Rimska vila u uvali Soline na otoku Sv. Klement kod Hvara Preliminarna analiza arhitekture prema geofizičkom istraživanju i sondiranju

Begović, Vlasta; Schrunk, Ivančica; Ugarković, Marina

Source / Izvornik: **Prilozi Instituta za arheologiju u Zagrebu, 2012, 29, 143 - 166**

Journal article, Published version
Rad u časopisu, Objavljena verzija rada (izdavačev PDF)

Permanent link / Trajna poveznica: https://urn.nsk.hr/urn:nbn:hr:291:983324

Rimska vila u uvali Soline na otoku Sv. Klement kod Hvara
Preliminarna analiza arhitekture prema geofizičkom istraživanju i sondiranju

Roman villa in the Soline cove on the Island of St. Clement near Hvar
Preliminary analysis of the architecture according to geophysical investigations and sondages

Prethodno priopćenje
Antička arheologija

Preliminary communication
Roman archaeology

UDK/*UDC* 904:728.84](497.5)(210.7 Sveti Klement)"652"

Primljeno/*Received*: 11.05.2012.
Prihvaćeno/*Accepted*: 18.12.2012.

VLASTA BEGOVIĆ
Institut za arheologiju
Ljudevita Gaja 32
HR–10000 Zagreb
vlasta.begovic@iarh.hr

IVANČICA SCHRUNK
University of St. Thomas
St. Paul, Minnesota 55105,
USA
idschrunk@stthomas.edu

MARINA UGARKOVIĆ
Institut za arheologiju
Ljudevita Gaja 32
HR–10000 Zagreb
marina.ugarkovic@iarh.hr

U uvali Soline na otoku Sv. Klement kod Hvara vršena su arheološka istraživanja od kolovoza 2007. do srpnja 2012. godine. Istraživani su ostaci rimske vile, smještene uz plodno polje i more, koja bi se prema položaju i funkciji u krajoliku i akvatoriju mogla smatrati maritimnom vilom. Razdoblje je aktivnosti i naseljavanja datirano po nađenom pokretnom i građevnom materijalu te teksturi zidova od ranog carstva do kasne antike. Vidljivi ostaci vile pretežno su iz kasnoantičkog razdoblja. Vila je građena u dvije ili više faza. Kasnoantička nadogradnja je reupotrijebila mnoge elemente ranije vile. Različite spolije nalazimo ugrađene u kasnoantičke zidove i ispod kasnoantičkih podnica, kao npr. pragove ulaza u prostorije, dijelove hipokausta terma, obrađeno kamenje iz zidova koje je kombinirano s grubo pritesanim kamenom upotrijebljenim u kasnoj antici. Kasnoantičke preinake, vjerojatno, su vezane uz solane u uvali Soline. Kompletni areal vile nije ni približno definiran, kao ni svi sadržaji iz tih razdoblja koji su se nalazili na otoku Sv. Klement. Nakon šest godina arheoloških istraživanja proširena su saznanja o lokalitetu čija su istraživanja započela 1956. i 1957. godine. Preliminarni rezultati daju znatan doprinos općem saznanju o ruralnim naseljima na srednjodalmatinskim otocima i njihovoj povijesnoj ulozi u privredi i navigaciji u Jadranu. Pojedinačni nalazi pokazuju raspon od 2. st. pr. Kr. do 6. st. U istraživanjima su korištene neinvazivne metode očitavanja zračnih snimaka i elektromagnetske detekcije te istraživanje arhitekture na terenu i otvaranje manjih probnih sonda koje se, nakon završene kampanje, zatrpavaju.

Ključne riječi: otok Sv. Klement (Pakleni otoci), Hvar, rimska vila, elektromagnetska istraživanja, arheološka iskopavanja i istraživanja, 2./1. st. pr. Kr. do 6. st.

In the Soline cove on the island of St. Clement near Hvar, archaeological excavations were conducted from August 2007 to July 2012. The object of the investigation were the remains of a Roman villa located next to a fertile plain and close to the sea and its position and function in the landscape and the maritime zone indicate that it may have been a maritime villa. According to the movable material, building material and texture of the walls, its period of activity and habitation was dated to the Early Imperial period until Late Antiquity. The visible remains of the villa are mostly from Late Antiquity. It was built in two or more stages. The annex from Late Antiquity reused many elements of the earlier villa. We find different spolia built into walls from Late Antiquity and under floors from Late Antiquity, such as doorsteps on entrances to rooms, parts of the hypocaust of baths, dressed stone blocks from the walls combined with rough-hewn stone blocks used in Late Antiquity. The reconstructions from Late Antiquity were probably linked to the salt works in the Soline cove. The complete area of the villa is not even roughly defined, as is also the case with all the structures from those times located in the island of St. Clement. Six years of archaeological investigations have enriched our knowledge about this location where investigations began in 1956 and 1957. The preliminary results are a significant contribution to the general knowledge on rural settlements on the central Dalmatian islands and their historic role in the economy and navigation in the Adriatic. Individual finds show a range from the 2nd century BC to the 6th century. The investigations employed non-invasive methods of aerial imagery and electromagnetic detection, as well as architectural field investigations and opening of small-scale sondages which are then filled up again with earth after the end of the campaign.

Key words: Island of St. Clement (Pakleni otoci archipelago), Hvar, Roman villa, electromagnetic investigation, archaeological excavations, 2nd/1st c. BC to 6th c.

Uvod

Nakon 50 godina od prvih arheoloških istraživanja rimske vile smještene u uvali Soline, na južnoj strani otoka Sv. Klement, sustavno istraživanje lokaliteta započeto je u kolovozu 2007. godine i u kraćim kampanjama sljedećih pet sezona traje do srpnja 2012. godine.

Introduction

Fifty years after the first archaeological investigations of the Roman villa in the Soline cove on the southern side of the island of St. Clement, the systematic excavations of the site began in August 2007 and continued in shorter campaigns for five seasons, until July 2012.

Sl. 1 Pogled na lokalitet vile (snimio: T. Schrunk)
Fig. 1 A view of the site (photo: T. Schrunk)

Na samom početku radova, nakon što je lokalitet očišćen od visoke trave i makije, izvršeno je geodetsko snimanje terena i napravljen je plan vidljivih arhitektonskih struktura vile u mj. 1:200 (Geobiro iz Splita, autori: V. Duišin i Š. Kovačić). Te prve sezone David Monsees izvršio je prvo geofizičko (magnetometrijsko) snimanje dijela areala vile u dva sektora oko zida B. U lipnju 2010. godine Felix Teichner i Jesus Ignacio Jimenez Chaparro snimili su širi areal vile i sve arhitektonske strukture uz danas vidljive dijelove vile uz more. Koristila se totalna stanica tipa Leica (TC 605L) te DGPS sistem tvornice Thales, a do sada potvrđeni areal vile podijeljen je u četiri sektora, označenih slovima A–D. Izvršili su i elektromagnetska istraživanja u tri sektora, na prostoru površine 1050 m^2 unutar areala vile, pri čemu se koristio petokanalski sistem s automatskim prikupljanjem podataka tvornice Sensys (Bad Saarow). U istraživanjima su sudjelovali arheolozi, povjesničari umjetnosti, arhitekti, geografi,

At the very beginning of the works, after the site had been cleared of high grass and underbrush, a geodetic surveying was carried out and a plan was drawn up of the visible architectural structures of the villa in a 1:200 scale (Geobiro from Split, authors V. Duišin and Š. Kovačić). During this first season, David Monsees completed the first geophysical (magnetometric) survey of a part of the villa's area in two sectors around wall B. In June 2010, Felix Teichner and Jesús Ignacio Jiménez Chaparro surveyed a wider areal of the villa and all the architectural structures along the currently visible parts of the villa next to the sea. A Leica type total station was used (TC 605L) and a DGPS system by Thales. The villa's so far confirmed areal has been divided into four sectors marked with the letters A-D. Electromagnetic measurements were also carried out in three sectors in an area covering 1050 m^2, within the villa's area, using a five-channel system with automatic data collection by Sensys (Bad Saarow). The investigations gathered archaeologists, art historians, architects, geographers, geologists

geolozi i biolozi iz Muzeja hvarske baštine iz Hvara, Instituta za arheologiju iz Zagreba, Sveučilišta St. Thomas, St. Paul u Minnesoti (USA), američke fondacije Archaeo/Community iz San Francisca (USA), Njemačkog arheološkog instituta (Deutsches Archäologisches Institut, Römisch-Germanische Kommission (RGK)) iz Frankfurta a.M. (Njemačka), Sveučilišta u Oviedu (Španjolska), Sveučilišta Karl-Franzes u Grazu (Austrija) te Techniche Universitata u Darmstadtu (Njemačka). Elektromagnetska istraživanja vršili su 2007. godine David Monsees iz Washingtona D.C. (USA) te 2010. godine Felix Teichner sa Sveučilišta Goethe u Frankfurtu (Njemačka) i Jesus Ignacio Jimenez Chaparro sa Sveučilišta u Oviedu (Španjolska), uz potporu DAI-a (Deutsches Archäologisches Institut). Branimir Šegvić s Techniche Universitata u Darmstadtu (Njemačka) radio je geološku analizu. Snimanje lokaliteta i digitalnu dokumentaciju arhitekture 2011. godine, uz potporu Sveučilišta, vršila je ekipa sa Sveučilišta u Grazu (Austrija) pod vodstvom Tine Neuhauser, dok su nacrte za publikaciju izradile arhitektice Iva Dubovečak (Atelier Minerva) i Ivana Tutek (Arhitektonski fakultet u Zagrebu). Financiranje je najvećim dijelom ostvareno sredstvima fondacije Archaeo/Community, Sveučilišta St. Thomas (John Crary i Tom Lumsden) i privatnim donacijama.

Godine 2010. započeto je mapiranje otoka Sveti Klement uz pomoć GPS-a (linija obale otoka, putovi, kamenolomi, vapnenice i ostaci poljske arhitekture), a temeljem dobivenih podataka izrađen je trodimenzionalni reljefni prikaz otoka.

Sustavni terenski pregled i mapiranje otoka izvršilo je dvoje studenata geografije sa Sveučilišta St. Thomas: Renee Huset i Matthew Weishan. Prikupljali su prostorne podatke (koordinate i visine) prirodnih i kulturnih osobitosti neposrednom izmjerom na terenu GPS-om. Koristili su programsku podršku GIS-a i satelitske snimke. Studenti su obišli skoro cijelu obalu i dostupnu unutrašnjost otoka, osim teško pristupačnog zapadnog dijela. Cilj je bio da se kreiraju **reljefna mapa otoka (trodimenzionalni model reljefa)** i precizne pregledne karte cijelog perimetra otoka (kontura obale) te prostornog smještaja arheoloških lokaliteta, putova, plodnih polja, kamenoloma, vapnenica itd. Prikupljeni podaci, dobivene informacije, mape i modeli temeljni su početak za šire multidisciplinarno istraživanje lokaliteta i otoka.

Arheologija otočnih i obalnih krajolika ustaljen je metodološki predmet koji zahtijeva multidisciplinarni pristup i primjenu suvremenih arheoloških metoda i teorija. Istraživanje ne samo lokaliteta u Solinama nego i otoka te saznanja o krajoliku i akvatoriju Sv. Klementa fundamentalna su za naše razumijevanje ljudskih života i povijesnih veza i promjena.

Rimska vila nalazi se na otoku Sv. Klement (površine 5,3 km^2), najvećem otoku arhipelaga Pakleni otoci (Pakljeni otoci, Hvarski škoji), koji su ime dobili po smoli (paklini) kojom su se premazivala dna brodova radi nepropusnosti. Uvala Soline je prirodno najzaštićenija uvala (prirodni emporij) otoka i kao takva mogla je od početka naseljavanja imati znatnu ulogu u akvatoriju otoka. Na ulazu u uvalu nalazi se otok Dobri koji štiti luku od jakih južnih vjetrova i valova. Uvala Soand biologists from the Hvar Heritage Museum from Hvar, the Institute of Archaeology in Zagreb, St. Thomas University, St. Paul, Minnesota (USA), the American foundation Archaeo/Community from San Francisco (USA), the German Archaeological Institute (Deutsches Archäologisches Institut - DAI, Römisch-Germanische Kommission (RGK)) Frankfurt a.M., (Germany), The University of Oviedo (Spain), the Karl-Franzes University in Graz (Austria), and the Technische Universität in Darmstadt (Germany). The electromagnetic investigations were conducted in 2007 by David Monsees from Washington D.C. (USA) and in 2010 by Felix Teichner of the Goethe University in Frankfurt (Germany) and Jesús Ignacio Jiménez Chaparro of the University of Oviedo (Spain), with the support of DAI (Deutsches Archäologisches Institut). Geological analysis was made by Branimir Šegvić from Techniche Universität Darmstadt (Germany). Photographing of the site and digital documentation of the architecture in 2001 were managed by the team from the University in Graz (Austria), led by Tina Neuhauser, while the images for the publication were drawn by the architects Iva Dubovečak (Atelier Minerva) and Ivana Tutek (Faculty of Architecture in Zagreb). The largest part of the financial means was secured by the Archaeo/Community Foundation of the University of St. Thomas (John Crary and Tom Lumsden) and by private donations.

In 2010, the GPS-aided mapping of St. Clement commenced (the coastline, roads and paths, stone quarries, limekilns and remains of the field architecture). Based on the acquired data a three-dimensional representation of the island was made.

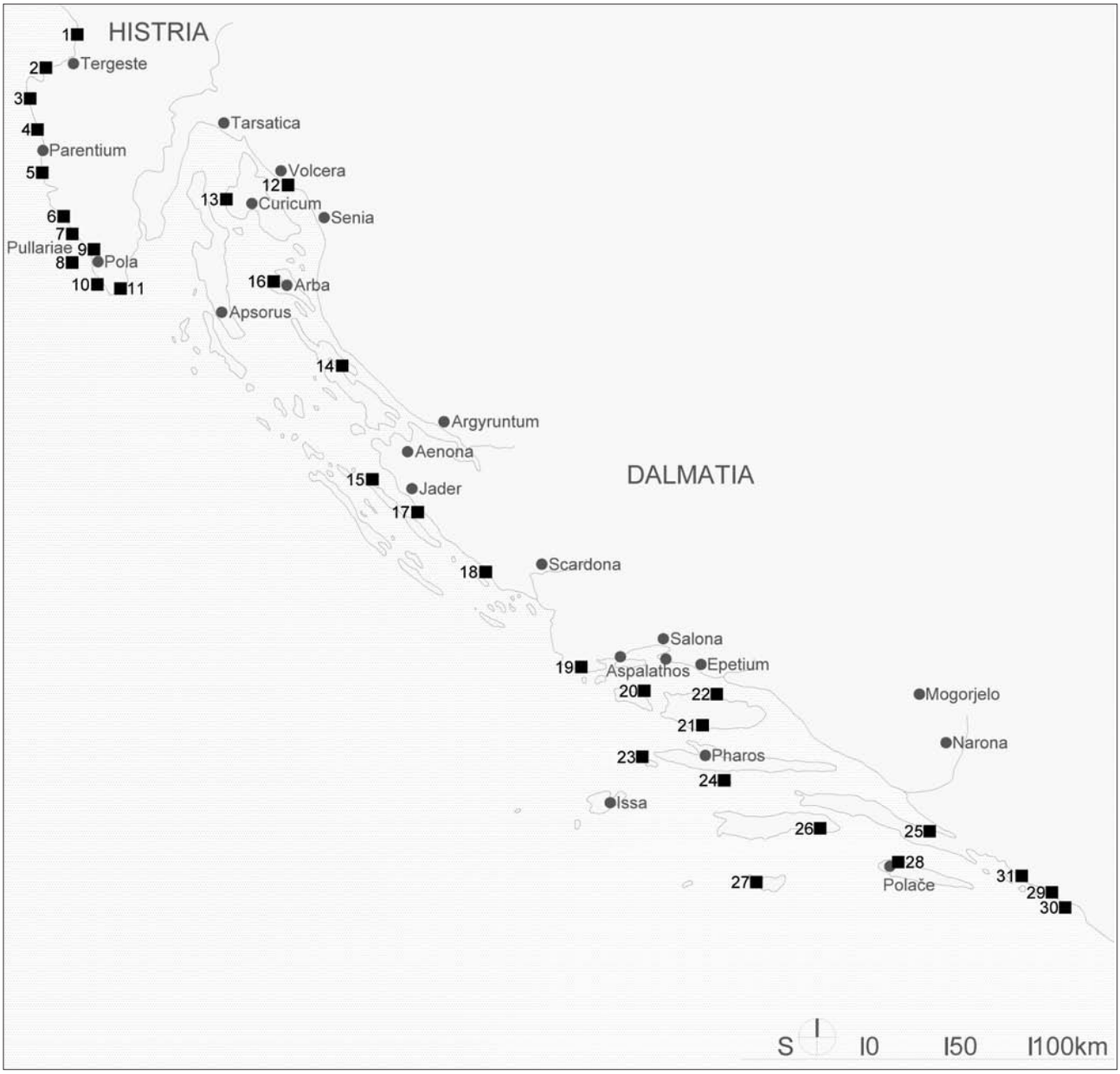
The systematic field work and mapping of the island was performed by two geography students from St. Thomas University, Renee Huset and Matthew Weishan. They collected spatial data (co-ordinates and height) of the cultural and natural traits by means of direct GPS measurements. They also used GIS software and satellite images. The students covered almost the entire coast and the accessible hinterland of the island, with the exception of the difficult to approach western part. The goal was to create a relief map of the island (a three-dimensional relief model), precise overview maps of the island's entire perimeter (the coast contours) and the spatial distribution of the archaeological sites, paths, fertile fields, stone quarries, limekilns etc. The collected data, the information gleaned, the maps and models form a basis for a wider interdisciplinary investigation of the site and the island.

The archaeology of island and costal landscapes is a well-established methodological subject that requires a multi-disciplinary approach and the application of modern archaeological methods and theories. The investigations not only of the site itself but also of the island and the knowledge about the landscape and the waters of St. Clement are fundamental to our understanding of the human lives and historical connections and changes.

The Roman villa is located on the island of St. Clement, area 5.3 km^2, the largest island of the Pakleni otoci archipelago (Pakljeni otoci, Hvarski škoji), whose name stems from the wax (*paklina*) used to coat the bottoms of ships to make them impermeable. The Soline cove is the cove with the best natural protection on the island (a natural emporium) and as such it may have played an important role in the island's waters since the beginning of habitation. The island Dobri is located at the entrance to the cove and protects the harbour from strong southern winds and waves. The Soline

line nalazi se na sredini otoka Sv. Klement, na uskoj prevlaci gdje je udaljenost između sjeverne i južne obale najmanja, tako da lokalitet na toj poziciji koristi četiri više-manje dobro zaštićene uvale (sidrišta): uvalu Soline (zaštićenu otokom Dobri i rtom Kovač), uvalu Privojica (zaštićenu rtom Stražica i Dobrim otokom), uvalu Vlaka (zaštićenu otočićem Vlaka ispred uvale) i uvalu Taršće. U takvoj konstelaciji pristajanje

cove is located in the central part of St. Clement island, on a narrow isthmus where the distance between the northern and the southern part of the coast is the smallest, meaning that a site on this location uses four more or less well protected coves (anchorages): the Soline cove (protected by the island of Dobri and the Kovač promontory, the Privojica cove (protected by the Stražica promontory and the island of Dobri), Vlaka (protected by the islet of Vlaka in front of



Sl. 2 Maritimne vile na istočnoj obali Jadrana: 1 Barcola; 2 Simonov zaljev; 3 Katoro; 4 Loron; 5 Sorna; 6 Barbariga; 7 Dragonera; 8 Uvala Verige na otočju Brijuni; 9 Val Bandon; 10 Banjole; 11 Vižula; 12 Selce kod Crikvenice; 13 Njivice na otoku Krku; 14 Šimuni na otoku Pagu; 15 Muline na otoku Ugljanu; 16 Supetarska draga na otoku Rabu; 17 Bošana kod Biograda; 18 Murter; 19 Stari Trogir; 20 Nečujam na otoku Šolti; 21 Zlatni rat, Bol na otoku Braču; 22 Lovrečina na otoku Braču; 23 Uvala Soline na otoku Sv. Klement; 24 Šćedro, južno od otoka Hvara; 25 Sreser na poluotoku Pelješcu; 26 Lumbarda na otoku Korčuli; 27 Ubli na otoku Lastovo; 28 Polače na otoku Mljetu; 29 Uvala Tiha kod Cavtata; 30 Sustjepan

Fig. 2 Maritime villas on the eastern Adriatic coast: 1 Barcola; 2 Simon's Bay; 3 Katoro; 4 Loron; 5 Sorna; 6 Barbariga; 7 Dragonera; 8 Verige bay on the Brijuni islands; 9 Val Bandon; 10 Banjole; 11 Vižula; 12 Selce near Crikvenica; 13 Njivice on the island of Krk; 14 Šimuni on the island of Pag; 15 Muline on the island of Ugljan; 16 Supetarska draga on the island of Rab; 17 Bošana near Biograd; 18 Murter; 19 Stari Trogir; 20 Nečujam on the island of Šolta; 21 Zlatni rat, Bol on the island of Brač; 22 Lovrečina on the island of Brač; 23 Soline cove on the island of St. Clement; 24 Šćedro south of the island of Hvar; 25 Sreser on the Pelješac peninsula; 26 Lumbarda on the island of Korčula; 27 Ubli on the island of Lastovo; 28 Polače on the island of Mljet; 29 Tiha cove near Cavtat; 30 Sustjepan

brodova moguće je skoro po svim vremenskim uvjetima. Uvale Soline, Privojica i Vlaka zaštićene su od jakih južnih vjetrova. Svakako najsigurniji maritimni prostor u ovom području je uvala Privojica koja se, zbog dobre zaštićenosti, ali i dubine, koristi i za sidrenje većih brodova. Vila pripada među 30 ubiciranih i istraživanih maritimnih vila na istočnoj obali Jadrana.

Polazne pretpostavke

Arhipelag se sastoji od dvadesetak otočića i hridi zapadno od otoka Hvara i oko 3 km je udaljen od istoimenog glavnog grada Hvara. Otočje je, zbog prirodnih ljepota, dobilo status zaštićenog krajolika. Pakleni otoci su poznati po zaštićenim lukama u kojima se vršio popravak brodova. Sv. Klement ima nekoliko prikladnih uvala za sidrenje brodova, a to su: Privojica (Soline), Vlaka, Taršće, Okorija i Palmižana. Ime luke Palmižana dolazi od spalmire - premazivanje brodova smolom. Špilje s izvorima pitke vode nalaze se na nekoliko lokacija na otoku Sv. Klement: Vodeni rat, Studeni rat i Meštrovića punta. Jedan od takvih izvora nalazi se i u samoj uvali Soline. Zbog uzdizanja razine mora za 2 m od antičkih vremena, danas su oni izvori bočate vode – miješana slatka i slana voda. U novije vrijeme upotrebljavali su se samo za napajanje stoke. Kopneni izvori danas su zapušteni i nekorišteni. Najpoznatiji je Vodeni rat na južnoj strani otoka (između Vlake i Momića polja) koji predstavlja depo vode u klisuri. Ulaz je elipsoidnog oblika (obzidani dio) i postoje tragovi udubljena od konopca u kamenu, na mjestima gdje se vjedrima vukla voda iz klisure. Na zapadnoj strani Sv. Klementa su dva plodna polja: Veliko polje uz uvalu Soline i Momića polje uz uvalu Okorija.

Prapovijesni grobovi (grobne gomile) nađeni su na više mjesta na otoku Sv. Klement – ukupno desetak grobnih gomila (Novak 1959; 1960: 24). Posebno ćemo istaknuti nalaze grobne gomile na putu iz Vlake za Palmižanu (3 humka nad uvalom Planikov bok), druge grobne gomile na putu iz uvale Soline za uvalu Taršće i jednog ilirsko-helenističkog groba na putu Vlaka – Momića polje, budući da se nalaze u neposrednoj blizini lokaliteta Soline. Rekognoscirani kamenolom na otoku Sv. Klement, vjerojatno antički, nalazi se u uvali Taršće. Visina seka (površina zasijecanja kamene mase) je 6–7 m. Širina kamenoloma je 13–15 m. Oko 4 m je visina kamenih blokova koji su se izrezivali. Istraživanja i mjerenja kamenoloma izvršili su studenti geografije R. Huset i M. Weishan. Kamen je tvrd vapnenac bijele boje i vrlo dobre strukture. Rimski povjesničar Plinije Stariji piše o tzv. mramornom vapnencu koji se vadio iz kamenoloma kod Trogira, no kvalitetnog bijelog vapnenca ima na puno mjesta u Dalmaciji (Suić 1991: 285). U kontinuitetu do obale ide ploha po kojoj su, pretpostavimo, do mora vozili kamene blokove za utovar na brod. Rimski transport kamenih blokova do morske obale obavljao se povlačenjem po gredicama koje su bile ukopane u zemlju i namazane lojem, a po kojima je klizila drvena konstrukcija za prijenos tereta (formirana kao dvije skije povezane poprečnim gredama). Druga mogućnost transporta bila je drvenim napravama složenim od gredica (slično sanjkama) koje su vukli konji ili volovi po neravnom terenu (Šonje 1980: 154; Šarić 1980: 118). Ispred

the cove) and the Taršće cove. This constellation makes it possible for boats to land in almost all weather conditions. The Soline, Privojica and Vlaka coves are protected from strong southern winds. Most definitely the safest maritime area is the Privojica cove which is so well protected and so deep that it can also be used for anchoring larger vessels. The villa is among 30 located and investigated maritime villas on the eastern Adriatic coast.

Basic assumptions

The archipelago is made up of twenty small islands and rocks west of the island of Hvar, around three kilometres from the capital of the same name. Its natural beauty has earned the group of islands the status of a protected landscape. Pakleni islands are well known for their protected ports where ships were repaired. St. Clement has several coves suitable for anchoring – Privojica (Soline), Vlaka, Taršće, Okorija and Palmižana. The name of the Palmižana port comes from the word *spalmire* – to coat the ships with resin. There are caves with drinking water wells on several locations on the island of St. Clement: Vodeni rat, Studeni rat and Meštrovića punta. One such well is located in the Soline cove. Because the sea level has risen around 2m since antiquity, today these are wells of brakish waters – mixed salt and fresh water. In recent times they were used only for watering cattle. Today, the land wells are neglected and unused. The best known is Vodeni rat on the southern side of the island (between Vlaka and Momić polje) which is a water source in a cliff. The entrance is ellipsoidal (the walled part) and there are traces of indentations from rope where it was used to draw water out of the cliff. On the western side of St. Clement there are two fertile fields: Veliko polje next to the Soline cove and Momića polje next to the Okorija cove.

Prehistoric graves (grave mounds) were found in several places on the island of St. Clement – around ten grave mounds in all (Novak 1959; 1960: 24). We would especially like to stress the finds of a grave mound on the way from Vlaka to Palmižana (3 mounds above the Planikov bok cove), a second grave mound on the way from the Soline cove to the Taršće cove and one Illyrian-Hellenistic grave on the way from Vlaka to Momića polje, as they are located in the direct vicinity of the Soline site. A survey of the island of St. Clement led to the discovery of a stone quarry, probably from antiquity, in the Taršće cove. The height of the cut (the surface of the quarried rock) is 6–7 metres. The width of the stone quarry is 13–15 metres. The stone blocks that were cut were around 4–5 metres in height. The stone quarry was examined and measured by geography students R. Huset and M. Weishan. The stone is hard limestone, white in colour and of a very good structure. The Roman historian Pliny the Elder writes of the so-called marble limestone that was quarried near Trogir, but good quality white limestone can be found in numerous places in Dalmatia (Suić 1991: 285). A plane stretches to the coast, and on it they probably transported stone blocks before loading them onto the ships. The Roman way of transporting stone blocks to the coast included pulling on wooden rails dug into the earth and coated with tallow and along which glided a wooden structu-

kamenoloma u uvali Taršće je polukružno oblikovana uvala s istacima poput molova koji su štitili uvalu. Vrlo je važno da je kod utovara kamenih blokova more mirno. Iznad uvale Taršće, na koti 80 m iznad mora (vrh Glavica), nađeni su rasuti kameni blokovi koji bi mogli biti dio neke strukture, možda osmatračnice, te bi njihovu namjenu i dataciju trebalo istražiti. To je položaj koji kontrolira kanal između otoka Sv. Klement i otoka Hvara te ima panoramske poglede prema Starigradu, Hvaru i Visu.

Povijesna važnost lokaliteta naglašena je saznanjima o grčkim kolonijama osnovanim na susjednim otocima Visu i Hvaru (Issa i Pharos) te kasnijim rimskim gradovima. Položaj u uvali Soline imao je prednost plodnog polja, a bio je vezan i za antičke plovidbene putove srednjim Jadranom, kako unutarnjom tako i vanjskom plovidbom – kanal između otoka Brača i Hvara, kanal između Hvara i Paklenih otoka te između Paklenih otoka i Visa, između otoka Hvara i Visa te Splitska vrata između otoka Brača i Šolte i plovidbu prema Saloni (kasnije i Dioklecijanovoj palači) (Kirigin, Marin 1989). Soline bi bile jedna od pogodnih luka za opskrbu brodova hranom i vodom te zaklon u slučaju nevremena. Lokalitet je mogao imati važan strateški položaj u kontroli plovidbe. Položaji s kojih se moglo osmatrati i kontrolirati plovidbu nalaze se na vrhu Glavica (na 80 m nadmorske visine), na Dobrom otoku (najviši vrh je 51 m nadmorske visine), na položaju današnje crkve Sv. Klementa u naselju Vlaka (na 44 m nadmorske visine; uz crkvu postoji plato s ostacima kamenih zidova – neistraženo) te na rtu Stražica (na 28 m nadmorske visine). U odnosu na grčke i lokalne naseobine te rimska naselja u vremenu od 4. st. pr. Kr. do 1. st. pr. Kr., ima indikacija da je lokalitet u Solinama bio uključen u ekonomsku razmjenu i pomorski promet pred kraj tog perioda. Mogao je predstavljati i jednu stratešku točku u rimskim osvajanjima i pomorskim bitkama. Interesantna je teza S. Bilića-Dujmušića (2006) da se naziv otoka Taurisa ne odnosi samo na Šćedro nego na Paklene otoke u cjelini, s obzirom na to da navigacioni punktovi sliče konstelaciji Taurusa/Bika. Značajni nalazi helenističke i rimske republikanske keramike iz 2./1. st. pr. Kr., u sondama iskopanim od 2007. do 2011. godine, pomaknuli su prethodne datacije lokaliteta. Međutim, za sada se ti nalazi ne mogu povezati s arhitekturom nađenom na tom području.

Na području Paklenih otoka i okolnih srednjodalmatinskih otoka znatno se povećava broj ruralnih naseobina iz razdoblja rimske dominacije i Rimskog Carstva (Gaffney et al. 2006: 94–95). Prema današnjim saznanjima, evidentirane su maritimna vila u uvali Soline sa značajnim kasnoantičkim nadogradnjama te još dvije rimske vile: *villa rustica* u uvali Okorija na zapadnom dijelu otoka Sv. Klement uz tzv. Momića polje, drugo plodno polje na otoku (Zaninović 1995: 92), i *villa rustica* u uvali Ždrilica na otočiću Marinkovac (Petrić 2008b: 168; Purcell 1995: 162). Navodno je dio rimskog kanalizacionog sustava nađen, prilikom građevinskih radova u dvorištu kuće T. Matijevića u uvali Vlaka, prema njegovoj usmenoj informaciji.

Maritimna vila

Rimska vila u uvali Soline smještena je s južne stra-

re for carrying cargo (in the shape of two skis connected with joists). The second manner of transport used wooden structures made of planks (similar to sleighs), drawn by horses or bulls on uneven ground (Šonje 1980: 154; Šarić 1980: 118). In front of the stone quarry in the Taršće cove there is a semi-circular cove with pier-like protrusions that protected the cove. It is very important that the sea is calm when stone blocks are being loaded onto ships. In the Taršće cove, at a point 80 m above the sea (the Glavica peak) scattered stone blocks were found that may have been part of a structure, perhaps an observation post, and their purpose and dating should be investigated. This is a position that controls the channel between the island of St. Clement and Hvar and offers panoramic views toward Starigrad, Hvar and Vis.

The historical importance of the site is underlined by the knowledge regarding the Greek colonies on the neighbouring islands of Vis and Hvar (Issa and Pharos), and later Roman cities. The position in the Soline cove had the advantage of a fertile field and was also connected to ancient maritime routes along the central Adriatic, both inland and open-sea navigation – the channel between the islands of Brač and Hvar, the channel between Hvar and the Pakleni otoci archipelago and between Pakleni otoci and Vis, between Hvar and Vis, and the Strait of Split between the islands of Brač and Šolta and navigation toward Salona (and later also Diocletian's palace) (Kirigin, Marin 1989). Soline would have been a suitable port for provisions of food and water, as well as shelter in case of a storm. The site may also have had an important strategic position in controlling the naval routes. The positions that could be used for observation and control of the naval routes are on the Glavica peak, at 80 m above the sea, on Dobri otok (the highest peak is 51 m above the sea), at the position of today's church of St. Clement in the village of Vlaka at 44 m above the sea (there is a plateau adjacent to the church with remains of stone walls – not investigated), and on the Stražica promontory at 28 m above sea level. In relation to the Greek, indigenous and Roman settlements in the period from the 4th century BC to the 1st century BC, there are indications that the site in Soline was a part of the economic exchange and maritime traffic toward the end of that period. It also may have been a strategic point in Roman conquests and naval battles. S. Bilić-Dujmušić has presented an interesting theory (2006) that the name of the island of Tauris does not refer to Šćedro but rather to the Pakleni otoci as a whole, as the navigation points resemble the constellation of Taurus. The significant finds of Hellenistic and Roman Republican ceramics from the 2nd/1st century BC in sondages carried out in 2007–2001 have altered the previous datings of the site. For the time being, however, these finds cannot be linked to the architecture discovered in the area.

In the area of Pakleni otoci and the surrounding central Dalmatian islands, the number of rural settlements from the period of Roman domination and the Roman Empire is significantly growing (Gaffney et al. 2006: 94–95). According to current knowledge, the following villas have been documented: the maritime villa in the Soline cove with signifi-

ne plodnog polja (Veliko polje), na padini brežuljka koji je okrenut prema zapadu, a istraženi ostaci vile nalaze se na istočnom dijelu uvale neposredno uz morsku obalu. Pretpostavljamo da je šire područje vile bilo veće, a da je posjed mogao obuhvatiti cijelo polje i prostirati se između uvale Soline, uvale Taršće i uvale Vlaka. Graditelji vile prepoznali su najpovoljniju uvalu na otoku i tu smjestili maritimnu vilu koja je imala sve prednosti mirnog mora i mogla razviti svoju arhitekturu uz obalu zaštićenog zaljeva. Razina mora podigla se od antičkih vremena za cca 1,5–2 m pa izgled antičke obale možemo samo pretpostaviti (Begović, Schrunk 2008: 296). U moru ispred obale vidljivi su velikodimenzionirani kameni blokovi, vjerojatno ostaci u kamenu građene obale i mola.

Vilu je započeo istraživati akademik G. Novak koji je sa suradnicima otkopao dio zidova uz samu morsku obalu i mozaik te 1956. i 1957. godine istražio danas vidljive strukture vile. Detaljne rezultate istraživanja nije objavio, ali je u knjizi *Hvar kroz stoljeća,* iz 1960. godine, zapisao: „Na Paklenim otocima, u uvali Soline, nalazi se lijepa rimska zgrada sa ostacima mozaika, vjerojatno rimska *villa rustica*, a uz nju ostatak drugih zgrada i mozaika" (Novak 1960: 40). Slijedili su zapisi M. Zaninovića koji je također sudjelovao u arheološkim istraživanjima. M. Zaninović je, u pregledu rimskih vila u Dalmaciji, pisao i o vili u uvali Soline (Zaninović 1967: 364; 1973: 203; 1978: 55). Godine 1995. Zaninović piše: „Neke su vile uz more imale i male solane i ribnjake, kao što je to bilo sa vilom na Solinama, gdje već i samo ime uvale ukazuje na tu njenu funkciju" (Zaninović 1995: 92). Hvar Survey Project (započet 1982. godine, a 1992. godine proširen kao Adriatic Island Project) publicirao je podatke o lokalitetu 1997. godine (Gaffney et al. 1997: 208).

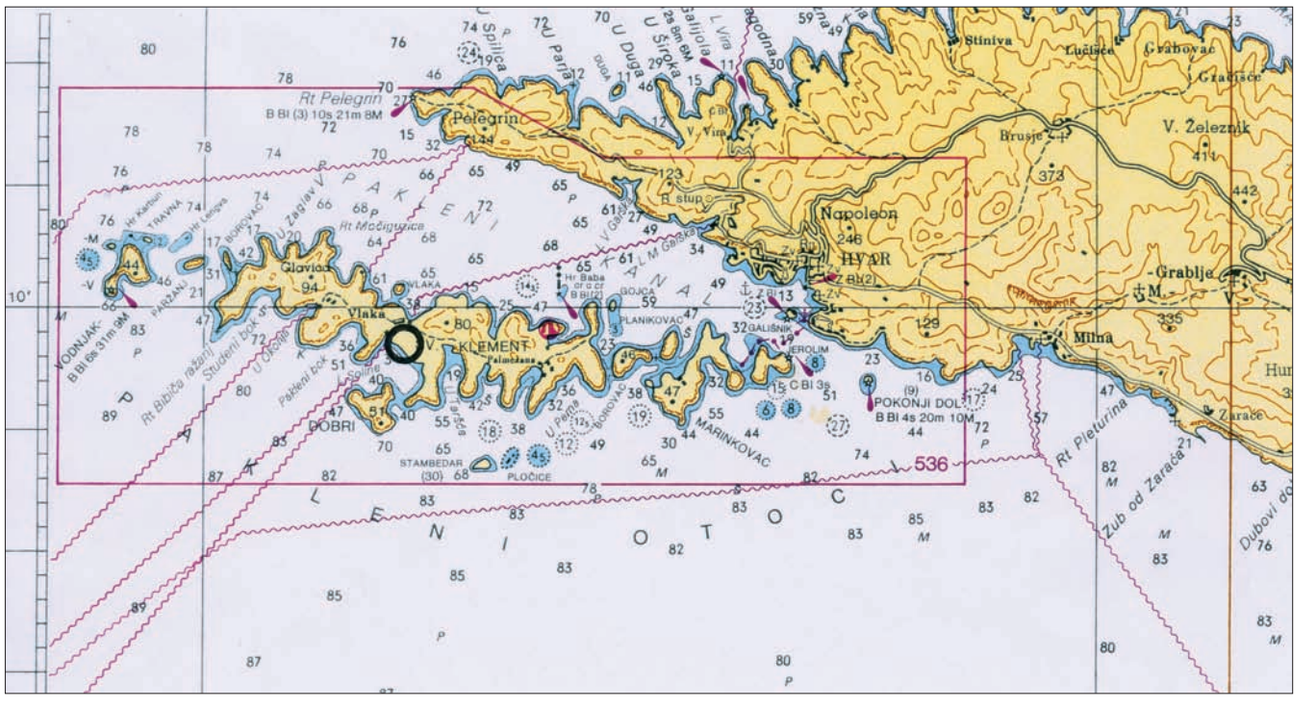
Od 2007. godine sustavna istraživanja vile su limitirana na neinvazivne metode: očitavanje ortofoto snimaka

cant annexes from Late Antiquity, and another two Roman villas – the *villa rustica* in the Okorija cove in the western part of the island of St. Clement next to the so-called Momića polje, the second fertile plain on the island (Zaninović 1995: 92) and the villa rustica in the Ždrilica cove on the small island Marinkovac (Petrić 2008b: 168; Purcell 1995: 162). A segment of the Roman sewage system was allegedly discovered during construction works in the yard of a house owned by T. Martijević in the Vlaka cove (oral communication by T. Matijević).

The maritime villa

The Roman villa in the Soline cove is located to the south of the fertile plain (Veliko polje) on the slopes of a westward facing hill, and the investigated remains of the villa are located on the eastern part of the cove right on the shore. We assume that the wider area of the villa was larger and that the property may have included the entire plain and spread out between the Doline cove, the Taršće cove and the Vlaka cove. The builders recognised the most favourable cove on the island and that is where they built this maritime villa that enjoyed all the advantages of calm sea and could develop its architecture along the shores of a protected bay. Since antiquity, the sea level has risen approximately 1.5–2 m so that we can only make assumptions about the appearance of the shoreline in antiquity (Begović, Schrunk 2008: 296). In the sea right on the shore there are large stone blocks, probably remains of what was once a shore and pier built in stone.

The first to investigate the villa was the Academy member G. Novak who together with his associates dug out a part of the walls along the very shore, the mosaic and investigated the structures of the villa visible today in 1956 and 1957. He did not publish any detailed results of the investi-



Sl. 3 Geografska karta, položaj rimske vile u uvali Soline, otok Sv. Klement (Državni hidrografski institut)
Fig. 3 Geographical map – the position of the Roman villa in the Soline cove, island of St. Clement (National Hydrographic Institute)

Sl. 4 Arhitektura rimske vile prema očitavanju ortofoto snimaka, rezultatima elektromagnetske detekcije, očitanim zračnim snimkama, nađenim dijelovima arhitekture u sondama i vidljivim ostacima arhitekture. Sonde a1 do e1 – arheološka iskopavanja od 2007. do 2011. godine (izradili: D. Monsees, F. Teichner, M. Petrić, V. Begović i I. Dubovečak)

Fig. 4 The architecture of the Roman villa according to the interpretation of orthophotographic imagery, parts of the architecture discvered in sondages and visible architectural remains. Sondages – archaeological excavations from 2007 to 2011 – a1 to e1 (made by: D. Monsees, F. Teichner, M. Petrić, V. Begović, I. Dubovečak)

(područja između tri uvale: Soline, Vlaka i Taršće), elektromagnetsku detekciju te na ciljane male sonde za provjeru podataka. Topografski položaj svih vidljivih arhitektonskih ostataka i nalaza u sondama je dokumentiran upotrebom totalne stanice te je nacrtan precizan plan u AutoCadu.

Prvo elekromagnetsko snimanje vodio je David Monsees 2007. godine. Njegov izvještaj i istraživanje vidljive arhitekture, koje od 2007. godine vodi V. Begović, indicirali su dvije faze gradnje koje su se pokazale i u rezultatima i interpretaciji F. Teichnera, koji je 2010. godine snimio površinu od 1050 m^2 (Teichner 2010). Rezultati magnetometrije i topografske dokumentacije pokazuju kompleks zidova i prostorija različitih orijentacija. Prostiranje struktura pokazuje dvije građevinske faze: jedna izrazito pravilne strukture, ortogonalnog rasporeda zidova i velikodimenzioniranih prostora i druga nepravilne strukture, prostorija manjih dimenzija. Prva se prostire u smjeru sjeveroistok – jugozapad, a druga u smjeru sjever – jug. Od posebnog je značaja činjenica da magnetometrija ukazuje na zidove orijentacije sjeveroistok – jugozapad koji ispod terena dijagonalno sijeku zid B, što bi značilo da arhitektonski kompleks orijentiran u pravcu sjeveroistok – jugozapad pripada ranijoj fazi gradnje. Dvije faze gradnje su uočene u detaljnim istraživanjima teksture vidljivih zidova. Jedna tekstura izvedena je od pravilno klesanih kamenih blokova s tankim slojnicama morta, dok je druga faza izvedena od klesanih kamenova manjih dimenzija s umetnutim slojevima opeke i mnogobrojnim kamenim materijalom u sekundarnoj upotrebi, sve u jakom mortu. Prva građevinska faza pretpostavljena je kao ranocarska maritimna vila, dok je druga faza ocijenjena kao kasnoantička. Vjerojatno se radi o rimskoj vili građenoj u 1. st., s preinakama datiranim do 6. st. (Bergman 1995: 408).

Arhitektura vile, vidljiva danas iznad površine zemlje i nađena u arheološkim sondama, označena je slovima od A do E i brojkama od 1 do 7, prema redoslijedu arheoloških iskopavanja na terenu. Nakon šest godina istraživanja postalo je moguće pretpostaviti tlocrtnu dispoziciju dijela vile uz morsku obalu, s visinskim razlikama između pojedinih cjelina od 1,40 m (mjereno na plohama mozaika nađenim *in situ*). Arhitektonski kompleks maritimne vile orijentiran je u pravcu sjeveroistok – jugozapad i poklapa se s prostiranjem slojnica terena. Zidovi započinju u dnu uvale uz samo polje i na površini su djelomično vidljivi arhitektonski ostaci ove orijentacije, a magnetometrijska ispitivanja ukazuju na to da se nastavljaju prema jugu i zapadu. Rasprostiranje ove arhitekture ne pokazuje nikakvu cjelovitost pa se pretpostavlja da je to dio većeg kompleksa koji se prostirao terasasto na obroncima brežuljka. Magnetometrijom je istražena samo prva terasa vile, neposredno uz morsku obalu. Istraženi dijelovi prve terase vile pokazuju da se zidovi i temelji maritimne vile mogu slijediti na sjeveroistočnom dijelu uvale, dok je jugoistočni dio uvale doživio kasniju nadogradnju te su dijelovi maritimne vile većinom sačuvani samo u temeljima. Jugoistočni dio uvale je upravo onaj dio na kojem su u kasnoj antici izvršene vrlo obimne nove izgradnje (koje su, sudeći prema reupotrebljenom materijalu, u velikoj mjeri razorile ranocarsku vilu). S obzirom na različite funkcionalne cjeline, moguće je da je kasnoantička nadogradnja na negations, but in the book "Hvar through the Ages", published in 1960, he wrote: "On Pakleni otoci, in the Soline cove, there is a beautiful Roman building with the remains of a mosaic, probably a Roman villa rustica, and beside it there are also remains of other buildings and mosaics" (Novak 1960: 40). This was followed by the writings on the villa by M. Zaninović, who also took part in the archaeological investigations. In his overview of Roman villas in Dalmatia, he also spoke of the Soline cove villa (Zaninović 1967: 364; 1973: 203; 1978: 55). In 1995, he wrote: "Some of the villas on the shore also had small salt works and fish ponds, like the villa in Soline, where the very name of the villa indicates this function" (Zaninović 1995: 92). The Hvar Survey Project (started in 1982, extended in 1992 as the Adriatic Island Project) published data on the site in 1997 (Gaffney et al. 1997: 208).

The systematic excavations of the villa in 2007 were limited to non-invasive methods – reading orthophotographic imagery (of the area between the three coves Soline, Vlaka and Taršće) and electromagnetic detection as well as targeted small sondages for the purpose of data confirmation. The topographic position of all the visible architectural remains and finds in the sondages was documented by means of a total station and a precise plan was drafted in AutoCad.

The first electromagnetic survey was led by David Monsees in 2007. His report and the investigations led by V. Begović since 2007 have indicated two construction phases, that also showed up both in the results and the interpretation of F. Teichner, who surveyed an area of 1050 m^2 in 2010 (Teichner 2010). The results of magnetometric measurement and the topographic documentation show a complex of walls and rooms of various orientations. The spatial distribution of the structures indicates two stages of building: one with a very regular structure, with an orthogonal layout of walls and large spaces, and the other with irregular structures and smaller rooms. Two stages of building were detected in the detailed investigations of the texture of the visible walls. One texture consists of ashlar masonry with thin courses of mortar while the other stage consists of smaller dressed stones with inserted brick layers and abundant use of secondarily used stone elements, all abundantly covered with mortar. The first construction phase is assumed to be an Early Imperial maritime villa, while the second phase is thought to date from Late Antiquity. It is probably a Roman villa built in the first century, with alterations dated up to the 6th century (Bergman 1995: 408).

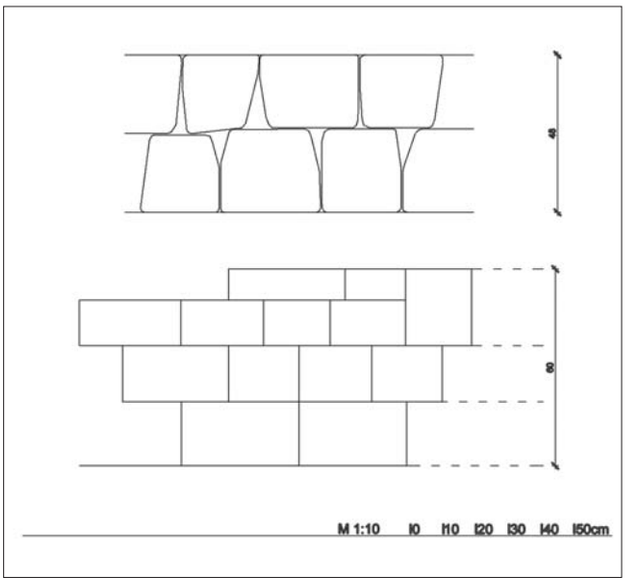
The architecture of the villa, visible today above the surface of the ground and discovered in archaeological trial excavations, is marked with letters from A to E and numbers from 1 to 7, according to the sequence of archaeological excavations in the field. After six years of investigations it was possible to assume a floor plan disposition of the part of the villa on the shore with height differences between the individual segments of 1.4 m (measured on the surfaces of the mosaics found *in situ*). The architectural complex of the maritime villa has a northeast–southwest orientation and corresponds to the terrain elevations. The walls begin on the point of the cove, right next to the field and architectural remains with this orientation are partly visible on

kim dijelovima vile slijedila smjer ranije arhitekture.

Kasnoantički arhitektonski kompleks orijentiran je u pravcu sjever – jug. Većina danas vidljive arhitekture potječe iz razdoblja kasne antike i obuhvaća kompleks Zgrade A, dugačkog Zida B i niza manjih prostora. U kasnoantičkoj fazi možemo razlikovati nekoliko tipova gradnje u kojima su pojedini dijelovi, mada istog smjera rasprostiranja, građeni djelomično vrlo kvalitetno (klesani kamenovi manjih dimenzija), složeni u pravilan raster (u klasičnim antičkim pravilima gradnje), dok su drugi dijelovi izvedeni od grubo priklesanih kamenih blokova, složenih u mrežasti raster s mnogo reupotrijebljenih dijelova ranije vile (Brogiolo 2004; Christie 2006; Begović, Schrunk 2006: 106).

Rezultati magnetometrijskih istraživanja ispitani su u deset probnih sonda manjih dimenzija (2x2 m), od kojih su neke proširivane u dvije ili tri sezone. Nađeni su zidovi, temelji i podnice, dvije manje plohe mozaika *in situ* te pretpostavljene superpozicije zidova dviju građevinskih faza. Podnice iz dviju faza evidentirane su u sondi e1, otvorenoj u sezoni 2011. Nakon uklanjanja dijela kasnoantičke podnice, iskop ispod nje rezultirao je važnim nalazom otisaka bazena (njegov oblik sačuvan u mortu – podloga poda) koji bi mogao pripadati ranocarskom razdoblju. U sondi b2 nađene su pretpostavljene superpozicije dviju građevinskih faza. Od opreme vile evidentirani su brojni ostaci, ali za sada ne *in situ*. Nađeni su ostaci velikodimenzioniranih pragova, ostaci tesera (mozaika) u bijeloj, sivocrnoj i zelenoj boji, ostaci hipokausta terma (suspenzure, stupići) i mnoštvo ulomaka tegula koji su, vjerojatno, pripadali ranocarskoj vili. Nađeno je nekoliko ulomaka tegula sa žigom PANSIANA i jedan ulomak tegule s djelomično čitljivim žigom ..NISN...

U sondi koju je iskopao G. Novak u prvoj kampanji 1956. i 1957. godine, neposredno uz današnju obalu, nalaze se ostaci podzida s istacima. Zidovi su 0,58 m debljine (2 rimske stope), s istacima dimenzija 0,52x1,07 m (2 istaka između



Sl. 5 Nacrt zida ranocarske vile – tlocrt i pogled (izradili: V. Begović, I. Dubovečak)

Fig. 5 Drawing of a wall of the Early Imperial villa – floor plan and view (made by: V. Begović, I. Dubovečak)

the surface, while magnetometric measurements indicate that they continue southward and westward. The architectural distribution shows no coherence, so it is assumed to be a part of a larger complex that spread in terraces on the slopes of the hill. The magnetometric measurements covered only the first terrace of the villa, on the very shore. The investigated parts of the villa's first terrace show that the walls and foundations of the maritime villa can be traced on the northeastern part of the cove, while in the southeastern part of the cove there were annexes, and the remains of the maritime villa are mostly preserved only in the foundations. It was in the southeastern part of the cove that very extensive alterations took place in Late Antiquity (which, judging by the reused material, largely destroyed the Early Imperial villa). Based on the different functional units it is possible that in some parts of the villa the annex from Late Antiquity followed the direction of the earlier architecture.

The architectural complex from Late Antiquity has a north-south orientation. Most of the architecture visible today is from the period of Late Antiquity and includes the complex of Building A, the long Wall B and a number of smaller spaces. In the Late Antiquity phase, we can discern a few types of construction where individual parts, although aligned in the same way, exhibit a high-quality workmanship (small dressed blocks of stone), forming a grid pattern (corresponding to the rules of construction of classical antiquity), while other parts are made from coarse-cut stone blocks assembled into a mesh grid with many reused parts of the earlier villa (Brogiolo 2004; Christie 2006; Begović, Schrunk 2006: 106).

The results of magnetometric investigations were tested in ten smaller test sondages (2x2 m), some of which were widened through two or three seasons. They revealed walls, foundations and floors, two smaller mosaic surfaces *in situ*, and what are assumed to be the superpositions of walls from two construction phases. Floors from two phases were documented in sondage e1, opened in the 2011 season. After a part of the floors from Late Antiquity were removed, the excavations under the floor resulted in an important find of an impression of a pool (its shape preserved in plaster – the floor base) that may belong to the Early Imperial phase. In sondage b2 assumed superpositions of two construction phases were found. As for the villa furnishings, numerous remains were found but so far none *in situ*. The remains of large doorsteps were found, the remains of tesserae (mosaics) in white, grey-black and green, the remains of a hypocaust system of baths (suspended floors, pillars) and numerous tegulae fragments that probably belonged to the Early Imperial villa. Several tegula fragments were found bearing the stamp PANSIANA and also one tegula fragment with a partly readable stamp …NISN…

In the sondage dug by G. Novak in the first campaign in 1956 and 1957 on what is today the shore, there are remains of a retaining wall with buttresses. The walls are 0.58 m thick (two Roman feet) with 0.52x1.07 m buttresses, with a 1.58 m space between them. One part of the wall was a base for pillars, supporting the assumption that this part of the complex was a part of the villa's residential area. The

kojih je razmak 1,58 m). Jedan dio zida bio je podloga (baza) za stupove, čime je poduprto mišljenje da je taj dio sklopa bio dio rezidencijalnog dijela vile. Zid je nešto drugačije orijentacije i prema ranocarskoj arhitekturi zaokrenut je za 30 stupnjeva. Te strukture mogle bi predstavljati dvije funkcionalne cjeline. Ta tradicija otklona je vrlo česta kada se radi o dvije različite funkcionalne cjeline vile. Poklapa se s rasprostiranjem drugog dijela zida prve terase (dio koji je orijentiran prema pretpostavljenoj ranocarskoj luci) te bi navedeni zid i podzid sa stupovima mogli predstavljati prilaz vili s mora. Navedeni podzid istražen je u dužini od 4,40 m. S istočne strane podzida nalazi se dio zida vrlo pravilne strukture, izveden od pravilno klesanog kamena u mortu, koji bi mogao pripadati prvoj fazi gradnje vile. Zid je debljine 0,48 m (1,5 rimske stope) i istražen je u dužini od cca 1,0 m, a visina sačuvanog zida je 0,60 m.

Ostaci velikodimenzioniranih prostora u ortogonalnom rasporedu, očitani u uvali Soline, jasno ukazuju da se na lokalitetu Soline nalazi maritimna vila većih dimenzija. Vila je mogla pripadati tipu građevina s panoramskim pogledima na obalu mora i zelenilo polja te vrtova kakve opisuje rimski pisac Plinije Mlađi (Plin. *Ep.* II, 17 i V, 16). S rasprostiranjem tih arhitektonskih sklopova poklapa se i obzid današnjeg ruba uvale, za koji se pretpostavlja da je podzid prve terase vile i koji se danas nalazi u dnu uvale te na njenom istočnom rubu. Zbog plitkog mora i stijena na dubini već od 0,5 m

Sl. 6 Zid ranocarske vile (snimio: T. Schrunk)
Fig. 6 Wall of the Early Imperial villa (photo: T. Schrunk)

wall has a slightly different orientation and in line with Early Imperial architecture it is rotated 30 degrees. These structures could represent two functional units. This tradition of deviation is quite common in cases of two different functional units in villas. It corresponds to the distribution of the second part of the wall of the first terrace (the part that is oriented toward the probable Early Imperial port, so that the said wall and retaining wall with the pillars might be the approach to the villa from the sea. The mentioned retaining wall has been investigated to the length of 4.40 m. On the eastern side of the retaining wall there is a part of a wall with a very regular structure made of regularly cut stone in mortar that may belong to the first phase of the villa's construction. The wall is 0.48 m thick (1.5 Roman feet) and has been investigated to the length of approximately 1.0 m, while the height of the preserved wall is 0.6 m.

The remains of large spaces with an orthogonal layout discovered in the Soline cove clearly indicate that there is a large maritime villa on the Soline site. The villa may have belonged to the type of building with a panoramic view of the shore and the greenery of the field and the gardens described by the Roman writer Pliny the Younger (Plin. Ep. II, 17 and V, 16). The wall that lines what is today the edge of the cove also corresponds to the distribution of these architectural complexes. This wall is thought to be the retaining wall of the villa's first terrace and can today be found on the point of the cove and on its eastern edge. Because of the shallow sea and rocks already at 0.5 m beneath today's surface of the sea, we believe that this part of the cove sank to beneath sea level only later and that in antiquity the shore was app. 120 m further to the south. The retaining wall is built of regular stone blocks, with refined curves in places, as described by X. Lafon in maritime villas of the 1st century (Lafon 2001: 15).

The villa in Soline was adapted to the ground configuration and the landscape (the gentle slopes of hills by the sea) and was subtly visible in its surroundings.

The investigations thus far have been of a smaller scale and have not defined the entire area of the villa, but based on the readings of the orthophotography and the results of electromagnetic detection, archaeological investigations and excavations, we will venture to say that in the Early Imperial period there was in the Soline cove a maritime villa with all the characteristics of the luxury maritime villas of that age on the eastern Adriatic coast (Begović, Schrunk 2004: 65–68; 2011: 8). In the 1st century BC and the 1st century AD such estates were granted to highly positioned military commanders in the Roman army, especially the navy. Their obligation was further improving, tending to and cultivating the area, as well as defending it, and the maritime villas were built as the centres of such estates (Schrunk, Begović 2000: 257).

Numerous investigated Roman villas in Italy show several development phases, i.e. the transition from more modest buildings to building complexes with a rising level of luxury (Terrenato 2001). The Roman villas on the eastern Adriatic coast did not have the same development path as in Italy itself (Boëthius, Ward Perkins 1970: 158; Begović,

Sl. 7 Pogled na lokalitet vile (snimio: T. Schrunk)
Fig. 7 View of the site (photo: T. Schrunk)

od današnjeg nivoa mora, smatramo da je taj dio uvale tek kasnije došao ispod razine mora, a da je u antičko vrijeme obala bila cca 120 m južnije. Podzid je građen od pravilnih kamenih blokova, oblikom mjestimično rafinirano zakrivljene forme, kako ih opisuje X. Lafon u maritimnim vilama 1. st. (Lafon 2001: 15).

Vila u uvali Soline bila je prilagođena konfiguraciji terena i krajoliku (blagim obroncima brežuljaka uz more) i suptilno se eksponirala u pejsažu.

Dosadašnja istraživanja skromnijeg su obima i nisu definirala cijeli areal vile, ali očitavanjem ortofoto snimaka te na temelju rezultata elekromagnetske detekcije, arheoloških istraživanja i iskopavanja usuđujemo se reći da je u ranocarskom razdoblju u uvali Soline bila maritimna vila sa svim karakteristikama luksuznih maritimnih vila tog razdoblja na istočnojadranskoj obali (Begović, Schrunk 2004: 65–68; Begović, Schrunk 2011: 8). Takvi posjedi u 1. st. pr. Kr. i u 1. st. bili su dodjeljivani visoko pozicioniranim vojnim zapovjednicima u rimskoj vojsci, posebno mornarici. Oni su imali obvezu daljnjeg unapređivanja, uređenja i kultiviranja prostora te obrane, a maritimne vile grade se kao centri takvih posjeda (Schrunk, Begović 2000: 257).

Mnogo istraženih rimskih vila na području Italije pokazuje nekoliko razvojnih faza, tj. prijelaz iz skromnijih objekata do građevninskih kompleksa kojima raste nivo luksuza (Terrenato 2001). Razvoj rimskih vila na istočnojadranskoj obali nije imao isti tijek kao u samoj Italiji (Boëthius, Ward-Perkins 1970: 158; Begović, Schrunk 2003: 99). Izgradnja vila

Schrunk 2003: 99). The building of Roman villas on the eastern Adriatic coast began with the Roman conquests of the eastern Adriatic coast and islands in the 2nd and 1st centuries BC, but it did not become widespread until after these parts were pacified, more precisely after the crushing of Bato's rebellion in AD 9 (1st c. AD). The Romans crossed to the eastern coast of the Adriatic for the first time in the 3rd century BC. In over two turbulent centuries of Roman conquest and pacification of the area, there was an abundance of maritime battles in the waters of the islands of Hvar and Vis. In 229 BC, Teuta besieged Issa, in 221 BC the First Illyrian War, in 219 BC the war with Demetrius of Hvar, in 169 BC the Third Illyrian War, from 136 to 135 BC the campaign against the Ardiaiei and the Pleraei. In the civil war between Caesar and Pompey, the year 47 BC is known for the battle at Taurida (Šćedro). Appian writes that during his campaign in 35–33, Octavian occupied the island of Korčula and the neighbouring Mljet, killing or selling into slavery its inhabitants (App. *Ill*. 16) (Zaninović 1996: 196–226). That is why we do not expect the building of luxury villas in this area before the 1st century. The period from the rule of Caesar and Augustus until the Flavian period is characterised by the swift rise of elite families in the Roman colonies on the eastern Adriatic. The provincial elite was made up of the families of senators with estates on the eastern Adriatic coast and veterans who were settled there by Caesar and Augustus and were a loyal support to these and later rulers (the Julio-Claudian dynasty). They developed large estates and as part of the pro-

na istočnoj obali Jadrana započinje rimskim osvajanjima istočnojadranske obale i otoka u 2. i 1. st. pr. Kr., ali kao raširena pojava tek nakon pacifikacije tih područja, točnije, nakon sloma Batonova ustanka 9. g. (1. st. posl. Kr.). Rimljani u 3. st. pr. Kr. prvi put prelaze na istočnu obalu Jadrana. Više od dva turbulentna stoljeća rimskih osvajanja i pacifikacije područja obiluju pomorskim bitkama u akvatoriju otoka Hvara i Visa (229. g. pr. Kr. – Teuta opsjeda Isu; 221. g. pr. Kr. – prvi Ilirski rat; 219. g. pr. Kr. – rat s Demetrijem Hvarskim; 169. g. pr. Kr. – treći Ilirski rat; 136.–135. g. pr. Kr. – kampanje protiv Ardijejaca i Plereja). U građanskom ratu između Cezara i Pompeja poznata je bitka kod Tauride (Šćedro) iz 47. g. pr. Kr. Apijan piše da je Oktavijan okupirao otok Korčulu i susjedni Mljet tijekom svojih osvajanja 35.–33. godine te da je njegove stanovnike ubio ili prodao u ropstvo (App. *Ill*. 16) (Zaninović 1996: 196–226). Zato gradnje luksuznih vila na ovom području očekujemo tek od 1. st. Razdoblje od vladavine Cezara i Augusta do vladavine Flavijevaca karakterizirano je brzim ekonomskim usponom elitnih obitelji u rimskim kolonijama na istočnom Jadranu. Provincijalna elita sastojala se od senatorskih obitelji s posjedima na istočnojadranskoj obali i veterana koje su naselili Cezar i August te su bili lojalna potpora ovim i kasnijim vladarima (julijsko-klaudijevskoj dinastiji). Oni su razvili velike ekonomije i, u okviru programa gradnje kuća u urbanim središtima i vila na posjedima, preobražavaju gradove i krajolik obale i otoka Dalmacije. U tom kontekstu možemo promatrati i zavjetni natpis iz 1. st. (CIL III 10094), nađen u gradu Hvaru 1884. godine, u kojem se spominje rimski zapovjednik Lucius Rustius Picens, *tribunus militum*. Njegov moguć duži boravak u Hvaru Zaninović povezuje s pobunom namjesnika Dalmacije L. Aruntija Skribonijana protiv cara Klaudija 42. godine (Zaninović 2002: 75–76; Petrić 2008b: 167).

Podzid prve terase vile

Dno današnje uvale ograđeno je zidom koji je na krajevima zaobljen u pravilnu elipsu. To je moglo, ujedno, predstavljati i podzid prve terase vile i potporni zid prema polju. Potporni zid je djelomično ravan da bi u dnu današnje uvale evoluirao u vrlo pravilnu elipsu s kvalitetno izvedenim rubnim svođenjem. Zid je dosta oštećen, mjestimično presložen, ali na pojedinim mjestima dobro je vidljiva pravilna struktura i kvalitetna izvedba. Na neoštećenim dijelovima vidljivo je da je potporni zid izveden od pravilno klesanih kamenih blokova s ostacima jakog morta između njih. Obzidani dio prati liniju današnje obale zaljeva tako da se stječe dojam da se more naknadno zalilo u taj dio. Ostali su samo djelomično sačuvani zidovi, ali se može rekonstruirati njihov izgled. Potporni zid sačuvan je u dužini od 5,90 m + 2,65 m, + 32 m +, nakon čega slijedi potpuno izgubljeni dio od 50 m, da bi se ponovno nastavio u dužini od 13 m. Potporni zid je širine 0,58 m (2 rimske stope), a sačuvana visina mu je najviše 1,14 m iznad temeljne stope. Zidovi su vjerojatno popravljani u kasnoj antici jer se na pojedinim dijelovima vide uzidani dijelovi pragova ulaza koji su pripadali ranijoj vili.

Vila u Solinama ima južnu luku u uvali Soline (zaklonjenu

gramme of building houses in urban centres and villas on estates, they transformed the landscape of the Dalmatian coast and islands. It is in this context that we can also view the votive inscription from the 1st century (CIL III 10094) found in Hvar in 1884, mentioning the Roman commander Lucius Rustius Picens, *tribunus militum*. Zaninović links his possibly extended stay on Hvar with the revolt led by the imperial legate of Dalmatia L. Arruntius Scribonianus against the emperor Claudius in AD 42 (Zaninović 2002: 75–76; Petrić 2008b: 167).

Retaining wall of the villa's first terrace

The base of the present-day cove is encircled by a wall which is rounded at the end forming a proper ellipse. This might have been both the retaining wall of the villa's first terrace and the sustaining wall against the field. The sustaining wall is partly straight and at the base of the present-day cove it evolves into a very regular ellipse with edge vaults of quality craftsmanship. The wall is quite damaged, rearranged in several places, but in some places the regular structure and quality craftsmanship are quite visible. On the undamaged parts it can be seen that the sustaining wall is made of regularly cut stone blocks with the remains of strong mortar between them. The walled section follows today's shoreline, so that one gets the impression that the sea subsequently flowed into that part. All that is left are partly preserved walls, but their appearance can be reconstructed. The retaining wall has been preserved in the length of 5.90 m + 2.65 m + 32 m + after which comes a 50 m section that has been completely lost, and then the wall continues in the length of 13 m. The sustaining wall is 0.58 m wide (2 Roman feet) and its preserved height in the highest point is 1.14 m above the foundation. The walls were probably repaired in Late Antiquity, because in several places we can see pieces of stone doorsteps from the earlier villa built into the walls.

The Soline villa has a southern port in the Soline cove (protected from the northern winds), a northern port in the Vlaka cove (protected from the southern winds) and what is probably a freight pier and trading port in the Taršće cove.

Salt works

The name of the cove Soline (solana = salt works) indicates the existence of salt works in this area. The examination of older and more recent aerial imagery revealed the remains of partition walls in the shallow sea at the end of the cove. During very low tides in the winter period they are slightly above the surface of the sea. The aerial imagery shows the possible shoreline in antiquity at a distance of app. 120 m from today's base of the cove. Mediaeval documents also mention salt works at this location. They were investigated by Marinko Petrić from the Croatian Heritage Museum in Hvar. He interpreted the aerial photographs of the Soline cove. The aerial imagery shows important underwater remains of four walls of the salt works in the cove. The walls, oriented north-east–south-west, span the breadth of the cove. M. Petrić published the aerial imagery of the cove and plans of the underwater remains of the walls (Petrić 2008b:

od **sjevernih vjetrova), sjevernu luku u uvali Vlaka (zaklonje**nu **od južnih vjetrova), a u uvali Taršće pretpostavljeni teret**ni mol i gospodarsku luku.

Solane

Ime uvale Soline ukazuje na postojanje solana na ovom području. Pregledom starijih i novijih zračnih snimaka u morskom plićaku na kraju uvale, uočeni su ostaci pregradnih zidova koji su, za velikih oseka u zimskom razdoblju, vidljivi djelomično iznad nivoa mora. Na zračnim snimkama vidi se moguća crta antičke obale cca 120 m od današnjeg dna uvale. Solane se na ovom mjestu spominju i u srednjovjekovnim dokumentima. Istražio ih je prof. Marinko Petrić iz Muzeja hvarske baštine iz Hvara. On je izvršio očitavanje zračnih snimaka uvale Soline. One pokazuju važne podmorske ostatke četiriju zidova solane u uvali. Zidovi su građeni cijelom

Sl. 8 Pogled na uvalu Soline (snimio: T. Schrunk)
Fig. 8 View of the Soline cove (photo: T. Schrunk)

širinom od jedne do druge obale i orijentirani su u smjeru sjeveroistok–jugozapadzapad. M. Petrić je objavio zračne snimke uvale te nacrt ostataka zidova (Petrić 2008a: 501–503; 2009: 603–605; Kirigin et al. 2010: 54–55).

Student Jonathan Estes (Sveučilište St. Thomas, St. Paul, USA) 2009. godine ronio je u uvali i mjerio zidove solane. Posao je bio otežan zbog velikih naslaga mulja u plitkom dijelu uvale. Zbog debelog sloja mulja visina zida nije se mogla sa sigurnošću ustanoviti. Potrebno je izvršiti klasična hidroarheološka iskopavanja zidova u uvali. Zidovi solane poklapaju se s rasprostiranjem zidova maritimne vile, ali njihova datacija nije ustanovljena. U pregledu solana na Jadranu M. Zaninović (Zaninović 1991: 263) naveo je ovu solanu kao tipičan slučaj manje antičke solane koja je 501–503; 2009: 603–605; Kirigin et al. 2010: 54–55).

The student Jonathan Estes from St. Thomas University, St. Paul, USA dived in 2009 in the cove and measured the walls of the salt works. The task was made more difficult by the large deposits of silt in the shallow part of the cove. A thick layer of silt made it impossible to precisely measure the height of the wall. This is why classical hydroarchaeological excavations of the walls in the cove need to be carried out. The walls of the salt works correspond to the distribution of the walls of the maritime villa, but they have not been dated. In his overview of salt works in the Adriatic, M. Zaninović (Zaninović 1991: 263) mentions this salt works as a typical case in antiquity of a smaller salt works producing salt for the needs of the villa and for the market. Its importance for the economy of the island and its surroundings can be seen in the fact that it survived beyond the Roman period.

The annexes to the villa from Late Antiquity

At the moment we do not have any documentation to help with dating the alterations on the villa and the reasons for those significant alterations.[1] Was the Early Imperial villa

1 The degradation of villas since the 2nd century was generally caused by political, social and climate changes. Recent research suggests that the changes in climate may have sparked off all the other changes. According to H. Zabehlicky (Austrian Archaeological Institute in Vienna), the earthquake in New Zealand in AD 180 resulted in large quantities of dust in the atmosphere and climate changes that can be gleaned from archaeological finds in different parts of Europe. It seems that the climate was far more humid (more cloud and precipitation), which Zabehlicky investigated at sites in Germany, England, Italy, Turkey, north Africa and China (changes in the economy and way of life in the late 2nd and the beginning of the 3rd century (Vetters, Zabehlicky 2001: 9–12; Vetters, Zabehlicky 2003; Fagan 2008). After losing their primary representative function, the villas took on various other roles that were an important economic foundation for their maintenance (Begović, Schrunk 2001: 158–159).

proizvodila sol za potrebe vile i za tržište. Njena važnost za ekonomiju otoka i okolice vidi se iz njenog trajanja i poslije rimskog perioda.

Kasnoantička nadogradnja vile

Za sada nemamo evidenciju za datiranje promjena na vili i za razloge tih znatnih promjena.[1] Je li ranocarska vila u kasnijim stoljećima Rimskog Carstva bila već u vrlo lošem građevinskom stanju? Buduća iskopavanja i detaljna analiza nalaza mogli bi dati odgovor. Na području prve terase vile nova izgradnja u kasnoj antici ne prati raspored ranocarske vile, već se gradnje izvode tlocrta zaokrenutog za 45° od osnovnog tlocrta prve vile. Također, građevinski elementi prve vile obilno se koriste prilikom kasnoantičkih gradnji i ugrađuju u nove zidove. Veći dio danas vidljivih dijelova arhitekture (koji se nalaze iznad nivoa terena) pripada kasnoantičkoj fazi gradnje. To su dijelovi građevnog sklopa koji se sastoji od Zgrade A, mjestimično sačuvane do 2,05 m visine, dugačkog Zida B, dužine 18,8 m i sačuvane visine 2,60 m, i niz zidova manjih, djelomično istraženih, prostorija. Za definiranje ovog sklopa nema još dovoljno elemenata, ali dosadašnji rezultati provedenih elekromagnetskih istraživanja i rezultati arheoloških iskopavanja postavili su neka uporišta za razumijevanje njihovog međusobnog odnosa i moguće namjene.

Zgrada A

Sačuvana kasnoantička zgrada nalazi se u uvali Soline 2,5 m iznad mora, što je do sada najviša točka istraženog područja vile. Zgrada dominira nad drugim strukturama u krajoliku. Teren lagano pada prema sjeverozapadu. Vanjski gabariti zgrade su 8,40x8,20 m, s naknadno dodanima prostorijama (8,40x5,8 m) na njezinom sjevernom dijelu.

Dodane prostorije razlikuju se po načinu gradnje zidova i pokazuju već grublju ili jednostavniju izvedbu zidova, kako po strukturi tako i po upotrebljenom građevnom materijalu. Unutarnje dimenzije kasnoantičkog objekta su 6,6x6,4 m. Vanjski gabariti zgrade s kasnijim dogradnjama su ukupno 8,40x14 m. Visina sačuvanih zidova varira od 0,50 m (južni) do 2,05 m (zapadni) od kote podnice. Kasnoantički objekt ima obodne zidove široke od 0,86 do 0,90 m, izrađene od klesanog kamena u jakom mortu. Dimenzije kamenog materijala su u omjeru 1:1 do 1:5.

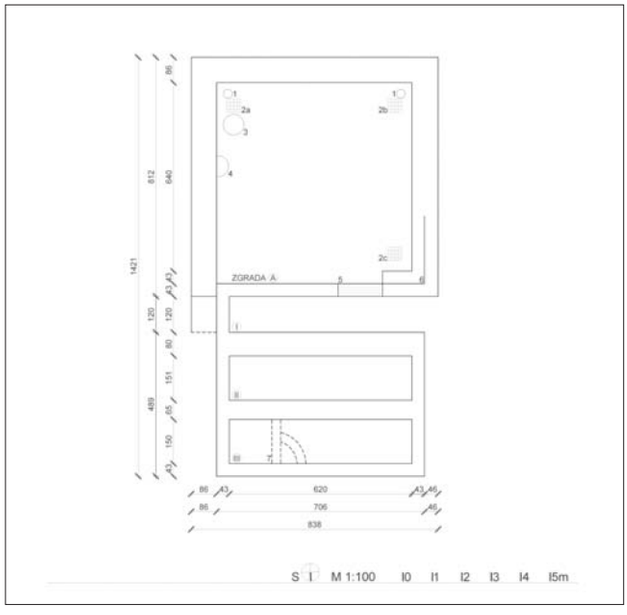
Zidovi nadogradnje su 0,43 do 0,65 do 0,80 m širine. Visina sačuvanog zapadnog zida okrenutog prema moru je 2,05 m. Istočni i južni zid objekta sačuvani su od 0,50 do 2 m u visinu. Sjeverni zid objekta, okrenut kasnijim dodatnim gradnjama, pretrpio je najviše promjena. Zid prema moru

1 Degradaciju vila općenito od kraja 2. st. uzrokuju političke, socijalne i klimatske promjene. Prema novijim istraživanjima možda su ove posljednje pokrenule sve druge. Prema H. Zabehlicky (Austrijski arheološki institut u Beču) potres na Novom Zelandu, koji se dogodio 180. g. posl. Kr., uzrokovao je veliku količinu prašine u atmosferi i klimatske promjene koje su se u različitim dijelovima Europe mogle očitati prema arheološkim nalazima. Izgleda da je klima bila mnogo vlažnija (više oblaka i padalina), što je Zabehlicky istražio na lokalitetima u Njemačkoj, Engleskoj, Italiji, Turskoj, sjevernoj Africi i u Kini (promjene ekonomije i načina života u kasnom 2. i poč. 3. st. (Vetters, Zabehlicky 2001: 9–12; 2003; Fagan 2008). Izgubivši svoju primarno reprezentativnu funkciju, vile su preuzimale razne druge uloge koje su bile važna ekonomska baza za njihovo održavanje. (Begović, Schrunk 2001: 158–159)

in a very bad state already in the later centuries of the Roman Empire? The answer may be provided by future excavations and a detailed analysis of the finds. In the area of the first terrace in Late Antiquity the new building does not correspond to the plan of the Early Imperial villa, with the floor plan rotated by 45 degrees in relation to the original villa. In addition to this, the construction elements of the first villa are amply used in the construction works in Late Antiquity and are built into the new walls. Today, most of the visible architecture (above-ground level) belongs to the construction phase in Late Antiquity. These are parts of the building complex consisting of Building A, preserved in places up to 2.05 meters in height, and the long Wall B, 1.18 m long with a preserved height of 2.6 metres, as well as a number of walls of smaller, partly investigated rooms. There are still not enough elements to define this complex, but the results of electromagnetic investigations and archaeological excavations have laid the foundations for understanding their mutual relationship and possible uses.

Building A

The preserved building from Late Antiquity is located in the Soline cove, 2.5 m above sea level, which is the highest point in the investigated area of the villa. The building dominates the other structures in the landscape. The terrain tapers slightly toward the north-west. The external dimensions of the building are 8.4x8.2 m with subsequently annexed rooms 8.4x5.8 m on its northern side.



Sl. 9 Tlocrt sačuvane kasnoantičke zgrade A (izradili: I. Schrunk, V. Begović i I. Dubovečak)

Fig. 9 Floorplan of the preserved late ancient building A (made by: I. Schrunk, V. Begović, I. Dubovečak)

The annexed rooms were built in a different manner and show a coarser or simpler craftsmanship in their structure as well as in the material used. The inner dimensions of the building from Late Antiquity are 6.6x6.4 m. The external dimensions of the building including the subsequent

Sl. 10 Pogled na unutrašnjost zapadnog zida kasnoantičke zgrade (snimio: T. Schrunk)
Fig. 10 View of the interior face of the western wall of the late ancient building (photo: T. Schrunk)

(zapadni) je, na mjestu gdje se moglo izvršiti mjerenje, dvostruk. Sastoji se od zida od 0,43 m i zida od 0,46 m, što ukupno iznosi 0,89 m (3 rimske stope). Dvostruki zid nalazi se i u sjeverozapadnom uglu sjevernog zida.

Podnica je istražena u pet plitkih sonda veličine 1x1 m. Tanki sloj humusa je skinut u sva četiri ugla i u sredini prostorije. Najvažniji rezultat istraživanja je utvrđivanje originalne nivelete poda s ostacima bijelog mozaika *in situ* u jugoistočnom, jugozapadnom i sjeverozapadnom uglu prostorije. Mozaik leži na sloju morta, debljine 0,08–0,10 m, miješanog sa sitnim kamenom i drobljenom opekom (*opus signinum*). Ta podloga mozaika ustanovljena je i u sredini prostorije. Tesere mozaika su jednostavne, grublje obrade i variraju od 1x1 do 2x2 cm. Na površini i u humusu nađeni su brojni fragmenti kamenih ploča debljine 0,02 m, a dimenzija 0,25x0,19; 0,16x0,195; 0,14x0,11 i 0,12x0,14 m. To opločenje je, izgleda, bilo postavljeno u drugoj fazi upotrebe objekta. Relativno mali broj tesera nađenih u iskopu je iznenađujući. Izgleda da je pod od mozaika bio vrlo oštećen već prije značajne rekonstrukcije kada se postavljaju kamene ploče. U jugoistočnom i jugozapadnom uglu prostorije nađena su ležišta za stupove drvene konstrukcije koja je bila uzdignuta iznad poda prostorije. Ležišta za stupove su 0,23 m u promjeru. Rasporedom podsjećaju na izvedbu podignutih drvenih konstrukcija u rimskim skladišnim prostorima. Uz

annexes are 8.4x14.0 m in total. The height of the preserved walls varies from 0.5 m (south) to 2.05 m (west) from the floor level. The building from Late Antiquity has perimeter walls 0.86 to 0.90 m wide, made from cut stone fixed with strong mortar. The dimensions of the stone material are in the scale of 1:1 to 1:5.

The walls of the annex are 0.4 to 0.65 to 0.8 m in width. The height of the preserved western wall facing the sea is 2.05 m. The eastern and southern walls of the building have been preserved in the height of 0.5 to 2.00 m. The northern wall of the building facing the later annexations has undergone the most changes. The wall facing the sea (western) is a double wall (in the part where measurements could be performed). It consists of a wall 0.43 m thick and a wall 0.46 m thick – a total of 0.89 m (3 Roman feet). There is a double wall also in the north-western corner of the northern wall.

The floor was investigated in five shallow 1x1 m sondages. A thin layer of humus was removed in all four corners and in the middle of the room. The most important result of the investigation is the determination of the original floor level with the remains of a white mosaic *in situ* in the south-eastern, south-western and north-western corner of the room. The mosaic lies on a layer of mortar 0.08–0.10 thick mixed with small stones and crumbled brick (*opus signinum*). This base of the mosaic was also identified in the middle of the room. The mosaic tiles are simple, of coarser

istočni zid prostorije nađena su dva grubo okrugla udubljenja probijena kroz podnicu, tj. podlogu mozaika (oko 0,90 m u promjeru). U udubljenjima su bili ostaci jako tamnog crvenog taloga. Moguće je da su to bila ležišta za dolije, ali u jednoj kasnijoj fazi.

Nadogradnja objekta izvršena je prema sjeveru i sastoji se od nekoliko prostorija. Prva je, najvjerojatnije, hodnik širine 1,2 m (4 rimske stope), a druge dvije prostorije su 1,50 m širine i 1,50 m dužine (5 rimskih stopa), dok im je širina, kao i unutarnja širina objekta, 6,2 m umanjena za 0,43 m, jer se njihovi vanjski zidovi poklapaju s unutarnjim zidovima prvog objekta. Zidovi su izvedeni u lomljenom kamenu u mortu grube strukture i dosta su oštećeni. Izgleda da su na mjestu spoja tih dviju građevina bila vrata starijeg objekta koja su novom izgradnjom zazidana. Na taj zaključak upućuje završno lice zida starijeg objekta na mjestu njihovog spoja. Prag tog ulaza nije istražen. Kasniji ulaz u prvi objekt nalazio se negdje na sredini sjevernog zida. Prag nedostaje, izvađen je, ali je u zidu vidljivo mjesto na kojem je stajao.

Objekt je građen od pravilnih klesanih kamenih blokova dimenzija od cca 7x10 cm do 10x14 cm u pravilnom rasteru koji oponaša *opus isodomum* s umetnutim opekama i tegulama (kao *opus incertum*), što ukazuje na kasnoantičku vrlo kvalitetnu gradnju, još u jakoj antičkoj tradiciji. Jaka vapnena žbuka na zidovima je lagano ružičaste boje, što govori o drobljenoj opeci u sastavu žbuke (antička žbuka), a zrnca pijeska su krupnija. Empore na unutarnjem licu istočnog i zapadnog zida ukazuju na položaj drvenih greda koje su nosile pod prvog kata. Izvana su zidovi djelomično zatrpani zemljom i kamenjem. Unutarnji i vanjski zidovi imaju završni namaz od hidrauličnog morta. Širina zidova zgrade ukazuje na katnu konstrukciju, što pokazuju i empore na unutarnjim zidovima. Iskopom uz istočni zid dogradnje otkriveni su podzidi za stepenište kojim se pristupalo na I. kat. Uz to je nađen odvodni kanal za vodu koji je, vjerojatno, skupljao kišnicu koja se slijevala s povišenog dijela terena uz istočni zid nadogradnje. Prizemlje Zgrade A je bez prozora, osim uskog otvora neutvrđene funkcije na zapadnom zidu. Vjerojatno su taj prostor zauzimala skladišta. Empore se nalaze na cca 1,70 m visine od utvrđenog nivoa poda. Zgrada je sačuvana do visine max. 2,05 m i nedostaje strop prizemlja koji je, vjerojatno, bio drven. Tlocrt kata ne možemo rekonstruirati jer nemamo dovoljno elemenata.

Zgrada A predstavlja tipičnu kasnoantičku gradnju u kojoj najvažniju ulogu preuzima kat te fortifikacijski elementi. Pretpostavljamo da je hidraulična žbuka na pročelje Zgrade A stavljena zbog blizine mora – zgrada se nalazi na cca 35 m udaljenosti od današnje obale zaljeva Soline. U jednom razdoblju zgrada je mogla služiti kao upravna zgrada solana, u prizemlju bi bila skladišta, a na katu smještaj upravitelja solana (*conductor salinares*). Kat je mogao služiti i za nadgledanje procesa proizvodnje. Građevni materijal i konstrukcije zida su kasnoantičke (4. do 6. st). Ukupan izgled objekta

workmanship and vary in size from 1x1 to 2x2 cm. In the humus on the surface, numerous fragments were found of 0.02 m thick stone slabs in the following sizes: 0,25x0,19; 0,16x0,195; 0,14x0,11 and 0,12x0,14 m. This seems to be tiling laid in the second phase of the building's utilisation. The relatively small number of tiles found in the dug-out earth is rather surprising. It seems that the mosaic floor must have been very damaged even before the more significant reconstruction, when stone slabs were laid. In the south-eastern and south-western corner of the room, post-holes supporting the timber structure, raised above the level of the room's floor were found. The holes had a diameter of 0.23 m. Their arrangement is reminiscent of the design of raised timber structures in Roman warehouses. Next to the eastern wall of the room, two roughly circular indentations were found, punched through the floor i.e. the base of the mosaic, with a diameter of around 0.8 m. The indentations contained the remains of a very dark red sediment. They may have been holes for dolia, but in a later phase.

The annex was built toward the north and consists of several rooms. The first is most probably a hallway 1.2 m (4 Roman feet) wide, and the other two rooms are 1.50 m (5 Roman feet) in length, while their width is the same as the inner width of the building, 6.2 m, minus 0.43 m, as their outer walls correspond to the inner walls of the first building. The walls are built of stone rubble fixed with mortar, have quite a rough structure and are quite damaged. It seems that the door of the older building was located on the point where the two buildings meet and were walled-in by the new construction. The doorstep of this entrance has not been investigated. The later entrance to the first building was somewhere in the middle of the northern wall. The doorstep is missing, it has been taken out, but the place in the wall where it used to stand is visible.

The building was built of ashlar blocks, app. 7x10 cm to 10x14 cm in size, in a regular grid imitating *opus isodomum* with inserted bricks and *tegulae* (like the *opus incertum*), which would indicate high quality building in Late Antiquity (the ancient tradition still strong). The strong lime mortar on the walls is a light pink colour which tells us that the mortar contained crumbled brick (ancient mortar) and the grains of sand are larger. The beam holes on the inside of the eastern and western walls indicate the position of the wooden beams that carried the floor of the first floor. From the outside the walls are partly buried under earth and stone. The inner and outer walls have a finishing coat of hydraulic mortar. The width of the building's walls, as well as the beam holes on the inner walls, indicate a multi-storey structure. The excavations along the eastern wall of the annex revealed retaining walls of the staircase that led to the 1st floor. A water drainage canal was also found – it probably gathered rainwater that poured down from the higher ground by the eastern wall of the annex. The ground floor of Building A has no windows, apart from a narrow opening of an as yet undetermined function on the western wall. This was probably a warehouse area. The beam holes are located at app. 1.70 m from the established floor level. The building has been preserved up to a height of 2.05 m

Sl. 11 Pogled na sačuvani kasnoantički dugački zid B (snimio: T. Schrunk)
Fig. 11 View of the preserved late ancient long wall B (photo: T. Schrunk)

kao da je pretrpio značajne devastacije i preinake tijekom razdoblja upotrebe (Verzar Bass 1986: 656; Suić 2003: 338).

Zid B

Sjeveroistočno od navedenog objekta nalazi se slobodnostojeći zid koji je paralelan sa zidovima prije opisane Zgrade A. Proteže se u dužini od 18,80 m, a debljina zida je 0,60 m (2 rimske stope). Sačuvan je u visini od 2,40 m od današnjeg nivoa terena, a 2,60 m od temeljne stope. Empore za drvene grede vidljive su čitavom dužinom zida i nalaze se na udaljenosti – 3,9 m, 7,70 m, 9,90 m, 12,20 m i 15,65 m, mjereno od sjevernog završetka zida (ruševni dio), a njihova je visina, mjereno od temeljne stope zida, 1,40 m.

Neke empore su dosta oštećene, a njihova dimenzija je cca 0,20x0,25 m, što potpuno odgovara dimenzijama drvenih stropnih greda. Zid je izveden od grubo pritesanih kamenih blokova, dimenzija manjih nego na sačuvanoj kasnoantičkoj Zgradi A. U strukturi zida teži se uslojavanju s različitim dimenzijama kamenih blokova (imitacija *opus isodomum*). Umetnuti su i pojedini komadi opeke i tegula, a grubo priklesani kameni blokovi mjestimično su složeni u mrežasti raster. Mnogobrojni dijelovi ranije vile ugrađeni su u zid kao pragovi, stupići hipokausta, *tegulae*.

Otvaranjem dviju probnih sonda s jedne i druge strane zida nisu ni na jednom mjestu ustanovljeni ostaci podnica. Postoji mogućnost da je bio ogradni zid kasnoantičkog sklopa. To pokazuje interpretacija magnetometrije, koju je 2010. godine vodio F. Teichner, gdje se vidi još jedan takav

at the most and the ceiling of the ground floor, that was probably made of wood, is missing. The floor plan of the first floor cannot be reconstructed because we do not have sufficient information.

Building A is a typical example of building in Late Antiquity, with the most important role given to the first floor and the fortification elements. We assume that the hydraulic mortar on the front wall of Building A was used due to the closeness of the sea – the building is located at a distance of app. 35 m from today's shoreline of the Soline cove. At some point in time, the building may have been an administration building of the salt works, with warehouses on the ground floor and quarters for the manager of the salt works (*conductor salinares*) on the first floor. The first floor may also have been used for supervision of the salt production process. The construction material and the wall structure is Late Antiquity, 4th to 6th century. The appearance of the building as a whole seems to have been significantly damaged and restructured during its time of use (Verzar Bass 1986: 656; Suić 2003: 338).

Wall B

A free-standing wall north-east of the mentioned structure runs parallel to the walls of the previously described building A. The wall is 18.80 m long and 0.60 m wide (2 Roman feet). It is preserved in the height of 2.40 m above the present ground level and 2.60 m above the foundation wall. Beam-holes for wooden galleries speckle the length of the wall at 3.9 m, 7.70 m, 9.90 m, 12.20 m, 15.65 m measured from the northern end of the wall (dilapidated segment), at the height of 1.40 m above the foundation wall.

zid, paralelan sa Zidom B i zapadno od njega na udaljenosti od 13 m. Niz manjih prostorija građen je uz taj zid. Sonda e1, otvorena 2011. godine, bila je ciljana na ispitivanje jedne od tih prostorija. Izgleda da je gore opisana kasnoantička podnica unutar te prostorije. Magnetometrija pokazuje da su Zid B i zapadni paralelni zid na sjevernom kraju povezani zidom čiji je segment, okomit na Zid B, otkriven 2009. godine u sondi b2. Jedna struktura, koja pripada tom cijelom sklopu na sjeverozapadnoj strani, nađena je tijekom iskopavanja 1956. i 1957. godine. Zapadno od slobodnostojećeg kasnoantičkog zida, na udaljenosti od 17,20 m prema moru, a istočno od zida s istacima koji je druge orijentacije, istražen je dio zida i ugao prostorije iste orijentacije kao Zgrada A i Zid B. Prostorija je istražena u dužini od 2x4,8 m sa zidom širine 0,40 m i sačuvane dužine 4,8 m.

Sjeverozapadno od slobodnostojećeg Zida B u sondi b1, otvorenoj 2007. godine, istražena su dva paralelna zida otkopane širine 0,24 m (vjerojatno je ukupna širina svakog 0,48 m, ali se nije išlo dalje u iskop), na međusobnoj udaljenosti od 1,05 m. Iste su orijentacije kao navedeni Zid B i izgledaju kao dio istog sklopa.

Dio arhitekture u sondi c1 i c2 naknadno je doživio preinake koje bi mogle pripadati kasnoantičkom razdoblju.

Na prostoru vile nađeni su brojni sitni pokretni nalazi, osobito keramički, od grube kuhinjske keramike do fine *terra sigillata*, od ulomka amfora tipa Lamboglia 2 iz 1. st. pr. Kr. do kasnoantičkih amfora, zatim ulomaka tegula, dijelova dolia, suspenzura, tarionika, raznih posuda i vrčeva, sve do ulomaka renesansne keramike. Brojni su nalazi tesera i ulomaka stakla i metala.

U istraživanjima je pronađena keramika koja se može datirati u helenističko razdoblje. S obzirom na sveukupan nalaz keramičkog materijala, riječ je, naime, o gotovo neznatnoj količini (oko 60-ak ulomaka) te uglavnom o manjim, dosta istrošenim i lošije sačuvanim ulomcima nekoliko tipova posuda. Svega 20-ak ulomaka je dijagnostičko i fine je fakture. Najbolje sačuvan ulomak je donji dio posude proizveden od crvenožućkaste gline, s crnim premazom na vanjskoj površini. Stopa ove posude stožasto je zakošena, a dno udubljeno, sa središnjim ispupčenjem. Crni premaz na dijelovima je dobro sačuvan, dok su stopa i pojas poviše nje bili pošteđeni. Riječ je o posudi zatvorenog tipa, možda enohoji. Dokumentirano je nekoliko ulomaka gnathia keramike koji pripadaju manjim ulomcima trbuha s vertikalnim kanelurama, dakle, kasnoj fazi gnathia proizvodnje. Većina pronađenih ulomaka bila je sive fakture s loše sačuvanim tamnosivim premazom. Prema dijagnostičkim fragmentima zaključujemo kako je riječ o ulomcima različitih vrsta čaša za piće. Nekoliko, pak, ulomaka pripadalo je tipu helenističke reljefne keramike, ponovno sive fakture s tamnosivim premazom. Osim 2–3 ulomka, za koje bi se po kvaliteti premaza mogla predložiti datacija u ranija razdoblja, većina ovih ulo-

Several beam-holes are considerably damaged. They measure c. 0.20x0.25 m, which entirely fits the size of the timber roof beams. The wall consists of rough-hewn blocks of stone, of smaller dimensions than those in the preserved late ancient Building A. The structure of the wall exhibits the intention of the builders to lay level courses using blocks of various sizes (an imitation of the *opus isodomum* technique). The wall contains occasional bricks and roof tiles, and the rough-hewn stone blocks here and there form a mesh grid. A number of elements of the one-time villa, such as doorsteps, hypocaust pillars, or *tegulae*, are built into the wall.

The excavation of two test sondages on either side of the wall failed to yield the remains of floors. It is possible that the wall closed the perimeter of the late ancient complex. Such a conclusion is supported by the interpretation of the magnetometric investigation carried out in 2010 by F. Teichner, which revealed another similar wall, running parallel to Wall B at a distance of 13 m. A series of smaller rooms were annexed to that wall. In 2001, Sondage e1 was excavated with the specific aim to investigate one of these rooms. It seems that the late ancient floor, described above, was situated within that room. The magnetometric results show that Wall B and the western parallel wall were connected on their northern ends by another wall, whose segment lying perpendicular to Wall B was discovered in Sondage b2 in 2009. A structure that belongs to that complex in the north-western part was discovered in the 1956 and 1957 campaigns. A segment of the wall and a corner of the room with an identical orientation as Building A and Wall B were excavated west of the free-standing late ancient wall, 17.20 m towards the sea and east of the wall with protrusions, which is aligned in a different direction. The room is excavated in the length of 2x4.8 m, yielding a wall 0.40 m thick and with a preserved length of 4.8 m.

North-west of the free-standing Wall B, the excavation of sondage b1 in 2007 uncovered two parallel walls 0.24 m wide (each wall was probably 0.48 m wide, but the excavation stopped at that point) standing 1.05 m apart. Their orientation is the same as that of Wall B and they appear to belong to the same complex.

A part of the architecture in sondages c1 and c2 subsequently underwent changes —possibly in Late Antiquity.

A number of small movable finds were found in the area of the villa, particularly ceramics, ranging from coarse kitchenware to fine *terra sigillata*, from fragments of 1st c. BC Lamboglia 2 amphorae to late ancient amphorae; shards of roof tiles, fragments of dolia, remains of suspended floors, mortars, various vessels and jugs, and even fragments of Renaissance pottery. There were also many tesserae and glass and metal fragments.

The excavations yielded also pottery that can be dated to the Hellenistic period. With around 60 fragments, mostly small, considerably weathered and poorly preserved fragments of several types of vessels, this assemblage forms an almost insignificant part of the total ceramic assemblage. There are only twenty or so diagnostic fragments, and they have fine texture. The best preserved piece is the lower part of a vessel made of red-yellowish clay, with a black slip on the exterior surface. This vessel has a conical pedestal and concave base with a central boss. The black

maka datira se u kasno helenističko razdoblje, odnosno u kraj 2. i 1. st. pr. Krista. Od ulomaka amfora, koje bi pripadale ovom razdoblju, dokumentirano je nekoliko dijelova oboda i trbuha amfore Lamboglia 2 koja se pojavljuje na više lokaliteta srednje Dalmacije (Kirigin et al. 2005). Ovakav tip keramike karakterističan je na lokalitetima koji su posjećivani tijekom kasnog helenizma u srednjoj Dalmaciji te je najvjerojatnije riječ o posudama lokalne proizvodnje. Lokalna helenistička keramička proizvodnja najbliže je dokumentirana u Isi, na susjednom otoku Visu, pa su ulomci sa Solina najvjerojatnije pripadali isejskoj proizvodnji, iako je moguće i da su pripadali nekoj drugoj od, za sada još uvijek nedovoljno istraženih, srednjodalmatinskih helenističkih lokalnih radionica (Čargo, Miše 2010; Šegvić et al. 2012). Svi helenistički keramički ulomci pronađeni su u izmiješanom sloju, bez jasno definiranog arheološkog konteksta, a zajedno s ulomcima ostale keramike različite datacije. S obzirom na to da helenistička keramika nije pronađena u definiranom stratigrafskom odnosu prema ostacima arhitekture na lokalitetu, ne može nam, nažalost, pomoći pri dataciji same vile (Ugarković 2009: 636–638).

Od nalaza iz ranocarskog razdoblja izdvajamo male fragmente visokokvalitetne italske, moguće aretinske *terra sigillata* (jedan reljefni ulomak) i fragmente čaša tankih stijenki. Iz kasnijeg carstva brojni su nalazi egejske kuhinjske keramike iz 2.–3. st.

Fragmenti sjevernoafričke (African Red Slip Ware) i maloazijske (Phocaean Red Slip Ware) fine crvene keramike proizvedene od 4. do 6. st. pokazuju da je lokalitet bio uključen u tokove zbivanja na Jadranu. Takve uvezene posude nađene su na otočnim i obalnim punktovima kako ruralnog tako i urbanog karaktera, kao što su Hvar, Polače na otoku Mljetu, Salona, Dioklecijanova palača u Splitu, Ubli na otoku Lastovu, Kastrum i Verige na otočju Brijuni (Dvoržak Schrunk 1989). Većina primjeraka sjevernoafričke proizvodnje, neki i s pečatastim ukrasima na dnu, pripadaju velikim plitkim zdjelama (Hayes 50, 67, 104). Nađeni su i ulomci zdjelica (Hayes 52 ili 53 i 91). Nalazi fokejske keramike pripadaju zdjelama Hayes 3 iz 5.–6. st. Dodatni nalazi sjevernoafričkih i bizantskih amfora iz 6. st. potvrđuju važnu ulogu lokaliteta u ekonomiji i pomorskom prometu kasne antike i ranog Bizanta na Jadranu (Schrunk 1989: 91–102; Suić 1995: 133–145).

Nekoliko kasnoantičkih bronćanih nalaza moglo bi ukazivati na prisutnost vojnika ili veterana. To su fragmenti luka lukovičaste fibule, igla, koja možda pripada pojasnoj kopči, te tanke pločice s rozetastim ukrasom moguće pojasne garniture.

Nađeni arheološki materijal govori o upotrebi područja uvale od kasnohelenističkog/republikanskog razdoblja (2. do 1. st. pr. Kr.) do kasne antike i ranobizantskog razdoblja (4. do 6. st.).

Kontinuitet naseljavanja ovog dijela otoka pokazuje današnje naselje Vlaka u uvali Soline. Na zapadnom kraju

slip is occasionally well preserved, while the pedestal and a stripe above it were free of it. The vessel belongs to a type with restricted rim, possibly an oenochoe. Several shards of Gnathia Ware were documented, mostly from the belly with vertical cannelures, pointing to the late phase of production of Gnathia Ware. Most discovered shards were of grey texture with poorly preserved dark grey slip. The diagnostic shards lead us to conclude that they belonged to various types of beakers for drinking. On the other hand, several shards belonged to a type of Hellenistic relief ware, again of grey texture with dark grey slip. Apart from a 2–3 shards that could be dated to an earlier period based on the quality of the slip, most of these shards are dated to the Late Hellenistic period, that is, to the end of the 2nd century and to the 1st century BC. Among the shards of amphorae from this period, several rim and belly pieces were documented of Lamboglia 2 type amphorae, which appear at several sites in central Dalmatia (Kirigin et al. 2005). This type of ceramics is characteristic for sites visited during the Late Hellenistic period in central Dalmatia, and these were most likely locally produced vessels. The closest local ceramic production is documented at Issa, on the neighbouring island of Vis, and it is indeed very possible that Soline shards belong to Issean production; however, it is also possible that these shards might have belonged to one of other, currently still unexplored, middle Dalmatian Hellenistic production centres (Čargo, Miše 2010; Šegvić et al. 2012). All the Hellenistic ceramic shards were found in a mixed layer without a clearly defined archaeological context, in association with other ceramic shards from various periods. Considering that the Hellenistic pottery was not found in a defined stratigraphic context with the architectural remains at the site, it cannot, unfortunately, be of help in dating the villa itself (Ugarković 2009: 636–638).

Among the remains from the Early Imperial period, we single out small fragments of high-quality Italic *terra sigillata* (a relief shard), possibly from Arezzo, and fragments of thin-walled glasses. Abundant finds of Aegean kitchenware of 2nd-3rd c. date belong to the later period of the Empire.

Fragments of fine Red Slip Ware from North Africa and Asia Minor (Phocaea), produced between the 4th and 6th century show that the site participated in the events unfolding in the Adriatic. Imported vessels of this type were found at insular and coastal sites of both rural and urban character, such as Hvar, Polače on the island of Mljet, Salona, Diocletian's Palace in Split, Ubli on the Lastovo island, Kastrum and Verige on the Brijuni islands (Dvoržak Schrunk 1989). Most specimens of North African production, some with stamp-decorated bases, belong to large shallow bowls (Hayes 50, 67, 104). Fragments of small bowls of Hayes 52 or 53 and 91 types were also found. The finds of Phocaean Ware belong to 5th-6th century bowls of Hayes 3 type. The additional finds of North African and Byzantine amphorae from the 6th century corroborate the important role of the site in the economy and maritime trade in Late Antiquity and Early Byzantine period in the Adriatic (Schrunk 1989: 91–102; Suić 1995: 133–145).

Several late ancient bronze finds might point to the presence of soldiers or veterans: fragments of the bow of a crossbow fibula, a pin that might belong to a belt buckle, and thin plaques with rosette decoration, possibly from a belt set.

Sl. 12 Keramički i metalni nalazi: 1–2 kasno helenistička reljefna keramika; 3–4 sjevernoafrička keramika (African Red Slip Ware); 5 fokejska keramika (Phocaean Red Slip Ware, Hayes 3); 6 egejska kuhinjska keramika; 7 amfora Lamboglia 2; 8 brončana lukovičasta fibula; 9 brončana pločica s rozetastim ukrasom (crteži: 1 Z. Podrug; 3, 5–7, 9 S. Čule; snimke: 1–2 T. Seser; 4, 8 T. Schrunk)

Fig. 12 Ceramic and metal finds: 1–2 Late Hellenistic relief ceramics; 3–4 African Red Slip Ware; 5 Phocaean Red Slip Ware (Hayes 3); 6 Aegean kitchenware; 7 Lamboglia amphora 2; 8 bronze crossbow fibula; 9 bronze plate with a rosette ornament (drawings: 1 Z. Podrug; 3, 5–7, 9 S. Čule; photos: 1–2 T. Seser; 4, 8 T. Schrunk)

uvale na obroncima drugog brežuljka, uz plodno polje, na čijem se vrhu danas nalazi crkva Sv. Klementa, naselje se u pisanim izvorima prvi put spominje u 15. st. (Petrić 1987). To je, vjerojatno, mješovito naselje radnika na poljoprivredi, u solanama i kamenolomu. Sv. Klement zaštitnik je kamenara i njemu je posvećena crkva u naselju po kojoj je ime dobio i cijeli otok. "Sv. Klement je papa i mučenik koji je živio krajem 1. st. i rimski car Nerva ga je, prema predaji, osudio na prisilni rad u kamenolomu na Krimu. Umro je mučeničkom smrću, bačen u Crno more sa sidrom privezanim uz tijelo." (Bibić-Žiže 2009: 31).

Zaključak

Na lokalitetu Soline, neposredno pokraj manjeg zaseoka Vlaka na otoku Sv. Klement, najvećem u arhipelagu Paklenih otoka kraj Hvara, sačuvani su arheološki ostaci antičke vile, dijelovi solane i luke. Prema pokretnom arheološkom materijalu, lokalitet je datiran od helenističkog (2. do 1. st. pr. Kr.) do ranobizantskog razdoblja (6. st.). Prema rezultatima elekromagnetske detekcije, očitavanju zračnih snimaka i dosadašnjim istraživanjima na terenu, mogu se razlikovati dva građevinska kompleksa od kojih je jedan, onaj raniji, s obzirom na specifičan položaj i arhitektonski plan, definiran kao maritimna vila. Vila je mogla pripadati tipu građevina s panoramskim pogledima na obalu mora i zelenilo polja te vrtova kakve opisuje rimski pisac Plinije Mlađi (Plin. *Ep.* II, 17 i V, 16). Bila je prilagođena konfiguraciji terena i krajoliku, građena na blagim obroncima brežuljaka uz plodno polje i more. Dosadašnja istraživanja skromnijeg su obima i nisu definirala cijeli areal vile.

Značajni nalazi helenističke i rimske republikanske keramike iz 2./1. st pr. Kr., u sondama iskopanim od 2007. do 2011. godine, otvorili su pitanja o naseljavanju i ulozi lokaliteta u ekonomskoj razmjeni i pomorskom prometu u odnosu na grčke i lokalne naseobine te rimska naselja u tom periodu. Međutim, za sada se ti nalazi ne mogu povezati s nađenom arhitekturom na tom području.

U kasnoj antici, na prostoru vile u uvali Soline, uz solane su bile izgrađene nove strukture koje ne prate smjer rasprostiranja zidova maritimne vile. Njihovo datiranje je, prema teksturi zidova, okvirno od 4. do 6. st. Strukture upotrebljavaju građevinski materijal maritimne vile – pragove, tegule, dijelove hipokausta terma, kamen iz zidova i ugrađuju ih u nove zidove. Novi građevinski materijal su klesani ili samo pritesani kameni blokovi manjih dimenzija i dosta variraju od objekta do objekta, što bi moglo ukazivati na gradnju tijekom dužeg vremenskog razdoblja. U zidovima ima ugrađene opeke i tegula. Najbolje sačuvan objekt, Zgrada A (danas sačuvan do visine 2,05 m), nalazi se na istočnoj strani uvale i predstavlja vrlo solidno građenu strukturu još u jakoj antičkoj tradiciji, a mogao bi se, s obzirom na način gradnje i arhitektonski plan, dovesti u vezu s gospodarskom aktivnošću vezanom uz solane i poljoprivredu ili

The discovered archaeological material speaks of the use of the area of the cove from the Late Hellenistic/Republican period (2nd-1st century BC) until Late Antiquity and the Early Byzantine period (4th–6th century)

The present-day village of Vlaka in the Soline Cove shows a continuity of habitation of this part of the island. The first mention of a settlement in the western end of the cove, on the slopes of the second hill next to a fertile field, whose peak is now occupied by a church of St Clement, appears in written sources in the 15th century (Petrić 1987). This was probably a mixed settlement of farmers, salt workers and quarrymen. St Clement is the patron saint of stoneworkers and the local church, which gave the name to the entire island. "St Clement was a pope and martyr living at the end of the 1st century, sentenced by the Roman Emperor Nerva, according to tradition, to forced labour in a quarry in Crimea. He died a martyr's death, thrown into the Black Sea with an anchor tied to his body" (Bibić-Žiže 2009: 31).

Conclusion

At the site of Soline, next to the small hamlet of Vlaka on the island of St. Clement, the largest of the Pakleni archipelago near Hvar, the archaeological remains of an ancient villa, a part of a salt works and a port have been preserved. Based on the movable archaeological material, the site was dated from the Hellenistic (2nd to 1st century BC) to the early Byzantine period (6th century). The results of electromagnetic detection, aerial imagery readings and the field investigations so far indicate two building complexes. Because of its specific position and architectural plan, the older of these two complexes has been defined as a maritime villa. The villa may have belonged to the type of building with a panoramic view of the shore and the greenery of the field and gardens as described by the Roman writer Pliny the Younger (Plin. *Ep.* II, 17 and V, 16). It was adapted to the configuration of the ground and to the landscape, built on gentle hillsides next to a fertile plain and the sea. The investigations so far have been modest in scale and have not defined the entire area of the villa.

The significant finds of Hellenistic and Republican ceramics from the 2nd/1st century BC in the sondages from 2007 to 2011 have raised questions as to the habitation and role of the site in the economic exchange and maritime traffic in relation to the Greek, indigenous and Roman settlements of the period. For the time being, however, these finds cannot be linked to the architecture found in this area.

In Late Antiquity, in the area of the Soline cove villa, beside the salt works, new structures were built that did not follow the direction of the walls of the maritime villa. Based on their wall texture, they have been dated to roughly the 4th to 6th century. The structures use the building material of the maritime villa – doorsteps, tegulae, parts of the hypocaust system of baths, stone from the walls, and build them into the new walls. The new building material consists of smaller cut or only rough-cut stone blocks and varies from building to building, which may indicate that building continued over a longer period of time. There are bricks and tegulae built into the walls. The most preserved building, Building A (preserved to the height of 2.05 m) is located on the eastern side of the cove and is a very well built structure, still in the strong ancient tradition. Because of the way it was built and its architectural plan it can be linked to the economic activity connected to the salt works

uz vojno nadziranje plovnih putova. Druge strukture mogle bi predstavljati dio radnog prostora i skladišta, ograđenog jakim zidom od kojega danas postoje značajni ostaci Zida B u dužini od 18,8 m i visine 2,6 m. Takva slika mogla bi predstavljati završnu kasnoantičku fazu izgradnje u uvali Soline, ali je možda povremeno služila i za smještaj vojske, s obzirom na vojnu ulogu jadranskih pomorskih putova u kasnoj antici.

Povijesna važnost lokaliteta ogleda se u saznanju da je bio uključen u ekonomsku razmjenu i plovidbene putove u Jadranu od kasnog helenizma do ranog Bizanta. Nadamo se da će daljnja sustavna istraživanja otkriti faze razvoja naseljavanja i faze gradnje na lokalitetu u kontekstu jadranske plovidbe i otočne ekonomske i kulturne povijesti. Arheologija otočnih i obalnih krajolika je ustaljen metodološki predmet koji zahtijeva multidisciplinarni pristup i primjenu suvremenih arheoloških metoda i teorija. Istraživanje ne samo lokaliteta u Solinama nego i otoka te saznanja o krajoliku i akvatoriju Sv. Klementa fundamentalna su za naše razumijevanje ljudskih života i povijesnih veza i promjena.

and agriculture, or the military control of maritime routes. The other structures may have been parts of the working area and warehouses, encircled by a strong wall, of which there are today significant remains of Wall B in the length of 18.8 m and height of 2.6 m. This picture may represent the final, late ancient phase of building in the Soline cove, but it could also have occasionally been used to accommodate the military, considering the military role of the Adriatic maritime routes in Late Antiquity.

The historic significance of the site is reflected in the knowledge that it was part of the economic exchange and maritime routes in the Adriatic, from the late Hellenistic period to the Early Byzantine period. We hope that future systematic investigations will reveal the phases of habitation and building on the site in the context of navigation in the Adriatic and the insular economic and cultural history. The archaeology of island and coastal landscapes is a well-established methodological subject that requires a multi-disciplinary approach and the application of modern archaeological methods and theories. Investigations that would include not only the Soline site, but the island itself, as well as knowledge on the landscape and waters of St. Clement are fundamental to our understanding of human lives and historical connections and change.

Prijevod i lektura / *Translation and Proofreading*
Sanjin Mihelić

LITERATURA / BIBLIOGRAPHY

Ashby, T. 1970, *The Roman Campagna in Classical Times*, Tonbridge.

Begović, V., Schrunk, I. 2001, Preobrazbe rimskih vila na istočnom Jadranu u kasnoj antici i ranom srednjem vijeku, *Prilozi Instituta za arheologiju*, Vol. 18, 157–172.

Begović, V., Schrunk, I. 2003, Rimske vile Istre i Dalmacije, II. dio: tipologija vila, *Prilozi Instituta za arheologiju*, Vol. 20, 95–111.

Begović, V., Schrunk, I. 2004, Roman Villas in Istria and Dalmatia, Part III: Maritime villas, *Prilozi Instituta za arheologiju*, Vol. 21, 65–90.

Begović, V., Schrunk, I. 2006, *Brijuni*, Golden Marketing, Zagreb.

Begović, V., Schrunk, I. 2008, Rising of the Sea Level on the eastern Adriatic Coast, *Remote Sensing Techniques in Disaster Management and Emergency Response in the Mediterranean Region*, EARSeL, Zagreb, 289–300.

Begović, V., Schrunk, I. 2011, Maritime villas on the eastern Adriatic coast (Roman Histria and Dalmatia), in: *Roman Empire and Beyond: Archaeological and Historical Research on the Romans and Native Cultures in Central Europe*, De Sena E., Dobrzanska H. (eds.), BAR International Series 2236, Oxford, 3–21.

Bergman, B. 1995, Visualizing Pliny's villas, *Journal of Roman Archaeology*, Vol. 8, 406–420.

Bibić-Žiže, M. 2009, Kove naše zapušćene, *Kruvenica,* br. 9, List župe Sv. Stjepana, Hvar, 29–31.

Bilić-Dujmušić, S. 2006, The battle of Taurida, in: *Dalmatia: Research in the Roman Province 1970-2001. Papers in honour of J. J. Wilkes*, Davison D., Gaffney V., Marin E. (eds.), BAR International Series 1576, Oxford, 27–39.

Brogiolo, G. P., Chavarria Arnau, A., Valenti, M. (eds.), 2004, *Dopo la fine delle ville: la campagne dal VI al IX secolo*, Mantova.

Boëthius, A., Ward-Perkins, J. B. 1970, *Etruscan and Roman Architecture*, Harmondsworth.

Christie, N. 2006, *From Constantine to Charlemagne: An Archaeology of Italy Ad 300-800*, Burlington.

Čargo, B., Miše, M. 2010, Lončarska proizvodnja u Isi, Vjesnik za arheologiju i povijest dalmatinsku, 103, 7–40.

Dvoržak Schrunk, I. 1989, The Red Slip Wares, in: *Diocletian's Palace,* Volume V, McNally S., Marasović J., Marasović T. (eds.), Minneapolis, 47–206.

Fagan, B. 2008, *The Great Warming: Climate Change and the Rise and Fall of Civilizations*, New York.

Gaffney, V., Kirigin, B., Petrić, M., Vujnović, N. 1997, *Archaeological Heritage of the Island of Hvar*, BAR International Series 660, Oxford.

Gaffney, V. et al. 2006, A game of numbers: Rural settlement in Dalmatia and the central Dalmatian islands, in: *Dalmatia: Research in the Roman Province 1970-2001. Papers in honour of J. J. Wilkes,* Davison D., Gaffney V., Marin E. (eds.), BAR International Series 1576, Oxford, 89–106.

Hayes, J. W. 1972, *Late Roman Pottery*, London.

Kirigin, B., Katunarić, T., Šešelj, L. 2005, Amfore i finakeramika (od 4. do 1. st. pr. Kr.) iz srednje Dalmacije: preliminarni ekonomski i socijalni pokazatelji, Vjesnik za arheologiju i povijest dalmatinsku, 98, 7–24.

Kirigin, B., Schrunk, I., Begović, V., Petrić, M., Ugarković, M. 2010, Istraživanje rimske vile u Solinama na otoku Sv. Klement (Pakleni otoci), Hvar, *Anali Instituta za arheologiju,* VI, 53–59.

Kirigin, B., Marin, E. 1989, *Arheološki vodič po srednjoj Dalmaciji*, Split.

Lafon, X. 2001, *Villa Maritima*, Roma.

Novak, G. 1959, Prethistorijske gomile na Paklenim otocima, *Arheološki radovi i rasprave*, br. 1, 237–244.

Novak, G. 1960, *Hvar kroz stoljeća*, Hvar (reprint 1972).

Petrić, M. 1987, Nekoliko podataka o hvarskim škojima u 15. Stoljeću, *Prilozi povijesti otoka Hvara,* Vol. VIII, 71–79.

Petrić, M. 2008a, Lokalitet: Soline, *Hrvatski arheološki godišnjak,* Vol. 4/2007, 501–503.

Petrić, M. 2008b, Rimska villa maritima od ruine do arheološkog parka, *Nautica*, Vol. 58, 166–170.

Petrić, M. 2009, Lokalitet: Soline, *Hrvatski arheološki godišnjak,* Vol. 5/2008, 603–605.

Purcell, N. 1995, The Roman villa and the landscape of production, in: *Urban Society in Roman Italy*, Cornell T., Lomas K. (eds.), New York, 151–179.

Schrunk, I. 1989, Dioklecijanova palača od 4. do 7. st., *Vjesnik Arheološkog muzeja u Zagrebu,* s. 3., 22, 91–102.

Schrunk, I., Begović, V. 2000, Roman estates on the island of Brioni, Istria, *Journal of Roman Archaeology*, Vol. 13, 253–276.

Suić, M. 1991, Tragurium marmore notum, *Godišnjak Akademije nauka i umjetnosti Bosne i Hercegovine*, Vol. 95, 285–295.

Suić, M. 1995, Bizantski limes na istočnoj obali Jadrana, *Prilozi povijesti umjetnosti u Dalmaciji*, Vol. 35, 133–145.

Suić, M. 2003, *Antički grad na istočnom Jadranu*, Zagreb.

Šarić, I. 1980, Antički kamenolom u Prozoru – tehnologija vađenja kamena, in: *Materijali, tehnika i strukture predantičkog i antičkog graditeljstva na istočnom jadranskom prostoru*, Suić M., Zaninović M. (eds.), Zagreb.

Šegvić, B., Šešelj, L., Slovenec, D., Lugović, B., Ferreiro Mählmann, R. 2012, Composition, Technology of Manufacture, and Circulation of Hellenistic Pottery from the Eastern Adriatic: A Case Study of Three Archaeological Sites along the Dalmatian Coast, Croatia, Geoarchaeology, 27/1, 63–87.

Šonje, A. 1980, Iz kojeg istarskog kamenoloma potječe kupola Teodorikova mauzoleja u Raveni, in: *Materijali, tehnika i strukture predantičkog i antičkog graditeljstva na istočnom jadranskom prostoru*, Suić M., Zaninović M. (eds.), Zagreb.

Teichner, F. 2010. Topographical and geophysical Field survey of The German Archaeological Institute (Roman Germanic Commission – Frankfurt) at Sv. Klement Island, Roman villa – Soline Bay, neobjavljen izvještaj.

Terrenato, N. 2001, The Auditorium site in Rome and the origins of the villa, *Journal of Roman Archaeology*, Vol. 14, 5–32.

Ugarković, M. 2010, Lokalitet: Soline, *Hrvatski arheološki godišnjak,* Vol. 6/2009, 636–638.

Verzar Bass, M. 1986, Le transformazioni agrarie tra Adriatico nordorientale e Norico, in: *Societa Romana e impero tardoantico*, Giardina A. (ed.), Roma, 647–883.

Vetters, W., Zabehlicky, H. 2001, Eine Klimakatastrophe um 200 n. Chr. Und ihre archäologishe Nachweisbarkeit, in: *Archäologie – Naturwissenschaften – Umwelt. Beiträge der AG „Römische Archäologie" auf dem 3. Deutschen Archäologenkongres in Heidelberg*, BAR International Series 929, 9–12.

Vetters W., Zabehlicky H. 2003, Der lange Winter der Römer, in: *6. Deutsche Klimatagung, Klimavariabilität,* Schriften der alfred-Wegener-Stiftung, 6, Potsdam, 453–455.

Zaninović, M. 1967, Neki primjeri smještaja antičkih gospodarskih zgrada u obalno-otočkom području Dalmacije, *Arheološki radovi i rasprave,* 4–5, 357–371.

Zaninović, M. 1973, O naseljenosti otoka Hvara u antičko doba, *Vjesnik za arheologiju i historiju dalmatinsku,* Vol. 68, 203.

Zaninović, M. 1978, Novi prilozi arheološkoj topografiji otoka Hvara, Novija i neobjavljena istraživanja u Dalmaciji, *Izdanja HAD-a*, 3, 55.

Zaninović, M. 1991, Sol u antici naše obale, *Godišnjak Akademije nauka Bosne i Hercegovine*, 255–264.

Zaninović, M. 1995, Villae rusticae u pejsažu otoka i obale antičke Dalmacije, *Histria Antiqua* 1, 86–96.

Zaninović, M. 1996, *Od Helena do Hrvata*, Zagreb.

Zaninović, M. 2002, Mornarička postaja u Saloni i ispostava u Phariji, *Zbornik Tomislava Marasovića*, Split, 67–79.

IZVORI / SOURCES

Appian 1912, *Appian Roman History*, Vol. I–IV, translation H. White, Loeb Classical Library 2–4, Harvard University Press, Cambridge.

Cicero 1977, *M. Tullius Cicero, Epistulae ad Familiares*, translation D. R. Shackleton Bailey, Loeb Classical Library 205, Harvard University Press, Cambridge.

Pliny the Younger 1969, *Pliny Letters* Books 1–5, translation B. Radice, Loeb Classical Library 55, Harvard University Press, Cambridge.