



O P V S C V L A

A R C H Æ O L O G I C A

IZDAVAČ / PUBLISHER

ARHEOLOŠKI ZAVOD FILOZOFSKOG FAKULTETA SVEUČILIŠTA U ZAGREBU
DEPARTMENT OF ARCHAEOLOGY, FACULTY OF HUMANITIES AND SOCIAL SCIENCES, UNIVERSITY OF ZAGREB

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GRAFIČKO OBLIKOVANJE / GRAPHIC DESIGN

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Arheološki zavod Filozofskog fakulteta
Department of Archaeology, Faculty of Humanities and Social Sciences
10000 ZAGREB – CROATIA
I. LUČIĆA 3 – P.O. BOX 171

RAČUNALNI PRIJELOM / COMPUTER LAYOUT

Ivanka COKOL for FF-press

PRIJEVOD NA ENGESKI / TRANSLATION TO ENGLISH

Assia BARIĆ, Ana ĐUKIĆ, Luka REP

GODIŠNJAK / ANNUAL

Izdavanje časopisa novčano podupire

ODSJEK ZA ARHEOLOGIJU FILOZOFSKOGA FAKULTETA SVEUČILIŠTA U ZAGREBU

Publishing of the journal financially supported by

DEPARTMENT OF ARCHAEOLOGY, FACULTY OF HUMANITIES AND SOCIAL SCIENCES UNIVERSITY OF ZAGREB

Službena kratica ovoga časopisa je *Opusc.archaeol. (Zagreb)* / Official abbreviation of this journal's title is *Opusc.archaeol. (Zagreb)*

URL: www.ffzg.hr/arheo/opuscula

Dostupno na / Available at Ebsco Publishing (www.ebscohost.com)

Tiskano 2015. / Printed in 2015

O P V S C V L A

ARCHÆOLOGICA

2013/2014

FILOZOFSKI FAKULTET
SVEUČILIŠTA U ZAGREBU
FACULTY OF HUMANITIES
AND SOCIAL SCIENCES,
UNIVERSITY OF ZAGREB

RADOVI ARHEOLOŠKOG ZAVODA
PAPERS OF THE DEPARTMENT
O F A R C H A E O L O G Y

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PROSLOV

S velikim zadovoljstvom i u ime cijelog uredništva predstavljamo dvobroj 37/38 časopisa Opuscula Archaeologica koji je utemeljen 1956. godine, te s više ili manje poteškoća izlazi više od pet desetljeća. Usprkos trenutnim financijskim poteškoćama pred nama je časopis koji i ovoga puta, i to sa 19 članaka od 25 autora, na preko četiri stotine stranica, objavljuje znanstvene, pregledne i stručne tekstove visoke kvalitete.

No, ovaj dvobroj časopisa Opuscula archaeologica se razlikuje od prethodnih izdanja jer se sastoji od dva tematska poglavlja. U prvom poglavlju je jedanaest radova koji su, u skladu s tradicijom našeg časopisa, posvećeni različitim arheološkim problemima koji će kako znanstvenicima, tako i drugima, dati mogućnost dobivanja uvida, ne samo u nepoznatu arheološku građu, nego i mogućnost upoznavanja s najnovijim razmišljanjima o određenim problemima kao i njihovim mogućim rješenjima. Drugi dio broja 37/38 časopisa Opuscula archaeologica nas posebno raduje jer se sastoji od osam radova posvećenih 30-godišnjici smrti uglednog hrvatskog profesora prapovijesne arheologije Stojana Dimitrijevića. Radovi su prezentirani na skupu posvećenom Stojanu Dimitrijeviću na Filozofskom fakultetu u Zagrebu 13.12.2011.

Napor koji je uredništvo časopisa uložilo u izlazak ovoga broja nije nas obeshrabrio nego potaknuo da i dalje činimo sve potrebno da bi autori i dalje imali priliku objavljivati članke za koje smatraju da doprinose arheološkoj znanosti. Za kvalitetu objavljenih priloga brinuo se cijeli tim recenzenata, čije je mišljenje i omogućilo da svaki prilog ima onu kvalitetu kakvu naš časopis i zaslužuje. Stoga na kraju svim autorima i suradnicima najsrdačnije zahvaljujemo na priložima tiskanim u ovome broju časopisa Opuscula archaeologica.

Glavni i odgovorni urednici

PROLOGUE

We are proud to present a double volume 37/38 of Opuscula archaeologica on behalf of the Editorial board. Since its first volume in 1956, journal Opuscula archaeologica has been publishing scientific articles in the field of archaeology and other historical disciplines. Despite current financial challenges we were able to publish 19 articles by 25 authors on more than 400 pages containing high quality original scientific articles and professional papers.

The structure of this double volume differs from previous ones because it is divided into two sections. The first section consisting of 11 articles that are, in the tradition of this journal, facing specific archaeological issues. We hope that these articles will provide information to readers on new, unpublished material and current debates. The second section contains 8 papers dedicated to the 30th anniversary of death of Professor Stojan Dimitrijević, a distinguished professor of Prehistoric Archaeology at the University of Zagreb. These papers were originally presented at the conference organized by the Faculty of Humanities and Social Sciences, University of Zagreb on December 13th 2011.

Various challenges presented to us during the preparation of this volume were not discouraging, but, on the contrary, gave us the additional motivation to secure the future of this journal as a platform for publication of quality scientific and professional papers by fellow scholars. Extensive team of domestic and international reviewers is the quality assurance of the published articles, and the journal as a whole.

We would like to express our gratitude to all contributors whose articles are published in this double volume.

Editors

Stašo FORENBAHER, Petra RAJIĆ ŠIKANJIĆ & Zrinka PREMUŽIĆ

PET GROBOVA S PALAGRUŽE

FIVE BURIALS FROM PALAGRUŽA

doi: 10.17234/OA.37.3

Stručni rad / Professional paper

UDK / UDC 902.3(497.5 Salamandrija)(210.7 Palagruža):718"652/654"
718:639.2](497.5 Salamandrija)"652/654"

Primljeno/Received: 19.11.2012.

Prihvaćeno/Accepted: 07.04.2014.

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Prilikom arheoloških iskopavanja nalazišta Salamandrija na Palagruži pronađeno je pet skeletnih grobova. Njihovo datiranje obuhvaća razdoblje od kasne antike do modernog doba. Najvjerojatnije ih se može povezati s povremenim, diskontinuiranim, a ponekad možda i trajnijim, boravkom ljudi koji su se bavili specijaliziranim aktivnostima poput plovidbe, ribarenja, gradnje i ratovanja. U većini slučajeva moglo bi se raditi o ad hoc zbrinjavanju posmrtnih ostataka, prije nego li o pravom formalnom pogrebu. Spomenuti grobovi upotpunjuju saznanja o ljudskoj prisutnosti na otoku i otvaraju nova pitanja o razdobljima za koja do sada na Palagruži nije bilo arheoloških podataka.

Ključne riječi: Jadran, Palagruža, grob, kasna antika, srednji vijek, novi vijek

Archaeological excavations at the Salamandrija site on Palagruža Island yielded five inhumation burials. They date from periods between Late Antiquity and the Modern Age. Most probably, they can be related to occasional, discontinuous, or sometimes perhaps more permanent occupation by people involved in specialized activities such as navigation, fishing, construction work and warfare. In most cases, we may be dealing with ad hoc disposal of human remains, rather than with formal burials. These burials complement what is already known about human presence on the island and open new questions about periods which previously have not been archaeologically attested on Palagruža.

Key words: Adriatic, Palagruža, burial, Late Antiquity, Middle Ages, Modern Age

Različita vremena i različite prostore obilježili su najrazličitiji načini zbrinjavanja tjelesnih ostataka pokojnika. Malo je značajki, osim onih najopćenitijih, koje su zajedničke svim pogrebnim običajima. Jedna od takvih značajki jest činjenica da se ostaci pokojnika u pravilu odlažu razmjerno blizu mjesta gdje ga je zatekla smrt. Transport tijela na

Human bodily remains have been discarded in a wide variety of ways across different periods and in different regions. Only a few features, apart from the most general ones, are common to all mortuary customs. Among them is the fact that remains of the deceased are usually placed relatively close to where they died. Transporting the body over long

velike udaljenosti tekovina je novog vremena koja je u ranijim razdobljima predstavljala rijetku iznimku. Zbog toga su groblja usko vezana uz mjesta na kojima se živjelo, dok su grobovi smješteni daleko od naselja neuobičajeni i već zbog toga zanimljivi. Među takve rijetke nalaze mogu se ubrojiti grobovi koji su za nedavnih arheoloških istraživanja otkriveni na Palagruži.

SMJEŠTAJ I NASELJENOST PALAGRUŽE

Osamljeni otočić Palagruža nalazi se gotovo u samom središtu Jadranskog mora. Od najbližeg susjednog otoka ili kopna udaljena je četrdesetak kilometara. Njen izdaleka vidljiv strm i izdužen hrbat uzdiže se stotinjak metara nad morskou razinom, a njena žala pružaju mogućnost utočišta manjim plovilima. Zbog toga je Palagruža od pamtivijeka bila iznimno važna za plovidbu uzduž i poprijeko Jadrana (Kirigin *et al.* 2009).

Izuzev bogatstva ribe u okolnom moru, prirodni izvori Palagruže krajnje su ograničeni. Na otoku nema izvora pitke vode, a nakapne cisterne slabo se pune zbog izrazito suhe klime. Biljni pokrov je ograničen na žbunje i drugo sitno raslinje, a lovne divljači nema. Teren je izrazito strm i kamenit pa obradivo zemljište čini tek sedam od ukupno tridesetak hektara površine otoka (Kovačić 1997).

Zbog toga ne čudi da na Palagruži nikad nije postojalo trajno naselje, iako arheološki i povijesni izvori svjedoče o mnogobrojnim posjetima, sezonskom zadržavanju, pa i dugotrajnijem boravku specijaliziranih grupa ljudi. Većina arheoloških tragova koncentrirana je na Salamandriji, maloj zaravni pri sredini otoka. Najraniji od njih pripadaju ranom 6. tisućljeću prije Krista, odnosno vremenu ranog neolitika (Forenbaher & Kaiser 2005; 2011). Nakon poduže stanke, otok je ponovo intenzivno posjećivan sredinom 3. tisućljeća prije Krista, u vrijeme prijelaza iz bakrenog u brončano doba (Forenbaher & Kaiser 1997; Kaiser & Forenbaher 1999), a zatim je opet napušten. Od kraja 6. stoljeća prije Krista, tijekom klasičnog i helenističkog Grčkog razdoblja pa sve do vremena Rimskog Carstva, na Salamandriji je postojalo Diomedovo svetište (Kirigin & Čaće 1998). Za kasne antike zamijenila ga je snažna utvrda. Arheološke i povijesne informacije iz razdoblja srednjeg vijeka iznimno su malobrojne i štire, kao da je s gašenjem antičke civilizacije otok još jednom bio napušten (Kirigin 2012).

distances is a recent practice, which occurred only exceptionally in earlier times. That is why cemeteries are closely linked to settlements, and why burials located a long way from settlements are unusual and interesting by default. Burials that were discovered during the recent archaeological excavations on Palagruža belong among those rare finds.

LOCATION AND OCCUPATION OF PALAGRUŽA

The lonely island of Palagruža is situated virtually at the very center of the Adriatic Sea. Some forty kilometers separate it from the nearest neighboring landfall. Its steep and elongated ridge, visible from afar, rises about a hundred meters above the sea, while its beaches offer shelter to small vessels. As a consequence, since times immemorial Palagruža has been highly important for navigation along and across the Adriatic (Kirigin *et al.* 2009).

Apart from abundant fish in the surrounding sea, the natural resources of Palagruža are extremely limited. The island has no fresh water, while cisterns fill up slowly due to the exceptionally dry climate. Vegetation is limited to bushes and other small plants, and game animals are completely absent. The terrain is very steep and rocky, so that only seven percent of the thirty hectares total of the island's surface are arable land (Kovačić 1997).

Therefore, it is not surprising that there was never a permanent settlement at Palagruža, although archaeological and historical sources testify to numerous visits, seasonal sojourns, and even relatively long-term occupation by specialized groups of people. Most of the archaeological remains are concentrated at Salamandrija, a small plateau near the center of the island. The earliest date from the early 6th millennium BC, that is, the Early Neolithic period (Forenbaher & Kaiser 2005; 2011). After a long break, the island was intensively visited during the 3rd millennium BC, the transition period from the Copper to the Bronze Age (Forenbaher & Kaiser 1997; Kaiser & Forenbaher 1999), but after that it was again abandoned. A sanctuary dedicated to Diomedes was founded at Salamandrija near the end of the 6th century BC, and lasted throughout the Classic and Hellenistic Greek periods, as well as the Roman imperial times (Kirigin & Čaće 1998). In Late Antiquity, it was replaced by a substantial fortress. Archaeological and historical information from the Middle Ages are exceptionally sparse and brief, as if the island was once again deserted af-

Palagruža se često spominje u povijesnim dokumentima tek od 16. stoljeća, kada more u njenoj okolini intenzivno iskorištavaju hvarski i komiški ribari. Oni borave na otoku ljeti, obično po tri tjedna svaki mjesec, loveći, soleći i spremajući srdele u barile. Na ruševinama kasnoantičke utvrde grade se kamene kolibice, cisterna i crkvice. Napokon, 1875. godine Austrija na vrhu otoka gradi svjetionik u kojem od tada stalno borave svjetioničari sa svojim obiteljima.

U Prvom svjetskom ratu Palagruža je pretrpjela žestoko bombardiranje austrijske mornarice. Između dva rata bila je pod vlašću Italije koja je na otoku podigla dva mala betonska objekta za potrebe radiostanice. Poslije Drugog svjetskog rata na Palagruži je, uz svjetioničare, sve do kraja šezdesetih godina prošlog stoljeća boravila izvidna posada JNA od petnaestak vojnika.

SMRT NA PALAGRUŽI

Prema sačuvanoj usmenoj predaji može se zaključiti da je na Palagruži tijekom posljednja tri stoljeća smrtno stradalo tridesetak ljudi. Svi su poginuli u nesrećama, zatrpani odronima kamenja, u eksplozijama zaostalih granata iz Prvog svjetskog rata, ili padom niz liticu (Kirigin 2012: 105, 129-131). Koliko je poznato, izuzev nesretnih hvarskih ribara koje je, prema usmenoj predaji, krajem 18. stoljeća na Žalu pokopao veliki odron stijena (Burton 1879: 180), posmrtni ostaci pokojnika odneseni su s Palagruže i sahranjeni negdje drugdje.

Vrlo bogata pučka tradicija (Božanić 1996a; 1996b) ne spominje da je netko na Palagruži umro prirodnom smrću ili da je ondje pokopan. Tim je zanimljivije da su već prvi moderni istraživači, Richard Burton i Karlo Marchesetti, prilikom svojeg četverodnevog posjeta otoku u rujnu 1876. godine naišli na skeletne ostatke ljudi. Na temelju njihovih šturih opisa danas se malo što može sa sigurnošću tvrditi, osim da se radilo o ostacima desetak individua.

Marchesetti piše o otkriću groba s kremenom strelicom "zabodenom u skelet" (Marchesetti 1876: 289). Ako njegov opis shvatimo doslovno, radilo bi se najvjerojatnije o pokojniku iz sredine 3. tisućljeća prije Krista, jer iz tog vremena potječe velika većina pretpovijesnih nalaza s Palagruže, uključujući i mnogobrojne kremene šiljke strelica (Forenbaher 2009: sl. 5). S druge strane, ukoliko nije bila fizički povezana sa skeletom, kremenica strelica mogla je

ter the collapse of the classical civilization (Kirigin 2012).

Palagruža is frequently mentioned in historical documents from the 16th century onwards, when its surrounding sea was intensively exploited by fishermen from Hvar and Komiža. They visited the island during summer and usually spent three weeks out of each month there, fishing, salting and packaging sardines in barrels. On the ruins of the Late Roman fortress they built stone huts, a cistern and a small church. Finally, in year 1875, Austrian authorities built a lighthouse at the top of the island, where keepers have lived with their families ever since.

In the First World War, Palagruža suffered heavy bombardment by the Austrian Navy. Between the two Wars, when the island was under Italian jurisdiction, two small concrete structures were built to serve the needs of a radio station. Aside from the lighthouse keepers, after the Second World War and until the late 1960s, Palagruža was occupied by a fifteen-member military surveillance crew of the Yugoslav National Army.

DEATH ON PALAGRUŽA

According to oral tradition, about thirty people died on Palagruža over the last three centuries. All of them were killed in accidents such as rockfalls, explosions of leftover ordnance from the First World War, or falling off cliffs (Kirigin 2012: 105, 129-131). As far as we know, apart from the unlucky fishermen from Hvar who were buried by a massive rockfall at the end of the 18th century (Burton 1879: 180), the remains of the deceased were removed from Palagruža and buried elsewhere.

The very rich folk tradition (Božanić 1996a; 1996b) has no mention of anyone dying of natural causes on Palagruža, or anyone being buried there. Interestingly, Richard Burton and Karlo Marchesetti, the first modern explorers of the island, found human skeletal remains during their four-day sojourn in September of 1876. Based on their short descriptions, little can be claimed today with any degree of certainty, apart from the fact that they encountered remains of about ten individuals.

Marchesetti describes discovery of a burial with a flint arrow "stuck in the skeleton" (Marchesetti 1876: 289). If we take his description literally, the deceased probably would have belonged to the

dospjeti u grob posve slučajno, zajedno sa zemljom kojom je zatrpana grobna raka, budući da tanki sloj humusa koji prekriva padine oko Salamandrije sadrži vrlo velik broj pretpovijesnih nalaza. Nažalost, spomenuti grobni nalaz nije sačuvan pa danas više nije moguće provjeriti stvarno stanje stvari.

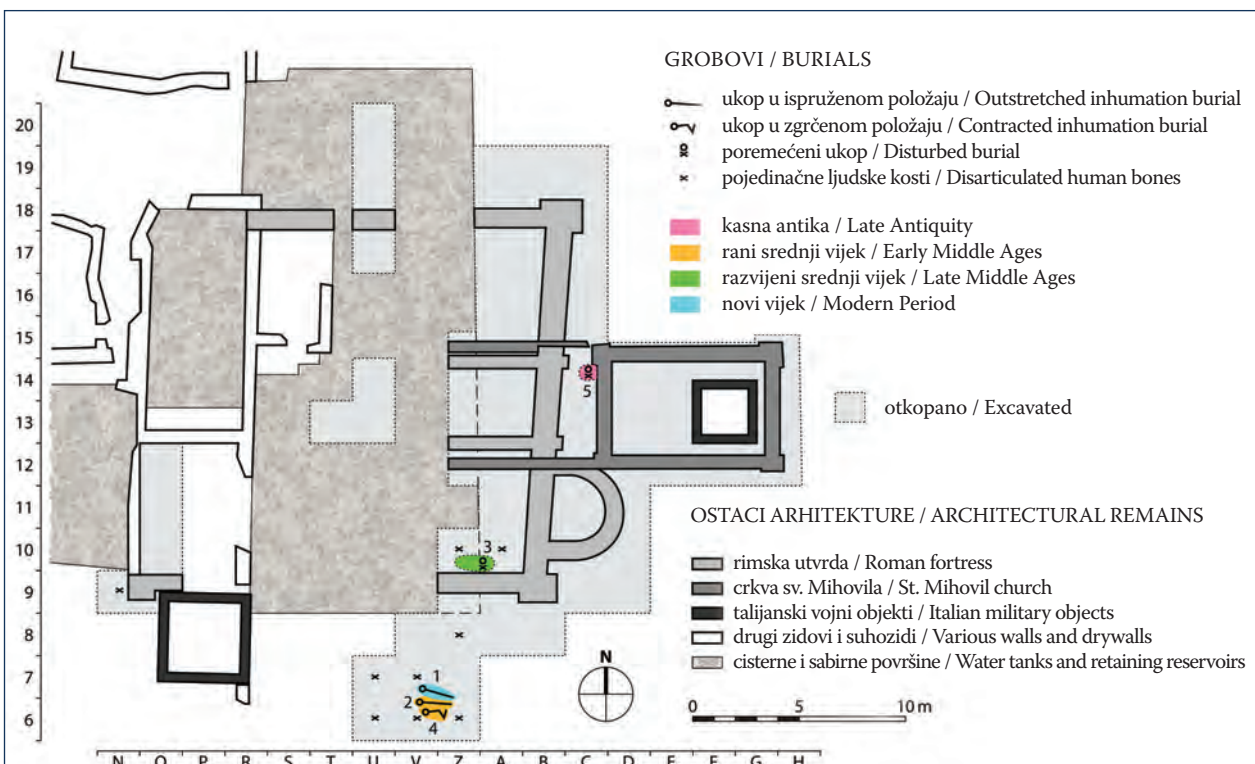
Još manje znamo o “deset lubanja i gomili kostiju” iz zbirke Ante Topića, poduzetnika koji je preuzeo posao izgradnje svjetionika na Palagruži. Njih spominje Burton (1879: 179) te nagada da ti ljudski ostaci, pronađeni na sjeverozapadnoj padini Salamandrije prilikom vađenja kamena za izgradnju svjetionika, potječu iz kasnog srednjeg vijeka.

Ovim starim informacijama sada možemo pridodati sustavno prikupljene podatke s novih arheoloških istraživanja na Palagruži. Između 2002. i 2006. godine, oko i unutar zidova kasnoantičke utvrde na Salamandriji otkopano je pet grobova (sl. 1). U svakom od njih bio je pokopan po jedan pokojnik. Uz to je iz kulturnog sloja izvan grobova prikupljen manji broj pojedinačnih ljudskih kostiju koje potječu od još barem pet individua.

middle of the 3rd millennium BC, since most of the prehistoric finds from Palagruža can be dated to that period, including numerous flint arrow points (Forenbaher 2009: fig. 5). On the other hand, if the flint arrowhead was not physically embedded in the skeleton, it could have entered the burial pit accidentally, together with the dirt used as fill, since the humic layer that covers the slopes around Salamandrija is full of prehistoric artifacts. Unfortunately, contents of this burial have not been preserved, which prevents us from verifying the actual situation.

We know even less about the “ten skulls and a pile of bones” from Ante Topić’s collection. Topić was an entrepreneur who took over the building of the Palagruža lighthouse. The finds are mentioned by Burton (1879: 179) who assumed that these human remains, found on the northwestern slope of Salamandrija, in a quarry that supplied stone for the lighthouse, belonged to Late Medieval times.

To these old information we can now add systematically gathered data from the recent archaeological



Slika 1. Tlocrt nalazišta na Salamandriji s označenim položajem grobova (Arhiv Arheološkog muzeja u Splitu, prilagodio S. Forenbaher 2012.)

Figure 1. Plan of Salamandrija indicating location of burials (Archive of the Split Archaeological Museum, edited by S. Forenbaher, 2012)

ANALIZA LJUDSKIH SKELETNIH OSTATAKA

Analiza ljudskih skeletnih ostataka obuhvatila je popisivanje prisutnih koštanih elemenata, procjenjivanje minimalnog broja prisutnih osoba, određivanje spola i dobi osobe te opis uočenih patoloških promjena i lezija.

Spol osoba određen je korištenjem standardnih antropoloških metoda koje se temelje na morfološkim karakteristikama lubanje i zdjeličnog obruča (Schwartz 1995). Pri određivanju dobi osoba korišteni su stupanj spajanja epifize na medijalnom kraju ključne kosti, morfološke promjene na spojnoj ploštini preponske i zglobojnoj ploštini bočne kosti te stupanj srašavanja lubanjskih šavova (White 2003). Na temelju uočenih karakteristika dob osobe procijenjena je prema sljedećim kategorijama: 20 – 30, 30 – 40, 40 – 50 i 50+ godina. Ukoliko se zbog nedostataka koštanih elemenata spol i dob nisu mogli precizno utvrditi, osoba je opisana kao odrasla. Za utvrđivanje uzroka vidljivih patoloških promjena na kostima korištene su standardne paleopatološke metode (Waldron 2009).

Zbog poremećenosti ljudskih ostataka i njihove prisutnosti izvan grobova, procijenjen je minimalni broj osoba. Pri tome su uzeti u obzir svi prisutni koštani elementi u pojedinom kontekstu, kao i njihov položaj unutar lokaliteta. Analizom je procijenjen minimalni broj od deset osoba. Sve su odrasle dobi, a za njih sedam je sa sigurnošću utvrđeno da se radi o muškarcima.

Ostatke pet osoba pronađenih u pojedinačnim grobovima zbog cjelovitosti i dobre očuvanosti koštanih elemenata bilo je moguće detaljnije analizirati. Sve su osobe muškoga spola. Od toga su četvorica dobi od 20 do 30 godina dok je jedan muškarac starosti od 30 do 40 godina.

Na analiziranom materijalu uočena je jedna patološka lezija: lom kosti. Do prijeloma kosti dolazi pod utjecajem vanjske sile, a njihovo proučavanje pruža podatke o slučajnim i namjernim aktivnostima u svakodnevnom životu.

Na kostima nekoliko osoba prisutne su promjene koje se mogu povezati s pojačanom fizičkom aktivnošću: promjene na hvatištu kostoklavikularnog (romboidnog) ligamenta na ključnoj kosti i *os acromiale* na lopatici. Navedene promjene prisutne su

excavations on Palagruža. Between year 2002 and 2006, five burials were excavated around and within the walls of the Late Roman fortress on Salamdrija (fig. 1). Each one of them contained a single individual. In addition, a small number of individual human bones, belonging to at least five more individuals, were recovered from the cultural layer aside from the burials.

ANALYSIS OF HUMAN SKELETAL REMAINS

The analysis of human skeletal remains included listing of all bone elements, estimating the minimum number of individuals, sex and age determination and a description of the observed pathological changes and lesions.

The sex of the individuals was estimated by using standard anthropological methods based on the morphological characteristics of the skull and the pelvis (Schwartz 1995). In age estimation, we used fusion of the medial end of the clavicle, morphological characteristics of pubic symphysis and auricular surface as well as cranial suture closure (White 2003). Based on the observed characteristics, each individual was assigned to one of the following categories: 20 – 30, 30 – 40, 40 – 50 and 50+ years. If sex and age could not be estimated due to the lack of bone elements, the individual was described as an adult. In order to determine causes of the visible pathological changes, standard paleopathological methods were used (Waldron 2009).

Scattered human remains present outside of the burials required the estimation of minimum number of individuals. All bone elements from each context were considered, as well as their position within the site. The analysis yielded the minimum number of ten individuals. All of them are adults, and seven of them are males.

Remains of five individuals found in single burials were complete and well preserved so they were analyzed in detail. All of them are males. Four of them are between 20 and 30 years old, while one is between 30 and 40 years old.

One pathological lesion was observed in the analyzed material: a bone fracture. Bone fractures are caused by external force, and their study provides information about accidental and intentional activities in everyday life.

kod tri osobe (grob 1, grob 3, grob 5) na obje strane tijela.

Kostoklavikularni ligament spaja ključnu kost s prvim rebrom te na taj način stabilizira prsni koš. Na mjestu njegova hvatišta na ključnoj kosti mogu nastati promjene u obliku udubljenja i zadebljanja. Istraživanja su pokazala da su promjene češće kod muškaraca odnosno mlađih osoba, a najizraženije su kod muškaraca starosti od 20 do 30 godina. Iako njihov uzrok nije do kraja razjašnjen, većina istraživača ih povezuje s pojačanom mehaničkom aktivnošću (Rogers *et al.* 2000).

Os acromiale je promjena koja nastaje kad vrh akromijalnog nastavka ne sraste s ostatkom lopatice, što se obično događa između 18. i 20. godine života (Scheuer & Black 2004). Promjena može biti jednostrana ili obostrana, pri čemu je češće zahvaćena dominantna ruka. Češće se javlja kod muškaraca, a učestalost u suvremenim populacijama iznosi između 1% i 15% (Resnick 2002; Boehm 2005). Kao uzrok nastanka *os acromiale* navode se mehanički stres i trauma te genetički čimbenici (Case *et al.* 2006). Istraživanja su pokazala da je rizik od nastanka *os acromiale* veći u osoba koje su tijekom života obavljale napore fizičke aktivnosti čiji su pokreti uključivali ponavljajuće podizanje ruku.

OPIS GROBOVA

Svi pokojnici su pokopani bez priloga, a starost grobova određena je izravnim radiokarbonskim datiranjem kostiju metodom akceleratorске masene spektrometrije (tab. 1, sl. 2).

Bones of several individuals exhibit changes that may be related to intensive physical activity such as those at the attachment site of the costoclavicular (rhomboid) ligament on the clavicle and *os acromiale* on the scapula. They are present on both sides of the bodies of three individuals (Burial 1, Burial 3, Burial 5).

The costoclavicular ligament connects the clavicle to the first rib, thus stabilizing the chest cavity. At the location of its attachment to the clavicle, morphological changes such as lesions and thickening may appear. They appear more frequently in males and young adults, and are most prominent in males aged between 20 and 30 years. Their etiology is still not completely understood, although most researchers associate them with increased mechanical activity (Rogers *et al.* 2000).

Os acromiale appears when a fragment of the acromion does not fuse with the scapula, which usually occurs between the age of 18 and 20 (Scheuer & Black 2004). This change can be found on one or both sides, with the dominant arm being affected more frequently. It is more frequent in men, appearing in modern populations with frequencies between 1% and 15% (Resnick 2002; Boehm 2005). *Os acromiale* is caused by mechanical stress and trauma, as well as genetic factors (Case *et al.* 2006). Research has indicated that the risk of developing *os acromiale* is greater in individuals who were involved in strenuous physical activities that required repetitive arm rising during their lifetime.

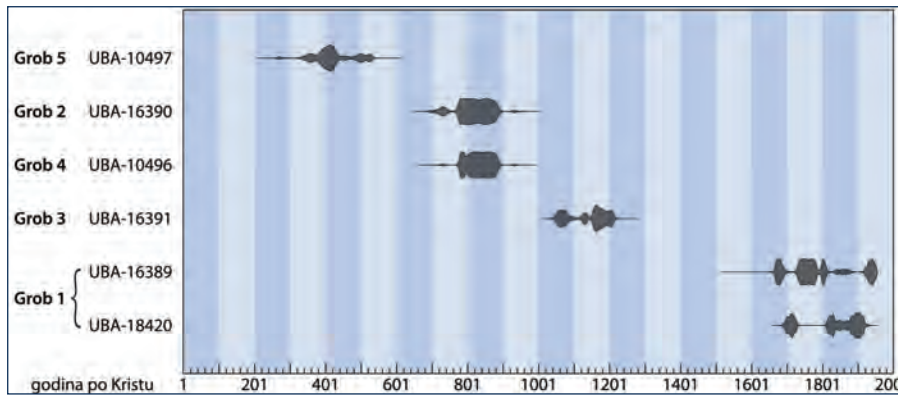
Kontekst	Uzorak	Laboratorijski broj	Starost prije sadašnjosti	Kalibrirani* raspon starosti po Kristu	
				1 SD	2 SD
grob 1	ljudski zub	UBA-16389	168±25	1670-1944	1663-1954
grob 1	ljudska kost	UBA-18420	81±23	1700-1915	1693-1919
grob 2	ljudski zub	UBA-16390	1205±27	779-869	714-893
grob 3	ljudski zub	UBA-16391	887±22	1055-1208	1045-1217
grob 4	ljudski zub	UBA-10496	1194±19	783-873	777-887
grob 5	ljudski zub	UBA-10497	1640±31	351-526	336-535

Tablica 1. Radiokarbonski datumi za grobove sa Salamandrije (autor: S. Forenbaher, 2012)

*Kalibracija je provedena programom OxCal v.4.1 (Reimer *et al.* 2009; Bronk Ramsey 2009)

Table 1. Radiocarbon dates from the Salamandrija burials (author: S. Forenbaher, 2012)

*Calibrated using OxCal program v.4.1 (Reimer *et al.* 2009; Bronk Ramsey 2009)



Slika 2. Kalibrirani radiokarbonski datumi za grobove sa Salamandrije; kalibracija je provedena programom OxCal v.4.1 (Reimer et al. 2009; Bronk Ramsey 2009) (autor: S. Forenbaher, 2012)

Figure 2. Calibrated radiocarbon dates for the Salamandrija burials; calibration by OxCal v.4.1 program (Reimer et al. 2009; Bronk Ramsey 2009) (autor: S. Forenbaher, 2012)



Slika 3. Salamandrija, grob 1 (Arhiv Arheološkog muzeja u Splitu, 2002)

Figure 3. Salamandrija, burial 1 (Archive of the Split Archaeological Museum, 2002)



Slika 4. Os acromiale (Salamandrija, grob 1) (autor: S. Forenbaher, 2012)

Figure 4. Os acromiale (Salamandrija, burial 1) (autor: S. Forenbaher, 2012)

DESCRIPTION OF THE BURIALS

All of the deceased were buried without burial goods. Their archaeological age was established by direct radiocarbon dating of the bones, using accelerator mass spectrometry (table 1, fig. 2).

Burial 1 (fig. 3) contained a male aged between 20 and 30 years. He was buried lying on his back in west-east direction, with his head towards the west. The upper part of the body was later badly disturbed, and both of the tibias are missing. Observed lesions include a healed fracture of the fourth metacarpal bone of the left hand, changes on both costoclavicular ligaments and bilateral *os acromiale* (fig. 4). The deceased was interred into a redeposited layer of marl that probably was created from material thrown out from the nearby pits, which had been dug for the foundations of the Late Roman fortress. The edges of the burial pit were not discernible, and no trace of grave architecture was observed. This burial was dated to the Modern Age, from the late 17th to the mid-20th century.

Burial 2 (fig. 5) contained a male aged between 30 and 40 years. He was buried face down in an extended position, in west-east direction, with his head towards the west. Pathological changes were not observed on the skeletal remains. He was interred into the same redeposited marl layer as the individual from Burial 1. Likewise, the edges of the burial pit were not discernible, and no trace of grave architecture was observed. This burial was dated to the Early Middle Ages, from the late 8th to the late 9th century.

Burial 3 (fig. 6) contained a male aged between 20 and 30 years. Most of the bones were found in the eastern part of an elongated burial pit measuring about 1.8 x 0.6 m, while only a few of them were recovered from the western part of the pit, which also yielded an iron dart point. The bones were disarticulated and piled up, with the skull at the bottom and long bones at the top. On both scapulae *os acromiale* was observed. The south side of the burial pit is defined by the fortress wall, and the north side by a drystone wall, parts

U grobu 1 (sl. 3) pokopan je muškarac dobi između 20 i 30 godina. Položen je u grob ispružen na leđa, približno u smjeru zapad-istok, glavom prema zapadu. Gornji dio tijela naknadno je znatno poremećen, a od kostiju nogu nedostaju goljenične kosti. Uočene lezije na kostima uključuju zarasli lom četvrte kosti pešća lijeve šake, promjene na hvatištu oba kostoklavikularna ligamenta te obostrani *os acromiale* (sl. 4). Pokojnik je ukopan u redeponirani sloj lapora koji je vjerojatno nastao izbacivanjem materijala iz obližnjih jama iskopanih za temelje kasnoantičke utvrde. Obris grobne rake nije bio vidljiv, a nije zabilježena niti nikakva grobna arhitektura. Datiran je u novi vijek, od kasnog 17. do sredine 20. stoljeća.



Slika 5. Salamandrija, grob 2 (Arhiv Arheološkog muzeja u Splitu, 2002)

Figure 5. Salamandrija, burial 2 (Archive of the Split Archaeological Museum, 2002)

of which might be regarded as remains of grave architecture. The burial was overlain by cistern pavement. It was dated to the Late Middle Ages, from the mid-11th to the beginning of the 13th century.

U grobu 2 (sl. 5) pokopan je muškarac dobi između 30 i 40 godina. Položen je u grob ispružen na trbuh, u smjeru zapad-istok, glavom prema zapadu. Na skeletnim ostacima nisu uočene nikakve patološke promjene. Ukopan je u isti redeponirani sloj lapora kao i pokojnik iz groba 1. Niti u ovom slučaju obris grobne rake nije bio vidljiv i nije zabilježena nikakva grobna arhitektura. Datiran je u rani srednji vijek, od kasnog 8. do kasnog 9. stoljeća.



Slika 6. Salamandrija, grob 3 (Arhiv Arheološkog muzeja u Splitu, 2006)

Figure 6. Salamandrija, burial 3 (Archive of the Split Archaeological Museum, 2006)

U grobu 3 (sl. 6) pokopan je muškarac dobi između 20 i 30 godina. Većina njegovih kostiju pronađena je u istočnom dijelu izdužene grobne rake dimenzija oko 1,8 x 0,6 m, dok ih je tek nekoliko prikupljeno iz njenog zapadnog dijela, odakle potječe i željezni šiljak sulice. Kostiju nisu bile artikulirane već posložene na gomilu, s lubanjom na dnu i dugim kostima na vrhu. Na obje lopatice uočen je *os acromiale*. Raku s južne strane omeđuje zid utvrde, a sa sjeverne strane kameni suhozid čije bismo pojedine kamenove možda mogli smatrati grobnom arhitekturom. Grob je preslojen pločnikom sabirne površine cisterne. Datiran je u razvijeni srednji vijek, od sredine 11. do početka 13. stoljeća.

Burial 4 (fig. 7) contained a male aged between 20 and 30 years. He was buried on his right side in a contracted position, in west-east direction, with his head towards the west. Pathological changes were not observed on the skeletal remains. He was interred into the same redeposited marl layer as individuals from burials 1 and 2, in an oval burial pit measuring 1.3 x 0.7 m, without any other grave architecture. This burial was dated to the Early Middle Ages, from the late 8th to the late 9th century.

U grobu 4 (sl. 7) pokopan je muškarac dobi između 20 i 30 godina. Položen je u grob na desni bok, u zgrčenom položaju, u smjeru zapad-istok, glavom

Burial 5 (fig. 8) contained a male aged between 20 and 30 years. He was buried in an oval pit excavated in the marly bedrock, measuring about 0.7 x 0.5 m and just over half a meter deep. Such a tight burial pit could only contain the deceased in a contracted position. He seems to have been interred with his head down and his legs pointing upwards, but the bones were disarticulated, suggesting later distur-

prema zapadu. Na skeletnim ostacima nisu uočene nikakve patološke promjene. Ukopan je u isti redeponirani sloj lapora kao i pokojnici iz grobova 1 i 2, u ovalnu grobnu raku dimenzija oko 1,3 x 0,7 m, bez grobne arhitekture. Datiran je u rani srednji vijek, od kasnog 8. do kasnog 9. stoljeća.

U grobu 5 (sl. 8) pokopan je muškarac dobi između 20 i 30 godina. Položen je u ovalnu jamu iskopanu u laporastom živcu, tlocrtnih dimenzija oko 0,7 x 0,5 m i dubine nešto preko pola metra. U tako tijesnu jamu pokojnika se moglo smjestiti jedino u zgrčenom položaju. Čini se da je bio položen glavom prema dnu i nogama prema vrhu, no kosti nisu zatečene u artikuliranom položaju što upućuje na to da je grob bio naknadno poremećen. Na obje ključne kosti prisutne su promjene na hvatištu kostoklavikularnog ligamenta (sl. 9). Grobna jama preslojena je zidom pročelja crkve sv. Mihovila, a sam grob datiran je u kasnoantičko razdoblje, od sredine 4. do ranog 6. stoljeća.

POJEDINAČNI NALAZI LJUDSKIH KOSTIJU IZVAN GROBOVA

Osim skeletnih ostataka iz pet opisanih grobova na Salamandriji, manji broj pojedinačnih ljudskih kostiju prikupljen je i iz poremećenog kulturnog sloja. Sve su pripadale odraslim osobama, a u dva slučaja bilo je moguće sa sigurnošću utvrditi da su pripadale osobama muškog spola. Pretpostavljamo da te kosti potječu iz oštećenih ili uništenih grobova, budući da je Salamandrija već od početka brončanog doba pa sve do sredine 20. stoljeća bila glavno žarište građevinskih zahvata i drugih ljudskih aktivnosti na otoku.

Većina tih nalaza potječe iz kvadrata U6, U7, V6, V7, Z6 i Z8 (sl. 1) i može se povezati s uništenim grobom (ili grobovima) čiji su skromni tragovi zabilježeni neposredno pod današnjom površinom tla južno od groba 1, odnosno iznad grobova 2 i 4. Radi se o ostacima još najmanje dvije odrasle osobe koje su bile ukopane u isti redeponirani sloj lapora kao i pokojnici iz grobova 1, 2 i 4. Nije bilo moguće odrediti orijentaciju spomenutih ukopa niti obrise rake u koju su pokojnici bili položeni.

Manji broj pojedinačno prikupljenih kostiju iz kvadrata Z10 i A10 može se povezati s grobom 3. Pri tome valja naglasiti da se i ovdje radi o ostacima najmanje dvije osobe, od kojih je jedna već opisana (v. grob 3), dok drugoj pripada tek manji broj kostiju.



Slika 7. Salamandrija, grob 4 (Arhiv Arheološkog muzeja u Splitu, 2003)

Figure 7. Salamandrija, burial 4 (Archive of the Split Archaeological Museum 2003)



Slika 8. Salamandrija, grob 5 (Arhiv Arheološkog muzeja u Splitu, 2003)

Figure 8. Salamandrija, burial 5 (Archive of the Split Archaeological Museum 2003)

bance. Both clavicles display changes at the attachment site of the costoclavicular ligament (fig. 9). The burial pit was overlain by the front wall of the church of St. Michael. This burial was dated to the Late Antiquity, from the mid-4th to the early 6th century.



Slika 9. Promjene na hvatištu kostoklavikularnog ligamenta (Salamandrija, grob 5) (autor: S. Forenbaher, 2012)

Figure 9. Changes on the attachment site of the costoclavicular ligament (Salamandrija, burial 5) (author: S. Forenbaher, 2012)

Osim spomenutih nalaza, u kvadratu N9 pronađen je veći dio lubanje odraslog muškarca. Napokon, na južnoj padini otoka, uz put koji se uspinje od Žala slučajno je pronađena donja čeljust odraslog muškarca koja je onamo mogla dospjeti redepozicijom sa Salamandrije.

RASPRAVA

Tko su bili ljudi koji su pokopani na Palagruži? Odatle su došli, što su radili na otoku i kako su umrli? Iako će većina od ovih pitanja za sada ostati bez odgovora, rezultati bioarheoloških analiza, načini odlaganja mrtvih, te povijesni i zemljopisni kontekst grobova ipak nam daju ponešto naslutiti.

Ono što prvo upada u oči jest činjenica da naš uzorak obuhvaća vrlo uzak segment populacije. Svi pokojnici su muškarci u dobi od tridesetak godina. Na njihovim skeletnim ostacima nisu uočene promjene koje bi bile rezultat loših životnih uvjeta, odnosno gladovanja i zaraznih bolesti. Ništa ne ukazuje na to da bi se radilo o stanovnicima nekog naselja, jer bismo u tom slučaju uz odrasle muškarce morali očekivati prisutnost žena, djece i staraca. Također je malo vjerojatno da se radi o redovnicima ili pustinjacima, jer bismo i tada među pokojnicima očekivali bar poneku osobu poodmakle životne dobi. S obzirom na zemljopisni položaj i specijalizirane aktivnosti koje su se mogle odvijati na Palagruži i oko nje, zdravi muškarci u naponu snage mogli bi biti ponajprije moreplovci, ribari ili članovi vojničkih posada.

Ne može se govoriti o groblju već zbog toga što pet analiziranih grobova pokriva diskontinuirani vremenski raspon od preko tisuću godina. Osim toga, način pokopavanja u većini slučajeva nije karakterističan za razdoblja kojima pojedini grobovi pripadaju. Umjesto toga, češće bi se moglo pomišljati na *ad hoc* zbrinjavanje posmrtnih ostataka pokojnika. Pri tome treba naglasiti da niti na jednom skeletu nisu uočeni tragovi nasilja. To je u opreci s podacima iz usmene predaje koji govore isključivo o nasilnoj smrti na Palagruži, no nasilna smrt ne mora ostaviti traga na skeletu.

KASNA ANTIKA

Pokojnik iz groba 5 živio je u kriznom razdoblju koje seže od podjele i konačne propasti Zapadnog rimskog carstva do vremena kada Jadranskim prostorom vladaju Odoakar i Teodorik, prije Ju-

ISOLATED FINDS OF HUMAN BONES OUTSIDE BURIALS

Apart from human remains from the five described burials on Salamandrija, a small number of isolated human bones were recovered from the disturbed cultural layer. All of them belonged to adults, and in two cases it was possible to determine that they belonged to males. We presume that those bones come from damaged or destroyed burials, since Salamandrija was the main focus of building and other human activities on the island since the beginning of the Bronze Age until the mid-20th century.

Most of these finds come from squares U6, U7, V6, V7, Z6 and Z8 (fig. 1) and may be related to a destroyed burial (or burials), the modest traces of which were recorded immediately beneath the modern soil surface, to the south of Burial 1 and above burials 2 and 4. They represent remains of at least two other individuals who were buried in the same redeposited marl layer as the individuals from burials 1, 2 and 4. Neither the orientation of the burials, nor the edges of burial pits into which the deceased were laid could be determined.

A few individually recovered bones from squares Z10 and A10 may be related to Burial 3. We should emphasize that these also represent the remains of at least two individuals, one of whom was already described (see Burial 3), while only a small number of bones belong to another individual.

Apart from those finds, square N9 yielded a large skull fragment of an adult male. Finally, a mandible of an adult male was found along the trail that climbs from Žalo up the southern slope of the island. This accidental find may have been redeposited from Salamandrija.

DISCUSSION

Who were the people buried on Palagruža? Where did they come from, what were they doing on the island and how did they die? While most of these questions will remain unanswered for now, the results of bioarchaeological analyzes, the ways of disposal of the dead, and the historical and geographical context of the burials provide us with a few hints.

What is immediately clear is the fact that our sample includes a very tight segment of population. All of the deceased are males about 30 years of age. We

stinijanove obnove (Goldstein 1992: 17-19). Tom razdoblju pripada razmjerno velik broj arheoloških nalaza sa Salamandrije (ulomci kuhinjske keramike i amfora, kockice, pijuni i žetoni za igre te nekoliko komada zlatnog i brončanog novca) koji svjedoče o više ili manje kontinuiranoj prisutnosti ljudi (Kirigin 2012: 88-94). Vjerojatno je već tada sagrađena i utvrda koja se koristi barem do vremena Justinijana, a pokojnika iz groba 5 vjerojatno treba povezati s njezinom izgradnjom ili s posadama koje su u njoj boravile.

Grob 5 nalazi se izvan utvrde, udaljen samo metar od njenog istočnog zida (sl. 1). Tijelo pokojnika je u zgrčenom položaju smješteno u tijesnu jamu (sl. 8), što nije uobičajeno za ranokršćansko razdoblje. Ne može se posve isključiti mogućnost da se radi o sekundarnom ukopu, no prisutnost gotovo svih kostiju (pa i onih najmanjih) ne podupire pretpostavku da su kosti naknadno premještene s primarnog mjesta odlaganja tijela. Vrlo malena grobna jama, iskopana u tvrdom laporastom živcu, možda ukazuje na nastojanje da se tijelo pokojnika zbrine uz što manje truda i na neformalan način.

RANI SREDNJI VIJEK

Pokojnici iz grobova 2 i 4 živjeli su u nemirnom vremenu koje su na Jadranu obilježili sukobi između Franaka i Bizanta, početak uspona Venecije, upadi Arapa te napokon osnivanje bizantske teme Dalmacije (Goldstein 1992: 150-183). To je ujedno i vrijeme hrvatskih knezova Višeslava, Trpimira, Domagoja i Branimira. Na Palagruži nema gotovo nikakvih arheoloških nalaza iz tog vremena, osim možda ulomka glinene svjetiljke bizantskog tipa koji se datira od 9. do 11. stoljeća (Kirigin 2012: 98, sl. 90). Iz toga bi se moglo zaključiti da je utvrda na Salamandriji tada već bila napuštena, no to ne mora značiti da je bila porušena i neupotrebljiva.

Spomenuti grobovi nalaze se jedan pokraj drugog, izvan utvrde, udaljeni oko pet metara od njenog južnog zida (sl. 1). Položaji oba tijela posve su neuobičajeni za razdoblje ranog srednjeg vijeka: jedno je ispruženo i položeno na trbuh, drugo zgrčeno i položeno na bok (sl. 5, sl. 7). Radiokarbonski datumi koji određuju njihovu starost statistički su identični (tab. 1, sl. 2), pa je posve moguće da su oba pokojnika pokopana istovremeno. I ovi grobovi kao da ukazuju na prilično nemarno postupanje s posmrtnim ostacima.

did not observe changes on their skeletal remains that would indicate poor living conditions, famine or presence of infectious diseases. They do not seem to represent inhabitants of a settlement. If that were the case, we should expect to find women, children and the elderly along with the adult men. It is also highly unlikely that they were monks or hermits, since we should expect to find at least one or two old individuals among them. Considering the geographical position and the specialized activities that may have been practiced on Palagruža and around it, healthy men at the peak of their strength primarily could have been mariners, fishermen or soldiers manning an outpost.

We are clearly not dealing with a cemetery, since the five analyzed burials cover a discontinuous time period of over a thousand years. Furthermore, the way of disposal of the dead in most cases is not characteristic for the period to which the individual burials were dated. Instead, in most cases one may consider an *ad hoc* disposal of the remains of the deceased. Notably, none of the skeletons displayed evidence of violence. This contradicts the oral tradition which speaks exclusively of violent deaths on Palagruža. Violent death, however, does not necessarily leave traces on the bones.

LATE ANTIQUITY

The man from Burial 5 lived in a time of crisis, between the division and final collapse of the Western Roman Empire and times when the Adriatic was ruled by Odoacer and Theodoric, before Justinian's restoration (Goldstein 1992: 17-19). A fairly large number of finds from Salamandrija belongs to that period (fragments of kitchen ware and amphorae, dice, gaming pawns and tokens, as well as several gold and bronze coins), testifying to a more or less continuous human presence (Kirigin 2012: 88-94). The fortress, which continued to be used at least until Justinian's time, probably already existed during that period, and the man from Burial 5 may be linked to its construction or to the crews that manned it.

Burial 5 is located outside the fortress, only a meter from its eastern wall (fig. 1). The body of the deceased was fitted in a contracted position into a tight pit (fig. 8), which is unusual for the Early Christian period. We cannot exclude the possibility that this was a secondary burial, but the presence of almost all bones (including the smallest ones) does not support the hypothesis that the bones were subsequently moved from the place of primary burial. The very small burial pit excavated in the hard marly bedrock

RAZVIJENI SREDNJI VIJEK

Pokojnik iz groba 3 također je živio u burnom razdoblju koje počinje crkvenim raskolom i normanskim osvajanjem južne Italije, a završava križarskim osvajanjem i pljačkanjem Carigrada. U tom razdoblju odigrala su se prva četiri križarska rata, pri čemu je Jadran bio jedna od glavnih avenija kojom su križari putovali na istok. To je ujedno i vrijeme najvećeg uspona i konačnog pada hrvatskih kraljeva (od Petra Krešimira IV do Petra Svačića) te zatim mađarske vlasti u Hrvatskoj (od Kolomana do Andrije II). Na Palagruži nema nikakvih arheoloških tragova iz tog vremena, no povijesni izvori opisuju kratak posjet pape Aleksandra III koji je, putujući 1177. godine iz južne Italije za Veneciju, na otoku proveo nekoliko sati (Kirigin 2012: 100-101).

Grob 3 nalazi se unutar utvrde, uz njen južni zid (sl. 1), što sugerira da je taj objekt (koji se u opisu papirnog posjeta ne spominje) tada već bio posve napušten. Pokojnikove kosti očito su premještene nakon što se meko tkivo raspalo, što se može zaključiti iz njihovog kaotičnog rasporeda (sl. 6), ali i po tome što nedostaje priličan broj manjih kostiju koje su se prilikom premještanja lako mogle izgubiti. Izdužena grobna raka dovoljno je dugačka da je pokojnik u nju mogao biti položen u ispruženom položaju pa pretpostavljamo da su njegove kosti naknadno premještene u istočni kraj rake. Među njima se našlo i nekoliko dugih kostiju još jedne osobe, što ukazuje na mogućnost da je grob izvorno sadržavao dva tijela, no najveći dio drugog skeleta nedostaje.

U zapadnom dijelu rake pronađeno je tek nekoliko ljudskih kostiju i željezni šiljak sulice. Kada bismo taj nalaz mogli sa sigurnošću povezati s pokojnikom iz groba 3, to bi ukazivalo na njegov vojnički status, no to nažalost nije moguće zbog poremećenosti kulturnih slojeva i izmiješanosti njihovih sadržaja. Ne znamo kojoj bi od dvije osobe pripadala sulica, ukoliko nije dospjela u grob slučajno, zajedno s materijalom kojim je raka zatrpana.

NOVI VIJEK

Zbog zaravnjene kalibracijske krivulje, pokojnik iz groba 1 datiran je u široko vremensko razdoblje koje obuhvaća gotovo tristo godina, od kasnog 17. do sredine 20. stoljeća. Kroz čitavo to vrijeme, more oko Palagruže intenzivno su iskorištavali hvarski i komiški ribari. Uz njih su na otoku povremeno boravili ljudi koji su obrađivali njive uzete u zakup od hvarske komune (Kirigin 2012: 108-111, 117-119).

might suggest an intention to dispose of the body in an informal way and with as little effort as possible.

EARLY MIDDLE AGES

The individuals from burials 2 and 4 lived during a troubled period, which was marked in the Adriatic by conflicts between the Franks and the Byzantines, the beginning of the rise of Venice, the Arab raids and, finally, the establishment of the Byzantine theme of Dalmatia (Goldstein 1992: 150-183). This was also the time of Croatian princes Višeslav, Trpimir, Domagoj and Branimir. Palagruža yielded almost no archaeological finds from that period, aside from the clay lamp fragment of the Byzantine type, attributable to the period between the 9th and 11th centuries (Kirigin 2012: 98, fig. 90). This leads to the conclusion that the fortress on Salamandrija was already deserted, but it does not imply that it was ruined and unusable.

Burials 2 and 4 are next to each other, outside the fortress, and are about five meters away from its southern wall (fig. 1). The positions of both bodies are quite unusual for the early medieval period: one is extended and laid face down, while the other is contracted and laid on the side (fig. 5, fig. 7). Radiocarbon dates that determine their age are statistically identical (tab. 1, fig. 2), so it is quite possible that both individuals were buried at the same time. These burials also seem to suggest a rather informal way of treating human remains.

LATE MIDDLE AGES

The individual from Burial 3 also lived in turbulent times which began with East-West Schism and the Norman conquest of southern Italy, and ended with the Crusader sack of Constantinople. The first four crusades took place during this period, and the Adriatic was one of the main avenues the crusaders used to travel east. It was also the time of the greatest prosperity and the final fall of Croatian kings (from Petar Krešimir IV until Petar Svačić), followed by the Hungarian rule in Croatia (from Koloman until Andrija II). Palagruža did not yield any archaeological evidence from those times, but historical sources describe a brief visit by the pope Alexander III who, traveling from southern Italy to Venice in 1177, spent several hours on the island (Kirigin 2012: 100-101).

Burial 3 is located within the fortress, along its southern wall (fig. 1), suggesting that the structure

Napokon, u nedavnoj prošlosti, za oba svjetska rata i između njih na otoku su se izmjenjivale različite vojničke posade, no nema nikakvih podataka o tome da je tada netko bio pokopan na Palagruži.

Grob 1 nalazi se izvan utvrde, udaljen oko pet metara od njenog južnog zida, neposredno uz ranosrednjovjekovni grob 2 (sl. 1). Oba groba vrlo su slično orijentirana, no budući da ih dijeli barem osam stoljeća, zaključujemo da se radi o koincidenciji. Ukop na leđima, u ispruženom položaju, izgleda najmanje neuobičajeno od svih pet grobova (sl. 3), a djelomična poremećenost skeleta može se objasniti njegovim relativno plitkim smještajem pod današnjom površinom tla.

ZAKLJUČAK

Grobovi s Palagruže ne ukazuju na postojanje trajnog naselja na tom otoku. Najvjerojatnije ih se može povezati s povremenim, diskontinuiranim, a ponekad možda i trajnijim, boravkom ljudi koji su se bavili specijaliziranim aktivnostima poput plovidbe, ribarenja, gradnje i ratovanja. U većini slučajeva moglo bi se raditi o *ad hoc* zbrinjavanju posmrtnih ostataka, prije nego li o pravom formalnom pogrebu. Značajno je da neki od grobova pripadaju vremenima za koja do sada na Palagruži nismo imali gotovo nikakvih arheoloških ili povijesnih podataka. To naročito vrijedi za razdoblje srednjeg vijeka.

Promjene na kostima, uočene na tri od pet cjelovito očuvanih osoba, ukazuju na česte, intenzivne i kontinuirane fizičke aktivnosti prilikom kojih su se podjednako naprezale obje ruke. U kontekstu Palagruže, to ponajprije asocira na dugotrajno veslanje i svakodnevno povlačenje ribarskih mreža. Zanimljivo je da spomenute tri osobe pripadaju vrlo različitim razdobljima (kasnoj antici, razvijenom srednjem vijeku i novom vijeku). Nažalost, veza između uočenih promjena na kostima i specifičnih fizičkih aktivnosti nije dovoljno istražena u suvremenim populacijama, pa za sada o tome možemo govoriti jedino na razini hipoteze.

(which is not mentioned in the report of the pope's visit) was already completely deserted. The individual's bones were obviously moved after the soft tissue decayed, which is attested to by their chaotic distribution (fig. 6), but also by the fact that a significant number of small bones is missing that easily could have been lost in transport. Since the elongated burial pit is long enough for an extended burial, we presume that his bones were subsequently moved to the eastern part of the pit. Mixed among them are several bones of another individual, which hints at a possibility that originally the burial may have contained two bodies, but most of the second skeleton is missing.

The western part of the burial pit yielded only several human bones and an iron dart point. If this find were associated with the man from Burial 3 with some certainty, it would point to his military status. Unfortunately, that association is uncertain due to disturbed cultural layers and mixing of their contents. We do not know which of the two individuals would have owned the arrow point, if indeed it did not end up in the burial pit by accident, together with material used to fill the grave.

MODERN AGE

Due to a plateau in the calibration curve, the individual from Burial 1 was dated to a long period which spans almost three hundred years, from the late 17th to the mid-20th century. During that time, the sea around Palagruža was extensively exploited by fishermen from Hvar and Komiža. Apart from them, the island was frequented occasionally by people who worked the fields owned by the Hvar Commune (Kirigin 2012: 108-111, 117-119). Finally, in recent past, during both World Wars and the years between them, the island was occupied by different military units. There is no information, however, about anyone being buried on Palagruža during that period.

Burial 1 is outside the fortress, about five meters from its southern wall, right next to the early medieval Burial 2 (fig. 1). Both burials have a similar orientation, but since they are at least eight centuries apart, this must be a coincidence. The skeleton, laid on its back in an extended position, appears as the least unusual of all burials (fig. 3), while its partial disturbance may be explained by the fact that it was lying relatively close to the modern soil surface.

CONCLUSION

The burials from Palagruža do not point to the existence of a permanent settlement on the island. Most probably they are related to occasional, discontinuous, and sometimes more permanent visits by people who took up specialized activities like navigation, fishing, construction work and warfare. In most cases, we may be dealing with *ad hoc* disposal of human remains, rather than formal burials. Importantly, some of the burials belong to times which otherwise have not been documented on Palagruža archaeologically or historically. In particular, this is true for the Middle Ages.

The changes on bones, observed on three out of the five completely preserved individuals, point to frequent, intensive and continuous physical activities that required equal use of both arms. In the context of Palagruža, this might hint at long-term rowing and daily pulling in of the fishing nets. It is interesting to note that those three individuals lived during different periods (Late Antiquity, Late Middle Ages and Modern Age). Unfortunately, since the link between the observed changes to the bones and specific physical activities has not been adequately explored in modern populations, the current discussion must remain hypothetical.

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