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## ANTIČKA CISTERNA U ASERIJI<sup>1</sup>

### ANCIENT CISTERN IN ASSERIA<sup>1</sup>

#### Apstrakt

*Sustavnim arheološkim istraživanjima Aserije (Asseria, Podgrađe kod Benkovca), tijekom posljednjih kampanja iskopavalo se i unutar urbanog tkiva naselja. Unutar jedne od antičkih prostorija istražena je antička cisterna dimenzija 3 x 3,5 x 3,8 m. Autor u članku prikazuje rezultate istraživanja spremnika s relativno dobro sačuvanom vodootpornom žbukom na bočnim zidovima i dnom od opeka postavljenih u slogu opus spicatum. Na temelju kasnijih intervencija u oblikovanju presvođivanja donosi i pretpostavku o korištenju cisterne i u kasnoj antici.*

*Ključne riječi: Aserija, cisterna, antika, kasna antika*

#### Abstract

*During the latest campaigns of the systematic archaeological research of Asseria (Podgrađe near Benkovac), an urban segment of the settlement was excavated as well. An ancient cistern with dimensions 3 x 3,5 x 3,8 m was explored within one of the ancient rooms. The author presents the results of exploring a reservoir with relatively well preserved waterproof plaster on the lateral walls and the bottom made of bricks laid in the opus spicatum style. An assumption about the usage of the cistern in Late Antiquity is made on the basis of later interventions in formation of vaulting.*

*Keywords: Asseria, cistern, Antiquity, Late Antiquity*

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<sup>1</sup> This text was presented as a poster at the Scientific symposium of the Croatian Archaeological Society held in October 2009 on the island of Vis.

Nakon stanke od gotovo punog stoljeća, arheološka istraživanja lokaliteta Aserija (*Asseria*, Podgrađe kod Benkovca) revitalizirana su 1998. godine. Od tada, suradnjom Muzeja antičkog stakla u Zadru, Arheološkog muzeja u Zadru, Sveučilišta u Zadru i Zavičajnog muzeja Benkovac već dvanaestu godinu zaredom sustavno se istražuje ovo liburnsko, rimsko te kasnoantičko središte unutrašnjeg dijela sjevernodalmatinskog prostora.<sup>2</sup>

Osim perimetra monumentalnih rimskodobnih, ranocarskih bedema Aserije s pripadajućim vratima na zapadnoj i sjevernoj strani, tijekom posljednjih kampanja istraživanja su se odvijala i unutar urbanog tkiva naselja. Na poziciji *Mala vrata*, unutar istočnog dijela bedema, otkriven je splet gradnji antičkog horizonta sa propugnakulom, te ostatak niza zidova antičkih građevina koji su donekle preslojeni slabo građenim, najvjerojatnije srednjovjekovnim zidovima (vjerojatno iz 6. ili 7. st.). Od *Malih vrata* u pravcu zapada vodi komunikacijska linija prema ostatcima foruma, uz koju su u jugoistočnom kvadrantu istraženi dijelovi urbane antičke

After a pause of almost an entire century, archaeological research of the site of Asseria (Podgrađe near Benkovac) was revived in 1998. Ever since, for twelve years in a row this Liburnian, Roman and late antique center of the northern Dalmatian hinterland has been systematically explored owing to cooperation of the Museum of Ancient Glass, Archaeological Museum in Zadar, University of Zadar and Regional Museum in Benkovac.<sup>2</sup>

Besides the perimeter of the monumental Roman-era, early Imperial walls of Asseria with the belonging gates on the western and northern side, during the recent campaigns the research was also undertaken within the urban segment of the settlement. At the position *Mala vrata* ("Small gate") within the eastern segment of the wall, a group of buildings from the ancient horizon with a propugnacule was discovered, and the remains of a series of walls of ancient objects which were partially superposed by probably medieval walls (most likely from the 6th or 7th centuries) exhibiting poor craftsmanship. Communication line from *Mala vrata* westwards leads to the forum remains, next to which parts of ancient urban architecture

<sup>2</sup> I. FADIĆ, 1999, 78–85; I. FADIĆ, 2001, 55–61; I. FADIĆ, 2002, 51–57; I. FADIĆ, 2003, 67–74; I. FADIĆ, 2004, 61–67; I. FADIĆ, 2005, 67–73; I. FADIĆ, 2006, 92–100; I. FADIĆ, 2007, 88–97; I. FADIĆ, 2008, 61–69.

<sup>2</sup> I. FADIĆ, 1999, 78–85; I. FADIĆ, 2001, 55–61; I. FADIĆ, 2002, 51–57; I. FADIĆ, 2003, 67–74; I. FADIĆ, 2004, 61–67; I. FADIĆ, 2005, 67–73; I. FADIĆ, 2006, 92–100; I. FADIĆ, 2007, 88–97; I. FADIĆ, 2008, 61–69.



Sl. 1. Smještaj cisterne na poziciji “Mala vrata”.

Fig. 1. Location of the cistern at the position “Mala vrata” (Small gate).

arhitekture.<sup>3</sup> Riječ je o nepotpuno istraženom arhitektonskom kompleksu iz doba ranog principata, a unutar jedne od antičkih prostorija otkrivena je cisterna dimenzija 3 x 3,5 x 3,8 m /Sl. 1 i Sl. 2/.

Istražen je spremnik za vodu s relativno dobro sačuvanom vodootpornom žbukom na bočnim zidovima, premazanom slojem crvene boje. Žbuka je prema površini polukružno zaglađena i zaravnjena te seže sve do perimetralnih zidova, koji opasuju cisternu. Nisu pronađeni tragovi

were explored in the south–eastern quadrant.<sup>3</sup> This was partially explored architectural complex from the Early Principate, and a cistern with dimensions 3 x 3,5 x 3,8 m was discovered within one of the ancient rooms /Fig. 1 and Fig. 2/.

A water reservoir was explored with relatively well preserved waterproof plaster on the lateral sides, covered with a red slip. The plaster was semicircularly smoothed and flattened towards the surface, and it reaches the perimetral walls which enclose

<sup>3</sup> I. FADIĆ, 2008, 65–67.

<sup>3</sup> I. FADIĆ, 2008, 65–67.



Sl. 2. Istražena vodosprema.

Fig. 2. The explored water reservoir.



Sl. 3. Pogled u cisternu.

Fig. 3. View into the cistern.



Sl. 4. Pogled iz cisterne na zaštitnu konstrukciju centralnog stupa.

Fig. 4. View from the cistern to the protective construction of the central pillar.



Sl. 5. Detalj podnice izvedene od opeke u slogu *opus spiccatum*.

Fig. 5. Detail of the *opus spiccatum* floor.

koji bi omogućili rekonstrukciju izvornog načina presvođivanja. Stoga možemo samo pretpostaviti da se nad vodospremom izvijao bačvasti svod, možda izveden od sedre, čiji ostatci za sada nisu pronađeni. Na takav nas zaključak ponajprije upućuje raspon od 3 m, što je standardna širina, koja je u izvedbi rimskodobnih presvođivanja cisterne bila najčešće svladavana upravo na taj način.<sup>4</sup> Dno cisterne izrađeno je od opeke postavljene u slogu *opus spiccatum* /Sl. 5/. Uredno postavljene keramičke pločice fugirane su jakim vodootpornom žbukom, a spoj s okomicama svih zidnih ploha izveden je masivnom polukružno zaglađenom istakom, vjerojatno u funkciji lakšeg servisiranja i čišćenja spremnika (crtež na /Sl. 6/).

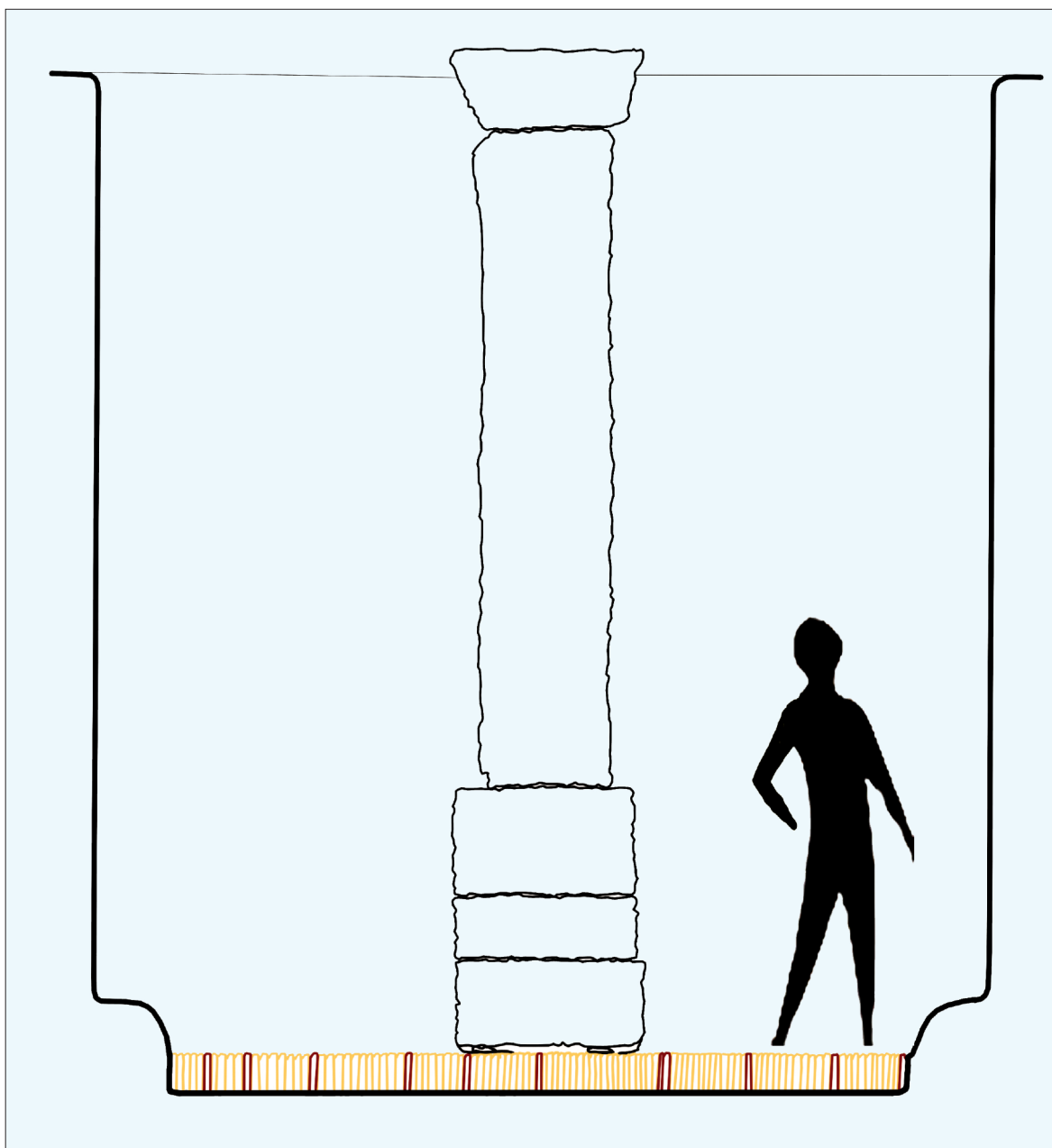
Nalazi upotrijebljenih antičkih spolija, kao konstrukcijskih elemenata

the cistern. There were no traces suitable for the reconstruction of the original manner of vaulting. Therefore we can assume that a barrel vault arched above the water tank. The vault might have been made of tufa, remains of which have not been found as yet. Such conclusion is prompted mostly by a span of 3 m which is a standard width to be overcome in that manner in the Roman practice of cistern vaulting.<sup>4</sup> The bottom of the cistern was made of bricks laid in the *opus spiccatum* style /Fig. 6/. Neatly laid ceramic tiles were joined with strong waterproof mortar, and the connection with verticals of all wall surfaces was achieved by a massive semicircularly smoothed protrusion, probably to facilitate cleaning and maintenance of the reservoir (drawing in the /Fig. 7/).

Finds of ancient spolia which were used as construction elements in the

<sup>4</sup> M. De FRANCESCHINI, 1998, 825–833; VITRUVIJE, 1999, 168–170.

<sup>4</sup> M. DeFRANCESCHINI, 1998, 825–833; VITRUVIJE, 1999, 168–170.



Sl. 6. Presjek cisterne.

*Fig. 6. Cross-section of the cistern.*

sekundarnog oblikovanja presvođivanja, upućuju nas na zaključak o korištenju cisterne i u kasnoj antici. Naime, s blagim odmakom od središnje osi S–J cisterne,

secondary formation of vaulting point to conclusion that the cistern was used in Late Antiquity as well. Namely, a support consisting of five relatively well dressed

postavljen je podupirač sastavljen od pet relativno uredno klesanih kamenih elemenata za osiguranje sekundarnog svoda nad cisternom /Sl. 3/. Na samu podnicu od opeke bez veziva postavljena su 3 pravokutna bloka, svaki od otprilike 40 cm visine. Blaga udubljenost središta podnice uvjetovala je niveliranje ovih blokova sa zapadne strane podmetanjem dvaju ulomaka tegula. Nad tim je slogom postavljena neukrašena kamena greda, vjerojatno konstruktivni element neke antičke građevine, visine preko 2 metra, a krajnja gornja niveleta cisterne dosegnuta je još jednim kamenim blokom koji na vrhu ima dva utora. Ova je konstrukcija bila oslonac za kamenu gredu koja je presvođivala cisternu otprilike po sredini, i bila nosivi element cijelog pokrova. Ulomci te, s jedne strane polukružno profilirane grede ponadjeni su u plićim slojevima pri istraživanju ispune cisterne, a osobito je za interpretaciju kasnoantičke faze značajan ulomak koji stoji *in situ*, položen direktno na zaravnjeni, ožbukani rub cisterne na površini. Unutar cisterne pronađena je i kamena ploča s kružnim otvorom i trapezoidnim utorom,<sup>5</sup> koja nam omogućuje cjelovitiju rekonstrukciju pokrova cisterne, kao i rekonstrukciju njezina korištenja, kaptiranja i manipulacije vodom /Sl. 7/. Širina ove ploče odgovara rasponu od središnjeg podupirača koji ima blagi odmak od središta do sjeveroistočnog zida cisterne, te nam sugerira da je u ovoj polovici pokrov cisterne bio izveden od sloga većih kamenih ploča. Na drugoj polovici prema jugozapadnom

stone elements was erected with a slight deviation from the central N–S axis of the cistern in order to reinforce the secondary vault above the cistern /Fig. 3/. Three rectangular blocks, approximately 40 cm high were placed on the floor made of bricks without any bonding agent. Slight concavity of the floor's centre caused leveling of these blocks from the western side by underpinning with two tegula fragments. An undecorated stone beam was placed above this formation, which was probably a constructive element of some ancient object, measuring more than 2 m in height, and the ultimate upper level of the cistern was reached by another stone block with two grooves at the top. This construction served as a support for a stone beam that vaulted the cistern approximately in the middle, and was a portable element of the entire covering. Fragments of this beam which was semicircularly moulded on one side were found in shallower layers when the fill of the cistern was explored. The fragment standing *in situ*, laid directly onto the flattened, mortared edge of the cistern at the surface, is especially important for the interpretation of the late antique phase. A stone slab with a round opening and trapezoidal groove was found within the cistern,<sup>5</sup> which enables a more complete reconstruction of the cistern covering, as well as the reconstruction of its usage, water capture and manipulation /Fig. 7/. The width of this slab corresponds to the span from the central support element which has slight deviation from the center, to the north–eastern cistern wall suggesting that the cistern cover in this half consisted of larger stone slabs. In the other half we can recognize traces of some

<sup>5</sup> Sličan oblik kružnog otvora susrećemo i na istraženju cisterni u Naroni, usp. B. ČARGO – A. PITEŠA, 2006, 431–434.

<sup>5</sup> A similar form of a round opening was found on the explored cistern in Naron, cf. B. ČARGO – A. PITEŠA, 2006, 431–434.



Sl. 7. Kamena pokrovnna ploča s kružnim otvorom.

Fig. 7. Stone cover slab with a round opening.

zidu cisterne pak uočavamo tragove neke vrste nepravilnoga bačvastog svoda.

Izostanak tragova istrošenosti na ploči s kružnim otvorom, koja je vjerojatno služila kao kruna cisterne, sugerira relativno kratak vijek upotrebe ove vodospreme nakon adaptacije u kasnoj antici, možda zbog nekvalitetno izvedene konstrukcije svoda ili, što je vjerojatnije, dijeleći sudbinu ostalih građevina Aserije i urbanističkog preslojavanja sve do 6. st. O toj kratkoj funkciji u kasnoantičko vrijeme posredno svjedoče i skromni nalazi sitnog materijala u ispuni cisterne, koji ponajviše možemo smjestiti u vrijeme antike. Kao ilustraciju možemo tako izdvojiti brončanu žličicu, dva ulomka uljanica koje možemo datirati u 2. st.

kind of irregular barrel vault towards the south–western wall of the cistern.

Lack of “use wear” traces on the slab with a round opening, which probably served as a crown of the cistern suggests relatively short duration of use of this water reservoir after the adaptation in Late Antiquity, perhaps due to poor masonry of the vault construction, or what is more likely, sharing the destiny of other buildings in Asseria and urbanistic superposing until the 6th century. Meager small finds in the cistern fill which for the most part belong to the antiquity period, testify indirectly about the short–term function in Late Antiquity. As an illustration we can mention a small bronze spoon, two lamp fragments which can be dated to the 2nd century (Loesche





Sl. 8. Sitni nalazi.  
*Fig. 8. Small finds.*



Sl. 9. Kameni prag.  
*Fig. 9. Stone threshold.*



Sl. 10. Zidna žbuka s ostacima štukature.  
*Fig. 10. Plaster with the stucco remains.*



Sl. 11. Konzervatorski radovi na cisterni.

*Fig. 11. Conservation works on the cistern.*

(Loesche tip IB i firma lampa),<sup>6</sup> brončanu karičicu, ulomak tegule s pečatom [NERONIS CLA]VD(I) PANS(IANA),<sup>7</sup> kockice mozaika, dio keramičkog portreta, keramičke utege, ulomke vrčeva, ali i jedan kameni prag /Sl. 9/, te ulomke zidne žbuke s ostatcima štukature /Sl. 10/. Nastavak istraživanja trebao bi proširiti spoznaje o kontekstu funkcioniranja cisterne, osobito u objašnjavanju prostorne organizacije unutar antičke insule. Taj nastavak uvelike je osiguran provedenom preventivnom zaštitom na sačuvanim ostatcima cisterne, pri čemu su zdravi završetci žbuke konzervirani “opšivanjem”,<sup>8</sup> /Sl. 11./.

type IB and a Firma lamp),<sup>6</sup> a small bronze ring, fragment of a tegula with a stamp [NERONIS CLA]VD(I) PANS(IANA),<sup>7</sup> mosaic pieces, fragment of a ceramic portrait, ceramic weights, jug fragments, a stone threshold /Fig. 9/ and the fragments of plaster with the stucco remains /Fig. 10/. The continuation of excavations should contribute to better understanding of the context of the cistern’s functioning, especially in explaining the spatial organization within an ancient insula. This continuation is ensured to a large degree by protective activities undertaken on the preserved remains of the cistern, when the healthy mortar ends were conserved by “seaming”,<sup>8</sup> /Fig. 11/.

<sup>6</sup> K. GOETHERT, 1997, 63; J. MARDEŠIĆ, 2006, 158.

<sup>7</sup> M. ĆURKOVIĆ, 2008, 85.

<sup>8</sup> Z. VASILJ, 2008, 121.

<sup>6</sup> K. GOETHERT, 1997, 63; J. MARDEŠIĆ, 2006, 158.

<sup>7</sup> M. ĆURKOVIĆ, 2008, 85.

<sup>8</sup> Z. VASILJ, 2008, 121.

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