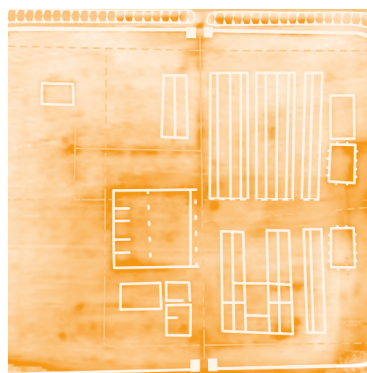


# Roman auxiliary fort in Pojejena (Caraș-Severin County, Romania). The results of non-invasive and archival research (2017–2019)



**Abstract:** A non-destructive survey conducted in 2017–2019 in the proximity of the auxiliary fort brought forth new data regarding the military base on the bank of the Danube, in the frontier zone between the Roman provinces of Moesia Superior and Dacia Inferior. It became clear that the previously acknowledged large stone fort was preceded by an unknown small earth-and-timber fort likely dated to the late 1st – early 2nd century.

Analysis of the internal planning of the large fort, as well as the results of test trenching near the East Gate not only allowed to verify some geophysical results but also gave insight into the chronology of the large fort and contributed to the discussion of the changes to the fort's garrison. The evidence shows that the base functioned until the 260s CE, and while the Roman military was probably present in the area at some point in the 4th century, it was a relatively short episode during an attempt to reconquer the Dacian riverbank.

**Keywords:** Roman limes, auxiliary fort, Danube, Moesia Superior, Dacia

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## INTRODUCTION

The Roman fort in the modern village of Pojejena, Romania, is located near the Iron Gates gorge, on the left bank of the Danube [Figs 1, 2]. The military base, whose ancient name is unknown, was built on a plateau rising from the vast Danubian terrace surrounded by the Carpathian

Mountains. From the 1st century CE, the fort guarded the frontier of the Roman Empire. From the conquest of Dacia until the Roman retreat from this area in about 260 CE, it manned a frontier zone between the Roman provinces of Moesia Superior and Dacia Superior (Piso 2018).

## STATE OF THE ART

The fort has been known to scholars for a long time — its remains were noted already by an Italian traveler, Count Luigi Fernando Marsili (Marsili 1726/II: 11). Nevertheless, it was not thoroughly investigated. The first regular investigations were conducted in the 1970s by Romanian scholars Nicolae Gudea, Ilie Uzum and Ovidiu Bozu (Gudea and Uzum 1973; Gudea 1975; Gudea and Bozu 1979; Gudea 2001: 59–61). The researchers recognized the general outline of the fort and de-

termined its area (about 2.7 ha) [Fig. 3]. Importantly, they excavated parts of the fortification system, determining that the defensive walls were about 1.3 m wide and built in the *opus incertum* technique (Gudea and Uzum 1973: 87; Gudea 2001: 60). Next to the wall, they detected an embankment and a ditch 7–9 m wide and 2.5 m deep (Gudea and Uzum 1973: 87). Three gates were excavated: *porta decumana* (West Gate), *porta principalis sinistra* (North Gate) and *porta principa-*

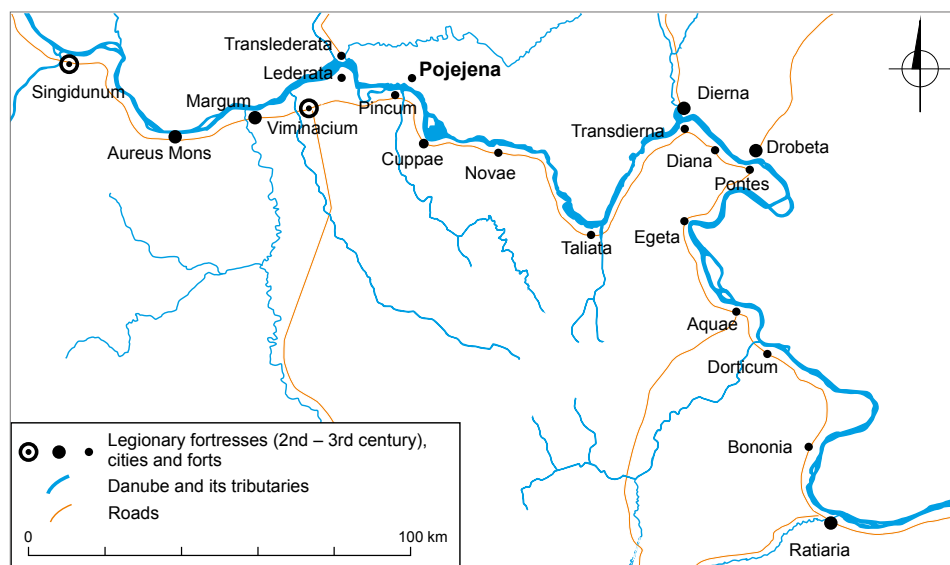


Fig. 1. Upper Moesian Danube in the 2nd–3rd century (Prepared by E. Jęczmienowski)

*lis dextra* (South Gate) [Figs 3, 4]. Each was flanked by two internal rectangular towers projecting slightly (by 0.4–0.5 m) from the curtain wall (Gudea 1975: 334, 336–337, Figs 2–3; Gudea and Bozu 1979: 182, Fig. 2, 183). Three corner internal towers, trapezoidal in plan, have been excavated as well [Figs 3, 5] (Gudea and Bozu 1979: 181–183), but the results of the excavations in the NE corner tower were published only in a brief report focusing on the discovery of Mithraic votive reliefs (Gudea and Bozu 1977: 118, 128–130).

The 1970s research determined the width of a number of streets: the *via principalis* near the North Gate was 4 m wide (Gudea 1975: 338), and 3.5 m wide side streets were located near the *principia* (Gudea and Bozu 1979: 183). Remains of a few buildings in the central part of the

fort were revealed [see Fig. 3] and identified as fragments of the headquarters (*principia*) and a wattle-and-daub barrack built *per strigas* (about 40 m × 10 m, total area of 400 m<sup>2</sup>). One of the walls in the central area was provided with counterforts, which led to its incorrect identification as a wall of the *horreum* (Gudea and Bozu 1979: 182, Fig. 1, 183; Gudea 2001: 59–60).

Nicolae Gudea distinguished two chronological phases of the fort's development: in the first, it was an earth-and-timber construction (142 m × 179 m) dated by him to the second half of the 1st century (Gudea 2001: 13, 15, 59). This dating was based solely on 1st-century coin finds from Pojejena (Gudea and Bozu 1979: 184) coupled with information on the presence of *cohors V Gallorum*

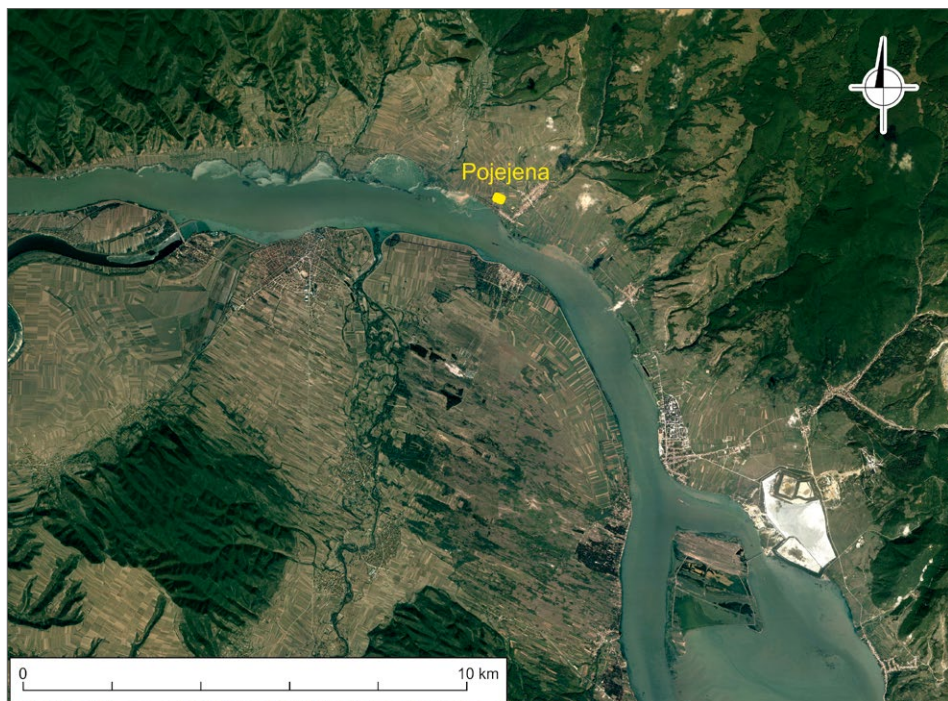


Fig. 2. Surroundings of Pojejena (Google Earth satellite imagery processed by E. Jęczmienowski)

in Moesia in 75 CE, attested in a military diploma from Donji Milanovac, also in the Iron Gates (RMD I 2), combined with later evidence of this unit's presence in Pojejena. In the second building phase, the size of the fort was almost the same (148 m × 185 m). Initially, excavators assumed that the stone walls were erected in the mid-2nd century and remained in use until the mid-3rd century (Gudea and Uzum 1973: 86–87, 95; Gudea 1975: 339–340; Gudea 1977: 225; Gudea and Bozu 1979: 184); later, however, Gudea changed the dating of the construction to the Trajanic–Hadrianic period (Gudea 2001: 19, 31–32, 59–60).

Epigraphical sources are scarce in Pojejena. Only three inscriptions provide information about the fort's military garrison (ILD 179; AE 1963: 165 = IDR III/1 10; AE 1972: 490 = IDR III/1 11 — discussed below). Nevertheless, thanks to them and numerous stamped bricks, as well as military diplomas from various sites, researchers have ascertained

the presence of at least two military units in Pojejena: *ala Frontoniana Tungrorum* and *cohors V Gallorum* (Gudea 2001: 13, 18, 20–21, 35–38, 59–60) with the latter unit remaining in the fort at least until the end of the 2nd century (Matei-Popescu and Țentea 2018: 57).

The end of the Roman presence in Pojejena is unclear, yet some Roman finds dated to the 4th century have been discovered prior to our investigations, including a hoard of bronze coins of the Constantinian dynasty found in the surroundings of Pojejena in 1883 (Toma-Demian 2000). For a considerable time, bricks and roof tiles with the stamp *LEGVIICL* found in Pojejena, attributed to the *VII Claudia* legion, were thought to bear an additional letter C at the end (see Fig. 16:d depicting a drawing of such a stamp found by our team). It was understood as the abbreviated name of the late Roman fort at Cuppae, and for that reason they were dated to the 4th century (IGLR 427; Gudea and Uzum 1973: 94, 96). Lately, however, Ioan Piso, Adrian Ardeț and Călin Timoc compared these impressions with other stamps of *legio VII Claudia* and established that they should be dated to the 2nd century, and the letter C is in fact a relic of a *tabula ansata* decoration (IDR App. III 34–35, 55 XXXVI/1).

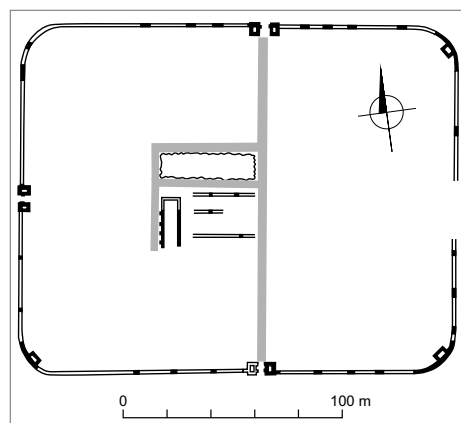


Fig. 3. Fort in Pojejena after excavations in the 1970s (Prepared by E. Jęczmienowski based on Gudea and Bozu 1979: 182, Fig. 1; Gudea 2001: 59)

## GOALS

The main objective of the project was to establish the internal plan of the fort and to evaluate the evidence of its fate after the Roman withdrawal from Dacia, especially in the light of efforts to reconquer these lands under Diocletian and Constantine

referred to in literary sources (*Pan. Lat. V*(=VII), 3; Euseb. *Vita Const.* 1.8).

Another important aim was to establish the size and character of the civil-

ian settlement next to the military base, as the extramural area has not yet been a subject of investigation. The results will be published separately.

## METHOD

The present project applied complementary prospection methods, including fieldwalking, remote sensing, and multi-method archaeo-geophysical surveys for the purpose of collecting a variety of data in order to reconstruct the ancient landscape in and around the fort.

Fieldwalking was the primary method focused on outlining the areas where

surface finds were registered outside the walls of the fort. A UAV photogrammetry survey was carried out in order to acquire high-definition imagery of the research area. Captured series of vertical aerial photographs, along with GNSS-RTK-measured Ground Control Points (GCP) allowed us to render high-resolution Structure from Motion (SfM) Digital Surface Models (DSM). Two UAV photogrammetry surveys have been undertaken, the first one in 2017, documenting an area of about 30 ha, and the second one in 2019, documenting roughly 18 hectares. The output DSM resolution was approximately 16 cm/pix, and the orthophoto was about 4 cm/pix.

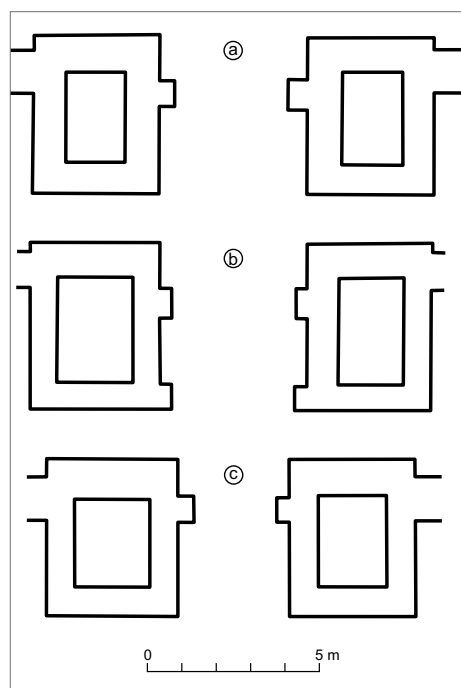


Fig. 4. Gates excavated in 1970s: a – North Gate (*porta principalis sinistra*); b – South Gate (*porta principalis dextra*); c – West Gate (*porta decumana*) (Prepared by E. Jęczmienowski based on Gudea 1975: 336–337, Figs 2–3; Gudea and Bozu 1979: 182, Fig. 1)

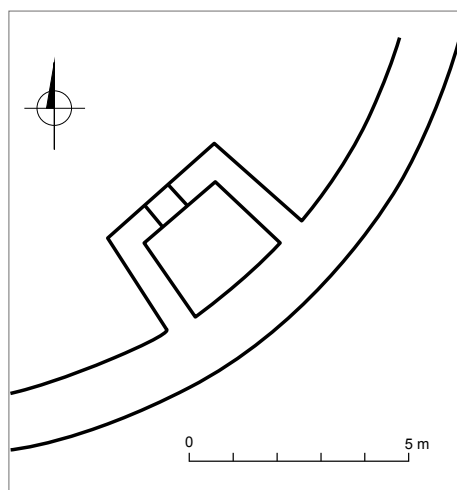


Fig. 5. SE corner tower after excavations in the 1970s (Prepared by E. Jęczmienowski based on Gudea and Bozu 1979: 183, Fig. 3)

The geographical scale around which the research questions were framed led us to carry out geophysical surveys on all three survey strategy levels proposed by Gaffney and Gater (2003) and implemented as part of the state-of-the-art guidelines for the use of geophysics in archaeology (Schmidt et al. 2015). Level I (“prospecting”) was carried out by means of a magnetic susceptibility (MS) survey. It was performed with a Bartington MS2 magnetic susceptibility meter equipped with a MS2D field loop. MS values were captured in 10–20 m interval transects and similar inlines. The MS values were recorded, along with an accurate position of the sample, using GNSS-RTK. A total number of about 500 readings covering roughly 6 ha were measured.

At Level II (“assessment”), a research magnetometer survey was applied. For this purpose, a pushed-cart-based multi-channel single-axis gradiometer system was used. In 2017 and 2018, an 8-channel SENSYS MX V3 with a 25 cm sensors separation distance was utilized, while in 2019 the survey was completed with a SENSYS MXPDA 5-channel system and the same sensors separation distance. Both systems were equipped with FGM650/3 single-axis fluxgate sensors and GNSS-RTK for real-time sample location. The magnetometer survey covered a total area of about 11 ha.

Evaluation of the site using the results of the magnetometer survey helped us to indicate the areas of further interest for the application of the Level III (“investigation”) survey. The main method applied for this purpose was Earth Re-

sistance (ER). Grid-based measurements were carried out with a Geoscan Research RM85 meter in a multi-depth twin probe configuration (three simultaneous readings with AM electrode separation distances of 0.5 m, 1.0 m, and 1.5 m). The ER survey covered an area of about 4.15 ha.

The final stage of the Level III survey was a small-scale targeted survey with the use of three complementary geophysical methods: Electrical Resistivity Tomography (ERT), Ground Penetrating Radar (GPR) and Seismic Refraction Tomography (SRT). The main focus of this part of the research was to evaluate the response of complementary geophysical methods (Pisz, Mieszkowski, and Jęczmienowski 2019: 129–131). Since the three abovementioned methods have been applied on a small area of interest (20 m × 40 m) selected on the basis of the results of magnetometer and ER surveys, the results of all of the abovementioned measurements contributed to the archaeological evaluation of the buried features.

To improve the archaeological interpretation of the data, the geophysical and spatial analysis of the prospection results was supported with test trenching near the East Gate, mapped out using the results of the geophysical surveys. The trench covered about 53 m<sup>2</sup> and had the shape of a long strip measuring 26 m × 2 m, provided with a rectangular extension (2.5 m × 1.5 m) to the south at its east end. The excavation was planned in such a way as to cut through the fortifications and *intervallum* and to reach the first building inside the fort in order to identify the structures and to recognize the relations between them.

## RESULTS

Our survey brought a considerable amount of new data regarding the phases and planning of the fort. Each method brought different results. While the ER proved to be more informative regarding the internal planning of the fort, the magnetometer survey revealed meaningful information about its earliest phase. At the same time, the test trench allowed to verify some of the geophysical results. Unfortunately, due to the presence of thick rubble layers we were unable to reach virgin soil in all parts of the trench.

### LAYOUT AND PHASES OF THE FORT

The geophysical examination has shown that the fort undoubtedly had at least two main phases [Figs 6, 7], with the possibility of further subdivision of Phase 2. In both phases it had a rectangular plan with rounded corners. The most important discovery was a previously unknown smaller fort (Phase 1) oriented along an east – west axis, with a total area of approximately 1.6–1.7 ha (about 140 m × 120 m) including the defensive walls. At some point (Phase 2) the fort was likely enlarged to the west, north and east (but not to the south due to the steep slope of the plateau on that side). The overall dimensions of the larger fort were 188 m × 148 m (2.74 ha).

### PHASE 1

The geophysical images [see Fig. 6] appear to indicate that the fort in Phase 1 was surrounded by two ditches, a wider external (about 5–7 m) and a narrower internal one (about 4–5 m), separated by a distance of 3–4 m [see Fig. 7]. The absence of high-resistivity anomalies along

the ditches suggests the absence of masonry walls, implying the likelihood of earth-and-timber fortifications. If that was the case, the fort would have been surrounded by an embankment, which is also not visible on the images obtained from geophysical measurements.

Due to intensive agricultural activity probably combined with a natural erosion of the terrace, the south frontage of the fort in both phases is very difficult to recognize, but it is very possible that the stone fortifications overlap the earlier embankment. There are no visible breaks along the ditch line to indicate the position of the gates.

Some anomalies visible solely on the magnetometry results [see Fig. 6]—especially in the north half of the fort but also to the south of the *principia*—could come from timber structures inside the earliest fort. They do not cross the perimeter of the inner ditch and are located at a distance of over 10 m from it. In some cases these anomalies could reflect barracks.

### PHASE 2

#### Defences

Unlike in Phase 1, the fort in Phase 2 was surrounded by a single ditch [Figs 6, 7, 8]. Traces of the new ditch were detected along three sides. In the trial trench near the East Gate we uncovered a short segment of the ditch of Phase 2 [Figs 9, 10, 11]. It was V-shaped, 6–7 m wide, about 1.8 m deep, dug out some 1.5–2 m from the curtain wall and partly filled with stones. Two lines visible on the geophysical image outside the curtain walls belonging to

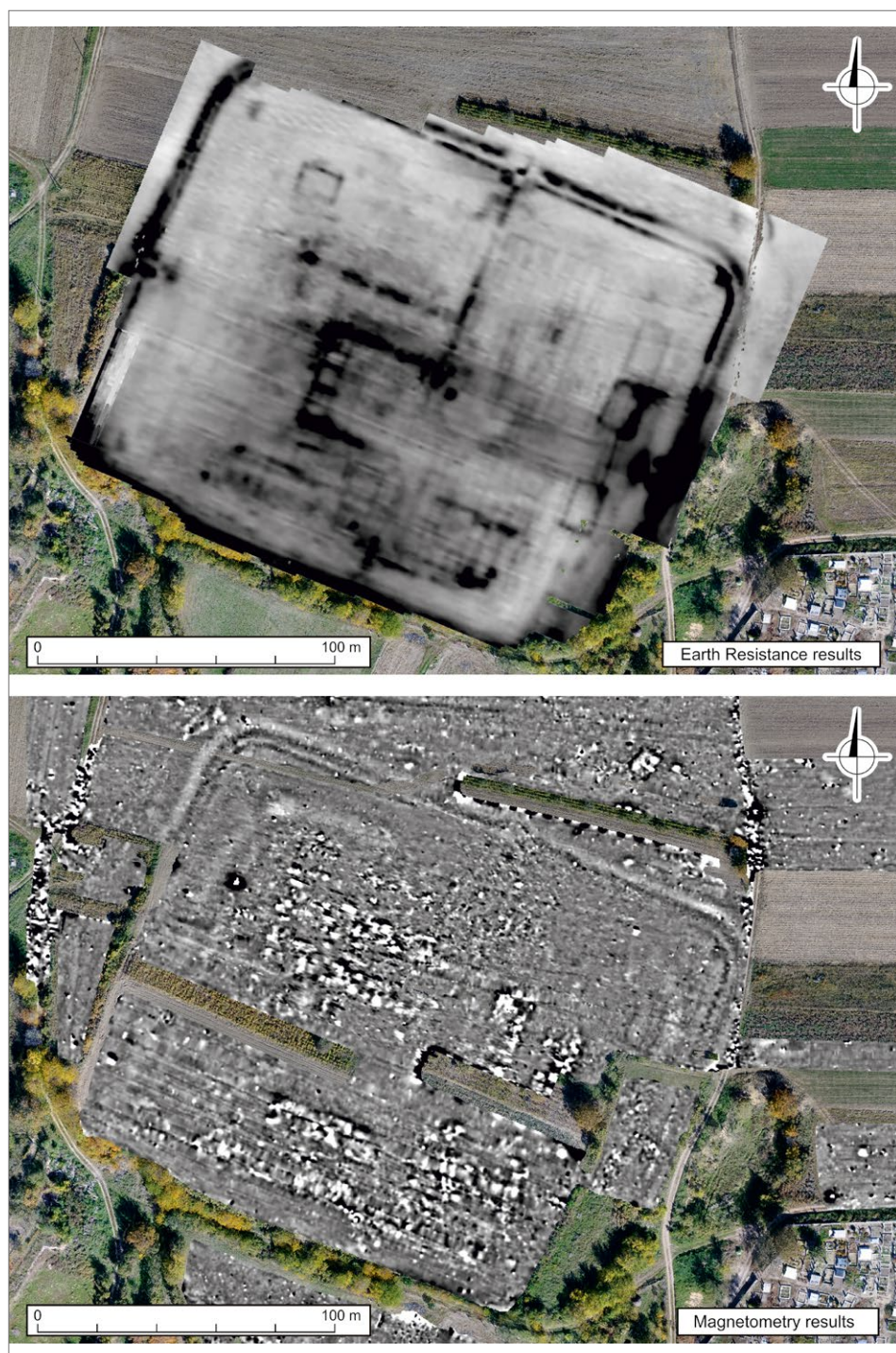


Fig. 6. Earth Resistance and magnetometry results (Prepared by M. Pisz, E. Jęczmienowski)

Phase 2 [see Fig. 6] result from dismantling the stone walls, which took place at an undefined point in time. A high-resistance line closer to the walls denotes a section of the ditch filled with stone debris. The defensive wall can be traced only as a 1.3 m wide robber trench [see Fig. 9]. Remains of the approximately 6.7–7 m wide rampart (*agger*) leaning to the wall were also recorded.

### Gates

All four gates of the stone fort are visible on the geophysical images [see Figs 6, 8], although the South Gate is barely traceable. Both *portae principales* were erected some 10 m to the east of the middle of their fortification walls (i.e. in about 5.5/10 of their lengths) while both *portae praetoria* and *decumana* were centrally placed.

The only unexcavated gate was the *porta praetoria*. The geophysical survey revealed that it was located precisely where it was supposed to be: in the middle of the east side of the fort. The gate was flanked by two internal rectangular towers, probably 4 m × 5 m large [Fig. 11]. The exact dimensions could not be established precisely since their east sides are badly preserved, most probably due to dismantling, like the adjacent section of the curtain wall. Nevertheless, they seem to project some 0.4–0.5 m from the line of the wall. Tower gates of *porta praetoria* had entrances roughly 1 m wide in their rear sides. It seems that there were two pairs of counterforts attesting the presence of a confined space between the towers — a *propugnaculum*.

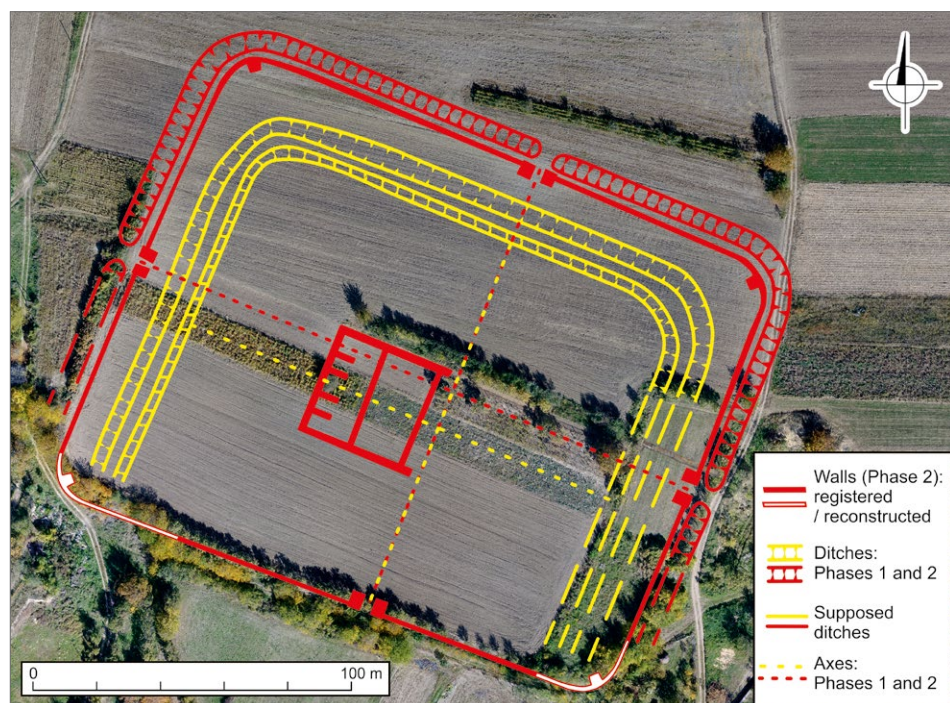


Fig. 7. Outline and axes of Phases 1 and 2 of the fort in Pojejena (Prepared by E. Jęczmienowski)

The remains of the hitherto undiscovered NW corner tower seem to be faintly visible on the ER image [see Figs 6, 8]. The tower is probably heavily damaged, and the geophysical measurements allow us only to suppose that its dimensions could be close to  $4\text{ m} \times 3.5\text{ m} \times 4.5\text{ m} \times 4.5\text{ m}$ . The NE corner tower—excavated in the 1970s but not published in detail—appears to have had dimensions of about  $4.5\text{ m} \times 3\text{ m} \times 4\text{ m} \times 4\text{ m}$ .

### **Principia**

The comparison of the plan published by the Romanian excavators [see Fig. 3]

with our ER image [see Fig. 6] indicates that the walls previously interpreted as fragments of two buildings (a granary and the *principia*) should be identified as the remains of the *principia* alone. It was also possible to establish that the headquarters building covered a surface of about  $37\text{ m} \times 35\text{ m}$  ( $1295\text{ m}^2$ ).

The building [Figs 8, 12] seems to have comprised a hall  $16\text{ m} \times 35\text{ m}$  large (*basilica principiorum*) and a courtyard of roughly  $18\text{ m} \times 35\text{ m}$  (about  $630\text{ m}^2$ ), but the putative wall separating these parts is only faintly perceptible on the geophysical image. A portico (about



Fig. 8. Layout plan of the fort in Phase 2 based on Earth Resistance results (Prepared by E. Jęczmieniowski)

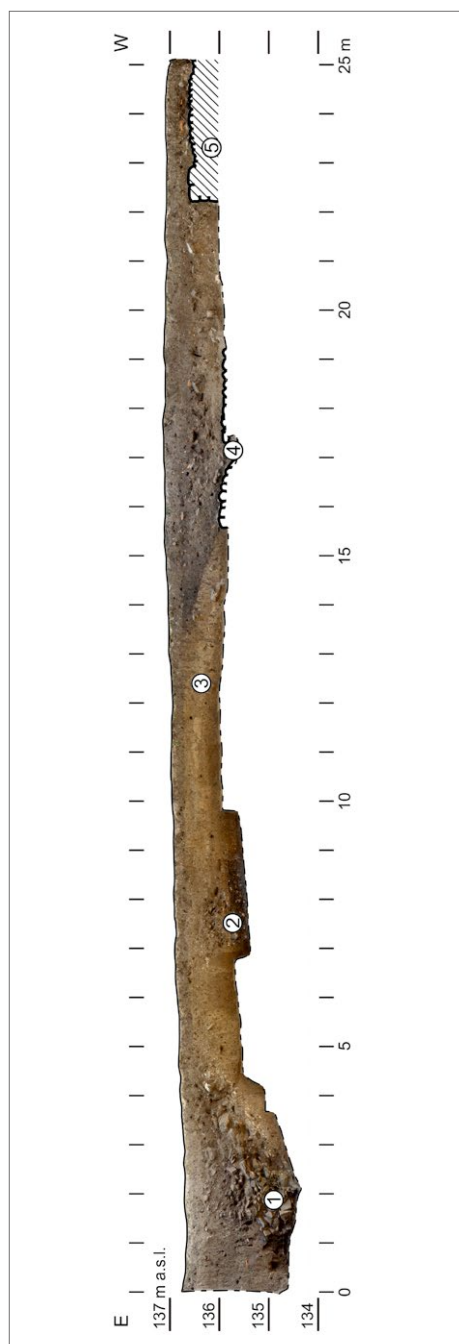


Fig. 9. Test trench near the East Gate: Southern profile. 1. Ditch; 2. Defensive wall (robber trench); 3. *Agger*; 4. *Via sagularis*; 5. *Horreum* (Prepared by E. Jęczmienowski)

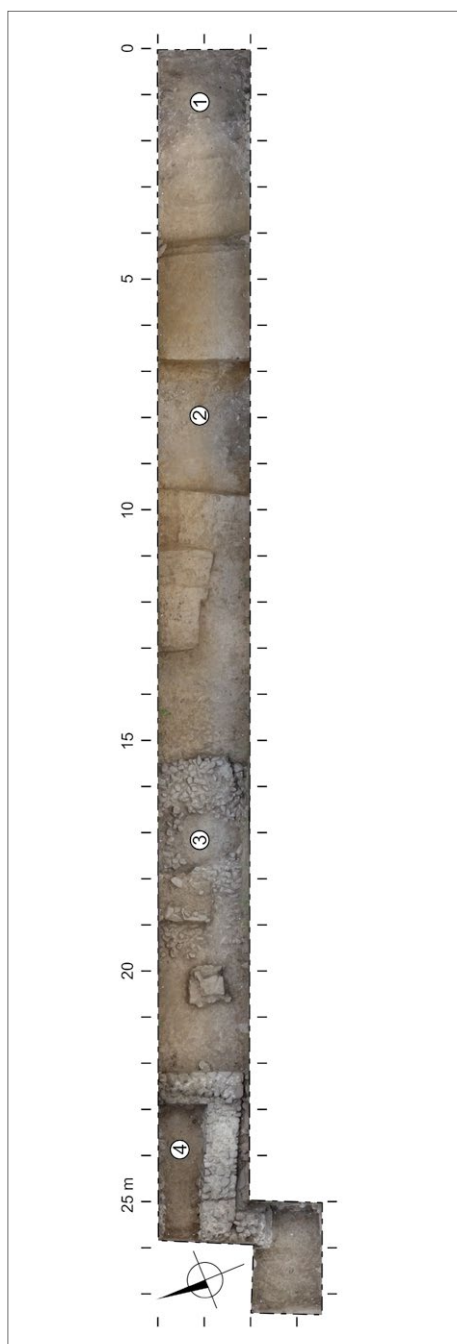


Fig. 10. Trial trench near the East Gate: Orthophoto. 1. Ditch; 2. Defensive wall (robber trench); 3. *Via sagularis*; 4. *Horreum* (Prepared by E. Jęczmienowski)

3 m deep) probably ran along the *via principalis*.

Five rooms, with the largest one (7 m × 7 m) in the center, can be discerned in the rear part of the headquarters complex [see Fig. 12]. The size and position of the central room points to its identification as the chapel (*aedes principiorum*). The other rooms had fairly uniform internal dimensions: two rooms adjoining the *aedes* measured 4 m × 7 m, while the corner ones were about 6 m × 7 m. Unfortunately, the geophysical image shows no trace of the entrance to the building.

## Streets

Traces of the main streets, which probably belong to Phase 2, are faintly visible on the geophysical image, but the best-visible section belongs to the *via principalis* [see Figs 6, 8]. It was 3–4 m wide. Some anomalies visible on the ER image suggest that the *principia* had a portico running along the *via principalis*.

The line of the *via praetoria* is rather unclear, for it is visible mostly on the surface as a line of small stones heading from east to west, although some faint anomalies suggest that the *via praetoria* did not run perpendicular to the *via principalis*, but

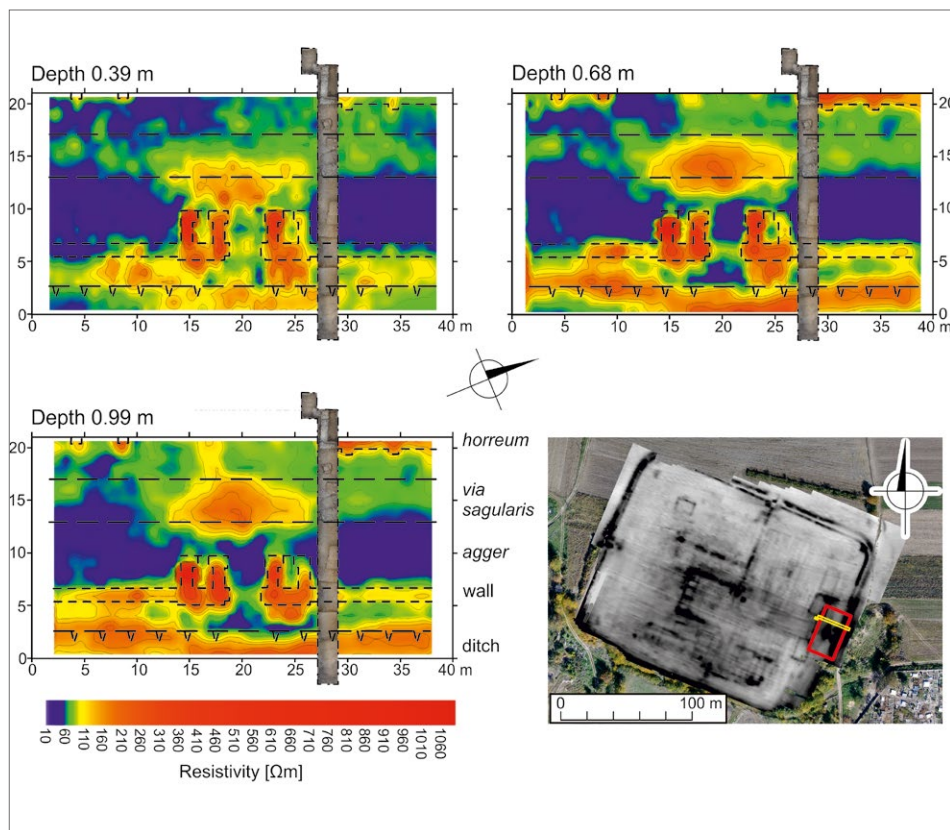


Fig. 11. Area of the East Gate: Electrical Resistivity Tomography results and orthophoto of the test trench (Prepared by R. Mieszkowski, M. Pisz, E. Jęczmienowski)

diagonally, in order to connect the East Gate with the middle of the front side of the headquarters building [see Figs 6, 8].

Faint traces of a short section of the *via decumana* are visible near the rear wall of the *principia* [see Figs 6, 8]. Its width observed on the ER results is 2–3 m. This section of the street is precisely on the axis of the two gates, indicating that the *via decumana* did not head towards the middle of the rear wall of the headquarters but to the north of it, closer to the buildings' corner.

The *via sagularis*, which ran along the defensive wall, is visible fairly clearly [see Figs 6, 8]. A 3–4 m wide segment of this street was exposed in the trial trench near the East Gate [see Figs 9, 10, 11]. It had at least three phases, each represented by a pavement of small and medium-sized stones. The *via sagularis* was constructed at a distance of roughly 6.7–7 m from the defensive wall and directly behind the rampart (*agger*) that abutted the wall. The distance separating the street and the east side of the north *horreum* measured approximately 2.6 m (third phase) and 3.4 m (first and possibly second phase of the street). It is possible that it was accompanied by a portico running along the wall of the granary [see Fig. 10]. The abundance of shoe nails found on the surface of the street attests to its intensive use by Roman soldiers.

Sections of less important streets have been traced on the geophysical image as well, especially at some distance (about 15 m) to the north and west of the *principia* [see Figs 6, 8]. To the west of the headquarters there are sections of a street parallel to the *via principalis*, while to the north of this building is a transverse street that

connected these two routes. Based on geophysics alone, the width of these streets can be estimated to about 2.5–3 m.

## Granaries

In the *praetentura*, close to the *porta praetoria*, we found traces of a pair of buildings of similar shape and size, measuring approximately 17 m × 12 m and 17.5 m × 11 m [see Figs 6, 8]. Both of them flanked the *via praetoria* with their short sides facing towards it. The geophysical image shows that the walls of both buildings were supported with buttresses [see Figs 6, 11, 13]. The trial trench exposed the southeast corner of one of these buildings [see Figs 9, 10]. Its 0.80 m thick walls were constructed in *opus incertum* with stones of various sizes joined with lime mortar. The buttresses, measuring about 0.60 m × 0.60 m with foundations of 1 m × 1 m, were built to strengthen the walls, which had been designed to support raised floors (Rickman 1971: 2, 85, 221–331, 269; Johnson 1987: 171; D. Campbell 2009: 41). Their presence, as well as the location of the two buildings, indicates that they were granaries (*horrea*). Buildings with similar features were discovered in other Roman military bases, including Dacian forts (Johnson 1987: 162–178; D. Campbell 2009: 41; Marcu 2009: 31, 43, 61–63, 97, 126–127, 135, 195, 215, 231; Găzdac and Isac 2007: 64). Some 2.5–1.5 m to the east of the north *horreum* were the remains of what may be the foundation of a column or a pillar, perhaps from the portico running along the *via sagularis*.

The thick layer of rubble originally forming the walls and roof of the building was rich in finds, primarily coins and stamped military tiles.

## Barracks

The barracks were identified in the *praetentura* of the fort [see Figs 6, 8]. The buildings were erected *per scamna*, i.e. with their short sides facing the north wall. Their plan permits to identify two double barracks and one single barrack next to the north *horreum*. The double barracks had approximate dimensions of 55–56 m × 16–17 m (about 960 m<sup>2</sup>) and their rooms were about 3–4 m (*armae*) and 4.5–5.5 m (*papilio*) wide.

The rooms of the single barrack were slightly narrower, measuring respectively about 3.5 m and 4–4.5 m. The length of the building was not established, but if it corresponded to the double barracks in shape, then the total dimensions should be about 55–56 m × 7.5–8 m (about 430 m<sup>2</sup>). All buildings in the left *praetentura* were separated by passages about 3–3.5 m wide.

Another building, possibly a shorter barrack oriented *per scamna*, is visible in the right *praetentura*, next to the south *horreum* [see Figs 6, 8]. It was divided into two long strips roughly 3 m (west) and 5 m (east) in width, resembling the division into rows of the *arma* and *papilio*.

Traces of the barracks visible on the ER image are faint, indicating their poor preservation.

## Other buildings

Our survey revealed traces of other buildings, whose function is hard to determine. In the *latera praetori*, close to the *porta principalis sinistra*, very faint anomalies seem to belong to a structure oriented *per scamna* [see Figs 6, 8]. It appears that the building measured about 27 m × 10–11 m and was divided lengthwise into two equal parts. It is considerably shorter and

wider than the barracks we detected in the *praetentura* and noticeably shorter than the alleged barrack excavated in the 1970s (Gudea and Bozu 1979: 182, Fig. 1, 183).

In the *latus dextrum* we found three orderly arranged rectangular buildings [see Figs 6, 8] separated by narrow corridor-like passages (about 1.5 m wide), with a total area of about 490 m<sup>2</sup>. The *latus dextrum* was a frequent location of a commander's house, so such identification would be tempting, yet the layout of the complex does not reveal traces of a courtyard — a common feature of Roman *praetoria*.

Vague traces of another building were detected in the right *praetentura* to the west of the barrack [see Figs 6, 8]. It seems to be the same length (about 45 m), but it looks like it had a U-shaped layout and possibly an inner courtyard. The building probably measured about 45 m × 31 m (1380 m<sup>2</sup>) and occupied about 5.27% of the internal area of the fort. Traces of hydraulic mortar were detected on the surface near the southeast corner of this building. The presence of hydraulic mortar suggests that the building could have been the *thermae*, although its presence inside the walls is unusual for auxiliary forts in Dacia (Marcu 2009: 146).

Another structure was detected in the left *praetentura*, some 3 m to the north of the *horreum*. It is similar in width to the granary (11–11.5 m), but longer (about 19 m) [see Figs 6, 8]. It is not so well preserved and there are no traces of buttresses suggesting a different purpose than of nearby granaries.

The only clearly discernible building in the *retentura* is visible near the north-

east corner of the fort [see *Figs 6, 8*]. It has a rectangular plan of about 14 m ×

10 m and is oriented along the east – west axis.

## DISCUSSION

### FORT'S LAYOUT AND PHASES

The small fort (Phase 1) is the earlier (if not the earliest) military base in Pojejena, as indicated by the position of the *principia* of the larger fort of Phase 2 [see *Figs 6, 7*]. It is placed precisely in the center of the Phase 1 fort. During Phase 2, after the enlargement of the base in all directions except the south, where the steep slope prevented expansion, the headquarters remained in its original location and ended up to the south of its usual place on the axis between the two *portae principales* [see *Fig. 7*]. A similar phenomenon was observed in the fort of Gilău (Găzdac and Isac 2007: 71–72, *Figs 23–24*).

Former excavators thought that the stone fort was preceded by an earth-and-timber fort of almost the same dimen-

sions (Gudea 2001: 13, 15, 59). Old results do not necessarily support this, but the possibility of an initial earth-and-timber phase of the large fort should be considered. Moreover, it was initially assumed that the stone walls were erected in the mid-2nd century (Gudea and Uzum 1973: 86–87, 95; Gudea 1975: 339–340; Gudea 1977: 225; Gudea and Bozu 1979: 184) and only later this dating was changed to the Trajanic–Hadrianic period (Gudea 2001: 19, 31–32, 59–60). A single coin of the emperor Antoninus Pius found in the *agger* (some 40 cm below its highest preserved level) near the East Gate may indicate some mid- or late 2nd century works. In Gilău, a smaller earth-and-timber fort, built around 106 CE, was enlarged in the same technique in 117/118

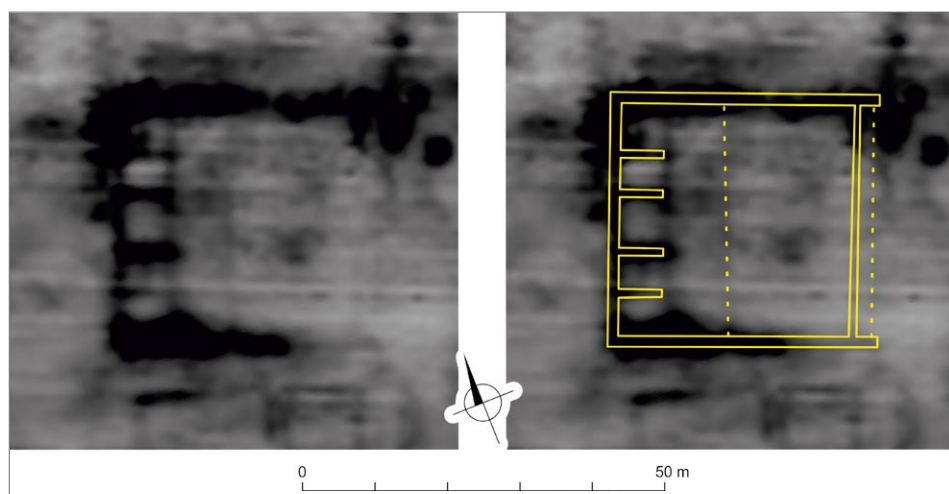


Fig. 12. *Principia*. Earth Resistance results and their interpretation. Dotted line marks uncertain elements – wall between the *principia* and the portico along the *via principalis* (Prepared by E. Jęczmienowski)

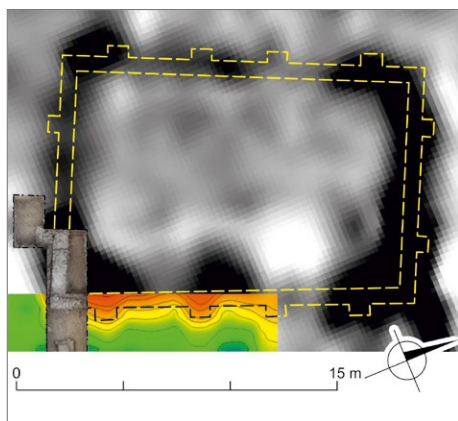


Fig. 13. North *horreum*. Plan reconstructed based on the trial trench, Electrical Resistivity Tomography and Earth Resistance results (Prepared by E. Jęczmienowski)



Fig. 14. Coin of Constantius II issued in 350–355 CE, found among the debris previously forming the corner of the north *horreum* (Prepared by E. Jęczmienowski, C. Timoc)

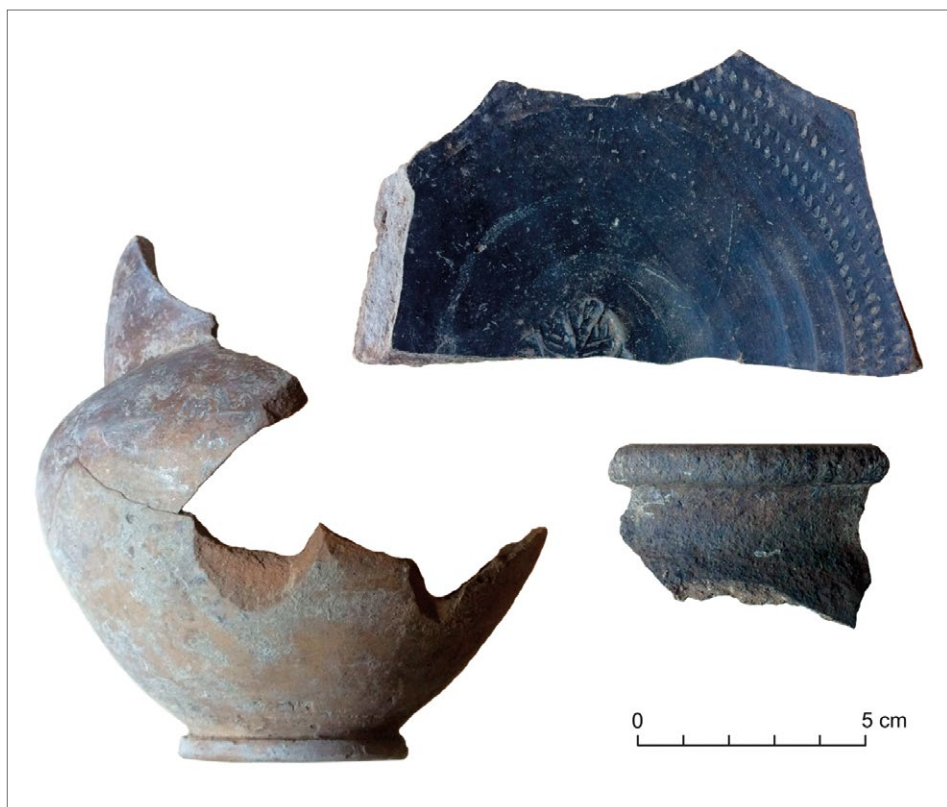


Fig. 15. Selection of 4th-century Roman pottery found during fieldwalking surveys outside the fort in 2017–2019 (Prepared by C. Timoc, E. Jęczmienowski)

CE and later rebuilt in stone, possibly under Hadrian, if not later (Găzdac and Isac 2007: 30–34; cf. Marcu 2009: 71–72). If older interpretations are considered credible, then the following phases could be proposed: Phase 1 – the small earth-and-timber fort probably dating from the late 1st or turn of the 2nd century, Phase 2a – the large earth-and-timber fort from the early 2nd century, and Phase 2b – the large stone fort, most probably not earlier than the mid-2nd century. The coins found among the debris of the *horreum* (issued by Severus Alexander, Gordian III, Trebonianus Gallus and Gallienus) indicate that the stone fort (Phase 2b) was used by the Romans until the second half of the 3rd century, probably the 260s CE, since the coin of Gallienus may have been issued during his sole reign (260–268 CE).

The geophysical image does not show any traceable structures that could be associated with the Tetrarchy period or later. However, the test trench excavated in 2019 produced one coin of Constantius II issued in 350–355 CE [Fig. 14]. It was found among the debris that previously formed the corner of the north *horreum*, while pottery sherds typical for Roman production of the 4th century [Fig. 15] were recorded during the fieldwalking surveys outside the fort in 2017 and 2018. These finds may suggest at least a temporary, perhaps Roman presence in the area of the Pojejena fort in the third quarter of the 4th century.

### PHASE 1

Although measurements could not be conducted on the slope of the Danubian terrace directly to the south of the fort, it is possible that its presence made the ditch

unnecessary (Gudea and Uzum 1973: 96).

The embankment cannot be identified, leading to the assumption that it was leveled during enlargement of the fort, and the soil from it was used to fill the former ditches. There are no visible breaks along the ditch line, but the position of the *principia* suggests that the north and south passages should be located along the same axis as the gates of the large fort, while the West and East Gates of Phase 1 ought to be placed approximately 13 m to the south of the later fort's axis [see Figs 6, 7]. The two gates, as well as the corner and interval towers, were likely made of timber (Johnson 1987: 88–103).

According to Hyginus and Vegetius, the *porta praetoria* of the Roman fort should face the enemy or —as Vegetius alone indicates— east (Hygin. 56; Veget. 1.23; Richardson 2005: 415). In Pojejena, the position of the *principia* shows that the fort was oriented along the north-west – southeast axis with the *porta praetoria* facing southeast [see Fig. 7], towards the strip of foothills stretching along the Danube and squeezed between the river to the south and the mountains to the north [see Fig. 2].

The main streets were not traced geophysically, but their course can be rather securely reconstructed along the probable axes linking the earliest gates [see Fig. 7]. Structures visible on magnetometry imaging inside the perimeter of the inner ditch partly overlap stone buildings of Phase 2 recorded on the ER [see Figs 6, 7, 8]. They were made of less durable materials and their function is uncertain, but at least some of them could be identified as barracks.

These structures may be linked to Phase 1, yet their dating is uncertain, for one of them was partly excavated in the 1970s but not precisely dated: the 40 m × 10 m (400 m<sup>2</sup>) wattle-and-daub barrack to the north of the *principia*. It was only reported that the artifacts from the central area of the fort (along with the *principia* and streets) were dated to the late 1st – mid-3rd century (Gudea and Bozu 1979: 183–184; Gudea 2001: 59–60).

## PHASE 2A/B

### Defences

Traces of the ditch were detected along three sides and, again, a ditch along the south wall may have been unnecessary (Gudea and Uzum 1973: 96). The uncovered short section of the V-shaped ditch [see *Figs 9, 10*] was similar to its sections observed in the 1970s along the west, north and east walls (Gudea and Uzum 1973: 87). These were 7–9 m wide and 2.5 m deep, while the width of the robber trench (about 1.3 m) [see *Fig. 9*] corresponds to the preserved sections of the wall built in *opus incertum* (Gudea and Uzum 1973: 87; Gudea 2001: 60).

The remains of the rampart (*agger*) abutting the wall [see *Fig. 9*] may have served as an embankment of the initial large earth-and-timber fort (Phase 2a), which would have been provided with wooden gates, corner towers and possibly also interval towers (Johnson 1987: 70–81, 88–103).

It appears that after the fort was enlarged both *portae principales* remained on the same axis as the gates of the earlier phase, while *portae praetoria* and *decumana* must have been moved

roughly 13 m to the north of the alleged axis from Phase 1. The geophysical survey and previous excavations allow to assume that all four gates had a very similar layout [see *Figs 4, 6, 11*] and were built at the same time. Yet, the *porta decumana* had the narrowest passage, which may reflect its specific role, secondary in comparison to the other gates (Johnson 1987: 112; Sommer 1988: 533–534). At the same time, only *portae praetoria* and *principalis dextra* were provided with two pairs of counterforts attesting the presence of *propugnacula* — a confined space between the towers. It may reflect the importance of the gates opening on the south (towards the *vicus* and probably the hypothetical harbor) and on the east (towards the expected enemy).

It seems that all corner towers had similar dimensions [see *Figs 6, 8*]. The results of geophysical measurement have shown that both north corner towers probably measured 4 m × 3.5 m × 4.5 m × 4.5 m (NW) and 4.5 m × 3 m × 4 m × 4 m (NE). Dimensions of both south corner towers published by the Romanian researchers are 4 m × 3.25 m × 2.5 m × 2.5 m (SE) and 4 m × 2.9 m × 2.5 m × 2.5 m (SW) (Gudea and Bozu 1979: 181–183; Gudea 2001: 60). These measurements exclude the thickness of the defensive wall (1.3 m), which forms the front side of the towers. Counting the wall, they measured about 4.25 m × 3.25 m × 3.8 m × 3.8 m (SE), 4 m × 2.9 m × 3.8 m × 3.8 m (SW). The towers were provided with 0.85–0.90 m wide entrances in their rear walls (Gudea and Bozu 1979: 181–183).

The geophysical image shows no traces of interval towers along the line

of the wall [see Fig. 6], although they are a common element of Roman fortifications (Johnson 1987: 88–89), and they occur in other nearby forts, even ones smaller than Pojejena (Gudea 2001: 81–84; Jęczmienowski 2013: 41, Fig. 10; Tudor 1965: 36, IV; Vasić 1984: 98, Sl. 6). However, the absence of interval towers was reported e.g. in the forts at Slăveni and Râşnov (Marcu 2009: 218, 227–228, 295, Pl. 35, 297, Pl. 37; Gudea 1997: 83–85, 93), as well as at Hadrian's Wall at Birdoswald, where interval towers were built only on the side projecting towards the north (Wilmott 1997: 192). Either there were no interval towers in Pojejena, or we were unable to detect them due to their construction method. If the structures were made of timber rather than stone, their traces in the form of post holes would be nearly impossible to recognize using geophysical methods.

### **Principia**

The atypical location of the headquarters building may be attributed to the preservation of the building's position after enlargement of the fort [see Fig. 7]. This phenomenon is known from Gilău, where the headquarters retained its place after the fort's expansion during the reign of Hadrian (Găzdac and Isac 2007: 32–39, 71–72, Figs 23–24; Marcu 2009: 71–73).

It remains obscure why the *principia* of Pojejena were not moved to the north when the fort was enlarged. Possibly the headquarters and other buildings in its vicinity were still in use and it was decided not to rearrange this area of the fort. Hypothetically, it cannot be ruled out that the stone *principia* were erected

prior to the decision to enlarge the fortifications. At Novae (Svištov), the construction of the legionary *principia* began as early as the Flavian period, while the stone fortifications were built during the reign of Trajan (Sarnowski et al. 2012: 50). Nevertheless, analogies from Dacia and Moesia Superior suggest that the stone *principia* of auxiliary forts emerged concurrently with stone fortifications or even later. At Novae (Čezava), this happened during the reign of Trajan (Vasić 1984: 98–99), and in Gilău at the end of the 2nd – early 3rd century, i.e. after construction of the stone walls in the middle of the 2nd century (Găzdac and Isac 2007: 33–34; Marcu 2009: 71–73). If that was also the case in Pojejena, and if the dating of construction of the fortification walls to the middle of the 2nd century is correct, then the stone headquarters may have replaced some wooden *principia* around that time, if not later.

The building in Pojejena seems to lack additional rooms surrounding the internal courtyard [see Fig. 12]. Such rooms were often found inside the headquarters buildings of the Upper Moesian and Dacian forts, for example in Drobeta (Drobeta-Turnu Severin) (Tudor 1965: 34, III), Transdrobeta (Kostol) (Petrović and Vasić 1996: 24, Fig. 3), Tibiscum (Jupa) (Benea 2018: Figs 28–29), Buciumi (Marcu 2009: 264, Pl. 4), Samum (Căşciu) (Marcu 2009: 265, Pl. 5), Slăveni (Marcu 2009: 297, Pl. 37), Câmpulung-Jidava (Marcu 2009: 298, Pl. 38), Răcari (Marcu 2009: 301, Pl. 41), and possibly Čezava (Novae) (Vasić 1984: 98, Sl. 6). While *principia* without these rooms are less common, their lack is not rare. Such headquarters were found, for example, in Gilău (Marcu

2009: 267–268, Pls 7–8), Vărădia (Marcu 2009: 277, Pl. 17), and Racovița (Marcu 2009: 295, Pl. 36).

The building from Pojejena was markedly similar to the *principia* found in Gilău, in particular its first two phases dated to the Trajanic–Hadrianic period (Găzdac and Isac 2007: 30–35; Marcu 2009: 71–73). There were five rooms in the rear of the building and a portico running along the *via principalis*, but no clear traces of a *basilica* separated from the courtyard. The building was made of timber and was roughly two times smaller than the one in Pojejena (Marcu 2009: 72). Later, during the stone phase of the headquarters, a colonnade separated the *basilica* from the *forum militare* (Găzdac and Isac 2007: 72, Fig. 24; Marcu 2009: 268, Pl. 8).

Even though the plan of the *principia* in Pojejena is somewhat less common, it still serves as a rather typical example of a headquarters building. The share of the area it covered inside the walls of the fort (about 4.94%) confirms this. The size of similar buildings in other forts and legionary fortresses in Dacia and Moesia varied, yet they tended to cover a similar part of the area inside the walls. Almost identical percentages are attested for two significantly smaller headquarters buildings from Čezava (about 775 m<sup>2</sup> and 4.61%) (Vasić 1984: 100, Sl. 7) and Gilău (Trajanic – about 645 m<sup>2</sup> and 4.5%) (Marcu 2009: 72). This percentage sometimes varies. After the significant enlargement of the fort of Gilău at the beginning of Hadrian's reign (about 789 m<sup>2</sup> and 2.6%), and of the headquarters itself in the middle of the 3rd century (about 1086 m<sup>2</sup> and 3.57%), the building

still covered a smaller part of the area than in the case of Pojejena (Marcu 2009: 71–73). Also the headquarters of the legionary fortress in Novae (6200 m<sup>2</sup> and about 3.5%) covered a smaller percentage (Sarnowski et al. 2012: 50). However, the *principia* of Drobeta (about 1170 m<sup>2</sup> and 6.85%) (Tudor 1965: 34, III) and Transdrobeta (about 1122 m<sup>2</sup> and 7.43%) (Petrović and Vasić 1996: 24, Fig. 3) occupied larger parts of the forts. The percentage of the fort's area that the headquarters in Pojejena covers falls within this range.

The close analogy of Gilău suggests that the Phase 1 fort in Pojejena may have had *principia* that were not only wooden, but also smaller. This is very probable; otherwise the building would have covered as much as about 10% of the internal space of the earliest fort. The internal area of the fort during Phase 1 must have been smaller than 1.6–1.7 ha, presumably 1.3–1.4 ha. In that case, the hypothetical *principia* of the Phase 1 fort might have covered about 455–1050 m<sup>2</sup> (3.5–7.5% of the presumed internal area of the fort), possibly approximately 520–700 m<sup>2</sup> (4–5%).

## Streets

The width of the *via principalis* on the geophysical image is between three and four meters [see Fig. 6]. This measurement is consistent with the width observed during excavations near the North Gate in the 1970s (4 m, Gudea 1975: 338). Additionally, the passages of the *porta principalis sinistra* and the *porta principalis dextra* have spans of about 3.25 m and 3.55 m, respectively [see Fig. 4].

The position of the *principia* established in Phase 1 remained unchanged despite the new locations of the *portae*

*decumana* and *praetoria*. As a result, *via praetoria* and *via decumana* are not aligned with the building's axis [see Figs 6, 7, 8]. Only the presence of *via decumana* was firmly detected during the geophysical surveys. It follows the axis of the fort and seems to be the narrowest of the main streets. The ER results indicate its width to be about 2–3 m, which corresponds with the width of the West Gate passage (approximately 2.4 m). The *via praetoria* would not have run straight, but diagonally to connect the gate with the center of the front of the headquarters building. It may resemble the *via principalis* in Râşnov, running obliquely to the *principia* in order to connect both principal gates (Marcu 2009: 290, Pl. 30). The position of the buildings flanking the *via praetoria* [see Fig. 8] also supports the possibility that the street was not aligned with the axis of the fort. If the width of the street matched the passage of the *porta praetoria* (3.2 m), it would also be comparable to the *via principalis*.

Past excavations [see Fig. 3] revealed roads 3.5 m wide, built directly next to the west and north walls of the *principia* (Gudea and Bozu 1979: 183). One could expect a similar street along the south wall of the headquarters building, but we were unable to distinguish it solely on the basis of the geophysical results. The street directly to the west of the *principia* might have been the *via quintana*, and the anomaly visible to the south of it on the ER image could be its continuation [see Figs 6, 8].

### Granaries

The coins of Severus Alexander, Gordian III, Trebonianus Gallus and Gallienus found among the debris show that the

north granary building was in use at least from the first half of the 3rd century up to the end of the Roman presence. The precise date of its construction cannot be established, but the stamped military tiles found there may suggest that it was built in the 2nd century. The identified stamps were produced by *legio IIII Flavia* during the rule of Trajan or in the early years of Hadrian (IDR App. III I/1–3) [Fig. 16:a] and by *legio VII Claudia* in the 2nd century but not before the Hadrianic period (IDR App. III XXXIV/2–3) [Fig. 16:b]. Others were dated more generally in the 2nd century – first half of the 3rd century (IDR App. III XXXII/12, XXXVI/14) [Fig. 16:c, d]. The imprecise dating of the building is due to the broad chronology of some of the stamped tiles, which indicates it could have been erected in the Trajanic–Hadrianic period or later in the 2nd century. The later reuse of these materials is also possible. It cannot be ruled out that the north granary was used, if not partly restored, in the second half of the 4th century, as a coin of Constantius II dated to 350–355 CE [see Fig. 14] was found inside the building, very close to the wall, inside the debris that used to form the building's corner walls.

While the overall layout of the granaries seems to have been rather accurately reconstructed [see Figs 8, 13], the location of the entrances remains uncertain. The usual position of the entrance to a granary was on the short side of the building (Johnson 1987: 171; Marcu 2009: 134). This would have facilitated the transport and loading of goods delivered through the *porta praetoria*. In most forts in Dacia and in other provinces, the granaries were situated along the *via principalis* or near one of the *portae principales* (Marcu 2009:

262, 264–265, 297–298, 301; D. Campbell 2009: 12–13, 28–29, 48). In cases where two granaries were present, they were usually built in *latera praetorii* along the *via principalis*, on both sides of the headquarters or close to both gates (Marcu 2009: 279; D. Campbell 2009: 15–16, 29). The location of the granaries in Pojejena near the *via praetoria* may have depended on access roads and the fort's position [see Fig. 2]. The most accessible open area was on the east side of the fort.

According to Felix Marcu (2009: 63), granaries usually occupied 1.5–2% of the total surface area in a Roman fort. The two granaries found in Pojejena filled

1.51% of the intramural area (about 396.5 m<sup>2</sup>). The dimensions of these buildings were consistent with a stone granary in Samum (Cășeu), Dacia (*Horreum* 1, 379.5 m<sup>2</sup>, 1.39% of the total surface), later replaced by another granary of similar size (*Horreum* 2, 365 m<sup>2</sup>, 1.34%) (Marcu 2009: 62–63). The *horreum* found inside the fort of Răcari in Dacia corresponded in area to one granary from Pojejena (about 180 m<sup>2</sup>) and occupied almost the same percentage of the fort's internal space (about 0.7%) (Marcu 2009: 215).

The capacity of the Pojejena granaries, based on the total area inside their walls, was roughly 310 m<sup>2</sup>, with the north

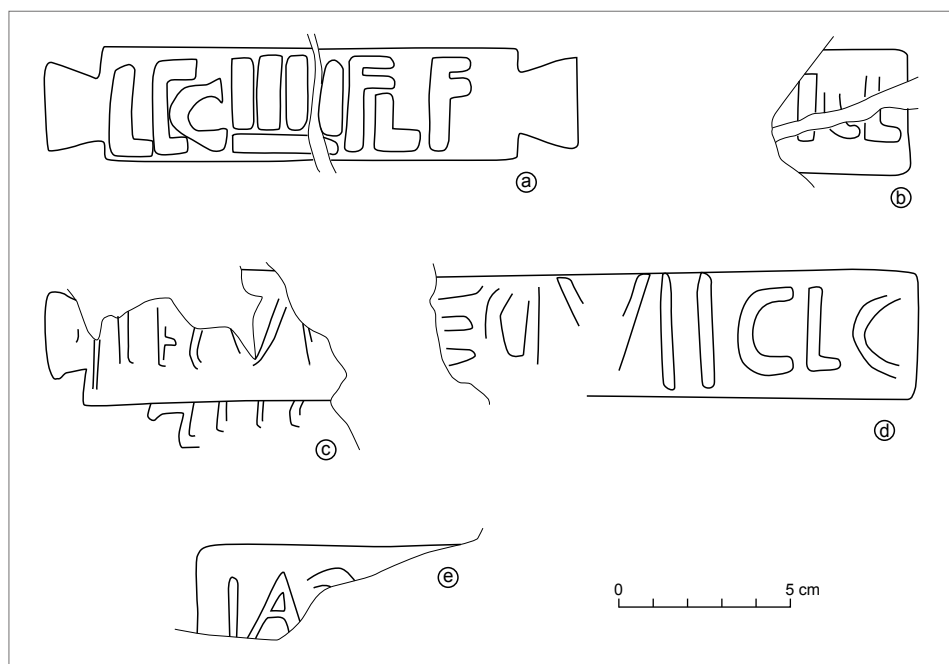


Fig. 16. Selection of stamped military tiles: a – *LEG(ionis) IIII FL(aviae) F(elicis)* (Trajanic – early Hadrianic period, IDR App. III I/1); b – *[LEG(ionis) VI] I CL(audiae)* (2nd century, not earlier than the Hadrianic period, IDR App. III XXXIV/3); c – *LEG(ionis) VI] I CL(audiae)*] (2nd century – first half of the 3rd century, IDR App. III XXXII/12); d – *[LE]G(ionis) VII CL(audiae)* (2nd century – first half of the 3rd century, IDR App. III XXXVI/14); e – *[COH(ortis) V] GAL(lorum)* (probably 2nd century, IDR App. III LXVIII/2) (Prepared by E. Jęczmienowski, C. Timoc)

building measuring about 160 m<sup>2</sup> and the south one about 150 m<sup>2</sup>. The amount of grain that may have been stored inside can be estimated using a formula proposed by Stephen R. Matthews (2018: 34, 136, 268), according to which each square meter of a building's total internal area corresponds to 0.751 ton of grain piled up to a height of 1 m. The two granaries in Pojejena could therefore hold 232.81 tons of grain. Taking Polybius' testimony of the daily ration per soldier at 0.809 kg, the buildings could potentially hold an annual supply of grain for 788 men (Polyb. 6.39; Matthews 2018: 268–269).

### Barracks

The stone-built or stone-substructured barracks discovered by our team [see Fig. 8] and the structure investigated in the 1970s [see Fig. 3] had surface areas of about 380 m<sup>2</sup>, 400 m<sup>2</sup> and 430 m<sup>2</sup> for single barracks, and 480 m<sup>2</sup> in the case of double barracks. These dimensions correspond to the average buildings of this type (Davison 1989: 8). Almost all the known barracks in Dacian auxiliary forts were of virtually the same size varying between 324 m<sup>2</sup> and 475 m<sup>2</sup> (Marcu 2009: 46). The faint traces of these buildings visible on ER imaging indicate their poor state of preservation [see Fig. 6]. However, their position allows us to suppose that the centurions' houses were located closer to the *via sagularis*, as in other Roman forts (D. Campbell 2006: 53).

The structures visible on the magnetometry results may potentially be linked with Phase 1 [see Fig. 6]. However, the artifacts from the central area of the fort —where, among others, the barrack partly excavated in the 1970s was locat-

ed— are very generally dated to the late 1st – mid-3rd century (Gudea and Bozu 1979: 184), implying that some of the discernible structures were constructed later or simply remained in use during Phase 2. The mentioned wattle-and-daub barrack erected *per strigas*, and measuring 40 m × 10 m (about 400 m<sup>2</sup>) (Gudea and Bozu 1979: 183; Gudea 2001: 59–60), seems to fit into the Phase 2 street grid visible on the ER image, as does the structure to the north of it. Moreover, there are no traces of stone structures erected above the partly excavated barrack. The structure to the north of it, as well as the ones to the south of the *principia*, partly overlap the stone buildings visible on the ER image. However, the date of construction of the stone buildings is unknown, and it is possible that some earth-and-timber structures erected in Phase 1 survived into Phase 2. They would have functioned alongside the stone-built (or stone-substructured) barracks in the *praetentura* until the partial remodeling of these areas during the 2nd and/or 3rd century.

### Retentura

The ER image shows an almost complete lack of recognizable structures in the *retentura*; on the magnetometry, in turn, some anomalies are visible but difficult to interpret [see Fig. 6]. This may result from the very poor state of preservation of the buildings and/or their timber construction, practically untraceable on the ER results. This, along with the fact that the *via decumana* was the narrowest of the four main streets, may indicate that this part of the fort was the least developed.

## Garrison's strength and units

Based on the writings of Polybius and Hyginus, as well as field observations, Alan Richardson found a paradigm allowing the calculation of the hypothetical strength of garrisons of Roman auxiliary forts. The concept assumes that the army comprised multiples of a basic unit (notional cohort) that required a fixed amount of space inside the walls (eight *acti quadrati* — about 1.010 ha), and that the *intervallum* in such structures occupied a similar percentage of the area (about 23%) (Richardson 2002). To put it simply, one notional infantry cohort of 480 soldiers required an average area of 1.315 ha inside the walls (about 1.010 ha without *intervallum*). In Phase 1, the fort covering the total area of 1.6–1.7 ha (with the internal area close to 1.3–1.4 ha) was consistent with Richardson's Group 1 (1.315 ha). Such a fort could easily accommodate one regular infantry cohort of 480 soldiers. The Phase 2 fort (2.62 ha inside the walls) corresponded to Group 5 (average 2.63 ha) and could house either two infantry cohorts totaling 960 men or one *ala quingenaria* cavalry unit consisting of 480 soldiers.

The presence of the two granaries discussed above supports the evaluation of the fort's strength in Phase 2. Although the nominal number of soldiers in the unit was 960 and the capacity of the two granaries could potentially hold an annual supply for only 788 men, it is a well-known fact that units were never based in their full strength (B. Campbell 2006: 3, 110).

The barracks also provide clues concerning the garrison's strength. A typical barrack could house a *centuria* of 80 men (Hygin. 1, 28; D. Campbell 2009: 25), so six barracks (two double and two single

ones) visible on the ER imaging could house 480 men, or one cohort, in the *praetentura* alone. The *latera praetorii* featured a wattle-and-daub barrack excavated to the north of the *principia* in the 1970s, as well as three buildings of uncertain identification and dating. If all four were barracks, then the *latera praetorii* could house another 320 men. Together, the barracks in the *praetentura* and in the *latera praetorii* would accommodate a total of 800 men — a number similar to the above estimations. These calculations would require adjustment if the structures in the *retentura*, unrecognized on the geophysical image due to their construction material or poor state of preservation, were in fact barracks.

The presence of *ala Frontoniana Tungrorum* in Pojejena is based on two textual sources. One is a *tabula ansata*-type bronze tablet found in Pojejena, which reads *A(la) I Frontonian(a) / (turma?) Valeri Firmi* (ILD 179). The other is a funerary monument found in Vršac, some 50 km from the fort, set up by a *signifer* of the unit for his spouse (CIL III 6274 = IDR III/1 107). These two finds are dated no later than Trajan's rule, while already in 114 and 113/115 CE this unit is mentioned on diplomas from Pannonia Inferior, and later in the territory of Dacia Porolissensis, where it is recorded for the first time in 128 CE (Ciongradi, Bota, and Voişian 2009; Matei-Popescu and Țentea 2018: 29). Based on this evidence, Florian Matei-Popescu and Ovidiu Țentea (2018: 29–30) assume that the unit was moved to the north of the Danube in the beginning of Trajan's rule and manned the fort of Pojejena for some time during this emperor's reign.

The second unit connected with Pojejena —*cohors V Gallorum*— is attested by two inscribed stone altars uncovered in the area of the fort (AE 1963: 165 = IDR III/1 10; AE 1972: 490 = IDR III/1 11) and by stamped building materials found during past fieldwork (Gudea and Bozu 1979: 184; IDR App. III LVII/1 = CIL III 12632 = IDR III/1 23b; IDR App. III LXVIII/1 = IDR III/1 23a; IDR App. III LXVIII/2; IDR App. III LXIX/1 = IDR III/1 23c; IDR App. III LXX/1), as well as latest fieldwalking surveys [Fig. 16:e] (IDR App. III LXVIII/2). It seems that this unit remained in Pojejena at least until the end of the 2nd century (Matei-Popescu and Țentea 2018: 57).

Military diplomas suggest the existence of two auxiliary units bearing the same name but different secondary epithets. It seems that initially it was a single unit of *cohors V Gallorum*, recorded on military diplomas from Moesia and then Moesia Superior, dated to 75 CE (RMD I 2), 94 CE (CIL XVI 39; RMD V 335) and 100 CE (CIL XVI 46; AE 2008: 1731; AE 2014: 1644; RMD IV 218). This unit, or its part, was probably moved to Dacia due to Trajan's campaigns and is attested on military diplomas until 119 CE (RMD III 148; CIL XVI 163 = IDR I 3; RMD V 351 = AE 2005: 1703). At some point, two different units emerged: *cohors V Gallorum et Pannoniorum*, attested certainly for the first time in 126 CE under Upper Moesian command (Eck and Pangerl 2015: 231–236, no. 4), and *cohors V Gallorum Dacica*, placed under Dacian command and recorded first in 124 CE (AE 2010: 1857). The latter unit may have been created from the part of *cohors V Gallorum* that remained in Dacia after the

war, while the part remaining in Moesia Superior evolved either from the detachment of *cohors V Gallorum* that never left this province or from the one that was moved back south of the Danube after the war. The inscriptions in stone and tile stamps found in Pojejena bear no secondary epithets. Although Pojejena lies on the left side of the river, it did not necessarily remain under Dacian military command. Therefore, it is impossible to determine which unit was stationed there. The military command over units garrisoned on the left bank of the Danube changed over time. An example is *cohors III Campestris* from Drobeta, which remained under Upper Moesian command during the conquest of Dacia (CIL XVI 49; CIL XVI 54; RMD V 339; AE 2008: 75; Marcu 2009: 139; Matei-Popescu and Țentea 2018: 43–44) and subsequently from after 124 until 168 CE (RMD I 55; RMD IV 247; RMD V 418; AE 2008: 1712, 1718, 1742, 1744–1747; AE 2014: 1652; Eck and Pangerl 2015: 236–239, no. 5; 2017; 2018; Matei-Popescu and Țentea 2018: 43–44). However, it was under Dacian command from the conquest until at least 124 CE (CIL XVI 57; IDR I 2; RMD III 148; RMD IV 220, 225; AE 2010: 1857; AE 2011: 1790; Matei-Popescu and Țentea 2018: 43–44), and then again after 168 CE (RMD II 123; Matei-Popescu and Țentea 2018: 43–44).

Matei-Popescu and Țentea (2018: 56–58) argued that *ala Frontoniana Tungrorum* was replaced by *cohors V Gallorum Dacica*, yet we believe that it was in fact *cohors V Gallorum et Pannoniorum*, which was under Upper Moesian command around the same time as *cohors III Campestris* from Drobeta. The fort in Pojejena might have

been under Dacian command around the time when *ala Frontoniana Tungrorum* was present there, i.e., for some time before 113–115 CE. Stamped bricks of the *legio IIII Flavia* dated to the Trajanic–Hadrianic period are well attested in Pojejena (ten pieces) (IDR App. III I/1–3, IV/3, V/7, VI/7–9, 11, XII/1). This legion was based in Berzobis after Trajan's Dacian war and remained there until the reign of Hadrian, who moved it back to Singidunum (Matei-Popescu and Țentea 2018: 12). After some time, when *cohors V Gallorum* was the only unit present in Pojejena, the garrison was placed under the command of the Moesian legate (sometime between 124 and 126 CE). Around the same time, Drobeta on the left bank of the Danube was also under Upper Moesian command. Numerous finds of stamped bricks of *legio VII Claudia* from Moesia Superior (36 pieces) may point to relations between this legion and the garrison of Pojejena. These pieces are broadly dated to Roman rule in Dacia, but mostly to the 2nd century and, in some cases, more precisely to the reign of Hadrian (IDR App. III XXI/1, XXX/1–2, XXXII/3, 12, 18, 20, XXXIV/1–3, XXXVI/1–5, 7–24, XXXVII/2, 4, XXXVIII/1).

However, only *ala Frontoniana Tungrorum* corresponds to the garrison's estimated strength in Phase 2 based on the fort's area, capacity of its granaries, and probable number of barracks. *Cohors V Gallorum*, which was a quingenary infantry cohort, would hypothetically correspond to the earlier fort of Phase 1. The chronological order of the phases seems to contradict the estimations of the garrison's strength in both phases and the epigraphical data concerning the changes to the fort's crew,

but it is highly unlikely that the small fort was later than the large one.

It can be supposed that in Phase 1 the fort was a temporary wartime base garrisoned by a *cohors quingenaria peditata*, perhaps the *cohors V Gallorum*, or detachments of *ala Frontoniana Tungrorum*. After some time—during the Trajanic wars or in their wake—changes were probably made to the fort's garrison resulting in the need for enlargement of the base (Phase 2). We can assume that either the whole unit of *ala Frontoniana Tungrorum* manned the fort alone, or the infantry unit (*cohors V Gallorum*) shared the fort with a cavalry detachment. Sometime later, i.e. before 113–115 CE, the cavalry left Pojejena (CIL XVI 164; CIL XVI 61; RMD II 87; RMD III 152–153, 228; RMD V 345). Then, *cohors V Gallorum*—i.e. a unit requiring much less space—became the sole force inside the fort. After some time, this unit may have been divided into two parts, one of which remained in Pojejena; with time, this part was brought to full strength and renamed *cohors V Gallorum et Pannoniorum* under command of the Moesian legate.

The number of legionary stamps on the building materials dated to the 2nd and 3rd centuries (46 pieces) far exceeds the number of stamps signed by *cohors V Gallorum* (five pieces). The stamps of *legio VII Claudia* are all dated to the 2nd – mid-3rd century and are more numerous (36 pieces) than the bricks and tiles of *legio IIII Flavia* (ten pieces) dated exclusively to the Trajanic–Hadrianic period. They do not prove that detachments of legions were present in Pojejena, but it cannot be ruled out. Hypothetically, it was possible after about 114 CE, when the fort ostensibly became too large for one cohort.

The excavations carried out in the 1970s showed a continuous military presence in Pojejena from the late 1st/early 2nd century until the mid-3rd century (Gudea and Bozu 1979: 184). The results of the survey confirmed this. Apart from a single coin of Constantius II (350–355

CE), the latest coins found in the area of the *horreum* are two pieces minted during the reign of Gallienus (253–268 CE), one of them possibly during his sole rule (260–268 CE). It cannot be determined which unit was present there in the 3rd century.

## CONCLUSIONS

The most important result of our survey is the discovery of the small earth-and-timber fort in Pojejena (Phase 1). Further analysis, based both on interpretations of previous excavators and on our results, led to the conclusion that Phase 2 may have had an intermediate Phase 2a (initial earth-and-timber phase of the large fort), which preceded Phase 2b (large stone fort). They may be dated to the late 1st century or the beginning of the 2nd century (Phase 1), early 2nd century (Phase 2a) and the middle of the 2nd century (Phase 2b).

The new discoveries of the barracks and the two granaries, considered against the backdrop of the size of the fort, yielded new data that may be helpful in determining the fort's garrison. It seems that at least one regular cohort could have been based in the fort in Phase 1, and the strength of the garrison could have doubled after the enlargement of the fort. Moreover, new information about the phases of the fort, collated with the known data about the military units at-

tested in Pojejena, allowed the putting forward of theses about changes in the fort's military crew.

The coins of the late 1st century found in the 1970s, the bricks and roof tiles dated to the Trajanic–Hadrianic period found among the ruins of the granary, the coin of Antoninus Pius unearthed inside the *agger*, as well as the coins issued during the reigns of Severus Alexander, Gordian III, Trebonianus Gallus and Gallienus, discovered among the debris of the *horreum*, all seem to indicate that the base was in constant use by the military until the second half of the 3rd century, probably the 260s CE, so until the Roman retreat from Dacia. Geophysical imagery shows no structures that could be easily associated with the Tetrarchy or later periods. Some Roman military personnel might have been present in the area at some point in the 4th century, but the scarcity of finds suggests a rather short episode during an attempt to reconquer the Dacian riverbank.

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- Veget. *Vegetius, Epitoma rei militaris*, ed. by M.D. Reeve. Oxford: Oxford University Press, 2010

## Abbreviations

- AE *L'Année épigraphique. Revue des publications épigraphiques relatives à l'antiquité romaine*
- CIL *Corpus Inscriptionum Latinarum*
- IDR I Russu, I.I. (1975). *Inscriptiones Daciae Romanae I. Prolegomena historica et epigraphica, diplomata militaria, tabulae ceratae*. Bucarest: Editura Academiei Republicii Socialiste România

IDR III/1	Russu, I.I., Dušanič, M., Gudea, N., and Wollmann, V. (1977). <i>Inscriptiones Daciae Romanae III.1. Dacia Superior. Pars Occidentalis</i> . Bucurest: Editura Academiei Republicii Socialiste România
IDR App. III	Piso, I., Ardeţ, A., and Timoc, C. (2019). <i>Inscriptiones Daciae Romanae, Appendix III. Inscriptiones laterum museorum Banatus Temesiensis</i> . Cluj-Napoca: Editura Mega
IGLR	Popescu, E. (1976). <i>Inscripțiile grecești și latine din secolele IV–XIII descoperite în România</i> . Bucurest: Editura Academiei Republicii Socialiste România
ILD	Petolescu, C.C. (2005). <i>Inscriptii latine din Dacia – Inscriptiones Latinae Daciae</i> . Bucurest: Editura Academiei Române
RMD	Roxan, M.M. and Holder, P.A. (1978–2006). <i>Roman military diplomas I–V</i> . London: University College London Institute of Archaeology

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