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SONDIRANJE DIJELA GRADSKIH BEDEMA U PULI

LOCALISED EXCAVATION OF SEGMENTS OF PULA'S CITY WALL

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U sjeveroistočnom, rubnom dijelu Kandlerove ulice, u Prolazu sv. Teodora i na Danteovu trgu u Puli, u razdoblju od 2016. do 2020. godine, tijekom izgradnje komunalne infrastrukture i u svrhu pripreme projektne dokumentacije za predviđene zahvate uređenja gradskog prostora, provedeni su arheološki radovi koji su rezultirali otkrivanjem segmenata antičkih i kasnoantičkih gradskih bedema, te niza izdvojenih nepokretnih nalaza kojima je upotpunjena topografska karta antičke i srednjovjekovne Pule. U ovom je radu naglasak na otkrivenim potezima bedema, čiji je položaj razmotren u odnosu na rezultate prijašnjih arheoloških istraživanja u blizini područja predmetnih arheoloških radova. Pridodani su i podaci o ostalim arheološkim strukturama koje su otkrivene tijekom navedenih kampanja istraživanja.

Archaeological investigative work was performed from 2016 to 2020 in the northeastern periphery of Kandlerova street, in Svetog Teodora lane, and at Danteov square, in the course of the installation of municipal infrastructure and ahead of the preparation of design documentation for the envisaged development of these urban areas, resulting in the discovery of segments of the antique and late antique period city wall, and a number of isolated features that supplement the topographical map of antique and medieval period Pula. This paper focuses on the discovered segments of the city wall and considers their position in relation to the results of previous archaeological investigations in the proximity of the current archaeological works. Data is also provided on other archaeological features discovered in the course of these investigative campaigns.

KLJUČNE RIJEČI: Pula; antika; kasna antika; srednji vijek; gradski bedem; Kandlerova ulica; Prolaz sv. Teodora; Danteov trg

KEY WORDS: Pula; antique period; late antique period; medieval period; city wall; Kandlerova street; Svetog Teodora lane; Danteov square

UVOD

U razdoblju od 2016. do pred kraj 2020. godine, duž sjeveroistočnog i jugozapadnog dijela povijesne jezgre grada Pule proveden je niz infrastrukturnih zahvata koji su bili popraćeni arheološkim nadzorom ili im je prethodilo provođenje probnog arheološkog iskopavanja (Barada 2016a; Barada 2016b; Barada 2017; Barada 2019; Šalov 2020). Bez obzira na ograničenost sondiranja područja unutar kojih su arheološki radovi provedeni, dobiveni rezultati upotpunjuju podatke o potezu antičkih, odnosno kasnoantičkih i srednjovjekovnih bedema Pule duž sjeverne i jugozapadne strane grada. Od početaka istraživanja gradskih bedema u drugoj polovici 19. stoljeća veća je pažnja pridana istočnom, kopnenom potezu, uz opsežno dokumentiranje, te radovima konzervacije i restauracije dvaju najbolje očuvanih gradskih vrata: Dvojnih i Herkulovih, te tzv. Zlatnih vrata odnosno Slavoluka Sergijevaca (Forlati-Tamaro 1932, 323–328; Gobić-Bravar 2020, 253–279; Matijašić, Buršić-Matijašić 1996, 55–56; Matijašić 2001, 91–100; Starac 2001, 61–62), i njihovom stavljanju u kontekst ishodišta važnih gradskih i vangradskih komunikacija (Matijašić, Buršić-Matijašić 1996, 51; Mlakar 1963, 20,

INTRODUCTION

A number of infrastructure works were performed from 2016 to late 2020 along the northeastern and southwestern parts of Pula's historical core, under archaeological supervision or preceded by trial archaeological digs (Barada 2016a; Barada 2016b; Barada 2017; Barada 2019; Šalov 2020). Irrespective of the limited scope of the archaeological excavation the obtained results supplement our knowledge of the antique, late antique, and medieval period city wall along Pula's north and southwest perimeter. From the earliest investigations of the wall in the second half of the 19th c. greater attention has been afforded to the eastern, mainland-facing, line of the wall—with comprehensive documentation and the conservation and restoration of the two best preserved of the city gates, the Porta Gemina and the Gate of Hercules—and to the Porta Aurea, i.e., the Arch of the Sergii (Forlati-Tamaro 1932, 323–328; Gobić-Bravar 2020, 253–279; Matijašić, Buršić-Matijašić 1996, 55–56; Matijašić 2001, 91–100; Starac 2001, 61–62), and placing them in the context of the origins of major lines of communication inside and outside the city (Matijašić, Buršić-Matijašić 1996, 51; Mlakar 1963, 20, 22–25). The highly localised archaeological digs performed from the 19th c. along the mainland-facing and coastal sides of the city core (Barada 2016a; Barada 2016b; Barada 2017; Barada 2019; Džin, Zlatunić 2001; Gnirs 1902, 57–62; Gnirs 1904, 215–232; Gnirs 1914, 161–184; Juroš-Monfardin 2005; Juroš-Monfardin 2008; Mirabella Roberti 1940, 243–264; Mlakar 1963, 23; Orlić 2012; Šalov 2020; Ujčić 2007; Ujčić 2009, 364–367; Ujčić 2012a; Ujčić 2012b, 388–390; Ujčić 2014a; Ujčić 2014b; Zlatunić 2015) resulted in, among other things, the discovery of segments of the city wall, complementing the data concerning the line they follow within the present day urban grid.

The line of the city wall is documented on numerous post-medieval depictions of Pula. One of the most faithful such illustrations is a drawing by Antoine de Ville from the first half of the 17th c., which gives the city's appearance in the Renaissance period. It clearly shows the position of the St John Gate at the northeast segment of the walls, the Porta Minerva running off what is now Maksimijanova street, and the line of the wall with a tower along what is now Danteov square, all treated in this paper (Antoine de Ville, *Portus et urbis Polae antiquitatum, ut. et. Thynnorum piscationis descriptio curiosa*, Venezia 1633, from: Gudelj 2014, 20).

The systematic demolition of Pula's city wall began in the mid-19th c. during the Austrian administration. The objective was to adapt the area to the then prevalent urban



Sl. 1 De Villeov crtež Pule s početka 17. stoljeća (preuzeto iz: Gudelj 2014, 20).

Fig. 1 De Ville's early 17th c. drawing (from: Gudelj 2014, 20).

22–25). Arheološka istraživanja koja su od 19. stoljeća točkasto provođena duž dijela kopnene i obalne strane gradske jezgre (Barada 2016.a; Barada 2016.b; Barada 2017; Barada 2019; Džin, Zlatunić 2001; Gnirs 1902, 57–62; Gnirs 1904, 215–232; Gnirs 1914, 161–184; Juroš–Monfardin 2005; Juroš–Monfardin 2008; Mirabella Roberti 1940, 243–264; Mlakar 1963, 23; Orlić 2012; Šalov 2020; Ujčić 2007; Ujčić 2009, 364–367; Ujčić 2012a; Ujčić 2012b, 388–390; Ujčić 2014a; Ujčić 2014b; Zlatunić 2015) rezultirala su, među ostalim, nalazima segmenata gradskih bedema, čime su upotpunjeni podaci o njihovu pružanju unutar današnje matrice grada.

Pružanje gradskih bedema dokumentirano je na brojnim novovjekovnim prikazima grada Pule. Jedan od najvjernijih je crtež Antoina de Villea iz prve polovice 17. stoljeća, koji donosi izgled grada u renesansno doba. Na njemu je jasno čitljiv i položaj gradskih vrata Sv. Ivana u sjeveroistočnom dijelu bedema, tzv. *Porta Minerva* u nastavku današnje Maksimijanove ulice i potez bedema s kulom duž današnjeg Danteova trga, koji su razmotreni u sklopu ovoga rada (Antoine de Ville, *Portus et urbis Polae antiquitatum, ut. et. Thynnorum piscationis descriptio curiosa*, Venezia 1633., preuzeto iz: Gudelj 2014, 20).

Sustavno rušenje bedema grada Pule počelo je sredinom 19. stoljeća, za vrijeme austrijske uprave. Cilj je bio zatečeni prostor prilagoditi tadašnjem načinu koncipiranja gradskog prostora, stvaranjem otvorenih, javnih površina. To je neminovno značilo uklanjanje gradskih bedema, koji su već izgubili svoju funkciju (Gobić–Bravar 2020, 259; Starac 2001, 62). Rušenje bedema odredbama Gradanskog pravilnika zaustavljeno je u onim segmentima koji su se nalazili u neposrednoj blizini spomenika koji su tada valorizirani kao najvrjedniji (Gobić–Bravar 2020, 271; Krizmanić 2005, 163). Istovremeno je uz potez bedema duž današnje Carrarine i Flaciusove ulice sagrađen niz objekata, formirana je prometnica i započelo nasipavanje obale (Krizmanić 2005, 128–130).

KANDLEROVA ULICA

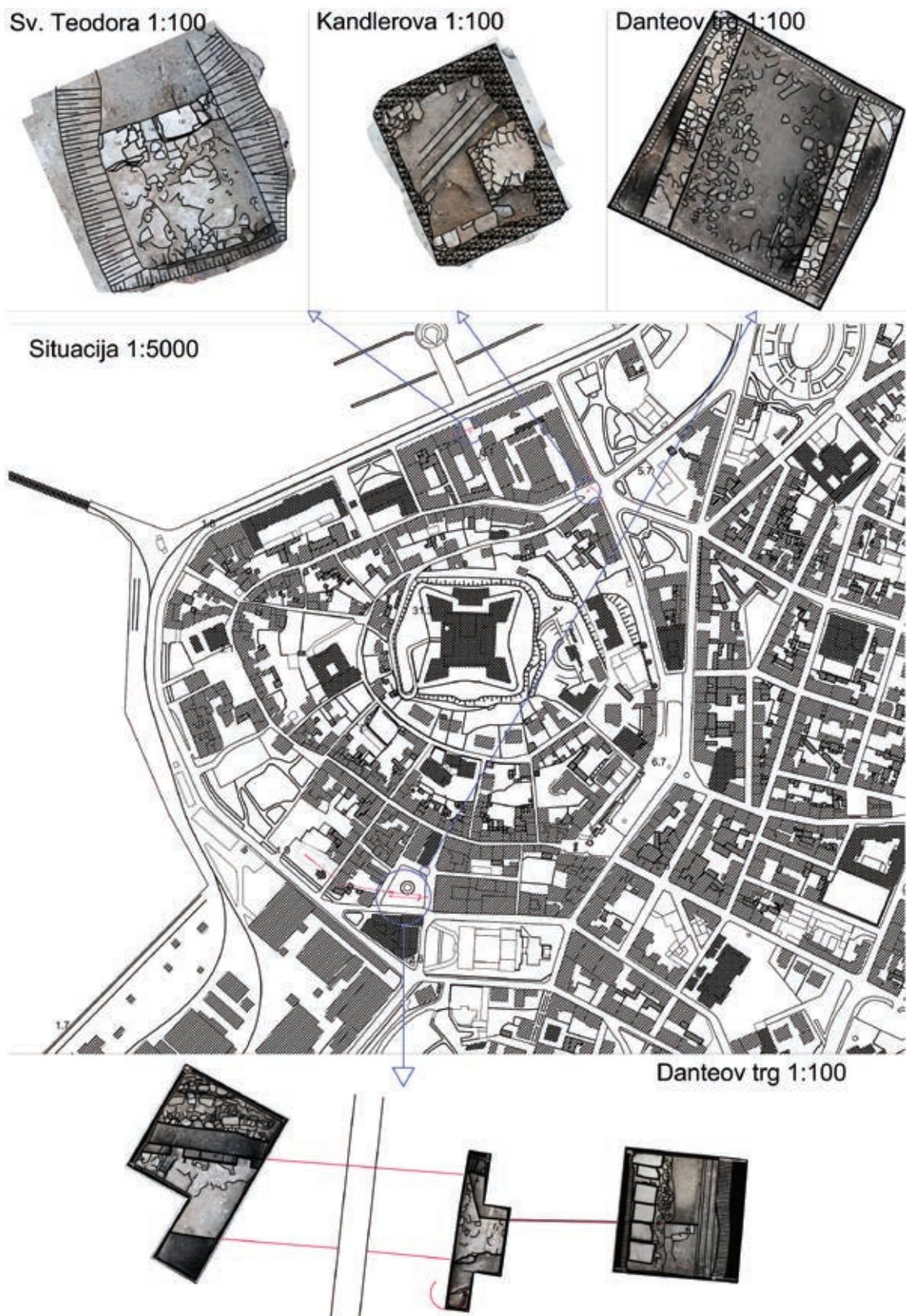
Manji dio gradskog bedema otkriven je na k. č. 5433 k. o. Pula, uz raskrižje Kandlerove ulice i Ulice sv. Ivana, u ravnini s ulazom u Gradsku knjižnicu i čitaonicu. Istražen je u studenom 2019. godine, u sklopu probnog arheološkog iskopavanja koje je obavljeno u cilju pripreme projektne dokumentacije za opsežne radove rekonstrukcije i izgradnje komunalne infrastrukture koji su predviđeni duž Kandlerove ulice i u dijelu Kapitolijuskog trga.

concept, which called for the creation of open public spaces. A requisite of this concept was the removal of the city wall, which had by then already been deprived of its function (Gobić–Bravar 2020, 259; Starac 2001, 62). Provisions of the urban regulations did not permit the demolition of the wall at segments located in the immediate vicinity of monuments then seen as having the greatest value (Gobić–Bravar 2020, 271; Krizmanić 2005, 163). Concurrent to this a number of buildings were raised following the line of the wall along what are now the Carrarina and Flaciusova streets, a street was formed, and land reclamation began along the shoreline (Krizmanić 2005, 128–130).

KANDLEROVA STREET

A small segment of the city wall was found at cadastral plot 5433 [all plots mentioned in this paper are in the cadastral municipality of Pula] along the intersection of Kandlerova street and Svetog Ivana street, at the level of the entrance to the municipal library. It was investigated in November of 2019 in the frame of trail excavation work performed ahead of the preparation of design documentation for comprehensive works on the reconstruction and installation of municipal infrastructure envisaged along Kandlerova street and a part of Kapitolinski square.

The line of the city wall in the northeast end of the city runs under buildings along what is now Svetog Ivana street and along Carrarina street to the Porta Gemina. One of the city gates stood at this position during the Roman period. It is known by its medieval name Porta San Giovanni (St John Gate) (Matijašić, Buršić–Matijašić 1996, 53), and was also referred to as Porta Iunona and Porta Parentina (Kandler 1846, 26). The Via Flavia, which connected Pula with Aquileia via Tergeste and Parentium, ran to this city gate (Matijašić, Buršić–Matijašić 1996, 51; Mlakar 1963, 22). The route of the antiquity period road within Pula is preserved in the line of what are now the Amfiteatarska and Flavijevska streets. One of the chief lines of communication that led to the forum ran through the city from the St John Gate and along present day Kandlerova street, continuing along what is now the Sergijevaca street towards the eastern gate, the Porta Aurea (Matijašić, Buršić–Matijašić 1996, 51). The St John Gate was investigated in the first half of the 19th c. (Mirabella Roberti 1940, 243–246). The excavation recorded several building phases: the post-medieval of the late 18th c., the medieval gate of the 14th c., and the antiquity period gate, and two phases of one of the



Sl. 2 Pregledna karta s pozicijama istraženih sondi i pretpostavljenim potezom gradskog bedema u neposrednoj blizini istraženih položaja na geodetskoj snimci grada Pule (izradio S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).

Fig. 2 Overview map indicating the positions of the excavated trenches and the posited line of the city wall in the immediate vicinity of the investigated areas on a geodetic survey of the City of Pula (by: S. Ramić, AGG d.o.o., Pula).

Pravac gradskog bedema u sjeveroistočnom dijelu grada pruža se pod zgradama uz današnju Ulicu sv. Ivana i duž Carrarine ulice, do tzv. Dvojnih vrata. U rimsko doba na tom su se položaju nalazila jedna od gradskih vrata. Poznata su po srednjovjekovnom nazivu *Porta San Giovanni* (vrata sv. Ivana) (Matijašić, Buršić-Matijašić 1996, 53), a spominju se i kao *Porta Iunona* i *Porta Parentina* (Kandler 1846, 26). Do njih je u grad vodila *Via Flavia*, prometnica koja je Pulu spajala s Akvilejom, prolazeći Tergestom i Parenacijem (Matijašić, Buršić-Matijašić 1996, 51; Mlakar 1963, 22). Pravac antičke ceste na području grada Pule do danas je sačuvan u potezu današnje Amfiteatarske i Flavijejske ulice. Od gradskih vrata sv. Ivana kroz grad pa duž današnje Kandlerove ulice prolazila je jedna od glavnih komunikacija koja je vodila do foruma te je, današnjom ulicom Sergijevaca, nastavljala dalje prema istočnim, tzv. Zlatnim vratima (Matijašić, Buršić-Matijašić 1996, 51). Gradska vrata sv. Ivana istražena su u prvoj polovici 19. stoljeća (Mirabella Roberti 1940, 243-246). Zabilježeno je nekoliko faza gradnje: od novovjekovnih s kraja 18. stoljeća, srednjovjekovnih vrata sv. Ivana iz 14. stoljeća pa do onih antičkih, kao i dvije faze jedne od kula koje su flankirale antički bedem (Mirabella Roberti 1940, 243-246).

Potez bedema i kule neposredno uz gradska vrata sv. Ivana znatno je oštećen već za vrijeme austrijske uprave, zbog gradnje komunalne infrastrukture. Uništavanje se nastavilo i prilikom kasnijih komunalnih radova. Dio grada sjeverno od istraženog prostora formiran je u današnjim gabaritima u drugoj polovici 19. stoljeća, izgradnjom pješačke vojarne¹. Na položaju današnjeg gradskog bloka u dijelu Carrarine ulice tada je već bio uređen nasip koji je prekrivao potez bedema.

Tijekom istraživanja bedem je otkriven na AV 5,05 metara, uz rubni dio sonde dimenzija 3x4 metara, ispod sloja rahle zemlje pomiješane s većom količinom kamenja, ulomaka amfora i tegula. Taj se sloj zemlje javlja ispod asfalta prometnice. Zbog prostorno ograničenog istraživanja, otkriveni su samo zapadno lice okrenuto prema gradu, i gornje lice bedema, u ukupnoj dužini i širini od 1 metra. Unutarnje lice građeno je od priklesanog kamenja neujednačene veličine koje je povezano svijetlom, vapnenom žbukom i slagano u dosta pravilne redove. Unutrašnjost je zapunjena

flanking towers at the antiquity period wall (Mirabella Roberti 1940, 243-246).

The line of the wall and tower immediately adjacent to the St John Gate saw significant demolition during the Austrian administration as the result of the installation of municipal infrastructure. This destruction continued in the course of subsequent municipal works. The part of the city to the north of the investigated area was formed in its present contours in the second half of the 19th c. with the erection of infantry barracks¹. A bank that covered the line of the wall had been developed by that time at the position of what is now a city block off a part of Carrarina street.

In the course of the investigative work the wall was found at an absolute elevation of 5.05 m near the edge of a 3x4 m trench, beneath a layer of loose soil mixed with a significant quantity of rubble and sherds of amphorae and tegulae. This layer of soil appears just below the road asphalt. Due to spatial constraints the investigation uncovered only the west, city-facing side and the core of



Sl. 3 Pogled na ostatke bedema u sondi pored Gradske knjižnice i čitaonice Pula; pogled prema sjeveru (fotografija: T. Šalov).

Fig. 3 View of the remains of the city wall in the trench next to the municipal library; north-facing view (photo by: T. Šalov).

¹ Godine 1878. je na prostoru gradskog bloka koji je omeđen gradskom rivom, Ulicom sv. Ivana, četvrti sv. Teodora i Kandlerovom ulicom, sagrađena vojarna Franz Joseph I. (Krizmanić 2005, 160). U dijelu te zgrade smještena je današnja pulska Gradska knjižnica i čitaonica. Prijedlog prostora predviđenog za izgradnju vojarne ucrtan je već na katastarskom planu iz 1872. godine.

¹ The Franz Joseph I military base (barracks) was built in 1878 in the area of the current city block bordered by the waterfront, Svetog Ivana street, the St Theodore quarter, and Kandlerova street (Krizmanić 2005, 160). The current City of Pula Municipal Library and Reading Room occupies a part of this edifice. The proposed footprint of the future military base was drawn into the 1872 cadastral map.



Sl. 4 Fotogrametrijski snimak zidanih struktura u sondi pored Gradske knjižnice i čitaonice Pula (izradio S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).
 Fig. 4 Photogrammetric survey of the masonry structures in the trench next to the municipal library (by: S. Ramić, AGG d.o.o., Pula).

većim, nepravilnim kamenjem u gustom sloju vapna. Uz unutarnje lice bedema, na AV 4,14 metara, sačuvan je manji dio podnice izvedene u žbuci. U jugozapadnom dijelu sonde, na prosječnoj AV 4,7 metara, otkriven je zid građen od većih klesanaca koji su povezani vapnenom žbukom. Sačuvan je u visini od 60 centimetara, a položen je na sloj zemlje. Dio još jedne zidne strukture, otkrivene na AV 4,58 metara, proteže se uz sjeverozapadni rub sonde i nastavlja se izvan okvira istraženog prostora. Zid je izgrađen od neobrađenog kamenja. Znatno je oštećen prilikom polaganja dviju vodovodnih cijevi, pri čemu je u potpunosti uništen i dio sjevernog poteza bedema. Iako unutar sonde nisu otkriveni pokretni nalazi koji

the wall to a total length and breadth of one metre. The inside face is built of coarsely dressed stones of uneven sizes laid in roughly regular courses and bonded with a lime mortar of light colour. The core of the wall is filled with large rubble in a compact layer of lime mortar. A small area of lime pavement is preserved adjacent to the inside face of the wall at an absolute elevation of 4.14 m. A wall built of large ashlar blocks bonded with lime mortar was found in the southwest part of the trench at an average absolute elevation of 4.7 m. This wall is preserved to a height of 60 cm and is set on a layer of soil. Part of another wall found at an absolute elevation of 4.58 m runs along the northwest edge of the trench

bi datirali strukture koje su otkrivene neposredno uz bedem, pretpostavljamo da su to ostaci objekata koji su podignuti uz liniju bedema u doba kasne antike ili ranog srednjeg vijeka.

Opisani nalaz dijela gradskog bedema upotpunjuje rezultate arheološkog nadzora koji je proveo Arheološki muzej Istre u Puli, također uz ulazno pročelje Gradske knjižnice i čitaonice (Zlatunić 2015, 3-5, 38-43) te u dijelu Carrarine ulice² (Džin, Zlatunić 2001). Ranijim radovima otkriveno je vanjsko lice bedema i položaj pretpostavljene kule (Zlatunić 2015), dok je sondiranjem evidentiran dio unutarnjeg lica bedema. Način formiranja unutarnjeg i vanjskog lica bedema znatno se razlikuje. Dok unutarnje tvori priklesano kamenje, vanjsko lice je formirano od velikih, vrlo pravilno oblikovanih kamenih blokova i uz jednaku temeljnu stopu. Otkriveni potez se u cijelosti datira u antičko doba, uz moguće preinake koje su utvrđene već u prvoj polovici 20. stoljeća (Mirabella Roberti 1940, 243-246).

PROLAZ SV. TEODORA

Potez gradskih bedema evidentiran je u sjevernom dijelu k. č. 5444/2 k. o. Pula tijekom arheološkog nadzora nad izgradnjom komunalne infrastrukture i uređenjem Prolaza sv. Teodora i dijela Kandlerove ulice u travnju i lipnju 2017. godine (Barada 2017). Prolaz sv. Teodora formiran je tek u drugoj polovici 19. stoljeća³. Pravac njegova pružanja je sjeverozapad – jugoistok. Prolaz spaja današnju Kandlerovu ulicu i obalu. S obzirom na način provođenja planiranih radova gradski bedem otkriven je u dužini od 3 m i maksimalnoj dubini od 70 cm, mjereno od vrha sačuvane visine zida, odnosno na AV 1,92 m. Maksimalna širina bedema je 3,20 m. Građen je priklesanim kamenjem koje je na vanjskom (sjevernom i južnom) licu složeno u pravilne redove, dok je unutrašnjost zapunjena manjim kamenjem nepravilnog oblika. Pri gradnji je korištena svijetla, vapnena žbuka. Uz sjeveroistočni ugao otkrivenog dijela bedema vidljiv je lom širine 50 cm, koji je naknadno zapunjen. Za gradnju bedema korištene su i spolije. U iskopu je otkrivena vrlo mala količina pokretnih nalaza: ulomak ruba balzamarija, jedna tesera i ulomak ručke amfore, koje je moguće tek okvirno datirati u antičko doba. Razlog nedostatka veće količine pokretnih nalaza

and continues outside the investigated area. This wall is built of random rubble masonry. It suffered significant damage during the installation of a pair of water pipes, which also entirely destroyed a part of the north line of the city wall. Although no artefacts were recovered from this trench that would assist in dating the features found immediately adjacent to the city wall, we posit that these are the remains of buildings raised along the line of the city wall in the late antique or early medieval periods.

The described find of a segment of the city wall supplements the results of the archaeological supervision performed by the Archaeological Museum of Istria, also along the frontage of the municipal library (Zlatunić 2015, 3-5, 38-43) and in a part of Carrarina street² (Džin, Zlatunić 2001). Earlier investigations revealed the outer face of the city wall and the position of a posited tower (Zlatunić 2015), while the current excavation identified a part of the inner face. There is significant differentiation in the build structure of the inside and outside faces of the city wall. While the inside face is done with coarsely dressed stone, the outer face is formed of large well-dressed ashlar blocks with a uniform footing. The discovered line of the wall is entirely dated to the antique period, with some possible alterations that were identified in the first half of the 20th c. (Mirabella Roberti 1940, 243-246).

SVETOG TEODORA LANE

A segment of the city wall was identified in the north end of cadastral plot 5444/2 in the course of archaeological supervision of the construction of municipal infrastructure and the development of Svetog Teodora lane and a part of Kandlerova street in April and June of 2017 (Barada 2017). This lane was created in the second half of the 19th c.³ It runs northwest to southeast, between present day Kandlerova street and the waterfront. The way in which the planned works were carried out meant that the revealed segment of city wall runs three metres and achieves a maximum depth of 70 cm as measured from the top of the preserved height of the wall, i.e., to an absolute elevation of 1.92 m. The greatest breadth of the wall is 3.20 m. It is built of coarsely dressed stone, laid in courses at the faces (north and south facing), with a core of smaller sized rubble. The builders used lime mortar of

² Pretpostavka je voditelja arheološkog nadzora da dijelovi otkrivene monolitne strukture predstavljaju segment poligonalne kule pred gradskim bedemima ili funeralni objekt uz bedeme.

³ Prolaz sv. Teodora i zgrade koje ga omeđuju zabilježeni su na katastarskom planu iz 1872. godine, dok je na ranijim katastrima iz 1820. i 1855. godine šire područje evidentirano kao neizgrađeno.

² The hypothesis proposed by the archaeological supervision field director is that parts of the discovered monolithic structure are a segment of a polygonal tower at the city wall or a funereal structure adjacent to the wall.

³ Svetog Teodora lane and the buildings that border it were recorded in the 1872 cadastral map, while earlier cadastral maps of 1820 and 1855 show the broader area as undeveloped.

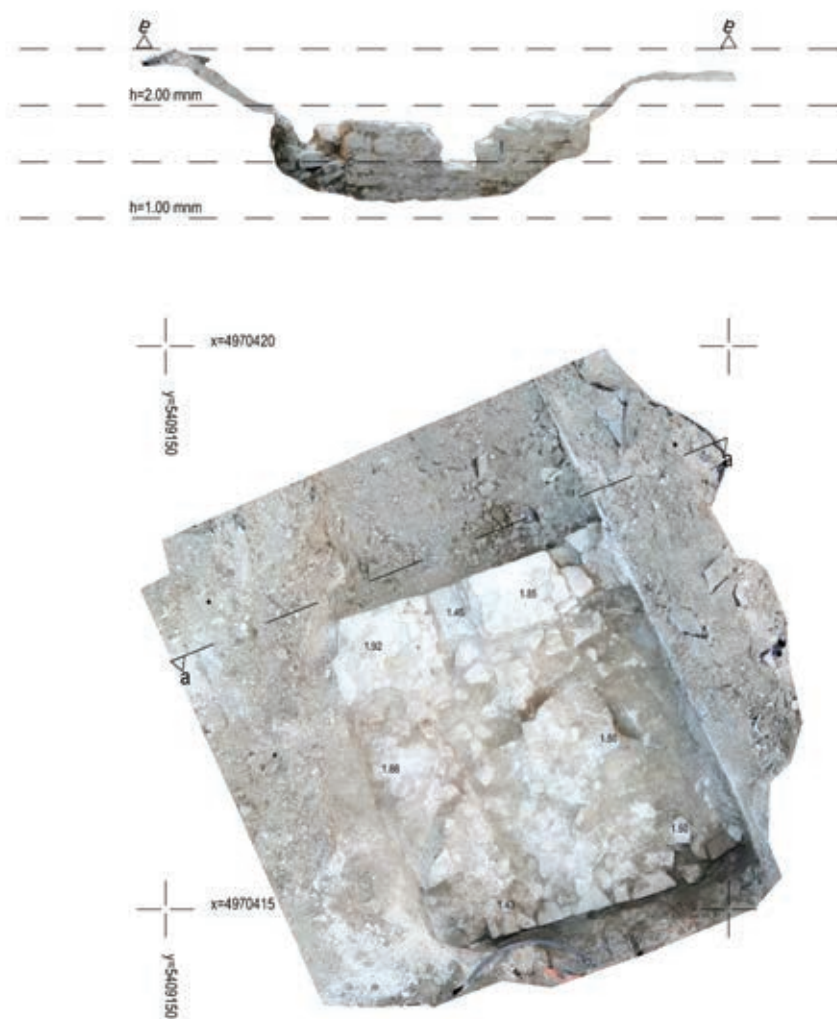


Sl. 5 Pogled na sjeverno lice bedema u Prolazu sv. Teodora (fotografija: M. Barada).

Fig. 5 View of the north face of the city wall at Svetog Teodora lane (photo by: M. Barada).

light colour. A fifty centimetre wide break in the northeast corner of the uncovered part of the wall was filled in at some point. The wall builders made use of spolia. A very small quantity of artefacts was recovered from this excavation: a fragment from the rim of a balsamarium, one tessera, and an amphora handle sherd which can only approximately be dated to the antique period. The lack of abundant artefacts can be attributed to multiple episodes during which this street has seen construction-related excavation in the 20th c. for the installation of municipal infrastructure.

Given that all artefacts were recovered from the bank layer and cannot thus be relevant to a precise dating of the features, we can only posit—based on the building technique and the use of spolia—that the city wall was built during the late antique or the early medieval



Sl. 6 Fotogrametrijski snimak bedema u Prolazu sv. Teodora (izradio S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).

Fig. 6 Photogrammetric survey of the city wall at Svetog Teodora lane (by: S. Ramić, AGG d.o.o., Pula).

je višekratno prekopavanje ulice tijekom 20. stoljeća, također zbog polaganja komunalne infrastrukture.

S obzirom na to da je sav pokretni arheološki materijal otkriven u sloju nasipa, što nije mjerodavno za preciznu dataciju nepokretnog nalaza, bedem je po tehnici gradnje i korištenju spolija pri gradnji moguće datirati u vremenski okvir kasne antike ili ranog srednjeg vijeka. Bedem istovrsnog načina gradnje i širine otkriven je tijekom arheoloških istraživanja uoči izgradnje radionice topničkog oružja u drugoj polovici 19. stoljeća, na području današnje k. č. zgr. 461 k. o. Pula (Gnirs 1914, 161-184; Matijašić 2009, 156-157). Usporedbom bilješki A. Gnirsa (Gnirs 1914, 172, sl. 145 i 146; Matijašić 2009, 155) opažamo da položaj segmenta gradskog bedema u Prolazu sv. Teodora odgovara pravcu pružanja ranije istraženog dijela bedema na susjednoj katastarskoj čestici, kojega Gnirs datira u srednji vijek. Navedeni potez srednjovjekovnog bedema (i kasnijeg novovjekovnog) proteže se uz nekadašnju obalnu liniju, te je preslojio antički bedem (Mlakar 1963, 23; Starac 2006, 241). Predmetni segment bedema u Prolazu sv. Teodora je po obavljenom istraživanju i dokumentiranju dijelom razidan zbog polaganja nove infrastrukture. To je učinjeno u njegovu zapadnom dijelu, koji je oštećen tijekom ranije provedenih radova.

Zbog komunalnih radova arheološki nadzor proveden je i u južnoj polovici Prolaza sv. Teodora, na k. č. 5444/1 k. o. Pula, te u istočnom dijelu Kandlerove ulice, na k. č. 5443 i zgr. 493/7, sve k. o. Pula. Očekivano, otkrivene su antičke strukture koje tvore cjelinu s četvrti sv. Teodora, koja je smještena istočno od istoimenog prolaza, a istražena je u razdoblju od 2005. do 2009. godine⁴. Rezultati ovih istraživanja Arheološkog muzeja Istre u Puli, osim utvrđivanja i dokumentiranja slojeva od histarskog do suvremenog doba (20. stoljeće) (Starac 2011, 5), opovrgnuli su raniju pretpostavku o položaju antičkog bedema u tom dijelu grada. Naime, utvrđeno je da masivni zid, koji je otkriven tijekom istraživanja Arheološkog muzeja Istre u Puli, a koji se proteže u smjeru istok - zapad, predstavlja nastavak zida otkrivenog na području današnje k. č. zgr. 461 k. o. Pula prema istoku. Taj ranije istražen zid, koji se do navedenih istraživanja u stručnoj literaturi tumačio kao najraniji segment antičkog gradskog bedema (Gnirs 1904, 215-232; Gnirs 1914, 166-173; Matijašić 2009, 152-157), zapravo predstavlja sjeverno pročelje rimskog domusa iz 1. stoljeća pr. n. e., koji je napušten krajem 5. stoljeća nakon stradavanja u požaru (Starac 2006, 240-241;

period. A city wall segment exhibiting the same building technique and wall breadth was found in the course of archaeological investigation ahead of the construction of an artillery workshop in the second half of the 19th c. within what is now plot zgr. 461 [“zgr.” denotes a building] (Gnirs 1914, 161-184; Matijašić 2009, 156-157). In reading the notes made by A. Gnirs (Gnirs 1914, 172, Figs. 145 and 146; Matijašić 2009, 155) we see that the position of the segment of the city wall at Svetog Teodora lane corresponds to the alignment of the previously investigated wall segment in the neighbouring plot, which Gnirs dated to the medieval period. This stretch of the medieval (and post-medieval) wall runs along the former shoreline and overlaps the antique period wall (Mlakar 1963, 23; Starac 2006, 241). The segment of the city wall at Svetog Teodora lane was partially taken down following its investigation and documentation to enable the installation of new infrastructure. This was done in its west segment, which had been damaged in the course of previous episodes of construction works.

Archaeological supervision was also performed for municipal works in the southern half of Svetog Teodora lane, in plot 5444/1, and in the eastern end of Kandlerova street, in plots 5443 and zgr. 493/7. As expected, antique period features were uncovered that are a part of the St Theodore's Quarter complex, located to the east of Svetog Teodora lane (“St Theodore's” lane) and investigated from 2005 to 2009⁴. The results of these investigations, performed by the Archaeological Museum of Istria, identified and documented strata from the Histrian period to the present (20th c.) (Starac 2011, 5), but also refuted earlier hypotheses concerning the position of the antique period city wall in this part of the city. It has been shown, namely, that the massive wall that was found in the course of the Archaeological Museum of Istria investigative work running east to west is the eastern continuation of the wall found in what is now plot zgr. 461. This previously investigated wall, which until the mentioned investigative work was interpreted in the specialist literature as the earliest segment of the antique period city wall (Gnirs 1904, 215-232; Gnirs 1914, 166-173; Matijašić 2009, 152-157), is in fact the northern face of a Roman domus of the 1st c. BCE, abandoned late in the 5th c. after a fire (Starac 2006, 240-241; Starac 2011, 25)⁵. The reason that the wall was interpreted as a part of the city wall was its

⁴ Zaštitno arheološko istraživanje proveo je Arheološki muzej Istre u Puli; voditeljica istraživanja bila je dr. sc. Alka Starac.

⁴ Rescue archaeology investigative work was performed by the Archaeological Museum of Istria under field director Alka Starac PhD.

⁵ The wall has been previously interpreted as a late antique period structure; see: Gnirs 1904, Zur Topographie des antiken Pola, *Jahrbuch der Kaiser-königlichen Zentral Kommission* 2, 215-232.



Sl. 7 Pogled na zid antičkog objekta uz rub Kandlerove ulice (fotografija: M. Barada).

Fig. 7 View of the wall of an antique period structure at the edge of Kandlerova street (photo by: M. Barada).

Starac 2011, 25)⁵. Razlog tumačenja zida kao dijela segmenta antičkog bedema bila je njegova širina od 2 metra. Međutim, takva masivna izgradnja rezultat je potrebe za podupiranjem građevine, s obzirom na to da je domus sagrađen na padini i močvarnom terenu (Starac 2006, 241).

Tijekom nadzora u dijelu Kandlerove ulice, na spoju s jugoistočnim uglom Prolaza sv. Teodora, duž južne granice k. č. zgr. 493/7 k. o. Pula otkriveni su dijelovi antičke arhitekture. Zid antičke građevine položen je u pravcu istok - zapad. Istražen je u dužini od 9,20 metara, a sačuvan je u visini od 1,20 metara⁶. Građen je od klesanog kamenja položenog u dosta pravilne redove.

width of two metres. This width, however, was intended to provide support to the building, which was raised on a slope in marshy terrain (Starac 2006, 241).

Segments of antique period architecture were found in the course of archaeological supervision in a part of Kandlerova street where it meets the southeast end of Svetog Teodora lane along the perimeter of plot zgr. 493/7. The wall of the antique period structure is aligned east to west. A 9.20 m segment of the wall, preserved to a height of 1.20 m, was investigated⁶. This wall is built of ashlar laid in relatively orderly courses. In its eastern part this wall was at some point penetrated in the course of the installation of infrastructure. The southern perimeter wall of the boiler house of the Austro-Hungarian military base was built atop it in the late 19th c. From the 1930s the building was used as part of a tobacco factory, while it currently houses the electric power transformer station on plot zgr. 493/7. Here again all the artefacts; ceramic ware and fragments of plaster with fresco painting dated to the period from the 1st to 3rd c., with the exception of a single 15th/16th c. potsherd, were recovered from the bank layer.

A drainage canal was found in the southwest part of Svetog Teodora lane that by its construction technique can also be dated to the antique period. The sides of the canal are formed of long dressed stones laid in courses. The canal is covered by stone slabs from 68 to 70 cm wide and 24 to 25 cm thick. The breadth of the canal is 38 cm. The top of the canal is at a depth of about one metre as measured from the street elevation. The canal has seen



Sl. 8 Fotogrametrijski snimak zida antičkog objekta uz rub Kandlerove ulice (izradió S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).

Fig. 8 Photogrammetric survey of the wall of an antique period structure at the edge of Kandlerova street (by: S. Ramić, AGG d.o.o., Pula).

⁵ Zid je ranije tumačen i kao kasnoantička izgradnja, za što vidi: Gnirs 1904, Zur Topographie des antiken Pola, *Jahrbuch der Kaiser-königlichen Zentral Kommission* 2, 215-232.

⁶ Ukupna dubina iskopavanja iznosila je 1,60 metara.

⁶ The total excavation depth was 1.60 m.

Zid je u istočnom dijelu ranije probijen zbog postavljanja infrastrukture. Nad njim je krajem 19. stoljeća sagrađen južni perimetralni zid kotlovnice austrougarske vojarne. Od 1930-ih godina zgrada je korištena u sklopu tvornice duhana, a danas je u njoj smještena trafostanica koja zahvaća k. č. zgr. 493/7 k. o. Pula. I u ovom su slučaju svi pokretni nalazi: keramičko posuđe i ulomci zidne žbuke s fresko oslikom, koji se datiraju u razdoblje od 1. do 3. stoljeća, uz izuzetak jednog ulomka posude iz 15./16. stoljeća, otkriveni u sloju nasipa.

U jugozapadnom dijelu Prolaza sv. Teodora otkriven je odvodni kanal, koji je po tehnici gradnje također moguće datirati u antičko doba. Bočni zidovi kanala formirani su od klesanog, izduženog kamena položenog u pravilne redove. Kanal je prekriven kamenim pločama širine 68 do 70 cm, debljine 24 do 25 cm. Širina samog kanala iznosi 38 cm. Vrh kanala je na dubini od oko 1 metra od kote ulice. Kanal je znatno oštećen ranijim radovima u cilju polaganja infrastrukture, a njegovo istraživanje bilo je otežano upravo zbog količine infrastrukturnih vodova koji su položeni neposredno uz njega.

DANTEOV TRG

Drugi položaj na kojem je proveden niz međusobno nepovezanih građevinskih zahvata jest prostor Danteova trga, na području k. č. 8 i 5476, sve k. o. Pula. Smješten je u jugozapadnom dijelu grada. Trg je u današnjim gabaritima formiran u drugoj polovici 19. stoljeća (Krizmanić 2005, 129). Sa sjeverne strane omeđuje ga crkva Gospe od Milosrđa (ili Misericordia), izvorno iz 14. stoljeća, a obnavljana u 15. i 19. stoljeću (Bartolić, Grah 1991, 111; Krizmanić 2005, 127). Uz nju je zgrada nekadašnjeg augustinskog samostana i hospicija, na čijem je mjestu u vrijeme posljednje obnove crkve sredinom 19. stoljeća Pietro Ciscutti sagradio prvo pulske kazalište. Istočnu granicu trga čini školska zgrada (Krizmanić 2005, 129), a s južne strane zatvoren je izgradnjom pošte i policijskog komesarijata (Krizmanić 2005, 131). Trgom danas dominira fontana izgrađena 30-ih godina 20. stoljeća po projektu Enrica Trolisa.

Danteov trg je 2016. i 2020. godine bio predmet provođenja arheološkog nadzora zbog postavljanja pilomata i njima pripadajuće infrastrukture, s ciljem ograničavanja prometa i osiguranja pješačke zone te provođenja probnog arheološkog iskopavanja radi izrade projekta ugradnje podzemnih spremnika za otpad i planiranog uređenja trga. Rezultati navedenih arheoloških radova potvrdili su položaj i pravac pružanja antičkog bedema u jugozapadnom dijelu grada (Barada

significant damage in the course of previous works on the installation of infrastructure; the investigative work was, in fact, hampered by the quantity of infrastructure conduits laid in its immediate vicinity.

DANTEOV SQUARE

The other area that saw a number of mutually unrelated construction works is Danteov square, at cadastral plots 8 and 5476. It is located in the southwest part of the city [core]. The square was established in its current configuration in the second half of the 19th c. (Krizmanić 2005, 129). To the north it is bordered by the Our Lady of Mercy church, raised in the 14th c. and renovated in the 15th and 19th c. (Bartolić, Grah 1991, 111; Krizmanić 2005, 127). Next to it once stood an Augustinian monastery and hospice. It was here that Pietro Ciscutti raised Pula's first modern period theatre house at the time of the most recent renovation of the church in the mid-19th c. The eastern perimeter of the square is bordered by a school building (Krizmanić 2005, 129), while its southern perimeter was formed by the erection of a postal office and police station (Krizmanić 2005, 131). The square is now dominated by a fountain built in the 1930s based on the design by Enrico Trolis.

In 2016 and 2020 Danteov square was the site of archaeological supervision of the installation of retractable bollards and attendant infrastructure aimed at restricting traffic and ensuring the pedestrian zone, and the performance of a trial archaeological dig ahead of the design phase for the installation of in-ground waste containers and the planned revamping of the square. The results of this work confirmed the position and line of the antique period city wall in the southwest end of the city core (Barada 2016b; Šalov 2020). The square has not seen previous archaeological investigation, but stone paving was recorded in the 1930s at a depth of three metres during the construction of the fountain (Mirabella Roberti 1940, 254)⁷.

The position of the city wall was identified in the course of a small scale excavation in the southwest end of the square (Barada 2016b, 10-15). It was found in the southern half of a 3x10 m trench. It was built with large ashlar blocks and has been investigated to a length of three metres and an equal breadth. Only the north face has been uncovered, on which we see that the joints are very tight. Spolia have been incorporated into a part of the wall. The core of the wall is filled with rubble

⁷ The paved area ran southeast to northwest; the width of the pavers was about 45 cm.



Sl. 9 HR-DAST-VIII, Arhiv mapa za Istru i Dalmaciju, k.o. Pula, izmjera 1820., s označenim položajima istraživanja.

Fig. 9 HR-DAST-VIII, Archive of Maps of Istria and Dalmatia, cadastral municipality of Pula, 1820 survey, with investigated areas indicated.

2016b; Šalov 2020). Prostor trga ranije nije bio predmet arheoloških istraživanja, ali je već 30-ih godina 20. stoljeća, tijekom gradnje sadašnje fontane, na dubini od 3 metra evidentirano kameno popločenje (Mirabella Roberti 1940, 254)⁷.

⁷ Popločenje se protezalo u smjeru jugoistok – sjeverozapad, a širina ploča iznosi oko 45 cm.

bonded with lime mortar with a brick admixture. The wall was investigated to the level of the footing, which appears at a depth of about 2.25 m from the current asphalt substrate of the square. The footing is not of uniform width and juts out from the wall face from 15 to 20 cm. The east face of a structure was found in the northwest profile of the trench, exhibiting the same building technique. It runs off the line of the city wall.



Sl. 10 HR-DAST-8, Arhiv mapa za Istru i Dalmaciju, k.o. Pula, list uvećanje, izmjera 1872., s označenim položajima istraživanja.
 Fig. 10 HR-DAST-8, Archive of Maps of Istria and Dalmatia, cadastral municipality of Pula, large scale sheet, 1872 survey, with investigated areas indicated.

Položaj gradskog bedema utvrđen je već prilikom manjeg sondiranja u jugozapadnom dijelu trga (Barada 2016b, 10–15). Otkriven je u južnoj polovici sonde ukupnih dimenzija 3x10 metara. Građen je od većih, pravilno klesanih kamenih blokova, a istražen je u dužini od 3 metra i u jednakoj širini. Otkriveno je samo njegovo sjeverno lice, na kojem je vidljivo da su fuge vrlo usko izvedene. U dio bedema ugrađene su spolije. Unutarnji dio bedema građen je korištenjem neobrađenog kamena koje je povezano vapnenom žbukom koja sadrži primjese opeke. Bedem je istražen do visine temeljne stope, koja se javlja na dubini od oko 2,25 metara od zatečene asfaltne podloge trga. Temeljna stopa nije ujednačene širine, a izlazi iz osnovnog zida bedema za 15 do 20 centimetara. U sjeverozapadnom profilu sonde otkriveno je istočno lice strukture, istovrsnog načina gradnje, koje izlazi iz pravca pružanja bedema. Istraživanje bedema do

A full investigation of the city wall was prevented by the constant inflow of water. Given that archaeological work was a prerequisite to the production of quality design documentation for the installation of in-ground waste containers, archaeological trail trenching was performed to determine any eventual need for rescue investigative work in the remainder of the square. The entire depth of the excavation runs through the bank layer. Dominant among the finds are sherds from Dressel 6A and Dressel 6B amphorae. A *firmalampen* type oil lamp, the base of a glass bottle, and several sherds of fine ceramic ware were found on the wall and immediately adjacent to it. These finds date the uncovered line of the city wall to the period from the 1st to 3rd c. The find of spolia incorporated into the wall indicate that material from older structures was used in the construction of the city wall as early as the Principate.

kraja kulturnog sloja bilo je onemogućeno zbog stalnog naviranja vode. S obzirom na to da su arheološki radovi bili preduvjet izradi kvalitetne projektne dokumentacije za postavljanje podzemnih spremnika za otpad, provedeno je arheološko sondiranje temeljem čijih će se rezultata odrediti eventualna potreba za zaštitnim istraživanjem na preostalom dijelu trga. Čitavom dubinom iskopa prati se sloj nasipa. Od pokretnih arheoloških nalaza prevladavaju ulomci amfora *Dressel 6A* i *Dressel 6B*. Na samom bedemu i neposredno uz njega pronađeni su ulomak uljanice tipa *Firmalampen*, dno staklene boce i nekoliko ulomaka finog keramičkog posuđa. Navedeni nalazi otkriveni potez bedema datiraju u razdoblje od 1. do 3. stoljeća. Nalazi spolija u strukturi zida upućuju na to da je za gradnju bedema već u doba principata korišten materijal sa starijih struktura.

U južnoj polovici sonde nije bilo arheoloških nalaza. Čitavom dubinom iskopa, do dubine od 3,5 metara, mjereno od hodne površine, prati se sloj nasipa koji čini rahla smeđa zemlja s kamenjem različitih dimenzija i građevinskim otpadom (uglavnom opekom).

Iste je godine tijekom provođenja arheološkog nadzora radi postavljanja pilomata u sjeverozapadnom dijelu Danteova trga, u kanalu uz sam rub trga, na dubini od 29 cm od asfalta, otkriven manji segment zida, antičke datacije (Barada 2016a, 7-13). Istražen je u dužini od 71 cm. Pruža se u pravcu sjeveroistok - jugozapad, a širine je 42 cm. Građen je od priklesanog kamenja koje je položeno u pravilne redove. Kao vezivno sredstvo korištena je fina, vapnena žbuka svjetlosmeđe boje.

Opsežnije sondiranje provedeno je tijekom siječnja i veljače 2020. godine zbog planiranog uređenja Danteova trga. Pri planiranju položaja arheoloških sondi uzet je u obzir upravo ranije utvrđen položaj gradskog bedema u jugozapadnom dijelu trga. Otvoreno je ukupno 6 probnih sondi (Šalov 2020, 7-33). Tri sonde, približnih dimenzija 5x5 metara, koje su postavljene duž južnog dijela trga otkrile su pravac pružanja antičkog bedema na prosječnoj AV od 2,19 m. Struktura zida podudara se s nalazom u jugozapadnom dijelu trga iz 2016. godine. Vanjska lica bedema formirana su od većih kamenih blokova koji su povezani žbukom, s minimalnom širinom fuga, dok je unutrašnjost ispunjena neobrađenim kamenjem i ulomcima keramike u sloju nabijene žbuke. Uz vanjsko lice zida, koje je okrenuto prema gradu, otkrivene su lezene. Način njihove izgradnje istovjetan je gradnji bedema. Zbog ograničenih dimenzija sonde nije bilo moguće utvrditi eventualni ritam lezena duž otkrivenog poteza bedema. Širina u kojoj lezene izlaze iz osnovnog poteza bedema odgovara širini postamenta



Sl. 11 Pogled na sjeverno lice istraženog segmenta bedema u jugozapadnom dijelu Danteova trga (fotografija: M. Barada).

Fig. 11 View of the north face of the investigated segment of the city wall in the southwest end of Danteov square (photo by: M. Barada).

No finds were recovered in the south half of the trench. The entire excavation, to a depth of 3.5 m as measured from the current occupational surface, runs through the bank layer, consisting of loose brown soil with rubble of various sizes and construction debris (mostly bricks).

That same year, during the archaeological supervision performed ahead of the installation of retractable traffic bollards in the northwest end of Danteov square, a small segment of antique period wall was found along the canal at the very perimeter of the square at a depth of 29 cm from the asphalt layer (Barada 2016a, 7-13). The wall was investigated to a length of 71 cm. It runs northeast to southwest and has a width of 42 cm. It is built of coarsely dressed stone laid in courses. The bonding material is a fine lime mortar of light brown colour.

More comprehensive excavation work was performed in January and February of 2020 ahead of the planned revamping of Danteov square. Planning of the positions of the trenches took into consideration the previously identified position of the city wall in the southwest part of the square. In all six trial trenches were excavated (Šalov 2020, 7-33). Three trenches, sized approximately 5x5 m, were dug along the south end of the square, revealing the line of the antique period city wall at an average absolute elevation of 2.19 m. The structure of the wall is consistent with the find made in the southwest part of the square in 2016. The faces of the city wall are formed of large stone blocks bonded with mortar, having very tight joints, while the core of the wall is filled with rubble and potsherds in a layer of compacted mortar. Lesenes were identified along the wall facing the city. They are

koji je izgrađen uz sjeverno lice zida. Postament se javlja na AV 0,75 do 0,80 metara, a proteže se čitavom istraženom dužinom bedema. Izveden je od pravilno klesanih kamenih blokova. Konačna dubina iskopa bila je prethodno definirana, stoga je bedem istražen do maksimalne AV 0,48 metara.

Paralelno na potez bedema, čitavom širinom sjevernog dijela sonde, na AV od 2,1 do 1,46 metara, otkriven je zid građen od nepravilno položenih, većih kamenih blokova, koji su, vrlo vjerojatno, u sekundarnoj upotrebi. Struktura je znatno oštećena, vjerojatno zbog polaganja infrastrukture duž trga. Zbog dinamike radova otkriveni su samo južno i dio gornjeg lica zida. Struktura je temeljena na sloju nasipa, a njena funkcija nije poznata.

Čitavom dubinom sonde prate se slojevi sukcesivnog nasipavanja terena. Unutar gornjeg, koji je otkriven na AV 2,27 metara, ispremiješani su ulomci keramičkog materijala koji se datiraju u širi vremenski raspon od kasne antike do novoga vijeka. Bedem je probijen zbog polaganja cijevi za odvodnju. Pretpostavljamo da je do toga došlo već u vrijeme izgradnje prvotne fontane, u drugoj polovici 19. stoljeća. Na AV 1,5 metara nastavlja se idući sloj nasipa, u kojem su zastupljeni ulomci kasnoantičke keramike, amfora, afričke crvenoglačane keramike, kuhinjske keramike grube fakture, ulomci tegula i veća količina kamenja. Evidentirani slojevi nasipa rezultat su građevinskih radova u neposrednoj blizini pulske luke, koji su intenzivirani u drugoj polovici 19. stoljeća, za vrijeme austrijske uprave, uslijed širenja građevinskih površina i potrebe za stabilizacijom izvorno močvarnog terena⁸.

Sljedeće dvije sonde otvorene su u jugoistočnom dijelu trga⁹. Nastavak bedema otkriven je neposredno ispod sloja asfalta, odnosno tampona, na prosječnoj AV 1,96 metara. Širina bedema povećava se s 3,75 metara u zapadnom dijelu trga (u sondi 1), do 5,2 metra u dijelu sonde broj 2. Bedemu je pridodana polukružna kula, istražena do AV 1,46 metara, koja je, kao i južno lice

built in the same manner as the wall is. The limited size of the trenches did not allow for a determination of the possible spacing of lesenes along the uncovered line of the wall. The width by which the lesenes extend from the base line of the wall is consistent with the width of the footing along the north face of the wall. The footing appears at an absolute elevation of 0.75 to 0.80 m and runs along the entire investigated length of the wall. It is built of ashlar blocks. Because the final depth of the excavation had been predetermined, the wall was investigated down to a maximum absolute elevation of 0.48 m.

A random range wall of large ashlar, very likely in secondary use, was found at an absolute elevation of od 2.1 to 1.46 m along the entire width of the north end of the trench, parallel to the line of the city wall. This structure is significantly damaged, likely as a result of the installation of infrastructure along the length of the square. Due to the dynamics of the works only the south face and a part of the wall core was uncovered. The structure is set on the bank layer and is of unknown function.

Through the entire depth of the trench, we see the successive layers of deposited fill. The upper layer, found at an absolute elevation of 2.27 m, contains mixed sherds of ceramic material dated across a broad range from the late antique to post-medieval period. The city wall was penetrated during the installation of sewage pipes. This likely occurred at the time of the construction of the first fountain in the second half of the 19th c. The next layer of the bank appears at an absolute elevation of 1.5 m. It contains sherds of late antique pottery; amphorae, African red slip ware, coarse fabric cooking ware, tegulae sherds and a large quantity of rubble. The identified layers of the bank are the result of construction works

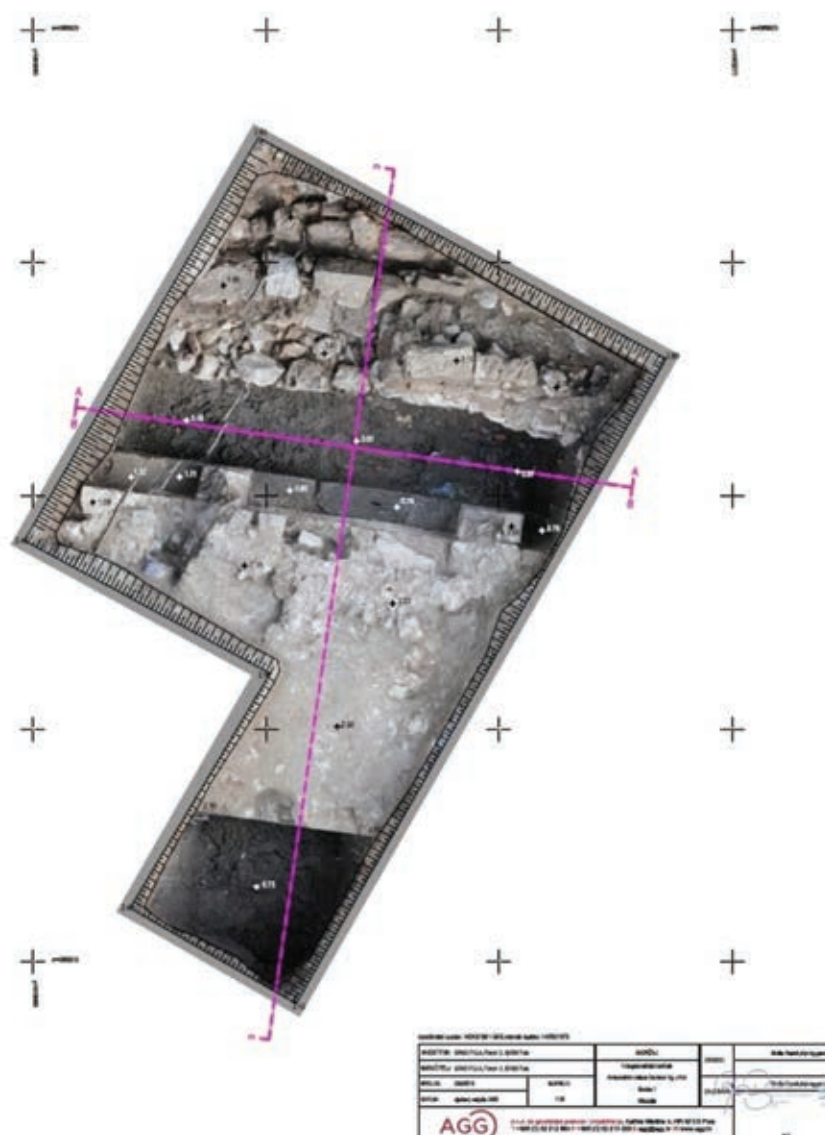


Sl. 12 Potez bedema i zida koji su otkriveni 2020. godine na Danteovu trgu; pogled prema zapadu (fotografija: T. Šalov).

Fig. 12 The line of the city wall and another wall found in 2020 at the Danteov square site; west-facing view (photo by: T. Šalov).

⁸ Do dodatnog nasipavanja duž zapadne i jugozapadne obale grada došlo je između 1855. i 1872. godine, što potvrđuju povijesni katastri iz navedenih godina. Iznimka je upravo položaj *Valle del Buso* na položaju tadašnjeg pulskeg pristaništa, južno od Danteova trga. Naime, u povijesnom katastru iz 1820. godine u tom dijelu grada evidentirane su neizgrađene površine. Nasipavanje tog dijela najbolje zaštićenog pulskeg akvatorija vjerojatno je započelo već u 15. stoljeću, zbog slijevanja kanala *Pragrande* (Krizmanić 2005, 129).

⁹ Dimenzije sondi nisu ujednačene. Treća sonda je spoj prvotno predviđenih dviju manjih sondi. Naime, nakon nalaza segmenta gradskog bedema u jugozapadnom dijelu trga odlučeno je da se te dvije sonde povežu, kako bi se potez bedema otkrio u što većoj dužini i u punoj širini (Šalov 2020, 8).



Sl. 13 Fotogrametrijski snimak bedema i zida na Danteovu trgu (izradio S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).

Fig. 13 Photogrammetric survey of the city wall and another wall at the Danteov square site (by: S. Ramić, AGG d.o.o., Pula).

bedema, temeljena na podnici od kompaktne žbuke. Uz sjeverno lice bedema ugrađene su spolije: niz monolitnih kamenih blokova ispod kojih je, uz sam rub sonde, položen prag u sekundarnoj upotrebi. S obzirom na izgled segmenta bedema i položaja kule pretpostavljamo da je u sondi 3 otkriven zapadni dio gradskih vrata.

U krajnjem istočnom dijelu istražene površine (unutar gabarita sonde 3) bedem je preslojen kanalom s kamenim poklopnicama. Kanal, dubine 2 metra, proteže se duž zapadne polovice sonde 3, stoga nije bilo moguće utvrditi je li i uolikoj mjeri on oštetio ili pak u potpunosti izbjegao gradski bedem, odnosno pretpostavljena gradska vrata.

in the immediate vicinity of the Pula harbour, which intensified in the second half of the 19th c., during the Austrian administration, as the result of the expansion of construction areas and the need to stabilise what was initial marshy terrain⁸.

⁸ Additional deposition of fill material along the city's western and southwestern shores occurred between 1855 and 1872, as is confirmed by historical cadastral maps from these years. The Valle del Buso location, at the site of what was then the landing quay, to the south of Danteov square, is the exception. The historical cadastral map of 1820 shows undeveloped areas in this part of the city. The deposition of fill for land reclamation in this area of the best protected part of Pula's waters likely began as early as the 15th c. as a result of the outflow of the Pragrande canal (Krizmanić 2005, 129).



Sl. 14 Pretpostavljeni položaj gradskih vrata u južnom dijelu Danteova trga (fotografija: T. Šalov).

Fig. 14 Posited position of a city gate in the south end of Danteov square (photo by: T. Šalov).

Ni u ovim sondama nisu utvrđeni kulturni slojevi. Čitavom dubinom iskopa, u dubini od 2 metra, prate se slojevi nasipa. Međutim, pronađeno je više odbačenih arhitektonskih ulomaka: dio friza ukrašenog motivom astragala, epigrafski spomenik sa sačuvanim dijelom natpisa u rimskoj kapitali¹⁰, kameni ulomak koji je vjerojatno korišten kao brus i dio praga¹¹.

Arheološki radovi su zatim usmjereni na sjeverni dio trga, pred glavno, ulazno pročelje crkve Gospe od Milosrđa. Od triju otvorenih sondi, samo su u onoj najbližoj crkvi (sonda 4), smještenoj nedaleko od jugoistočnog dijela pročelja sakralnog objekta, otkriveni arheološki nalazi. Neposredno ispod sloja asfalta i tampona, na prosječnoj AV od 2,20 m, otkrivena su dva paralelna zida koja se pružaju u pravcu sjeveroistok – jugozapad. Zapadni zid je širine 60 cm, dok širina istočnog zida varira od 45 do 50 cm. Dijelovi oba zida u južnoj polovici sonde razidani su tijekom ranijih polaganja infrastrukture. Bez obzira na oštećenja u strukturi zidova, vidljivo je da su građeni od priklesanog kamena koje je položeno u dosta pravilne redove. Prostor među njima bio je zapunjen nasipom. Pokretni nalazi, iako malobrojni, upućuju na to da je do nasipavanja došlo u srednjem vijeku. Uklanjanjem nasipa otkriveno je da je u donji dio zapadnog zida ugrađena kamena cijev. Nasip je prekrivao kameno popločenje ulice, čija je kota na AV 1 metar. Popločenje je istraženo u dužini od četiri metra i širini od dva metra. Tvori ga pločasto



Sl. 15 Dio bedema i kanala u istočnom dijelu Danteova trga; pogled prema jugu (fotografija: T. Šalov).

Fig. 15 Part of the city wall and a canal in the east end of Danteov square; south-facing view (photo by: T. Šalov).

The next two trenches were dug in the southeast part of the square⁹. The continuation of the city wall was found just below the asphalt, i.e., base layer, at an average absolute elevation of 1.96 m. The breadth of the wall increased from 3.75 m in the west end of the square (in Trench 1) to 5.2 m in a part of Trench 2. The wall had been reinforced with a semi-circular tower, which was investigated to an absolute elevation of 1.46 m, and which—as does the south face of the city wall—sits on a pavement of compact mortar. Spolia are incorporated next to the north face of the city wall: a series of monolithic stone blocks under which, next to the edge of the trench, a threshold in secondary use has been set. Given the appearance of this segment of the wall and the position of the tower it is likely that the west part of a city gate has been found in Trench 3.

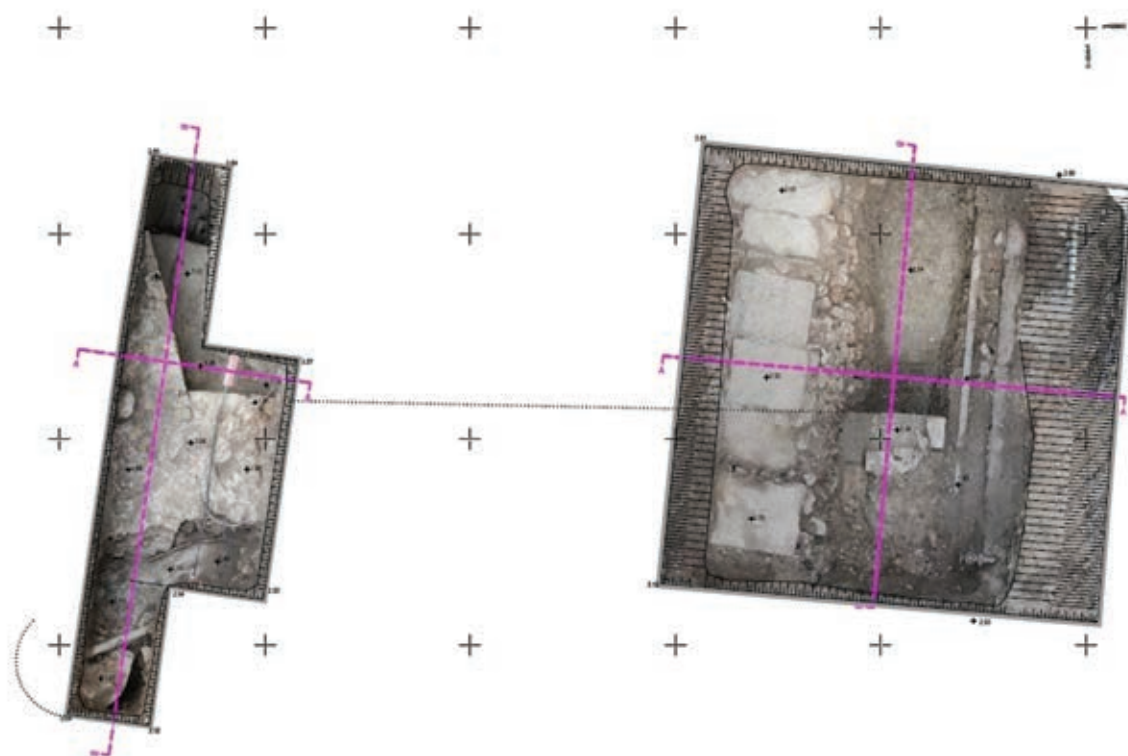
In the easternmost part of the investigated area (within Trench 3) the city wall is overlaid by a canal with stone covering slabs. The canal, two metres deep, runs along the west half of Trench 3 and it was thus not possible to determine whether, and if so to what extent, it damaged or entirely avoided the city wall, i.e., the posited the city gate.

Here again no cultural layers were identified in the trenches. The entire depth of the excavation of two metres runs through bank layers. A number of discarded fragments of architectural moulding were, however, found: a section of frieze decorated with an astragal motif, an epigraphic

¹⁰ Očuvani ulomak spomenika dimenzija je 45x31x55 cm; sačuvana su slova SV F, među kojima je uklesan motiv lista bršljana.

¹¹ Svi su ulomci izvađeni, uz izuzetak praga koji je otkriven na donjoj koti iskopa uz bedem. Prijetila je opasnost da se njegovim vađenjem otkriveni segment gradskog bedema uruši.

⁹ The trenches are not of uniform dimensions. The third trench was formed by the merger of two envisaged smaller trenches. Upon the discovery of a segment of the city wall in the southwest part of the square it was decided that the two trenches should be further excavated and thereby joined with the aim of revealing as much, in length and full breadth, of the line of the wall (Šalov 2020, 8).



Sl. 16 Fotogrametrijski snimak gradskih vrata, bedema i kanala u južnom dijelu Danteova trga (izradio S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).
Fig. 16 Photogrammetric survey of the city gate, city wall, and a canal in the south end of Danteov square (by: S. Ramić, AGG d.o.o., Pula).

kamenje nepravilnog oblika i neujednačenih dimenzija, koje je položeno u sloj zemlje crne do sivosmeđe boje. U jugoistočnom uglu ulice sačuvan je dio „izlizanog“ kamenog rubnjaka. Nalaz svega nekoliko kvadratnih kamenih blokova dimenzija 25 x 25 cm u strukturi pločnika ukazuje na to da je ulica izvorno imala pravilno oblikovano popločenje. Međutim, zatečeno stanje ne omogućava utvrđivanje smjera njegova pružanja, ali sugerira da je naknadno „krpan“, odnosno dopunjavan. Istražena komunikacija datirana je radiokarbonskom analizom, na temelju prikupljenih nalaza školjkaša¹². Utvrđeno je da je ulica formirana krajem 10. ili početkom 11. stoljeća. Sonda u sjeverozapadnom dijelu otvorene površine produbljena je dodatnih 50 cm, ispod nivoa otkrivene srednjovjekovne ulice, čime je utvrđen kasnoantički sloj ili nasip¹³. Zapadni zid izvorno je antičke datacije, na što upućuje pravilnost u načinu zidanja. Naknadno je dozidavan, vjerojatno upravo u vrijeme korištenja ulice. Usporedbom nivoa srednjovjekovne

piece with a preserved section of an inscription in Roman capitals¹⁰, a stone fragment likely used as a whetstone, and a section of a threshold¹¹.

The archaeological work then shifted to the north end of the square facing the façade of the Our Lady of Mercy church. Of the three excavated trenches only the one closest to the church (Trench 4), not far from the southeast end of the façade, yielded finds. Two parallel walls running northeast to southwest were found just below the layer of asphalt and the base layer at an average absolute elevation of 2.20 m. The wall to the west is 60 cm wide, while the width of the wall to the east varies from 45 to 50 cm. Parts of both walls in the south half of the trench were demolished in the course of a prior episode of infrastructure installation. Regardless of the damage to the structure of these walls it is evident that they were built of coarsely dressed stone laid in relatively orderly courses. The space between them was filled by

¹² Radiokarbonska analiza obavljena je u Beta Analytic testing laboratoriju u Miamiu (Florida, SAD) (Šalov 2020, 10).

¹³ S obzirom na malu površinu iskopa u sjeverozapadnom dijelu sonde, nije bilo moguće sa sigurnošću utvrditi predstavlja li sloj zemlje ispod nivoa srednjovjekovne ulice kulturni sloj ili nasip.

¹⁰ The preserved piece measures 45×31×55 cm. The letters SV F are preserved; between them we see a carved ivy leaf motif.

¹¹ All the fragments were extracted with the exception of the threshold, which was found at the lowest elevation of the excavation alongside the city wall. There was a danger that its extraction would lead to the collapse of the discovered segment of the city wall.



Sl. 17 Pogled na srednjovjekovnu ulicu i zidove koji ju omeđuju, neposredno uz glavno pročelje crkve sv. Marije od Milosrđa na Danteovu trgu; pogled prema jugu; u uglu su vidljivi tragovi rubnjaka (fotografija: T. Šalov).

Fig. 17 View of a medieval street and the walls that border it in the immediate vicinity of the façade of the Our Lady of Mercy church building facing Danteov square; south-facing view; traces of kerbstones visible at the corner (photo by: T. Šalov).

komunikacije i crkve Gospe od Milosrđa jasno je da je dio današnjeg trga nasipavan u razdoblju od 11. do 14. stoljeća.

Preostale dvije manje sonde (sonde 5 i 6) istražene su do dubine 1,30 m od asfaltne površine trga. U njima se kontinuirano prati nasip, bez ikakvog pokretnog nalaza.

Potez gradskog bedema koji je otkriven na prostoru Danteova trga moguće je povezati s rezultatima recentnih arheoloških istraživanja koje je proveo Arheološki muzej Istre u Puli u prostoru srednjeg broda crkve sv. Marije Formoze¹⁴ (Ujčić 2012a, 16–18) na dijelu k. č. zgr. 147/1, zgr. 147/2, k. č. 6, sve k. o. Pula, i u južnom dijelu stambenog objekta u Maksimijanovoj ulici br. 23¹⁵ na k. č. zgr. 222 k. o. Pula (Ujčić 2014a, 5, 9–12; Ujčić 2014b, 6), neposredno uz položaj tzv. *Porta Minerva* u Maksimijanovoj ulici. Segment bedema koji je otkriven početkom 20. stoljeća na potezu između crkve sv. Marije Formoze i Flaciusove ulice (Gnirs 1902, 57–62), mogao bi predstavljati kasnoantički ili srednjovjekovni bedem formiran uslijed širenja gradskog prostora najkasnije početkom gradnje crkve sv. Marije Formoze (Ujčić 2012b, 390). Sliku poteza gradskog bedema upotpunjuje nalaz segmenta kasnoantičkog ili srednjovjekovnog bedema (tzv. speron) koji siječe Flaciusovu ulicu na potezu između crkve sv. Marije Formoze i zgrade pošte, a pruža se okomito na osnovni potez gradskog

the bank. The found artefacts, although few, indicate that the fill was deposited in the medieval period. Removal of the bank material revealed that a stone pipe was built into the lower part of the west wall. The bank covered stone street paving, the absolute elevation of which is 1.0 m. The paving was investigated to a length of four metres and a width of two metres. The paving consists of slabs of stone of irregular form and various sizes, laid in a layer of black to grey-brown soil. At the southeast point of the paved street section there is a preserved worn kerbstone. The find of a few 25×25 cm squared stone blocks in the pavement structure indicates that the street originally had an orderly arrangement of pavers. The condition as found, however, does not provide for a determination as to the line of the street, but does suggest that it had been repaired. The investigated thoroughfare was dated by radiocarbon analysis of recovered bivalves¹². It was found that the street was formed in the late 10th or early 11th c. The trench was excavated a further 50 cm in the northwest end of the open area, below the level of the discovered medieval street, encountering a late antique period or bank layer¹³. The wall to the west was originally built in the antique period, as indicated by the regularity of the building technique. It was further built up, likely during the period in which the street was in use. A comparison of the level of the medieval thoroughfare and the Our Lady of Mercy church building clearly shows that a part of the current square was raised by the deposition of material in the period from the 11th to 14th c.

The remaining two smaller trenches (Trenches 5 and 6) were investigated to a depth of 1.30 m as measured from the asphalt surface of the square. The full depth of these trenches runs through the deposited bank material and yielded no artefacts.

We can connect the line of the city wall found at Danteov square with the results of recent archaeological investigative work performed by the Archaeological Museum of Istria in the area of what was the nave of the St Mary Formosa church¹⁴ (Ujčić 2012a, 16–18) in a part of plots zgr. 147/1, zgr. 147/2, and 6, and in the southern part of the residential building at No 23 Maksimijanova street¹⁵ on plot zgr. 222 (Ujčić 2014a, 5,

¹² Radiocarbon analysis was performed at the Beta Analytic testing laboratory in Miami (Florida, USA) (Šalov 2020, 10).

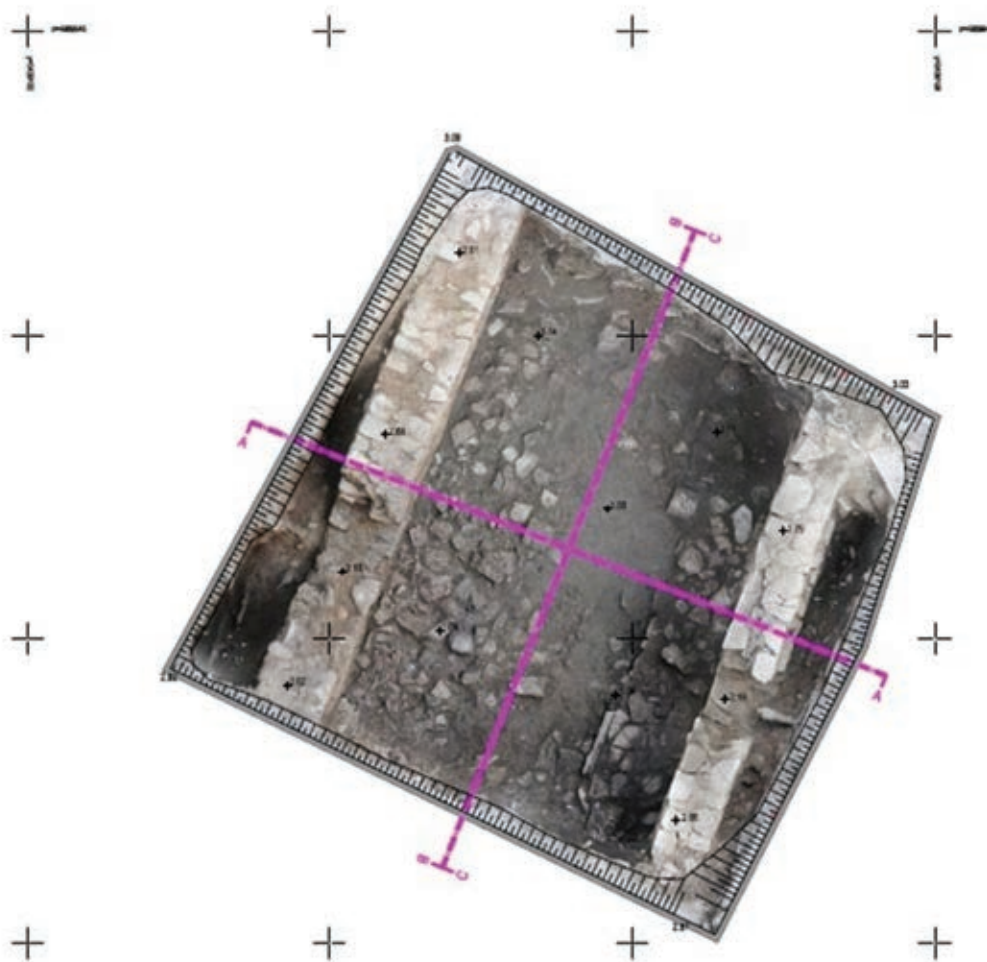
¹³ Given the limited surface area of the excavation in the northwest end of the trench no confident determination could be made as to whether the layer of soil below the level of the medieval street constitutes a cultural layer or the deposition of fill.

¹⁴ Ž. Ujčić interprets the investigated line of the wall as an earlier phase of the antique period city wall (Ujčić 2012a, 16).

¹⁵ D. Komšo was the field director; the report was produced by Ž. Ujčić.

¹⁴ Ž. Ujčić istraženi potez zida interpretira kao raniju fazu antičkog bedema (Ujčić 2012a, 16).

¹⁵ Voditelj arheološkog istraživanja bio je D. Komšo, a izvještaj je sastavio Ž. Ujčić.



Sl. 18 Fotogrametrijski snimak srednjovjekovne ulice i zidova uz nju (izradio S. Ramić, dipl. ing. geod., AGG d.o.o., Pula).
 Fig. 18 Photogrammetric survey of the medieval street and the walls adjacent to it (by: S. Ramić, AGG d.o.o., Pula).

bedema južno od gradskog bloka u istočnom dijelu Maksimijanove ulice (Ujčić 2007, 4, 12-15, 18; Ujčić 2009, 366).

ZAKLJUČAK

Arheološki radovi u dijelu Kandlerove ulice, u Prolazu sv. Teodora i na Danteovu trgu u Puli provedeni su u zasebnim kampanjama istraživanja i u različite svrhe. Međutim, svi unaprijed odabrani položaji rezultirali su nalazom dijelova obrambenog sustava grada iz antičkog, kasnoantičkog odnosno srednjovjekovnog doba. Iako su takvi rezultati bili očekivani, ponajprije s obzirom na pomno odabran položaj arheoloških sondi, zanimljivost su utvrđene faze gradskih bedema. Datiranje nalaza bilo je otežano jer su arheološki radovi bili prostorno

9-12; Ujčić 2014b, 6), immediately adjacent to the Porta Minerva gate at Maksimijanova street. The segment of the city wall discovered in the early 20th c. between the St Mary Formosa church and Flaciusova street (Gnirs 1902, 57-62) may have been raised in the late antique or medieval period as a result of the expansion of the urban area, at the latest by the time of the erection of the St Mary Formosa church (Ujčić 2012b, 390). Our picture of the line of the city wall is further complemented by the find of a segment of a late antique or medieval defensive wall (the "speron") that cuts across Flaciusova street between the St Mary Formosa church and the postal office building, running perpendicular to the main line of the city wall to the south of the city block in the eastern part of Maksimijanova street (Ujčić 2007, 4, 12-15, 18; Ujčić 2009, 366).

ograničeni. Jednako tako, tijekom radova utvrđeno je da su položaji ranije prekopavani, uglavnom zbog polaganja infrastrukture. Stoga su unutar sonde najviše evidentirani slojevi nasipavanja, s ispremiješanim materijalom koji se datira u širi vremenski okvir od antike, odnosno kasne antike do kasnog srednjeg vijeka. Otkriveni segmenti bedema datirani su po tehnici gradnje te usporedbom s rezultatima ranije provedenih istraživanja na položajima u neposrednoj blizini predmetnih radova. Sukladno tome, dio bedema u sjevernom dijelu Kandlerove ulice i duž Danteova trga datiramo u doba principata, a potez u Prolazu sv. Teodora u kasnoantičku ili srednjovjekovnu fazu. Nešto veće područje istraživanja u (Danteovu) trgu rezultiralo je nalazom kule uz zapadni segment bedema. Pretpostavljamo da suženje u dijelu zida neposredno uz kulu predstavlja dio gradskih vrata. Također pretpostavljamo da je lice bedema prema gradu već u doba principata dopunjeno arhitektonskim elementima, odnosno spolijama. Pretpostavku o preslojavanju najranijeg bedema u kasnoantičko i srednjovjekovno doba, primjerice u dijelu Prolaza sv. Teodora, nije bilo moguće utvrditi zbog unaprijed definirane kote iskopa.

Istraživanje je dalo uvid i u kasniju izgradnju uz sjeverni potez gradskog bedema, do koje je došlo u doba kasne antike ili srednjeg vijeka. Izdvojeni nalaz predstavlja dio srednjovjekovne ulice koja se dijelom pruža ispod crkve Gospe od Milosrđa na Danteovu trgu. Njeni gabariti definirani su zidovima antičkih objekata, koji su dograđeni u srednjem vijeku.

Provedena arheološka istraživanja pružaju dovoljno rezultata za usmjeravanje pri izradi zahtjevne projektne dokumentacije za izvođenje rekonstrukcije komunalne infrastrukture grada Pule i uređenje javnog gradskog prostora poput Danteova trga.

CONCLUSION

Archaeological investigative works in a part of Kandlerova street, in the Svetog Teodora lane, and at Danteov square in Pula, were performed in the frame of separate campaigns and with various objectives. All of the selected excavation sites, however, resulted in the find of parts of the city's defensive system of the antique, late antique, and medieval periods. None of these finds were unexpected, above all on account of the judicious siting of the archaeological trench positions; the identified phases of the city walls, however, are of particular interest. The dating of finds was hampered by the spatial restriction of the archaeological work. Furthermore, in the course of the work it was found that the positions had seen prior [localised] excavation, primarily related to infrastructure works. Thus, the trenches are dominated by layers of deposited fill that include a mix of material dated to a broad time range, from the antique and late antique periods to the late medieval period. The uncovered segments of the city wall are dated by building technique and by comparison with the results of previous investigative efforts at positions in the immediate vicinity of the excavations described here. Accordingly, we date the segments of the city wall in the north end of Kandlerova street and along Danteov square to the Principate, and the line of the wall at Svetog Teodora lane to the late antique or medieval phase. The somewhat broader scope of the excavations at the Danteov square site resulted in the uncovering of the remains of a tower at the western segment of the city wall. A narrowing in the part of the wall immediately adjacent to the tower likely formed a part of a city gate. We also posit that architectural elements, i.e., spolia, were incorporated into the city-facing side of the wall as early as the Principate period. Whether the earliest phase of the city wall was overlapped in the late antique and medieval periods—in a part of Svetog Teodora lane, for example—could not be determined given the pre-set excavation depth limit.

The investigative work has also provided insight into later building work along the north line of the city wall in the late antique or medieval period. A separate find is that of a segment of a medieval street, part of which runs under the Our Lady of Mercy church facing Danteov square. Its contours are defined by the walls of antique period structures, which were expanded in the medieval period.

The performed archaeological investigative work provides results sufficient to guide the production of demanding design documentation for the reconstruction of municipal infrastructure in Pula and the revamping of public areas such as Danteov square.

LITERATURA / LITERATURE

- BARADA, M. 2016a. Izvještaj o arheološkom nadzoru na Danteovom trgu u rujnu 2016., arhiva Arheo TiM d.o.o., Pula.
- BARADA, M. 2016b. Izvještaj o rezultatima sondažnog arheološkog istraživanja na Danteovom trgu u studenom 2016., arhiva Arheo TiM d.o.o., Pula.
- BARADA, M. 2017. Izvještaj o arheološkom nadzoru u Puli – prolaz Sv. Teodora, arhiva Arheo TiM d.o.o., Pula.
- BARADA, M. 2019. Izvještaj o sondažnom arheološkom istraživanju – Pula, Kandlerova ulica i trg Sv. Tome, arhiva Arheo TiM d.o.o., Pula.
- BARTOLIĆ, M., GRAH, I. 1991. *Crkva u Istri*, Istarsko književno društvo „Juraj Dobrila“, Pazin.
- DŽIN, K., ZLATUNIĆ, R. 2001. Izvješće o zaštitnom arheološkom nadzoru iskopa trase TK mreže u Puli, Carrarina 5-7, ur. broj 610/2001, Dokumentacijski odjel Arheološkog muzeja Istre.
- FORLATI-TAMARO, B. 1932. Cenni preliminari sulle recenti scoperte archeologiche a Pola e Trieste. *Atti e memorie della Società Istriana di Archeologia e Storia Patria*, vol. 44, Parenzo, 323-328.
- GNIRS, A. 1902. Die Basilica St. Maria Formosa oder del Canneto in Pola. *Mitteilungen der K.K. Central-Commission für Erforschung und Erhaltung der Kunst- und historischen Denkmale*, vol. 28, Wien, 57-62.
- GNIRS, A. 1904. Zur Topographie des antiken Pola. *Jahrbuch der Kaiser-königlichen Zentral Kommission 2*, 215-232.
- GNIRS, A. 1914. Forschungen in Pola und in der Polesana. *Jahreshefte des Österreichischen Archäologischen Institutes in Wien, Band XVII*, Wien, 161-184.
- GNIRS, A. 2009. Istraživanja u Puli i okolici. K. Buršić-Matijašić (ed.), *Arheološki tekstovi*, 149-165, Pula, Čakavski sabor.
- GOBIĆ-BRAVAR, Đ. 2020. Pulske gradske zidine – prikaz. *Histria archaeologica* 50/2019, 253-279.
- GUDELJ, J. 2014. *Europska renesansa antičke Pule*. Zagreb, Školska knjiga.
- JUROŠ-MONFARDIN, F. 2005. Završni izvještaj nastavka zaštitnog arheološkog istraživanja u Puli – Park kod Katedrale (ex Park Jurja Dobrile), ur. broj 911/2005, Dokumentacijski odjel Arheološkog muzeja Istre.
- JUROŠ-MONFARDIN, F. 2008. Pula – Park kod Katedrale, zaštitno arheološko istraživanje – završni izvještaj, ur. broj 1245/2008, Dokumentacijski odjel Arheološkog muzeja Istre.
- KANDLER, P. 1846. Degli scavi di Pola, *L'Istria I*, 6-7, 21-28.
- KRIZMANIĆ, A. 2005. Prostorni razvitak austrijske Pule. Bertoša, M. i dr. *Pula: tri tisućljeća mita i stvarnosti: tri tisuće godina povijesti Pule*, Biblioteka Histria Croatica, Pula, 113-192.
- MATIJAŠIĆ, R., BURŠIĆ-MATIJAŠIĆ, K. 1996. *Antička Pula*. Pula, Žakan Juri.
- MATIJAŠIĆ, R. 2001. Pred-augustejski gradski ulaz na području trga Portarata u Puli. *Histria antiqua* 7, 91-100.
- MIRABELLA ROBERTI, M. 1940. Notiziario archeologico (1937-1938-1939). *Atti e memorie della Società Istriana di Archeologia e Storia Patria*, vol. 50, Parenzo, 233-264.
- MLAKAR, Š. 1963. *Antička Pula. Kulturno-povijesni spomenici Istre 2*. Pula, Arheološki muzej Istre.
- ORLIĆ, L. 2012. Izvještaj o arheološkom nadzoru kod iskopa kanala radi postavljanja cijevi za električne kablove u ulicama Riva, Flaciusova i Kapitolijski trg u Puli, ur. broj 1556/2012, Dokumentacijski odjel Arheološkog muzeja Istre.
- STARAC, A. 2001. Neke spoznaje o bedemima Pule. *Histria antiqua* 7, 61-68.

- STARAC, A. 2006. Novi nalazi u Kandlerovoj ulici. *Histrìa antiqua*, 14, 239-243.
- STARAC, A. 2011. Pula – rađanje grada, *Katalog izložbe 83*, Arheološki muzej Istre, Pula.
- ŠALOV, T. 2020. Izvještaj o sondažnom istraživanju na Danteovom trgu u Puli, arhiva Arheo TiM d.o.o., Pula.
- UJČIĆ, Ž. 2007. Pula – Flaciusova ulica, oborinska kanalizacija (lokacija Pošta – Uljanik), zaštitno arheološko istraživanje (Privremeni izvještaj – I faza), ur. broj 2302-1/2007, Dokumentacijski odjel Arheološkog muzeja Istre.
- UJČIĆ, Ž. 2009. Izvještaj redni broj: 161 o zaštitnom iskopavanju Pula – Flaciusova ulica, *Hrvatski arheološki godišnjak* 5/2008, Zagreb, 364-367.
- UJČIĆ, Ž. 2012a. Bazilika sv. Marije Formoze u Puli, sustavno istraživanje – dionica 2011, Izvještaj ur. broj 94/2012, Dokumentacijski odjel Arheološkog muzeja Istre.
- UJČIĆ, Ž. 2012b. Izvještaj redni broj: 183 o revizijskom iskopavanju Pula – Bazilika sv. Marije Formoze. *Hrvatski arheološki godišnjak* 8/2011, Zagreb, 388-390.
- UJČIĆ, Ž. 2014a. Kolektor Pula, zgrada Maksimijanova 23, zaštitni arheološki radovi, Preliminarno izvješće za svibanj 2014., (bez ur. broja), Dokumentacijski odjel Arheološkog muzeja Istre.
- UJČIĆ, Ž. 2014b. Kolektor Pula, zgrada Maksimijanova 23, zaštitni arheološki radovi, Preliminarno izvješće za lipanj 2014., ur. broj 721/2014, Dokumentacijski odjel Arheološkog muzeja Istre.
- ZLATUNIĆ, R. 2015. Zaključni izvještaj o arheološkom nadzoru nad građevinskim radovima oko plinifikacije na području Giardina, Carrarine, dijela Castropole, uspona na Kaštel, dijela Kandlerove, križanje Leherove, Arsenal-ske, križanje Carrarine ulice i Sv. Ivana te Amfiteatarske ulice u Puli tijekom razdoblja od veljače do kraja svibnja 2015. godine, ur. broj 513/2015, Dokumentacijski odjel Arheološkog muzeja Istre.