authors should disclose in their manuscript any financial or other substantive conflict of interest that might have influenced the presented results or their interpretation.

Fundamental errors in published works

When an author discovers a significant error or inaccuracy in his/her own published work, it is the author's obligation to promptly notify the journal Editor or publisher and cooperate with the Editor to retract or correct the paper.

By submitting a manuscript the authors agree to abide by the *Arheologija i prirodne nauke (Archaeology and Science)*'s Editorial Policies.

REVIEWERS' RESPONSIBILITIES

Reviewers are required to provide written, competent and unbiased feedback in a timely manner on the scholarly merits and the scientific value of the manuscript.

The reviewers assess manuscript for the compliance with the profile of the journal, the relevance of the investigated topic and applied methods, the originality and scientific relevance of information presented in the manuscript, the presentation style and scholarly apparatus.

Reviewers should alert the Editor to any well-founded suspicions or the knowledge of possible violations of ethical standards by the authors. Reviewers should recognize relevant published works that have not been cited by the authors and alert the Editor to substantial similarities between a reviewed manuscript and any manuscript published or under consideration for publication elsewhere, in the event they are aware of such. Reviewers should also alert the Editor to a parallel submission of the same paper to another journal, in the event they are aware of such.

Reviewers must not have conflict of interest with respect to the research, the authors and/or the funding sources for the research. If such conflicts exist, the reviewers must report them to the Editor without delay.

Any selected referee who feels unqualified to review the research reported in a manuscript or knows that its prompt review will be impossible should notify the Editor without delay.

Reviews must be conducted objectively. Personal criticism of the author is inappropriate. Reviewers should express their views clearly with supporting arguments.

Any manuscripts received for review must be treated as confidential documents. Reviewers must not use unpublished materials disclosed in

submitted manuscripts without the express written consent of the authors. The information and ideas presented in submitted manuscripts shall be kept confidential and must not be used for personal gain.

PEER REVIEW

The submitted manuscripts are subject to a peer review process. The purpose of peer review is to assist the Editorial Board in making editorial decisions and through the editorial communications with the author it may also assist the author in improving the paper.

To every paper submitted to editorial board of *Arheologija i prirodne nauke (Archaeology and Science)* two reviewers are assigned. Reviewers could be members of the Editorial Board, associates of the Institute of Archaeology or eternal associates, with the same or higher scientific degree as the author(s), competent in the field of the manuscript's topic. The suggestions on who the reviewers should be are made by the Editorial Board, and adopted by the Editor-in-Chief.

All papers are reviewed by using the *double-blind* peer review system: the identity of the author is not known to the reviewers and vice versa.

Reviewers shall send their reviews within the period of 30 days after the receipt of the manuscript. Reviewers are not paid for this work.

If a reviewer requires a revision of a manuscript, authors shall send a revised version with changes made in accordance with the reviewer's suggestions within the period of 30 days. In case they consider the revision request unfounded, the authors should send their arguments explaining why they did not make the required revision. The same timeframe applies to revisions of manuscripts that are not written in accordance with the author guidelines.

The decision of acceptance of the paper is made by the Editorial Board of *Arheologija i prirodne nauke (Archaeology and Science)* by majority vote based on the peer reviews and the evaluation of the authors' revision or their arguments, if they did not make changes to the manuscript.

After the final decision on the content of a volume is made, manuscripts are sent for editing and proofreading, and then to a graphic designer, who

is responsible for computer layout, design and prepress. Before printing, the authors will have the opportunity to proofread their paper twice in the PDF format. The final approval for printing is given by the Editor-in-Chief. The whole volume should be sent to the printing press by 30 November.

The reviewers selected by the Editorial Board, receive a peer review form with questions that they should answer. The purpose of the questions is to indicate all aspects that they should consider in order to make a decision on the destiny of a paper. In the final part of the form, reviewers are supposed to write their opinion and suggestions how to improve the paper. The identity of reviewers is unknown to authors, before, during and after the review procedure. The identity of authors is unknown to reviewers before, during and after the review procedure (until the paper is published). It is suggested to authors to avoid formulations that could reveal their identity. The Editorial Board shall ensure that before sending a paper to a reviewer, all personal details of the author (name, affiliation, etc.) will be deleted and that all measures will be undertaken in order to keep the author's identity unknown to the reviewer during the review procedure.

The choice of reviewers is at the Editorial Board's discretion. The reviewers must be knowledgeable about the subject area of the manuscript; and they should not have recent joint publications with any of the authors.

All of the reviewers of a paper act independently and they are not aware of each other's identities. If the decisions of the two reviewers are not the same (accept/reject), the Editor may assign additional reviewers.

During the review process Editor may require authors to provide additional information (including raw data) if they are necessary for the evaluation of the scholarly merit of the manuscript. These materials shall be kept confidential and must not be used for personal gain.

The Editorial team shall ensure reasonable quality control for the reviews. With respect to reviewers whose reviews are convincingly questioned by authors, special attention will be paid to ensure that the reviews are objective and high in academic standard. When there is any doubt with regard to the objectivity of the reviews or quality of the review, additional reviewers will be assigned.

PROCEDURES FOR DEALING WITH UNETHICAL BEHAVIOUR

Anyone may inform the editors and/or Editorial Staff at any time of suspected unethical behaviour or any type of misconduct by giving the necessary information/evidence to start an investigation.

Investigation

- Editor-in-Chief will consult with the Editorial Board on decisions regarding the initiation of an investigation.
- During an investigation, any evidence should be treated as strictly confidential and only made available to those strictly involved in investigating.
- The accused will always be given the chance to respond to any charges made against them.
- If it is judged at the end of the investigation that misconduct has occurred, then it will be classified as either minor or serious.

Minor misconduct

Minor misconduct will be dealt directly with those involved without involving any other parties, e.g.:

- Communicating to authors/reviewers whenever a minor issue involving misunderstanding or misapplication of academic standards has occurred.
- A warning letter to an author or reviewer regarding fairly minor misconduct.

Major misconduct

The Editor-in-Chief, in consultation with the Editorial Board, and, when appropriate, further consultation with a small group of experts should make any decision regarding the course of action to be taken using the evidence available. The possible outcomes are as follows (these can be used separately or jointly):

- Publication of a formal announcement or editorial describing the misconduct.
- Informing the author's (or reviewer's) head of department or employer of any misconduct by means of a formal letter.
- The formal, announced retraction of publications from the journal in accordance with the Retraction Policy (see below).

- A ban on submissions from an individual for a defined period.
- Referring a case to a professional organization or legal authority for further investigation and action.

When dealing with unethical behaviour, the Editorial Staff will rely on the guidelines and recommendations provided by the Committee on Publication Ethics (COPE): <http://publication-ethics.org/resources/>.

RETRACTION POLICY

Legal limitations of the publisher, copyright holder or author(s), infringements of professional ethical codes, such as multiple submissions, bogus claims of authorship, plagiarism, fraudulent use of data or any major misconduct require retraction of an article. Occasionally a retraction can be used to correct errors in submission or publication. The main reason for withdrawal or retraction is to correct the mistake while preserving the integrity of science; it is not to punish the author.

Standards for dealing with retractions have been developed by a number of library and scholarly bodies, and this practice has been adopted for article retraction by *Arheologija i prirodne nauke (Archaeology and Science)*: in the electronic version of the retraction note, a link is made to the original article. In the electronic version of the original article, a link is made to the retraction note where it is clearly stated that the article has been retracted. The original article is retained unchanged, save for a watermark on the PDF indicating on each page that it is “retracted.”

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SUBMISSION INSTRUCTIONS FOR THE JOURNAL ARHEOLOGIJA I PRIRODNE NAUKE (ARCHAEOLOGY AND SCIENCE)

Editorial staff of the periodical *Arheologija i prirodne nauke* (*Archaeology and Science*) decided to apply *Akta o uređivanju naučnih časopisa* (*Acta about editing scientific periodicals*) proposed by the Ministry of Science and technological development of the Republic of Serbia. By applying these acts, complete editing of scientific periodicals is determined, quality of periodicals is promoted and their integration into the international system of exchanging academic information shall become more complete.

The journal *Arheologija i prirodne nauke* (*Archaeology and Science*) is dedicated to topics in the areas of: archaeology, architecture, history of arts, anthropology, archaeozoology, archaeobotany, geophysics, computer engineering and similar scholarly disciplines.

The journal *Arheologija i prirodne nauke* (*Archaeology and Science*) publishes original papers that have not been published previously: original scientific articles, scientific reviews, excavation reports, book reviews, critical reviews.

Articles can be submitted in English, German or French. If the paper is written in English, summary can be in Serbian (for authors from Serbia) or English (for international authors), while articles submitted in German or French need to have a summary in English.

Papers submitted to the editorial staff of the periodical *Arheologija i prirodne nauke* (*Archaeology and Science*) must be formed in a standard way. Each paper submitted has to contain: title; author's name; name of the institution (affiliation); abstract;

key words; main text; resume; illustrations with captions; bibliography; contact address.

1. Titles need to be short and clear, describing content in the best possible way. Words used in titles should be appropriate for indexing and web-searching. If there are no such words withing titles, it is advised to add a subtitle. Titles are to be written in the fifth or sixth line, under the top margin, bold and with font size 14 (pts).

2. Author(s) should give their full name(s), including first name, surname and middle initial.

3. Autor(s) need to state official names and addresses of their employees, including names and addresses of employees which conducted research that lead to the results published. With complex institutions, complete title is to be named (ex.: Belgrade University, Faculty of Philosophy, Archaeological Department, Belgrade).

4. Abstract, consisting of 100-250 words, describes shortly content of the paper. Within abstracts, it is advised to use terms convenient for indexing and web-searching. Abstracts should offer data about aims, methods, results and conclusions of the research. Abstracts should be bilingual (in Serbian, English or some other foreign language). Abstracts in foreign languages need to be adequately lectured, i.e. possess correct grammar and spelling.

5. Key words need to be terms which describe paper's content in a best way, suitable for indexing and web-searching. They should be named according to a widely accepted international source (lists, indexes, dictionary, thesaurus), like list of

key-words Web of Science. The number of key-words should not exceed ten words.

6. The length of papers should not exceed 32 pages, DIN A4, including footnotes and illustrations. The main text should be written in Times New Roman or Arial (12 pts), MS Office Word 97 or later, line-spacing 1,5 and with margins 2,54 cm. Main text should not contain illustrations. They are to be submitted as separate files.

7. Apart from Serbian, manuscripts can be submitted in one of worldwide languages (English, German, French). Names of translators, if any, should be stated. Papers submitted should have an abstract and a resume written in some other language. If a paper is submitted in a language other than Serbian, there should be an abstract and a resume written in Serbian language. Words, quotations and titles written in some other language should be written in their original form.

Footnotes can be incorporated within the main text. They should contain less important data or appropriate explanations. They are not to be replaced with quoted literature. (An appendix to these Instructions explains the way of quoting to be applied).

8. The summary must have the same content as the abstract, only expanded, but not longer than 1/10 of the paper's overall size. It is strongly advised to write the summary in a structural form. Papers submitted in English must have the summary in Serbian (for Serbian authors) or English (for foreign authors). Papers in German or French must have the summary in English. As well as the summary text, the title of the paper, the key words and the author's affiliation should be written in the appropriate language.

9. Illustrations (photographs, tables, drawings, graphs etc.) should be submitted in a proposed manner. Scanned illustrations should be submitted in a 600 dpi resolution, while photographs are to be submitted in a resolution of at least 300 dpi, in formats TIFF, PSD or JPG. Illustrations are to be submitted as separate files and should not be incorporated into the main text. Captions should be submitted bilingually (using the language in which the manuscript was written and in English or some other of the proposed languages).

10. The bibliography should include bibliographic sources (articles, monographs etc.). Within the paper it should be quoted with references in the footnotes and as a list of literature/bibliography at the end of the manuscript. The

bibliography represents a part of every scientific paper, with precisely quoted bibliographical references. The list of used sources should follow a unique pattern, in a sequence based on the quoting standards determined by these instructions. The bibliography must be presented in the language and alphabet in which each source has been published. In cases when the publication is published bilingually, all data should also be written bilingually. In cases where the summary is written in another language, then the title of the summary should be written in the same language.

In the list of references: **Popović, I. 2009**

Gilt Fibula with Christogram from the Imperial Palace in Sirmium (Резиме: Позлаћена фибула са христограмом из царске палате у Сирмијуму) *Starinar* LVII (2007): 101-112.

Publications published in Cyrillic, Greek or any other non Latin alphabet should be transliterated into the Latin alphabet in accordance with the standards of The American Library Association and The Library of Congress of the United States (<http://www.loc.gov/catdir/cpsd/roman.html>), for example:

Quotation within a footnote: (Поповић 1988: 67)

In the list of references: **Поповић, И. 1988**

Античко оруђе од гвожђа у Србији, Београд: Народни музеј.

(Popović, I. 1988

Antičko oruđe od gvožđa u Srbiji, Beograd: Narodni muzej).

11. Bibliography's structural elements (author's name, title of work, source etc.) should be written according to standard forms of quoting. Editorial staff of the periodical accepted the recommendation of the Ministry of science and technological development and decided that authors should precisely follow quotation rules named below.

The following examples describe the most frequently quoted kinds of references:

I BOOKS (monographs)

1. Author's books

a. single author

within main text: (Popović 2006)

in bibliography:

Surname, name's initial. Year of publishing
***Title of book (italic)*, Place: Editor.**

Popović, I. 2006

Roma aeterna inter Savum et Danubium, Works of Roman Art from the Petrović-Vasić Collection, Belgrade: Archaeological Institute.

- Series' name and number is also needed:

Mirković, M. 1968

Rimski gradovi na Dunavu u Gornjoj Meziji, Dissertationes 6, Beograd: Arheološko društvo Jugoslavije.

Papazoglu, F. 1969

Srednjobalkanska plemena u predrimsko doba (Tribali, Autarijati, Dardanci, Skordisci i Mezi), Djela 30, Centar za balkanološka ispitivanja 1, Sarajevo: Akademija nauka i umjetnosti Bosne i Hercegovine.

b. two or three authors

Between the names of the first and the second author, or the second and the third author, "and" should be written, no matter what the main language of the publication.

within main text: (Popović i Borić-Brešković 1994)

in bibliography:

Popović, I. i Borić-Brešković B. 1994

Ostava iz Bele Reke, Arheološke monografije 7, Beograd: Narodni muzej.

Ivanišević, V., Kazanski, M. and Mastykova, A. 2006

Les necropoles de Viminacium a l'Epoque des Grandes Migrations, Monographies 22, Paris: Association des Amis du Centre d'Histoire et Civilization de Byzance.

c. four or more authors

Books written by four or more authors, within the main text and in Serbian cyrillic, only the first name is written and **i dr.** is added. Books printed in Lati alphabet, the abbreviation **et al.** is applied. The abbreviation **etc.** is used in cases when there are more than three editors or places of editing.

2. Author's books with added name of the editor

within main text: (Jeremić 2009: 40)

in bibliography:

Jeremić, G. 2009

Saldum, Roman and Early Byzantine Fortification,

S. Perić (ed.), *Cahiers des Portes de Fer*, Monographies 6, Belgrade: Institute of Archaeology.

3. Edited books (instead of the author – editor, translator) - (ed., eds.), (trans.).

within main text: (Поповић 1994)

in bibliography:

Поповић, И. (ур.) 1994

Античко сребро у Србију, Београд: Народни музеј.

within main text: (Morris 2002)

in bibliography:

Morris, I. (ed.) 2002

Classical Greece-Ancient Histories and Modern Archaeologies, Cambridge: Cambridge University Press.

within main text: (Hurst and Owen 2005)

in bibliography:

Hurst, H. and Owen. S.(eds) 2005

Ancient Colonizations-Analogy, Similarity and Difference, London: Duckworth.

within main text: (Радојчић 1960)

in bibliography:

Радојчић, Н. (prev.) 1960

Законик цара Стефана Душана 1349. и 1354., Београд: Српска академија наука и уметности.

4. Way of quoting books without author's name

within main text: (Anon. 1985)

in bibliography:

Anon. 1985

Anonymi Peri strategias, The Anonymous Byzantine Treatise on Strategy, *Three Byzantine Military Treatise* (trans. G.T. Dennis), Washington DC.

5. Simultaneous quoting of several books of the same author

a. written in different alphabets

within main text: (Поповић 2002, Popović 2006)

in bibliography:

Поповић, И. 2002

Накит са Јухора, остава или сакрални тезаурус, Археолошке монографије 14, Посебна издања 36, Београд: Народни музеј и Археолошки институт.

Popović, I. 2006

Roma Aeterna inter Savum et Danubium, Works of Roman Art from the Petrović-Vasić Collection, Belgrade: Archaeological Institute.

b. written in the same year

within main text: (Dawkins 1996a, Dawkins 1996b)

in bibliography:

Dawkins, R. 1996a

Climbing Mount Improbable, London: Viking.

Dawkins, R. 1996b

River out of Eden, London: Pfoenix.

6. Quoting chapters in books (acta)

within main text: (Петровић 1997: 87-90)

in bibliography:

Петровић, Б. 1997

Накит, у: *Античка бронза Сингидунума*, С. Крунић (ур.), Београд: Музеј града, 85-117.

within main text: (Samson 1970: 44-68)

in bibliography:

Samson, C. 1970

Problems of information studies in history, in: *Humanities information research*, S. Stone, (ed.), Sheffield: CRUS, 44-68.

7. Translated books

in bibliography:

Bajron, DŽ. G. 2005 (1812)

Čajld Harold, Z. Paunović (predgovor), N. Tučev (prevod), Beograd: Zavod za udžbenike i nastavna sredstva.

8. Books and articles published in electronic form

within main text: (Fishman 2005: 11)

in bibliography:

Fishman, R. 2005

The rise and fall of suburbia, [e-book], Chester: Casle Press. Available through Anglia Ruskin University Library. <http://libweb.anglia.ac.uk>>[pristupljeno 5 juna 2005].

II PAPERS PUBLISHED IN PERIODICALS, CONGRESS ACTA AND SIMILAR

within main text: (Vasić 2008: 69, fig.3)

in bibliography:

Surname, name's initial. Year

Title, Title of the acta (italic), Name's initial. Surname, (ed.), Place of editing: Editor, page numbers.

Vasić, M. 2006. Stibadium in Romuliana and Mediana. *Felix Romvliana 50 years of archaeological excavations*. M. Vasić (ed.). October, 27-29 2003, Zaječar, Serbia. Belgrade: Institut of Archaeology, Committee on Archaeology of Serbian Academy of Sciences and Arts, and Zaječar: National Museum, 69-75.

Series' data are also needed:

Петровић, П. 1997

Римљани на Тимоку, у: *Археологија источне Србије* (Научни скуп Археологија источне Србије, Београд-Доњи Милановац, децембар 1995), М. Лазић (ур.), Центар за археолошка истраживања 18, Београд: Филозофски факултет, 115-131.

III PERIODICALS

within main text: (Бајаловић-Хаџи-Пешић, 2001: 108)

Surname, Name's initial. Year

Title, Name of the periodical (italic) number of the periodical: page number.

Бајаловић-Хаџи-Пешић, М. 2001

Налази хабанске и постхабанске керамике у Србији, *Годишњак града Београда* 47-48 (2000-2001): 107-121.

- For periodicals with similar titles, behind the name of the periodical, place of publishing should be stated in brackets:

Анђелковић, Б. 1988

Праисторијски налази са локалитета Јелица-Градина, *Зборник радова Народног музеја* (Чачак) 18: 81-85.

Анђелковић, Б. 1994

Први резултати анализе мумије из Народног музеја у Београду, *Зборник Народног музеја* (Београд) 15-1: 153-159.

- Depending on the year of publishing *Старинар* is named in its full title:

years 1884-1895 *Старинар Српског*

археолошког друштва years

1906-1914 [novog reda] *Старинар* (н.р.)

years 1922-1942 [treća serija] *Старинар* (т.с.)

years 1950-2010 [nova serija] *Старинар* (н.с.)
 - If there is a difference between the year of actual printing and the year of publishing, the second is stated in brackets:

Жеравица, З., и Жеравица, Л. 1979, Средњовековно насеље у Поповици код Неготина, *Старинар* (н.с.) XXVIII-XXIX, (1977-1978): 201-211.

Paper in print / forthcoming

- (in print), within papers written in English (in print)
- (forthcoming), within papers written in English (forthcoming).

within main text: (Јовановић, in print)
 in bibliography:

Јовановић, А. (in print)

Бор и околина у античком периоду, у: *Бор и околина у праисторији, антици и средњем веку*, ур. М. Лазећ, Бор и Београд: Музеј рударства и металургије и Филозофски факултет.

Papers overtaken from the internet, from electronic periodicals, are quoted in the same way as printed papers, only there is a full web-address written at the end with http://...

V Doctoral and master theses

Instead of place of editing and editor, the full name of faculty/university is given, where the thesis was conducted.

within main text: (Ilić, 2005)

in bibliography:

Ilić, O. 2005

Ranohrišćanski pokretni nalazi na području dijeceze Dakije od IV do početka VII veka, Magistarska teza, Filozofski fakultet, Univerzitet u Beogradu.

within main text: (Patch, 1991)

in bibliography:

Patch, D. C. 1991

The Origin and Early Development of Urbanism in Ancient Egypt: A regional Study, Ph.D thesis, University of Pennsylvania.

VI Articles from newspapers

within main text: (Кашанин, 1929)

in bibliography:

Кашанин, М. 1929, Музеј савремене уметности, *Политика*, 23. јул, 7-8.

Main text

Quoting bibliography in the main text according to the pattern (author's surname and year: page number, footnote, figure, table):

(Papazoglu 1969: 52, sl. 4/1, T. 18-4-6)

(Babović 1984: 68; Moritz 1978: 68, figs. 40-41; Tasić 1997: 84, sl. 21)

- Additional data within brackets can be written after a dash:

(Swoboda-Milanović 1958: 55, Taf. 18/24 – olovne pločice).

- The same work of the same author in the next quotation can be quoted abbreviated *ibidem* (*ibid.*: page number).

- The second work of the same author in the next quoting, if there are no quotations in between, is quoted as (*idem* year: page number): (Faltings 1998a: 367; *idem* 1998b: 31-32).

- In papers written in Serbian language, the transcribed exact pronunciation of a foreign author's name is written within the main text, without brackets, but the original name is written in quotation: ...Vencel (Wenzel 1965: T. HS/4).

- If the author, work and page number are the same as in the previous quotation, they are quoted as *loc. cit.* (lat. *loco citato*) – quoted place.

- Abbreviation *cf.* (lat. *confer*) - compare

- Abbreviation *e.g.* (lat. *exempli gratia*) - for example

- Abbreviation *i.e.* (lat. *id est*) - actually.

12. All of the quoted references are listed after alphabetic order, if written in English or some other foreign language, initial's order withing author's surname or the initial letter within the quoted title (if the author or editor are not stated).

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Editorial staff of
ARHEOLOGIJA I PRIRODNE NAUKE
(*ARCHAEOLOGY AND SCIENCE*)

CIP - Katalogizacija u publikaciji
Narodna biblioteka Srbije, Beograd

902/904

ARHEOLOGIJA i prirodne nauke =
Archaeology and Science / glavni i odgovorni
urednik Miomir Korać. - 2019, No. 15-
Beograd : Centar za nove tehnologije :
Arheološki institut, 2019- (Beograd :
DigitalArt). - 28 cm

ISSN 1452-7448 = Arheologija i prirodne
nauke
COBISS.SR-ID 136747788

