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Studies

ANCIENT HISTORY

ONCE MORE ABOUT ANTONIA TRYPHAINA[1]

Abstract: As a king's daughter, a king's wife and the mother of kings, Antonia Tryphaina played a major role in the kinship ties of the ruling circles in the Julio-Claudian period. Although her name did not go unnoticed in scholarly literature, this great-granddaughter of M. Antonius has quite undeservedly been regarded as a historical figure of secondary importance. Besides, her treatments tend to show by numerous inaccuracies and much speculation. The author therefore felt that a new investigation was required, though he unexpectedly found himself involved in a more complex scrutiny than previous studies had let him foresee.
Keywords: Julio-Claudian period, Antonia Tryphaina, Kingdoms of Pontus and Bosporus, Thrace

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Introduction

In a recent paper, I have made a comprehensive attempt to further our understanding of Antonia Tryphaina, based on the literary, epigraphic and numismatic sources, but also by a discussion of modern historiography.[2] In the current paper, I would like to focus on some particular controversies. The constraints of this contribution will of course not allow me to address all hypotheses or unfounded speculations[3] on Antonia Tryphaina, so that I shall have to concentrate on the most important obstacles that have hitherto barred the way to a credible historical reconstruction.

1. Onomastic Remarks

The first name of Antonia Tryphaina reminds us of Antonia Minor Hybrida, the second wife of the triumvir Mark Antony, and his daughter Antonia, the wife of Pythodoros of Tralles and grandmother of Antonia Tryphaina. D.

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[2] Cojocaru 2012. For an earlier electronic version, see URL: http://www.amicipopuliromani.com (s.v. *Antonia Tryphaina*). By a discussion of modern historiography see especially von Rohden 1894; PIR I[2] A 900; Hanslik 1964; Sullivan 1980; DNP, Bd. 1, 801 (s.v. *Tryphaena* [7]); Saprykin 1995; Lightman/Lightman 2000, 21–22. – s.v. *Antonia Tryphaena*). Among electronic publications I mention only URL: http://de.wikipedia.org/wiki/Antonia_Tryphaina; http://en.wikipedia.org/wiki/Antonia_Tryphaena
[3] In order to introduce only one example at this point, I quote from Lightman/Lightman 2000, 22: "After her father died, Antonia returned to Pontus and ruled as guardian and regent for her son Polemon II". The absurdity comes here from the fact that Antonia could be no more than two years old when her father's death.

Braund considered a marriage between Pythodoros and the daughter of the triumvir a modern fantasy, but, effectively, the only strength of his argument is the silence of Strabo.[4]

While the question cannot be answered with certainty without the discovery of new sources, I prefer to agree with the majority of my predecessors, among whom the opinion of R. Hanslik appears to be most authoritative to me: „Zwar hat Dessau (...) mit viel Pathos gegen Mommsens Beweisführung angekämpft,[5] doch mit wenig Überzeugungskraft; seinen Schlüssen ex silentio wird allein schon durch die Tatsache, daß der Enkel oder Urenkel des P (ythodoros) den Namen M. Antonius Polemon, eine Enkelin den Namen Antonia Tryphaena führte, jeglicher Boden entzogen (...)".[6]

The Greek name Tryphaina means "Sumptuous"[7] and was also encountered as name of some queen of the Ptolemaic dynasty. Her mother Pythodoris bore the epithet Philometor,[8] the same as the Ptolemaic queen Cleopatra II Philometor[9]. The name Tryphaina was also used occasionally in Macedonia[10] and even more frequently in the coastal regions of Asia Minor[11], which is well documented epigraphically.

2. Relations to Thrace

Among the literary sources that are important to both direct and indirect relationships of Antonia Tryphaina to Thrace, the two most commonly cited passages are:

> 1. Strabo 12.3.29: "The Tibareni and Chaldaens as far as Colchis and Pharnacia and Trapezus are ruled by Pythodoris, a woman of discretion and a capacity to manage matters. She is the daughter of Pythodoros of Tralles; she became the wife of Polemo and ruled jointly with him for a period; then she succeeded to power when he died among the so-called Aspurgiani, the barbarians around Sindike. By Polemo she has two sons and a daughter, who was given in marriage to Cotys the Sapaean, but was widowed upon his murder, having borne him children: the eldest now is dynast".[12]

> 2. Tacitus, *An.* 2.67.2: "He was accused in the senate by Cotys' wife, and condemned to detention at a distance from his kingdom. Thrace was divided between his son Rhoemetalces, who was known to have opposed his father's designs, and the children of Cotys. As these were not of mature age, they were put under the charge of Trebellenus Rufus, an ex-praetor, who was to manage the kingdom in the interregnum; a parallel from an earlier generation being the despatch of Marcus Lepidus to Egypt as the guardian of Ptolemy's children".[13]

The children that remain unnamed by Strabo and Tacitus were Rhoemetalces III, Polemo II, Cotys and Pythodoris Minor. The oldest was – as becomes clear from the enumeration in an honorary inscription of Cyzicus – Rhoemetalces III, which, at his time, already Dittenberger noticed correctly.[14] Therefore, δυναστεύει is just to be associated with Rhoemetalces III, who ruled around AD 20, under the supervision of some representatives of the Roman administration. This interpretation has been doubted by R. S. Sullivan, who draws attention to Tacitus phrase "iisque nondum adultis".[15] But this argument carries little weight in light of the important parallel that the historiographer added, and which remained unnoticed by Sullivan. Five-year-old Ptolemy VI Philometor officially ruled from 181 BC as a ward of his mother and of M. Aemilius Lepidus. As for Rhoemetalces III, his elevated position is confirmed, in my opinion, by two dedicatory inscriptions.

> 1. IGBulg I² 399[16] (Apollonia, 19 AD): [Ἀπόλλ]ωνι Ἰητρ[ῶι | ὑπὲρ τῆ]ς Ροιμ[η|ταλκου] βασι[λέ|⁴ως Κοτ]υος κα[ὶ | βασιλ]έως Ρο[ι|μητα]λκου υἱ[ω|νοῦ κ]αὶ Πυθο[δω|⁸ρίδος β]ασιλέω[ς] | [Ροιμητ]αλκου | [βασιλέ]ως Πολ[έ|μωνος δ]ὲ θυγατ[ρι|¹²δῆς ὑγ]ίας καὶ σ[ω|τηρία]ς εὐξάμ[ε|νος Λ]ούκιος | Ἀ[ντώ|νιος Ζ]ήνων.[17]

[4] Braund 2005, 260: "But Strabo's noisy silence surely demonstrates that the notion that Pythodoris reveled in descent from Antony is misguided". Cf. already Dessau 1903, 692: "*Eodem modo cum de Pythodoride ageret Strabo et accurate exponerat de stirpe et gente eius (...), tacere non debuit, eam neptem fuisse Antonii triumviri. Non potuit ea res ignota esse Straboni*". Similar H. H. Schmitt (RE XXIV 592): "Dem steht entgegen, daß eine so enge Verbindung des P. mit dem Triumvirn in dem ausführlichen Bericht des Strabon nicht erwähnt wird und daß von Folgen der Parteinahme des P. nach Actium nichts bekannt ist".

[5] See Mommsen 1872, 271: "*Quae cum egregie conveniant cum titulo Smyrnaeo, nunc demum addiscimus Pythodoridem natam esse ex Antonia et ab hac ipsa Antonia generis splendorem potissimum proficisci. Aliter enim explicari nequit, quod et Antonia illa appelatur* εὐεργέτις *agnomine regio et filia* φιλομήτωρ *(...)*".

[6] RE XXIV 591.

[7] From tryphάō = "to live luxuriant"; cf. (Frisk 1960, s.v. *thrýptō*); (Chantraine 1968, s.v. *thrýptō*, with regard to PN *Trýphon*).

[8] IGR IV 144.

[9] IG II² 3433.

[10] LGPN IV 335 (five examples between 145 BC and 134 AD).

[11] LGPN VA 436 (35 examples, almost all from the imperial time).

[12] Τοὺς δὲ Τιβαρηνοὺς καὶ <τοὺς> Χαλδαίους μέχρι Κολχίδος καὶ Φαρνακίας καὶ Τραπεζοῦντος ἔχει Πυθοδωρίς, γυνὴ σώφρων καὶ δυνατὴ προῖστασθαι πραγμάτων. Ἔστι δὲ θυγάτηρ Πυθοδώρου τοῦ Τραλλιανοῦ, γυνὴ δ' ἐγένετο Πολέμωνος καὶ συνεβασίλευσεν ἐκείνῳ χρόνον τινά, εἶτα διεδέξατο τὴν ἀρχήν, τελευτήσαντος ἐν τοῖς Ἀσπουργιανοῖς καλουμένοις τῶν περὶ τὴν Σινδικὴν βαρβάρων·δυεῖν δ' ἐκ τοῦ Πολέμωνος ὄντων υἱῶν καὶ θυγατρός, ἡ μὲν ἐδόθη Κότυϊ τῷ Σαπαίῳ, δολοφονηθέντος δὲ ἐχήρευσε, παῖδας ἔχουσα ἐξ αὐτοῦ δυναστεύει δ' ὁ πρεσβύτατος αὐτῶν (Transl. by Braund 2005, 256), with exception of παῖδας ἔχουσα ἐξ αὐτοῦ·δυναστεύει δ' ὁ πρεσβύτατος αὐτῶν, which B. translates as ... having borne him two children: the elder now is dynast. Evidently B. has confused the superlative πρεσβύτατος with the comparative πρεσβύτερος.

[13] *Accusatus in senatu ab uxore Cotyis, damnatur ut procul regno teneretur. Thraecia in Rhoemetalcen, filium, quem paternis consiliis adversatum constabat, inque liberos Cotyis diuiditur; iisque nondum adultis, Trebellenus Rufus, praetura functus, datur, qui regnum interim tractaret, exemplo quo maiores M. Lepidum Ptolemaei liberis tutorem in Aegyptum miserant* (translation after the Loeb Classical Library edition of Tacitus, 1931).

[14] Ad Syll.³ 798 (= IGR IV 145), n. 8.

[15] Sullivan 1979a, 10, n. 14: "When Strabo remarks (12.3.29.556) of the children of Polemo's mother, Antonia Tryphaena, that ... δυναστεύει ... ὁ πρεσβύτατος αὐτῶν, the possibility of this being the dynast of Olba immediately springs to mind, since Polemo's brother Rhoemetalces III is known from Tac. Ann. 2.67 to be too young for kingship in A.D. 19; *iisque [liberis Coty (i)s] nondum adultis* (...)".

[16] Vgl. Seure 1904, 214; Saprykin 1993, 33.

[17] My translation: "Lucius Antonius Zenon has vowed to Apollon Ietros for the health and salvation of Rhoemetalces, (son) of King Cotys and grandson

2. IGR I 777 (Βιζύη / Selymbria, 21 n. Chr.): Θεῶι ἀγίωι ὑψίστωι | ὑπὲρ τῆς Ῥοιμη|τάλκου καὶ Πυθο|[4]δωρίδος ἐκ τῶν κα|τὰ τὸν Κοιλα[λ]ητικὸν | πόλεμον κινδύνου | σωτηρίας εὐξάμενος | καὶ ἐπιτυχὼν Γάιος |[8] Ἰούλιος Πρόκ (λ)ος χαρι|στ[ήρι]ον.[18]

Before we can draw on these inscriptions for our historical reconstruction, we have to introduce the persons mentioned and explain how they were related. Most of my predecessors – including such authorities as G. Mihailov and R. S. Sullivan – came to the conclusion that this evidence relates to Rhoemetalces II, son of Rhescuporis III, as well as his Spouse Pythodoris. Mihailov and Sullivan are both surprised about the absence of the father's name, which is a plausible way to follow from the perspective of a modern epigraphist: "*Ergo is, qui inscriptionem composuit, duo nomina facinore coniuncta inscribere consulto effugit: Rhascuporis (II) pater Rhoemetalcae (II) occidit Cotyn (III) patrem Pythodoris et ipse paululum post id facinus a Tiberio Alexandriae interfectus est*".[19] With all due respect to the learned editor of the "Inscriptiones Graecae in Bulgaria repertae", I rather agree with the recent opinion of S. Ju. Saprykin – in both cases we are dealing with two of the four children of Cotys VIII and Antonia Tryphaina.[20] According to A. Ceylan and T. Ritti,[21] followed by Saprykin, Lucius Antonius Zenon was the grandson[22] of Antonius Zenon, the less prominent brother of Polemon I. Based on almost the same epigraphic sources, V. P. Yailenko[23] and recently (without knowledge of the work of Yailenko) P. J. Thonemann[24] tried to demonstrate that Lucius Antonius Zenon was a great-grandson of Polemo I. But as the father of Lucius Antonius Zenon – one M. Antonius Polemo – already in the year 5 BC acted as minting official in Laodicea, and as his father was, in the opinion of Thonemann, the third child of Polemon I and Pythodoris, qualified as an ἰδιώτης by Strabo, the English researcher develops his argument ad absurdum with the following conclusion: " (...) the marriage of Polemo I and Pythodoris can hardly be dated any later than 30 B.C. His marriage to Dynamis was hence bigamous"[25]. I will discuss Thonemann's view later in my paper.

For now I would like to briefly focus on the dedicatory inscriptions of Apollonia and Βιζύη / Selymbria. Probably Zenon is a close relative and quite possible the tutor of Antonia Tryphaina's children. βασιλέως Κοτυος I see as a reference to Rhoimetalces' father Cotys VIII[26] and not to his grandfather Cotys VII[27]. By βασιλέως Ροιμηταλκου the famous grandfather Rhoemetalces I is meant. And since the inscription of Βιζύη was composed by a proud member of the Zenonids,[28] it would be quite reasonable that also the likewise famous grandfather of Rhoemetalces III and Pythodoris II, Polemo I, is mentioned. Whether Gaius Julius Proclus was another tutor of the children of Tryphaena has to remain no more than a hypothesis until new sources confirm or contradict it. More importantly, Rhoemetalces reappears without dynastic title which, in my opinion, weakens even more the traditional reconstruction of Mommsen, Dessau, Mihailov, Sullivan, and many others. If Strabo, who was a friend of Pythodoris Maior, claims that Rhoemetalces III governed in 20 AD (δυναστεύει δ' ὁ πρεσβύτατος αὐτῶν), the two representatives of the Roman administration, namely Lucius Antonius Zenon and Gaius Julius Proclus, are simply pragmatic in their dedications not mentioning Rhoemetalces as dynast.

3. Relations to the Kingdoms of Pontus and Bosporus

The relationships of Antonia Tryphaina with the kingdoms of Pontus and Bosporus turn to be an aspect of even greater complexity. However, one thing is certain – thanks to Strabo and especially thanks to some honorary inscriptions from Cyzicus[29] –, she is the daughter of the King Polemo I and Queen Pythodoris Maior, and herself mother of king Polemo II. The numismatic evidence confirms – as U. Kahrstedt rightly remarked previously – her position as a custodian of her son Polemo II before AD 38,[30] when Polemo received "the paternal kingdom" from Gaius Caligula. The succession of Antonia after the death of her mother remains a controversial issue.

If we accept the argumentation of H. R. Baldus, the coinage of Pythodoris is dated around AD 30 to 33 (her early 60s), thus her death being dated around the year AD 33.[31] Apparently, Thonemann overlooked this detail, as he dates Pythodoris' marriage to Polemo I no later than 30 BC. In addition, I would like to remark the fact that Strabo would hardly have used the phrase χρόνον τινά to refer to a possible marriage lasting for more than 20 years.

A passage from the Roman History Cassius Dio (59.12.2) aroused even more controversy among modern exegetes: "Meanwhile, he (Caligula) granted to Sohaemus the land of the Ituraean Arabians, to Cotys Lesser Armenia and later also parts of Arabia, to Rhoemetalces the possessions of Cotys, and to Polemo the son of Polemo his ancestral domain, all on the vote of the Senate".[32]

It remains controversial, whether πατρῴαν ἀρχήν meant Pontos, Pontos and Bosporus or even Lycaonia and Cilicia Tracheia.[33] Not controversial, however, has until recently

of King Rhoemetalces, and of Pythodoris, granddaughter of king Rhoemetalces and of king Polemon".

[18] My translation: "Gaius Julius Proclus has vowed to the Highest God, the holy one, for the rescue of Rhoemetalces and Pythodoris from danger during the war against the Koilaleti".

[19] Ad IGBulg I², p. 367.

[20] Saprykin 1993, 32–33. Similarly, expressed earlier, KALINKA/BORMANN/DOBRUSKÝ 1906, 142–143.

[21] Ceylan/Ritti 1987, with Stemma on page 93.

[22] At Saprykin 1993, with Stemma on page 28, the great-grandson.

[23] Yailenko 1981.

[24] Thonemann 2004.

[25] Thonemann 2004, 148.

[26] As earlier Seure 1904, 214 and Saprykin 1993, 33.

[27] As Mihailov, ad IGBulg I², S. 367 and Sullivan 1979b, 197.

[28] Cf. IGR 1436, l. 1: [e.g. τὸν ἀπὸ προγόνων βασιλ]έων, τετραρχῶ[ν - - -]. See also Saprykin 1993, 26; Thonemann 2004, 146.

[29] IGR IV 144–146.

[30] Kahrstedt 1903, 302.

[31] Baldus 1983, 542.

[32] Ἐν δὲ τούτῳ Σοαίμῳ μὲν τὴν τῶν Ἰτυραίων τῶν Ἀράβων, Κότυϊ δὲ τήν τε Ἀρμενίαν τὴν σμικροτέραν καὶ μετὰ τοῦτο καὶ τῆς Ἀραβίας τινά, τῷ τε Ῥυμητάλκῃ τὰ τοῦ Κότυος καὶ Πολέμωνι τῷ τοῦ Πολέμωνος υἱεῖ τὴν πατρῴαν ἀρχήν, ψηφισαμένης δὴ τῆς βουλῆς, ἐχαρίσατο (Transl. by Thonemann 2004, 144).

[33] For this discussion on this aspect see Barrett 1977; cf. recently Vinogradov 1997; Yailenko 2010, 264–266.

been that Cassius Dio is incorrect in regard to the family relations: Polemo II was the grandson and not the son of Polemo I. But P. J. Thonemann has now chosen to defend the historiographer. In his opinion it is not a mistake of Dio, but his perspicacity – so Dio wanted to distinguish the Polemo, son of Polemo I. (ἰδιώτης by Strabo) from Polemo II.[34] When trying to reconstruct the genealogy of Lucius Antonius Zenon based only on four inscriptions, Thonemann does not seem to be aware, among other important aspects, of a well-known honorary degree of Cyzicus.

> Syll.^{3} 798$_{3–7}$ = IGR IV 145, Z. 3–7: [- - -] ὁ νέος Ἥλιος Γάϊος Καῖσαρ Σεβαστὸς Γερμανικὸς [- - -] τοὺς Κότυος δὲ παῖδας Ῥοιμητάλκην καὶ Πολέμωνα καὶ Κότυν [- - -] είς τὰς ἑκ πα[τέρ]ων καὶ προγόνων αὐτοῖς ὀφειλομένας ἀποκαθέστακεν βασιλείας.[35]

For me, as it was for many of my predecessors,[36] the two Polemones (…) are undoubtedly names referring to the same person. Both sources refer to the grandson and not the son of Polemo I. Yet if we mean by πατρῴαν ἀρχήν Pontus and Bosporus, we have another problem. Given that coins were issued continuously under the successors of Aspurgos – Gepaipyris and Mithridates III. – from 37 to 42 AD, Polemo II could not be ruler of the Bosporus during the same period.[37] Starting with V. V. Latyshev and A. V. Oreshnikov particularly Russian researchers were eagerly looking for a solution to this apparent contradiction between the literary and numismatic evidence. For reasons of space, I confine myself to the one remarkable argument of Ju. G. Vinogradov[38] for the presence of Polemon II in the Bosporus: the Chersonesians sent an auxiliary unit to King Polemon and to the commander of Moesia, most probably in the reign of Caligula rather than that of Nero[39], and to the Bosporan area rather than to Armenia.

While I agree so far with Vinogradov, I see no reason to consider the Bosporan regent Gepaipyris as a sister of Polemo II,[40] an idea first formulated by M. I. Rostovtzeff.[41] Based on the seeming similarity between the portraits of Antonia Tryphaina and Gepaipyris on the coins, the Russian scholar argued that Gepaipyris was Antonia's daughter. Thanks to the authority of Rostovtzseff, the idea has been widely accepted and is now the *opinio communis*. The only exception, as far as I know, is S. Ju. Saprykin, who regards Gepaipyris as sister, not daughter, of Cotys VIII.[42] Although ultimate prove is likewise missing for the latter view, I find it much more plausible. If she were a daughter of Antonia Tryphaina, then Gepaipyris could not have been born earlier than AD 13. But many scholars believe that she married the Bosporan king Aspurgos around the same year. Apparently, the two views are incompatible. Further to be considered is that, when Aspurgos died by AD 37, his wife remained behind with two grown-up sons – Mithridates and Cotys –, who were about the same age as Polemo II.

Towards on the relationship of Antonia Tryphaena to the Bosporus, I would like to call the attention to another *malum discordiae*. There are, in my opinion, no serious arguments against dating the marriage of Polemo I. and Pythodoris to 13/2 BC, when the groom was king of Pontus and the Bosporus. Not much later, he was killed by the so-called Aspurgianoi in or around 9/8 BC, as we know from Strabo. Thus, the birth of Antonia is to be expected during this period and not in the year 15 BC.[43] In addition to this, Dio Cassius (54, 24, 4–6) reports not only a victory of Polemon over the Bosporani for the year 14 BC, but also that Dynamis was his wife with the approval of Augustus.

Neither literary nor numismatic data shed light on the further fate of the Dynamis. Therefore, following the conclusion of scholars such as N. A. Frolova and S. Ju. Saprykin, Dynamis could have died soon after 14 BC when Polemon was still alive.[44] However, this opinion is not supported by other experts of the Bosporus, such as V. A. Anokhin or V. P. Yailenko, who prefer to follow a much earlier hypothesis of M. I. Rostovtzeff. According to this hypothesis, Dynamis has fought against Polemon I after her separation from him. Then she reigned again from 8 BC to AD 7/8.[45] The only problem is that the coinage of this period – with the possible exception of a monogram (ΔM)[46] – can hardly be ascribed to Dynamis. In their book on the coinage of the Bosporan Kingdom from 1st century BC to the middle of the 1st century AD, Frolova and Ireland call the period from 9/8 BC to 13 AD "the period of 'uncertain rulers', with a coinage characterised by monograms and the imperial head". At the same time, these authors rightly remark, "However, the question of the date when Panticapaeum and Phanagoria were renamed remains to be resolved".[47]

Against this problematic background, a more recent hypothesis on the Ara Pacis, put forward by the American researcher Ch. B. Rose[48] and developed further by the Russian colleague V. N. Parfenov[49] is of a particular importance. Rose suggested that the woman with the child on the South Frieze of the Ara Pacis must be the Bosporan ruler Dynamis with her son,[50] along with Agrippa who arrived in 13 BC in

[34] Thonemann 2004, 149.
[35] My translation: "The New Helios Gaius Caesar Augustus Germanicus provided the sons of Cotys – Rhoimetalces, Polemon and Cotys – to the government of kingdoms that were rightfully their fathers and ancestors".
[36] See for example Vinogradov 1997, 566.
[37] On the subject, see recently Frolova/Ireland 2002, 70–74; cf. MacDonald 2005, 62–64.
[38] Vinogradov 1997.
[39] Saprykin 1993, 34–42; cf. Saprykin 2002, 239–240.
[40] Vinogradov 1997, 569. Similar at MacDonald 2005, 62: "Polemo II took control of Pontus but never ruled in Bosporus, where Gepaepyris, Aspurgus' queen and Polemo II's sister, ruled directly for a short period".
[41] Rostovtzeff 1919.
[42] Saprykin 2002, 242. Cf. Saprykin 1993, 46, with Stemma.
[43] For a discussion, with the literature, see recent Cojocaru 2012, 127.
[44] Frolova/Ireland 2002, 7: " (…) the alternative scenario of the queen's death shortly after the accession of Polemo in 15/14 BC, followed by Polemo's marriage to Pythodoris in 12 BC becomes a far more satisfactory interpretation of events". Cf. Saprykin 2002, 98–124, with a much more detailed, but also much more speculative discussion. For reasons of space I cannot go into details at this point.
[45] See a recent discussion, with previous literature Yailenko 2010, especially 234–240.
[46] Yailenko 2010, 232–234, with literature. Cf. earlier Anochin 1999, 131 for identification with Dynamis; Frolova/Ireland 2002, 62–63, against an identification with Dynamis. Saprykin 2002, 99–101 transcribed the monograms as ΔΥΜ and talks about a dynast who could be in kinship with Dynamis.
[47] Frolova/Ireland 2002, 7.
[48] Rose 1990, here 455–459, The Barbarian on the South Frieze.
[49] Parfenov 1996.
[50] Aspurgos at Rose; an unknown son of Scribonius at Parfenov.

Rome. „Ganz offenkundig" – Parfenov writes – „darf man als starkes Indiz für den Aufenthalt der Dynamis in Rom die von ihr in Pantikapaion, Phanagoreia und Hermonassa errichteten Augustus- und Liviastatuen ansehen (CIRB 38, 978, 1046)".[51] I am aware of the fact that most Russian colleagues might consider this hypothesis a heresy. It is not my task to bring at this point new arguments supporting or disagreeing with the suggestion of Rose and Parfenov. I would just like to underline that the remarkable iconographic analysis by Rose, in conjunction with other observations by Parfenov, would certainly be worth a broader discussion also in Russian historiography.[52]

Concluding Remarks

As the daughter of Polemon I and through him granddaughter of the rhetorician Zenon from Laodicea,[53] Antonia Tryphaena represented the outgoing Hellenistic tradition in Asia Minor. At the same time, as a relative of the Roman imperial family through maternal line, she was ideally suited to serve as an *amica populi Romani* for an increasingly aggressive border policy of the Emperor in the Eastern Anatolian and Pontic areas. Even her father, whom Antony had made king of Pontus in 37/6 BC, was acknowledged as an *amicus et socius populi Romani* by Augustus in 26 BC.[54] In 14 BC he was still king of the Bosporus. In 12 BC he married Pythodoris, daughter of Pythodoros of Tralles and granddaughter of M. Antonius. When Polemon died, Pythodoris became ruler in the Pontic kingdom.[55] Her second husband was Archelaus, king of Cappadocia, whom she married in AD 2/3 without the consent of Rome. The same must be assumed for the marriage of Antonia with the Thracian king Cotys VIII in AD 12/3. Thanks to her maternal descent from Rome, Antonia Tryphaena could place her children in the house of Livia Drusilla after the assassination of Cotys VIII, where they were brought up together with the young Caligula. Later, as a widow, she settled down in Cyzicus. This was not out of sentimental reasons, such as S. Ju. Saprykin thinks without paying attention to the former relations with the Thracian royal family,[56] but rather because of the location of this city, from which Rome, Thrace and Pontus were in easy reach. By 38/9 AD, she was honoured by the citizens of Cyzicus as a king's daughter, Queen and Mother of Kings due to her *pietas* towards the imperial house.[57] After the *consecratio* of Iulia Drusilla on 23 September (?) 38,[58] Tryphaena is attested in Cyzicus as her priestess.[59] The year of her own death is entirely obscure. The date of AD 49[60] is based on the assumption that the coinage of Polemon II as sole ruler from 49/50 presupposes his mother's death.[61] Later, a "Tryphaena of Cyzicus" was venerated as a Christian saint. Whether this legendary Christian aspect is linked to the memory of Tryphaena and her benefactions to the citizens of Cyzicus or is an allusion to her son's Polemon conversion to Judaism, remains an open ground for speculations.

[51] Parfenov 1996, 102.
[52] Saprykin 2002, 98–99 argues against the view expressed by Rose and Parfenov hypothesis unfortunately scarce and unconvincing.
[53] See Strabo (11, 8, 16). Cf. a recent discussion at COJOCARU 2012, with Stemma.
[54] See Cassus Dio (53, 25, 1).
[55] Strabo (11, 2, 18); cf. Marek 1993, 52, with the literature.
[56] Saprykin 1995, 201.
[57] Syll.^{3} 798; IGR IV 147.
[58] Kienast 1996, 87.
[59] Syll.^{3} 798, l. 12–13.
[60] Saprykin 1993, 38); cf. Saprykin 1995, 202; cf. also http://de.wikipedia.org/wiki/Antonia_ Tryphaina
[61] The year 55 has been suggested with no serious arguments: http://en.wikipedia.org/wiki/Antonia_Tryphaena

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THE ANTONINE PLAGUE IN DACIA AND MOESIA INFERIOR

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Abstract: The study of epidemics, especially the ancient ones, has long eluded our scientists. And so, we have tried to use a different approach and different ways of studying the disastrous effects of such an epidemic, in the 2nd century A.D. The goal of this paper is to analyze aspects such as chronology, expansion, and the effects of the disease, and especially, to raise a question about its presence in the roman provinces of Dacia and Moesia Inferior. Whether the presence of a full scale epidemic can be argued, evidence of disturbance can be found by numerous means .In the end, such scientific approach on epidemics can hold valuable clues regarding the rise and fall of civilizations and empires.
Keywords: Antonine Plague, epidemy, mass graves, roman province, plaster

If one should study the epidemics that have affected the Roman Empire throughout its existence, he would not find any information regarding the subject in the Romanian bibliography. Naturally, one could ask himself if the provinces were either not affected by such disease or the problem itself had not been researched.

Studying the period through which both provinces are part of the massive Roman Empire, a researcher can encounter information of two great plagues: the Antonine plague, or the plague of Galen, and the plague of Cyprian. Both plagues are backed up by written sources and archaeological evidences. In this paper we shall discuss the first of these epidemics, studying the possible effects, such as demography or economical disturbances, on a regional and continental scale.

Galen's commentaries[1], along with Dio Cassius' history, mention that, following the return of Lucius Verus and his troops from the eastern campaign against the Parthic Empire and at least until the death of the Emperor Marcus Aurelius, a mysterious disease ravaged the Empire, leaving behind millions of victims. In addition, Dio Cassius relates of a similar event in 189 A.D, probably a return of the pestilence, when as much as two thousand people died every day in Rome only. Following this account, there is a similarly interesting description of people dying throughout the empire, murdered with poisoned needles by unseen assassins.[2] Dio relates this event to one happened a century earlier, during the reign of the Emperor Domitian (aprox. 90–91 A.D).[3] The interpretation of the latest episode, as some historians see it, as a new method of assassination[4], seems unlikely. Moreover, taking into account

[1] GILIAM 1961, 228.
[2] Dio Cassius 73.14. 3–4.
[3] Dio Cassius 67.11.6.
[4] CREVIER 1814, 345.

that it is related to an epidemic, we plead for some failed medical attempts to cure the disease.

If historians are to have a realistic view on the death toll this disease left behind, they should treat the written sources with caution, ancient writers being known to exaggerate numbers in order to offer a grim and stunning view on their work. The most realistic figures so far can be found in a study, published in the *American Journal of Philology* by R.J. Littman and M.L. Littman. The two M.D.s bring arguments based on their study on the work of Galen in order to identify the mysterious 2nd century A.D. disease with smallpox[5]. Galen also mentions that the disease travels at a rapid pace, reaching Rome in 166 A.D. and causing important disruption in the legionary troops' camp at Aquileia (168–169 A.D.). In addition, they credit the hemorrhagic form of the smallpox as being guilty of the violent replica in 189 A.D. Unlike their predecessors who plead for an insignificant 1 or 2% death toll of the population[6], the authors' estimation reaches as much as 13–15% for the army and 7 to 10% for civil population.

For one to understand the implications of a smallpox epidemic, we shall present its pathology. The virus is transmitted from one human to another mostly through indirect contact, such as droplets of saliva resulted from coughing or sneezing.[7] The smallpox virus is highly infectious: the house of the diseased or personal objects can serve as means of contamination for as much as one year. The diseased are considered prone to infecting others since the debut of smallpox (2–3 days) until the last stage, the desquamation of the specific crusts (5–6 weeks). The disease leaves a certain degree of immunity which usually prevents a future infection.[8]

Another important aspect for this study is spread of the so-called plague. The first mentions of a new, hazardous disease can be traced as early as the siege of Nisibis (165 A.D.) and the siege of Seleucia (165–166 A.D.)[9] by the legions of Lucius Verus. In A.D. 166, the pestilence reaches Rome, forcing Galen to flee for his home city, Pergamum. In addition, numerous rural and urban sites in Egypt, such as Thoumis, record a fall in the number of tax-payers.[10]

From the archaeological point of view, two mass graves are to be considered essential for this study. The first one is situated in the catacombs of St. Peter and Marcellinus in Rome. The tomb is situated beneath an *equites* cemetery which implies a certain relation of the deceased to the social group. The excavations were conducted into areas named X80-T16 and X80-T18 of 2 m× 1m and 2.8 m× 2.5 m. In both cases the deceased are laid in an organized manner, next to one another or on multiple layers which can vary in thickness from 0.6 m (T16) to 0.8 m (T18). The excavation revealed nine such layers in T16 and twelve layers in T18. Those levels were created in a short period of time, comprising as much as 84 (T16) or 78 (T18) individuals. The report mentions the find of cloth fragments along with crystalized amber. The anthropological expertise has revealed that the time of death was at a young adult age, with a predominance of females (72.5%). Moreover, no trauma signs were discovered and the average height (1.6 m) exceeds the ancient average. These aspects, with the addition of gold fragments, suggest that the deceased had a high social status, and that they died abruptly, victims to an epidemic. The authors state that, based on the chronology of the finds, the Antonine plague is largely disqualified. Still, there is room for doubt as the possibility of a later replica of the disease, such as the one presented by Cassius Dio in 189 A.D. could be considered the culprit.[11]

A second mass grave which caught our interest was dug out in the archaeological investigation which took place between 2004 and 2006 in Gloucester. Unfortunately we were not able to reach the detailed publication of the site.[12] Be that as it may, from the resumes gathered, we were to understand that the excavation has brought to light a mass grave with 91 individuals. Analogies with the previous example, such as the large number of victims, the chronology, the erratic burring manner, and the lack of trauma signs, have lead the scientist to consider the Antonine plague as a plausible cause for the high death-toll.

In addition, a study conducted on a number of 481 funerary stelae belonging to a typology found in the northeastern region of Lydia, which are concentrated mainly in the area of ancient Saittae reveals interesting data.[13] Thus the chart attached to the study shows a significant increase of an almost double number of funerary stelae especially between 165–169 and 189–190 AD, which coincide with data written sources.[14] The fact that the deceased belong to a high social class, and that raising a funeral stela is a pretty serious financial strain, ought to be considered.

Dacia

The arguments presented above come to support the theory of a wide spread epidemic throughout the Roman Empire. Unfortunately, we lack such substantial evidence in Dacia. However, we believe that there is some circumstantial evidence which when put together raises at least a discussion on this topic.

A noteworthy aspect is the transfer of Legio V Macedonia from Troesmis to Potaissa. According to available data, Legio V Macedonica is in Dacia in as soon as 168 or early 169 AD.[15] Their participation in the campaign against the Parthians is proved by inscriptions.[16] This information, coupled with the epidemic break out in the same year at Aquileia and also among troops returning from war with the Parthians, can induce a similar situation. There is also an inscription that attracts attention. Raised by the centurion Vitalis C.Cassius in honor of Apollo Parthicus, the inscription was considered a shrine dedicated to the god that facilitated the victory of the Romans[17]. However, the Historia Augusta mentions

[5] LITTMAN/ LITTMAN1973, 246–252.
[6] GILIAM 1961, 250.
[7] VOICULESCU1971, 89.
[8] VOICULESCU 1971, 92–95.
[9] GILIAM 1961, 228–229.
[10] DUNCAN-JONES 1996, 120–121.
[11] BLANCHARD/CASTEX/COQUERELLE/GIULLIANNI/RICCIARDI 2007, 989 –997.
[12] SIMMONDS, MARQUEZ-GRANT, LOE 2008.
[13] BROUX/CLARYSSE 2009, 27.
[14] BROUX/CLARYSSE 2009, 28.
[15] BĂRBULESCU 1987, 23.
[16] CIL III 6189 = ISCM V 159.
[17] MACREA 1978, 98–105.

that the disease started in Babylonia, when a Roman soldier accidentally destroyed a golden sarcophagus in the temple of Apollo, releasing the pestilential vapors.[18] Inscriptions dedicated to Apollo meant to spare the dedicators from the epidemic exist at Hierapolis in Phrygia or at Pergamum.[19]

Another indicator of the situation is one of the wax-tablets from Alburnus Maior, more exactly TabCer DI.[20] As it is known, the wax-tablet is actually the record of the dissolution of a funeral college. The tablet dated in AD 167 signals the dissolution of the college, citing the permanent absence of two-thirds of the members who left the Alburnus. This situation resembles that of the Egyptians who leave their settlements in the same period. The tablets found in mine galleries in Alburnus were probably part of an archive that was later abandoned. The most important aspect is the fact that, the situation through which the funeral college is going before its dissolution (probably started in January when the co-magister does not return after being elected to office) is also prior to the first massive barbarian attacks which, reported after this date. Extrapolating the situation of the funeral college to all the mines in Aburnus, one can assume the abandonment of the area. An analogy might exist with some mines in the southwest of Spain. Mines undergo a deactivation between 170 and 180 AD and notable changes also take place in the settlement and cemetery from Rio Tinto. Thus, the author names the cause of the abandonment of the mines as the decrease in the number of workers and the increase in labor costs due to the Antonine plague. The fact that this was the administrators' reaction is due to a pragmatic spirit.[21]

An imperial inscription from Ulpia Traiana Sarmizegetusa[22] is dedicated to Marcus Aurelius (raised after the death of Lucius Verus) for saving the city from a huge danger or two great dangers. Paired with another construction votive slab[23] (or rather reconstruction following its burning by foes), the event raised could be a barbaric attack during the Marcomanic wars. However, in the interpretation which highlights two great dangers, one of those could be considered the studied epidemic.

In addition, analyzing the inscriptions published in IDR (from volume II to III/5/2), and selecting those that can be classified chronologically in the period of interest for this study reveals a series of interesting data (fig. 1).

Thus, although the number of inscriptions that can be fit are deficient, one can observe a sharp and sustained decline. However, other causes that could lead to such a decrease such as the Marcomanic wars or the civil war following Commodus' death need to be considered.

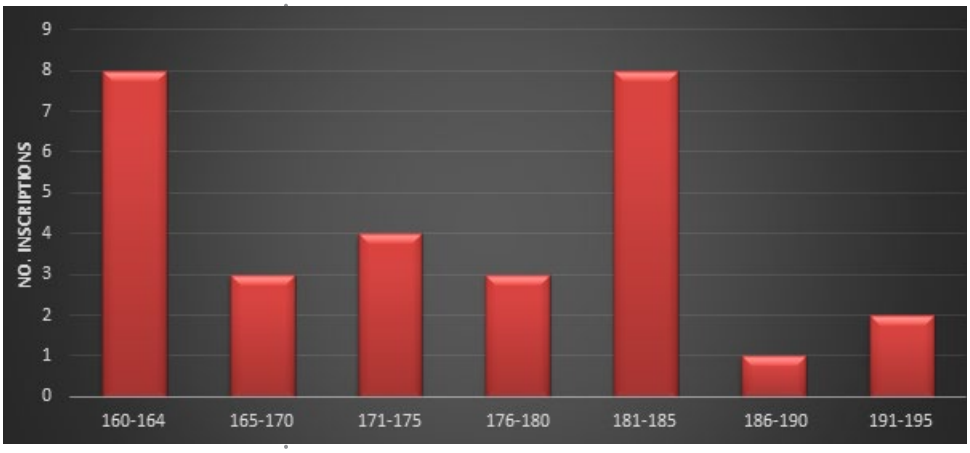

Fig. 1. Datable inscriptions in Roman Dacia

The archaeological research at the necropolis at Apulum /"Dealul Furcilor" reveals an aspect rarely mentioned in the Roman necropolis: the presence of lime in some burial tombs. Of 21 inhumation graves, M4 (SPII), M1 (Sp I), M3 (Sp I), M6 (Sp I), M7 (Sp I), M8 (Sp I), M9 (Sp I), M10 (Sp I), M17 (Sp I), M20 (Sp I) reveal the presence of lyme in the process of inhumation. Of these, only M20, M17, M9 and M1 are of adults the rest being of children or newborns. Tomb M6 is enlightening due to the fact that the lime layer kept an imprint of the body. This suggests a uniform coverage of the body, and not of the bottom of the sarcophagus. Analogies in the cemetery of Rome were presented above. Thus, although there is no form of dating (in terms of stratigraphy M17 being the oldest in a sequence of three tombs), we can assume that the use of lime in this case and the large number of infant deaths can be linked to an epidemic. The four coins discovered come from Hadrian, Antoninus Pius, Caracalla and Julia Mamaea.[24]

At Apulum, in the cemetery on "Dealul Podei", the archaeological investigation revealed a total of 25 tombs, 24 of them with a layer of lime on the head or upper body. 10 of these graves are of babies in the cist brick or wooden coffins. The only piece of inventory found during excavation is a coin of Julia Domna (dated between AD 196 and AD 202).

These graves, although slightly later than chronology mentioned so far (comparable to the situation in Rome in 189 AD) are still able to support the hypothesis of an epidemic.[25]

In terms of numismatic evidence (fig. 2), a sharp decrease in the amount of coins can be considered as an aspect of the economic contraction and production of currency after the outbreak of the epidemic[26], but also as an effect of the Marcomanic war.[27]

The situation in Egypt outlined above, with the decrease in the number of taxpayers and even the decrease of the production is much better documented, especially because of

[18] GILIAM 1961, 232.
[19] JONES 2005, 297–298.
[20] IDR I,192–198.
[21] SILVER 2011, 133–142.
[22] IDR III/2, 75.
[23] IDR III/2, 37.
[24] GLIGOR/BOGDAN/MAZARE/LIPOT/BALTEȘ 2010, 117–137.
[25] The epidemic has two moments of climax, in 167 A.D. and 189 A.D., but we cannot assign to it a fixed chronology. Thus, the disease may have lasted more than 189 A.D. in some areas of the Roman Empire.
[26] DUNCAN-JONES 1996, 132–133.
[27] ARDEVAN 1993, 111–113.

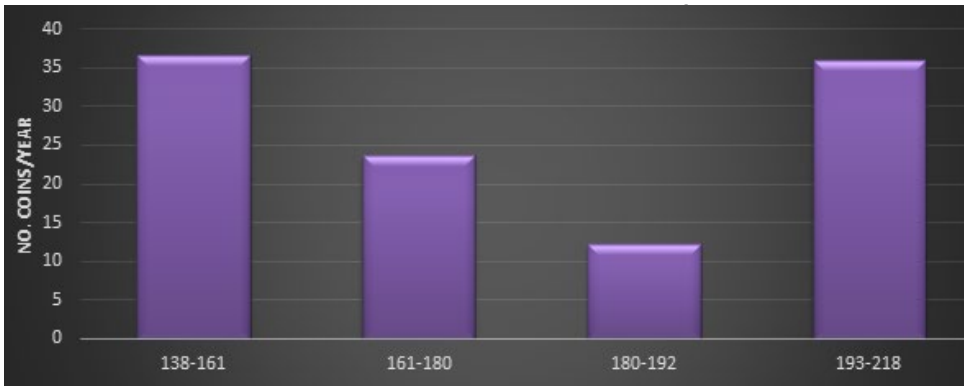

Fig. 2. Single coin finds in Roman Dacia[28]

papyrology sources.[29] In Dacia, even if there were such documented fluctuations, the situation needs to be considered from a military point of view; troops movement related to the wars could cause disruptions in production.

Moesia Inferior

At Tomis, investigations carried out in the South-Western Roman necropolis in 1991 and the Western one in 1992, several collective tombs emerged. Archaeologists chronologically assigned them to the last quarter of the second century, which coincides with the epidemic and the replica in 189 AD. In the first campaign in 1991, amongst the graves discovered there were two collective graves named M10 and M21 with groups of six and three deceased. Both of them are niche tombs with rich inventory, the dead belonging to families whose members died simultaneously so the buried were both adults and children.[30] During the second campaign, three collective burials dated to the late second century, were discovered. M37 and M44 have 3 deceased (probably parents and child), in M37 being buried in the same coffin and in M44 the adults present at 20 cm distance, with the baby at 15 cm above them. M21 is a niche tomb with two individuals (probably husband and wife). Again, grave inventory is quite rich with gold jewelry, silver and bronze, pieces of glass and pottery.[31]

Also, in one of the cemeteries at Tomis, the rescue excavations have brought to light a sarcophagus with an inscription from the Roman period, dated by archaeologists between the late second century and the first half of the third century, based on the funerary inventory. The interesting aspect is given by the absence of iron staples to seal the cover ark. Inside the sarcophagus two wooden coffins were found, overlapped by two sleepers. The reason for the lack of braces is that of a later introduction, above the original deceased (aged 58 according to the inscription), of a deceased teenager. Both wore robes with gold inserts at the time of burial, on the mouth of the second being seated a gold foil.[32] Given the economic situation we can only assume that the members of all this died in a short time, which explains why the graves are collective, not individual.

An impressive burial complex that was discovered in the Ostrov county in Constanta, asks a question like that of the author, on the event that brought to death five members of a fairly wealthy family, sometime in the later half of the second century . An adult male (probably *pater familias*), an adult woman with a child of 4–5 years, another female character approximately 20–25 years and 10–15 years adolescent are buried in this complex. The impressive aspect is given by the funerary complex fresco covering the walls with the scene of a funerary banquet that includes all members of this family.[33]

* * *

In conclusion, the present study aims to raise a question of the existence in Dacia of a disease that has affected an entire Empire. The spreading of the disease in a short time, as evidenced by written sources, epigraphic sources, archaeological excavations and its effects on the economy documented in Egypt and their correlation with some information that we have about Dacia and Moesia Inferior, are just some of the arguments that we had access to .Also, general data on the spread of such a disease may serve to observe the mechanism of an epidemic, the most relevant observation even in the study of epidemics in the third millennium. Finally, at the present state of research, the presence of the Antonine plague in these two provinces cannot be claimed with certainty. For now, we propose a review and interpretation of artifacts from the second half of the second century AD, and we hope that conclusive results are to be expected.

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[28] GĂZDAC 2008, 27.
[29] DUNCAN-JONES 1996, 132–133.
[30] BUCOVALĂ/PAȘCA 1991, 185–236.
[31] BUCOVALĂ/PAȘCA 1992, 241–272.
[32] PAPUC 1974, 307–316.
[33] CHERA-MĂRGINEANU 1978, 137–141.

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ALTERNATIVES TO KINSHIP? TETRARCHS AND THE DIFFICULTIES OF REPRESENTING NON-DYNASTIC RULE

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Abstract: Throughout Roman history, members of the imperial family featured regularly in central coinage, on reliefs and statues, and in inscriptions – both in Rome and the provinces. Roman emperorship was a *de facto* dynastic system, which explains the sustained emphasis on imperial fathers, mothers, wives and children. Only very rarely was lineage wholly ignored. This posed major problems for imperial representation under the so-called Tetrachy; an explicitly non-dynastic imperial system, not organised by bloodline but governed through collegiate rule. How could such 'corporate government' present itself in a society that was used to dynastic terminology when indicating predecessors and intended successors? This article explores some of the alternative modes through which tetrarchic representation aimed to present non-dynastic rule, and shows how these alternatives proved ultimately unsuccessful. Apparently, the constraints of tradition in imperial imagery were too stringent to overcome.

Keywords: Roman Emperors, Tetrarchy, Imperial lineage, Dynastic rule, Roman imperial representation

1 *Introduction:* Throughout Roman imperial history, family mattered when representing emperorship. Different members of the imperial family (especially fathers, mothers, wives and children) were emphasised at different times and in different regions, but only very rarely was lineage wholly ignored.[1] This inevitably posed problems for imperial representation under the Tetrarchy.[2] How could a non-dynastic imperial system, explicitly not organised by bloodline but governed through collegiate rule, present itself in a society that was used to dynastic terminology when indicating predecessors and intended successors? How could one 'represent a collectivity of rulers rather than an individual, a collectivity in which no member was related by blood to another and all were mature men?'[3] This article explores some of the alternative modes through which tetrarchic representation aimed to present non-dynastic rule, and shows how these alternatives proved

Fig. 1. Porphyry images of the Tetrarchs, incorporated into the Palazzo Ducale, Venice

[1] HEKSTER 2015, which also explores in greater detail the argument set out in this article, and places it in a wider context.
[2] LEPPIN 2006, 13–15; KUHOFF 2001, 28–35, 39–40; CAMBI 2004, 38–46.
[3] KAMPEN 2009, 104 ('collectivity of rulers'), 120–121.

ultimately unsuccessful. Apparently, the constraints of tradition in imperial imagery were too stringent to overcome.

2. Parents without wives or mothers:

Collegiate rule by four mature men was new and led to new modes of representation. The most-discussed alternative mode was the portrayal of the tetrarchs as a group of which the constituent members were difficult to distinguish. The well-known porphyry groups from Constantinople, now in Venice and the Vatican libraries (fig. 1) testify to the suppression of individual expression, and emphasise unity instead. Likewise, each of the different imperial mints issued coins showing not only the portrait of the 'residing' tetrarch, but of all four rulers, who resembled each other, though some individualised physiognomical features were recognisable. At least some of the similarities in imagery result from 'obvious difficulties encountered at the level of manufacture'.There are not many ways to distinguish 'one stubbled, short-cropped and square-headed tetrarch from another'.[4] Nor was the homogeneity of tetrarchic images absolute. There were individualising characteristics, and many depictions show a hierarchy among the rulers. The south pier of the Arch of Galerius at Thessalonikishows a sacrificing ruler in armour, doubtlessly Galerius, as distinctly superior to his peers (fig. 2). Likewise, in the now-lost frescoes from a chamber for imperial cultat the temple of Ammon at Luxor, one ruler was systematically elevated over his fellow-tetrarchs, as he was depicted as taller (on the east side of the apse, on the south wall) or holding a staff or globe (in the apse of the south wall).[5]

Fig. 2. Marble relief panel (H 1.60 m, W 2.52 m), Arch of Galerius, Thessaloniki.

These occasional differentiations aside, tetrarchic imagery was remarkably consistent. The oft-commented upon *similitudo* (similarity) between rulers is most obvious. But equally-noticeable and less commented upon is the complete absence of imperial women from coins, sculpture and the epigraphic evidence. Up to 306 not a single coin was issued depicting a female member of the imperial household (s), none of the wives of the tetrarchs were made *Augusta* up to 308, and we are not even aware of the names of the different imperial mothers, with the exception of Galerius' mother,Romula, after whom the city Felix Romuliana – in the diocese of Dacia, province of Moesia Prima – would be called.[6] Up to about 308, the tetrarchs presented themselves as neither husbands nor sons. Even Maximian's wife Eutropia, who had born him a son (Maxentius) and daughter (Fausta), was excluded from central imagery. The absence of mothers might be explained by the unremarkable ancestry of the tetrarchs (fathers, too, were excluded). But the numismatic and sculptural absence of wives and daughters was remarkable, and should be linked to the attempt to make emperorship non-dynastic. Third-century emperors of unremarkable descent emphasised the living members of their household, as is noticeable in the period immediately preceding the Tetrarchy. Carinus' wife,MagniaUrbica, was *Augusta* and visible on about 10% of all central coin types.[7]

Rather than emphasising kinship, Tetrarchs emphasised collegiate rule by referring totheir joint experience throughout the empire. Surprisingly often all emperors were honoured in inscriptions, considering that they were (almost) never together in one place. Even when we do not have all tetrarchic names inscribed, the collegiate message can regularly be traced. Werner Eck has convincingly argued that the frequently found formulation *d (evotus) n (umini) m (aiestati) q (ue) eor (um)* ('devoted to their spirit and majesty') must imply, by the explicit use of the plural *eorum* rather than singular *eius*, that a great number of statues or altars were dedicated to the emperors as a group. There may have been a similar attempt to emphasise collegiate power on milestones. None of these inscriptions include kin terms to relate the four rulers to each other. Where we do have surviving statue groups, the absence of women among the statues is again noticeable.[8]Thenotion of joint rule also became apparent through the practice to issue imperial edicts in the name of all tetrarchs (who also shared each other's victory titles), occasionally testified in papyri and in the very few remaining military diplomas, but most famously in the 'edict of maximum prices' (November 301) and the 'persecution edicts' (the first of which issued in Nicomedia in 303). The former edict includes one of the few centrally put forward kin terms: 'we, who are the parents of the human race (*parentes generis humani*)'.[9] It is noticeable that there is no reference to kinship between the tetrarchs, but an attempt to place the emperors as a group above their subjects, as metaphorical 'parents'.

After Diocletian and Maximian'sunprecedented abdication, presentation changed. It became difficult to keep kin terms out of imperial representation when succession was at stake. The old emperors needed new names. Diocletian's contemporary Lactantius writes, in his *On the Deaths of the Persecutors*, that the former emperor gave up his imperial nomenclature in his retirement at Split to become, once again, Diocles. Yet a large inscription from the baths of Diocletian at Rome, set-up between the abdication of 1 May

[4] SMITH 1997, 180–181. See on the coins especially WEISER 2006, (n.1), 209–210.

[5] ELSNER 2001, 128–129, 173–176; REES 1993, 182–187 (with pl. 4), 198–199; KUHOFF 2001, 598–632.

[6] ECK 2006, 326–327; CLAUSS 2002, 340–343.

[7] CLAES 2013, 75–77.

[8] ECK 2002, 345–346; DEPPMEYER 2008, 95–96.

[9] *Prices Edict*, pr. 7; REES 2004, 31–32, 73, 139–146. On the prices edict, CORCORAN 1996, 205–233 and KUHOFF 2001, 515–564, both with references. On the limited impact of the innovations in tetrarchic presentation on the vocabulary in papyri, see MARESCH 2006, 63–82, with 75–77 on papyri including the names of more emperors. The famous Panopolis papyri do clearly address Diocletian as 'senior Augustus'; Military diploma's: *CIL* 16, 156–157.

305 and the death of Constantius I on 25 July 306 starts a list of those in power with: *DD (omini) nn (ostri) Diocletianus et [[Maximianus]] Invicti / SenioresAugg (usti) patresImpp (eratorum) et Caess (arum)* (our lords, the invincible Diocletian and Maximian, senior *Augusti*, fathers of the emperors and Caesars). It then gives the names of the new *Augusti* (but without the adjective 'senior'), and of the two men who were their second-in-command. Towards the end of the inscription, it is noted how Maximian named the complex after 'Diocletianus Augustus, his brother (*fratrissui*)'. A military diploma from 7 January 306 names the former emperors as *patr (es) Augg (ustorum) et Caess (arum)*, and lists them after the (now) rulingemperors Constantius and Galerius, but before the Caesars. Diocletian and Maximian were (probably) the adoptive fathers of Galerius and Constantius, but the term 'father' had been noticeably absent from official nomenclature until 305. Moreover, a dedication to Diocletian by a veteran from Alexandria, dated (probably) to the same period, described the (former) emperor as 'father of the emperors' (*pater Augustorum*), although Diocletian certainly did not adopt Galerius and Constantius I Chlorus.[10] Instead, one should perhaps see the use of paternal language as an attempt to reformulate the tetrarchs' powers in familiar terms. They became the 'Emperor Fathers', comparable, perhaps, to how Elizabeth became Queen Mother when George VI died in 1952, or Joseph Ratzinger was renamed 'Pope Emeritus' in 2013. The reference to Diocletian as Maximian's brother in the inscriptions from Diocletian's Baths is also striking. When changing power relations needed to be expressed to the inhabitants of the Roman Empire, kin terms resurfaced rapidly.

3. Non-dynastic succession and dynastic rebellion

The abdication of Diocletian and Maximian caused more than the need for new names to describe emeritus emperors. Successors needed to be appointed to complete the tetrarchic system. In a massive, and oft-discussed, break with precedent Maximian and Constantius' sons (Maxentius and Constantine) wereignored when the new Caesars were selected in May 305. Both were militarily experienced sons of rulers.Maxentius had furthermore married Galerius' daughter Valeria Maximilla. The suggestion that Constantine was betrothed to Maximian's daughter Fausta in the 290's is a later fiction. Ancient (and modern) literature is divided about Constantine's status as legitimate or bastard son. Constantius, in any case, had other sons from his undoubted marriage to Maximian's (step)daughter Theodora.[11] These sons (of unknown age, but not born before 293)were also ignored, as was Galerius' bastard-son Candidianus (c. 9 years old in 305). These latter omissions could be easily explained by pointing at the children's youth and inexperience. Not so the exclusion of Maxentius and Constantine I. The former was still assumed to be the obvious heir to the throne in 289, as is clear from the panegyric held in front of Maximian at Trier in 289: 'soon will come the day that Rome see you victors, and alert at the right hand your son'.[12]

The slight will have been all the more substantial if it is true that one of the Caesars elected instead of Constantine I and Maxentius, known as Maximinus Daia, was a (close) relative of Galerius. That would have meant that kinship was not systematically used as an argument for exclusion. The evidence is, however, limited. Lactantius has Galerius describe Daia as 'a relation of mine (*meus affinis*)' and the unknown author of the *Epitome de Caesaribus* claims that he was the son of Galerius' sister. There is no evidence at all that the other new Caesar, Severus II (305–307), was related to any of the other tetrarchs.[13] The ancient evidence for the succession is, clearly, confused, complicated to interpret, and often contradictory. Two points seem to be beyond dispute. Firstly, kinship was not a deciding factor in selecting the new Caesars, though it may have been a reason for exclusion. Secondly, many authors, both at the time and afterwards, were surprised by this lack of dynastic succession.

It seems likely that other people will have shared the authors' surprise. Dynastic claims would prove to remain important. Just over a year after Diocletian's abdication, Maxentius and Constantine would be in positions of power. The omission of imperial sons turned out unsuccessful. Constantine I was proclaimed emperor by Constantius' troops after the latter's death at York in July 306, and in October 306, Maxentius took control of Rome, helped by the loyalty soldiers felt to his father, and shortly afterwards by his father too. Surprisingly enough, the apparent importance of their imperial sonship did not lead to kinship references in coins issued in the areas in which Constantine and Maxentius were in control, though '*filius*' did become part of Constantine's nomenclature. In many ways, however, both adhered (more or less) to the tetrarchic system of representation.

Constantine was in a more advantageous position than Maxentius, as the death of his father had left a vacancy. His elevation could be seen as procedurally correct. He was apparently put forward by the AugustusConstantius before his death, and then approached the surviving Augustus Galerius for inclusion in the tetrarchy.[14] The latter's hand was forced, with Constantine I in effective command of a substantial part of the empire, but Galerius could acknowledge Constantine as Caesar without imposing a problem

[10] *CIL* 6.1130 (= 31242), with p. 4326–7 (cf. *CIL* 8.8836 = *ILS* 645). The transcription of the inscription is by the Anonymous of Einsiedeln, but has been confirmed by fragments, most recently one published by CRIMI/CICOGNA 2012, 247–249; *RMD* 2, 100–101, no. 78 (military diploma); *CIL* 3. 12049 (from Alexandria); Lact.*De mort. pers.* 19.6; CAMBI 2004, 41.

[11] LEADBETTER 2009, 134–155 assumes illegitimacy, and makes that an important factor in the tetrarchs ignoring of Constantine, in his useful overview of the abdication and succession. He overplays, however, the dynastic preconditions (p. 142), by erroneously making Maximilla the granddaughter of Diocletian, although her mother was not Galeria Valeria, but Galerius' first wife (*PLRE* 574–576), and by wrongly accepting *Pan. Lat.* VI (7), 6.2 on Fausta and Constantine I: REES 2002, 168–171. BARNES 2011, 33–38 argues forcefully in favour of Constantius' acknowledgement of Constantine as his legitimate son. It is questionable to what extent Constantine's 'legitimacy' was relevant. As recently argued by CORCORAN 2012, 7, n. 27: 'he was of age, had experience and was dynastically related. What's not to like?'.

[12] *Pan.Lat.*X (2), 14.1.

[13] Lact. *De mort. pers.* 18.14; *Epit.* 40.18. See now also CORCORAN 2012, 6–7.

[14] BARNES 2011, 62–66; STEPHENSON 2009, 116–117; WIENAND 2012, 124–127.

Fig. 3. Follis (8.84 g. 28 mm.), Divus Constantius I, Lyon, 306-307. CNG 84, Lot: 1443.

on the tetrarchic system. Whether or not Constantine had aimed to become Augustus or not, and notwithstanding the importance of dynastic loyalty for his imperial acclamation, his formal presentation through coinage abided to Galerius' rules. The mints from London and Trier, which were under Constantine's control, systematically named him NOB (ILISSIMUS) CAES (AR), and issued coins for all four tetrarchs. Commemoration coins for divusConstantius were, furthermore, scarce between 305 and 307 (fig. 3), and were only issued in Lugdunum (Lyon). They became somewhat more common after 307, and were then also struck in Trier, though never in London. Even in this period, however, numbers were still relatively low; far more types had been coined fordivusCarusonly two decades earlier. This limited attention to his father's deification on Constantine's coins is striking. It should probably be explained as a decision by Constantine to cohere to tetrarchic (kinshipless) messages. Clearly, the tetrarchs did not wish to emphasise that one of their number was 'son of a god', and divusConstantius was not at all numismatic commemorated by the other tetrarchs.[15] Still, the near-ignoring of Constantine's father might have been construed at the time as a lack of piety.

Similarly, early-Constantinian inscriptions that depicted all tetrarchs excluded references to divine sonship, and listed Constantine last, as junior member of the college of emperors.Titulature was different when Constantine was the sole recipient of an inscription. On almost all of the milestones from Constantine's territory that can be dated between 306 and the end of 307 the Caesar Constantine was 'son of the deified pious Constantius (*diviConstantipiiAugustifilius*)'.

Fig. 4. Half argenteus (1.2.g), Fausta, Trier, 307. British Museum, inv. B 498.

[15] *Nobilissimus Caesar*: *RIC* 6, 127–130 nos. 40–100; 202–218 nos. 615–787. Commemoration coins: 215 n., 218 nos. 789–790, 221 no. 809 (Trier), 235, 239, 256 no. 202, 261 no. 251, 262 nos. 264–269, 264 no. 297 (Lyon); WIENAND 2012, 127–128.Carus' commemoration coins:CLAES 2013,75–76.

Between 307, when Constantine married Maximian's daughter Fausta, and 310, when Constantine fell out with his father-in-law and had him commit suicide, Constantine was furthermore systematically *nepos* (grandson) of Maximian (through the latter's adoption of Constantius) and *filius* of divusConstantius (in that order) on milestones throughout his dominion, with a majority of inscriptions from the area surrounding Arles – possibly because that was where he may have married Fausta. The consistency of terminology and its widespread use make clear that this must have been the emperor's official nomenclature. Fausta was, however, all but ignored, with only one very rare silver coin type issued with the name FAUSTANOBILISSIMAFEMINA (fig. 4).[16] The marriage to Fausta and resulting allegiance to Maximian (and his son Maxentius) changed the political situation. Constantine no longer adhered to the tetrarchic emphasis on equality, and could promote his descent without hesitation. This explains the increase in commemoration types after 307. After 310, Maximian no longer formed a useful ancestor, and Constantine's descent from Claudius Gothicus was 'discovered', as has been discussed above. Yet even before 307, divine sonship had been noticeably present on the milestones from Britain and France, even if coinage had been much less forthcoming. Different sources,it appears, put forward different messages.

Maxentius had less choice than Constantine I in the way he portrayed himself. He could not easily aspire to become a tetrarch. That would have only been possible by the exclusion of one of the existing rulers, or by becoming an additional member of a group consisting of four. The last strategy was the apparent aim of an earlier usurper, the 'British' emperor Carausius (286/287–293), who ruled Britain and northwestern Gaul whilst in control of two legions. In the years of his usurpation, of course, the only emperors were Diocletian and Maximian. Famously, admittedly rare, *antoniniani* under Carausius included a type with an obverse that showed Diocletian flanked by Maximian and Carausius and the legend CARAVSIVS ET FRATRESSVI (Carausius and his brothers) (fig. 5). The reverse proclaimed the PAX AVGGG (USTORUM) (Peace of the [three] emperors).[17]Carausius' attempted to integrate himself into a 'college of rule' through fictive kinship. He failed. By the time Maxentius took power, the tetrarchic system had been established for longer, and taken on a more fixed form. It was unlikely that Maxentius would succeed where Carausius had not.

Maxentius' coinage did use the curious title *princepsinvictus* in the first months of his reign. There have been various explanations for this extraordinary nomenclature, ranging from ambiguity to allow later inclusion in the tetrarchy, to purposeful exclusion from tetrarchic names to rise above the other rulers, or even a 'stop-gap title', awaiting bestowal of

[16] GRÜNEWALD 1990, 25, 33–36. References to tetrarchs as a group: 185–186 nos. 31, 35Constantine I alone on milestones from 306–307: 181–182 nos. 5, 6, 12, 14; 184–185 nos. 21, 23, 31; 186–188 nos. 35, 41, 46–49; 190 nos. 63, 65; 192–193 nos. 79–80. Milestones from 307–312: 184no 22; 186–190 nos. 36–40, 42–45, 50–57, 59–60, 64; 193 no. 82. The location of Arles for the wedding has been hotly disputed: REES 2002, 166 with references. Fausta's coin type: *RIC* 6, 216 no. 756.

[17] *RIC* 5.2, 550 no. 1. Cf. *RIC*5.2, 465 nos. 20–21, 476 nos. 139–145 and especially 551–552 nos. 3–16 for Carausius' attempts to be portrayed as one of three legitimate emperors.

Fig. 5. Antoninianus, (4.16 g), Carausius, Diocletian and Maximianus, Colchester (Camulodunum), c. 292-293. Triton VI, lot 1074.

proper emperorship by Maximian, once the latter had come out of retirement and joined his son.[18] An attempt to aim at collegiate rule seems implied by the reverse legend AVGG (VSTORVM) ET CAESS (ARVM)NN (OSTRORVM) ('of our emperors and caesars') on coin types from the mints of Rome and Carthage, which were under Maxentius' control. As Mats Cullhed pointed out twenty years ago, however, Galerius (and indeed Severus II, whose territory Maxentius claimed) were noticeably absent from these very coin types. Instead, Maxentius, Maximian, Constantine I and Maximinus appeared on coins, the last name only for a short while.[19] The exclusion from Galerius was all the more notable as he was Maxentius' father-in-law. Maxentius' and Valeria Maximilla's son Romulus even held a family name, as he was named after Galerius' mother,Romula.[20] None of these women appeared on Maxentius' coinage, nor was his own descent from Maximian made visible. The visual language on Maxentius' coins, then, stayed fairly close to that of the tetrarchs, with the exclusion of women, and claims of cooperative rule.

Allowing his father to return to a position of power could have been portrayed as an action of filial piety by Maxentius, but there is no evidence that it ever was. Rather, it appears that in the period in which Maxentius and his father jointly ruled Rome, they tried to gain the aid from other tetrarchs to get rid of Galerius and Severus II, and be included in the system instead. The marriage of Constantine to Fausta, as earlier tetrarchic marriage links, would have been a step in the construction of this new college of rule. After 307, Constantine I recognised the imperial claims of his father-in-law. In this period, coins and inscription communicate through tetrarchic language. In April 308, Maxentius and his father fell out. In November of the same year, the so-called conference at Carnuntum re-established Maximian's retirement (and position as honorary 'senior Augustus'). Alongside Galerius, Maximinus Daia and Constantine I, LiciniusI was elevated to the throne – again someone without kinship connection to the other members of the group of emperors. Maxentius was clearly excluded from shared rule. Maximian tried to establish himself at the court of Constantine I for a while, before he was forced to commit suicide in 310. The pressure exerted by Constantine's and Maximian's claims probably explains the extraordinary testimonies to a new title 'son of the emperors (*filiusAugustorum*)'. It can be found on inscription from the eastern part of the empire. Galerius apparently tried to find adequate formulations to respond to Constantine and Maximian, creating a rank between 'emperor' and 'Caesar'. The absence of western parallels shows it was rejected. It is, however, striking that kin terms were now thought appropriate.[21]

Unfortunately, coin types from Rome and Ostia cannot be sufficiently closely dated to systematically differentiate between Maxentius' numismatic imagery between April 308, the summer of 310 (when Maximian died), and Maxentius' ultimate defeat at the hands of Constantine in October 312. Yet there seem to be no kinship references until after 310. Instead, shortly after the dramatic end of the co-operation between father and son, Maxentius' own son Romulus was brought to the fore in other media. He was made a first-time consul on the 20th April 308, and the following day (Rome's birthday) saw the dedication of a statue to Mars in the Forum Romanum. An inscription on the base of this statue explicitly honoured *Mars pater*, and Wrede has convincingly argued that on the sides of the base there were reliefs showing Mars with Romulus and Remus, and Maxentius with *his* Romulus. The base contrasts with the stylistically and topographically closely connected*decennalia*monument in the Forum, erected by the tetrarchs in November 303, the imagery of which excluded Maxentius. It is tempting to also link it to numismatical attention to Mars in the period between Maximian's break with his son and his death. After the break with his father, Maxentius seems to have put forward his prospective lineage – though the evidence is meager, and Romulus was not portrayed on coinage until after his death and consecration in 309. The dominance of Mars on Maxentius' coinage between 308 and 310 fits his much-discussed ideological emphasis on Rome, and shows a break with the earlier and later emphasis on Hercules on Maxentian coinage.[22]

It appears that while Maximian and Maxentius co-ruled Rome, they abided to tetrarchic forms of communication, excluding references to Maximian as Maxentius' father. During the years in which father and sonwere at odds, Maxentius' son started to feature. Only after Maximian's death in 310 would divus Maximianus appear on the coinage of Rome, with an explicit kin-legend that made him DIVVS MAXIMIANVS PATER. He was accompanied in 311 by Galerius, who was honoured as DIVVS MAXIMIANVS SOCERVS (deified father-in-law Maximian [= Galerius]). Divus Constantius had already been honoured between 307 and (probably) 310 on a coin type from Aquileia that copied Constantine's post-307 commemoration types. After 310, he was explicitly included in the series that presented Maxentius' descent from divi, with the unique legends DIVVS CONSTANTIVS COGNATVS and DIVVS CONSTANTIVS ADFINIS. It must have been important for Maxentius to include Constantius in his family: *Adfinis*(or *affinis*) means 'related by marriage', but is

[18] CULLHED 1994, 32–44, with references to earlier literature.
[19] *RIC* 6, 367–369 nos. 137–140, 147–148, 370–371 nos. 158–161; 431 nos. 50–51; CULLHED 1994, 36–39.
[20] Aur. Vict. *Epitome*, 40.16; Lact. *Mort. Pers.* 9.9; *PLRE* I, 770.
[21] On Carnuntum: LEADBETTER 2009, 200–205 and KUHOFF 2001, 826–840, both with references. On *filiusAugustorum*: STEFAN 2004, 273–291,STEFAN 2005, 169–204, with references to and discussion of the documentary evidence. See esp. 183–195 for a chronological reconstruction linking events and titles.Cf. CORCORAN 2012, 12–14.
[22] *CIL* 6.33856;WREDE 1981, 120–138 (decennalia monument) and 139–141 (Mars statue); HEKSTER 1999, 726–727, 731–732, with references.

mainly used to describe a relation between a son and father-in-law. Still, Constantius was the father-in-law of Maxentius' sister Fausta, and his wife Theodora was the daughter or (more probably) stepdaughter of Maximian. The term *cognatus*, however, created a fiction. It might be translated as 'kindred', but emphatically describes those related by blood. After his death, the deified Constantius was made closer kin than he really was.[23] The first of what could be called a family of *divi* will have been Maxentius' son Romulus, whose death occurred in 309. A dedication to Romulus' memory from sometime after mid-311 suggests extended kinship claims were not limited to coins. Divus Romulus is son of 'our lord Maxentius', and grandson (*nepos*) of 'divus Maximianus senior' and 'divus Maximianus iunior [Galerius]'.[24] The living tetrarchs were all excluded from this new network of kinship, including Maxentius' brother-in-law Constantine. The series of coin types might be usefully compared with Decius' much-earlier divi series, with the massive difference that where Decius suggested continuity, Maxentius claimed kinship. It will not be a coincidence that these same years saw the promulgation of Constantine's descent from Claudius Gothicus.

The abandonment of non-dynastic imagery from the part of 'dynastic rebels' against the tetrarchic system showed the limits of a representation of emperorship that excluded kinship. The 'official' Tetrarchs followed suit. Just before the

Fig. 6. Follis (7.47 g.), Galeria Valeria, Alexandria, 308-310. CNG 61, Lot: 2062.

Carnuntum conference, Galerius' wife Galeria Valeria was made *Augusta*. Even Galerius, in a time at which the Tetrarchy was formally reconstituted by including yet another non-kinsman, recognised the importance of an emperor's family. Valeria's title is epigraphically attested, and her portrait was depicted on coins (fig. 6)by the mints of Serdica, Siscia, Thessalonica, Nicomedia,Antioch and Alexandria, systematically linked to Venus Victrix (as Fausta had been in the one coin type in her honour). Valeria's prominence preceded the conference, as the mint from Serdica was closed following decisions made at Carnuntum, and some of the Nicomedia issues also predate the meeting at Carnuntum. Within the same groups of coins that include Valeria, Constantine is referred to as Fil(ivs) Avg(vsti), in a clear break with the absence of kinship references in earlier tetrarchic coinage, and indeed almost all imperial coinage of the previous century. We have already seen how the title *filius Augustorum* can also be dated to approximately the same years.[25] Within the space of a few years, then, Maxentius created a family of divi, Constantine constructed fictive lineage back to Claudius Gothicus, and Galerius included references to his wife and kinship legends on coins that further showed the depleted number of tetrarchic colleagues. Apparently, non-dynastic emperorship had proved insufficient.

[23] *RIC* 6, 382 nos. 246-257 (Rome), 404 nos. 24-34 (Ostia); CULLHED 1994, 77-78, without reference to the incorrect use of Cognatus. See already MACCORMACK 1981, 112-114.

[24] *CIL* 6.1138 (= *ILS* 673), *CIL* 6.8.2, 4327-4328.

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[25] Valeria: *ILS* 8932; *IGR* 4.1562; *RIC* 6, 478 no. 196, 479-480 nos. 204, 210-211 (Siscia); 499 nos. 32-34, 500 nos. 41-43 (Serdica); 513-514 nos. 29, 33-36; 515-516 (*notes*), (Thessalonica); 548 , 560 no. 47, 562 nos. 53, 57-58 (Nicomedia); 626-629, nos. 80, 84, 91, 98, 631-633 nos. 107, 115, 121, 637 no. 13, 639 no. 151 (Antioch); 673-675 nos. 67, 74, 81, 677 nos. 95, 98, 679-680 nos. 110, 122, 128-129 (Alexandria); LEADBETTER 2009, 205, 215 n. 212. Constantine I: *RIC* 6, 562-563 nos. 56, 61(Nicomedia); 631-632 nos. 104-105, 111 (Antioch); 678-679 nos. 99b, 100b, 113-117. These same years also saw a change in Galerius' use of victory titles, emphasising his seniority in the newly defined imperial college: CORCORAN 2006, 231-235.

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ARCHAEOLOGICAL MATERIAL

RETURNED FOOT EXTERIOR CHORD BROOCHES MADE OF A SINGLE METAL PIECE (TYPE ALMGREN 158) RECENTLY DISCOVERED IN THE WESTERN PLAIN OF ROMANIA. NOTES ON ORIGIN AND CHRONOLOGY[1]

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Abstract: This study, without aiming at exhaustiveness, attempts, based on returned foot exterior chord brooches made of a single metal pieces (type Almgren 158) discovered in 2010 following the rescue archaeological excavations performed as a result of the construction of the Arad-Timișoara Highway, respectively section Arad-Seceani, in a series of Sarmatian graves of the cemetery investigated at Hunedoara Timișană, Șagu commune, Arad county, to analyse the brooches in this type discovered in the western territories of Romania.

The author examines the four specimens at Hunedoara Timișană within a broader context and concludes that similar brooches in both the Barbarian and Roman environments, where they are imports, date mainly to the chronological interval comprised between the last two decades of the 2nd c. – early 4th c. AD (stages C1a-C2).

The analysis of the graves in the cemetery showed that the graves where returned foot exterior chord brooches were found date sometime in the chronological interval comprised between the end of the 2nd c. AD and the third quarter of the 3rd c. AD. Moreover, the author notes that the distribution area of this brooch type is mainly the Barbarian world of German origin (the Przeworsk culture environment) or that in constant contact with the latter. Based on the analysis of the distribution area of the Almgren 158 type brooches it was concluded they originate in the Przeworsk culture environment from where they disseminated in the neighbouring south and south-east cultural environments. Last but not least, the author reaches the conclusion that brooches of the type were assumed by the Sarmatians in the Pannonian Plain from the German populations (most likely the Vandals) living in the northern vicinity of the area they inhabited. Another conclusion is that such returned foot exterior chord brooches are lacking from the north and north-west Pontic areas, including the Chernyakhov area. Finally, the author argues that returned foot exterior chord brooches are artifacts that evidence, beside other categories of German origin artifacts (for instance the

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headknob brooches, exterior chord and solid catchplate), the existence of contacts and cultural and economic interferences between various populations from territories in the east of Central Europe, accurately defining the movement direction of German population groups starting with the last third of the 2nd c. AD (C1a), in the Marcomannic wars' aftermath as well as the role they played in this region during the 2nd – 4th c. AD.
Based on above brooches and other artifact categories in the graves at Hunedoara Timișană, the author concludes the cemetery dates to the chronological interval comprised between the end of the 2nd c. and the third quarter of the 3rd c. AD.
Keywords: brooches, graves, the Vandals, the Germans, Dacia, Przeworsk, *Barbaricum*, the Pannonian Plain

During the summer of 2010, in occasion of the rescue archaeological excavations following the construction of the Arad-Timișoara highway, respectively the section Arad-Seceani[2], several archaeological sites and assemblages, among which also site B0_7-B0_8, were investigated. The surface research of the latter yielded 17 inhumation graves[3], three of which (G 7, G 12, G 14) comprised among the funerary goods also brooches with returned foot and exterior chord made of a single metal piece.

The surface where the graves were discovered lies on an extended terrace, relatively flat, oriented north-south on the long axis. The terrace is located south-west Hunedoara Timișană village, delimited by a valley on the southern side slope base. It spreads on the left side of the stoned commune road Șagu-Hunedoara Timișană, at approximately 300 m east**.** In direct line, the site lies at ca. 2.5 km south the village Șagu and at ca. 1 km west the south-western limit of Hunedoara Timișană village, Șagu commune (Fig. 6).

In the southern part of the perimeter crossed by the highway route were also investigated 17 archaeological assemblages represented mainly by storage pits, later converted into refuse pits. They also included two domed kilns and two irregularly shaped buildings, most likely designed for household activities. On the same surface were identified and researched two perpendicular ditches, oriented NV-SE, located at a distance of 9.90 m one from the other. These archaeological assemblages are most likely a small portion of the south-eastern side of the settlement, whose centre was west the route of the future highway[4].

[2] Cf. BÂRCĂ et alii 2011, 187–192. The investigated surface lies on the Arad-Timișoara highway between kilometres 23+170–23+690.

[3] The identified graves form a small cemetery related to the settlement whose nucleus was west the highway route. 15 of the discovered and researched graves clustered on a surface 80 m long and 28 and 45 m width. This definitely evidences the northern and southern sides of the cemetery. Two of the graves were discovered in the eastern edge of the surface and other 3 in the western part, so one may suppose that eastwards and westwards, outside the limits of the investigated surface, other graves may be found. The other two graves were found at 145–165 m distance south the rest of the graves.

[4] Following the checks performed on the soil surface, we noted the existence of a settlement west the axis of the current highway. Isolate, were found potshards also east the highway route. In addition, it was noted that the nucleus and most part of the settlement was at ca. 100/150 m west the highway route. A significant quantity of handmade and wheel-thrown pots, fragments of a tuff grinder, adobe pieces and animal bones were collected from there.

A first returned foot exterior chord brooch is part of grave 7, whose funerary pit was rectangular with rounded corners, oriented NNV–SSE. The accurate position of the skeleton cannot be specified though due to the few identified bone remains. The skeleton preserved anatomically the skull and the spine. This suggests that the deceased was placed lying on the back with the head towards NNV.

The grave goods consisted of a silver collar, two ring-shaped silver earrings, a few fragments of an iron object, strongly corroded, a fragmentary iron loop, a cylinder-shaped iron object, preserved fragmentarily and a large number of beads to which adds the bronze brooch, preserved fragmentarily, made of a single metal piece, with an arched bow, flat rectangular in section, while the partially preserved foot was returned and wound to the bow. The spring made of several coils and the chord did not survive. Preserved length – 3.6 cm (Fig. 1/1, 5/2).

The second returned foot exterior chord brooch comes from grave 12. The grave pit, rectangular with rounded corners, was oriented NNV–SSE. The skeleton did not preserve. In the northern part of the grave were identified a few bone fragments of the skull and human teeth. This evidences that the dead was placed in the grave with the head oriented NNV.

The grave inventory was composed of a wheel-made cup and a bronze fragmentary brooch made of a single metal piece, with the bilateral spring formed of 6 coils and exterior chord. The brooch body, circular in section, is arched, and the foot is slightly flattened. The lower part of the foot, which no longer preserved, was returned and wound to bow. Preserved length – 4.1 cm (Fig. 1/2, 5/1).

A third returned foot brooch comes from the inventory of grave 14. The grave pit, rectangular with rounded corners, was oriented NNV–SSE and was 1.60 m long and 0.51–0.57 m wide. The skeleton did not survive. In the central part of the grave, were identified a few human teeth, which evidences that the dead was placed in the grave with the head towards NNV.

The identified funerary inventory consists of two silver fragmentary earrings, a bronze ring bracelet, several amber and various glass coloured beads, a wheel-made cup, to which adds the bronze brooch. The latter was made of a single metal piece, with the bilateral spring made of 4 coils and exterior chord. The brooch body is strongly arched, being semicircular in section, while the returned foot is wound to the bow. Length – 6.1 cm (Fig. 2/1, 5/4).

Another returned foot exterior chord brooch was found beside a handmade cup at ca. 3 m east grave 14 and ca. 3–4 m south the Early Medieval house (Cx. 16). Following the archaeological investigations, it was noted that the two items come from a grave damaged once with the house construction. Evidence to this effect is also provided by the fact that in the earth around the brooch were also discovered small human bone fragments. The brooch, preserved fragmentarily, is made of a single metal piece and has the bilateral spring, partially preserved, formed of 4 coils and exterior chord. The brooch body is arched and is rectangular-oval in section, while the fragmentarily preserved foot was returned and wound to the bow. Preserved length – 5.9 cm (Fig. 2/2, 5/3).

* * *

During the last three decades, numerous studies were published in the specialty literature examining, often in the broader context of the brooch typologies in the Roman or Barbarian environments, the returned foot brooches (type Almgren 158), like the specimens made of a single metal piece in the cemetery at Hunedoara Timișană. Beside the recent finds in the Barbarian environment, including that Sarmatian, from the eastern part of Central Europe, they provide today the opportunity for new contributions and a series of significant notes regarding the brooches belonging to this type[5]. Although such type brooches drew, over time, the attention of many researchers, today, similarly to the period when their investigation started, a series of technological and constructional aspects decisive for an accurate typological framing are disregarded when analysed, thus negatively impacting both the establishment of their origin and cultural assignment and a more precise chronological framing[6].

The fastening of the brooches in this type is by bilateral spring, commonly made of 4–8 revolutions set simply and exterior chord. Their body is most often strongly curved, round, rectangular, slightly square or semicircular in section. The head is incorporated in the terminal part of the body, and the foot, short in relation to the body length, is returned forming a semicircular catchplate, which wounds on the lower body part by several coils. These brooches are made of one or several pieces[7], the bronze being most often the metal used in their production, yet there are also silver and iron specimens.

The research of the Sarmatian cemetery at Hunedoara Timișană (Șagu commune, Arad county) beside other settlements and cemeteries (for instance Giarmata (Timiș county), Nădlac (Arad county), Arad etc.), discovered and investigated in the last years due to the rescue archaeological research performed following the construction of a new road infrastructure in the west and south-west of Romania, significantly contributes in both clarifying the historical realities in this region as well as the more accurate establishment of certain chronological aspects, key for this area outside the province of Dacia, which belonged to the Barbarian world. Evidently, among the archaeological materials discovered in a series of graves, the brooches, including those with returned foot and exterior chord made of a single metal piece play an important role, as we shall see below[8].

* * *

For the first time, a typology of the brooches with returned foot was drafted by Oscar Almgren in his work of 1897[9], later republished in 1923[10]. Although the proposed classification is rather simplistic and lacks clarity, due to the state of the archaeological research of the period, it was and still is the starting point in the research of such brooches framed in group VI[11]. The Swedish researcher divided the brooches in this group into two subgroups. To the first are assigned the specimens with returned foot and to the second, the specimens deriving from those with returned foot. The brooches in the first subgroup are divided into two variants. The first variant includes items made of a single metal piece with exterior chord, while the second comprises brooches made of several metal pieces. O. Almgren mentioned that their origin is unclear, yet noted that similar brooches belonging to the first variant are missing from territories in south Russia (the north-Pontic area)[12].

During the interwar period, an analysis of the returned foot brooches discovered in Hungary and Transylvania was made by Georg Müller[13]. The author's typology is based on their production technique, separating specimens made of a single metal piece from those made of two metal pieces as well as depending on the exterior or interior position of the chord[14]. The author also argues that the returned foot brooches, wound to the bow, emerged after ca. 150 years of Roman control all over the areas inhabited by the Celts, as a result of the revival of the ancient traditions[15].

In the same year when G. Müller's study was published, an ample study dedicated to the Roman remains discovered in the Hungarian Plain (Alföld), was issued by the Hungarian researcher, Mihály Párducz. The author also analyses the returned foot brooches, framing them in a first group identified in the investigated area, arguing they originate in Russia[16].

A few years after the two studies, an analysis of the returned foot brooches was made by Ilona Kovrig, who, in her work dedicated to the brooches in Pannonia, mentions a series of items that belong to type Almgren 158[17], listing a series of analogies in the Sarmatian environment of the Pannonian Plain[18]. Based on aspects specific to these brooches, the author concludes they originate in the Celtic world of the La Tène period[19].

The discussion on the returned foot brooches is resumed, at a few years distance, by Erzsébet Patek, in the monograph dedicated to the brooches in Pannonia[20]. The author analyses the brooches in this type which she considers specific to the Sarmatian world, also noting their large numbers in the German world[21].

[5] After the completion and submission for printing of this study, an article discussing the returned foot outside chord brooches belonging to type Almgren 158 and 166 from the western Romania, drafted by S. Cociș, has been published within Archäologische Beiträge – Gedenkschrift zun hundertsten Geburtstag von Kurt Horedt, Cluj-Napoca, 2014.

[6] An example to this effect is the fact that often, when such brooches are published, the chord position is disregarded. Also, some researchers ignore a series of aspects (size, foot width, coil number, whether the body is decorated or not or whether they are made of a single or two pieces) defining for both the typological and chronological framings.

[7] They are made of two elements, respectively the proper brooch, made of a metal piece and separately, the spring.

[8] We thank this way our colleague dr. Sorin Cociș (Institute of Archaeology and Art History of Cluj-Napoca) for the mentioned bibliography, as well as for the discussions based on the brooches in this type.

[9] ALMGREN 1897.

[10] ALMGREN 1923.

[11] ALMGREN 1923, 71–75, group VI.

[12] ALMGREN 1897, 75; ALMGREN 1923, 75.

[13] MÜLLER 1931, 56–76.

[14] For those with exterior chord see MÜLLER 1931, 58–59, 64–65, Pl. I, framed in group I of returned foot brooches.

[15] MÜLLER 1931, 57, 69–71. The emergence of these brooches in the Danube provinces on the basis of those from the La Tène period was mentioned by O. Tischler (apud AMBROZ 1966, 58).

[16] PÁRDUCZ 1931,144, 167, Pl. XIII/3–18.

[17] Cf. KOVRIG 1937, 122–123.

[18] Cf. KOVRIG 1937, 122–123.

[19] KOVRIG 1937, 122–123.

[20] PATEK 1942.

[21] PATEK 1942, 138, Pl. XXVI/1–2, 16.

In 1948, Bedřich Svoboda and Jan Filip argue such brooches emerged in south the former USSR during the 1st c. AD, receiving a body curve according to the "soldierly" brooch model, from where they entered during the 2nd c. AD, via the province of Dacia, Pannonia and from there, on the trade route, Moravia, Slovakia and Poland[22]. The north-Pontic origin of these brooches was also suggested by Jósef Kostrzewski, who argued that in Poland, they were brought by the Goths[23].

The returned foot brooches were also discussed in the monographs dedicated to the Sarmatian finds in Hungary issued by Mihály Párducz. The author states they are of local origin and terms them ("ungarische Typ")[24], maintaining their emergence in the Sarmatian Iazyges environment approximately between AD 180–220 and their massive diffusion after AD 260–270[25].

A local development of these brooches in the Pannonian Plain, based on those with returned triangular foot and exterior chord specific to the north-Pontic area, brought by the Sarmatians arriving from the north of the Black Sea, was argued in 1961 by Jiří Zeman[26].

Special attention was granted to the returned foot brooches by researcher Titus Kolnik. Within his study of 1965, the author analysed a significant number of such brooches discovered on the current territories of Hungary, the Czech Republic, Slovakia and Poland[27]. Following the author's investigations, he concludes that the discussed items date to the chronological interval comprised between the end of the 2nd c. AD and the end of the 3rd c. AD, without though excluding the possibility that certain variants remained in use also in the 4th c. AD. In what these brooches are concerned, the Slovakian researcher agreed with the view of the north-Pontic origin, without though excluding their development in the Central-European area[28].

A year later, in the monograph dedicated to the brooches in the territories south the European part of the former USSR, A. K. Ambroz proposes a classification of the returned foot brooches in this part of Europe based on morphological and technological aspects. The author frames the brooches made of a single metal piece with exterior chord on the territory of the former USSR in group 16, subgroup 1. Within the subgroup, the author establishes two series: 1. the Upper Dnieper area series; 2. Central-European series. Within the second series, the author identifies three variants[29]. The author mentions that the brooches in the Central-European series, vary in proportions, having different body shapes in section, the spring being regularly short and the chord usually exterior[30].

In variant 1, the author includes the specimens bent asymmetrically with round body in section, and in the second those asymmetrical with semicircular, rectangular and circular body in section, often facetted. In variant 3 are included the items which large foot and body in the shape of a stripe, often facetted and engraved. Chronologically, the items in the first variant were dated to the end of the 2nd c. – 3rd c. AD, rarely also in the 4th c. AD, those belonging to variant 2 by the end of the 3rd c. – 4th c. AD, while the specimens in variant 3 in the second and third quarter of the 5th c. AD. One must notice yet that the dating proposed by A. K. Ambroz for these brooches made of a single metal piece with exterior chord relies on analogies and dating proposed for such items in the Central-European territory.

In what the distribution area for these brooches is concerned, A. K. Ambroz concluded it mainly comprises the territories inhabited by the German populations, the Sarmatian Iazyges in the Tisza-Danube interfluve, Pannonia where they reached via the Germans and the Sarmatians, mentioning they are foreign to the space in the north of the Black Sea and lack from the province of Dacia and lower Vistula region[31]. The author maintains that chronologically, they date to the chronological interval comprised between the end of the 2nd c. – the 3rd–4th centuries AD, occasionally until the end of the 5th c. AD[32].

The finds of brooches with returned foot and exterior chord made of a single metal piece in the Upper Dnieper region, assigned to the first series in subgroup 1 of group 16 dating to the 1st c. AD[33], synchronous with those with returned foot wound to the bow made of a single metal piece, bilateral spring made of four coils and exterior chord and characterised by the same thickness of the bow and foot[34], made A. K. Ambroz assert they originate in the Upper Dnieper area from where they entered the Przeworsk culture environment shortly after becoming one of the main forms[35]. From the Przeworsk environment they were borrowed by the Germans inhabiting the current territories of the Czech Republic and Slovakia but also by the Sarmatians in the eastern part of the Pannonian Plain[36]. Last but not least, the same author argues they are all historical evidence for the active role played by the Przeworsk culture bearers in the life of the Central-European territories as well as the close relations they had with the Sarmatian Iayzges and the inhabitants on the current territory of the Czech Republic and Slovakia[37].

A few years later, within an ample monograph for the Roman period brooches in Moravia, the Czech researcher Ivan Peškař analyses in detail a significant number of returned foot brooches with exterior chord made of a single metal piece that belong to type Almgren 158[38]. Upon such analysis but also that of the assemblages where they were discovered, the author concludes they frame in the chronological interval comprised between early 3rd century and first half of the 4th century AD.[39]

[22] SVOBODA 1948, 114–118; FILIP 1948, 300.
[23] KOSTRZEWSKI 1955, 250. These brooches are deemed as north-Pontic imports also by K. Majewski (MAJEWSKI 1960, 45), who also mentioned that for the lack of clear criteria it is hard to divide Pontic imports from local copies.
[24] PÁRDUCZ 1941, 69; PÁRDUCZ 1942, 40, 81; PÁRDUCZ 1956, 160.
[25] PÁRDUCZ 1956, 160–161.
[26] ZEMAN 1961, 183–188.
[27] KOLNÍK 1965, 202–204, 206–210, 233–234.
[28] KOLNÍK 1965, 233–234.
[29] AMBROZ 1966, 57, 58–59, Fig 3/1–10.
[30] AMBROZ 1966, 58.
[31] AMBROZ 1966, 58.
[32] AMBROZ 1966, 58.
[33] AMBROZ 1966, 57–58, Pl. 11/1–3, 23/1, 1.
[34] They belong to group 15, series 1, variant 1 of brooches in A. K. Ambroz's classification (Cf. AMBROZ 1966, 47–49, Pl 9/1–5, 22/1).
[35] AMBROZ 1966, 58.
[36] AMBROZ 1966, 58.
[37] AMBROZ 1966, 58.
[38] Cf. PEŠKAŘ 1972, 110–113, Pl. 21–30.
[39] PEŠKAŘ 1972, 110–113.

These brooches and their permanent use as significant dating elements for the chronological framing of the remains in the Central-European area are discussed by the famous researcher Kazimierz Godłowski in almost all of his works tackling chronological issues of the Roman period of the first centuries AD in this part of Europe[40].

An analysis of these brooches coming from the Przeworsk culture environment, based on grave finds within two cemeteries, was made by Roman Kenk[41]. Starting from finds in the Przeworsk area, the author analysed, within a broader framework, the finds known at that date in Europe. R. Kenk concluded that the origin of this brooch type is found in the Barbarian environment from the eastern part of Central Europe, respectively the Sarmatian Iazyges world on the current territory of Hungary and in the Przeworsk culture area[42]. Based on the association within assemblages of the returned foot exterior chord brooches made of a single metal piece with other brooch types and artifacts, which are good dating elements, R. Kenk dated the discussed brooches, including those in type Almgren 158, to the chronological interval comprised between AD 180–250[43].

Two years later, discussions on the returned foot brooches made of a single piece from Central Europe, were resumed by the Polish scholar Jerzy Szydłowski[44]. Within his study, the author analyses in detail the returned foot brooches on the territory of Austria but also a series of aspects related to the origin and emergence of these brooches in the Central-European area. Based on finds of such brooches in Central Europe, J. Szydłowski noted that in the Przeworsk culture environment, their numbers is extremely high. Such archaeological reality makes the same author conclude that their origin must be sought in the Przeworsk culture area, yet mentions that a rather large number of brooches with returned foot also exist in the Sarmatian environment of the Pannonian Plain[45].

An analysis of the returned foot brooches made of a single metal piece was carried out for the finds in the Sarmatian environment on the territory of Szolnok county (Hungary) by Andrea Vaday[46]. Without emphasis on the renowned Hungarian researcher's views, we only mention that A. Vaday dates these brooches to the second half of the 2nd c. – 3rd c. AD[47].

The Czech researcher Jaroslav Tejral also examined the returned foot brooches belonging to different variants, who, in most of his studies dedicated to the issues in this part of Europe during the 2nd–4th/5th centuries AD, approaches or uses for a series of chronological framings, this brooch category, including those in type Almgren 158[48].

A punctual and pertinent approach of the returned foot exterior chord brooches belonging to types Almgren 158 and 166 coming from the Upper Tisza area was made by the Ukrainian researcher Vyacheslav Kotigoroshko[49]. Based on specimens made of silver, bronze and iron, known at that date by the author in the region under analysis, V. Kotigoroshko proposed, based on morphological criteria, the division of these brooches into five distinct variants.

The specimens in the first variant (A), according to the author, are characterised by round section and curved semicircular bow[50], variant B by round section, bow curved in knee shape and facetted foot[51], variant C by semicircular section, asymmetrical curved bow and wider foot[52], variant D by massiveness, flat, polished, wide and asymmetrically bent bow[53], and the last variant (E) by bow and foot decoration and knobbed foot[54]. Chronologically, they date to stage C1 (variant A), stage C2 – mid 4th century AD (variant B), stage C2 (variant C), stage C2 – early stage C3 (variant D) and to stage C1b those framed in variant E represented by Almgren 166 brooches.

For the southern region in west Ukraine (Transcarpathia) a significant contribution to the study of the returned foot exterior chord brooches (type Almgren 158) was made by researcher Liana V. Vakulenko[55]. The author repertories these brooches in the region and updates existent information in the specialty literature. Upon the analysis of the find contexts, the Ukrainian researcher notes that in Transcarpath, two groups of such brooches may be distinguished. The first group is dated to the end of the 2nd c. – early 3rd c. AD (stage C1a) and the second to the second half of the 4th c. AD[56]. Based on the association with other materials, the returned foot exterior chord brooches made of a single metal piece were dated at Solončy to the second half of the 4th c. – early 5th c. AD (C3/D1)[57]. Following her approach, L. V. Vakulenko supports the German origin of the brooches of type Almgren 158 and asserts that in the southern part of the territories in west Ukraine, alike the most part of the Central-European area, they were spread by the German populations[58].

For finds of returned foot brooches made of a single or two metal pieces with interior or exterior chord coming from the territory of the province of Dacia we should mention the work of the Cluj researcher Sorin Cociș[59]. The extremely high number of the specimens made of two pieces on the territory of Dacia made S. Cociș conclude they originated there, being exported to the entire Roman world but also beyond its borders[60]. In what the specimens made of a single piece with exterior chord and framing to type Almgren 158 are concerned, the same author sub-classified them according to the execution system, chord position and body section, in two sub-variants (type 37a1c and 37a3c)[61] termed, beside those

[40] GODŁOWSKI 1970,19–20, Pl. II/4–6; GODŁOWSKI 1992, 27, Pl. 13/2, 7; GODŁOWSKI 1992a,30–31, Fig. 13/1–2, 3; GODŁOWSKI 1993,78–79; GODŁOWSKI 2000, 68–86.
[41] KENK 1977, 318–329.
[42] KENK 1977, 326.
[43] KENK 1977, 370–373.
[44] SZYDŁOWSKI 1979, 21–29.
[45] SZYDŁOWSKI 1979, 25–28.
[46] VADAY 1989, 86–87, Pl. 15/1–14.
[47] VADAY 1989,87.
[48] TEJRAL 1988; TEJRAL 1992; TEJRAL 1999, 200–204; TEJRAL 2011.
[49] KOTIGOROŠKO 1995, 155–156.
[50] KOTIGOROŠKO 1995, 156, Pl. 125/13.
[51] KOTIGOROŠKO 1995, Pl. 125/38.
[52] KOTIGOROŠKO 1995, 156, Fig. 103/1, 105/17.
[53] KOTIGOROŠKO 1995, 156, Fig. 103/3–5, 125/32.
[54] KOTIGOROŠKO 1995, 156, Fig. 125/21.
[55] Cf. VAKULENKO 1998, 241–247.
[56] VAKULENKO 1998, 246.
[57] VAKULENKO 1998, 242–245, Fig. 2/2, 4, 6, 7.
[58] VAKULENKO 1998, 246.
[59] COCIȘ 2004, 142–147.
[60] COCIȘ 2004, 146–147.
[61] COCIȘ 2004, 142, 143.

of type 37a5g and 37a8, the "Barbarian type"[62]. Without further emphasis on the author's views, we only wish to mention that S. Cociș dates these brooches from Dacia to the 3rd c. AD and argues they were produced at Porolissum[63].

Last but not least, we should mention within this brief historiographical dissertation the work of the Polish researcher Magdalena Maczyńska, author of some complex studies on the brooches in the Przeworsk culture area, wherein the returned foot exterior chord brooches made of a single metal piece are also approached[64]. In 2011, the same researcher resumes the discussion concerning these brooches[65] in the work dedicated to the deposit at Łubiana (north Poland). Based on body and foot specificities, the author establishes a series of sub-variants[66]. Based on their analysis and the examination of the find contexts, the scholar dates the Almgren 158 brooches to stages C1a-D1 (AD 180–410) in the Central-European chronology.

* * *

As noted from the above, the returned foot wound to the bow brooches made of a single metal piece, with bilateral spring and exterior chord belonging to type 158 in O. Almgren's classification, enjoyed over the years the attention of a large number of scholars. Although their number in Central-European territories is rather impressive, today, alike the early 20th century, there is neither an ample study setting up a detailed typology nor a synthesis establishing their chronology.

Moreover, there is no consensus either in connection to their origin and implicitly the centres where they were primarily produced. Most often, in the establishment of their origin was considered the state of knowledge at the date of the work's issue, other times though, when origin was established, a series of national ideological aspects and interests also counted.

Although O. Almgren mentioned their origin is unclear and noted that similar brooches lacked from territories in south Russia (north-Pontic area)[67], until the mid 60'ies of the 20th century it was believed, despite the fact that most of the published items came from the Sarmatian Iazyges environment of the Pannonian Plain and the German world located northwards, that they originate in the north-Pontic area (M. Párducz, B. Svoboda, J. Filip, J. Kostrzewski, K. Majewski) and that they are specific to the Sarmatian world (E. Patek). Nevertheless, their large numbers in the German world (E. Patek, A. K. Ambroz), their presence in Pannonia (I. Kovrig), but also their lack from the north-Pontic area (A. K. Ambroz) were noted. Based on the large number of such brooches discovered in the Sarmatian environment on the current territory of Hungary, it was also argued they are of local origin (M. Párducz), that they developed in the Pannonian Plain based on those brought by the Sarmatians arriving from the north of the Black Sea (J. Zeman) or that they originate in the Upper Dnieper area from where they entered the Przeworsk culture environment where they shortly became one of the main forms (A. K. Ambroz). The fact they lack from the north-Pontic area makes the view of their origin in the north-Pontic area implausible. There are no scientific grounds either for the view expressed by J. Zeman, against which stand a series of realities, like the lack of the returned foot Pontic type brooches in the Sarmatian Iazyges environment of the Pannonian Plain, but also the fact that in this area, the returned foot brooches specific to the Central-European area emerged abruptly, being of several types and variants. There are not enough arguments for A. K. Ambroz's view according to which the returned foot exterior chord brooches made of a single metal piece from Central Europe originate in the Upper Dnieper area from where they disseminated in the Przeworsk culture environment where they shortly became one of the main forms. On simple inspection of the brooches in the Upper Dnieper area, dated to the 1st c. AD, which A. K. Ambroz believes as the origin of those Central-European, it may be noted, based on morphological specificities and sizes, that they are very close to rather the north-Pontic brooches with returned foot wound to the bow and made of a single metal wire, with bilateral spring of four revolutions and exterior chord, characterised by the same thickness of the bow and foot[68].

Although E. Patek recorded in his 1942 work a large number of type Almgren 158 brooches in the German world, only after the issue of T. Kolnik and I. Peškař's studies analysing the numerous brooches in this type from the territories north, north-east and east the Mid Danube, the idea of their origin and development in the northern half of the Central-European area begins to be clearly outlined, finally proved and confirmed by R. Kenk, J. Szydłowski, K. Godłowski, J. Tejral, M. Oledzki, L. V. Vakulenko, M. Maczyńska etc. Last but not least, one should mention that the archaeological finds of the last three decades as well as the studies dedicated to both the chronology in the Central-European *Barbarianicum* as well as those approaching a series of aspects on the migrations of the German populations of the 2nd–4th c. AD and the events of that period rather clearly show both the origin of these brooches in this part of Europe as well as the fact that from the north of the Central-European area, beside the brooches with interior chord, they disseminated southwards and south-eastwards, thus reaching the Sarmatian Iazyges and the Roman provincial environment[69].

Despite the very large number of such brooches, currently there is no adequate typology for the returned foot exterior chord brooches made of a single metal piece (type Almgren 158). However, any typology of the sort is difficult to draw up in the circumstances of a great variety of their general appearance. Also, such typology is hindered by the fact that many brooches, when published, are inadequately illustrated and have no appropriate description allowing for

[62] COCIȘ 2004, 147.
[63] COCIȘ 2004, 147.
[64] MACZYŃSKA 1998, 417–424; MACZYŃSKA 2003, 553–567.
[65] MACZYŃSKA 2011, 73–79.
[66] MACZYŃSKA 2011, 73–79.
[67] ALMGREN 1897, 75; ALMGREN 1923, 75.
[68] They belong to group 4, series I, variant 1 of brooches in V. V. Kropotov's typology (KROPOTOV 2010, 65–72, Fig. 29–30), but also with some specimens in the second variant, yet of smaller sizes (Cf. KROPOTOV 2010, 72–74, Fig. 31–32). The specimens of the first variant date by the end of the 1st c. BC – mid 1st c. AD, while those in variant 2 to the second half of the 1st c. – early 2nd c. AD (Cf. KROPOTOV 2010, 72, 74).
[69] Cf. COCIȘ 2004, 142–147 with complete bibliography.

a more accurate framing. In addition, there are many cases when the brooches are published by photos or drawings that make impossible a pertinent morphological analysis and ultimately, an accurate framing.

* * *

Beside the specimens in the Sarmatian cemetery at Hunedoara Timișană, such brooches, not many, were discovered over the years in the south-west, west and north-west of Romania. Though very few, compared to the finds in the territories located west, north-west and north the current borders of Romania, one should mention they come from both the Barbarian environment in the territories near the west and north-west of Roman Dacia[70] as well as the province territory[71].

The small number of these brooches in the territories south-west and west of Romania is due to the much smaller number of archaeological researches performed in Roman imperial period sites in the area. They are slightly more numerous in the territories located north-west the borders of the province of Dacia. When archaeological investigations began to be performed on large scale, the number of this type brooches and other artifact categories, increased sensibly. An example to this effect are the finds of the last three years yielded by the rescue archaeological research made following the construction of highway sections (Nădlac-Arad, Arad-Timișoara) in the west and south-west of Romania.

The specimens in the Barbarian environment in the territories located south-west, west and north-west the province of Dacia come from graves and settlements, being mainly bronze made, but there are also specimens made of silver (Șag, Timiș county)[72] or iron (Curtuișeni, Bihor county)[73].

Several views concerning the chronological framing of these brooches from the territories inhabited by the Barbarian located west and north-west the province of Dacia were expressed, based on their association with other artifact categories.

Robert Gindele has recently proposed to date this type of items in the Barbarian environment of north-west Romania to stages C2-C3 (210/220–370/380)[74]. The author supports his statements firstly on the finds of brooches with returned foot exterior chord made of a single metal piece (type Almgren 158) at Csengersima-Petea Vamă, Curtuișeni-"Vincze tag", Lazuri-"Lubi tag", Satu Mare-"Fermele 2–4", Berveni-Holmoș[75] and, in the same area, on finds of brooches with returned foot made of two metal pieces and the stamped pottery[76].

Following the analysis of the Barbarian remains from the Late Roman imperial period and early migrations in the north-west of Romania, Ioan Stanciu proposes to date the returned foot brooches with exterior chord made of a single metal pieces at Lazuri-"Lubi tag" and Satu-Mare in stages C3-D1[77]. This chronological framing is based on the comparative analysis of the pottery with that at Solontsy (Transcarpathia)[78] but also on the bone comb with semicircular handle, made of three pieces, found in the excavation at Lazuri-"Lubi tag"[79], belonging to type I, variant 2 in Thomas's classification, as well as based on the two brooches at Lazuri-"Lubi tag"[80], which I . Stanciu describes as more massive, with flat rectangular foot, and which he compares with a late variant of the basic shape of type Almgren 158[81]. Without further emphasis on the archaeological context of the discovery of both the comb and the two brooches, we wish to mention that combs of the type are mainly spread in the second half of the 3rd c. – early half of the 4th c. AD[82], while the two brooches, which are not that massive, are 4.4 cm long and respectively 4.8 cm, having close analogies among the specimens coming from archaeological contexts dating to the last part of stage C2 and stage C3[83].

It was argued that the brooches in this type from the Sarmatian environment on the current territory of Hungary, massively distributed in the Sarmatian environment after AD 260–270, emerging though sometime between AD 180–220[84]. Following the analysis of many Sarmatian remains on the current territory of Szolnok county (Hungary), A. Vaday dates the returned foot exterior chord brooches made of a single metal piece in the Sarmatian environment on the current territory of Szolnok county (Hungary), mainly to the 3rd c. AD[85]. A rather high number of such brooches was discovered in the Sarmatian cemetery at Madaras[86], where such items come mostly from graves dating mainly to the 3rd c. – early 4th c. AD (end of stage C1a-C2). The excavators mention though that certain variants of these brooches in the Sarmatian environment of the Pannonian Plain are still in use until early 5th c. AD[87]. Noticeably, the brooches of this type in G 363 and G 411 in the cemetery at Madaras are 6.7

[70] Cf. MULLER 1931, 72, Pl. 1. VI/6; DUMITRAȘCU/BADER 1967, 40, Fig. 19; DÖRNER 1970, 460–461, Fig. 16/1–2; NEMETI/GINDELE 1997, 667, Pl. 5/8; MATEI/STANCIU 2000, 60, 75, Pl. 336/9–10, 338/5; GINDELE/ ISTVÁNOVITS 2009, 335, Pl. 77/3.

[71] GUDEA/LUCĂCEL 1979, 337, Pl. XIV/157; BAJUSZ/COCIȘ 1995, 42, Pl. III/18; COCIȘ/ARDEVAN/PINTEA 1992, 329–330, Pl. VI/81, 85; COCIȘ 2004, 142, tip 37a1c, 143, tip 37a3c, 216, cat. no. 1789–1792, 218, cat. no. 1840, Pl. CXXIX/1789–1792, CXXXIII/1840. On the territory of the province of Dacia, the number of the brooches with returned foot made of a single or two pieces and interior or exterior chord is rather high (Cf. COCIȘ 2004, 142–147).

[72] MULLER 1931, 72, Pl. 1. VI/6.

[73] NEMETI/GINDELE 1997, 667, Pl. 5/8.

[74] GINDELE/ISTVÁNOVITS 2009, 69; GINDELE 2010,137–139.

[75] GINDELE 2010,137–139, Fig. 66/1, 7–9, 13, 16. We thank this way our colleague dr. Robert Ghindele with the County Museum of Satu Mare for the information supplied in connection to these brooches.

[76] GINDELE/ISTVÁNOVITS 2009, 69, 77–79; GINDELE 2010,137–139.

[77] STANCIU 2008, 148, 154.

[78] STANCIU 2008, 148–149.

[79] STANCIU 2008, 153, Pl. 1 /17; STANCIU 2011, Pl. 1/17.

[80] Cf. MATEI/STANCIU 2000, 60, Pl. 336/9–10; STANCIU 2011, Pl. 1/18–19.

[81] STANCIU 2008, 154, Pl. 1/18–19.

[82] THOMAS 1960, 77, 92, 94

[83] Still from Lazuri, yet in point "Râtul lui Béla", located at ca. 800 m from point -"Lubi tag", comes a massive brooch with returned foot worked of a single 6.6 cm long piece, identified beside materials dating to D1 (Cf. MATEI/STANCIU 2000, 61, Pl. 336/7; STANCIU 2008, 153, Pl. 2/25; STANCIU 2011, 34, Pl. 2/25). We thank this way our colleague dr. Ioan Stanciu (Institute of Archaeology and Art History of Cluj-Napoca) for his kindness in specifying a series of aspects related to the place and context of the find.

[84] PÁRDUCZ 1956, 160–161.

[85] Cf. VADAY 1989, 86–87.

[86] KŐHEGYI/VÖRÖS 2011, Pl. 19/2, 48/3, 55/4, 74/4, 5, 75/3, 82/5, 95/3, 96/7.

[87] KŐHEGYI/VÖRÖS 2011, 363.

cm long, the foot being wider than the rest of the body[88]. All the grave goods evidence, in our view, their chronological framing to the first half of the 4th c. AD. The presence in the Sarmatian environment of the Panonnian Plain of these brooches during the first decades of the 4th century AD is also supported by the recent archaeological finds in the cemetery at Pócspetri[89]. In grave 10 there, were discovered two brooches with returned foot and exterior chord made of a single metal piece beside a rich funerary inventory among which a silver "omega" (*penannular*) brooch ending with flat spherical projections filled with enamel[90], a disk mirror, a bone comb with arched handle, worked of three pieces etc.[91]. All these artifacts indicate, in our view, a dating of the grave sometime to the chronological interval comprised between the end of stage C2 and early/firt half of stage C3 and under no circumstances to the second half of the 4th century AD[92]. In the case of the two brooches in G 10 at Pócspetri, although they mostly correspond to the morphological specificities mentioned by us above, their foot is slightly widened compared to the rest of the body.

In the chronological interval comprised between the end of the 2nd c. AD and end of the 3rd c. AD (stages C1a-C2) are dated the returned foot brooches, with the morphological specificities mentioned by us above, discovered in the territories located north the Upper Tisza[93]. In the same area there are items also dated to the 4th c. AD (stage C3), yet, they are much more massive and the large foot is often much widened[94]. In Transcarpathia (Ukraine) similar brooches morphologically were framed by L. V. Vakulenko in the chronological interval comprised between the end of the 2nd c. – early 3rd c. AD (stage C1a)[95]. In the same geographical area there are late specimens, which have though other morphological specificities, being of larger sizes and having a widened foot.

Without further emphasis on the chronological framing of such brooches from the Barbarian environment in the territories neighbouring the west and north-west of Romania, we only wish to mention that in the Przeworsk environment, brooches with similar morphology, which we believe we may call the "classical" variant, are mainly specific to stages C1a-C2 (AD 180–310), while those massive and of larger sizes with elongated foot and often widened to stages C3-D1 (AD 310/320–400/410). New finds in the Przeworsk culture environment support our arguments, furthermore confirming that brooches of this type date, depending on their morphological specificities, to these chronological intervals[96]. A series of items discovered in the Barbarian environment on the current territory of Romania[97] confirm that the massive specimens with elongated, often widened foot are specific to stages C3-D1.

Although on the territory of the former province of Dacia the number of the finds of returned foot brooches made of a single or two metal pieces with interior or exterior chord is rather large, those belonging to type Almgren 158 are represented, according to the repertory in the monograph of S. Cociș, by only 5 specimens[98]. Three items come from forts (Gherla, Potaissa), a specimen was discovered in the amphitheatre at Porolissum and in the case of the fifth item, coming still from Porolissum, the exact location of the find is unknown. In their case is worthy of note that their distribution area is limited to the area of Dacia Porolissensis. Interestingly, the other types of brooches with returned foot in Dacia come mainly from the territory of Dacia Porolissensis, which is explainable since territories north and north-west of Dacia were mainly inhabited by German populations. Last but not least, we wish to mention that in all points where brooches of the type were found, they emerged beside other brooch types or Barbarian artifacts of northern origin[99]. An example to this effect are the brooches with solid catchplate, the headknob and exterior chord variant (group Almgren VII series I), known in the specialty literature as "Sarmatian" brooches, yet which, as shown above, originate in the Przeworsk culture environment from where they diffused southwards and eastwards[100].

Given the small number of the brooches with returned foot and exterior chord made of a single metal piece yet

[88] KŐHEGYI/VÖRÖS 2011, 115, 127, Pl. 82/5, 95/3.

[89] HULLÁM 2012.

[90] In the Sarmatian environment of the north-west Pontic area, two similar brooches with the specimen in G 10 at Pócspetri come from T 2 G 1 at Diviziya and G 5 at Bădragii Noi – „La Stânca" (Cf. SUBOTIN/DZIGOVSKIJ 1990, 4, Fig. 3/4; KURCIATOV/BUBULICI 1997, 224, 228–229, 230, Fig. 3/1; BÂRCĂ/SYMONENKO 2009, 243, Fig. 97/22–23). The grave goods of T 2 G 1 at Diviziya include a disk mirror with thickened rim and side rectangular, perforated handle. The exterior part of the mirror is decorated in relief with tamga signs (Cf. SUBOTIN/DZIGOVSKIJ 1990, 4, Fig. 3/9; BÂRCĂ/SYMONENKO 2009, 246–147, Fig. 98/10). In the Sarmatian environment of the north-Pontic area, most of the mirrors of the type come from graves dating to the second half of the 2nd c. – early half of the rd c. AD (SIMONENKO 2004, 152; BÂRCĂ/SYMONENKO 2009, 246–249). Some mirrors of the type are rarely found in graves dated to the mid and second half of the 3rd c. AD (Cf. SIMONENKO 2004, 152; BÂRCĂ/SYMONENKO 2009, p. 247.). The grave inventory of the grave at Diviziya also included a returned foot brooch wound to the bow with interior chord, the slightly widened foot being made of two metal pieces. Such brooches, according to V. V. KROPOTOV, emerge by mid 3rd c. AD and date mainly to the second half of the 3rd c. AD (Cf. KROPOTOV 2010, 150–154, group 4, series III with complete bibliography and existent views) which points to a dating of the grave at Diviziya sometime to this chronological interval. In what G 5 at Bădragii Noi – „La Stânca" is concerned, one must mention it is part of a small cemetery dated to the end of the 2nd c. – early/first half of the 3rd c. AD (KURCIATOV/BUBULICI 1997, 230).

[91] HULLÁM 2012, 356–357, Pl. 9.

[92] HULLÁM 2012, 372.

[93] KOTIGOROŠKO 1995, 155–156, variants A and C in the typology proposed by V. Kotigoroshko.

[94] KOTIGOROŠKO 1995, 155–156. In V. Kotigoroshko's classification they are assigned to variants B and D.

[95] VAKULENKO 1998, 246.

[96] See to this effect the finds in the cemetery at Opatów MADYDA-LEGUTKO/RODZIŃSKA-NOWAK/AGÓRSKA-TELEGA 2011, vol. 1 (2), Pl. IV/14, XXIX/2, XLVII/1, XLVIX/2, L/10, LV/2, LVIII/10, LXI/2, LXVI/1, LXVIII/1, LXX/5 LXXVII/6, CI/3, CVIII/4, CXIII/1, CXXXV/2, CXXXVI/1, CLIV/25–26, CLXXVII/5, CLXXIX/3, CLXXXVIII/9, CXCV/10, CCI/9, CCXXI/3, CCXXIII/2, CCXXXII/42, CCXXXIII/3, CCXXXVI/42, CCLIV/1, CCLV/1, CCCIX/2, CCCXIX/2, CCCXXIII/1, CCCXXXII/6, CCCXXXVI/2, CCCLXIII/30, CCCLXVIII/2, CCCLXXI/8, CCCLXXX/2, CCCLXXXIII/2, CDII/1, CDXII/91–92, CDXIII, CDXIV. For the assemblages to which these brooches belong and their dating see the catalogue of finds in tome 1 (1).

[97] Cf. KOVÁCS 1912, 298, Fig. 62/2a, b; BÂRZU 1973, 63, Pl. XXV/3a-b, 4; MARINESCU/ GAIU 1989, 128–130, Fig. 3A/1–2, 3B/2, 4A/1; GAIU 1995, Pl. V/1–2, 4; NEMETI/GINDELE 1997, 630, 662–663, Pl. 1/1; MATEI/STANCIU 2000, Pl. 337/10, 338/3; ŞOVAN 2005, 132–133, 153, Type 7, Pl. 248A/1, 303/16; OPREANU 2013, 51, Pl. I/2.

[98] COCIŞ 2004, 142, type 37a1c, 143, type 37a3c, 216, cat. no. 1789–1792, 218, cat. no. 1840, Pl. CXXIX/1789–1792, CXXXIII/1840.

[99] See to this effect COCIŞ/OPREANU 1998, 195–228; OPREANU/COCIŞ 2002, 227–265.

[100] Cf. COCIȘ/BÂRCĂ 2013, 161–175; COCIȘ/BÂRCĂ 2014.

also the archaeological context of their discovery we believe they were used on the territory of Dacia in the chronological interval comprised between AD 180/190 – 260/270 (stage C1a – early stage C2).

Finally, we would like to mention that the rather small number of this type of brooches (type Almgren 158) in the territory of Roman Dacia, their discovery especially in the north side of the province, their almost entire lack from the territory of the other Roman provinces by the Mid and Lower Danube and also their massive presence in the limes area and the neighbouring territories prove they are Barbarian artefacts of German origin and that they were not produced by the Romans. Their presence, together with other artifact categories, including brooches, evidence, in our view, the fact that these Barbarians inhabited the territories from the north and north-west proximity of the province starting the end of the 2nd c. AD, as well as the existence of an intensive trade between the Romans and the German populations (the Przeworsk culture bearers) by the northern border of Dacia

As for the presence of returned foot exterior chord brooches made of a single metal piece within the graves in the Sarmatian cemetery at Hunedoara Timișană – they further prove the close relations between the Sarmatians from the Pannonian Plain and the German populations in the northern vicinity.

This type of brooches from the cemetery at Hunedoara Timișană is part of a group of graves located in the north area of the cemetery. The group was formed of graves 4, 7, 8, 9, 10, 11, 12, 13, 14, plus the pieces from the grave destroyed by the erection of the early medieval house. The central point of this group of graves is G 10 and the entire group was located on a space with 25–30 m diameter. Another group from this cemetery is located at approximately 30 m south the first and included graves 1, 2, 3, 5, 6, 17.

The graves in the first group had the dead laid in the funerary pit with their heads towards the north, north-north-west and north-north-east, the second group also included graves whose dead were buried with their heads towards south-south-east (M 1) and south-east (M 3). In the graves from the first group, besides the brooches subject of our analysis were also discovered other type of brooches (Fig. 5/5–7), which simplifies the chronological framing of this group of graves, but also allows a series of findings and assessments in relation to the returned foot exterior chord brooches made of a single metal piece (Almgren 158 type). Thus in graves 9 and 10, besides other inventory pieces were also discovered brooches with solid catchplate, exterior chord and fastening system (G 9) (Fig. 3/1, 5/6) or headknob (G 10) (Fig. 3/2, 5/7) (Almgren group VII, series 1), known as "Sarmatian" brooches, but which, as we have recently shown, are of German origin, formed in the Przeworsk culture environment[101]. Following the analysis of the pieces resulted from a series of well datable assemblages (graves), it was found the brooches with solid catchplate, exterior chord and headknob were mainly used in the chronological period between the last two decades of the 2nd c. AD and mid 3rd c. AD (stages C1a-C1b)[102].

[101] Cf. COCIȘ/BÂRCĂ 2013, 161–175; COCIȘ/BÂRCĂ 2014.
[102] COCIȘ/BÂRCĂ 2014.

The goods in G 8 include a disk-shaped bronze brooch made of two elements. The brooches body is flat and the edge is decorated with six projections approximately circular, laid symmetrically, of which only five were preserved. The outer surface of the body was decorated with enamel, which did not survive either. The hinged fastening system on the interior part was formed of a plate where was inserted the axis around which the pin revolved. The pin did not preserve too[103] (Fig. 4/1–2, 5/5).

The spread area of the enamelled brooches includes the entire Roman Empire, but the maximum concentration area is Britannia, Gallia and the Rhine region[104]. In *Dacia* the enamelled brooches are few[105]. There are Roman enamelled brooches also in the Sarmatian environment from the Pannonian Plain[106] and in the north-Pontic area[107].

Brooches similar to the specimen in G 8 are spread on the entire territory of the Roman Empire[108], in the German environment[109] and in the Sarmatian environment of the Pannonian Plain[110]. K. Exner assigns these pieces to type III.24[111], E. Riha frames them into type 3.15.1[112], A. Böhme to type 41x[113] and A. Mazur to type 3/15 in his typological classification[114]. As for the chronological framing of the brooches similar to the specimen within the grave at Hunedoara Timișană we could say that the views expressed by researchers are not very different. A. Böhme dated such brooches in the 2nd c. AD and partially in the 3rd c. AD.[115] and E. Riha frames the specimens from Augst to the end of the 2nd c. AD, mentioning that elsewhere, such brooches are encountered also by early 3rd c. AD.[116]. I. Sellye concluded this type dates no later than Caracalla[117]. A. Mazur dated these brooches in the chronological period between AD 100 and 200[118].

The item in G 8 at Hunedoara Timișană, in correlation with the rest of the grave inventory, points its dating by the end 2nd c. – early 3rd c. AD.

Based on the brooches and other categories of artifacts in the graves at Hunedoara Timișană, we can conclude that this cemetery dates to the chronological period between the end of the 2nd c. AD and the third quarter of the 3rd c. AD.

[103] A bronze fragmentary brooch made of two elements which did not preserve the body, that had a geometrical shape (probably disk), was found on the chest of the dead in G 3. It preserved the bilateral spring made of 8 coils, the pin and rectangular catchplate. The spring was attached in a rectangular support and the chord is, in its turn, passed through another orifice of the support. Both the support and the catchplate were attached to the body.
[104] EXNER 1939, 31–121; SELLYE 1939; PATEK 1942, 45–50, 118–123; RIHA 1979, 29–34;FEUGÈRE 1985; SNAPE 1993.
[105] COCIȘ 2004, 121–125.
[106] Cf. VADAY 1989, 82–86, Fig. 14; VADAY 2003, 315–421.
[107] Cf. KROPOTOV 2010, 302–326.
[108] Cf. EXNER 1939, 103, Pl. 13/5; SELLYE 1939, 40, 59–60, Pl. VIII/16, XIX/8; PATEK 1942, 49–50, Pl. XV/14; BÖHME 1972, 38, 66, Fundliste 34, Pl. 26/989–990; RIHA 1979, 87, Pl. 13/306.
[109] THOMAS 1966, 177, Pl. 9/13; BÖHME 1972, 66, Fundliste 34/5–10.
[110] VADAY 1989, 84, cat. no. 323/1 Fig. 14/5, Pl. 110/1; VADAY 2003, 335, 337, 338, cat. no. 9/2, 55/1, 56, 67, 82/4, 85, 87, 94, 95/1, 111/1, 113, 114, Fig. 10.
[111] EXNER 1939, 103.
[112] RIHA 1979, 87.
[113] BÖHME 1972, 38.
[114] MAZUR 1998, Pl. I.
[115] BÖHME 1972, 38.
[116] RIHA 1979, 87.
[117] SELLYE 1939, 11.
[118] MAZUR 1998, Fig. 3.

Therefore, following the analysis of the specimens in the cemetery at Hunedoara Timișană and those with similar morphology coming from well dated graves and assemblages, both from the Sarmatian environment and the Przeworsk culture, we may argue that the returned foot exterior chord brooches, made of a single metal piece (Almgren 158 type) with the characteristics described above were used on the entire territory from the eastern part of Central Europe in stages C1a-C2 (AD 180–310) while the larger brooches, with elongated, often widened foot to stages C3-D1 (AD 310/320–400/410).

The analysis of the returned foot exterior chord brooches made of a single metal piece from the cemetery at Hunedoara Timișană in a wider context and as result of the findings concerning this type of brooches from the Central-European territories enable us to draw a few conclusions related to the origin, distribution area and chronology.

1. The distribution area of the returned foot exterior chord brooches made of a single metal piece clearly encompasses the Barbarian environment, mainly the German world or in close relation with it, further more confirming their Barbarian origin.

2. Based on the distribution area and the high number of such items discovered over time it may be concluded with utmost certainty that they originate in the environment of Przeworsk culture, which records the earliest discoveries and also the most discovered specimens.

3. From the Przeworsk culture environment these brooches spread, as result of the migration of new Vandal communities coming from the north to the south and south-eastern territories.

4. In the Sarmatian environment from the Pannonian Plain the number of brooches belonging to this type is much smaller than in the German world from the territories located northwards, while in the Sarmatian world from the north and north-west of the Black Sea such brooches are missing.

5. This type of brooches are foreign to the north-Pontic territory, being absent including from the Chernyakhov culture area in this region, which could indicate that among the groups of German populations that migrated eastwards, probably starting with stage C1b, there were no groups of Germans that manufactured and used this type of brooches.

6. The discovery of these brooches in the Sarmatian environment from the Pannonian Plain, sometimes in association with other categories of artifacts of German origin, as well as the relations with the German world[119] are certain evidence that this type of brooches were taken over by the Sarmatian Iazyges from the German populations (most likely the Vandals), once with their arrival and settlement in the regions from the northern proximity of the space inhabited by the Sarmatians, in Marcommanic Wars' aftermath and the period immediately after the end of this military conflict.

7. This type of brooches (Almgren 158 type) appears in the Sarmatian environment from the Pannonian Plain in the same period as those with solid catchplate, exterior chord and fastening system or headknob (Almgren group VII, series 1).

8. As early as the emergence of this type of brooches, their body had different shapes in the section, which does not allow in the current stage of knowledge any further more restricted nuances and chronological framing based on this criterion.

9. The returned foot exterior chord brooches made of a single metal piece (Almgren 158 type) with the morphological specificities listed by us above, which we termed the "classical" variant, may be dated in the chronological timeframe between the end of the 2nd c. AD and early 4th c. AD, while the massive brooches, of much larger sizes and elongated, often widened foot mainly belong to AD 310/320–400/410.

10. Following the morphological analysis of this type of brooches one might conclude that by the end of stage C2 some of the brooches in the analysed type start to have a series of features (widened foot, larger sizes) specific to the samples dated to stages C3-D1.

11. The presence of this type of brooches both in the Sarmatian Iazyges environment and the province of Dacia records cultural and economic contacts and interferences in the region, accurately evidencing the movement direction of some German population groups starting with the last third of 2nd c. AD. (C1a), in the Marcommanic Wars' aftermath, but also the subsequent migration from the north of new German communities (the Vandals) towards the south and south-east, as well.

[119] Cf. VADAY 2003a, 207–225.

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1

2

Fig. 1. Brooches in grave 7 (**1**) and grave 12 (**2**) at Hunedoara Timișană.

1

2

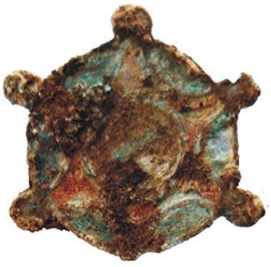
Fig. 2. Brooches in grave 14 (**1**) and the damaged grave by the erection of the early medieval house at Hunedoara Timișană.

1

2

Fig. 3. Brooches in the variant with solid catchplate, simple spring, exterior chord, fastening system (**1**) or headknob (**2**) in grave 9 (**1**) and grave 10 (**2**) at Hunedoara Timișană.

1



2

Fig. 4. 1–2. Enamelled brooch in grave 8 in the cemetery at Hunedoara Timișană.

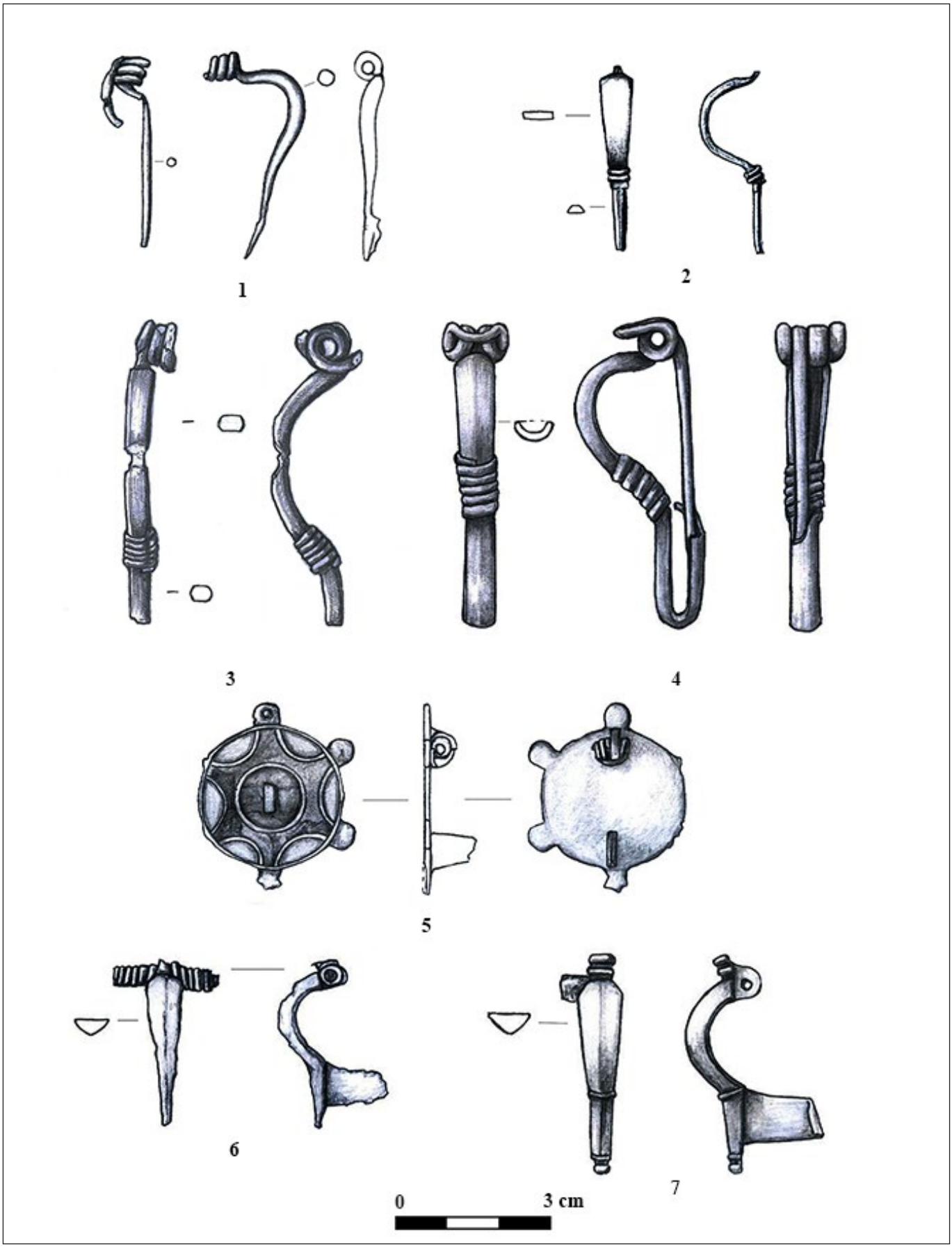


Fig. 5. 1–4. Returned foot exterior chord brooch made of a single metal piece in the cemetery at Hunedoara Timișană (**1.** grave 12; grave 7; **3.** the damaged grave by the erection of the early medieval house; **4.** grave 14); **5.** Enamelled brooch in grave 8; **6.** Brooch with solid catchplate, exterior chord and fastening system in grave 9; **7.** Brooch with tall catchplate, exterior chord and headknob in grave 10.

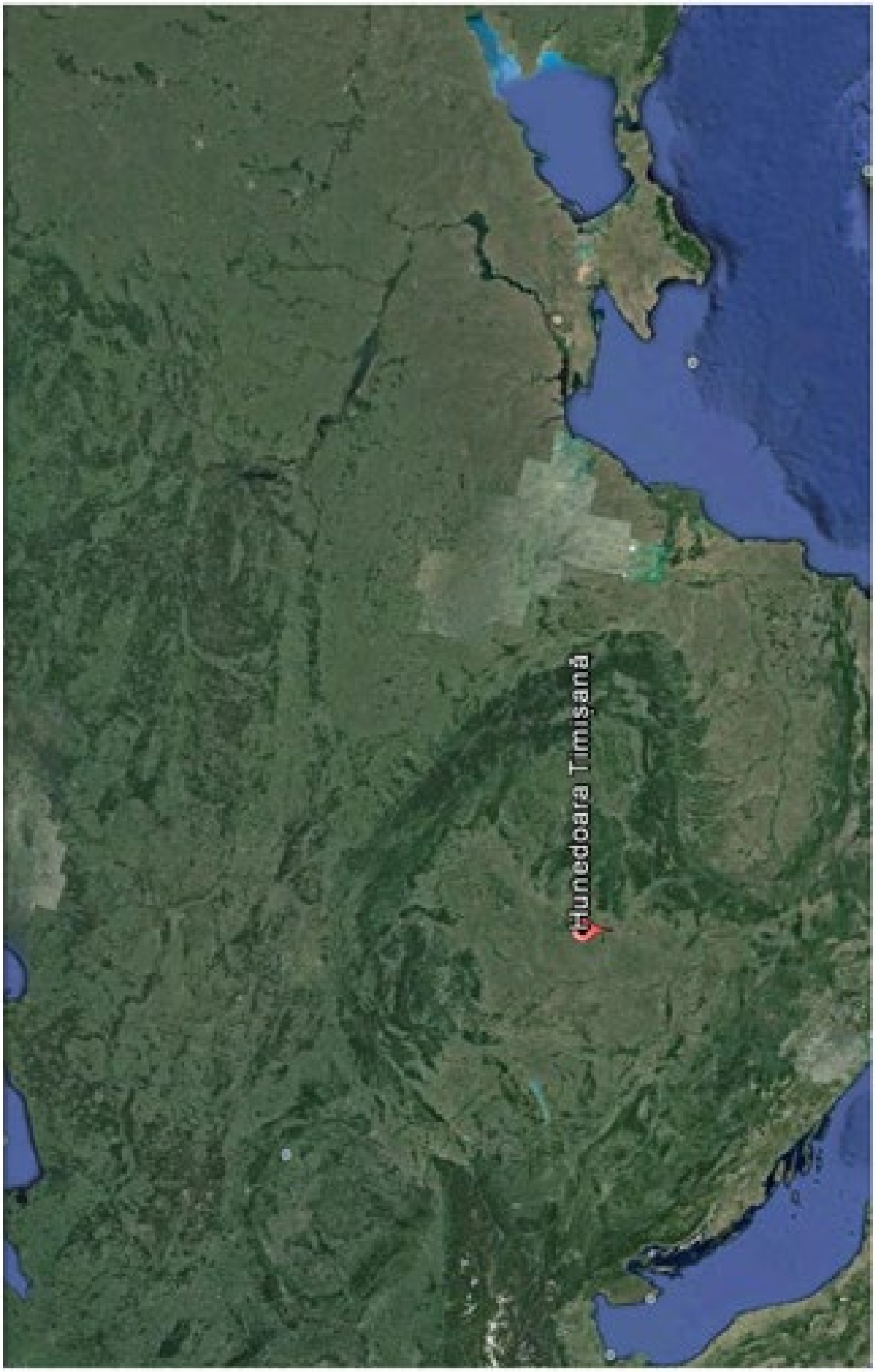


Fig. 6. Location of the cemetery at Hunedoara Timișană.

A ROMAN THIN-CAST BRONZE SAUCEPAN FROM THE DACIAN FORTRESS AT ARDEU (HUNEDOARA COUNTY, ROMANIA)[1]

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Abstract: The article analyzes a Roman thin-cast bronze saucepan discovered in the Dacian fortress from Ardeu (Hunedoara County, Romania). The authors argue that the object belongs to a small group of similar discoveries which comprises a variant of the thin-cast saucepans belonging to Petrovszky type III. The saucepan was produced between the last two decades of the 1st century BC and the third decade of the 1st century AD in a workshop which can be located in the north-eastern part of the Italic Peninsula, probably at Aquileia. This is the first discovery which attests with certainty the existence of the thin-cast saucepans in the north Danubian territory, element which is important in the context of the trade relations developed along the route connecting Aquileia with the Sava Valley and the Danube during the Augustan Age.
Keywords: pre-Roman Dacia, Ardeu, trade, imports, Roman bronze vessels.

Newer or older information regarding the Dacian fortress at Ardeu has been constantly presented in the archaeological literature of the last decade[2]. The archaeological site Ardeu – Cetățuie is located on the territory of Ardeu village, commune of Balșa, Hunedoara County (Fig. 1/1) and it comprises the hill with the same name (maximum height from the Black Sea level: 455 m), the plateau situated to the east, the foothills, the terraces positioned towards south and the Ardeu Gorges from the south-western part (Fig. 1/2). The hill with steep slopes is surrounded by Ardeu Valley which forms on the northern and western sides a sector of short and picturesque gorges. All the parts composing the site have been inhabited throughout several historical periods[3]; nevertheless, the archaeological information published so far is mostly related to the Dacian land use.

The archaeological research of the site started at the end of the 19th century, under the supervision of Téglás Gábor[4]. Subsequently, the Museum

[1] This work was supported by a grant of the Ministry of National Education, CNCS-UEFISCDI, no. PN-II-ID-PCE–2012–4–0618.
[2] FERENCZ/BODÓ 2003; FERENCZ 2003; FERENCZ 2005; FERENCZ 2006; FERENCZ/DIMA 2009; FERENCZ/GURGU-ŢÎRDOIU 2009; FERENCZ 2010a; FERENCZ 2010b; FERENCZ 2010c; FERENCZ 2012a; FERENCZ 2012b; FERENCZ 2013a; FERENCZ 2013b; FERENCZ 2013c; BELDIMAN ET ALII 2013a; BELDIMAN ET ALII 2013b; BELDIMAN ET ALII 2013c; FERENCZ/FLOREA 2013.
[3] See: FERENCZ/ROMAN 2010, 173.
[4] TÉGLAS 1885, 299–307; TÉGLAS 1888, 134–138.

from Deva together with the National History Museum of Romania from Bucharest undertook a small scale excavation in the area as a result of disturbances caused by the opening of a stone quarry which led to the identification of several metallic artefacts[5]. Starting with 2001 the Museum of Dacian and Roman Civilisation from Deva resumed the field research from Ardeu together with various partners: the "1st of December 1918" University (Alba Iulia), the National History Museum of Transylvania (Cluj-Napoca), and the Corvin Castle Museum (Hunedoara)[6].

In 1971 the museum from Deva acquired a series of metallic objects discovered on the Cetățuie Hill by three employees of the Limestone Quarry from Ardeu. The saucepan analyzed here was discovered among the shrubs covering the slopes of the hill by Simion Pârva from the village of Balșa[7].

The saucepan[8] (Fig. 2/1–2, 3/1–3, 4/1–2) is preserved in the collections of the Museum of Dacian and Roman Civilisation from Deva and it is registered with the inventory number: 23382. As mentioned before, it is a stray find, discovered on the eastern slope of the hill, situation which hinders any kind of supposition related to the context in which it might have been used. The object, made of copper based alloy and displaying an irregular patina, ranging from light to dark brown with light to dark green areas, is in a relatively good state of preservation, although it presents parts in which the oxidation process is still active. It is fragmentary, since only the handle (with the end partially broken), part of the rim, and part of the body are preserved, and its dimensions are the following: Diameter (rim): 110 mm; maximum Height: 41 mm; Thickness (body): 0.5–0.8 mm; Length (handle): 157 mm; Width (handle): 17–22 mm; Thickness (handle): 3–4.5 mm; Weight: 115 g. The saucepan was produced from two pieces of metal: the rim and the handle were cast separately and attached subsequently to the body made of a thin cast shape which was, very probably, pressed on a model with the help of the lathe. The area of the joining is visible only on the inner side of the vessel, under the rim, together with other traces of hammering which were not dimmed during the finishing process (Fig. 4/1). From a morphological viewpoint, the saucepan displays a horizontal rim, slightly everted towards the exterior, with a triangular profile. The rim is decorated with a band of ovolo alternated with vertical incisions followed towards the exterior by a band of small, incised circles. The sides of the body are slightly convex and much damaged in the inferior part. The body is decorated under the rim with three incised parallel grooves. The handle of the vessel is not perfectly horizontal, but easily elevated, especially towards its end. It displays a slenderer central part and it ends with a ring, partially preserved, and separated from the rest of the handle by a narrower part, marked with parallel incised lines. The decoration of the handle consists of stylized snakes with the body arranged in the shape of a spiral forming a vegetal motif, each of them facing right or left in a successive manner (Fig. 2/1, 3/1). Above each animal head, another depiction can be observed, representing, this time, only a head of snake. This detail is visible only for the first four spirals. The body of the snakes is marked with punched circles. Other elements of the decoration, hardly visible, are represented by the oblique lines with circles inside flanking the exterior of the spirals, in the area where they join, and the band of incised circles, visible only on the right side, towards the rim. In general, the decoration was made in a simple manner, by marking with incisions only the exterior contours. The lines are now worn-out and hardly visible, situation which can be explained through the intensive and/or prolonged usage of the object in ancient times. Very likely, the spirals covered, initially, the whole surface of the handle. Currently, only parts of the first five and of the seventh one are visible. The saucepan preserves at the end of the handle the craftsman's stamp which can be observed on a length of 20 mm and on a width of 4.2–4.8 mm. Because of oxidation and, again, of the worn-out lines, the stamp is almost impossible to read. One can suggest, with caution, the presence of the following letters: CNPO[...]SR? (Fig. 4/2).

From a typological point of view, the saucepan[9] belongs to a group of bronze vessels known in the archaeological literature as: *Blechkasserollen*, corresponding to Radnóti types 5–10[10], to Eggers types 134–136[11], and to Petrovszky types III, 1–4[12]. The term *Blechkasserollen* is accepted nowadays as

[5] NEMOIANU/ANDRIȚOIU 1975.

[6] PESCARU ET ALII 2002; FERENCZ ET ALII 2003; FERENCZ ET ALII 2004; FERENCZ ET ALII 2005; FERENCZ ET ALII 2010; FERENCZ ET ALII 2011.

[7] In the spring of 2014 Iosif Vasile Ferencz had the opportunity of discussing with Simion Pârva who is now more than 80 years old. Even if he does not remember the exact location where he discovered the objects bought by the museum, he indicated without any hesitation that they were all found among the shrubs covering the eastern slope of the hill (see Fig. 1/2) and that they were not found together.

[8] For a first publication of the object see: GHEORGHIU 2005, 168, 488, Fig. 214.

[9] The terminology used to denominate the variant of the type to which the vessel from Ardeu belongs is not well defined in the literature. The vessels displaying similar characteristics have been published under different names, e g.: *mestola* (Collection of Profane Museum of Vatican (Italy): RADNÓTI 1937, 55–57, Tav. III/1), *Blechkasserolle* (Vrhnika (Solvenia): RADNÓTI 1938, 38, Taf. II/9, XVII/30; BREŠČAK 1982, 42, no. 17, T. 2/17; PETROVSZKY 1993, 299 (S.13.01), Taf. 26/S.13.01), *dipper* (Collections of Rijksmuseum G. M. Kam, Nijmegen (Holland): DEN BOESTERD 1956, XXI-XXII, 17, no. 46, Pl. III/46), *casserole légère, à paroi plus mince* (Saône River (France): BARATTE ET ALII 1984, 60, 67, no. 85, Pl. XXXI/85), *attingitoio* (Viadana (Italy): BOLLA 1986, 196–198, no. 2, Fig. 4–5). However, the morphological features of the objects which display the highest degree of similarity with the Ardeu vessel (from the Collection of the Profane Museum of Vatican, Saône River, and Viadana) are typical for *Blechkasserollen*: the shape of the body with slightly convex walls (similar to Bolla type A and B: BOLLA 1986, 202, Fig.8/A, B), the presence of a base which is turned on the lathe in some cases (see the vessel from Saône River), and a handle – ending in a ring divided from the rest of the handle– which does not exceed in length 1.5 of the rim diameter. These elements determined us to use the term saucepan, and not dipper, when describing the bronze vessel from Ardeu and to analyze it accordingly. Likewise, type V from M. Bolla's typology including the saucepan from Viadana corresponds to variant 3 of type III in R. Petrovsky's typology (see: PETROVSZKY 1993, 39). The only object known to us presenting a different morphology, produced, very probably, in the same workshop, is the dipper/ladle with spout discovered in the banks of Saône River, at Saint-Germain-du-Plain (France): the body and base are rounded and the handle measures in length more than three times the value of the rim diameter (see: NEMETH 1993, 51–52, no. 49; BONNAMOUR 2000, 15, 127, no. 129). Following slightly different proportions, the same goes, very probably, for the dipper discovered at Pompeii (Italy), in *Casa dei capitelli figurati* (WILLERS 1907, 71, Abb. 41/7–7A), included by M. Bolla in the same type with the Viadana vessel (BOLLA 1986, 205; see also TASSINARI 1993, I: 162, II: 161, K 2491).

[10] RADNÓTI 1938, 25–39, Taf. II/5–9, III/10.

[11] EGGERS 1951, 172, Beilage 58: *bronzene Blechkasserollen* (Typ 134–136), Taf. 12/134–136.

[12] PETROVSZKY 1993, 36–39, Taf. 1/III, 1–4b.

a convention in the archaeological literature, even if it does not designate the technology used for manufacturing the saucepans belonging to the group. The main characteristic is represented by the very thin walls, despite the fact that the vessels were never produced from bronze sheet, but from a cast shape which was subsequently pressed on a model and finished on the lathe[13].

For long the scholars did not make a clear distinction between the thin-cast saucepans and the ones with convex body and handle ending in a loop with swan's heads belonging to Eggers types 131–132[14]. In A. Radnóti's opinion the latter were cast and produced in the workshops from Capua, while the thin-cast saucepans represent bronze-sheet imitations of the products from Campania, made in the north Italic workshops, probably at Aquileia[15]. Subsequently, M. Bolla's attempt of classifying both groups based on the shape of the body and the decoration of the handle proved that there is no clear connection between these elements[16]. The first who clarified the technological aspects and drew a clear distinction between the two types was R. Petrovszky. As part of the typology of the Roman bronze vessels with craftsman's stamp, the author classified the saucepans with swan's heads produced in Campania in type II (*Kasserollen mit Schwanenkopfbügel*)[17] and the thin-cast saucepans in type III (*Blechkasserollen*) [18].

The discoveries of thin-cast saucepans are numerous in Northern Italy, Slovenia, Bohemia, Gaul, and the Rhine area. Based on the dates offered by the contexts of the discoveries and on the names attested by the craftsman's stamps, R. Petrovszky sets the production of the type in north-eastern Italy, at Aquileia, between the last two decades of the 1st century BC and the third decade of the 1st century AD[19]. The presence in small number of some variants of the type between the finds from Pompeii determined J. Kunow to suggest a production period lasting till the last quarter of the 1st century AD[20]. Such a hypothesis is unlikely and the thin-cast saucepans from Pompeii should be interpreted as objects used for a long period of time[21]

It is not easy to integrate the saucepan from Ardeu in the variants of the type which have been defined so far. Such an attempt is made harder by the poor publication of at least part of the finds or by the state of preservation of others. There are more elements which need to be considered in this respect: the horizontal rim decorated with a band of ovolo, the slightly convex walls, and the decorated handle ending in a loop separated by a narrow area. Taking these into consideration, the vessels displaying the same characteristics as the saucepan from Ardeu are not numerous. The best parallels are represented by the saucepan from the assembly of bronze vessels dated during the Augustan age and discovered at Viadana (Italy) in the 19th century[22], another one preserved in the Collections of the Profane Museum of Vatican (Italy)[23] and a saucepan discovered in the Saône River (France)[24]. The band of ovolo is characteristic for the objects from Viadana and Vatican, the shape of the body is similar in all three cases (with a height varying from 55 to 59 mm), and all the handles are decorated with incisions: rows of hatches and ovolo near the rim (Viadana), a complex interposed decoration in the shape of a "hair braid"[25], positioned on half of the handle, near the rim and rows of small circles along the edges (Vatican), and pouched circles forming three floral motifs, flanked along the edges of the handle by a row of small circles (Saône). The handles end with a loop corresponding to Bolla type V in two cases (Viadana, Saône) and with one of Bolla type IV in one (Vatican)[26]. Because of the strong similarities, one can also mention here the dipper with spout discovered in the bank of the Saône River, near Saint-Germain-du-Plain (France)[27] which has a rim decorated with ovolo, a handle decorated with a complex incised vegetal decoration, ending in a loop similar to the one of the saucepan from Ardeu. The band of ovolo on the rim and the end of the handle typical for Bolla type V appear on a fragmentary saucepan from the Collections of Rijksmuseum G. M. Kam, Nijmegen (Holland)[28] and the same decoration of the handle end can be observed on a thin-cast saucepan with concave walls, bearing the stamp STAG/*Staglius Philoca (lus ?)*, discovered at Vrhnika (Solvenia)[29].

Summarizing the above-mentioned, the saucepans from Ardeu, River Saône, Viadana, and the Collections of the Profane Museum of Vatican represent a distinct variant of the thin-cast saucepans, characterized by a horizontal rim, decorated with a band of ovolo in most of the cases, a small body with slightly convex walls, a flat base, sometimes turned on the lathe, and a handle belonging to Bolla types IV or V, provided with a rich incised decoration. Except for the saucepan from Viadana the objects are stray finds. Because of that there is no possibility of narrowing down the production period. But they were certainly produced between the last two decades of the 1st century BC and the third decade of the 1st century AD, as the rest of the thin-cast saucepans. The saucepan from Ardeu is the only discovery from the group bearing a craftsman's stamp. As long as the letters proposed above have a high degree of uncertainty, due to the preservation state, the attempt of proposing a reading would be too speculative.

[13] BOLLA 1986, 199; FLÜGEL 1993, 60, note 44; PETROVSZKY 1993, 30, 36; KOSTER 1997, 56, no. 65.
[14] EGGERS 1951, 171–172, Beilage 57: *Bronzekasserollen mit Schwanenkopfbügel* (Typ 131–133), Taf. 12/131–32.
[15] RADNÓTI 1938, 19–39; KUNOW 1983, 62–63.
[16] BOLLA 1986, 199–207.
[17] PETROVSZKY 1993, 30–35, Taf. 1/II, 1–3.
[18] PETROVSZKY 1993, 36–39, Taf. 1/III, 1–4.
[19] PETROVSZKY 1993, 36–39.
[20] KUNOW 1983, 25.
[21] PETROVSZKY 1993, 38; KOSTER 1997, 57.
[22] BOLLA 1986, 196–198, nr. 2, Fig. 4–5; BOLLA 1991, 151–152, Fig. 5/1.
[23] RADNÓTI 1937, 55–57, Tav. III/1; BOLLA 1986, 205, tipo IV, note 36 (with the bibliography).
[24] BARATTE ET ALII 1984, 60, 67, no. 85, Pl. XXXI/85.
[25] The low quality of the illustration does not allow a good observation of the depiction: *...sul mezzo è inciso, in direzione della lunghezza, un ornamento intrecciato, somigliante ad una treccia di capelli, di cui si vede particolarmente bene l'estremità. La treccia presenta l'incrocio di due linee ondulate, si restringe verso la metà del manico, quindi improvvisamnete termina.* (RADNÓTI 1937, 55).
[26] BOLLA 1986, 201, Fig. 7/IV-V.
[27] NEMETH 1993, 51–52, no. 49; BONNAMOUR 2000, 15, 127, no. 129.
[28] DEN BOESTERD 1956, XXI-XXII, 17, no. 46, Pl. III/46; BOLLA 1986, 205, note 37.
[29] RADNÓTI 1938, 38, Taf. II/9, XVII/30; BREŠČAK 1982, 42, no. 17, T. 2/17; BOLLA 1986, 205, note 37; PETROVSZKY 1993, 299 (S.13.01), Taf. 26/S.13.01.

The presence of a thin-cast saucepan at Ardeu is of high importance in the context of the discussion regarding the north Italic imports which arrived in pre-Roman Dacia during the Augustan period, after the establishmnet of the trade route connecting the north-eastern part of the Italic Peninsula with the Sava River and the Danube[30]. This is the first object which attests with certainty the existence of the type in this territory[31], especially as long as the two handles, one belonging to a thin-cast saucepan Petrovszky III, 1 and the other to a dipper/strainer Petrovszky X, 2, acquired from Cuzdrioara and preserved in the Collection of the National History Museum of Transylvania, Cluj-Napoca do not have an exact place of discovery[32].

Even if the context of the discovery is not known, the saucepan from Ardeu was definitely used for a long period of time, fact indicated by the worn-out lines of the handle decoration. The object, as the other thin-cast saucepans, was part of the drinking service and it was used for mixing the wine before serving[33].

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[30] For a detailed discussion on the subject see: RUSTOIU 2005, 79–84.

[31] The identification of the saucepan discovered in the Dacian *dava* from Brad (Romania) with a variant of the type is not certain for the moment. Even if the context of the discovery is placed in the 1st century BC, the quality of the illustration is poor, the vessel was fragmentary and reconstructed in the drawing, thus it needs a detailed examination (for the saucepan form Brad see: URSACHI 1995, 132–133, 406, Pl. 17/3).

[32] MUSTAȚĂ 2013, 125–128, no. 1, 139–140, no. 16, Pl. XIII/1, XVIII/16, LVI/1, LXII/16a-b.

[33] PETROVSZKY 1993, 38.

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ABBREVIATIONS

ActaTS	Acta Terrae Septemcastrensis (Sibiu).
BAM	Brukenthal. Acta Musei (Sibiu).
CercArh	Cercetări Arheologice. Muzeul Național de Istorie a României (București).
CCA	Cronica Cercetărilor Arheologice din România.
Corviniana	Corviniana. Acta Musei Corviniensis (Hunedoara).
DissPann	Dissertationes Pannonicae ex Instituto Numismatico et Archaeologico Universitatis de Petro Pázmány nominatae Budapestinensis provenientes (Budapest).
Drobeta	Drobeta. Muzeul Regiunii Porților de Fier (Drobeta-Turnu Severin).
Instrumentum	Instrumentum. Bulletin du Groupe de travail européen sur l´artisanat et les productions manufacturées dans l´Antiquité à l'époque moderne (Montagnac).
Marisia	Marisia. Studii și Materiale. Arheologie (Târgu Mureș).
Sargetia (S. N.)	Sargetia. Acta Musei Devensis (Serie Nouă) (Deva).
Situla	Situla. Razprave Narodnega Muzeja v Ljubljani – Dissertationes Musei Nationalis Labacensis (Ljubljana).
SUBB-Historia	Studia Universitatis Babeș-Bolyai-Historia (Cluj-Napoca).
Terra Sebus	Terra Sebus. Acta Musei Sabesiensis (Sebeș).
Ziridava	Ziridava. Studia Archaeologica (Arad).

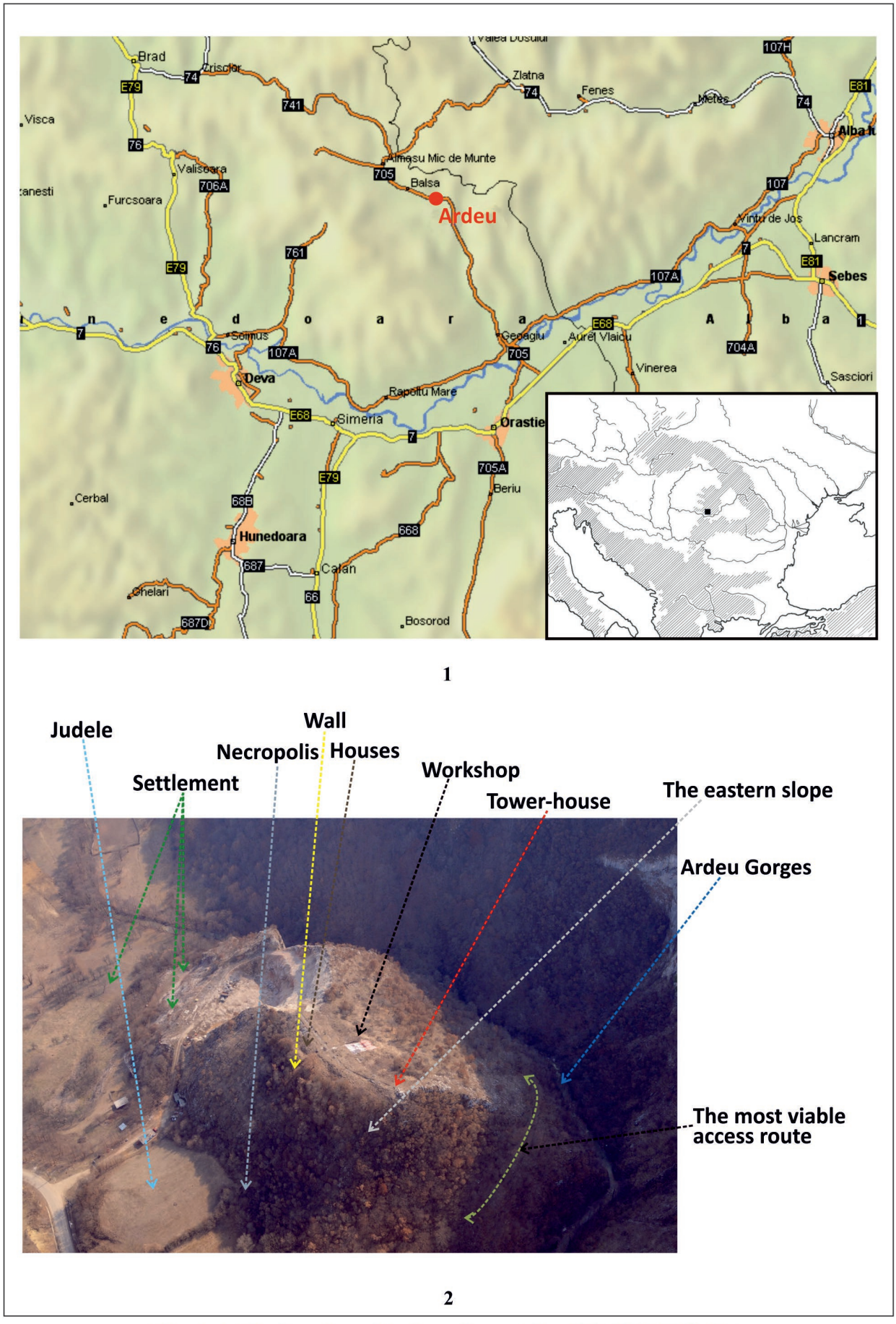

Fig. 1. 1. The location of Ardeu village (after FERENCZ 2010a);
2. The main components of the site (aerial view by Zoltán Czajlik, may 2012).

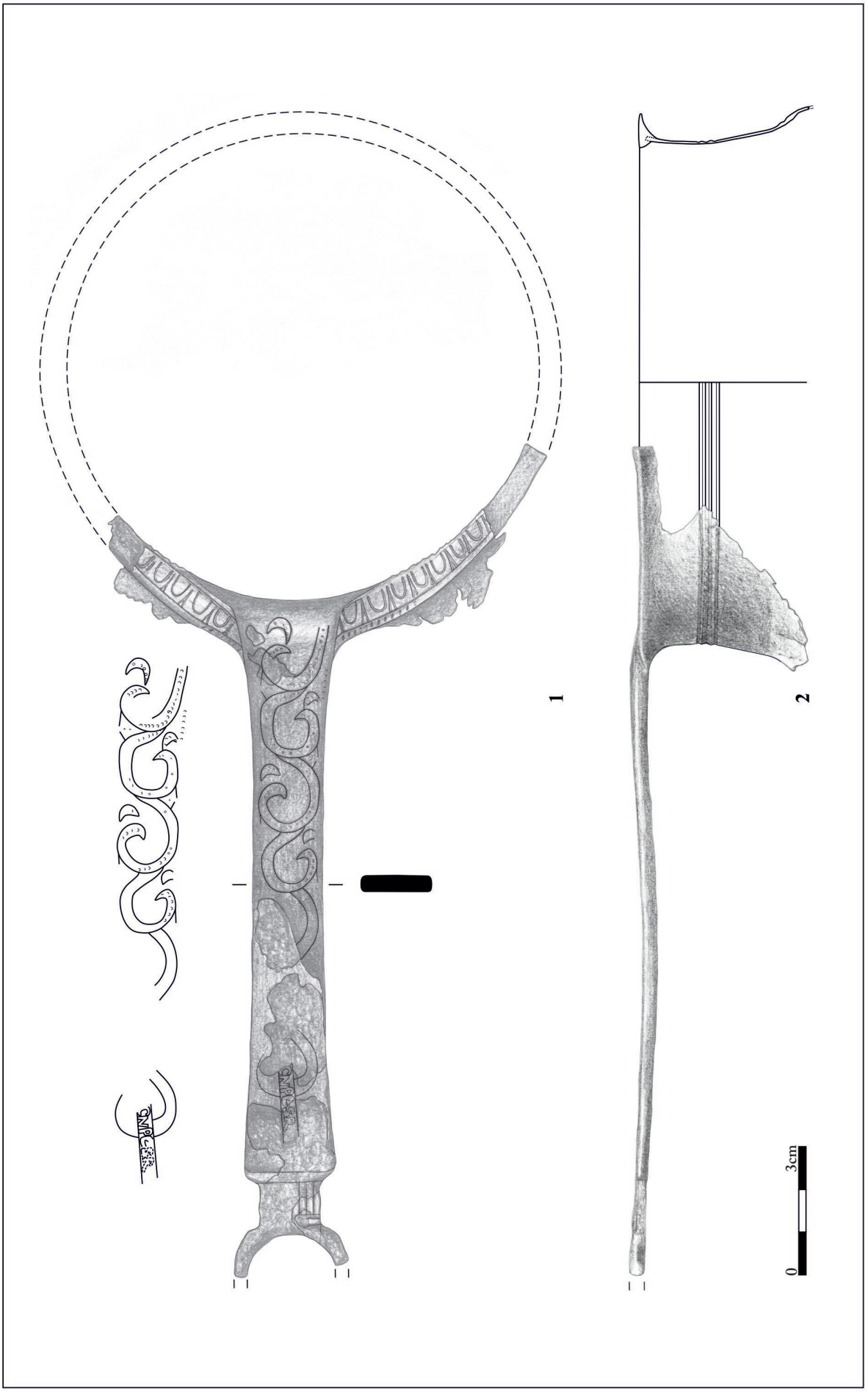

Fig. 2. 1-2. The bronze saucepan from Ardeu (drawn by O. Bocăniciu and S. Mustață).

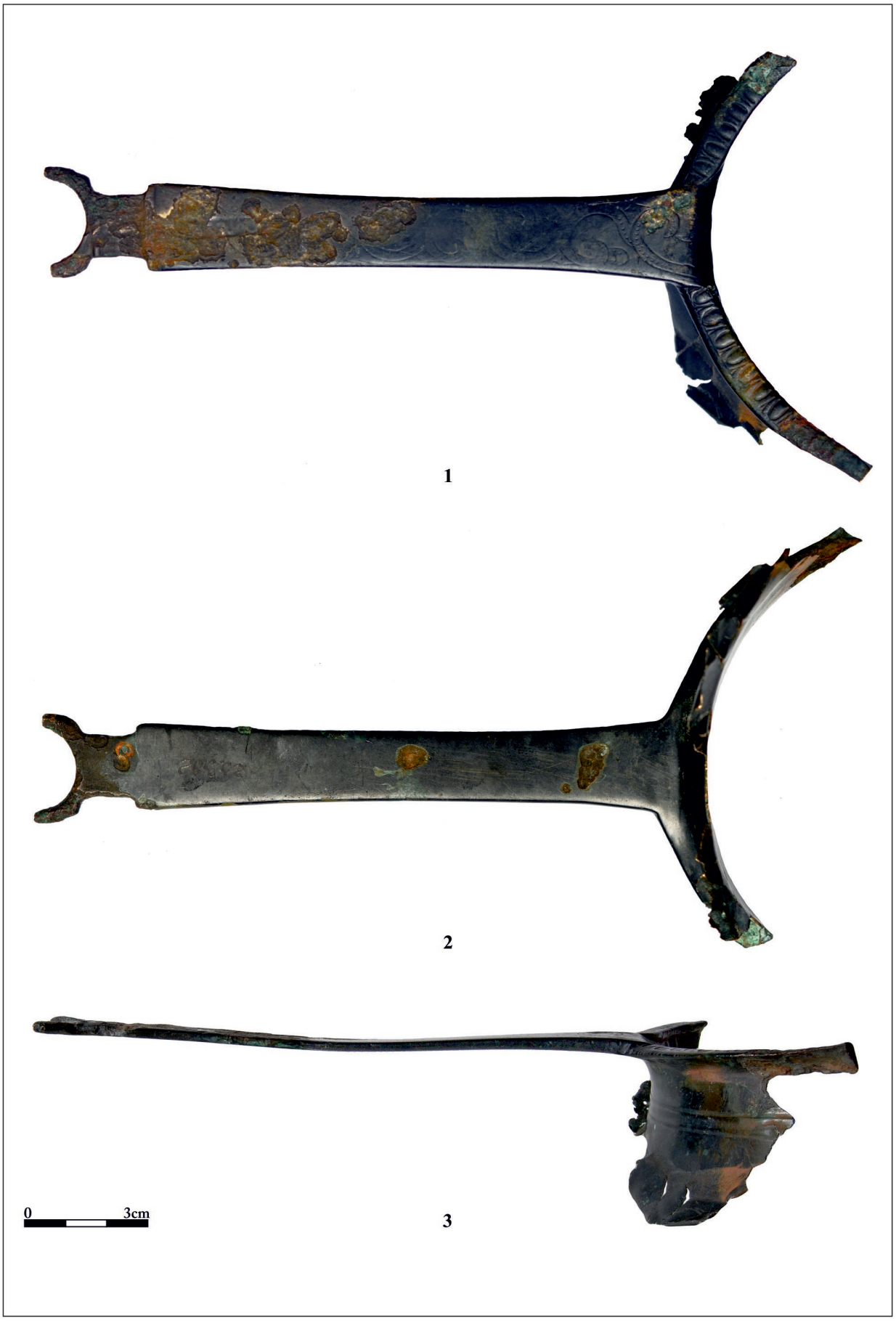

Fig. 3. 1-3. The bronze saucepan from Ardeu (photos made by: 1-2: S. Mustață; 3: S. Odenie).

Fig. 4. 1-2. The bronze saucepan from Ardeu. Details. 1. The inner side (no scale; photo made by S. Odenie); 2. The stamp (photo and drawing made by S. Mustață).

CREATION AND PRESERVATION OF DIGITAL CULTURAL HERITAGE

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Abstract: Cultural heritage documentation importance is recognized and supported at international level, the continuous development of new technology is increasing the pressure to document and preserve digitally.
In this paper we briefly review the methods that are commonly used to create digital cultural heritage. The storage solutions have also been reviewed to ensure that the digital content is well preserved. The creation and preservation of digital cultural heritage involves three important aspects: the three-dimensional digitization, data storage and data management.
Keywords: cultural heritage, laser scanning, CAD, photogrammetry, preservation

Introduction

All around the world heritage sites are being affected from natural disasters, weather changes, wars, and human negligence. Cultural heritage assets received a lot of attention recently from the authorities and they benefit from advances made in imaging, sensory and computer processing.

At the moment cultural heritage assets documentation is well recognized and there is an increasing pressure to document and preserve them digitally. As presented by Neamțu, C., Popescu, D. and Mateescu, R.[1], accurate 3D representations of cultural heritage assets are valuable for conservation, scientific study, and education.

Driven by progress in data acquisition systems and data processing capabilities, the 3D virtual model creation is currently receiving a high amount of attention from researchers, many computer graphics artists and 3D scanning specialists have been involved in the 3D digitization of cultural heritage.

As shown in the Digital Agenda for Europe[2], digitizing Europe`s cultural heritage and making it accessible online, preserving it for future generation is one of the challenges of the Digital Agenda for Europe.

The European Commission Recommendation[3] of 27.10.2011 regarding digitization and preservation of cultural heritage invites Member States to:

• Put in place solid plans for their investments in digitization (recently estimated at 100 billion €). The Recommendation spells out key principles to ensure that such partnerships are fair and balanced.

• Make 30 million objects available through Europeana by 2015, including

[1] NEAMȚU/POPESCU/MATEESCU 2011, 79-88.
[2] Accessible on http://ec.europa.eu/digital-agenda/
[3] Accessible on https://ec.europa.eu/digital-agenda/en/digitisation-digital-preservation

all Europe's masterpieces which are no longer protected by copyright, and all material digitized with public funding.

• Get more in copyright material online, create the legal framework.

• Reinforce their strategies and adapt their legislation to ensure long term preservation of digital material.

In the context of digitizing cultural heritage assets and obtaining 3D models the authors of this paper have focused on the digitization of Dacian cultural heritage assets.

As presented by Glodariu, I. and Iaroslavski, E.[4] the Dacian civilization was imposed in ancient Europe through its remarkable achievements in various fields and deeds of arms which have been studied in numerous studies, monographs, works of synthesis, all designed to increase the knowledge on this great and important chapter in the historical development of south eastern Europe.

3D data documentation represents nowadays a critical component that can acquire the shapes and texture with a high precision, allowing the information to be stored and passed to future generations.

As presented by Pavlidis, G., Koutsoudis, A., Arnaoutoglou, F., Tsioukas, V., and Chamzas, C.[5] complete recording of a cultural heritage is a multidimensional process, it involves not only the problem of 3D digitization of objects and monuments but involves aspects such as digital content management and representation.

The digital cultral heritage

3D digitization of cultural heritage assets is considered a common practice. As presented by Gomes, L., Bellon, R., P., and Silva, L.[6] digital preservation of cultural heritage represents an application area for digitization technology whose interest has increased in the past two decades. The main motivations to digital preserve cultural heritage assets are the following:

• To ensure that the shape and texture of an object is not lost in case of damage by accidents or natural causes;

• To allow the dissemination of the 3D models to a large public

To create photorealistic 3D models of real artefacts and environments that have a high degree of fidelity represents a very challenging task that demands advanced knowledge of digitization techniques and computer graphics. The digitization of artefacts and monuments represents a field of continuous research and development, advances technologies in the field of 3D scanning and photogrammetry can change the whole digitization process.

As presented by Koutsoudis, A., Stavroglou, K., Pavlidis, G. and Chamzas, C.[7], 3D content has become very popular not only due to the technological trends (e.g. 3D films, computer games, virtual reality and augmented reality equipment) but also because it provides better comprehension of the visual content. Currently there are research projects such as 3D Icons[8] (built on the results of CARARE and 3D-COFORM) which aim to bring 3D architectural and 3D archaeological content to the public through the Europeana[9] platform.

Since there are more reliable methods to create 3D models for different cultural heritage assets, a large amount of projects based on 3D digitization have emerged around the world.

The work presented in this paper is part of the volunteer based project Virtual Ancient Dacia[10], a collaboration project between Technical University of Cluj-Napoca[11] and National Museum of Transylvanian History of Cluj-Napoca[12] that aims to digitally reconstruct Dacian cultural heritage assets.

The most common methods to digitize cultural heritage assets to provide 3D models are the following: laser scanning, 3D modelling, digital sculpting and photogrammetry.

Laser scanning

Laser scanning is based on a system that uses a light source and an optical detector. The laser emits a light source which usually is in the form of a line, this is projected on the surface of the object and an optical detector detects this line. This process usually uses the triangulation principle, and the system is able to extract the shape of the scanned object.

Traditional measuring techniques are often imprecise and complicated. Using 3D laser scanners the morphological characteristics on an artefact or monument can be acquired and measured with a very high accuracy.

Acquisition of real artefacts and monuments using 3D scanning technology generates enormous quantities of 3D data. Most scanners create large unstructured point clouds that require additional post processing.

3D scanning has taken on a new dimension in coordinate measuring technology using mobile hand-held laser scanners that are easy to operate in different remote areas such as an archaeology site.

During 3D scanning acquisition different problems caused by the hardware optical limits can appear. 3D scanners give notoriously poor results if used to scan black and shiny surfaces, because the surfaces tend to absorb the light beams and prevent the point acquisition. These problems can be reduced by applying a coating layer using a CAD/CAM laser scan spray. This spray enhances the readability of the CAD/CAM scanner laser light by reducing the reflective properties of the material. Its ultra-fine 10-micron particle size allows the mechanism to read the die surface properly and accurately. This spray is washable, but needs more care to be removed, especially into rough surfaces.

Two portable laser scanners have been used to digitize a high amount of Dacian artefacts for the Virtual Ancient Dacia project. The first scanner is a hand held VIUscan[13] laser scanner.

VIUscan is a portable device that not only captures the shape of an object, but it can also record the surface texture. The main advantage of this scanner is that it can acquire the shape of a real artefact relatively quickly. On high resolution a small artefact (around 100 mm) requires about 20 minutes. All the digitized artefacts have been scanned using the highest possible resolution. This scanner is creating uniform

[4] GLODARIU/IAROSLAVSKI 1979
[5] PAVLIDIS/KOUTSOUDIS/ARNAOUTOGLOU/TSIOUKAS/CHAMZAS 2007, 93-98.
[6] GOMES/BELLON/SILVA 2014
[7] KOUTSOUDIS/STAVROGLOU/PAVLIDIS/CHAMZAS 2012, 187-194.
[8] Accessible on http://3dicons-project.eu/
[9] Accessible on http://www.europeana.eu/
[10] Accessible on http://vad.utcluj.ro/
[11] Accessible on http://www.utcluj.ro/en/
[12] Accessible on http://www.mnit.ro/
[13] Accessible on http://www.aniwaa.com/product/creaform-viuscan/

polygonal meshes and it is equipped with a camera that simultaneously records the texture of the scanned surface and positions it over the matching polygons. It can be operated in remote areas such as the Sarmizegetusa Regia archaeological site. This is an isolated area that is not connected to electricity. The scanner and the laptop used for the digitation were powered by a diesel generator and are presented in Figure 1.

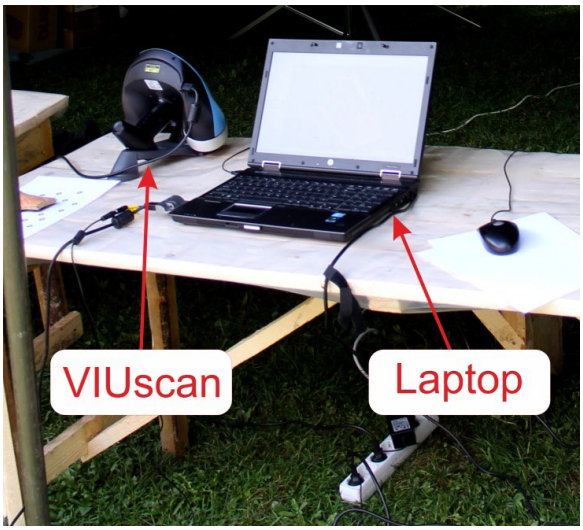

Figure 1. Hand held laser scanner used to digitize Dacian artefacts

Different artefacts have been digitized such as the T-shape nail illustrated in Figure 2. This iron artefact was made by hammering, hence the irregular section of the body. The dimensions of this T-shape nail are 247,018 mm in length, 61,888 mm in width and 11,945 mm in height. VIUscan is a scanner that can be constantly moved around the object during the digitization process. It uses a network of positioning markers (small reflective dots) to estimate the location and orientation. For small objects the reflective dots are positioned around the object but for large objects the markers can be positioned on the object and then the object can be rotated during the scanning process.

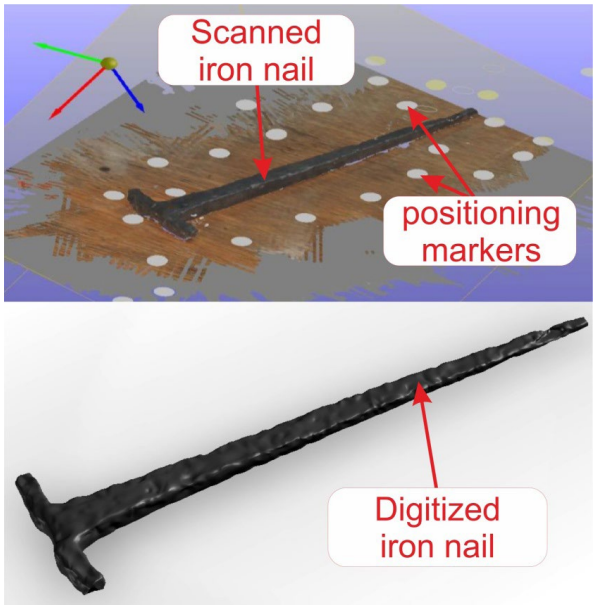

Figure 2. Digitized T-shape Dacian nail scanned with VIUscan

The other laser scanner, Kreon Zephyr KZ-50[14] was mounted on the Stinger CMM II[15] which is a portable coordinate measuring machine. This scanner has been used only in indoor scenarios. The equipment is very bulky and relatively hard to transport, also the range of the arm is limited. The Kreon Zephyr KZ-50 is not suited for large objects or for outdoor digitization.

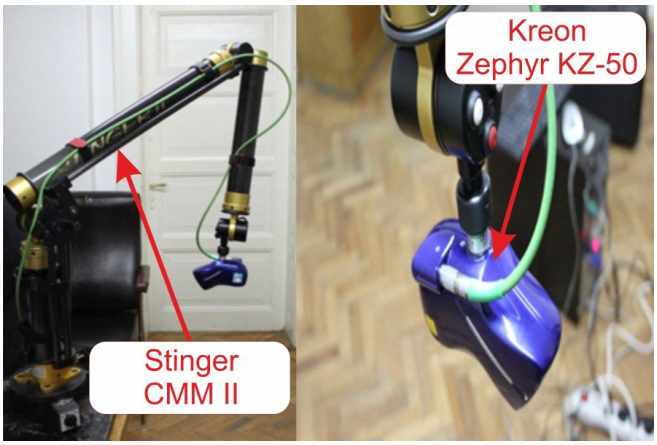

Figure 3. Kreon Zephyr KZ-50 laser scanner mounted on the Stinger CMM II

This scanner creates non-uniform cloud, and it can acquire 30,000 points/second. A large amount of iron artefacts have been digitized for the Virtual Ancient Dacia project using this scanner. The main disadvantages of this scanner it cannot acquire the texture of the object.

The Dacian forges had an incorporated iron guarding element for the bellows. The forge was constructed from clay, and the role of the iron guard was to support and guide the bellows system. The digitized forge iron guard is illustrated in Figure 4a. The digitized model has 1.204.920 point the point cloud is presented in Figure 4b. Figure 4c illustrates the 3D reconstruction in wireframe of the Dacian forge. The clay forge was modelled using CATIA V5R21.

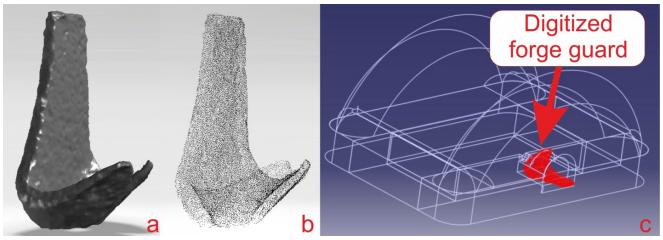

Figure 4: (a) The digitized forge iron guard, (b) the point cloud of the iron guard (c) The 3D reconstructed Dacian iron forge that includes the digitized iron guard

A high amount of iron artefacts have been digitized using the two laser scanners mentioned above. Figure 5 presents the information regarding an iron hammer. The hammer differs from the sledge hammer not only in size but also in form.

The dimensions of this digitized iron hammer are: 162,154 mm in length, 81,327 mm in width and 80,834 mm in height. This is a massive hammer, almost as big as a sledge hammer.

[14] Accessible on http://www.kreon3d.com/zephyr/
[15] Accessible on http://www.cmmxyz.com/romer-stinger-ii-12-arm

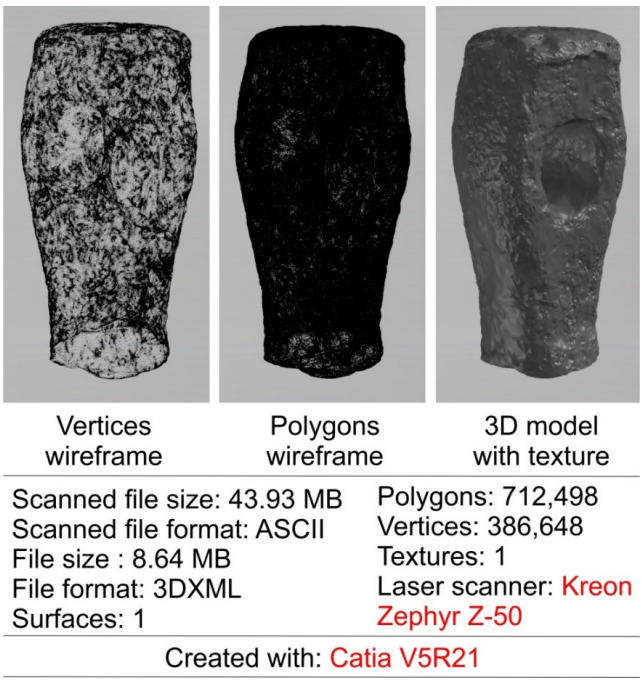

Figure 5. Digitized Dacian iron hammer

A digitized Dacian sledge hammer is presented in Figure 6. The dimensions of this sledge hammer are: 205,417 mm in length, 77,735 mm in width and 80,461 mm in height.

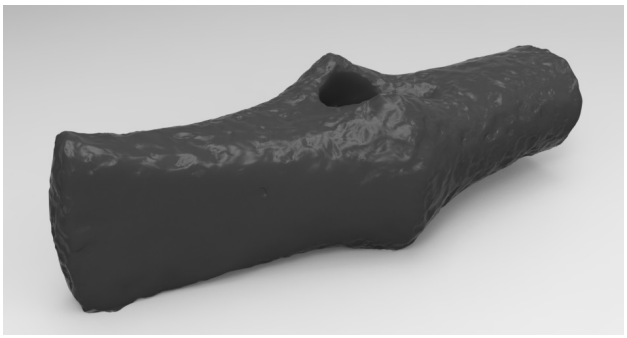

Figure 6. 3D scanned Dacian Sledge hammer

3D modelling

Computer-aided design modelling is a process of developing a mathematical representation of a 3D object or surface; this is done using specialized CAD software.

CAD modelling makes use of empirical and topographic techniques to create the 3D representations. During an empirical recording different measurements are taken (by hand) of distances between characteristics points on the surface of the monument. This method is simple and productive and of low cost. Advanced measurement tools such as laser measuring tools can be used to increase the accuracy of the measurements.

The digital reconstruction of the Dacian blacksmith workshop from Căprăreața was done using 3D CAD modelling using CATIA V5R21[16]. As presented by Glodariu, I.[17], the blacksmith workshop was located on a south hill from Grădiștea, east from the sacred area and archaeologist have discovered this workshop archaeological site in the spring of 1971, a high amount of iron bars, tools and other blacksmithing materials were located around the site.

The documentation regarding the wooden structure of the workshop is limited. The main reference for a Dacian blacksmith workshop is presented in the History-Archaeology Museum from Târgu-Mureș[18], a photograph of this illustration from the museum is presented in figure 7.

Figure 7. Illustration of a Dacian blacksmith workshop from the History-Archaeology Museum from Târgu-Mureș

The first step was to create the four wooden poles. The diameter of each column was set to 300 mm and the distance between the centres of the wooden poles to 4000 mm for the length of the workshop and 3000 mm for the width.

Horizontal beams have been modelled in the form of dovetail joint. The beams have a 5 mm distance between them so that the smoke created by the forge can be evacuated more easily from the workshop.

The virtual reconstruction of the Dacian blacksmith workshop from Căprăreața is presented in figure 8.

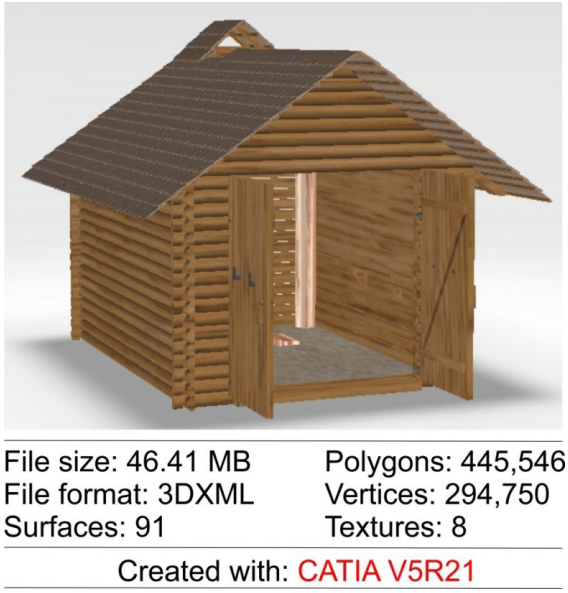

Figure 8. The virtual reconstruction of the Dacian iron workshop

[16] Accessible on http://www.muzeumures.ro/
[17] GLODARIU 1975, 107-133.
[18] Accessible on http://www.3ds.com/products-services/catia/portfolio/catia-v5/catia-v5r21/

With the 3D model of the Dacian workshop created, a virtual environment has been created to better display the blacksmith workshop (Figure 9). In a virtual environment additional models have been added individually to enable better animations and annotations. The virtual environment was created by Neamțu, C., Comes, R., Mateescu, R., Ghinea, R. and Daniel, F[19], additional models have been laser scanned, such as the hinges, nails, staples, anvils, pliers, etc. Other models are a combination of 3D scanned models that have been assembled with 3D modelled elements. These elements are the following: the clay forge, the bellows and the tools that have wooden handles.

Figure 9. 3D scanned model of a Dacian sledge hammer

Digital Sculpting

Digital sculpting represents the use of software that offers tools to push, pull, smooth, grab, pinch or otherwise manipulate a digital object as if it were made of a real-life substance such as clay. Digital sculpting is different from 3D modelling, they are both modelling methods that are done digitally using computer software but the tools and methods are completely different.

The 3D model of the Dacian clay medallion was sculpted using Autodesk Mudbox 2013[20]. The clay medallion photograph was overlapped over an initial cylinder primitive shape allowing the digital sculptor to sculpt more precise.

Digital sculpting applications combine 3D sculpting, texturing and painting. For the Dacian medallion the projection painting method has been used to apply the texture from the photograph of the medallion to the 3D digital sculpted model. The initial photograph, the digital sculpture and the final model that combines the texture from the photograph and the 3D model are illustrated in Figure 10.

More precise results can be obtained using laser scanning techniques or photogrammetry. But if the artefact/monument is damaged or incomplete digital sculpting represents the best solution to digitally reconstruct the missing details. For the medallion the 3D model had only 251,235 polygons but digital sculpting software such as Mudbox can subdivide each polygon in four other polygons using simple algorithms allowing the resolution to be increased therefore details can be sculpted smoothly.

[19] NEAMȚU/COMES/MATEESCU/GHINEA/DANIEL 2012, 303-311.

[20] Accessible on http://www.autodesk.com/products/mudbox/overview

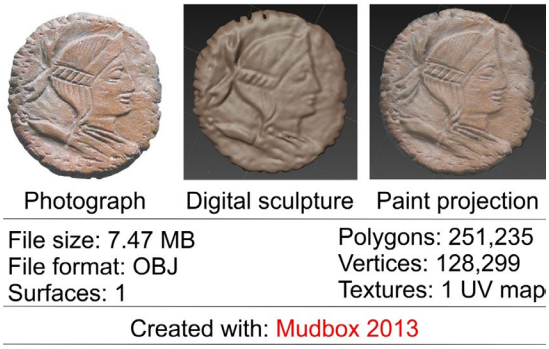

Figure 10. Digital sculpture of the Dacian medallion in Mudbox software using a photograph as reference and texture

The major limitation when subdividing a 3D model in digital sculpting is the processing capability of the computer.

Photogrammetry

With recent developments in computer and information technologies, this well-known traditional method has been adapted resulting digital close-range photogrammetry. This digital method offers new opportunities such as automatic orientation, measurement procedures, generation of 3D vector data, digital surface model and 3D surface texturing.

There are many photogrammetry software that use automatic orientation systems. Autodesk 123D Catch[21] is photogrammetry software that can be installed on a computer. It has mobile device applications for IOS and Android that allows the users to use their smartphones to take photographs and upload them to Autodesk 123 Catch cloud system to generate the 3D models. Professional DSLR cameras provide better results when working with photogrammetry since the pictures acquired with professional cameras contain more information.

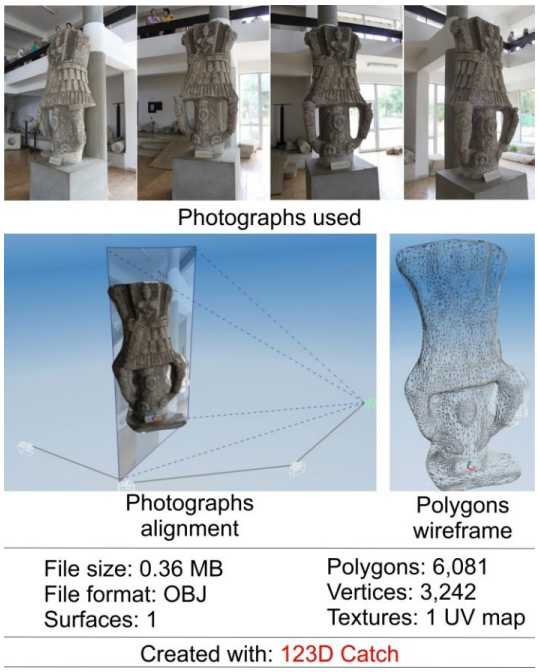

Figure 11. Small monuments from Adamclisi created with Autodesk 123D Catch

[21] Accessible on http://www.123dapp.com/catch

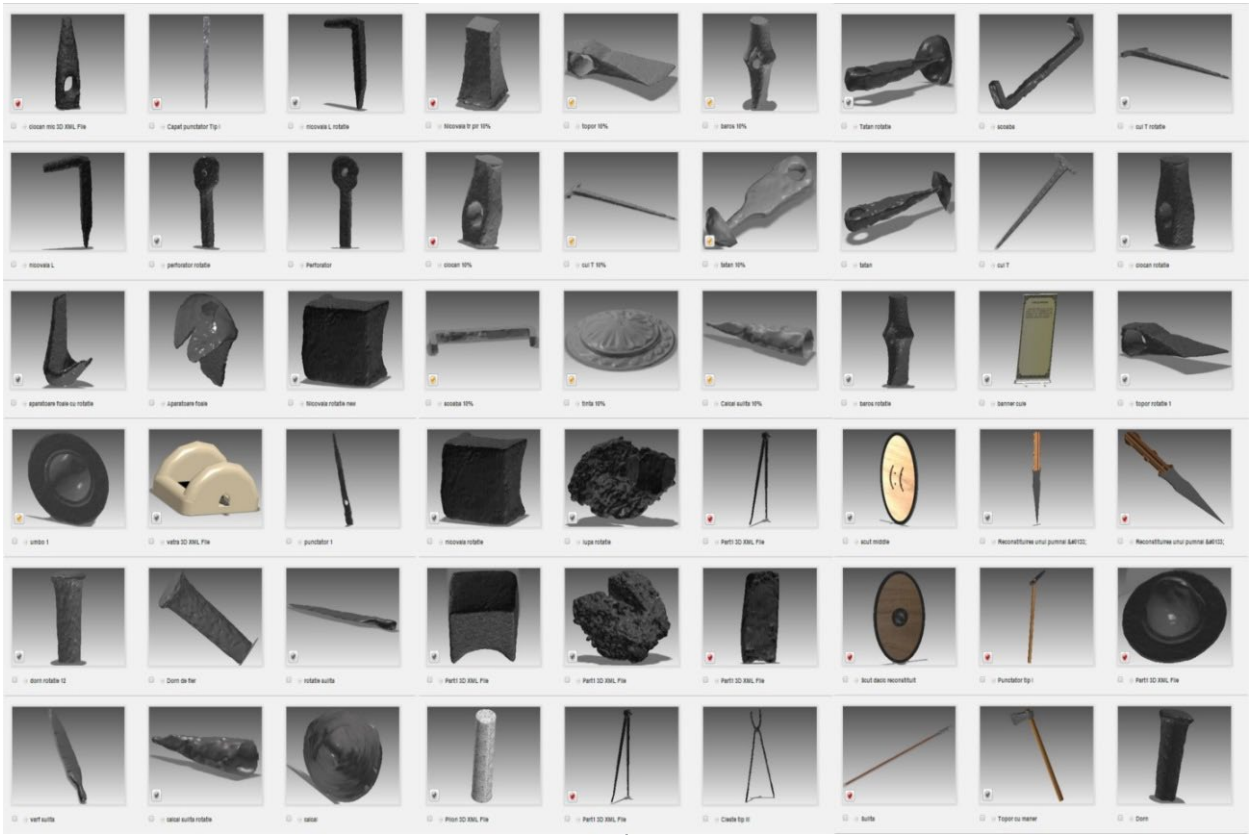

Figure 12. Online cloud storage system used for the Virtual Ancient Dacia project

The small monument from Adamclisi has been digitized using this software, Figure 11 presents the photographs used and the 3D digitized model.

For best results it is recommended to shoot a loop of about 20 sequential photographs in small increments around the object and also shoot another loop from a different angle.

After the 3D model is generated it requires additional clean up, this can be done using the web application of the Autodesk 123D Catch software or the file can be imported to a 3D modelling software for further processing.

Photogrammetry represents a technology that can generate 3D digital content very fast compared to the other 3D digital content creation methods. But the precision is much lower then the precision of the 3D scan method. Recent research and development in the field of photogrammetry increased the precision of this method making it a viable solution to create 3D digitized content suited for cultural heritage assets.

Digital storage and access

the digitized 3D models created in the Virtual Ancient Dacia project are stored locally and online. The cloud storage system used by us allows user to access special created virtual reality environments that provide additional information regarding each 3D digitized cultural heritage asset.

When it comes to storing data, cloud storage has become the method of choice. Files stored remotely rather than locally have the following advantages:

• **Collaboration** – cloud storage allow multiple users to edit and collaborate on the same file, this eliminates the problem of tracking the latest version or who made what changes;

• **Protection and recovery** – cloud storage systems create backups that are kept in different and secure locations. In the case of a catastrophic data loss the backups will automatically restore the digital content with no downtime.

• **Syncing and accessibility** – The content can be accessed from different devices such as smartphones, tablets, notebooks, desktops and workstations. If the users have internet access they can access any file.

• **Security** – Storing important information in the cloud is often more secured than local storage. Some cloud storage system encrypts the data during transmission, ensuring no unauthorized users can access the files.

• **Manage interactive environments** – Virtual reality and augmented reality applications can be created easier if all the data is stored in the cloud system. The data can be managed easier using this system.

Complex models have been optimized to ensure mobile device compatibility. These files can be accessible using smartphones and tablets. The cloud storage system is illustrated in Figure 12. The initial and the optimized 3D models are stored in the same cloud storage system.

Conclusions

Obtaining 3D digitized cultural heritage content represents a complex process that can be done using different methods. The digitization method depends highly on the cultural heritage asset that is being digitized. Laser scanning and photogrammetry can be used to acquire the shape and

texture of existing artefacts and monuments, while 3D modelling and digital sculpting can be used to virtually recreate damaged or incomplete cultural heritage assets.

3D digitization of cultural heritage assets is considered a common practice and represents a critical component that can preserve cultural heritage assets digitally. However there are many challenges and open problems in order to obtain high fidelity 3D models. The research in this field and constant development of the acquisition systems (laser scanning and photogrammetry methods) are constantly improved allowing higher fidelity 3D models to be obtained much easier.

Online cloud storage represents the best method to ensure that the digital cultural heritage data are protected and secured. Since cloud storage creates multiple backups on different locations the files can be recovered in case of catastrophic data loss. Interactive virtual reality applications and augmented reality applications can be created and managed better if the files are stored in a cloud storage system.

In this article we summarize most of the methods available today for 3D digitization that can be applied to create and preserve digital cultural heritage assets, all the presented 3D digitization methods have been used to generate 3D content for the Virtual Ancient Dacia project.

Further research will be devoted to improve the fidelity of the 3D models within this project. Virtual reality application, augmented reality applications and 3D printed replicas of damaged/incomplete artefacts are being developed to ensure the dissemination of this research.

ACKNOWLEDGEMENT

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Reviews

Radu Oltean, *Dacia. The Roman Wars.* Volume I. *Sarmizegetusa*, Art Historia Publishing House, București 2013 pp.152, ISBN 978–973–0–14786–5

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"The Dacian Wars. Volume I. Sarmizegetusa" is a history-based popularization book, which contains over 190 color and black and white images, illustrations and hypothetically reconstructions of roman and Dacian buildings, settlements, battlefields, monuments and artifacts, altogether recreating a colorful storyline of the Dacian Wars.

The volume has 7 chapters (152 pages) which contains historical, archaeological and architectural informations about Rome, including an impressive number of photos and color reconstructions, basic informations about the northern Thracians, a brief history of archeological researches in "Orăștie Mountains" and of course, the storyline of the Dacian Wars (Domitian's Dacian War and Trajan's first Dacia War).

The Foreword (p.7) shows the author's intentions and the aim of the book, which in this case is the popularization of the Dacian Wars history for those who are not in touch with the academic and scientific dimensions of the issues in question. Also, the author mentions that he makes an objective narration of historical events without ideological implications.

The first chapter, "Rome" (pp. 11–25), presents, as the title indicates, some of the most important monuments and buildings directly related to the history of the Dacian Wars, against Decebalus, the ruler of Dacia. The chapter begins with a color reconstructions of the Capitoline Hill, the political centre of Rome, made by the author. The chapter also contains photos and illustrations accompanied by descriptions for Trajan's Forum finished in 112 C.E., Trajan's market, located on the western side of Quirinal Hill, Dacian statues scattered throughout the Forum, for glorifying the victorious Emperor; the Arch of Constantine, dated in the 4th century of our era, contains also 7 Dacian statues, similar with those found in the Forum. The great trajanic frieze and the Trajan's Column are the last two major monuments described in this chapter, altogether with a hypothetical illustration of Emperor Trajan's funerals (p.20).

In the second chapter, "The Northern Thracians" (pp.26–30), the author briefly illustrates some aspects regarding La Téne civilization from modern day Romania. The two subchapters bring up fundamental problems regarding Geto-Dacians religion and the terms "*Getai*" used by Herodot in the Vth. century B.C.E. to define the population that lives in the south of the Danube river and in sotuh-east of modern day Bulgaria, and „dacian", mentioned for the first time by Caius Iulius Caesar in „*Commentarii rerum gestarum belli gallici*" in the 1st. century B.C.E.

"The wars with Romans" (pp. 31–37) is the title of the third chapter. The author presents here the first military conflict between Dacians and the roman army, under the command of Emperor Domitianus. Before that, the author briefly describes the first political and military contacts between Geto-Dacians and romans.

The subchapter "Romans reach the Lower Danube" illustrates the first contacts between Geto-Dacians and Romans, in the mentioned area, around 29 B.C.E., the first military conflict in 29–28 B.C.E. in which were involved

romans, local kings like Rholes, Dapyx and Zyraxes (from Scythia Minor, modern day Dobrudja) and some Bastarnae tribes. The military expedition of proconsul Sextul Aelius Catus and the deportations of 50.000 Dacians (Strabon) are also mentioned here. The chapter ends with the victory of Tettius Iulianus at Tapae in 88 C.E. and the conclusion of peace between Decebalus and Domitianus.

The fourth chapter, "Short history of the Orăștie Mountains research" (pp. 38–69), introduces the reader into an archaeological area in order to acquaint him with the Dacian material culture, fortified points and sacred areas. In the first part of the chapter, the author tries to reconstruct the ancient landscape of Orăștie Mountains in the time of king Decebalus. The second part of the chapter presents some major Dacian fortified centers and the hypothetical reconstructions of them. These are: Costești, Blidaru, Piatra Roșie and Bănița.

The third part of this chapter focuses on *Sarmizegetusa Regia*, the political and religious center of Dacian Kingdom. The author describes each temple from *area sacra*, and proposes some graphic reconstructions for the main sacred area (p. 59) and for the central zone of *Sarmizegetusa* (p. 55).The last part of the chapter shows the Dacian iron processing and some characteristic iron artifacts of Dacian culture.

In the fifth chapter, "Trajan's wars against Decebalus" (pp.70–135), are presented the main parts of the first war of Emperor Trajan against the Dacian king. The author presents in first part of the chapter, the political and economical growing of the Dacian Kingdom under Decebalus. The Roman Empire could not tolerate such a growing enemy power at its boundaries. In "*Expeditio Dacica Prima*" the author presents the storyline of the first Dacian war, in AD 101–102. He uses the writings of ancient Latin writers, and makes a lot of colorful graphic reconstructions for the main sequences of the war, like the crossing of Danube River on a bridge made of boats (p. 79) or the black and white reconstruction of *Tabula Traiana*.

The text is accompanied by illustrations and reconstructions that aim to recreate the magnitude of the Dacian Wars for the history amateurs. The chapter contains also informations about the "Battle of Tapae" king Decebalus, Germanic allies and the foundation of Nicopolis ad Istrum after the great victory against a barbaric army. "Back to the Orăștie Montains range" is the subchapter that illustrates the Roman military maneuvers against the Dacian fortresses. The chapter ends with the defeating of King Decebalus and his requesting for peace in 102 C.E.

The last two chapters of the book (pp. 136–139 and pp. 140–147) deals with the situation of Sarmizegetusa after the end of the first war respectively with the triumphal monuments of Emperor Trajan from Adamclisi. The author shows several graphic reconstructions of the Tropaeum Traiani and the finished bridge from Drobeta.

The usefulness of this book is given by the fact that familiarizes the reader who is not in touch with the historical and archeological topic of the Dacian Wars, using a specialized bibliography.

Kremer, Gabrielle (mit Beiträgen von Christian Gugl, Christian Uhlir und Michael Unterwurzacher), *Götterdarstellungen, Kult – und Weihedenkmäler aus Carnuntum.* Wien, 2012, pp.483 with 213 panels. ISBN 978–370–0–16950–5

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The monumental volume of Gabrielle Kremer was published under the auspices of the Austrian Academy (Österreichische Akademie der Wissenschaften) as a result of the successful collaboration of multiple Austrian institutions and research groups. The monograph is published as the first Supplementum of the famous *Corpus Signorum Imperii Romani* (CSIR) related to Carnuntum. In this series from 1967 till now was published 31 volumes related to the stone and epigraphic monuments of Austria, three of the volumes – I.2, I.3, I.4. – dealing with the monuments of Carnuntum. The work of Gabrielle Kremer was an urgent and highly anticipated work, publishing first time in a single corpus 772 votive objects, which represents almost 40% of the total number of stone monuments from the best researched Roman city in the Danubian provinces. The monumental corpus was preceded by some important publications of the same author about the religious life of Carnuntum.

In the introduction, the author mentions that the waste work was carried on between 2008 and 2010, researching mainly in the local museum from Carnuntum (Archäologischen Museums Carnuntinum) where 55% of the objects are deposited and in various foreign museums and private collections (21% of the objects). The corpus was meant to be not only a new volume of the CSIR series – following the strict, publishing criteria of the international committee – but also an example for the interdisciplinary collaboration between various grand projects from Austria, most notably with the CIL III[2] Project coordinated by prof. Ekkehard Weber and with the project of dr. Ortolf Harl[1].

The first chapter presents a short but concise historiography of the research, which goes back till the antiquarian activity of Wolfgang Lazius (1514 – 1565).

The catalogue represents the most important part of the volume. The 772 stone monuments are divided in 8 categories (25–26.pp.) the biggest group being those of the altars and statue bases (59%) followed by the statues and statuettes (22%). Every category is subdivided in divinities, presented in strict, alphabetic order (32 subcategories in statues and 39 in altars and statue – bases). This method is conventional for the CSIR series, which deals mainly with an art historian and classical archaeologist, descriptive, almost positivist approach. Dealing with votive objects however, further studies and aspects would be necessary for a holistic view of this really impressive material. Each object is described and presented in the same way, using a very strict and useful methodology: name of the divinity, name of the object, place of discovery and place of preservation, deposit number, bibliography, material and conservation status, dimensions, detailed description sometimes

[1] www.ubi-erat-lupa.org is a partner of the EAGLE (Europeana network of Ancient Greek and Latin Epigraphy).

dealing with the functionality and topographical aspects of the object, iconographic typology[2] and chronology. Some objects, such as the altar or statue base (nr. 351) dedicated to Mithras marking the emperors "conference" in Carnuntum at 308 has a detailed description. The importance of some pieces are marked also by the number of the photos published in the corpus. Many of the presented stone monuments are published first time in the corpus of Kremer or with a new interpretation of their inscription, functionality. Many of the objects were first time analyzed with new, petrographic methods. Some of the pieces are enrolled as "undermined divinities" or "varia" which makes hard their interpretation and exact role in the religious life of the city. In some cases (nr. 129 – 158 and 163 – 165) their votive aspect are also questionable[3]. This aspect is one of the biggest question marks of the book: what can we consider "votive" in a Roman provincial context? Unfortunately, a missing chapter of an adequate and detailed methodology would have been serve an answer for this question.

A separate chapter deals with the chronology of the objects, presenting not only a detailed analysis of the 772 monuments, but also reflecting on the general history of the settlement. Statistics and tables (abb. 10 and tabelle nr. 1.) are very useful for a general overview on the chronology of the objects – most of them came from the Severan age (193 – 235) as usually we can expect due to the so called "epigraphic habit". Very important the comparative study on the chronology of the Pfaffenberg and Carnuntum, the first culminating between 284 – 314. Kremer presents not only the precisely dated monuments, but reflects also on the different methodologies which can indicate an approximate chronology (stylistic or paleographic analysis).

A very important chapter deals with the topography of the monuments, coauthored with Christian Gugl. 456 monuments have an exact or approximate topography, which is remarkable in comparison with other similar cities, such as Colonia Claudia Ara Agrippinensium, Aquincum or Apulum. Most of the objects came from the legionary fort (124 monuments) and from the sacral area of the civilian settlement (Silvanus and Quadriviae temples – 56). A significant number of monuments came also from the civil amphitheatre and the Nemesis sanctuary (41). Thematic maps and tables are also very helpful in this case. Kremer presents very accurate the problematic question of the so called IV. and V.th mithraeum. Extremely important is the map with the distribution of the votive monuments from the legionary castrum (abb. 27.) which shows a problematic question: the cultic places inside of a castrum. In the case of Carnuntum, only 15 objects were found in situ, mainly concentrated in the Principia, "carcer", a schola and in a corner of the so called "C" building (probably a *horraeum*). However, these objects are without inscription, thus their votive nature and use is questionable (nr. 690 – 692.). Each of the places from the fort where votive monuments were found are analyzed very carefully.

A separate chapter deals with the deities, focusing mainly on statistics (surprisingly, the most popular deity is Silvanus – Silvanae 19% than IOM 11% and Mithras 8%). 56 deities and personifications were attested in Carnuntum, which shows a very dynamic religious society – quite similar to that from Aquincum and Apulum too. Important to mention the tables about the social distribution of the worshipers too (abb. 37.). They are analyzed shortly in a separate chapter. 201 worshippers – 45 of them erecting multiple monuments in Carnuntum. The author presents not only the contrast between the civilian and the military communities (60 – 40%) but focusing also on the functions, onomastics and a comparative analysis on the pantheon of the two, coexistent communities (abb. 42.). A separate table presents the dedications of some military and civil groups (table 8.).

Chapter 8 presents the importance of the workshops which is a problematic and rarely attested in the Danubian provinces. Categorizing some particular monuments on stylistic and materiality, the author tries to identify not only workshops but in some cases also craftsmen, such as the so called "Virunum maestro".

In the next two chapters, Kremer presents the iconographic types and main forms attested in Carnuntum, analyzing the economical and commercial routes detected by the "import" marbles. The detailed examination of the marble monuments (table 11.) shows an extremely rich variety of the provenience (mainly from Naxos, Paros, Pohorje, Thasos). The book last 70 pages contains the waste bibliography (a real compendium for the historiography of Carnuntum), abbreviation list, picture and figure list and a detailed index. The last chapter of the book presents the 213 panels with high quality pictures and figures following strictly the methodology and autopsy roles of the CSIR and the modern digital publications, such as the Lupa or the EDH.

In conclusion, the monumental work of Gabrielle Kremer is an important contribution not only for the scholars interested in the topography, social history and religious life of Carnuntum, but a provoking analogy for the discipline of Roman religious studies. In the last twenty years appeared dozens of monographs on the religious life of some Roman cities – such as Corinth, Thessaloniki, Sarmizegetusa, Pompei, Ostia – marking a new tendency in the religious studies. However, the work of Kremer is not following the methodology of the *Religionswissenschaft* but more the descriptive and quantitative approaches of the classical archaeology and social history, her contribution must be considered a millstone and a model for further studies especially in the context of the Danubian provinces.

[2] Using mainly the typology determined by the LIMC project but also reflecting on local aspects and workshops.
[3] Some of the pieces were found in the Amphiteatre of the civilian city (nr. 163, 165)

Rada Varga, *The Peregrini of Roman Dacia (106–212)*, Mega Publishing House, Cluj-Napoca, 2014, pp. 168, ISBN 978–606–543–404–2.

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The present book is composed of six chapters and final conclusions of the achieved results, the onomastic catalogue, the epigraphic supplement, respectively the abbreviations and bibliography used.

The first part, entitled *Historiographic and Methodological Coordinates* (pp. 9–11), represents a historiographical introduction into the researched subject. Also this chapter explains the methodology used in writing this book. It underlines the fact that up to this point Romanian researchers have not done such an analysis and that the studies making references to the peregrines from Dacia are either general, or centered on small groups and/or particular case.

The second part (*The Peregrine status*, pp. 13–45) contains a trove of information about the peregrines from the Roman Empire. It is here that we find out information about peregrine status and the rights they had in society. The present chapter presents and analyses objectively firstly the Roman laws from the Empire directly or indirectly connected with the peregrines' rights (*Tabula Heracleensis – Lex Iulia Municipalis*; *Lex Aelia Sentia*; *Lex Ursonensis*; *Lex Salpensana*; *Lex Irnitana*; *Lex Malacitana*; *Lex Calpurnia; Lex Rubria; Lex provinciae*), secondly the legislative act *Constitutio Antoniniana* that, as we know, changes their status, and thirdly the literary sources used (Gaius, *Institutiones*; Domitius Ulpianus, *Liber Singularis Regularum*). The present chapter is enriched with the specific bibliography for these laws, ancient sources, respectively major papers that presented this most heterogeneous group of Roman society.

The third part entitled *Population studies and epigraphic representativeness* (pp. 47–58), underlines that the importance of demographic studies for Roman antiquity is undebatable -this phrase constitutes the main basis for the whole chapter. Examples concerning the demographic perspective of the Roman Empire are discussed here (Britannia, Hispania, Rome), respectively it presents the importance of epigraphy and of its objective study. However the author claims that it cannot be used as a single source for demographic recreations but that it has to be analyzed together with archaeological sources.

The fourth part *Overview of the Peregrines from Dacia* (pp. 59–86), presents in detail the peregrines attested in Dacia based on epigraphic monuments. Practically this chapter focuses the discussion on Dacia after an introduction with a lot of information about the peregrines. It is interesting the analysis made on the Roman cities of Apulum, Sarmizegetusa, Porolissum, Arcobadara, Gherla and Alburnus Maior with regards to the percentage of Roman, slave and peregrine population. At Apulum and Sarmizegetusa the percentage is almost the same in that here we find the highest percentage of attested Roman citizens. Here we also find the lowest percentage of peregrines of all the analyzed cities. The highest percentage is encountered at Alburnus Maior, also in Gherla where according to the author's statistics no sclaves are encountered. Another conclusion drawn about these two cities that is worthy of mentioning concerns the higher percentage of peregrines over that of Roman citizens. It is interesting to observe the ethnic origin of

peregrines following onomastic analysis: according to the statistics individuals of Roman origin predominate, following (in descending order) those of Illyrian, Greek, Celtic, Thracian, Semitic and Dacian origin – 1%. All are presented and analyzed in the subchapters dedicated to the ethnic origin of peregrines. The five peregrine women (Serena Licconis, Lucilla Musa, Marciana, Plaetoria Maxima and Quieta), are treated separately, respectively in the subchapter *Special cases* those individuals whose origin is difficult to interpret due to variables and ambiguities (Rocius Saturio, Καιντος, Ζαμαννισθες, Daphnus, Tamarcianus, Acilius Sabini f. Dubitatus, Mucatra, Mucapor, Eufemus, Erastus, Bebeia, Blasa, Pacutianus, Bocenus, Prinada, Andrada, Meatinus, Birsi, Atasa, Thiamponius Dexaei f. Besso, Amaiona Aeconis, Cassia Peregrina, Eros Zotici, Procula Batava, Germanus, Zacca Pallaei f. Syrus and Cotu Successi f (ilia) *cives Norica*).

After this the author presents those peregrines part of an auxiliary unit from Dacia, the chapter being entitled *Military Peregrines* (pp. 87–98). Here she analyses, based on epigraphic monuments, firstly the ethnic origin of individuals (Roman, Celtic, Thracian, Semitic, Greek, Illyrian, Germanic, Iranian and Dacian) and secondly the gods worshipped by the peregrine soldiers: Iupiter Optimus Maximus, Minerva Augusta and Genius cohortis, Silvanus Domesticus, Nemesis, Victoria Victrix, Deus Aeternus and Placida Regina. The votive inscriptions analyzed indicate that the official gods of Rome are worshipped, military gods and Oriental cults being identified as personal expressions of the dedicant.

In the previous chapters the author discussed those settlements from Dacia where peregrines are attested. From this analysis it stands out that the largest groups of attested peregrines can be found in Alburnus Maior. Next, part six of the book entitled *Peregrine Communities* (pp. 99–113) presents the community from Alburnus Maior. The persons who appear on votive and funerary monuments, wax tablets respectively military diplomas. The structure of this chapter is similar to the others: the author analyzes the ethnic origin of peregrines, the relation between the individuals, its function, respectively the divinities they worshipped (in descending order: Iupiter, Silvanus, Apollo, Liber Pater, Diana, Asclepius, Nymphae, Ianus, Mercurius, Terra Mater, Genius Sardiate).

In the final part we find the final conclusions of the book (pp. 115–116). It is here that the most important ideas and information are concentrated. According to the author: "Concluding, two aspects seem to be fundamental: who were the attested *peregrini* and what was their place within the provincial society. Officially defined rather by the rights they do not enjoy, peregrines find various means of integration and make use of multiple means of expression that indicate their enormous cultural plurality."

At the end of the book we find a catalogue (pp. 117–137), very well structured, its purpose being to synthesize the whole book in a single table where the names are listed (398 names), their origin, filiation, military troop, status and relations, the gods they worshipped. Also the type of monument, the author's remarks, place of discovery, respectively bibliography are written here (pp. 139–152). The corpus is made up of a total of 269 epigraphic monuments and contains the following: current number, source and the inscription.

The book is enriched with XIII statistical tables found inside it, their main purpose being to incorporate and present the essential results, thus facilitating the understanding the details. Here she analyses: *epigraphic proportions of juridical categories in Dacia* (I); *the epigrafic presence of peregrines* (II); *the quantitative allocation of source types* (III); *ethnic origin of the peregrine name, general* (IV); *ethnic origin of peregrine names, excluding Alburnus Maior* (V); *comparative onomastic overview* (VI); *comparative graph for dedicants of funerary monuments* (VII); *ethnic origin of the names attested in connection to the auxiliary troops of Dacia* (VIII); *comparative percentages of the names of soldiers and the names of the other characters from the military environment* (IX); *epigraphic rapport peregrines-citizens at Alburnus Maior* (X); *onomastic of votive dedications* (XI); *divinities for which votive monuments were set up* (XII), and *ethnic origin of the peregrine names from Alburnus Maior* (XIII).

What the present study did not determine was the impact of the changes of 212 on Dacia. To this end the author states that it is possible that in Dacia, as well, the good juridical integration of peregrines played its significant role and the legitimizing of a new citizen status came as a formality. Probably the paper could have offered a more ample image if it would have contained information about some other settlement from the Roman Empire, thus comparing the situation from Alburnus Maior. Despite this small setback the present paper entitled *The Peregrini of Roman Dacia (106–212)* is a reference book for all those interested in the Roman period, respectively social history as well as for future studies intended on analyzing peregrines from the different provinces of the Roman Empire.

C. Găzdac, F. Humer, Living by The Coins. Roman Life in the Light of Coin Finds and Archaeology within a Residential Quarter of Carnuntum, Wien: Hollitzer Wissenshaftsverlag, 2013. 372 pp. ISBN 987–3–88012–092–7

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Since ancient times currency has influenced human lifestyle, important chapters belonging to Civilization such as Economy, Society or History depict in many ways the mysterious power that we often attributed to money. The lack of currency may bring us poverty and in the other way around surplus of money may bring us prosperity. The current book that I am presenting is focusing on the numismatic discoveries from a Residential Quarter of Carnuntum, the possible relationships with other artefacts uncovered there and even the possible lifestyle of the inhabitants during a small period in History.

The outside of the paper is covered in burgundy coloured cover and in the top of the cover there was placed a photo representing the studied .Against this background the colour white was used to write down the names belonging to the authors, name of the title and publisher.

Only having 370 pages, summed up in 11 chapters, the authors have tried to undertake the task of presenting the numismatic discoveries in a more interesting way, so that the main subject, the coin catalogues, alongside with other materials from the archaeological site, can be presented in a easy reaching way as the paper dose not only address to those possessing an advanced knowledge regarding Archaeology or Numismatics but also to the general public that may only know a thing or tow about History.

„Carnuntum – The Reborn City of Emperors" is the name representing the second chapter of the book, where you may find a brief History regarding the roman town of Carnuntum which lies under the present Austrian towns of Bad Deutsch-Altenburg and Petronell-Carnuntum, the capital that governed the roman province of Pannonia Superior from the first until the fifth century.

In this chapter you may also find out why dose Carnuntum have a great archaeological potential, the huge surface on witch the ancient civilian town and legionary fort are situated, historical background and geographical advantages that influenced the establishment of roman military and later civilians on this site near the Danube. Because of this strategically position, Carnuntum was one of the most important military bases of operations on the middle Danube, the roman legionaries controlling most of the flat region near the fort and controlling a bridgehead over the Danube in „Barbaricum". They could either hit the bearded enemy or defend from it behind the fortified forts.

Thanks to Mother Nature, the northern part of the old walls, houses and other monument along with all the archaeological material was washed away by the Danube, still from the roman Emperor Hadrian to the abandonment of the roman province to the Huns in the year 433, Carnuntum has benefited from historical events knowing more then one prosperity boom. Thus from the „Golden Age" of the Roman Empire under the Emperors Hadrian,

Antonius Pius or Marcus Aurelius to the „Conference of the Emperors" held in Carnuntum in the year 308 between Diocletian, Galerius and Maximianus, there are many evidences of intensive building activity suggesting a continuous social and economical growth of the provincial capital.

Excavations of the site have begun in the middle of the nineteen century and continued with some interrupts until the present time. One of the great problems that the site confronts with is the need of conservation of its discoveries. The old method of poring concrete over the ancient remaining walls has proven out to dissolve in time the old wall, thus proving not safe or even proper for conservation methods.

The main idea of an Archaeological Park is presenting to visitors the real dimensions of the buildings that were found, replicas of artefacts used in those times, certain lifestyles and the material objects that came along with it.

The Archaeological Park Carnuntum was implemented to do just that, first of all to show the real extend of the sites limits by using all the extracted data from archaeology, geomagnetism, aerial view, airborne laser scanning and combine them in realizing a 3D model of the ancient town of Carnuntum and a scale model of 1:300, which now gives every visitor a good picture of the real size of the complex.

In the second step a new process of partial or full reconstruction has began aiming to mark the dimensions of some buildings or to rebuild the entire building using the tools and materials known in ancient times as well. Until today there are three fully working roman constructions, all of them showed and described in every detail in the book.

After some small chapters that present the different types of abbreviations and bibliography used, credits for the photography, you may find the main objective of this work, the catalogues of coins and tables. These two chapters show in detail all the discovered coins and the information that we have obtain from each one of them after they were examined.

To help the reader even more there are many different graphs, those enable different points of view for all of the coins regarding period, find spot, denomination, all of the graphs are painted in different colours so that they can be easily understand. You can find the plates for the most important coins in black and white, all of them after the precise dimension of the original piece.

Finally I can reassure that the paperwork was intended to reach not only the most experienced scholars from the field of history but also to those with less knowledge of archaeology, using photographs, eye catching pictures and simple explanations so that everybody becomes curios one way or another about some part of the subject.

A most interesting form of coin catalogue that brings useful information for specialists and interesting facts for the public is ending this extremely useful book.

Z. Czajlik, A. Bödőcs (eds.), *Aerial Archaeology and Remote Sensing from the Baltic to the Adriatic*. Selected Papers of the Annual Conference of the Aerial Archaeology Research Group, 13th – 15th of September 2012, Budapest, Hungary. Institute of Archaeological Sciences, Faculty of Humanities, Eötvös Lorand University, Budapest, 2013. ISBN 978–963–7343–95–7

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The volume groups 14 articles, separated into two sections: 1. Methodology (Aerial archaeology; Remote sensing); 2. Case studies (Prehistory; Roman period; Middle Ages).

The *Foreword* (p. 7) is written by Oscar Aldred, the chairman of the well prestigious AARG (Aerial Archaeology Research Group).[1] The editorial preface (p. 9) is signed by the two editors of the volumes, our colleagues Zoltán Czajlik and András Bödőcs.

The first contribution of the volume is the article of R. Goguey and Al. Cordier, entitled *Les techniques de la photographie aérienne en France et dans de Bassin des Carpates: photographie oblique en couleurs et en infra-rouge, photographie verticale* (p. 11). The authors have debated about the essential contribution of the oblique aerial photography for the identification and the mapping of new settlements, especially in countries from the former Eastern Europe. The map with the sites discovered in Hungary from 1993 to 1997 is suggestive and it outlines again the role of this method for archaeology.

V. Glavaš and R. Palmer have collaborated and they published the study *Aerial field reconnaissance of Velebit mountain* (p. 19–23). After this investigation using aerial photographies, the authors have succeded to discover new sites. The traces are formed by drystone walls and collapsed walls. Most of these sites are prehistoric settlements. Data were then processed in ArcGIS and all the traces recorded were georeferenced.

B. Hall and Z. Czajlik have questioned themselves *Where are all the tumuli? Problems of interpretation in aerial archaeology* (p. 25–30). They have explained how different methods, such as the aerial photography, the magnetometer and geophysical surveys and the Airborne laser Scanning, can help the archaeologists to identify the location of tumuli.

L. Banaszek applied ALS to study the landscapes around Polanów, in Poland (*Lidarchaeology. Airborne laser Scanning of the forested landscapes around Polanów – Pomerania, Poland*, p. 31–36). A total surface of circa 135 km^2 was scanned. After this, the specialists have generated digital terrain models of 0.5 m spatial resolution. The method leaded to the discovery of barrows.

D. Mlekuž has tried to analyze the traces of the former sunken lanes using LIDAR images (*Roads to nowhere? Disentangling meshworks of Holloways*, p. 37–41). C. Sobczak has investigated using airborne laser scanning a region situated in the north-eastern part of Poland, inhabited in the past by Baltic tribes (*An Experimental Application of Airborne Laser Scanning for Landscape Archaeology in Northeastern Poland*, p. 43–48). G. Bertók and C. Gáti have published a contribution where they presented several important discoveries

[1] http://www.univie.ac.at/aarg.

regarding a county from the south-western Hungary, Baranya (*Circles in the Field through Circles in the Air: Late Neolithic Earthworks and Settlements in County Baranya, Hungary*, p. 49–53). Since 2005, after six to ten aerial flights every year, combined with the analysis of available satellite images, the authors succeeded to identify almost 250 new archaeological sites. Once again, the usefulness of aerial reconnaissance was proved.

L. Reményi, Á. Petö, Á. Kenéz, and S. Baklanov have investigated the Bronze Age settlement of Perkáta-Forrás-dűlő (*Archaeological and pedological investigations at the fortified Bronze Age settlement of Perkáta-Forrás-dűlő*, p. 55–57). The authors have succeeded to investigate an area of circa 300 km^2, where around fifty Bronze Age settlements were discovered.

András Bödőcs has published a study about the traces of the former Roman centuriation in Szombathely (County Vas, western Hungary) (*Borders. The problems of the aerial archaeological research of a Roman limitation in Pannonia*, p. 59–66). The author mentioned that the study is the result of a research project, whose goal was to study the *centuriatio* of Savaria. Florin Fodorean (*Roman Potaissa and its surroundings. A view from above*, p. 67–70) presented several discoveries identified on aerial vertical photographs around the city of Potaissa (today Turda, Cluj County).

L. Rupnik and Z. Czajlik have contributed for this volume with an article about the legionary fortress from Brigetio (today Komárom/Szőny) (*Aerial archaeological survey of the legionary camp and military town at Brigetio*, p. 71–78). The fort was excavated during the 19th and the 20th century, but obviously not entirely. Remote sensing techniques, combined with aerial photography reconnaissance are discussed in this study.

M. Szabó has contributed with an important study regarding the discovery and mapping of several Roman villas using modern, non-invasive methods (*Using remote sensing and non-invasive archaeological methods in the research of Roman villas and the ancient landscape of Pannonia*, p. 79–84). In 1994 a collection of aerial photographs was created in Pécs (Aerial Archaeological Archives). The study presents several important discoveries based on aerial photographs: the villa from Tokod (Komárom-Esztergom County), the Roman villa close to the late fort of Alsóhetény (Tolna County), the villa near Cserdi.

Z. Miklós has investigated several earthen forts of the 12th – 13th centuries (*Aerial archaeological investigation of Árpádian Age earthen forts and castles in Hungary – 12th – 13th centuries*). These are located in various regions of Hungary. The author of the study has provided several examples of aerial photographs where such fortified forts were identified. At page 124–125 two plates with six aerial coloured photographs are provided. These are very suggestive and they prove once again the importance of aerial reconnaissance for the identification of archaeological sites. As the author explained in the study, he succeded to fly in winter, early spring and summer, therefore he had the chance to identify frost, soil and crop marks.

The last article of the volume is the contribution of A. Sófalvi about some ramparts from Harghita County, in the Perșani Mountains. Using aerial photographs and dendrochronological analyses, the author has succeded to date these ramparts. Some of them were built during the 8th – 9th centuries, other during the 13th –14th centuries and other in the 15th century.

The volume represents a very useful contribution for those interested in aerial archaeology and the results of these methods for the identification and mapping of new archaeological sites in the central and eastern European countries.

R. Oanţă-Marghitu (editor), *Antique gold and silver of Romania. Exhibition catalogue*, National Museum of Romanian History, Conphys Publishing House, Bucharest 2013, pp. 703, ISBN 973015811–8

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The frame of the exhibition contains pieces that represent six millennia of history, starting from the Eneolithic period and reaching Late Antiquity and Early Middle Age (5th millennium B.C. – 7th century A.D.). The project took place at the end of 2013, organized by the National History Museum from Bucharest, and was later on materialized in a catalogue. Over two years, 33 museums and institutions and over 70 people had worked to create this exhibition, with only one purpose in mind: to show to the public 1003 unique pieces. The public exhibition gathers together in one place the most significant creations from the era of noble metal, discovered on Romanian land.

The authors of introductive chapters are: Alis Dumitraşcu, Dragoş Măndescu (Argeş County Museum), Rodica Oanţă-Marghitu (National Museum of Romanian History), Sorin Oanţă-Marghitu (National Museum of Romanian History), Ernest Oberländer-Târnoveanu (CEO of National Museum of Romanian History), Anca Diana Popescu (Vasile Pârvan Institute of Archaeology), George Trohani (National Museum of Romanian History), Alexandra Ţârlea (Department of Archaeology and Ancient History, University of Bucharest).

The volume contains a list of contributing partners, a summary and an introduction (pp. 10–15) signed by the director of the National Museum of Romanian History, Ernest Oberländer-Târnoveanu, 8 articles (pp. 16–168) on the history of precious metals discovered on Romanian land, the exhibition catalogue (pp. 169–661) and a list of bibliography, arranged in alphabetical order (pp. 663–703).

The catalogue is printed by Conphys Publishing House, Râmnicu Vâlcea in excellent printing conditions: colour illustrations, high quality paper and professional layout for each page.

The volume is structured into two parts:

The first part of the volume reunites 8 articles, which analyze different epochs and periods, arranged in chronological order.

The second part of the volume includes the exhibition catalogue, structured as well in chronological order, fragmented according to the major historical periods. It starts with the Eneolithic period, continues with Bronz Age and Hallstatt, Neoclassic Getae Culture, Classical Geto-Dacian culture, reaches the Roman period and ends with Late Antiquity and Early Middle Age.

This impressive number of pieces, both gold and silver pieces, were collected and published in the catalogue for preserving their significance and emphasizing past's distinctions.

The declared purpose of this exhibition is to underline the importance of protecting cultural heritage, constantly under the risk of being destroyed and damaged due to poor management from the authorities. It is just the beginning of further actions that aim to bring into attention the most significance remains inherited from the past.

The first study, *Dacian gold and silver – origin, mining, analysis*, is signed by Ernest Oberländer-Târnoveanu. It begins with a brief explanation regarding the amount of gold from Dacia, particularly, explaining the facts during Trajan's conquest of Dacia. The second part brings into discussion the origin (geological and external sources) of Dacian gold and silver, mining and the manufacturing techniques in pre- and proto historic as well as during antique periods. The most common origin for metals was the alluvial or raw material, extracted from deposits. Regarding the analysis of gold pieces, the specialists haven't shown such great interest. Serious researches on the composition of gold items begin have begun only in 2007. The analysis obtained showed that items from the Dacian period were the result of processing the native, unrefined gold. As for external sources, analyzes show that the main sources of raw material used to create Dacian ornaments were Greek and early Roman coins.

The second article named, *About the gold items from South-Est European Eneolithic*, was written by Sorin Oaniță-Maghitu, article in which he explains how the patterns of gold are symbols of wealth, luxury and ostentation. Taken out of context, gold pieces legitimize the existence of a uniform image on social differences. The article lists the series of necropolis studied and all the gold items founded (the *necropola* from Varna, then those from Pietrele, Bucșani, Vitănești, Sultana). For obtaining an interpretation, gold items must be reinstated into their original historical context. The article also includes a gold biography, referring in particular to the gold used in social practices: the staple source, definition of technological processes, storage and hoarding practices, interpretation of the intentional acts-deposition. Regarding manufacturing process and the form of items, important observations can be made by analyzing pieces belonging to the most important deposits.

Gold and silver in Bronze Age and Hallstadtt, signed by Alexandra Țârlea and Anca-Diana Popescu, is the third article. This third article discusses how gold and silver were a symbol of wealth, prestige, power for rulers or communities. For this period, two major manufacturing techniques can be mentioned: modelling by knocking and pouring molten metal into forms. Some of the pieces were decorated by *au repousse* technique or by incision and torsion. There is one important observation to make: the authors offer definitions for gold, manufacturing techniques and techniques used in decoration. The Early Bronze Age is characterized by a predominance of silver items, most of them used in funeral practices, namely for head decoration – tumulus. Those pieces cannot be found in a large number and present a low typological variety. The Middle Bronze Age is defined by a number of cultures (based on the type of pottery) and shows the changing relationship between the uses of gold pieces, considered more sophisticated, in detriment of silver. The items from this period were worn around the neck and on the head. As for the Late Bronze Age and the Hallstatt A, most of the gold items have been found in isolated places or as parts of a hoard. There is an upward interest for precious metal pieces, with a particular focus on those worn on the hand.

The fourth study, Art *of gold and silver in Carpatho-Danubian territory (VI-III centuries B.C.)*, belongs to George Trohani. The article begins with a detailed description of the tribes (Scythians, Thracians), which inhabited the Carpathian-Danubian territory, based on written and archaeological sources. Necropolises are the main sources for understanding the Getae society in IV-III centuries B.C. Toreutic items, from "princely" graves, were manufactured using the following techniques: *au repoussè*, knocking, punching and printing. Starting with La Tène period, the metal was used extensively, regardless it's nature. Manufacturing techniques for metal included: rapping technique, hot tapping, using dies or by fretwork. Tracien-Getic art has a zoomorphic and geometrics character, with strong Greek, Scythian and Achaemenian influences.

The next one, *Gold and silver items for port and ornament from classical Gaeto-Dacian culture (II century B.C. – I century A.D.)*, is signed by Dragoș Măndescu. This study talks about the absence of gold in the Dacian world (exception are the gold bracelet recovered) and the predominance of silver (over 60 treasures discovered). The silver hoards contain, usually, neck (necklaces, chains), chest (brooches, *phalerae*), arm (bracelets, rings) ornaments, coins or drink containers, as well as small pieces of raw material. Finding rare, isolated pieces such as bracelets show that ornaments were not consumer items that can be worn in everyday life. This is also suggested by their weight, feature which makes them unsuitable for daily use. Burial treasures have two meanings: one profane (items which are in a good state of preservation and contain coins) – were hidden because of the danger represented by military and political conflicts or by natural disasters; the second one is cultic (damaged since ancient time) because of wilful destruction.

An interesting article, *Royal gold bracelets from Sarmizegetusa Regia – acme of Dacians precious metal art*, is signed by Ernest Oberlander-Târnoveanu. At the beginning the author brings into attention the problem of theft and illegal export of valuable Dacian items. The entire study discusses about the 13 bracelets, made from gold, which have a spiral shape and are decorated with dragon protomes and stamped palmettes. He brings into discussion the manufacturing process, observing its particularities. For instance, an important detail in understanding better the manufacturing techniques, was the lack of polishing: none of the bracelets were actually refined (pg 108–109). Based on the metal analysis it was possible to establish the source of the gold. Discoveries such as the one from Sarmizegetusa, were no bronze replica could have been found, show that they belonged to local Dacian elites. By analyzing the coins, it has been found that the bracelets have been used for a period around 50–60 years, in the first half of the first century B.C.

Another article entitled, *Ornaments from roman period on Romanian territory*, belongs to Alis Dumitrașcu. It shows that ornaments throughout Roman times, were perceived differently during the Roman Republic and the Roman Empire. During the Roman Republic it had noticed a conservative attitude: only the elite had the legal right to have ornaments. By the time other territories and tribes, with different traditions and a different cultural background, where annexed to the Roman Empire (starting with the first century A.D.) the attitude regard ornaments changed. Available in a great variety of forms, ornaments were an expression, especially,

of women luxury, as they were worn on arms, on the fingers, around the neck, in ears and hair. Among the most common ornaments can be mentioned: crowns, hair pins, earrings (*inuares*) – all with oriental origins, chains (*monilae*) – Greek-Oriental filiations, pendants (*torques*) – worn by both women and men, *fibulae* – manufactured from gold and worn by men as a sign of integration into the political and administrative hierarchy of the Roman Empire, bracelets (*armillae*), rings (*anuli*) – taken from the Greeks; were worn by men as symbols of social rank or as seals, and by women as an expression of luxury or social status. Roman jewelleries were processed using granulation or filigree technique.

The last one, *Precious metals from Late Antiquity and Early Middle Age (IV-VII centuries A.D.)*, written by Rodica Oanță-Marghitu, presents a history evolution based on how perception about precious metals changed. For the IV century A.D. the article talks about the material culture known as Sântana de Mureș-Cerneahov, from which have been preserved only small silver pieces. For the V century A.D., the study suggests that lavish ensembles were representative, impressive because of the amount of precious metal, especially gold and the diversity of objects, because of their significance, their refinement of execution and finishing details. By the VI century A.D. precious metals are only isolated occurrences, while gold pieces disappear almost completely. Significant for the VII century A.D. are a series of items, made from gold, different in terms of smoothness compared with those belonging to the fifth century A.D. The prevalent material is silver, most pieces being used in funerary practices.

The catalogue: after the title, there are information regarding the period and the culture they belong to. Also, there are pointed out contextual data, analogies and related bibliography. Every single piece comes with an individual description, description which contains details such as: type of material, processing technique, weight, diameter, length, width, thickness, inventory number and possible uses. Besides the images of the pieces, individual and as an ensemble, for some of them there is also a picture showing the location where it was found.

No one contest all the work, all the time invested into the exhibition and also into this catalogue. Theirs interest it is to be appreciated and this initiative will always be recognized by the entire public, but there are a few thinks to be mentioned: the title for the exhibition, also, the title for the catalogue, *Antique gold and silver of Romania*, it porpoise is to emphasize the value of items, the value of the past and the importance of history in everyday life, but chronological, it is a little improper, because based on the presented items, a large number are from o period which cannot be integrate into Antiquity. This thing does not decrease all the merits for the exhibition. It is intended for the public, regardless is knowledge or not for the subject. Those 8 studies present the historical part, the contextual data for the items. From all, just two of them (the third and fourth one) offer definitions for different terminological dates so than everyone can understand what it is actually about. For specialists it is easy to understand what the articles tries to present, but to not forget, the main porpoise of any exhibition is to show to the public the work of a few. It is to be noted that some of them are easy to follow, but this fact is due to the way to express clearly. All the hard work it is to be appreciated, because such an exhibition requires so many things just to be with one step closer to the public.