

ARCHAEOLOGICAL RESEARCH OF EMONA IN THE PERIOD 2000–2022: NEW FINDINGS ABOUT THE URBANISTIC DEVELOPMENT OF THE ROMAN TOWN AND PREVIOUS MILITARY USE OF THE AREA

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Izvleček

[Arheološke raziskave Emone v letih 2000–2022: nova spoznanja o urbanističnem razvoju rimskega mesta in predhodni vojaški rabi prostora]

V prispevku so predstavljena nova spoznanja o urbanizmu rimskega mesta *Colonia Iulia Emona* (Ljubljana), pridobljena z arheološkimi raziskavami po letu 2000 oziroma po izidu zadnje pregledne študije (Vičič 2003). Izpostavljeni so sledovi predhodne poselitve in vojaške rabe ravnine na levem bregu reke Ljubljanice do konca avgustejskega obdobja, nova evidenca o zasnovi in kronologiji gradnje *urbs quadrata* ter razvoj komunalne infrastrukture, tj. oskrbe z vodo in odvajanja odplak. Obravnavana so nova spoznanja o glavnih fazah prenove insul in njihovi notranji opreми, ulični mreži, javnih vodnjakih, kanalizaciji in vodovodu, predstavljen pa je tudi razvoj rabe primestnega prostora, vse od ugotovitev o nastanku in vzdrževanju obrambnih jarkov, kronologiji in značaju predmestnih stavb do razvoja pokopavanja ob glavnih vpadnicah. Ugotovitve slonijo na numizmatičnih najdbah in drugem kronološko oprijemljivem drobnem gradivu iz dokumentiranih stratigrafskih zaporedij in celot.

Ključne besede: Italija, X. regija, Emona, urbanizem, rimska vojska, *urbs quadrata*

Abstract

The article presents new findings about the urbanism of the Roman town of *Colonia Iulia Emona* (Ljubljana, Slovenia), collected after the publication of the last overview study (Vičič 2003). Traces of previous settlement and military use of the plain on the left bank of the Ljubljanica until the end of the Augustan period, new evidence about the layout and chronology of building the *urbs quadrata* and the development of utility infrastructure (i.e., water supply and sewage drainage) are presented. The paper encompasses new findings about the main phases of insulae renovation and their interior furnishing, the street network, public wells, sewerage, and water supply, as well as new information about the development of the use of the suburban area (the construction and maintenance of defensive ditches, the chronology and character of suburban buildings, the development of cemeteries along arterial roads). The chronology of individual sites presented is based on coins and other tangible small finds from the documented stratigraphic sequences and contexts.

Keywords: Italy, Regio X, Emona, urbanism, Roman army, *urbs quadrata*

INTRODUCTION

The contribution brings a new perspective on the archaeology of Roman Emona, which is founded on research conducted after 2000 and is focused primarily on the traces of previous settlement and military use of the area in the Augustan period and new findings about the urbanistic development of the colony as well as related phenomena. The study is grounded in the knowledge collected in the monumental works of Walter Schmid¹ and Ljudmila Plesničar Gec² and in the overview study of Boris Vičič in the conference proceedings on towns of Pannonia and Noricum,³ while also making use of presentations of the results of recent excavations on both banks of the Ljubljanica.⁴

Similar to most archaeological research in Ljubljana since the second half of the 19th century, the interventions of urban archaeology after 2000 have had an exclusively preventive or protective nature. The focus of the discussion leans on the research results at the locations of Šumi (2004–2005, 2007–2008), NUK II (2008), Kongresni trg (2007–2011), Mirje 13 (2013), Slovenska cesta (2015), Križanke (2018), Vegova 7 (2018), Erjavčeva cesta and Igriška ulica (2018–2019), and Prešernova cesta, Tržaška cesta, and Trg Mladinskih delovnih brigad (= Trg MDB; 2017–2018, 2020–2021), which, at the authors' discretion, contributed significant data for the synthesis and contextualisation or comparison with previous findings. The data from the research at the locations of Barjanska cesta (2008), Vegova 8 (2008), Tobačna mesto (2011), Gregorčičeva 1 (2013), and Gosposvetska cesta (2017–2018) have also been considered. Due to limited space, the presentations of individual locations only bring an outline of chronologically or otherwise significant categories of small finds, especially numismatic finds, pottery, glass, weapons and military equipment, parts of attire, and tools.

TRACES OF POPULATION IN LATE PREHISTORY

The research in the last twenty years also brought important insights into the development and extent of the prehistoric predecessor of Roman Emona. It was revealed that the Bronze and Iron Age settlement cores mainly occupied the opposite, right bank of the Ljubljanica. The beginnings of the settlement of Grajski grič (Fig. 1: 1), a presumed acropolis, and the plain between its southern foothills and the river (Fig. 1: 2) date back to the end of the Middle Bronze Age. Around

1000 BCE a settlement with a proto-urban layout and with numerous traces of craft and trade activities was established in the area of Prule. On a smaller extent the settlement lived between the 6th and 4th century BCE. A similar layout can also be traced from the middle or towards the end of the 3rd century BCE. In addition to the material culture typical for the inhabitants of the North Adriatic hinterland in Hallstatt period,⁵ which probably gave the settlement Emona its characteristic name,⁶ there is also evidence of a classical Celtic repertoire. The last phase of the La Tène settlement, which was already characterised by Italic imports and lasted until the middle of the 1st century BCE, was followed by a settlement reduction, which has not yet been fully clarified, but which is evident in the debris layers of the La Tène structures and the overlying humus patches.⁷ Below the Grajski grič (Fig. 1: 3), a settlement of Roman citizens (*conclaviabulum* or *conventus civium Romanorum?*) is thought to have existed throughout the 1st century BCE and the early 1st century CE.⁸ Approximately in the Middle Augustan period, between Grajski grič and the Ljubljanica, immediately east of the presumed settlement of Roman citizens, a military base was built, fortified with a rampart (composed of an outer drywall, stone foundation, wooden frame of four lines of posts along its length and a core filled with stones and earth) and two ditches.⁹

In the area of the later Roman town with suburbs, i.e. on the left bank of the Ljubljanica, the previously discovered prehistoric artefacts were supplemented by some significant complexes of finds. In the area of NUK II (Fig. 1: 5), a group of cremation burials from the early and late phases of the Urnfield Culture was discovered.¹⁰ It is probably a part of a large cemetery area on the left bank of the Ljubljanica, established near the river crossing and centering around the SAZU courtyard (Fig. 1: 13).¹¹

Other Bronze Age and Early Iron age finds or groups of finds from the left bank mostly indicate various settlement activities. In the remains of the original soil overlying the Pleistocene sediments and in the layers of mixed Early Roman levelling at the NUK II site, several metal artefacts, mostly fragmented, of the Late Bronze Age and Hallstatt period were found. These include, for example, two fragments of bronze spearheads (Fig. 1: 4, 8), a bronze

¹ Schmid 1913.

² Plesničar Gec 1999.

³ Vičič 2003.

⁴ E.g. Gaspari 2010; Gaspari 2016; Gaspari et al. 2014; Novšak et al. 2017.

⁵ Vojaković 2014a; Vojaković 2014b; Slapšak 2014; Gaspari et al. 2014; Novšak et al. 2017; Žerjal 2017; Vojaković 2023.

⁶ Repanšek 2016.

⁷ Vojaković 2014a; Vojaković 2014b; Gaspari et al. 2014; Novšak et al. 2017; Žerjal 2017; Vojaković 2023.

⁸ Vičič 1993; Vičič 1994; Vičič 2002; Slapšak 2014; Ravnik, Županek 2017.

⁹ Gaspari et al. 2014; Novšak et al. 2017; Žerjal 2017.

¹⁰ Gaspari 2014b.

¹¹ Škvor Jernejčič, Vojaković 2023.

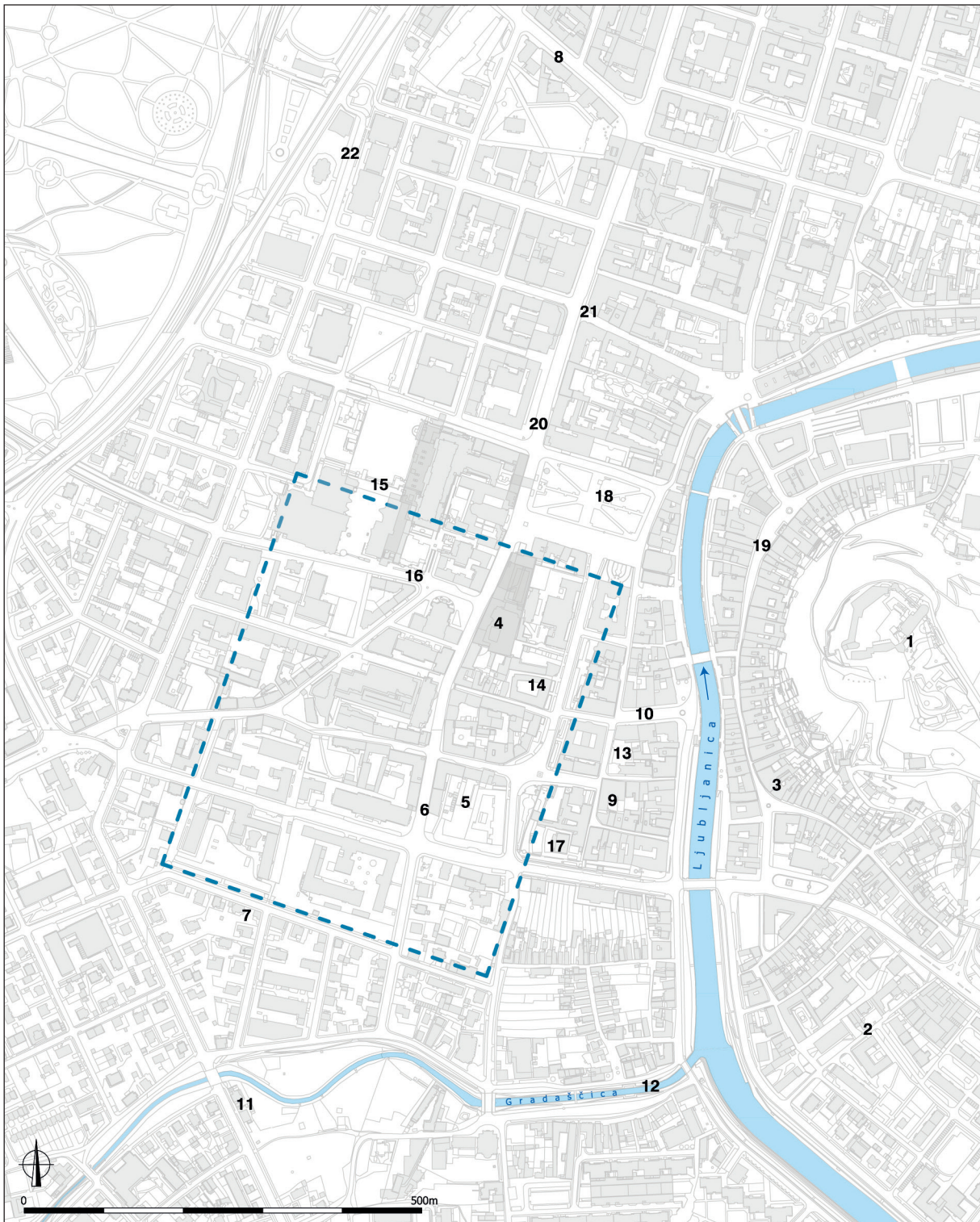


Fig. 1: Locations of population traces from the Late Prehistory. 1 – Grajski grič; 2 – Prule; 3 – Stari trg and Gornji trg; 4 – Šumi; 5 – NUK II; 6 – Slovenska cesta; 7 – Mirje; 8 – Gosposvetska cesta; 9 – City Museum of Ljubljana; 10 – Novi trg; 11 – a plain by the Gradaščica; 12 – the mouth of the Gradaščica; 13 – SAZU courtyard; 14 – Vegova 8; 15 – Trg republike; 16 – Erjavčeva cesta and Igriška ulica; 17 – Križanke; 18 – Kongresni trg; 19 – Mestni trg; 20 – Slovenska cesta; 21 – Čopova ulica; 22 – Prešernova cesta.

arrowhead (*Fig. 1: 5*), and a Certosa and south-eastern Alpine animal fibulae (*Fig. 1: 5, 7*).¹²

At the Šumi site (*Fig. 1: 4*), a paleosol patch was preserved in a depression in Pleistocene sediments, into which several pits and ditches were dug. They contained fragments of Bronze Age pottery. Similar contemporary traces are known from excavations in Kongresni trg, Čopova ulica, and Gosposvetska cesta.¹³

In the disturbed Early Roman deposits on Slovenska cesta a few fragments of handmade vessels from the Bronze and/or Early Iron Age were also discovered (*Fig. 1: 6*). A fragmented bronze solid-hilted sword kept in a private collection supposedly originates from Mirje (*Fig. 1: 7*), but the authenticity of the reported area cannot be verified.¹⁴

At least two warrior graves discovered during the renovation of the City Museum (*Fig. 1: 9*), which, based on the characteristics of the pottery from the assemblage, can be associated with some certainty with the inhabitants of the settlement at Prule, belong to the Middle La Tène period.¹⁵ A fragmented sword of the Late La Tène scheme discovered at Novi trg (*Fig. 1: 10*) originates from the destroyed primary context, the nature of which cannot be determined with certainty.¹⁶ The Late La Tène spearhead and other contemporary metal artefacts found in the plain on the southern bank of the Gradaščica (*Fig. 1: 11*) may indicate a grave deposit.¹⁷ It is worth recapitulating some interesting finds from the 1st century BCE,¹⁸ such as the Celtic coin hoard from the area of the Gradaščica outflow (*Fig. 1: 12*) or the collection of fragmented fibulae, buckles and suspension rings of sword belt sets, strap ends, the ladle handle in the shape of a duck's head, the bucket handle attachment, and the full-length figural bronze statuette of a deity with a five-point headdress from the Late Bronze Age and Early Iron Age necropolis in the area of the SAZU courtyard (*Fig. 1: 13*), which indicates the existence of a cult place with burnt offerings (the so-called *Brandopferplatz*) from the end of prehistory.

Among the Late La Tène or perhaps even Early Roman remains, the pit with the ritually destroyed round shield boss of type Novo mesto 169, dug into the paleoground or the first fill in the area of insula XLIII¹⁹ (*Fig. 1: 14*), and the entire Celtic biconical pot of fine grey pottery discovered in a small pit inside insula XXXIX (*Fig. 1: 4*) should be highlighted. Unresolved

are the original contexts of relatively numerous items from Late La Tène material culture, that were found in supposedly displaced positions, such as a bronze head of an iron nail with an incised net decoration, a knife with a triangular tang, and a knobbed ring from the area of insula XXXIX (*Fig. 1: 4*), a linear belt buckle from the levelling layer in the area of insula XIII (*Fig. 1: 6*), a Magdalenska gora type fibula and a knobbed ringlet (*Fig. 1: 4*), and a Late Republican bronze ladle with a vertical handle discovered during investigations at Trg republike (*Fig. 1: 15*).²⁰ Finds such as the stylised animal head appliqué, the fibula foot in the shape of a human head, and the lead spindle whorl from the site NUK II (*Fig. 1: 5*) belong to the Late La Tène material culture of the North Adriatic hinterland.²¹

Artefacts of autochthonous origin from Early Roman deposits include a bronze fibula of the Middle La Tène scheme of the Idrija pri Bači type from the levelling for paving in insula XXXVII (*Fig. 1: 16*) and a large biconical Celtic pot made of fine grey pottery from the levelling for the first roadway of decumanus J (*Fig. 1: 17*). Together with the relatively numerous finds of small Celtic silver coins (*Fig. 1: 4–6, 16, 18*) and one Norican tetradrachm of the NEMET group (*Fig. 1: 5*) from other, roughly contemporary contexts, they could indicate Roman engagement of natives or contacts with the local population. The aforementioned linear belt buckle, which has comparisons almost exclusively in the Late La Tène complexes of southern Pannonia, the frontal bone of a younger woman from the backfill of the foundation trench for the northern enclosure wall of insula XLVI (*Fig. 1: 4*), and remains of at least one human skull from the Augustan levelling layers immediately above the sterile ground in the area of Križanke (*Fig. 1: 17*) indicate the possible presence of captives.²²

TRACES OF THE ROMAN ARMY ON THE LEFT BANK OF THE LJUBLJANICA PRIOR TO THE CONSTRUCTION OF THE TOWN

In the area of the future town and its immediate surroundings dug-in structures and traces have been found that we associate with the presence of the Roman army as well as with the levelling works in the context of the establishment of the colony. The stratigraphic sequence allowed us to convincingly divide these traces into at least three main phases. The absolute chronology of the finds from structures of the earliest phases, which are recognisable from the direction deviating from the later urban grid, only allows an approximate delimitation

¹² A Certosa fibula of type Xe (Mirje 13) was found in the laid garden layer and only conditionally originates from the surroundings (Gaspari 2014a, 95, Fig. 99).

¹³ Vojaković 2023.

¹⁴ Gaspari 2014a, 75.

¹⁵ Štrajhar, Gaspari 2013.

¹⁶ Gruškovnjak et al. 2018.

¹⁷ Unpublished. Kept by the City Museum of Ljubljana.

¹⁸ Gaspari 2014a, 75, 95, 106.

¹⁹ Gaspari et al. 2013.

²⁰ Gaspari 2010, 82; id. 2014a, Fig. 110.

²¹ Gaspari 2010, 82, Fig. 45.

²² Gaspari 2010, 50, Fig. 34; Mitrova 2021, 91.

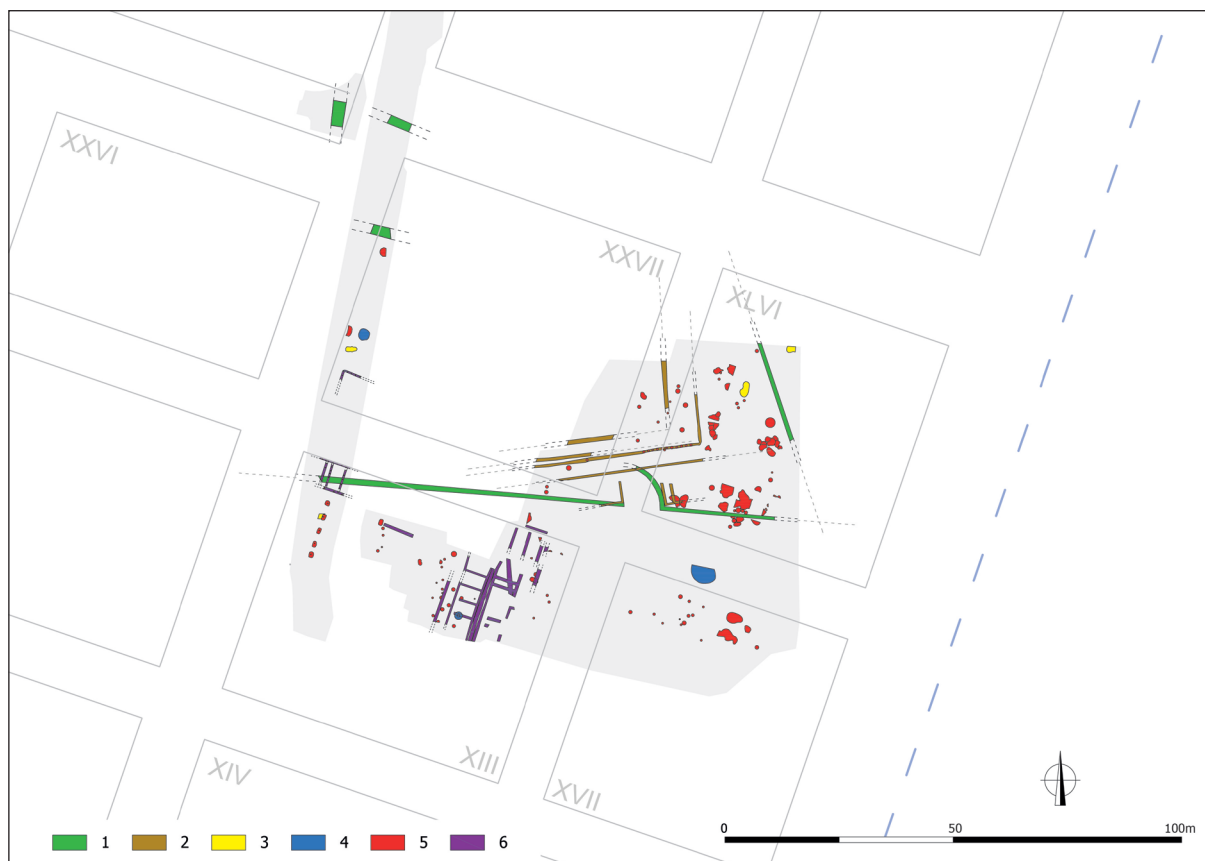


Fig. 2: NUK II site. The sequence of Augustan military installations and wooden barracks from the time of construction of insulae in the Augustan-Early Tiberian period. 1 – ditches; 2 – building with wooden foundations; 3 – ovens; 4 – wells, water pits, latrines; 5 – other pits; 6 – barracks.

to the Augustan time before the period of 5–10/15 AD.²³ Similar structures found on multiple sites, can be conditionally attributed to larger units/facilities or groups of such facilities (military fortifications, storehouses, dug-in installations for water collection, wells, latrines, wooden buildings, ovens etc.). Those with matching features may indicate contemporary activities. Others can only be approximately assigned to different phases within the larger chronological framework.

A ditch of a V-shaped cross-section with a segment forming a *clavicula*-shaped entrance running roughly E–W belongs to the earliest identified part of the Early Roman sequence at the site NUK II (Fig. 2: 1; 3: 1).²⁴ It most likely represents a military camp defence, the continuation of which was discovered during the excavations at Slovenska cesta. A similar ditch, running diagonally to the first one, could belong to the same camp. Narrow trenches for foundation beams excavated from the levelling surface and from the backfill of the *clavicula* represent a larger, differently oriented building, that belongs to the next phase (Fig. 2: 2). It was investigated only in its southern part, which consists of an inner rectangular building

and parallel sides about two metres away on both sides. Foundation trenches were documented immediately to the south, forming barracks-like buildings with an identical orientation to the larger building described above.²⁵ A larger two-part dug-in oven for food preparation, a pit of a similar but unfinished oven (Fig. 2: 3), and a collective find of five lead slingshots, belong to one of the two phases. In the eastern part of the site NUK II, the levelling fill covered a natural water depression (Fig. 2: 4), which was probably converted to a cattle watering place in the Augustan period.²⁶

During the excavations of Kongresni trg, three typical ditches with V-shaped cross-section were discovered, the first two of which undoubtedly dated before the construction of the town. They are an interrupted ditch with a linear segment shifted outward, forming the entrance of the *titulum* type (Fig. 3: 8) and a ditch of the corner part of a later camp in the shape of a playing card (Fig. 3: 10). The latter replaced the former camp and both apparently spread southwards or into the area of the later town, rather than northwards. The area of the military installations was apparently limited by the

²³ Gaspari 2010; Gaspari et al. 2014.

²⁴ Gaspari 2010, 25–27, Figs. 15–19.

²⁵ Gaspari 2010, 49–50, Figs. 10, 31–32.

²⁶ Gaspari 2010, 28, Fig. 22; Andrič et al. 2012.

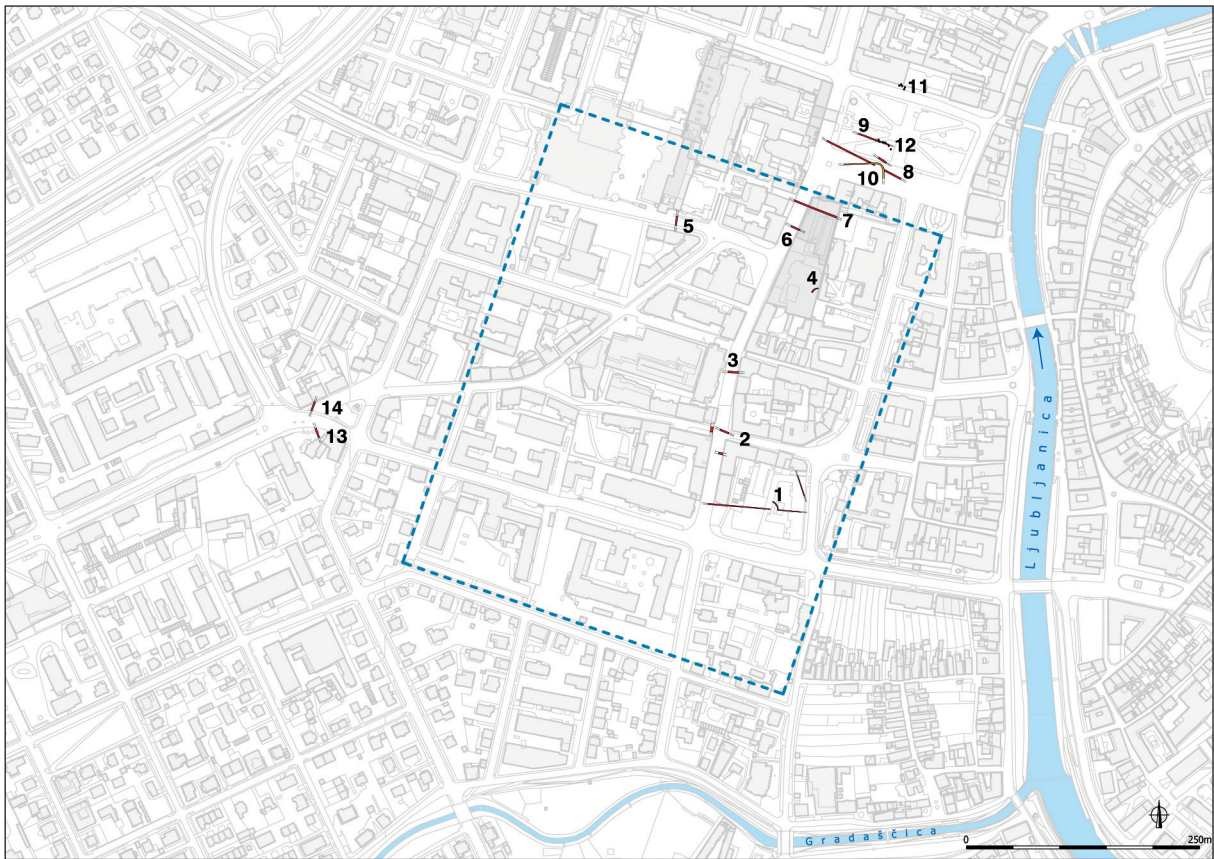


Fig. 3: Recorded sections of ditches of training, marching, and defensive camps in the area of the later town. Augustan period. 1 – NUK II and Slovenska cesta; 2, 3, 6 – Slovenska cesta; 4 – Šumi; 5 – Erjavčeva cesta and Igriška ulica; 7 – Šumi; 8–11, 12 – Kongresni trg; 13, 14 – Trg MDB.

area of approximately contemporaneous cremation burials from the Middle and Late Augustan period. The northern of the two identified groups included two burials of members of auxiliary units of the Roman army, whose origin, according to the typology of the enclosed weapons and personal attire, is to be sought in the south-eastern Alps.²⁷ Part of the graves of the northern group (Fig. 3: 11) was dug into two Early Iron Age burial mounds, which must still have been clearly visible in the Augustan times and probably represented at least a geographically important traffic orientation point, if not a topographical boundary, on which military architects could base the delimitation of the area intended for the construction of the colony, and possibly also the determination of the route for the main *cardo*.

The next group of structures consists of a series of military defensive ditches with a V-shaped cross-section, whose direction coincides with the direction of the town grid. The ditches were recognized mainly after the removal of the levelling fill, which can hardly be separated from the transformed surface of the original ground. Consequently, the original walking surfaces from which

the ditches were excavated are mostly not clear. At the site of Šumi (Fig. 3: 4), remains of a 1 m wide and 0.4 m deep ditch with a semicircular outline were discovered after the levelling was removed, interpreted as part of the camp entrance in the form of a *clavicula*. Northwest of it, a 1.5 m deep and 2.3 m wide ditch with funnel-shaped cross-section was dug into the levelling fill (Fig. 3: 7), at the edge of which there was a vertical support post. Considering the direction of the ditch, which is almost identical to the course of the northern town wall at a distance of 13.5 m, and the surface from which it was excavated, the ditch was initially interpreted as a part of guarded construction site. In the southern part, the ditch intersects an earlier ditch of the same direction, 1.6 m wide and 0.6 m deep, which could have belonged to the mentioned camp with a *clavicula*-shaped entrance.

A very similar alignment is attested for the third ditch at Kongresni trg (Fig. 3: 9), which runs slightly farther north than those previously described and roughly parallel to the ditch on the inner side of the later defensive wall at Šumi (Fig. 3: 7). This third ditch at Kongresni trg was intersected by the pits of three Early Roman graves (Fig. 3: 12), one of which was overlaid by a two-part oven

²⁷ Bekljanov Zidanšek 2012; Gaspari et al. 2015.

for food preparation. It is assumed that the deceased were of local origin and died a decade or less before the completion of the town. This is also indicated by the location of the graves, positioned at a certain distance from the main road to the north, and at the same time associated with the earlier group of Augustan-Tiberian burials.²⁸

A ditch from the area of the later insula XXXVII (Fig. 3: 5)²⁹ and two ditches immediately east of the later forum (Fig. 3: 2, 3) belong to the traces of the group of military structures discussed earlier. All three ditches were documented only in short sections, which allowed a rough reconstruction of their presumed course. Outside the urban area, similar ditches with V-shaped cross-section were discovered at Trg MDB (Fig. 3: 13, 14). Both were found after the removal of the levelling fills, but their location and orientation testify that they are not contemporaneous. The first, perpendicular to the future main western access road to Emona, undoubtedly dates from before the construction of the town and indicates an access barrier from the direction of Nauportus. The other runs parallel to the defensive walls of Emona and may refer to the defence system that operated during the construction of the town.

URBAN PLANNING OF COLONIA IULIA EMONA

TOPOGRAPHICAL SETTING OF THE TOWN AND PREPARATION OF THE GROUND

The placement of the town at the southernmost part of the Sava alluvial fan in the strait between Grajski grič and Rožnik with Tivolski vrh (Fig. 4), which separated the Ljubljansko polje from the Ljubljansko barje and represents the centre of the strategically important transitional area, the so-called Ljubljanska vrata (Ljubljana Gates), certainly corresponds to a military logic. The choice of the urban model *urbs quadrata* is in full accordance with the veteran colonies founded and built under Augustus in *Italia Transpadana*, while the concrete spatial realisation probably results from the topographical conditions and traffic routes, especially from the course of the military road (*via militaris*) *Aquileia-Siscia*. The latter indicates the priority of the western (*porta decumana*) and presumably also the eastern (*porta praetoria*) main gates, which were placed approximately in the middle of the longer defensive wall sides, over the northern and southern gate, characterised by much narrower passages.³⁰ The mentioned connection is also supported by a discovered road section (Fig. 5: 11), which runs perpendicular to the western town gates about 300 m away. The presumed original

military connection which ran along the foothills of the Vič Terrace, is soon replaced by the newly constructed *via publica* between Nauportus and Emona, which ran in a straight line through the wetlands of the northern edges of the Ljubljansko barje on the 5.5 km long section between Brezovica and *porta decumana*.

Practically all excavations in the town area show that in preparing the ground for construction, part of the humus and part of the underlying soil (AB horizon) were first removed. This is evidenced by patches of burnt soil and charcoal preserved on the surface of the lowered ground in the northern part of the town. In the southeastern, lowest part of the town, the entire soil horizon was removed down to the gravelly-sand ground. This was followed by the backfilling of the soil for the levelling of the entire town area, which apparently occurred simultaneously with the excavation of pits for water extraction and possibly sand for the mortar. In the south-eastern part of the town, in the area of insulae XLVI and XXVII, numerous interventions in the gravel-sand base and parallel narrow and shallow ditches were discovered, interpreted as traces of carts for transporting soil for levelling and building materials.³¹ The excavations at Trg MDB (Fig. 5: 9) revealed that the levelling works also included the area of the western arterial road, where more or less only the existing depressions were filled, without any deeper intervention in the natural ground. A food preparation fireplace discovered in the sequence of soil fills is probably related to the preparation of food during the levelling work. South of the western access road several posts and a series of ditches associated with clay floors were discovered, interpreted as traces of simple wooden barracks, as well as individual larger pits and two wells. The structures are not necessarily contemporaneous but are probably related to or immediately preceding the period of town construction.

Among the contemporary remains from the northern part of the later insula XXXVII is a shallow well with the preserved part of an inserted barrel, followed, in the stratigraphic sequence, by a group of large pits. The latter could possibly be related to the extraction of sand from pockets in the predominantly gravelly subsoil for the construction of the first town structures. Their fills included an Aucissa type fibula and a part of the Weisenau type helmet plume holder, indicating the participation of the army. The extent of interventions in the construction of the town is confirmed by the levelling fills of the excavated soil above the geological base from the Križanke site (Fig. 5: 6), which we associate to the arrangement of the road network and infrastructure.

Part of the identified structures could possibly belong to the period immediately after the levelling or to the period of the tracing of the urban grid, while others certainly belong to the period of construction. We conditionally assign several two-part kilns documented on the

²⁸ Gaspari et al. 2015.

²⁹ Excavations at Erjavčeva cesta in 2018.

³⁰ Gaspari 2014a, 169–171, Fig. 26.

³¹ Gaspari 2010, 30–32, Figs. 23–25.



Fig. 4: Emona ground plan with arterial roads, suburbs, and cemeteries. 1st-5th century. 1 – cemeteries, documented extent; 2 – cemeteries, presumed extent; 3 – suburban building complexes; 4 – road, documented (reconstructed) course; 5 – road, presumed course; 6 – aqueduct, presumed course.

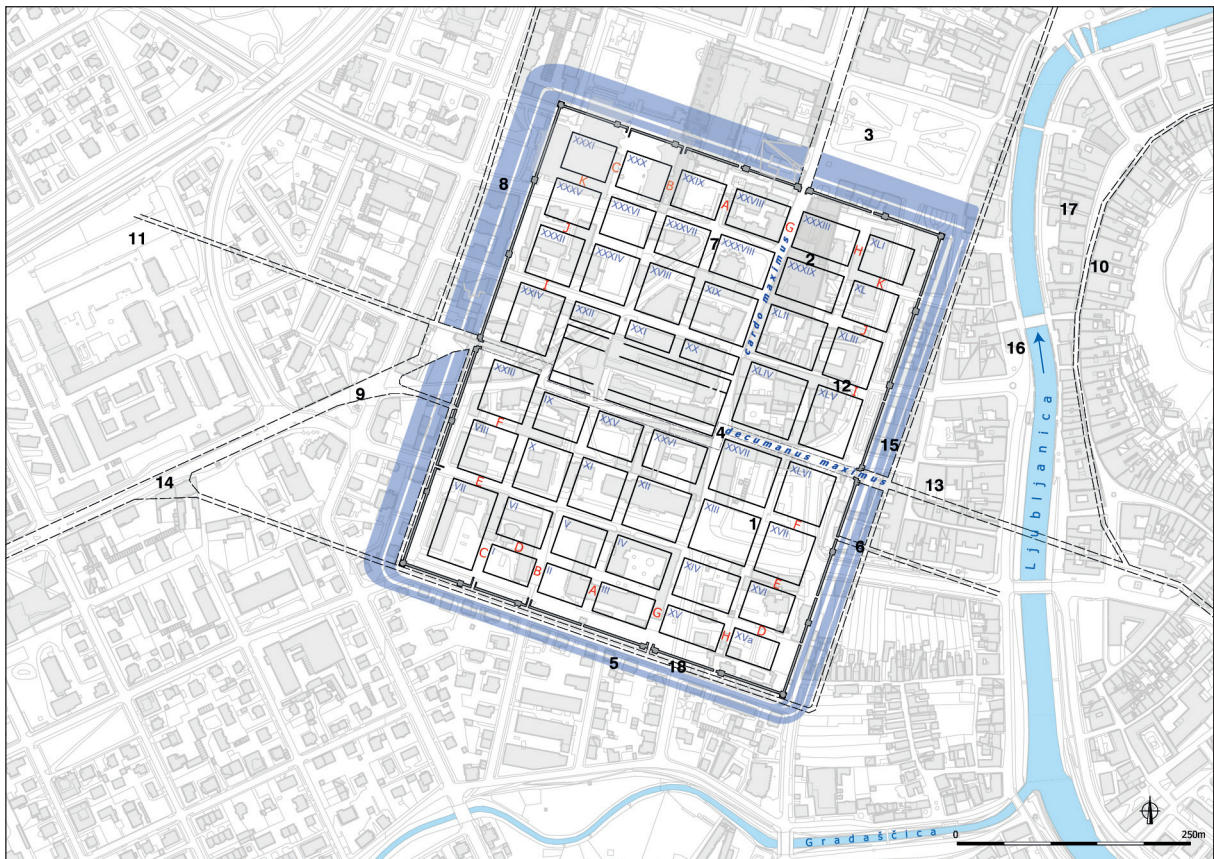


Fig. 5: Ground plan of *Colonia Iulia Emona* with locations excavated in the period 2000–2022. 1 – NUK II; 2 – Šumi; 3 – Kongresni trg; 4 – Slovenska cesta; 5 – Mirje 13; 6 – Križanke; 7 – Erjavčeva cesta and Igriška ulica; 8 – Erjavčeva cesta; 9 – Trg MDB and Prešernova cesta; 10 – Mestni trg 10; 11 – Tobačna mesto; 12 – Gregorčičeva 1; 13 – City Museum of Ljubljana; 14 – Tržaška cesta; 15 – Vegova 7; 16 – Breg; 17 – Krojaška ulica; 18 – Barjanska cesta.

surface of the levelling of the later insulae XXXVII and XXXVIII to the former (Fig. 5: 7). To the construction period a well should be attributed that has been excavated from the levelling layer from the north-western part of the later insula XXXVII, which is confirmed by the Grajski grič quartz sandstone in the fill between the pit and the decayed barrel. An amphora of Dressel 6B type with the stamp [VARI P]ACCI testifies to the use of the well in the Late Augustan times. Most of the other documented structures erected on the levelling fill could already be associated with the wooden buildings of construction phase I of the colony.

CONSTRUCTION PHASE I

According to the character of the finds from the levelling fill, the planning and layout of the defensive wall, the insulae perimeters or the street grid and the forum were carried out by military *agrimensores* and *architecti*. Some of the insulae were first built of wood and then soon replaced by stone masonry structures

(some possibly as late as the Claudian period). Others were originally, i.e. in the period of the building inscription that mentions the late Augustus and his successor Tiberius,³² partly or entirely built in stone. The building dynamics of the insulae are not yet fully understood, but they do not seem to follow the logic of the precedence of the insulae along the entire course of the main *cardo*. Part of the answer may lie in the suggestion that the wooden insulae housed workers involved in the construction of adjacent insulae, as shown by the situation at the crossroads of *decumanus* F and *cardo* H. This intersection is shared by the wooden insula XIII and three, originally stone, building blocks XXVII, XLVI, XVII (Fig. 5: 1). In the case of the insula XIII, the wooden buildings comprised the entire area of the block. Their orientation fully coincides with the orientation of the urban grid (19°), with the surrounding wooden walls projecting 10 or 20 cm beyond the outer fronts of the later enclosing walls of the insula. In the north-eastern part of the insula, two rows of barracks with casseted

³² CIL III, 10768; Šašel, Weiler 1963/1964, 40–42; Mráv 2001; Šašel Kos 2012; ead. 2014.

narrow rooms were documented (Fig. 2: 6), and in the north-western part, the western and northern wings of a building that surrounded an inner courtyard. For the supporting elements of the outer and inner walls, larger wooden posts and foundation beams laid on them were used, which are preserved in the form of rectangular impressions in the filling of the corresponding trenches. The courtyard was paved with gravel and clay fills. Probably at the same time, a smaller wooden building was erected in the south-western part of insula XXVII, built in the same way as the buildings in insula XIII. It seems that at this time most of the insula XXVII was not yet built on.

In a series of recently investigated insulae in the northern part of the town,³³ the insula XXXVII was built before the others and was initially constructed of wood. Before the construction, the northern part of insula was levelled with sand and reinforced with clay. On this base, wooden buildings were erected, following the basic layout of the Emona grid (Fig. 5: 7). Larger wooden posts and beams served as load-bearing elements for the walls (and roof) of the structures. Remnants of wooden buildings to the north slightly exceed the external dimensions of the later stone masonry enclosure walls. The characteristics of the individual buildings and rooms indicate that it was intended for craft and economic activities. Along the eastern side of insula XXXVII, a wooden building with stone foundations and several smaller rooms was identified, inside of which numerous metal objects (products, semi-finished products and waste) and traces of metal flakes have been preserved, so it can be interpreted as a metallurgical workshop. It seems that in these structures workshops of craftsmen can be identified, whose products were certainly needed by the builders of the city. Considering the (indistinct) traces of use, the wooden structures within insula XXXVII were soon replaced by stone masonry structures.

At the same time and immediately after the levelling of the terrain in the area of insula XXXVII, gravel roadways of decumanus K in the north and cardo B in the west were laid out, while in the east only the western sidewalk of cardo A and next to it an extensive reinforcement with gravel are documented. The reinforcement extended to the area of the planned and originally stone-built insula XXXVIII along the main cardo. In the gravel reinforcement related to the preparation of the terrain for the construction of the insula, a lead slingshot and a fibula with a biting animal head on the bow were discovered, placing the beginning of construction in the Late Augustan period.

The construction of each insula was carried out somewhat differently, but most likely the first stone buildings and wooden constructions were used simultaneously for some time. In insula XXXIII, located east along the main cardo, right by the northern town gate

(Fig. 5: 2), the enclosing wall and two stone buildings leaning against it were built first in the northern and southern corners of the western part of the insula. A larger oven for the preparation of food indicates that it could have been a tavern (*taberna*).

Wooden structures were discovered in some places in insula XXXIX on the surface of the layers representing the working surface for the construction of the walls of phase I (Fig. 6). Their spatial distribution suggests a contemporaneity with the first stone structures. In any case, the possible time interval between wooden and masonry construction was not longer than a few years. In the insula XIII dismantled remains of barracks were intersected by a well pit with a ring of larger quarry stones, which was soon abandoned and filled in (Fig. 2: 4). The whole was covered by layers that we associate with the beginning of the first stone phase of the insula. A solid chronological framework is provided by the dupondius of Augustus for Tiberius (10–12), found in a thin sediment on the first walking surface after the construction of the walls, and a Tiberius as (15–16) from the fill from the time when the barracks were in use.³⁴

The equipment of the wooden buildings also included channels of quartz sandstone and *tegulae* that led into cesspools and large round or oval pits about 1 m in diameter and 2 m deep. Based on the contents of the fills (fragments of amphorae and jugs with two handles, fine tableware, crucibles, moulds, semifinished fibulae, and rare coins), some may be interpreted as waste pits, while those with barrel impressions were probably used as water reservoirs and latrines (e.g., in insula XXXIII). In the northern part of insula XXXIX (Fig. 6: A), the remains of a well more than 3 m deep were discovered in the passage between a stone building and a wooden structure, consisting of two or three barrels arranged vertically.³⁵

The architecture of the first stone phase of the insulae is characterised by the high quality and precise execution of the façade and interior walls, in which only quartz sandstone, quarried on the southern and south-western slopes of Grajski grič, was used as building stone and white-grey lime mortar as a binder. The corners of all examined insulae XVII, XLVI and XXVII at the location NUK II are built absolutely rectangular, with a deviation of 19° from north to east (Fig. 5: 1). The lower parts of the façade walls of some insulae (e.g. XVII and XLVI) were raised with some narrower, possibly parapet-like walls. The widths of the dug-in and built-up parts of the foundations and the walls built on top of them are very close to the equivalents of 3 (0.88 m), 2 (0.58 m), and 1.5 (0.44 m) Roman feet respectively. The first walking surfaces in stone buildings consisted of clay floors on which partition walls were built.³⁶

³⁴ Gaspari 2010, 78–79.

³⁵ Gaspari 2010, 118–121, Figs. 71–73.

³⁶ Gaspari 2010, 50–55.

³³ Excavations at Erjavčeva cesta in 2018.

Wooden barracks along the east side of the insula XX (Fig. 5: 4) may have been demolished or moved inward during the construction of the enclosure wall. The latter was made of quarried quartz sandstone with shapely smaller rectangular blocks set into it. The façade consisted of a series of stone pillars (in one of them a worked block of Aurisina/Nabrežina limestone was embedded³⁷), between which beams were placed in openings on the surface of the parapet walls. At a certain time, the building was destroyed by a massive fire, which can also be seen from the burnt surface of the stone masonry.

In this phase the streets were laid out with thin gravel roadway, which — as the documented situation along the eastern façade of insula XIII shows — were accompanied by drainage ditches and sidewalks of yellow-brown clay, similar to the first levellings in insulae XIII and XLVI. The width of streets F and H ranged from 11.65 to 11.85 m, except for the eastern part of decumanus F between insulae XVII and XLVI, which was only 11.45 m wide. The width of decumani J and K was also documented, which almost does not differ from the reconstructed width of 8 Roman feet (11.84 m).³⁸

In Phase I, water supply was provided by private and public wells. A spectacular example of the latter is the well in cardo H, which was located in the immediate vicinity of the intersection with decumanus F. The well, about 6 m deep, had a wooden foundation and a quality stone ring lining with an internal diameter of 1.6 m. The well was constructed in a large funnel-shaped pit that reached below the level of the aquifer at that time. Numerous tegulae and wood and iron remains from the backfill indicate that the well was most likely equipped with a winch and a canopy.³⁹

Stone construction phase I also includes the construction of the drainage network, which consisted of interconnected channel segments and cesspools connected to the individual insulae. Relatively shallowly buried channels ran along the boundary between sidewalks and the roadway of the main cardo. The channels and cesspools were constructed of quartz sandstone quarry stones and covered with wooden boards. A channel from the insula XXXIII was connected with the cesspool on the neighbouring section of the main cardo, which drained through channel under the northern walls into the first defensive ditch. Towards the middle of the 1st century, sewage systems were gradually improved. A smaller cesspool at the intersection of main cardo and decumanus J was connected to the southern rectangular cesspool, and conveyed sewage from here to the south. The channels were built similarly to the previous ones, except that their bottoms were paved with tegulae. In

this way, a system of continuous septic tanks and connecting channels is created, which drain the sewage into an unknown collector. Such a collector is represented by a cloaca documented at the intersection of the main cardo and the main decumanus (Fig. 5: 4), dating from the time of the construction of the insulae. It has a floor made of hewn slabs, probably of Podpeč limestone,⁴⁰ and side walls made of bricks. The cloaca in the axis of the *decumanus maximus* was apparently built at an early date, and discharged sewage from the area of the forum into the Ljubljana. Apparently, the system was not established in all parts of the town. In the case of the southern façade of Insula XLVI, the sewer outlet was made at the same time as the masonry part of the foundation, but was not used.⁴¹

The approximate dating of the barracks and insulae construction to the end of the Augustan and Early Tiberian periods is also confirmed by stamps on terra sigillata. Among them, stamps of the form *in planta pedis* appear for the first time, which are not represented in earlier contexts. In the area of insula XXXIX, in the eastern part of the courtyard, 18 republican silver coins and an Augustus denarius of the Gaius-Lucius type were found in a pit dug into the clay pavement above the fill with quartz sandstone quarry stones (marking the time of the construction of the walls).⁴² Among the metal finds attesting to the participation of the army in the construction, an iron *dolabra* from the backfill of the trench for the northern façade wall of insula XIII⁴³ and the crest knob of a bronze helmet of the Hagenau type from the backfill of a trench for the southern façade wall of insula XXXIX⁴⁴ stand out.

CONSTRUCTION PHASE II

In the middle of the 1st century, possibly after a fire that engulfed at least the eastern part of the forum area, the town underwent a thorough renovation that greatly improved the standard of living. It is characterised by new foundations and perimeter walls of the insulae, the arrangement of commercial spaces and residential units (*domus*) according to Mediterranean models, and a comprehensive renewal of the sewage system. The backfilling of the street well in cardo H and the construction of the baths and the sewage network with collecting cloacae lead to the conclusion that from then on the water supply to the public places was provided by an aqueduct that was probably built at the same time.⁴⁵

³⁷ On the use of the Nabrežina limestone in Emona, see Djurić, Rižnar 2017, 140–141.

³⁸ Gaspari 2010, 55.

³⁹ Gaspari 2014a, 55–56; id. 2016, 33–43.

⁴⁰ On the use of the Podpeč limestone in Emona most recently Djurić et al. 2022.

⁴¹ Gaspari 2016, 131–139.

⁴² Gaspari et al. 2014, 149–152.

⁴³ Žličar 2020.

⁴⁴ Gaspari 2010, 90, Pl. 28: Š 899.

⁴⁵ Gaspari 2016, 171.

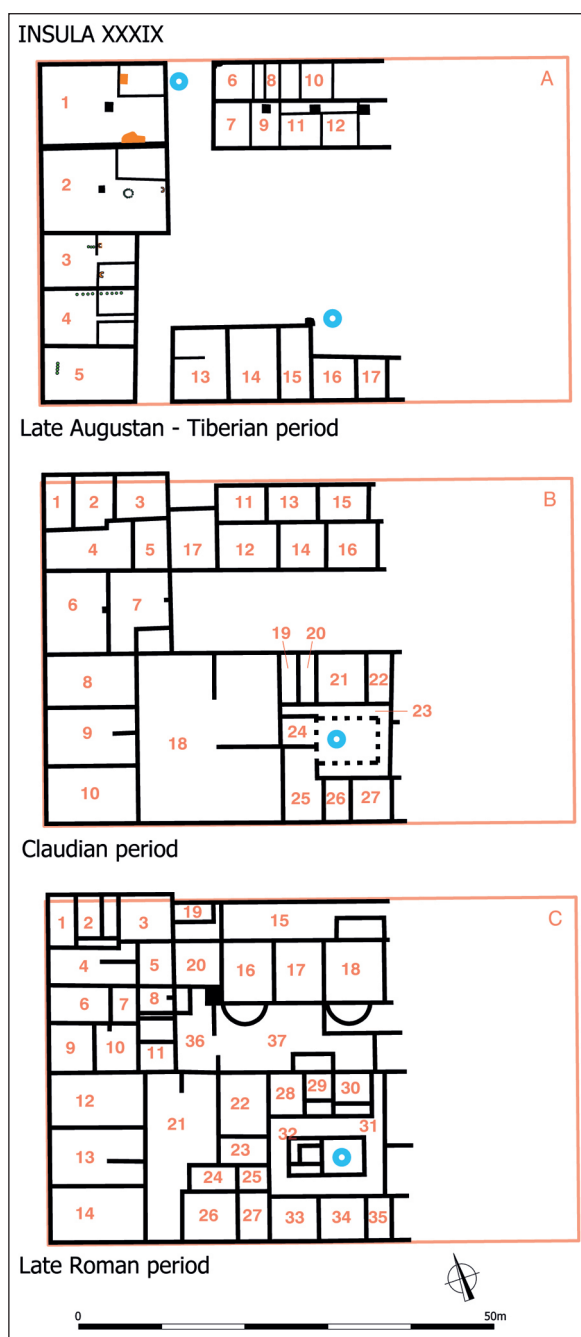


Fig. 6: Šumi site. Development of the western part of insula XXXIX.

In the central axis of the decumani F, J and K, cloacae were built in deep trenches that cut the former roadway in all the aforementioned streets, with a floor of laterculi, two vertical sides and a vault of quartz sandstone bound with mortar. During the construction of the cloaca under decumanus J, the overflow shaft of the original sewage system was destroyed. The interior of the cloacal vaults was mostly semicircular (J and K), while the cloacae under decumanus F and I had a trian-

gular cross-section. The extramural section of cloaca F was documented at the Križanke site (Fig. 5: 6), above which the roadway was constructed. The continuation of the decumanus outside the town supports Schmid's assumption about the existence of the eastern side gate in this part of the defensive wall.⁴⁶

In a widened trench along the north and south sides of the cloaca under the decumanus J, two stone structures of irregular rectangular shape without bottoms were built, which are probably relief shafts. The old cloaca under the main decumanus was connected to the new cloaca, which led from the north under the main cardo. During the construction of the new cloaca along the continuation of the decumanus towards the east gate, the old cloaca was removed.

Simultaneously with the cloacae, sewer connections were built from the insulae. In the process, the earlier enclosing walls were partially demolished along with their foundations, and the corresponding sections were rebuilt after the sewers had been laid (insulae XLVI and XVII, XXXIX and XXXIII). Due to the relatively high vaults of the cloacae, the decumani acquired a typical convex surface after the construction of the collector sewers, while sidewalks were built on both sides of the streets, separated from the roadway by two ditches. The sidewalks consisted of a clay and mortar layers. Reliable support for the dating of the construction of the new sewer network is provided by the latest coin finds from the first sediments of the roadways above the cloacae, which belong to the issues of Claudius.⁴⁷

The renovation of the enclosing walls of the insulae corresponds stratigraphically to the construction of cloacae on the decumani (e.g. J). In this period, stone architecture with wooden partitions, high quality mortar floors and black and white mosaics is characteristic. The use of quartz sandstone and hard white-grey mortar continues. Insula XXXIX is highlighted as a typical example of a renovation in which the southern building was converted into a classical Roman domus with an atrium (Fig. 6: B19–27). The northern part of the building was divided into four smaller rooms, three of which were paved with mosaics of small tesserae of black and white limestone and one with a screed (Fig. 6: B23). The rooms were separated by partitions with frescoes and stuccoes; judging by the imprints of cut sticks, the ceiling was also plastered. To the south was a rectangular atrium with a wooden floor and central impluvium or well (which is not attested for this phase; Fig. 6: B23). To the west it terminated in a triclinium or dining hall with mortar floor (Fig. 6: B24), and to the south with rooms immediately behind the front of the insula (Fig. 6: B25–27). These had clay or wooden floors, except for the room paved with screed, and the walls were painted with a geometric black and red pattern. The threshold in the enclosing wall

⁴⁶ Schmid 1913, 76.

⁴⁷ Gaspari 2010, 79, 125; Gaspari 2016, 139–144.

indicates that there was an anteroom (vestibulum) to the domus here.⁴⁸

The southern part of the building along the main cardo probably retained its original purpose and continued to serve as a tavern or store, while the northern part was partially converted to residential use. The northern part was divided into five rooms (Fig. 6: B1–5), one of which was paved with a screed of white mortar with small green, purple and grey quarry stones mixed in. In the northeast corner of the same room, under the pebble for the screed base, a building offering in the form of a well-preserved coin (*as*) of Claudius was placed.⁴⁹

On the surface of a clay pavement sidewalk along decumanus K in front of insula XXXVIII, several narrow, elongated and shallow pits were made diagonally to the sidewalk. The pits had burned sides and bottoms and were filled with charcoal; occasionally they occurred in close succession. One of the pits was surrounded by impressions of vertical stakes, possibly representing the remains of a wooden structure. Similar remains, possibly stands for food preparation, were documented in the southern part of the main cardo and along decumanus F outside the town (Fig. 5: 6).

In this phase, the aforementioned well on cardo H was backfilled and the space of the former street was reclaimed and built upon with the bath complex connecting insulae XXVII and XLVI. The investigated part of the bath complex includes two apsidal rooms with basins and a larger room – a *palaestra*. All three rooms were paved with high-quality mortar screed (*opus signinum*), while on the eastern wall of the southern apsidal room a part of the plaster with white frescoes is preserved *in situ*. To the east, the bath was bordered by a larger building. This building was divided into several rooms by wooden partitions with stone foundations. To the south, it bordered an open courtyard.

The flushing of cloacae and the functioning of the baths would have been practically impossible without a more or less constant inflow of water, which could be guaranteed in the long run only by the construction of an aqueduct. During the rescue excavations on the Krivec fallow in Podutik, not far from the Slatek spring (known as “Rimski studenec”, i.e. Roman spring), a section of the aqueduct with a thick layer of mortar was uncovered, which led directly to the north-western edge of Šišenski hrib or to the most suitable route, which probably reached the town at the western gate (Fig. 4). The capacity of the aqueduct must have been considerable, as evidenced by a 4.4 m long piece of lead pipe discovered in a displaced position on decumanus I in 1975. The diameter of the pipe, with a teardrop-shaped cross-section made of a 55 cm wide and 2.96 m (10 *pedes*) long lead sheet, is slightly more than 15 cm. A seal with the raised inscription L-ANNIRIVS-RVFVS-F

and the representation of a dolphin can be dated to the Early Imperial period on the basis of the letter shapes.⁵⁰

Under the eastern sidewalk of cardo A (Fig. 5: 7), traces of a heavily weathered wooden water pipe with an outer diameter of 13 cm and an inner diameter of 7 cm were documented. The laying of the wooden pipe is associated with the first road and sidewalk renovation, roughly dated to the Claudian to Flavian periods. The discovery suggests that wooden (gravity?) conduits existed in other parts of the city as well, and may even partially explain the relative rarity of remains of the pressure conduit network.

The extensive renovation works in the reign of Claudius are related to the imperial investment programme for public infrastructure and the improvement of the living standards of the towns in northern Italy.⁵¹ Fragments of two *phalerae* of dark blue glass depicting the emperor and his children Antonia, Octavia, and Britannicus (matrix Boschung 6a; after 43 AD),⁵² one found during the excavations of insula XIV in the southern part of the town in 1912⁵³ and the other during the exploration of insula XXXVII,⁵⁴ support the assumption about the settlement of a smaller contingent of legionary veterans.

LATER RENOVATIONS

In the 2nd and 3rd centuries, generally only minor alterations take place, while in the 4th century major structural changes are made. Mixed masonry stones of limestone and quartz sandstone are used, the latter being (mainly) reused. In the building architecture of earlier phases, limestone was used exclusively for channel lids and sills, lintels and similar elements, while it was used for the construction of walls or foundations only from the Flavian period onwards. Extremely massive foundations, with which earlier foundations were partially reinforced, and walls of inferior quality made of smaller quarry stones, often composed in a herringbone pattern (*opus spicatum*), are typical, especially for Late Roman rebuilding or new construction. The walking surfaces were raised by up to 0.8 m by heaping up rubble and tampons. The floors consist of mosaics and thick screeds, underlaid with larger pebbles and decorated with pieces of green Peračica tuff.⁵⁵ A novelty in Late Roman building in Emona are the previously missing pavements made of brick cubes, as they were also documented in insula XXXVII. Heating systems with pavements on brick or stone *suspensurae* are attested only in Late Roman buildings. Shortly before the end of the 3rd century,

⁴⁸ Gaspari 2014a, 192–195, Fig. 214.

⁴⁹ Gaspari 2010, 125, Fig. 76; id. 2014a, 195, Fig. 218.

⁵⁰ Gaspari 2016, 75–88, 105–109; Gaspari et al. 2018.

⁵¹ Gaspari 2016, 172–173.

⁵² Paunov 2015, 97–98.

⁵³ Schmid 1913, 61.

⁵⁴ Špendal 2022, 196–197, 228–229.

⁵⁵ Djurić, Rižnar 2017, 139.

a quarry of grey-brown limestone was probably opened near Moravče, from which most sarcophagi, suspensurae, and base plates for hypocausts were made.⁵⁶ Among the furnishings of the 4th century portici or peristyles, a partially preserved column of red-painted plaster with an organic, probably wooden, core on a stone base from Insula XXVII is worth mentioning.⁵⁷ In this late period, Škofja Loka conglomerate from Kamnitnik was used for part of the columns and facing slabs.⁵⁸ In the southern part of the town (e.g. insula XIII) the reinforcement of the base for the wall foundations with a grid of thickly driven smaller wooden piles is attested. Also new is the secondary use of limestone elements of funerary architecture⁵⁹ and the use of untreated conglomerate from the deeper deposits of the Sava alluvial fan, which occur as building stones for well rings.

After renovation in the Claudian period, insula XXXIX was restored more extensively for the first time in the second half of the 2nd century. Baths were built in the area of a former warehouse in the northern part of the insula along decumanus K (Fig. 6: C15–18). The northern part of the complex partially used old walls, while the newly built southern part of the baths consisted of two semi-circular basins 5.5 m in diameter with massive foundations, a base of waterproof screed and a covering of marble tiles that extended into the courtyard. Two channels led from the basins to the main collection channel in the courtyard, and a short piece of lead pipe with a teardrop-shaped cross-section was also preserved *in situ*, possibly supplying water to the western basin. In the backfill of a cut that intersected the levelling above the pipe, a scattered hoard of ases, dupondia, and sestertii of Antonius Pius and Marcus Aurelius was discovered, providing the framework *ante quem* for the construction of the baths. In the rubble that covered the screed of one of the rooms of the baths was discovered a collective find of 27 bronze coins deposited after 376.

The *domus* in the southern part of the insula was also renovated, largely preserving the old floor plan (Fig. 6: C22–35). The screeds of the earlier phase were covered with layers of rubble and tampon to create a working surface for the construction of new walls, which served to subdivide some of the older rooms to the north and west of the atrium. Modest remains of screeds with fragments of a black and white mosaic were preserved. On the eastern side of the investigated part of the *domus*, two rooms with floor heating were documented, some of which abutted older walls. In this phase the atrium was reduced in size. In the western part there was an impluvium of impermeable screed. The small basin was originally covered with rectangular and square limestone slabs. The well in the eastern part of the atrium was

apparently newly constructed. The poorly built ring of limestone blocks and conglomerate pieces was set on a wooden frame of squarely assembled beams. Two bronze coins of Constantine and the head of an iron lance were discovered in the fill behind the well casing.

Despite the partial restructuring and destruction of earlier buildings in the 3rd and 4th centuries in the northern part of the investigated area of insula XLVI, with the remains of the bath complex from the middle of the 1st century, it retained its function. During the excavations of the remaining structures of the last phases of insula XIII, the remains of a courtyard of the western of two Late Roman buildings with atriums in the central and eastern part of the insula were investigated.⁶⁰ The atrium with paved impluvium of the north-eastern unit was surrounded on the east side by rooms with hypocausts and on the west side by a room with wooden floor on elongated foundation walls. South of the atrium were heated rooms with bathrooms, one of which was rectangular and the other apsidal.

During the removal of the impluvium in the atrium of the western unit, a secondarily used funerary stele from the middle or second half of the 1st century was discovered, erected by a freedman *Lucius Cantius Fidus* for himself and his daughter. The stone pavement with the tombstone was placed on the levelling, which contained an Honorius coin minted in 393–403.⁶¹ In the southern part of the courtyard there was a well with a cover made of limestone slabs, which according to Schmid was still used in first decades of the 20th century.⁶² In the southeast of the courtyard there was a larger room with a screed and to the west of it a room with a hypocaust. On the west side, a rectangular room with a polychrome geometric mosaic bordered the atrium, which was also documented in Schmid's research of 1912.⁶³ In 1960, during rescue excavations in the area between the courtyard and decumanus F, three more rooms were attributed to the Late Roman phase of the insula. According to Plesničar Gec, during the last renovation of the insula, a segment of the northern façade, almost 8 m long, was removed, and the remains were covered by the clay plaster, which could indicate an open entrance to a building. Several segments of lead pipes were also discovered in this part of the insula, which, together with the large public latrine in the northeast corner of the insula XVII,⁶⁴ probably prove the functioning of a water supply system even in the Late Roman period.⁶⁵ In fact, at least part of the water supply was reverted to wells for groundwater extraction in the 4th century.

⁵⁶ Djurić, Rižnar 2017, 136–138.

⁵⁷ Maver et al. 2020.

⁵⁸ Djurić, Rižnar 2017, 139.

⁵⁹ Gaspari 2014a, 224–234.

⁶⁰ Documented during the excavations in 1996–1999.

⁶¹ Lovenjak, Gaspari 2012, 124–125.

⁶² Schmid 1913, 161.

⁶³ Schmid 1913, room 8.

⁶⁴ Plesničar Gec 1999, 237; Gaspari 2016, 154–160.

⁶⁵ Gaspari 2016, 40–43, 114–115.

According to the original interpretation, based on the room layout with two atriums, bathing facilities, and a large heated area, the insula XIII was most likely part of a larger leisure complex south of the main decumanus, which also included the baths and gymnasia in the insula XVII and the buildings of the combined insulae XXVII and XLVI. A new perspective was offered by the study of the mosaic from Room 8, attributed to the western unit, which Djurić interpreted as a hall church (*aula primitiva*) and dated its construction to the end of the 4th century.⁶⁶ In the deposits of the last phase of the insula XIII, more than 1,400 coins were discovered, including those minted in the period between 388 and 423. The latest among them is the coin of Valentinian III, minted between 425 and 435.⁶⁷ Judging by the coin finds, the complex coincides with the later phase of the early Christian centre in insula XXXII.⁶⁸

The roads were repaired several times, as evidenced by numerous fillings and repairs of the roadways and sidewalks, as well as the construction of new roadside ditches. Later channels from the insulae, usually with side walls of quartz sandstone, a floor of tegulae, and a cover of limestone slabs, were built higher than the earlier ones. Unlike those built at the same time as the cloacae, the channels of the later phases penetrated their vaults, which were later repaired. In the deposits that covered the ground sediment and the discharge load above the floor of the cloacae, coins from the entire 4th century were found.

In this phase, the access shafts to the cloacae were either renovated or newly constructed. Below decumanus J, a new shaft was constructed using laterculi and covered with a massive limestone slab. The vault of this cloaca underwent several repairs during the Late Roman period. North of the forum, in insula XVIII, the vault of the nearby access to the cloaca was replaced with semi-cylindrical elements from funerary architecture and other limestone spolia.⁶⁹ Immediately next to the original access shaft at the junction with the *cardo maximus*, the vault of the same cloaca had significant damage, which was temporarily repaired using three fragments of a stone measuring table (*mensa ponderaria*).⁷⁰ Throughout the decumani, larger pits were excavated in the layers that had accumulated after the end of road maintenance, occasionally reaching the cloacae or their fillings.

DEFENSIVE DITCHES, MAIN ROADS, AND SUBURBAN COMPLEXES

NORTHERN SUBURBS

In addition to uncovering Prehistoric contexts and Early Roman military remains, as well as a cemetery, the investigations at Kongresni trg (Fig. 5: 3) provided valuable insights into the defences of the northern part of the town and the adjacent suburbs of Emona. These suburbs extended along the main northern road to Emona (*via publica Emona–Celeia*).

During the town's construction, the ditches of marching or training camps were filled in, and the terrain above them was levelled. North of the defensive walls, two city defence ditches were excavated at the same time, imitating the typical shapes of Roman military ditches, characterized by a V-shape cross-section. The two ditches were separated by a lower ridge-like unexcavated strip with a paved surface. The outer ditch, which has been fully documented, reached depths of up to 6.3 m and widths of 7.7 m, while the intermediate threshold measured 8 m in width.

Near the outer ditch, on the levelled area, several narrow and shallow trenches of varying lengths were discovered. These trenches suggest the presence of wooden barracks, possibly used as warehouses or dwellings for construction workers. In close proximity, a well was found, consisting of vertically set barrels. Additionally, two sections of a ditch running parallel to the roadway likely relate to the construction and operation of the northern access road to Emona.

By the first half of the 1st century, significant changes had occurred in the area of the wooden barracks located on Kongresni trg. The terrain was levelled, creating an extensive gravel area that stretched between the outer town ditch and the northern approach road to the west. This gravel area extended further north into the vicinity of the first group of Roman cremation graves.

Within this transformed area, several pottery kilns were unearthed, along with shallow and narrow trenches nearby. These trenches likely represent the remains of wooden structures, possibly associated with pottery workshops. As the workshops fell out of use, sediment from the nearby road or the adjacent ditch gradually covered the area.

Subsequently, a larger stone building, possibly a warehouse, was constructed on this surface. This building was oriented parallel to the town ditch and perpendicular to the northern main road.

From the latter half of the 1st century, on series of residential buildings emerged on the site that constituted the northern suburbs of Emona. Constructed from limestone quarry stones, these buildings boasted a sewer system connected to the outer defensive ditch. They were surrounded by walled open spaces that probably served

⁶⁶ Djurić 2012.

⁶⁷ *FMRSI* V 62/6.

⁶⁸ Plesničar Gec et al. 1983.

⁶⁹ Plesničar Gec 1999, Figs. 57, 58, 272.

⁷⁰ Gaspari, Novšak 2012.

as courtyards, with wells lined with limestone blocks. In one of the buildings, which slightly extended onto the roadside pavement in a later phase, evidence suggests the presence of a canopy or an area open to the street. This area contained a larger bread oven, suggesting a dual function, potentially combining commercial (baking) and residential purposes.

To the northeast of the residential buildings, extending toward the main road leading into town, the ground was paved with pebbles and featured a gravel surface. Several walls were constructed in this area, likely serving as boundary walls for cemetery plots. This is further supported by the discovery of a cremation grave in the corner of one of these plots.

In the first half of the 4th century, extensive changes were undertaken in the northern suburbs of Emona, resulting in a significant transformation of its previous appearance. During this period, the two town ditches, which had been partially filled with sediment, underwent significant alterations. The upper section of the outer ditch was widened to a width of 19 m and deepened, while the paved area of the ridge in between was filled with material and elevated.

As the outer ditch was widened, the existing wells were filled in, and all the previous buildings were demolished. In the place of one of these demolished buildings, located on the main northern road to Emona, a newer version with two heated rooms was constructed. In subsequent reconstructions, the building was reduced in size, and its interior was equipped with what appears to be a forge or a fireplace.

Between the middle of the 4th and the middle of the 5th century, the northern cemetery of Emona expanded to cover the entire area that is now Kongresni trg.

NORTHERN APPROACH ROAD AND ADJACENT CEMETERIES

In addition to the size and expansion dynamics of the necropolis along the arterial road from the direction of Celeia, the research confirmed the existence of several burial groups along the paths running parallel to the northern part of the colony's ager and along the road on the left bank of the Ljubljanka (Fig. 4). The earliest burials were located in the immediate vicinity of the main road. Later burials gradually expanded into the hinterland between the 2nd and 4th centuries, with groups of late burials reappearing in the area of abandoned grave plots along the road.⁷¹ The necropolis along the Emona–Celeia road extended 2 km to the north. A limestone boundary post (*cippus*) found about 1.5 km from the town revealed the width of the strip of public land over which the *via publica* ran. According to this, the width

of the traffic artery together with the roadside ditches is 50 Roman feet, i.e. about 15 m.⁷² This interpretation is confirmed by the excavated width of the road in the section 300 m from the North Gate, which together with the ditches is 16.9 m and without the ditches is 13.3 m.

Rich grave goods from two cremation burials confirm the construction of the road in (Early) Tiberian period and the simultaneous beginning of burials in rectangular grave plots enclosed by wooden structures. Around the Claudian period these began to be replaced by stone grave fences. In some places the width of the cemetery area along the main road near the town, possibly also along side roads, reached 100 m in the 1st/2nd century,⁷³ whereas elsewhere it generally did not exceed 50 m.⁷⁴ From the first half of the 1st to the 4th century, people were also buried along one of the parallel paths in the northern part of the ager⁷⁵ and in a smaller cemetery near the left bank of the Ljubljanka.⁷⁶

Excavations in the area west of the town's arterial road, approximately 550 m from the northern town gate (Fig. 4: c),⁷⁷ have significantly expanded our knowledge of burials in the southern part of the northern necropolis.⁷⁸ It has been established that in the last third of the 3rd century, an originally unoccupied area with a damp depression was chosen for the construction of a square funerary building. This building featured a centrally positioned sarcophagus in which a prominent woman was buried. Soon after, additional burials occurred within the building and immediately adjacent to it, signifying a central point of veneration.

Around the time of Emperor Constantine, a larger rectangular funerary building was constructed over the deconstructed earlier structure. This new building was soon expanded with the addition of a massive structure featuring wall niches and mosaic floors, located to the northwest. Similar to the original building, the new structure was oriented perpendicular to the northern arterial road. Burials under the floor screeds in the central part of the building⁷⁹ were adjoined to the east by stone tombs containing one or more burials. Subsequently, the cemetery building was extended to the east, south, and north.

The spatial organization of the cemetery, which includes approximately 400 documented burials and a high percentage of burials in sarcophagi, masonry tombs, and coffins made from secondarily used elements

⁷² Hirschfeld 1882; *CIL* III, 10773; *EDR* 152900.

⁷³ E.g. Nazorjeva ulica (2020–2021), Štefanova ulica (2011, 2022).

⁷⁴ E.g. Kozolec 2 (2010–2011, 2013; Miškec et al. 2021).

⁷⁵ Under present-day Župančičeva ulica and Vošnjakova ulica (2019).

⁷⁶ Along Vidovdanska ulica (2020).

⁷⁷ Gosposvetska cesta (2017–2018).

⁷⁸ Known as Ajdovščina.

⁷⁹ They were also noticed during the sewerage works at the end of the 19th century (Müllner 1892; Rutar 1892).

⁷¹ On the northern necropolis of Emona in general, see Županek 2018.

of earlier funerary architecture, suggests a cemetery associated with a closed urban community. This community's religious background may be reflected in the names found on two gravestones, *Ioannes*, *Lavrentia*, and *Marcellinus*.

The cessation of use of this cemetery complex appears to coincide with the end of organized life in the town in the second quarter or around the middle of the 5th century.

EASTERN SUBURBS

The remains of the Early Roman settlement between the eastern defensive walls of Emona and the left bank of the Ljubljanica are concentrated near the river crossing on a gentle slope, just below the edge of the Pleistocene terrace (Fig. 4: b). These remains likely date from the Middle Augustan period. They consist of wooden buildings with sunken foundations and clay pavements, similar to the roughly contemporaneous structures in the settlement below Grajski grič.

Large pits filled with waste materials from the Late Augustan period have been documented in the area of the City Museum of Ljubljana (Fig. 5: 13),⁸⁰ which likely reflect extensive construction activities in the town and the layout of the area along the arterial road to the *porta praetoria*. The earliest hearths and pits from Križanke (Fig. 5: 6) also date to the Middle or Late Augustan period.⁸¹ These features are likely of a military nature, as they are spatially and temporally connected to the camp or structures in the area of NUK II (Fig. 5: 1) and the presumed *via militaris*.

Diagnostic fragments from the preparatory levelling for the construction of a wooden multi-room building in the area of Križanke belong to the vessel forms characteristic of the Augustan and Early Tiberian periods.⁸² Remains of a stone mortar, flat stones and worked rectangular sandstones with tool marks indicate the building's connection with stonemasonry. A similar room layout is evident in all later phases of the wooden building, which maintained its artisan character, presumably as a stonemason's workshop, until its final abandonment, probably before the Flavian period.

In the Flavian period, there was a significant transformation in the use of space in front of the eastern defensive wall of Emona. A heavily paved and gravelled roadway with a sidewalk was constructed, likely connecting the eastern approach road to Emona with the road to Aquileia. This new road helped alleviate traffic passing through the town.

Supporting this assumption, a connecting section between the western arterial road and the southern

defensive wall was documented on today's Tržaška cesta (Fig. 5: 14). On the eastern section of the road, in Križanke (Fig. 5: 6), the foundations of a building with massive walls were discovered, aligning with the Emona grid. This, along with roadside architecture uncovered during the renovation of the City Museum (Fig. 5: 13), indicates an organized development of the suburban area. This complex likely served as taverns, lodgings, and artisanal outbuildings along the road leading from the eastern main gate (*porta praetoria*) to the river port and the transshipment point on the Ljubljanica. From there, it extended across the bridge to Siscia.

During the research of the Križanke site, a segment of the western façade front (0.57 m wide) and a part of the building's interior were discovered. The two-part foundation was constructed using pebbles and quartz sandstone, while the wall itself was made from quartz sandstone and limestone. The interior of the building had clay pavements. Based on the sequence of deposits and accompanying finds, its construction is estimated to have occurred in the last quarter of the 1st century. The *terminus post quem* is provided by the excellently preserved Domitian *as* (85) from the preparatory levelling. During one of the numerous renovations, the building was connected to the cloaca by a channel under the continuation of the town decumanus F.

DEFENSIVE DITCHES ALONG THE EASTERN DEFENSIVE WALL

Contrary to earlier assumptions,⁸³ recent excavations have revealed the presence of a defensive ditch system on the eastern side of the town. The excavations in Križanke (Fig. 5: 6) have documented two defensive ditches on a limited scale. The inner ditch undoubtedly dates from the time of the town's foundation, while the only remaining evidence of the possibly contemporary outer ditch is a stone bridge pier, which stood in the extension of decumanus F and probably bridged both ditches.

In the middle of the 1st century, during the renewal of the urban sewerage network, the construction of cloaca F encroached on the area of the ditches and led to the filling of the inner defensive ditch.⁸⁴ The reconstruction of the supposed outer defensive ditch in the 4th century severely damaged the vault of the cloaca, although it did not entirely disable it. The deposits inside the cloaca reached almost to the top, and in one of the last layers a fragment of a Late Roman glazed jug or pot was found.

The original surface from which the excavation of the outer defensive trench was carried out has not been preserved. The filling contained an antoninianus for Severina (275) and two coins of Julian (361–363) and Valentinian, Valens, Gratian or Valentinian II (364–378).

⁸⁰ Plesničar Gec 1999, 98; Štrajhar, Gaspari 2013.

⁸¹ Mitrova 2021.

⁸² Mitrova 2021.

⁸³ Plesničar Gec 1999, 48, 50.

⁸⁴ Mitrova 2021.

At Vegova 7 (Fig. 5: 15) traces of suburban buildings and three defensive ditches were documented. A section of the outer ditch with a width of 6.3 m and a depth of 2 m has been preserved. Its excavation resulted in damage to the wall, which is interpreted as the façade of a suburban building located to the east.

The inner defensive ditch with a width of 5 m and a depth of 2.4 m ran about 2.8 m from the reconstructed course of the outer front of the defensive wall. Along its western edge, a massive wall was built at the same time, probably to prevent soil from eroding into the ditch or to reinforce the berm. Excavation for the wall foundation cut through the latest walking surface, revealing a longer sequence of levelling, clay pavements, sediments, and reinforcements attributed to the interior of a building immediately adjacent to the wall. The stratigraphic relationship of the ditch to the earlier pavements and a coin find (dated to 364–378) from one of the fills suggest the operation of the inner defensive ditch in the Late Roman period. The middle ditch had a width of 5 m and a depth of 1.7 m. It is located 4.7 m from the inner ditch and 5 m from the outer ditch.

After the abandonment or cessation of the maintenance of the outer ditch, so-called “Dark Earth” layers were deposited on the site of Križanke. In these layers a diverse assemblage of Late Roman pottery was found, including African Red Slip ware, glazed *mortaria* and some fragments of burnished pottery.⁸⁵ Also discovered were a coin of Claudius II Gothicus (270) and coins from Constantine (317) to Valentinian, Valens, Gratian or Valentinian II (364–378).

THE LJUBLJANICA RIVERBANK

The research at Breg (Fig. 5: 16) revealed evidence of Roman-era reinforcement of the Ljubljana left bank. The area immediately adjacent to the former riverbed was levelled, involving the removal of humus layers and bank sediments. A terrace was excavated into the gravelly subsoil, the surface of which was effectively fortified with a layer of gravel containing a significant amount of material dating from the 1st to the 4th centuries. Parallel to the riverbank, massive wooden piles were driven into the ground. These piles are interpreted as supporting elements of a wooden platform for unloading goods, further suggesting the existence of a river port at Breg.⁸⁶

A similar bank layout was also confirmed on the right bank of the Ljubljana (Fig. 5: 17), where the edge of the Roman riverbed of the Ljubljana was discovered. In Roman times, the river was situated approximately 30 m closer to Grajski grič than its present course. The riverbed at that time appears to have had a similar width

as it did during the Middle Ages and early modern times, approximately 35 m.

Originally, a series of piles arranged in two rows was driven into the ground parallel to the river. As the area developed, the land along the river was levelled and all previous deposits removed. Subsequently, the terrain was well fortified with a thick layer of gravel. Within the area thus prepared, two massive stone slabs were documented, which could potentially be interpreted as the foundations of a structure, such as a crane or similar device for loading and unloading goods.

The port on the right bank of the Ljubljana was likely connected with the road documented during the investigations at Mestni trg 10 (Fig. 5: 10). This road followed the foothills of Grajski grič. Notably, the road was cut into the ground base of quartz sandstone, suggesting that the stone for the construction of Emona was sourced also from the western slope of the hill.⁸⁷

WESTERN SUBURBS AND THE ARTERIAL ROAD TOWARDS PORTA DECUMANA

Recent discoveries have provided important insights into the arterial roads of Emona and the development of the suburbs (Fig. 5: 9), including a segment of the *via publica* from the direction of Nauportus. This road, with a total width of 8.4 m, is characterized by a substructure made of larger pebbles, lateral curbs comprised of stones measuring 20–50 cm, and a roadway composed of sand mixed with smaller pebbles. The overall thickness of the roadway was 0.15 m in the central part, tapering towards the road’s edges.

Simultaneously with the construction of the road, a wide strip along the road was also paved with gravel. This may have been facilitated by the absence of ditches to delineate the road during construction, which resulted in the washout and deposition of road sediment along the road. Ruts embedded in the levelling with a wheelbase of approximately 1.3 m also attest to the soft and unstable subsoil on which a perfectly straight roadway was built. With the renewal and thickening of the central part of the roadway, the road gradually became more convex, allowing for more efficient removal of road mud and, consequently, more intense sedimentation along the edge. Throughout its existence, the road maintained the same orientation, leading toward the main western town gate (*porta decumana*).

Shortly after the construction of the main road, a branch road leading to the side entrance at decumanus F was also paved. The preserved ruts on the pavement run in an east-west direction, confirming the road’s orientation. Given the extensive nature of this pavement, we can reasonably assume the presence of facilities such

⁸⁵ Mitrova 2021.

⁸⁶ Plesničar Gec 1999, 98–99.

⁸⁷ Between Rotovž and Tranča. See Djurić, Rižnar 2017, 127–129.

as a railway station, parking lot, or turning area located outside the town walls.

The construction of the first stone buildings *extra muros*, outside the walls, is documented from the second half of the 1st century. These buildings followed the road's direction, running from northeast to southwest. They extended about 50 m to the south and north of the road. On both sides of the roadway, which received sidewalks on both sides during this period, several remains of trade and craft buildings were found. These included a glass workshop with remnants of a furnace, molten glass waste, and slag dating from the end of the 1st and 2nd centuries. Additionally, a metallurgical workshop with evidence of iron processing (including blacksmith's slag) was discovered.

The buildings are characterized by masonry architecture, with wooden partition walls constructed from quarry stones of Podpeč limestone. This supports the assumption on the beginning of more intensive use of this building stone in the second half of the 1st century. Column bases are frequently found in the enclosing walls of the buildings, indicating the presence of open ground floor premises that were paved with clay and, in one instance, with a mortar screed.

Simultaneously with the construction of the buildings, a sewage network was built, consisting of sections of masonry channels and relatively shallow cesspools that were not connected to each other. The first phase of suburban development also included a well, the casing of which was made of sandstone and limestone quarry stones. In the course of the development of the area, numerous alterations were made to the buildings, which were later constructed entirely of stone. As they evolved, their interiors and intended use also changed.

In the second half of the 2nd century, a portion of the western suburb was demolished, possibly indicating the restoration of the town walls' defensive function during the Marcomannic Wars. While the buildings north of the road were promptly reconstructed, the area south of the road was abandoned, at least for some time. This is evident from the deposition of a dark layer covering the foundations of the destroyed buildings.

During the period of Emona's revival in the second half of the 3rd century and into the 4th century, residential buildings with underfloor heating were constructed north of the road.⁸⁸ Gradually, new buildings were erected immediately next to the southern sidewalk of the road. However, these structures were of considerably lower quality. The stone foundations lacked mortar binding, and the interiors were reinforced with rubble without screed paving.

Around the 4th century, a ditch with a V-shaped cross-section was dug on the southern part of the arterial road, running diagonally to it in a north-south direction. This ditch was roughly parallel to the western side

of the Emona defensive wall. The ditch is believed to be part of presumed roadblocks designed to control traffic.

WESTERN CEMETERY OF EMONA

Already before the middle of the 1st century the western cemetery of Emona was laid out along the main road (Fig. 4), where three cremation burials are documented. Its length can be attested by a base of rectangular hewn limestone blocks discovered 1,000 Roman paces (1.5 km) from the western town gate, probably representing the foundation of a milestone that indicated not only the distance but also the beginning of the cemetery. Also, a large square pit with pebbles was excavated, which could be the foundation of a massive roadside monument that was almost exactly 500 Roman paces from the *porta decumana*.

Burials in chests of tegulae, burials in amphorae and in simple burial pits are typical of the early period, but *bustum* type burials also occur. In addition to ceramic urns, oil lamps, ceramic vessels, glass *balsamaria*, cosmetic accessories, coins, etc., as well as remains of a funeral pyre were found in the graves. Particularly noteworthy are the foundations of a building with a clay pavement inside (Fig. 4: d); charred pottery, mortar(s), and animal bones discovered on the pavement surface are probably related to burial rites. A pit for the funeral pyre (*ustrinum*) was documented nearby.

Presumably in the 4th century, a cemetery architecture was developed on the south side of the road, near the town's outer defensive ditch (Figs. 4: e; 5: 9). The foundations of an impressively sized building and three sarcophagi of Moravče limestone buried under the walking surface⁸⁹ suggest the presence of a larger cult building near the town's *porta decumana*. This structure is surrounded by the foundations of several smaller buildings. Additionally, a semi-circular foundation, possibly a rotunda or apse of another larger building, was discovered immediately to the south, also dating to the later period of the cemetery.

DITCHES ALONG THE NORTHERN PART OF THE WESTERN TOWN WALL

The research on Erjavčeva cesta (Fig. 5: 8) confirmed the observations of Schmid,⁹⁰ according to which the town was surrounded by two ditches on the western side, which were probably constructed at the same time as the defensive wall. It is believed that the two early ditches were similar in size, with the width of each ditch estimated at about 18 m. The inner ditch was no more

⁸⁹ Petru 1972, 118–119, Fig. 23.

⁹⁰ Schmid 1941, footnote 3.

than 3 m from the defensive wall.⁹¹ The characteristics of the sediments prove that both ditches were filled with water from the springs under Tivolski vrh.

In the second half of the 1st century, there was a transformation of the space in front of the western defensive wall, which was characterized by the filling of the ditches and the strengthening of the surface. The filling of the inner ditch indicates that it was not maintained after the middle of the 1st century. By the first half of the 2nd century at the latest, the inner ditch was permanently filled and the area in front of the defensive wall was levelled. In the 2nd century, the area west of the outer defensive ditch was fortified with pebbles. Subsequently, a pebble-paved road was constructed, likely serving as a communication route along the western defensive wall and as an alternative traffic route between the western and northern arterial roads, passing the north-western corner of the town's defensive wall.

This road remained in use until the 4th century, when the outer ditch in front of the western side of the defensive wall was emptied again. A hoard was discovered at the bottom of the ditch, containing a ploughshare and a coulter, which had been intentionally deposited or discarded, most probably in a sack. Surface features on the west side of the outer ditch suggest that it was never completely filled.

SUBURBAN BUILDINGS AND DITCHES ALONG THE SOUTHERN DEFENSIVE WALL

One of the significant situations for understanding the chronology of the defensive ditches along the southern defensive wall was documented at the site of Mirje 13 (Figs. 4: f; 5: 5). On the end part of the Sava alluvial fan north of Gradaščica river, remains of foundations of a corner of a larger building were found, which, based on the exclusive use of Grajski grič quartz sandstone and pottery finds from the associated walking surface, belong to the Tiberian-Claudian period. With regard to the looted wall running to the north, it is obvious that the building extended into the area of the later outer ditch. Documented finds indicate a building complex near the southern gate (*porta principalis dextra*), possibly related to the presumed existence of the southern relief road, which connected arterial roads to the western and eastern main gates.

A denarius of Augustus and a fragment of an amphora stopper from the bottom fill of the outer ditch, which were also accompanied by coins of Constantine I (321) and Constantine II (355–361), are either residual finds related to the earlier use of the space or evidence

of the Early Roman outer ditch, which may have originally been narrower and later widened or re-excavated. Six coins from the period of Constantine (318–321) to Julian (361–363) come from the destruction layer that covered the area of the former building with partially looted walls and the filled ditch.

The southern defensive wall was accompanied by two defensive ditches about 7 m wide. The inner ditch was 12.3 m and the outer one 23 m from the defensive wall. At Barjanska cesta (Fig. 5: 18), a cross-section of a much narrower and shallower third ditch, 2.2 m wide, was documented 5.1 m from the defensive wall. It can possibly be interpreted as a ditch of the relief road running immediately adjacent to the southern defensive wall.⁹² According to the current state of research on the defensive ditches of Emona, it can be assumed that the two southern ditches were also excavated during the construction of the town and were probably connected to the southern ditch sections along the western and eastern defensive walls.

DECLINE OF ORGANISED LIFE AND ABANDONMENT OF THE CITY

A significant portion of the insulae or larger complexes of buildings in parts of the insulae were apparently abandoned shortly before the end of the 4th century and allegedly converted into garbage dumps or areas for food production. The changed use of space was documented, for example, in the northern part of insula XLVI, i.e. opposite the presumed early Christian centre in insula XIII and close to the eastern main gate. The demolished mosaic pavements in the rooms with underfloor heating were covered by the destruction layer with numerous small finds. Above the screed of an adjacent room was found a sequence of sloping fills consisting of alternating layers of mortar, grey and dark brown silty sand, indicating the planned levelling of the site.

In the investigated area of insula XXXIX, larger closed areas of the destruction layer with stones and roof tiles have not survived, and little is known about the black humus sediment that had accumulated on the abandoned areas. In the few preserved patches of this sediment, a relatively small number of 4th century coins, two amphora-shaped strap ends, fragments of Late Roman amphorae, North African oil lamps, sigillata from North African and East Mediterranean workshops, glazed pottery and beakers of transparent green glass, and some fragments of burnished pottery were found.

The research results undoubtedly support the assumptions about the limited residential use of the urban area north of the forum even after the abandonment of the greater part of the insulae. The pavement made of the

⁹¹ Therefore, different than reported by Schmid for its course south of *porta decumana*, where the defensive wall and the ditch were separated by a 10 m wide berm with a roadway. Plesničar Gec 1999, 64, Figs. 70 and 71.

⁹² Schmid 1913, 78–79; id. 1941.

fragments of the wall plaster that covered the remains of the western front of insula XXXVII testifies to at least partial maintenance of the area, while the stone foundation without mortar bond dug into the so-called Dark Earth layers that covered the western side of insula XXXVII proves the restoration of a smaller part of the building in the period when the insula as a whole had already been demolished. In the north-western corner of the collapsed insula XXXVIII, two parallel ditches and one perpendicular to them were found, which are probably traces of foundations of a wooden structure. In the immediate vicinity, a pavement of mortar and stones was also documented, which can be associated with the presumed wooden construction and extends beyond the enclosing wall of insula XXXVIII. It suggests that the walls of the insula were at least partially demolished during this period. The most recent finds from the deposits that can be associated with a wooden structure date, according to current understanding, no later than the middle of the 5th century.

In 1910, Schmid documented in the south-western part of the nearby insula XIX a stone channel with a vaulted cover, which was located 'directly above the Roman building remains'. He described the structure as non-Roman and conditionally identified it as early medieval based on accompanying finds (Schmid 1913, 170).

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