In memoriam dr. István Bajusz (1954–2021)

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Muzeul Județean Mureș / Mureș County Museum
CP 85, str. Mărăști nr. 8A, 540328 Târgu Mureș, România
e-mail: marisiaedit@gmail.com

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SEARCHING FOR THE NORTH-EASTERN ANGLE TOWER OF THE AUXILIARY FORT OF CĂLUGĂRENI / MIKHÁZA[1]

Szilamér-Péter PÁNCZÉL[*] – Mátyás BAJUSZ[**]

The paper presents a brief research history of the Roman auxiliary fort of Călugăreni and the results of the recent GPR measurements made in the north-eastern corner area of the fort. During the measurements the exact location of the angle tower, parts of the defensive features and buildings from the praetentura have been identified.

Keywords: Roman Dacia, *limes*, research history, GPR, angle tower
Cuvinte cheie: Dacia romană, limes, istoricul cercetării, GPR, turn de colț

The auxiliary fort of Călugăreni / Mikháza is one of the best preserved Roman sites of eastern Transylvania and it is located in the south-western periphery of the modern village on the left bank of the Niraj / Nyárád River (Fig. 1) in Mureș / Maros County. The site of the fort is known as *Cetate* / *Vár* (Castle), Ținutul *Cetății* / *Vár-tartomány* (Castle district), *Cetatea Sânzienei* / *Tündér Ilona vára* (Tündér Ilona's castle)[2] and *Cetatea veche* / Óvár (Old castle),[3] suggesting that the presence of a fortified structure in the vicinity of the modern village has been common knowledge among the locals.

Based on tile stamps with the abbreviation *CPAI* discovered at Călugăreni, it has been concluded that the *cohors I Augusta Ituraeorum*, a probably *quingenaria* unit comprising *sagittarii*, was stationing in the fort during the 2nd and 3rd century.[4] Tile stamps of the *legio XIII Gemina*[5] stationing at Apulum and of the *cohors I Alpinorum* stationing at Sărățeni / Sóvárad[6] were discovered as well, but they represent most likely dispatch material.[7]

[*] Mureș County Museum, Târgu Mureș, RO, pszilamer@yahoo.com.
[**] Székely National Museum, Sfântu Gheorghe, bajusz.matyas@gmail.com.

[1] We would like to express our gratitude towards dr. Felix Marcu from the National Museum of Transylvanian History for aiding us with the GPR measurements and dr. Alexandru Popa from the National Museum of the Eastern Carpathians for the high-quality resolution images of the geomagnetic measurements. We are also grateful for the help of our colleagues, who aided our work during the measurements (Ilka Boér, Levente Daczó, Nándor Laczkó, Koppány-Bulcsú Ötvös and dr. Alpár Dobos). We are thankful to Ilona Lokodi for informing us about the existence of the *veduta* of Călugăreni and to dr. Călin Pop for restoring it carefully.

[2] Sânziana / Tündér Ilona is a fairy who appears in Transylvanian folk-tales.

[3] Paulovics 1944, 32; Lazăr 1995, 122; Gudea 1997, 556.

[4] Piso–Marcu 2008; Marcu 2009, 121–122; Țentea 2012, 52–55; Sidó–Ötvös 2015; Matei-Popescu–Țentea 2016.

[5] CIL III, 8065/1 w, 1 x; IDR III/4, 219.

[6] IDR III/4, 220; Marcu 2009, 122.

[7] The confusion that the stamps *CPAI* and *CPALP* represent the same unit, the *cohors I Alpinorum*, persisted until 2008 in almost all the publications dealing with the issue.

Fig. 1. Position of the auxiliary fort (by M. Szabó).

L. F. Marsigli (Fig. 2) published the first topographic sketch of the site in the 18th century.[8] In his plan, the fort appears next to the village

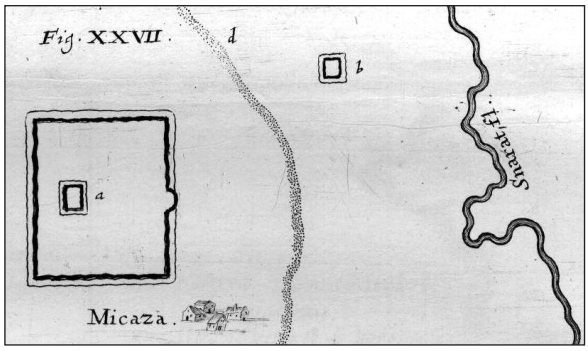

Fig. 2. Site plan from the early 18th century (Marsigli 1726, II, fig. 27).

as a rectangular structure and the probably still visible northern gate, the *porta principalis sinistra,* appears as a half circle. Inside the fort a rectangular building was marked with the letter *a*, based on its position it was probably the *praetorium* or the *principia.*

D. G. Scheint mentions the fort at the site of *Ó-vár* (Old castle)[9] in the vicinity of the village. From this moment the site was usually mentioned in papers concerning the ancient history of the region. K. Benkő[10] was the first to indicate quite accurately the size of the fort (170 × 150 paces), the building material of the defensive walls, and reports about stone robbing activity at the site.

During his comprehensive survey of the region, B. Orbán[11] visited the site and mentioned that the ditches and the precinct walls of the rectangular fort were visible, and measured 210 × 160 paces. He underlined the fact that the fort had rounded corners with angle towers built in line with the wall and had two gates, both of them located centrally on the longer axes. He considered the ruins from the central part of the fort as part of the *praetorium* and the military quarters.

The first excavations from Călugăreni took place in 1878 under the supervision of abbot F. Kovács from Târgu Mureş, who was also a

[8] Marsigli 1726, II, 59–60, fig. 27.
[9] Scheint 1833, 116.
[10] Benkő 1868–1869, 190–191.
[11] Orbán 1870, 88–89.

well-known collector of antiquities. Concerning the excavations only a summary report written by F. Deák was published.[12] They excavated parts of the *porta principalis sinistra* where the remains of the stone doorstep and possible metal fitting of the wooden door were identified. A fragmentary funerary inscription made of limestone,[13] bricks with the *CPAI* stamps of the military unit and other small finds made of ceramics, stone and metal were discovered as well.

The late 19th century scholars referred mainly to the published data, or added some minor details. A sketch plan from 1901, drawn by a Franciscan friar, pater A. Lokody, is preserved in a private collection from Târgu Mureş, showing the village of Călugăreni around 1885 (Fig. 3). On the bottom left corner of this plan, parts of the northern, eastern and southern defensive walls of the fort were marked together with a large building from the interior, representing probably the *principia* or the *praetorium*, confirming the fact that at the end of the 19th century these features were still visible on the surface.

In papers published in the first part of the 20th century, which synthesized the information regarding the history of Roman Dacia, the military history of the region, Călugăreni is mentioned among the important Roman sites.

Somewhere between the two World Wars a *veduta* of Călugăreni (Fig. 4) was made by an unknown Franciscan friar. On the left part of the drawing the ruins of the fort are still visible, suggesting that they might have been easy recognisable features even then.

During the 2nd World War survey of the

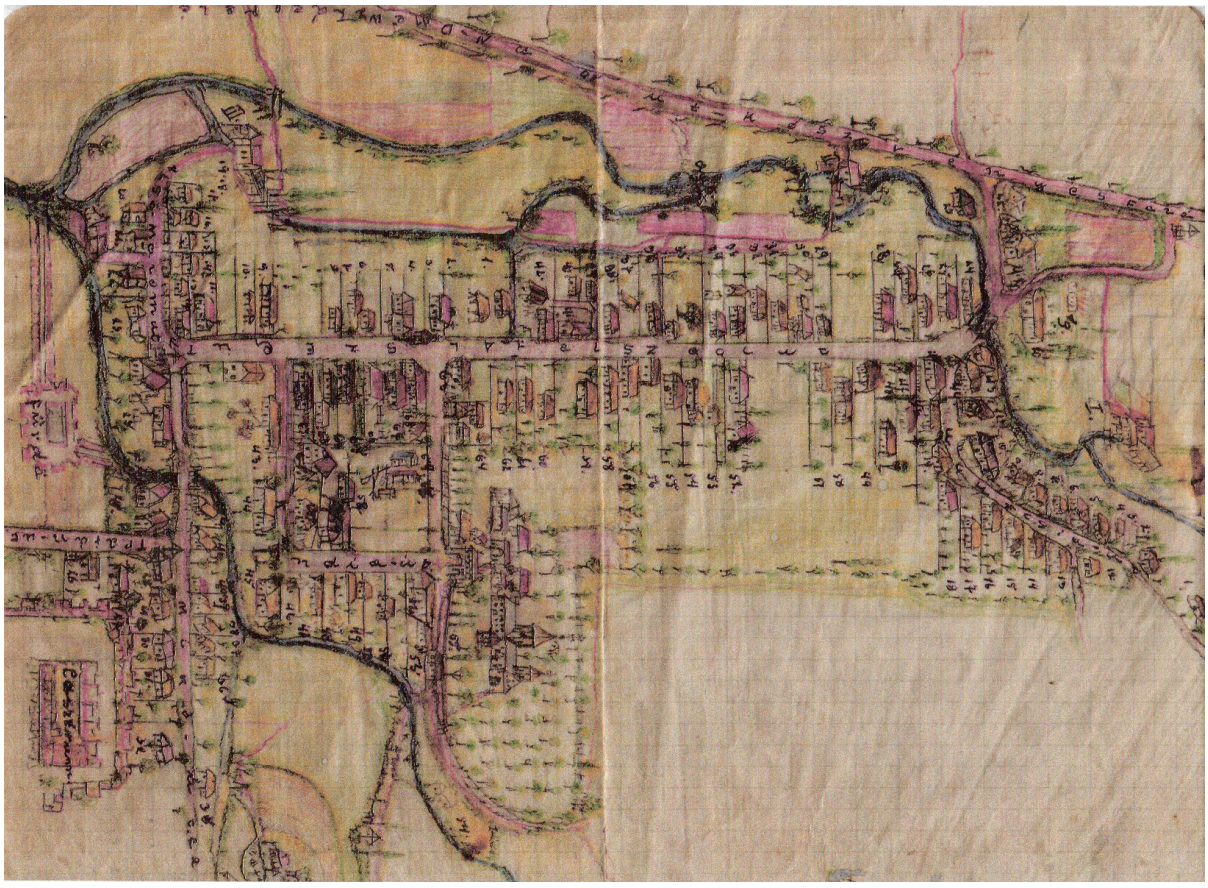

Fig. 3. Sketch plan of Călugăreni at the end of the 19th century (by A. Lokody).

[12] Deák 1878.
[13] CIL III, 7716; IDR III/4, 217.

eastern *limes*, I. Paulovics[14] visited Călugăreni and based on his field observations he described accurately the location of the fort and published a topographic plan of the site. Beside summarizing and correcting the already known data, he mentioned that the south-western corner of the fort was still visible as a small heap and that in the courtyard of the house belonging to L. Kovács, situated in the vicinity of the fort, the remains of the Roman road leading towards the fort were identified during construction works at the beginning of the 20th century.

The first systematic excavations in the fort were made in 1961 under the scientific supervision of D. Protase (Fig. 5 and Fig. 8).[15] The purpose of the eight evaluation trenches was to define the extent of the fort. They sectioned the precinct walls as follows: S1 and S2 the northern one, S3 and S4 the eastern one, S5 and S6 the western one, and S7 and S8 the southern one. The results of this campaign established that the fort was oriented with the *porta praetoria* towards east and the medium length and width of the fort was 162 m and 140 m, covering an area of ca. 2.25 ha.[16]

The longest trench (S1) had 24 meters and sectioned all the defensive elements of the fort on the northern side. Based on the archaeological evidence, Protase stated that the fort had an early earth-timber phase dated in the 2nd century AD and a later stone phase.[17] The rampart of the earth-timber fort was preserved up to a height of 0.5 m, and the ditch had a 3.5 m width at the top and was 2 m deep. In the second building phase the ditch of the earth-timber fort was levelled and the stone wall was erected on the berm of the earlier phase. The berm of the stone fort was 1.9–2 m wide and overlapped the ditch of the earth-timber phase. The stone material of the precinct wall was robbed and only the 1.6–1.7 m wide foundation, built in *opus incertum* technique was preserved. The defensive ditch of the stone fort was 6 m wide and 3 m deep. The *agger* of the stone fort was preserved up to a height of 0.8 m and had a width of 6.5 m at the base. On the inner side of it, the mixed up remains of the *via sagularis* were identified as well. During the excavations, Roman coarse pottery fragments, a millstone and ceramic building material fragments (some of them with the *CPAI* stamp) were recovered.

Until the end of the 20th century and early 21st most of the publications referred to the site based on this data, without being able to collect new information.[18]

In 2004 research excavations were started in the military fort under the scientific supervision of N. Man. Through the evaluation trench S1 (31 m long and 2.5 m wide), the *via principalis* and a 30 m long building with six rooms was identified. Rich Roman material, including fine and coarse pottery, bricks and tile fragments (some with *CPAI* stamps) and artefacts made of glass, iron and bronze were recovered. It was noted that massive medieval and modern intervention in the form of stone robbing disturbed the site.[19]

In 2008, in the framework of an international collaboration, geomagnetic measurements were made at the fort of Călugăreni.[20] Beside a summary about the site, some reserves concerning the evidence published by Protase, related to the earth and timber phase of the fort, were presented.[21] The high-quality measurements covered most of the fort, and only the north-eastern corner had to be excluded because of modern land use. The precinct walls appear as a strong magnetic anomaly, fact which proves that some of the masonry structures are better preserved than it was considered before.

[14] Paulovics 1944, 32–38, fig. 5.

[15] Protase 1965.

[16] The fort was slightly irregular, due to the fact that the southern precinct wall measured 163 m in length, the northern one 161 m, the western one 141 m, and the eastern one 139 m (Protase 1965, 211).

[17] Protase 1965, 212.

[18] For the summary see: Lazăr 1995, 122–124; Gudea 1997, 556–557; Marcu 2009, 121–122; Pánczél 2015.

[19] Man et al. 2005, 102; Man 2006, 113.

[20] Popa et al. 2010, 107–110.

[21] Popa et al. 2010, 108.

Fig. 4. *Veduta* of Călugăreni from the 20th century (unknown author).

Based on the interpretation of the authors, the *porta decumana* should have been double arched with an inner width of 8 m, and the *porta principalis dextra* had only one arch and an inner width of 4–5 m. In the north-western, south-western and south-eastern corner of the fort, remains of trapezoidal angle towers (3–4 × 3 m) are visible. On each side two intermediate curtain towers (3 × 4 m) can be defined. All the major roads, the *via sagularis, via decumana, via praetoria* and *via principalis* are clearly visible. The *principia* (32–33 × 25–26 m) has a typical plan with an inner courtyard, a *basilica* and five smaller rooms in the back. In the *latus praetorii sinistrum*, immediately north of the *principia*, a *horreum* is to be identified (30 × 7.5 m) and next to it a building of similar size (30 × 9 m) is visible. Between this and the northern *via sagularis,* the remains of a building which is only partly visible in the measured area could be identified. In the *latus praetorii dextrum*, a large building (28–30 × 36 m) with an internal courtyard was identified as the *praetorium*. In the *retentura* several barracks are visible. The barrack from the south-western corner (50 × 18 m) of the *retentura dextra* had a *porticus* on the eastern side and even if all the details are not very clear, eight *contubernia* (width: 4.5 m) and the centurion's quarters (14 × 14 m) can be reconstructed. A not so well-preserved barrack displaying a similar length is visible east of it and a similar building structure can be reconstructed in the *retentura sinistra*. In the *praetentura*, the structural evidence of the presumed barracks is more difficult to interpret. A building from the *praetentura dextra* (43 × 5–6 m) was considered part of a later phase just because it was better preserved, but one needs to take into account that part of the buildings might have been made of timber only with stone foundations (or not even that) and that in some of the cases, the rubble preserved in the robbing trenches showed up on the digital map as anomaly.

By georeferencing the geophysical plan from 2008[22] and the excavations plan from 1961,[23] a slight difference could be observed in the south-western corner of the precinct wall (Fig. 5). Based on this it can be concluded that, probably, all the corners of the fort were less angular than presumed before.

Based on the corroborated archaeological and topographic data, a 3D model was made as a volumetric study.[24] The purpose of this visualization method was to show the position and the dimensions of the fort in relation to the landscape and topography of the site.

Since 2010, in the framework of different international projects focusing on the research, conservation and presentation of the site, excavations, aerial archaeological, topographical and geophysical surveys have been undertaken at the auxiliary fort of Călugăreni.[25] Related to the fort, the archaeological excavations focused on the *principia*. Regarding the building as a whole, the excavations revealed the existence of two major phases: an earlier timber one, identified for the moment only in the north-western part of the *principia*, and a later stone phase. Concerning the building during the stone phase, two main building techniques were used: the foundations of the exterior wall of the principia together with the *aedes*, back offices, and *basilica* were built from masonry made of volcanic stones, river cobbles and mortar in *opus incertum* technique, while the part surrounding the courtyard and towards the *via principalis*, consisted of a cobble foundation bound with clay and a timber-adobe elevation. As a general observation, it can be said that all of the areas investigated so far and belonging to both phases were devastated by fire.[26]

[22] Popa et al. 2010, 124, fig. 12.

[23] Protase 1965, 211, fig. 2.

[24] Pánczél 2015, 914, fig. 5.

[25] For a summary on the projects see: Pánczél–Lukácsi 2019, 413.

[26] See mainly: Man et al. 2014; Pánczél et al. 2014; Man et al. 2015; Pánczél 2015; Man et al. 2016; Dobos et al. 2017; Man et al. 2017; Pánczél 2018a; Pánczél 2018b; Pánczél 2018c; Pánczél et al. 2018; Man et al. 2019; Pánczél–Lukácsi 2019; Pánczél–Sidó 2019; Sidó–Pánczél 2019; Sidó–Höpken 2020; Sidó–Pánczél 2020; Talabér 2020.

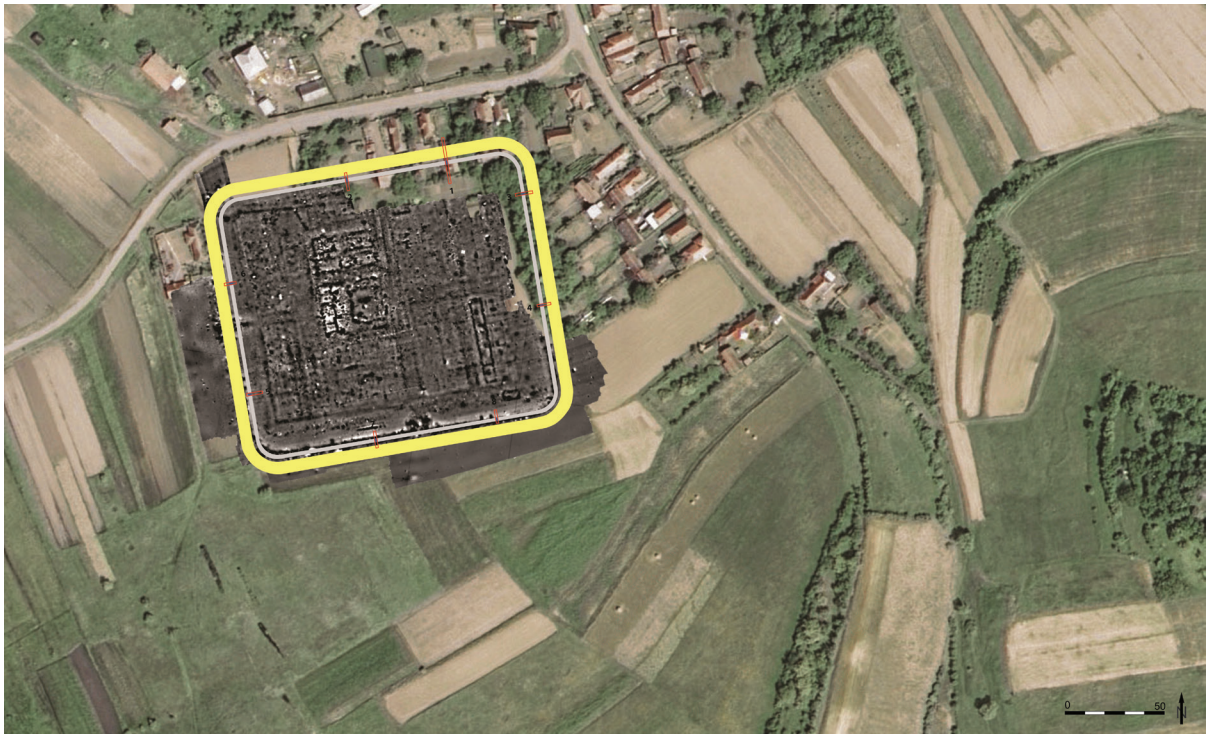

Fig. 5. Georeferenced plan of the auxiliary fort.

Up until now, different campaigns of geomagnetic measurements have taken place at the Roman auxiliary fort of Călugăreni,[27] but they were inevitably incomplete, due to the inhabited area at the eastern and northern part (Fig. 5) of the fort. The individual properties are separated by metal fences and/or vegetation which restricted the magnitude of such endeavours.

The houses no. 4 and 5 located above the northern part of the fort and its defensive structures, have been recently acquired by the Mureș County Council for the Archaeological Park from Călugăreni, so it was possible for the first time to make geophysical measurements in the courtyard and the back garden. In the spring of 2019, we used the Ground Penetrating Radar (GPR) due to the high concentration of recent features and debris caused by modern land use of the area.

The aim of the research was to map the archaeological features in the north-eastern corner of the fort, first of all to track the traces of the defensive wall and the position of the angle tower. The measurements were taken with a GSSI 5103 model Ground Penetrating Radar and a 400 MHz antenna.

The grids (Fig. 6) were adjusted to the terrain, due to the fact that several fruit trees and a former property boundary obstructed the area. A total of 956 m^2, made up of five mainly overlapping grids of varying size and orientation have been measured. In four of these areas (Grid 1–4) we used the normal, single direction measurement technique with a 1 m line spacing, while in one grid (Grid 5) we opted for a bidirectional zig-zag measurement technique. Grids 1, 3, 4 had a north–south, Grid 2 a west–east and Grid 5 a west–east, respectively east–west orientation. To collect the best data possible, the measuring directions were oriented mostly perpendicular to the Roman walls, the closer to perpendicular is the angle at which radar signals hit certain objects, the clearer the final image. The arrangement of the hyperboles in one line, can visualise in a quite suggestive manner the area dominated by anomalies, which can indicate not only the presence and the shape of structures (walls, roads etc.), but also their absence.

[27] Popa et al. 2010, 107–110, 124, Abb. 10–12; Pánczél et al. 2014, 25–27.

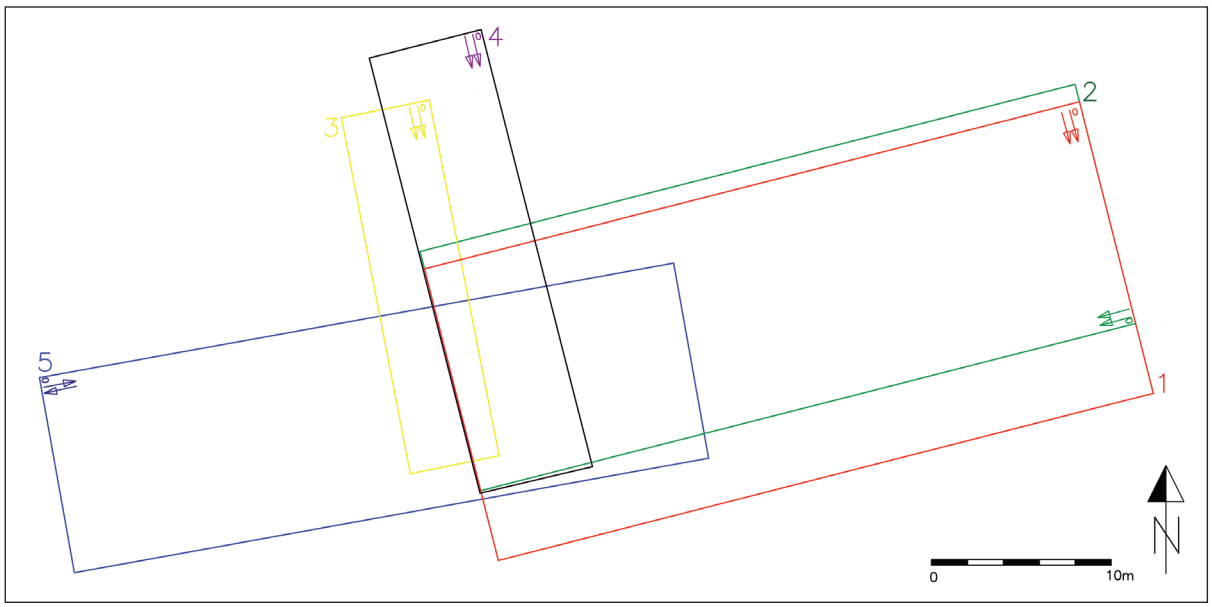

Fig. 6. The position of the five GPR grids.

On the results (Fig. 7–8), the defensive wall is clearly visible in Grid 1 and 2, while in Grid 3 and 4 only its absence could be documented, even if the alignment perfectly overlaps with the presumed line of the wall based on the geomagnetic surveys. Grid 1 and 2 overlap almost at 80%, but their measurement direction differs in order to reduce the size of blank spots caused by the presence of the fruit trees. The width of the defensive wall based on the GPR data is 1.60–1.65 m, while the width of the robbing trench in Grids 3 and 4 is ca. 1.70 m. On multiple occasions a concentration of further anomalies can be seen along the walls, which can be caused by

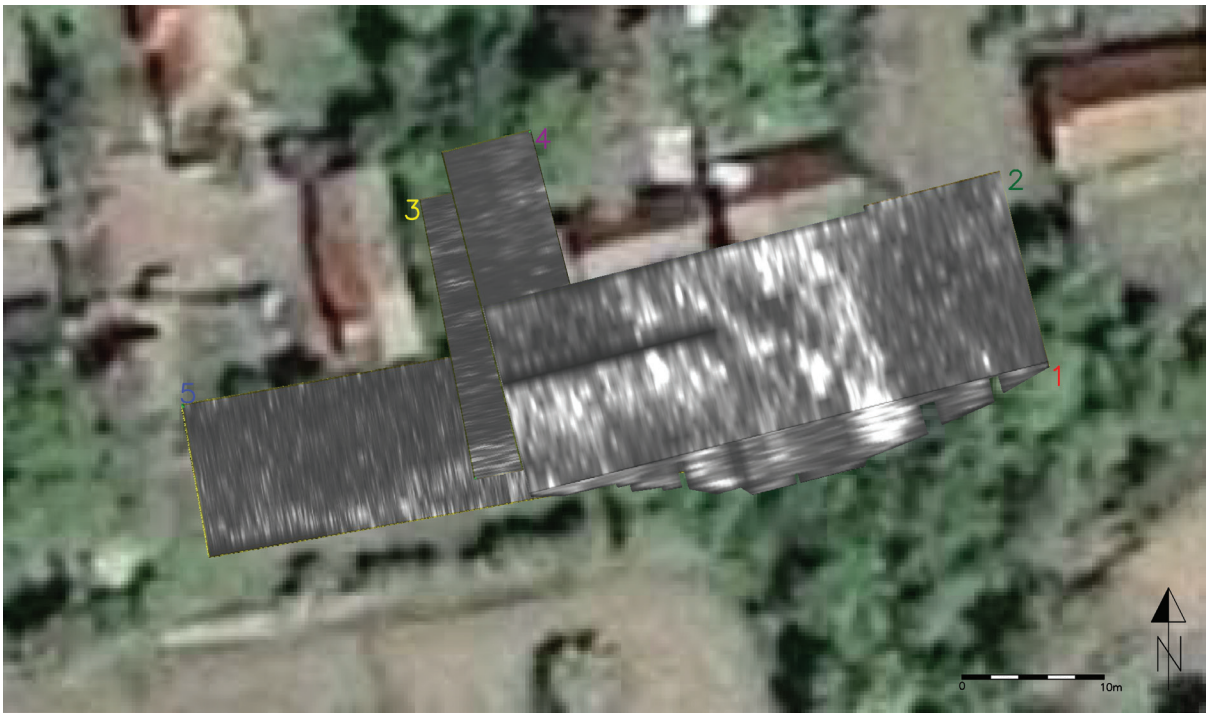

Fig. 7. The results of the five GPR grids.

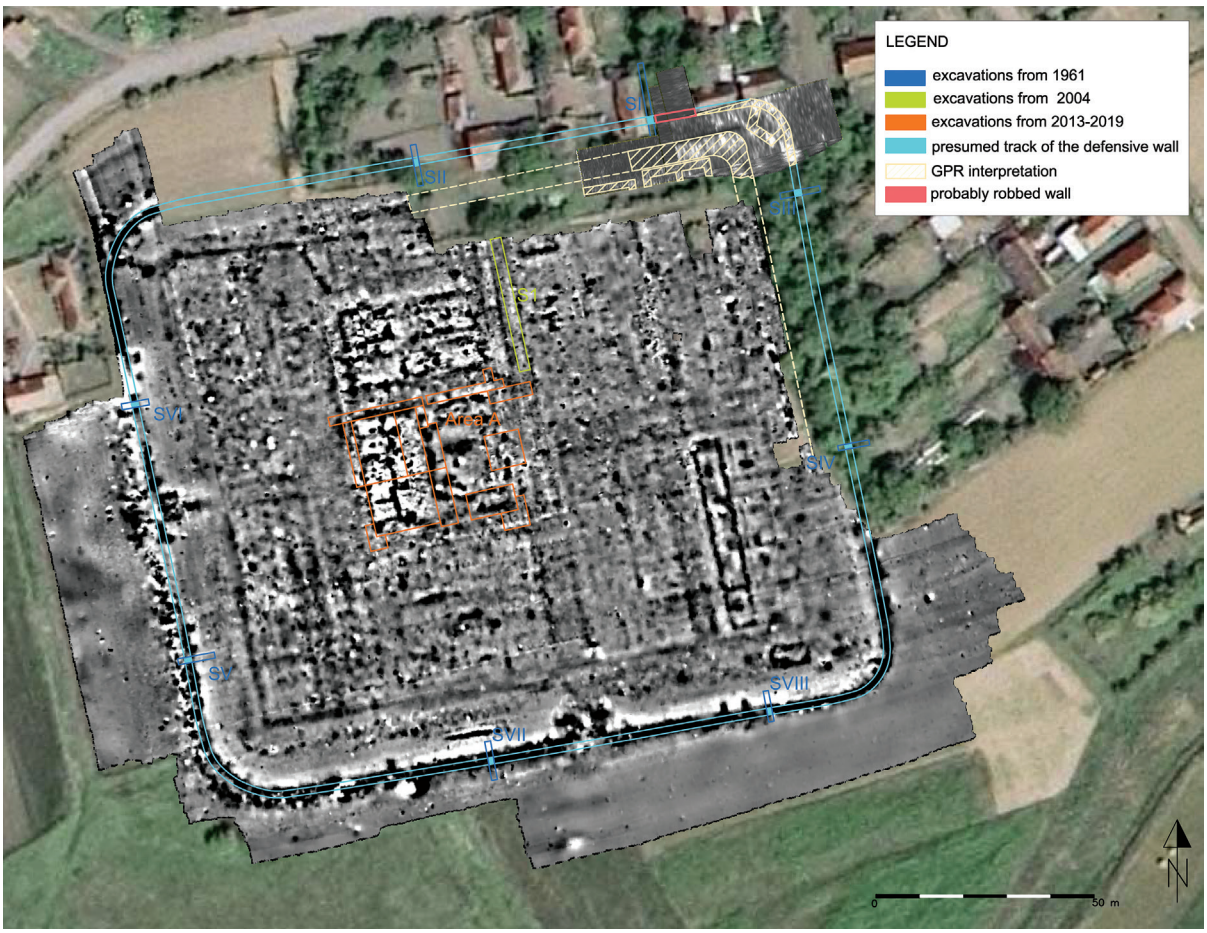

Fig. 8. General plan of the fort with the interpretation of the GPR anomalies.

the demolition layer of the structure. The strongest anomalies of the wall appear at a depth of 0.52 m (10.03 ns) and they are traceable up to 0.70 m (13.80 ns), occasionally it can also reach a depth of 1.20 m (22.90 ns).

The angle tower is outlined in Grid 1 and 2, with a trapezoidal plan. Based on the anomalies, the width of the external wall and/or its foundation was ca. 1.80–2 m, but the image is quite noisy due to the massive demolition, so this data has to be used with caution. The trapezoidal tower covers an area of ca. 4.5 × 5.0 m. The density of noisy anomalies and the nearly lacking side walls has to be pointed out and compared with the excavation report.[28]

The *via sagularis* appears distinctly on the southern part of the measured area, the hyperboles that would suggest its presence on the eastern side are less conclusive. A possible explanation for this would be a more intensive recent agricultural activity then in the western part, where due to the orchard the archaeological features have been better conserved. The width of the *via sagularis* is between 4.50–5 m, the signal appears at a depth of 0.40 m (8.60 ns), becomes strongest at 0.60 m (12.0 ns), and it is almost completely lost at the depth of 0.80 m (15.70 ns). This indicates a layer thickness of 0.40 m.

South of the *via sagularis*, at a depth of 0.70–1.1 m, the anomalies suggest the presence of two further buildings, probably barracks from the *praetentura*. Their orientation and position are in alignment with the buildings identified

[28] Due to methodological reasons, we decided to present the two datasets separately but next to each other, for the excavation results see: Pánczél et al. 2021.

with the geomagnetic survey, and it seems that they were built next to the northern *via sagularis*. The distance of 4.40 m between the eastern barrack and the eastern *via sagularis* could correspond to a wooden *porticus* built without masonry foundation.

The results of the measurements have been confirmed by the excavations from 2020, in areas where the GPR image was lacking conclusive data, the total absence of masonry structures, or their poorly preserved remains could be documented. Based on the geomagnetic measurements, at the fort of Călugăreni all the angle towers and curtain towers were built in a similar manner, combining different building techniques and materials.

REFERENCES

Benkő 1868–1869
K. Benkő, *Marosszék ismertetése* (Kolozsvár 1868–1869)

CIL
Corpus Inscriptionum Latinarum, 1863–

Deák 1878
F. Deák, Hazai tud. intézetek és leletek. A mikházi ásatások, *ArchÉrt*, 12/7, 1878, 267–269.

Dobos et al. 2017
A. Dobos – M. Fiedler – C. Höpken – S. Mustață – Sz. P. Pánczél, Militärlager und vicus in Călugăreni/Mikháza (Kreis Mureș, Rumänien) am Dakischen Ostlimes, *KuBA* 7, 2017, 145–154.

Gudea 1997
N. Gudea, Der dakische Limes. Materialien zu seiner Geschichte, *JbRGZM* 44/2, 1997, 497–609.

IDR
Inscripțiile Daciei Romane = Inscriptiones Daciae Romanae, 1975–

Lazăr 1995
V. Lazăr, *Repertoriul arheologic al județului Mureș* (Târgu Mureș 1995)

Man 2006
N. Man, Ceramica ștampilată descoperită în castrul roman de la Călugăreni, *Marisia* 28, 2006, 113–117.

Man et al. 2005
N. Man – C. Crișan – D. Cioată, Călugăreni, com. Eremitu, jud. Mureș. Punct: Castrul Roman, *CCAR. Campania 2004,* 2005, 101–102.

Man et al. 2014
N. Man – Sz. P. Pánczél – D. Cioată – C. Crișan – S. Cociș – M. Fiedler – V. Stürmer, Călugăreni, com. Eremitu, Jud. Mureș. Punct: Vicusul castrului roman de la Călugăreni, *CCAR. Campania 2013,* 2014, 37–38.

Man et al. 2015
N. Man – Sz. P. Pánczél – D. Cioată – M. Fiedler – C. Crișan – S. Cociș – S. Mustață – A. Dobos – L. Vass – K. Sido – K. Ötvös – D. Petruț, Castrul roman, termae și vicusul militar de la Călugăreni, Jud. Mureș. Punct: Castrul roman, termae și vicusul militar, *CCAR. Campania 2014*, 2015, 45–47.

Man et al. 2016
N. Man – Sz. P. Pánczél – D. Cioată – M. Fiedler – C. Crișan – S. Cociș – S. Mustață – A. Dobos – L. Vass – K. Sido – K. Ötvös – D. Petrut, Călugăreni, Jud. Mureș. Punct: Castrul roman, termae și vicusul militar. *CCAR. Campania 2015*, 2016, 22–24.

Man et al. 2017
N. Man – Sz. Pánczél – D. Cioată – M. Fiedler – C. Bonta – S. Mustață – A. Dobos – L. Vass – K. Sidó – K. Ötvös – D. Petruț – L. Daczó – D. Nyulas – B. Burkhardt – M. H. Grunwald – C. Höpken, Călugăreni, com. Eremitu, jud. Mureș. Punct: Castrul roman, termae și vicusul militar de la Călugăreni, *CCAR. Campania 2016*, 2017, 37–39.

Man et al. 2019
N. Man – Sz. P. Pánczél – D. Cioată – M. Fiedler – C. Höpken – S. Braun – K. Oberhofer – J. Kopf – A. Dobos – S. Mustață – K. Sidó – K. B. Ötvös – C. Bonta – L. Daczó – D. Nyulas – O. Szilágyi – B. Burkhardt – D. Petruț, Călugăreni, com. Eremitu, jud. Mureș. Punct: Castrul roman, termae și vicusul militar de la Călugăreni, *CCAR. Campania 2018*, 2019, 37–39.

Marcu 2009
F. Marcu, *Organizarea internă a castrelor din Dacia = The internal planning of Roman forts of Dacia*, Bibliotheca Mvsei Napocensis 30 (Cluj-Napoca 2009)

Marsigli 1726
L. F. Marsigli, *Danubius pannonico-mysicus, observationibus geographicis, astronomicis, hydrographicis, historicis, physics perlustratus et in sex tomos digestus* (Amsterdam–Haga 1726).

Matei-Popescu–Țentea 2016
F. Matei-Popescu – O. Țentea, The eastern frontier of Dacia. A gazetteer of the forts and units, in: V. Bârcă (ed.), *Orbis Romanus and Barbaricum. The Barbarians around the province of Dacia and their relations with the Roman Empire*, Patrimonium Archaeologicum Transylvanicum 14 (Cluj-Napoca 2016) 7–14.

Orbán 1870
B. Orbán, *A Székelyföld leírása történelmi, régészeti, természetrajzi s népismei szempontból* IV (Pest 1870).

Paulovics 1944
I. Paulovics, *Dacia keleti határvonala* és *az* úgynevezett *"dák" ezüstkincsek kérdése* (Kolozsvár 1944)

Pánczél 2015
Sz.-P. Pánczél, The Roman fort from Călugăreni (Mureș County, Romania), in: L. Vagalinski – N. Sharankov (eds.), *LIMES XXII. Proceedings of the 22nd International Congress of Roman Frontier Studies Ruse, Bulgaria, September 2012* (Sofia 2015) 909–916.

Pánczél 2018a
Sz. P. Pánczél, A mikházi római segédcsapattábor régészeti kutatása / Archaeological research at the Roman auxiliary fort of Călugăreni, in: D. Dávid – R. Terbe – Zs. Vasáros (eds.), *Identitás* és *kultúra 5 / Identity and culture 5* (Budapest 2018) 12–15.

Pánczél 2018b
Sz. P. Pánczél, Călugăreni. Viitorul trecutului, *LIMES* 3, 2018, 25–28.

Pánczél 2018c
Sz. P. Pánczél, A mikházi segédcsapattábor. Régészet és örökségvédelem, *MúzeumCafé* 68, 2018, 140–155.

Pánczél et al. 2014
Sz.-P. Pánczél – C. Höpken – M. Fiedler – G. Döhner – M. Szabó – L. Lenkey – N. Man, Forschungen am Dakischen Ostlimes zwischen Brâncoveneşti und Sărăţeni, *Der Limes* 8, 2014, 23–27.

Pánczél et al. 2018
Sz. P. Pánczél – S. Mustață – A. Dobos, A Mikházi római segédcsapattábor kutatása / The research at the Roman auxiliary fort of Mikháza/Călugăreni, *Magyar Régészet / Hungarian Archaeology* 1, 2018, 13–20.

Pánczél et al. 2021
Sz.-P. Pánczél – K. Sidó – O. Szilágyi, The excavations at the north-eastern angle tower of the auxiliary fort of Călugăreni / Mikháza, *Marisia-AHP* 3, 2021, 111–142.

Pánczél–Lukácsi 2019
Sz.-P. Pánczél – Cs. Lukácsi, Evidence concerning the use and production of composite bows in Călugăreni/Mikháza, in: I. G. Farkas – M. Szabó – R. Neményi (eds.*), Visy 75. Artificem Commendat Opus. Studia in Honorem Zsolt Visy* (Pécs 2019) 412–426.

Pánczél–Sidó 2019
Sz.-P. Pánczél – K. Sidó, Ce se găteşte în principia de la Călugăreni?, *LIMES* 6, 2019, 27–31.

Piso–Marcu 2008
I. Piso – F. Marcu, La cohors I Augusta Iuraeorum en Dacie, *ActaMN* 43–44/1, 2006–2007 (2008), 167–176.

Popa et al. 2010
A. Popa – S. Cociş – C. Klein – C. Gaiu – N. Man, Geophysikalische Prospektionen in Ostsiebenbürgen. Ein Deutsch-Rumänisch-Moldauisches Forschungsprojekt an der Ostgrenze der römischen Provinz Dacia, *EphemNap* 20, 2010, 101–128.

Protase 1965
D. Protase, Castrul roman de la Călugăreni (r. Tîrgu Mureş). Săpăturile din anul 1961, *ActaMN* 2, 1965, 209–214.

Scheint 1833
D. G. Scheint, *Das Land und Volk der Szeckler in Siebenbürgen, in physischer, politischer, statistischer und geschichtlicher Hinsicht* (Pest 1833)

Sidó–Höpken 2020
K. Sidó – C. Höpken, Die kleinen hier – die großen da: Eine römische Zweikammer-Spardose aus Călugăreni/Mikháza am dakischen Ostlimes (Kreis Mureş, Rumänien), *ArchKorr* 50/3, 2020, 363–370.

Sidó–Ötvös 2015
K. Sidó – K. B. Ötvös, New types of Roman stamped tiles from Călugăreni, in: A. Dobos, – D. Petruţ – S. Berecki – L. Vass – Sz. P. Pánczél – Zs. Molnár-Kovács. – P. Forisek (eds.), *Archaeologia Transylvanica. Studia in honorem Stephani Bajusz* (Cluj-Napoca – Târgu Mureş – Budapest 2015) 175–188.

Sidó–Pánczél 2019
K. Sidó – Sz.-P. Pánczél, A fireplace from the wooden *principia* of Călugăreni/Mikháza, in: I. G. Farkas – M. Szabó– R. Neményi (eds.), *Visy 75. Artificem commendat opus. Studia in honorem Zsolt Visy* (Pécs 2019) 470–479.

Sidó–Pánczél 2020
K. Sidó – Sz.-P. Pánczél, Possible kernoi discovered in the Principia from Călugăreni/Mikháza, *Marisia-AHP* 2, 2020, 139–148.

Talabér 2020
I. Talabér, Roman Jewellery from Călugăreni/Mikháza on the Eastern Limes of Dacia, *Marisia-AHP* 2, 2020, 119–138.

Ţentea 2012
O. Ţentea, *Ex Oriente ad Danubiam. The Syrian units on the Danube Frontier ot the Roman Empire,* The Centre for Roman Military Studies 6 (Bucureşti 2012)

ABBREVIATIONS

ActaArchHung	Acta Archaeologica Academiae Scientiarum Hungaricae
ActaMN	Acta Musei Napocensis
AISC	Anuarul Institutului de Studii Clasice Cluj
Aluta	Aluta. Studii și cercetări
AnB	Analele Banatului (Serie nouă 2006–)
Angustia	Angustia. Muzeul Carpaţilor Răsăriteni
AnnUA-Hist	Annales Universitatis Apulensis. Series Historica
Antiquity	Antiquity. A Quarterly Review of Archaeology
Apulum	Apulum. Acta Musei Apulensis
ArchÉrt	Archaeologiai Értesítő
ArchHung	Archaeologia Hungarica
ArchKorr	Archäologisches Korrespondenzblatt
ArchSlovMonComm	Archaeologica Slovaca Monographiae: Communicationes
Argesis	Argesis. Studii și comunicări
AVSL	Archiv des Vereins für Siebenbürgische Landeskunde
Banatica	Banatica, Muzeul Banatului Montan
BB	Bibliotheca Brukenthal
BCȘS	Buletinul Cercurilor Științifice Studențești
BeitUfGMMKR	Beiträge zur Ur- und Frühgeschichte des Mittelmeer-Kulturraumes
BerRGK	Bericht der Römisch-Germanischen Kommission
BICA	Bullettino dell'Instituto di corrispondenza archeologica = Bulletin de l'Institut de correspondance archéologique
BHAUT	Bibliotheca Historica et Archaeologica Universitatis Timisiensis
BJ	Bonner Jahrbücher
BMA	Bibliotheca Musei Apulensis
BMM	Bibliotheca Musei Marisiensis
BudRég	Budapest Régiségei
CA	Cercetări Arheologice
Carpica	Carpica. Muzeul Județean Iulian Antonescu
CCAR	Cronica Cercetărilor Arheologice din România
CH	Cahiers d'Histoire. Publiés par les Universités de Clermont-Ferrand
CommArchHung	Communicationes Archaeologicae Hungariae
Dacia (N. S.)	Dacia. Recherches et décuvertes archéologiques en Roumanie, I–XII (1924–1948), Nouvelle série (N. S.): Dacia. Revue d'archéologie et d'histoire anciene
DDMÉ	A Debreceni Déri Múzeum Évkönyve
DissArch	Dissertationes Archaelogicae ex Instituto Archaeologico Universitatis de Rolando Eötvös Nominatae
DM	Dissertationes et monographiae Beograd
DolgKolozsvár (Ú.S.)	Dolgozatok az Erdélyi Nemzeti Múzeum Érem- és Régiségtárából, (Új sorozat 2006–)
DolgSzeged	Dolgozatok a Szegedi Tudományegyetem Régiségtudományi Intézetéből
EDR	Ephemeris Dacoromana
EMúz	Erdélyi Múzeum

EphemNap	Ephemeris Napocensis
HOMÉ	A Herman Ottó Múzeum Évkönyve
IA	Internationale Archäologie
ICA	Interdisciplinary Contributions to Archaeology
IPH	Inventaria Praehistorica Hungariae
JAHA	Journal of Ancient History and Archaeology
JAAH	Journal of Archaeology and Ancient History
JASc	Journal of Archaeological Science
JbRGZM	Jahrbuch des Römisch-Germanischen Zentralmuseums
JRA	Journal of Roman Archaeology
JRS	Journal of Roman Studies
KM	Keresztény Magvető. Az Erdélyi Unitárius Egyház Folyóirata
KuBA	Kölner und Bonner Archaeologica
Lymbus	Lymbus. Magyarságtudományi Forrásközlemények
Marisia	Marisia (V–XXXV): Studii şi Materiale
Marisia-AHP	Marisia: Archaeologia, Historia, Patrimonium
MCA	Materiale şi Cercetări Arheologice
MFMÉ (StudArch)	A Móra Ferenc Múzeum Évkönyve, (Studia Archaeologica 1995–)
MGLDMS (N. F.)	Magazin für Geschichte, Literatur und alle Denk- und Merkwürdigkeiten Siebenbürgens, Neue Folge
Mousaios	Mousaios. Muzeul Judeţean Buzău
MSVFG	Marburger Studien zur Vor- und Frühgeschichte
MűvtÉrt	Művészettörténeti Értesítő
NuclInstMethPhys-Sect. B	Nuclear Instruments and Methods in Physics Research. Section B
OJA	Oxford Journal of Archaeology
PAS	Prähistorische Archäologie in Südosteuropa
PBF	Prähistorische Bronzefunde
Radiocarbon	Radiocarbon. An International Journal of Cosmogenic Isotope Research
ReiCretActa	Rei Cretariae Romanae Fautorum Acta
RégFüz	Régészeti Füzetek
RevBis	Revista Bistriţei. Complexul Judeţean Muzeal Bistriţa-Năsăud
Sargetia (S.N.)	Sargetia. Acta Musei Devensis
SBA	Saarbrücker Beiträge zur Altertumskunde
SCIV(A)	Studii şi Cercetări de Istorie Veche (şi Arheologie 1974–)
SlovArch	Slovenská Archeológia
StCl	Studii Clasice
StComSibiu	Studii şi comunicări. Muzeul Brukenthal
StComSM	Studii şi Comunicări Satu Mare
SUBB-Historia	Studia Universitatis Babeş–Bolyai, series Historia
StudUCH	Studia Universitatis Cibiniensis, Series Historica
Terra Sebus	Terra Sebus. Acta Musei Sabesiensis
Thraco-Dacica	Thraco-Dacica. Institutul de Arheologie "Vasile Pârvan" Centrul de Tracologie
Tisicum	Tisicum. A Jász-Nagykun-Szolnok Megyei Múzeumok Évkönyve
Tyragetia	Tyragetia. The National Museum of History of Moldova
UPA	Universitätsforschungen zur Prähistorischen Archäologie
VAH	Varia Archaeologica Hungarica
WMMÉ	A Wosinsky Mór Múzeum Évkönyve
ZPE	Zeitschrift für Papyrologie und Epigraphik