

# A NON-DESTRUCTIVE SURVEY OF THE ROMAN AUXILIARY FORT AND VICUS IN POJEJENA (CARAŞ-SEVERIN COUNTY, ROMANIA) – A PRELIMINARY REPORT

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*Cuvinte cheie:* Limes, fort auxiliar, vicus, Dunăre, Moesia Superior, Dacia

Among the main objectives of the project<sup>1</sup> are the questions concerning the planning of the fort and the size and character of the civil settlement attached to it. An important issue was the fate of the site after the abandonment of Dacia by the Romans and whether there are visible traces that could be connected with the efforts under Diocletian and Constantine to refortify the Danube section that had been an internal provincial border for ca. 170 years<sup>2</sup>.

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<sup>2</sup> Zahariade 1999, 3–4.

We applied non-destructive methods as the most appropriate approach to record the archaeological remains on the vast area of the fort and its surroundings. Our investigations combined fieldwalking surveys<sup>3</sup> with geophysical surveys applied on chosen areas, and excavating a small trial-trench near the East Gate to verify the results of remote sensing (Fig. 2)<sup>4</sup>. Magnetometry was applied to the available area of the fort<sup>5</sup> and its vicinity, on all four sides of the military base. Earth resistance measurements were carried out on the whole area of the fort and south of it (Fig. 4). Two places of particular importance—the centre of the fort with the headquarters building and the East Gate were surveyed with a ground-penetrating Radar, Electrical Resistivity Tomography and Seismic Refraction Tomography<sup>6</sup>. It should be noted that a medieval fortification which was once located on the Danube at Pojejena was completely destroyed during the construction of the modern river port<sup>7</sup>, hence we have not found any traces of this site.

Pojejena lies close to the Iron Gates gorge, on the left bank of the Danube, in an area that used to be the frontier zone between Moesia Superior and Dacia (Fig. 1). The site was partially excavated in the 1970s by the Nicolae Gudea, Ilie Uzum and Ovidiu Bozu who were able to recognize the general outline of the fort and its surface (2.7 ha). The researchers excavated sections of the fortifications, including 3 out of 4 gates, and some structures inside the walls in the central part of the fort, identified by them as fragments of the *principia*, a *horreum* and a timber barrack building<sup>8</sup>. According to Gudea, the fort had two phases: an earth-and-timber construction (142 × 179 m), dated to the 2<sup>nd</sup> half of the 1<sup>st</sup> c. AD<sup>9</sup> and stone (148 × 185 m), founded in the early 2<sup>nd</sup> c. Based on stamped building ceramics and a discovered inscription, the fort was manned by the *cohors V Gallorum* which does not seem to have left the fort at least until

<sup>3</sup> The material collected during fieldwalking was identified by Dr. Călin Timoc.

<sup>4</sup> The present report will, however, deal mostly with the results of the geophysical surveys. The results of the excavation will be mentioned only in a summarized form. A complete report on the excavated trench will be published, together with the final results of the geophysics and fieldwalking, when all the data acquired from the trench will be completely processed. Unfortunately, due to the lack of time, local conditions (strong rubble layers) and the abundance of finds, in the last season we were not able to reach virgin soil in all parts of the trench.

<sup>5</sup> We could not perform magnetometry measurements in the vineyards dividing the area of the fort into two halves (north and south) and in the bushes near the south-east corner of the fort. The total surface of these areas covers ca. 0.35 ha.

<sup>6</sup> Pisz, Mieszkowski, Jećzmienowski 2019, 129–131.

<sup>7</sup> Timoc 2019, 33–42.

<sup>8</sup> Gudea, Uzum 1973, 85–96; Gudea 1975, 333–343; Gudea, Bozu 1979, 181–184; Gudea 2001, 59–61.

<sup>9</sup> Gudea 2001, 13, 15, 59. This dating is based only on the few military diplomas and inscriptions attesting the presence of *cohors V Gallorum* in Moesia Superior.

the end of the 2<sup>nd</sup> c.<sup>10</sup>. The end of the Roman presence in Pojejena is unclear, yet some finds<sup>11</sup> could indicate some Roman influence in that area at least during the 4<sup>th</sup> c. The civil settlement has never been the subject of regular research.

The geophysical survey provided important information on the planning and phases of the fort (Figs. 2, 3). The image obtained from the measurements confirmed that the fort had at least two phases: Phase 1, with an area of about 1.6 ha, and Phase 2, with the main axis oriented the same as in Phase 1, but with the fort covering an area of about 2.7 ha, surrounded by stone fortifications corresponding to the remains unearthed in the 1970s<sup>12</sup>.

As indicated by the position of the *principia*, the smaller fort seems to be the earlier one. It was surrounded by two ditches. The absence of anomalies along the ditches which would suggest the presence of a wall (or ghost wall) indicates that in Phase 1 the fort was constructed in earth-and-timber. If that was the case, then the fort should be surrounded not only by ditches but also by an embankment which is not visible on the geophysical images. It is possible that the embankment was dismantled during the construction of the second-phase stone fortifications and the soil from the embankment was used to fill the ditches. Due to intensive agriculture, the south front of either fort is the most difficult to recognize. Moreover, it is possible that the southern fortifications overlap each other, yet the remains of the south-west corner of the smaller fort and some very faint traces of the south-east corner still can be recognized on the geophysical image (Figs. 2, 3).

The position of the *principia* shows that the fort is oriented towards the East (with the *porta praetoria* facing eastwards). We have managed to detect all the gates of the larger (stone) fort. The mostly damaged South Gate was barely traceable. The only gate not excavated in the 1970s was the eastern one (the *porta praetoria*) which turned out to be very typical, flanked by two internal rectangular towers, similar to the three previously excavated gates<sup>13</sup>.

The fort was surrounded by a V-shaped ditch, which we uncovered in our test trench near the East Gate. The ditch was 6–7 m wide, about 1.8 m deep and in a distance of 1.5–2 m from the curtain wall. The ditch was partially filled with stones. The defensive wall was preserved only as a robber trench, ca. 1.3 m wide<sup>14</sup>, along the remains of the ca. 7.5 m wide rampart.

<sup>10</sup> Gudea 2001, 13, 18, 20–21, 35–38, 59–60; Matei-Popescu, Țentea 2018, 57.

<sup>11</sup> A hoard of bronze coins of the Constantinian dynasty was found near Pojejena in 1883. Today only 21 coins (now in the collection of the National Banat Museum in Timișoara) out of the whole hoard, which initially had a weight of ca. 7 kg, are known (Toma-Demian 2000, 473, 478–489).

<sup>12</sup> Gudea 2001, 59, fig. 10.

<sup>13</sup> Gudea 1975, 334–337; Gudea, Bozu 1979, 182–183.

<sup>14</sup> Remains of walls found during the excavations in the 1970s were also 1.3 m wide (Gudea 2001, 60).

The streets are not very well visible on the geophysical images of the fort. The best contrast could be obtained along the *via principalis*. Sections of the *via sagularis*, 3 – 4 m wide, have been also recognized in the aforementioned trial-trench. In all three phases the street was paved with small and medium-sized stones. Faintly, sections of the *via decumana* and *via praetoria* can be recognized: the *via decumana* near the rear wall of the *principia*, while traces of the *via praetoria* seem to be visible mostly on the surface. Small stones forming a line from the east to the west are visible in the area of the vineyard. Sections of less important streets, especially to the north and west of the *principia*, have been also been traced.

The most important building- *the principia*- seems to be placed slightly to the south from the crossing of the main streets. The headquarters building probably retained its place after the fort had been enlarged in a similar fashion as in the fort in Gilău<sup>15</sup>. The *principia* covers a surface of ca. 37 × 35 m. From the hall (*basilica principiorum*), 5 rooms could be reached, 2 on either side of the *aedes principiorum* in the middle. It seems that the *principia* had a portico running along the *via principalis*. The comparison of the plan published by the Romanian excavators with the image obtained from the earth resistance measurements indicates that the walls interpreted by the Romanians as fragments of a *horreum* and the *principia*<sup>16</sup> should be identified with the walls of the *principia* only.

We found traces of two buildings measuring ca. 16 × 10 m in the *praetentura*, directly next to the *porta praetoria*, on the both sides of the street. On the geophysical image the walls of these buildings showed specific features, which were preliminarily interpreted as buttresses. In the trial-trench we unearthed the south-eastern corner of the building placed in the *praetentura sinistra*. The walls are 0.80 m thick and constructed in *opus incertum* with stones of various sizes and joined with lime mortar. The discovery of a buttress, ca. 0.6 × 0.6 m built on a strong foundation confirmed our theory. Buildings with similar walls discovered at other Roman military bases were interpreted as granaries (*horrea*)<sup>17</sup>. Between 2.5 – 1.5 m to the east of the *horreum* we found the remains of what may be the foundation of a column or a pillar of a portico pillar running along the *via sagularis*. The thick layer of rubble consisting of stones and roof tiles, which originally constituted the walls and roof of the *horreum* was abundant in artifacts, which can be dated to the middle of the 3<sup>rd</sup> c.<sup>18</sup>. A third, slightly longer structure was found to the north of the two aforementioned ones. It is not as well preserved, because the object is located in an area where agriculture is much more intensive and so its function is not possible to determine.

<sup>15</sup> Găzdac, Isac 2007, 71–72, figs. 23, 24.

<sup>16</sup> Gudea 2001, 59–61.

<sup>17</sup> The *horreum* building in Samum- Cășeiu (Găzdac, Isac 2007, 64, fig. 16).

<sup>18</sup> See note no. 4.

It is also difficult to define the exact range and/or function of other structures inside the fort. Many of them are heavily damaged. Some well visible remains of walls have been found to the south of the *principia*, in the *latera praetorii dextra*. There, one could expect the *praetorium*<sup>19</sup> but the interpretation of these remains is uncertain.

N. Gudea recorded only one timber barrack at Pojejena, which was located to the north of the *principia*. Its dimensions ( $41 \times 11$  m)<sup>20</sup> roughly correspond to the area between the *principia* and a street running perpendicular to the *via principalis* and parallel to the headquarters. To the north of this street faint traces are visible on the geophysical image of what seems to be a building with dimensions of ca.  $28 \times 12$  m, adjacent to the *via principalis*.

Barracks have been traced in the left *praetentura*, but these must be heavily damaged as well, judging by the geophysical image, thus it is hard to determine their exact layout. It seems they measured  $55 \times 9$  m. In the right *praetentura* next to the southern *horreum*, there was another, shorter barrack building –  $45 \times 9$  m. The structure to the west of it is of the same length but it seems that it had U-shaped layout or maybe an inner courtyard.

Near the north-east corner of the fort we detected a building (ca.  $13 \times 9$  m) which must have been built from stone. This is the only edifice in the *retentura* well visible on the images obtained from the earth resistance measurements. Perhaps the other structures were made of wood which left no trace in remote sensing. Some anomalies are visible on the magnetometry image, but they are currently difficult to interpret.

The area outside the fort is mostly accessible for surveys. To the west, north and east there are vast fields while towards the south only some small sections can be entered because the modern village of Pojejena is located there. However, it is this area that turned out to be the most abundant in finds (Fig. 4). The road running from the South Gate towards the Danube is well visible even on the ground. The geophysical surveys revealed buildings along this road and two square buildings in distance of 35–100 m to the east of it. We were unable to establish the southern limits of the *vicus* and it seems that at least a part of it is now covered by modern buildings. This presumption is also supported by testimonies of the villagers, who found various artifacts during the construction of houses and other earthworks. Moreover, it is not without importance that in Antiquity the Danube bank was ca. 300 m farther to the south, where it ran until the construction of the Iron Gate I dam in 1972. This is well visible if we compare the present satellite image with a map drawn during the times of the

<sup>19</sup> Cf. the praetorium buildings in Samum- Cășeu and Gilău (Găzdac, Isac 2007, 52, fig. 4; 61 fig. 13; 72, fig. 24).

<sup>20</sup> Gudea 2001, 59–60.

Habsburg Empire in 1819–1869<sup>21</sup>. It is quite possible that many archeological remains are under water now (Fig. 5).

Another road seems to run between the buildings of the *vicus* and the south side of the fort, parallel to the fortification perimeter. This might be another section of the road that we have found to the west of the fort, where it is running in a NW–SE direction. A large concentration of stones, ca. 0.5 km to the north-west from the western limits of the area surveyed with magnetometry, can also be a fragment of this road (Fig. 6)<sup>22</sup>.

While fieldwalking to the west, north and east of the fort, we selected areas for further magnetometry measurements. Anomalies suggesting the remains of roads and buildings were detected there as well (Fig. 6). An interesting feature is represented by a linear anomaly, which slightly meanders and enters the north-western corner of the fort, which might be an aqueduct or a canal. However, it is too early to determine the function of these structures without further research.

During the 9 weeks of research managed to carry out geophysical measurements on an area of ca. 11 ha outside the fort. It was not possible to verify all spots indicated as significant during fieldwalking, i.e. the area to the north-east of the fort but also places placed farther from the fort. We were able to find two large concentrations of Roman material in a distance of ca. 500 m to the north and ca. 650 m to the south-east of the fort. A large concentration of Roman pottery, bricks and a 50 m long line of stones were found in the latter spot. It is possible that these are the remains of a road and some building next to it.

So far, we were able to establish two main phases of the fort: Phase 1 (the smaller fort) and Phase 2 (the larger fort). We have no data to pinpoint the chronology of the first phase, but the placement of the *principia* in the centre of the smaller fort indicates that the smaller one is older. Material from the 1<sup>st</sup> century was not found during the fieldwalks, but if N. Gudea's theory regarding the presence of *cohors V Gallorum* in Pojejena in AD 75 is correct, then it would have occupied the smaller fort, but Gudea states its' measurements as 142 × 179 m, while the actual size seems to be ca. 120 × 140 m<sup>23</sup>. On the earth-and-timber fort he wrote: „Der Plan eines Erdkastells in Pojejena kann wiederhergestellt werden, freilich nur der Grundriss, ohne Orientierung (die aber vermutet werden kann) und ohne Innenbebauung“<sup>24</sup>. In 1970s the *agger* leaning on the stone wall and

<sup>21</sup> The Second Military Survey of the Austrian Empire (<https://mapire.eu/en/map/europe-19century-secondsurvey/> – date of access: 10.11.2019).

<sup>22</sup> In between the western limits of the magnetometry survey and the mentioned concentration of stones there were also some stones visible, but fewer than in the mentioned concentration.

<sup>23</sup> According to N. Gudea the *cohors V Gallorum* manned the earth-and-timber fort that he dated to the 2<sup>nd</sup> half of the 1<sup>st</sup> c. (Gudea 2001, 59).

<sup>24</sup> Gudea 2001, 19.

the berm was interpreted as the 12 m wide *vallum* of the earth-and-timber fort<sup>25</sup>, thus we cannot exclude the existence of two earth-and-timber phases. The stone fortifications of the second phase stem from the early 2<sup>nd</sup> c., as was established during the excavations in the 1970s<sup>26</sup>. Our trial-trench did not provide artifacts dated later than to the 3<sup>rd</sup> c. and the geophysical image does not show structures which could be associated with the Tetrarchy or later periods, although 4<sup>th</sup> century pottery sherds were recorded during the fieldwalking surveys.

The purpose of this preliminary report is to present some general conclusions after four seasons of investigations in Pojejena. Our research provided important information, but also brought up many new questions that can only be solved by further investigations.

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<sup>25</sup> Gudea, Uzum 1973, 86–87.

<sup>26</sup> Gudea 2001, 32, 60.

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## INVESTIGAȚIILE CU METODE NON-INTRUZIVE ALE CASTRULUI ROMAN DE LA POJEJENA (CARAȘ- SEVERIN) – RAPORT PRELIMINAR

### *Rezumat*

Articolul de față prezintă rezultatele preliminare ale celor patru campanii arheologice desfășurate sub egida proiectului de cercetare arheologică româno-polonez, al castrului auxiliar de la Pojejena. Fortificația romană este situată pe malul nordic al Dunării, fiind un obiectiv cunoscut și cercetat încă din 1970, de către cercetătorii români. Periegheza coroborată cu scanările geofizice executate între anii 2017–2019, au fost completate de un mic sondaj arheologic. Cercetările de teren ne permit astăzi să completăm o hartă a concentrărilor de materiale arheologice răspândite pe teritoriul din jurul castrului. În acest scop, metodele geofizice au fost aplicate și ele întregii zone disponibile din proximitatea fortificației romane. Astfel, pe lângă castrul roman de piatră și clădirile sale, am descoperit urmele unei fortificații mai vechi, din lemn și pământ. Sondajul arheologic a fost făcut perpendicular pe zidurile castrului, în zona porții de est, trecând prin intervallum și atingând colțul unei clădiri, interpretată de noi ca fiind un horreum. Rezultatele obținute sunt foarte importante pentru istoria acestui castru.

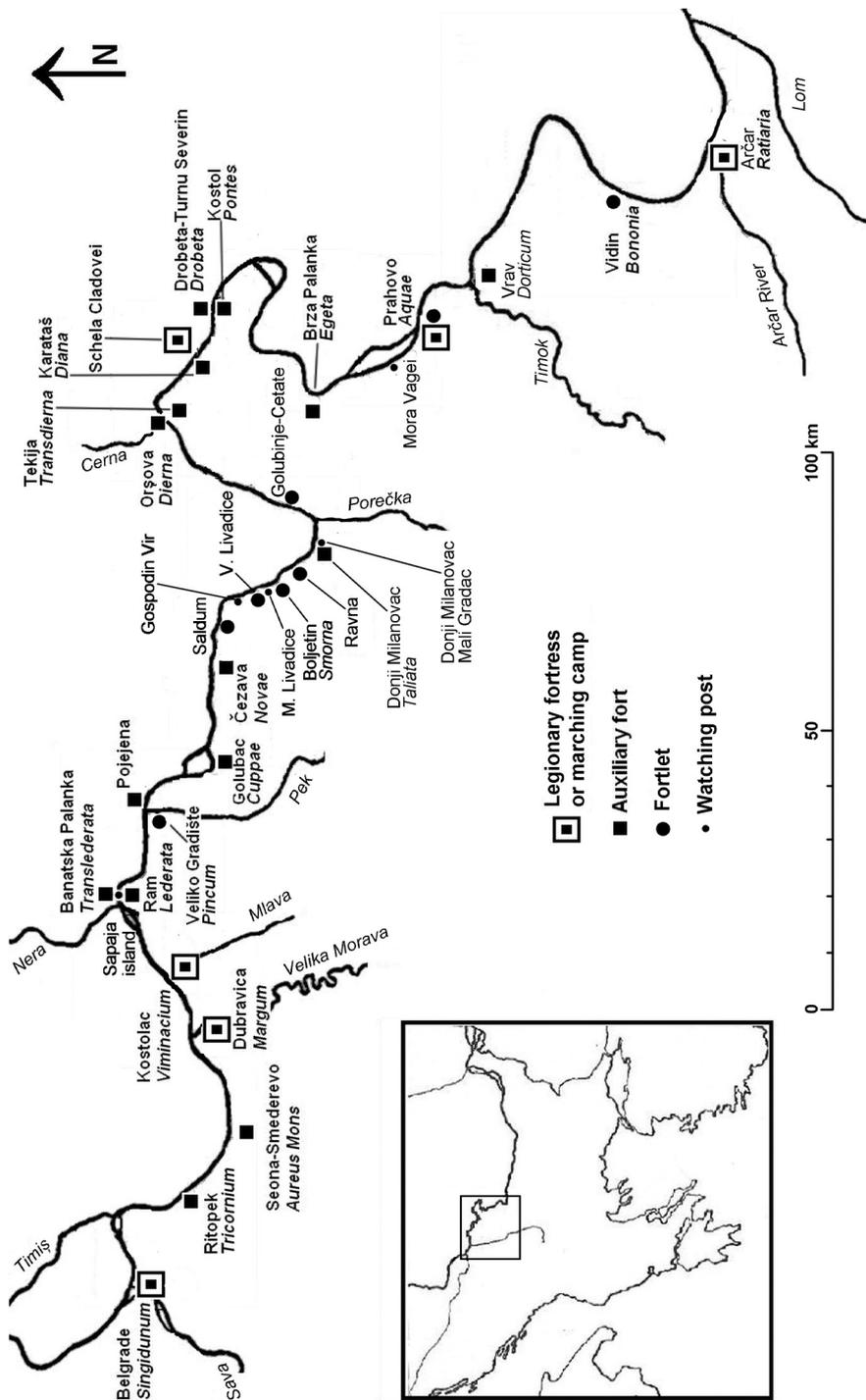


Fig. 1. Map of the Upper Moesian limes ca. AD 100 (by E. Jeczmiennowski). /  
Harta limes-ului Moesiei Superior ca. 100 (după E. Jeczmiennowski).

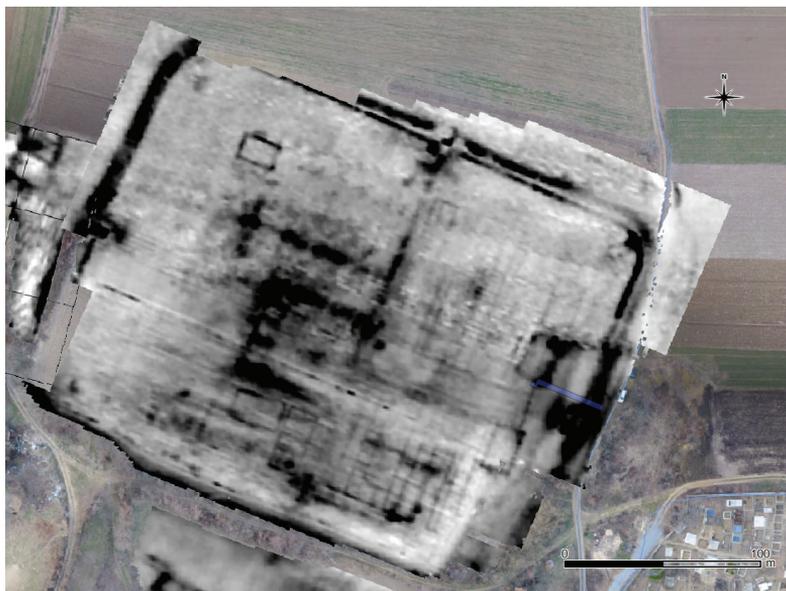


Fig. 2. The Roman fort in Pojejena – earth resistance results (by M. Pisz, E. JeŹczmienowski). / Castrul roman de la Pojejena – rezultatele rezistivităŹii electrice (după M. Pisz, E. JeŹczmienowski).



Fig. 3. The Roman fort in Pojejena – magnetometry results (by M. Pisz, E. JeŹczmienowski). / Castrul roman de la Pojejena, rezultatele magnetometriei (după M. Pisz, E. JeŹczmienowski).



Fig. 4. The whole area of Pojejena surveyed with geophysics – earth resistance and magnetometry (by M. Pisz, E. Jeżmienowski). / Aria Pojejena, rezultatele integrate ale scanării geofizice, rezistivității electrice și a magentometriei (după M. Pisz, E. Jeżmienowski).



Fig. 5. A comparison of the distance between the south front of the fort and the Danube now and in 19<sup>th</sup> c., as visible on the Second Military Survey of the Austrian Empire (by E. JeŹzmienowski, based on Mapire: <https://mapire.eu/en/map/europe-19century-secondsurvey/> – date of access 10.11.2019). / O comparaŹie asupra distanŹei dintre latura sudică a castrului Źi Dunăre, în prezent Źi în secolul al XIX-lea, aŹa cum apare ea în a doua ridicare topografică austriacă (după E. JeŹzmienowski, based on Mapire: <https://mapire.eu/en/map/europe-19century-secondsurvey/> – date of access 10.11.2019).



Fig. 6. The fort and its vicinity. Results of geophysics and fieldwalking. Blue – concentrations of ancient pottery outside the fort; Red – a concentration of stones to the north-west of the fort (by M. Pisz, E. Jeżmienowski). / Castrul roman și vecinătățile sale. Rezultatele scanărilor geofizice și ale perieghezelor. Albastru reprezintă concentrațiile de material ceramic din jurul castrului; Roșu reprezintă concetrările de piatră de construcție, aflate la nord- vest de castru (după M. Pisz, E. Jeżmienowski).