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BEKETINCI BENTEŽ

NASELJA IZ ENEOLITIKA, RANOGA I KASNOGA
SREDNJEGA VIJEKA

*ENEOLITHIC, EARLY MEDIAEVAL AND LATE
MEDIAEVAL SETTLEMENTS*

s priložima suradnika / authors of other texts

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SADRŽAJ

PROSLOV	8
UVOD	10
BEKETINCI, BENTEŽ, NASELJA IZ ENEOLITIKA, RANOGA I KASNOGA SREDNJEGA VIJEKA	16
POVIJEST ISTRAŽIVANJA	
ZEMLJOPISNE I GEOLOŠKE ODREDNICE – Marko Šparica	18
 ENEOLITIČKO NASELJE LASINJSKE KULTURE	
LASINJSKA KULTURA U ISTOČNOJ SLAVONIJI	30
ARHEOLOŠKA TOPOGRAFIJA LASINJSKE KULTURE U ISTOČNOJ SLAVONIJI	30
ARHITEKTURA NASELJA LASINJSKE KULTURE	34
Radni dio naselja	34
Stambeni dio naselja	52
POKRETNi ARHEOLOŠKI NALAZI	
Keramika	82
Tavice	84
Žlice	84
Posebni nalazi	122
KRONOLOŠKI POLOŽAJ NASELJA I DATACIJA ¹⁴ C	126
KAMENI ARTEFAKTI – Rajna Šošić-Klindžić	128
ARHEOZOOLOŠKA ANALIZA NASELJALASINJSKE KULTURE – Tajana Trbojević-Vukičević	140
POSTGLACIJALNI KLIMATSKI UVJETI – Katarina Botić	144
 RANOSREDNJOVJEKOVNO NASELJE	
RANI SREDNJI VIJEK U ISTOČNOJ SLAVONIJI	156
ARHEOLOŠKA TOPOGRAFIJA RANOSREDNJOVJEKOVNIH NALAZIŠTA U ISTOČNOJ SLAVONIJI	156
OBJEKTI RANOSREDNJOVJEKOVNOGA NASELJA	160
POKRETNi ARHEOLOŠKI NALAZI	164
Keramika	164
KRONOLOŠKI POLOŽAJ NASELJA I DATACIJA ARHEOLOŠKIH NALAZA METODOM ¹⁴ C	172

CONTENTS

FOREWORD	9
INTRODUCTION	11
BEKETINCI, BENTEŽ, ENEOLITHIC, EARLY MEDIAEVAL AND LATE MEDIAEVAL SETTLEMENTS	
HISTORY OF RESEARCH	17
GEOGRAPHICAL AND GEOLOGICAL DETERMINANTS – Marko Šparica	19
ENEOLITHIC SETTLEMENT OF THE LASINJA CULTURE	
LASINJA CULTURE IN EASTERN SLAVONIA	31
ARCHAEOLOGICAL TOPOGRAPHY OF THE LASINJA CULTURE IN EASTERN SLAVONIA	33
ARCHITECTURE OF THE LASINJA CULTURE SETTLEMENT	33
Working area of the settlement	35
Residential area of the settlement	53
PORTABLE ARCHAEOLOGICAL FINDS	
Pottery	83
Pans	85
Spoons	85
Special finds	122
CHRONOLOGICAL POSITION OF THE SETTLEMENT AND ¹⁴ C DATES	127
STONE ARTEFACTS - Rajna Šošić Klindžić	129
ARCHAEZOLOGICAL ANALYSIS OF THE LASINJA CULTURE SETTLEMENT - Tajana Trbojević Vukičević	141
POSTGLACIAL CLIMATIC CONDITIONS - Katarina Botić	145
EARLY MEDIAEVAL SETTLEMENT	
EARLY MIDDLE AGES IN EASTERN SLAVONIA	157
ARCHAEOLOGICAL TOPOGRAPHY OF EARLY MEDIAEVAL SITES IN EASTERN SLAVONIA	157
STRUCTURES OF THE EARLY MEDIAEVAL SETTLEMENT	159
PORTABLE ARCHAEOLOGICAL FINDS	
Pottery	165
CHRONOLOGICAL POSITION OF THE SETTLEMENT AND THE RADIOCARBON DATING OF ARCHAEOLOGICAL FINDS	173

KASNOSREDNJOVJEKOVNO NASELJE	175
RAZVIJENI I KASNI SREDNJI VIJEK U SLAVONIJI	176
ARHEOLOŠKA I POVIJESNA SLIKA ZAPADNOGA DIJELA VUKOVSKJE ŽUPANIJE	176
ÚJLAK, KISÚJLAK (MALI ÚJLAK ILI ZAPADNI ÚJLAK) U POVIJESNIM IZVORIMA	188
ARHITEKTURA KASNOSREDNJOVJEKOVNOGA NASELJA	196
stambeni objekti	204
kožarske radionice	218
kovačnice	222
lončarske radionice - lončarske peći	226
štala	228
gospodarski objekti	228
spremišta, radne i otpadne jame	230
bunari	232
pregrade i ograde	234
POKRETNi ARHEOLOŠKI NALAZI	
KERAMIKA	238
kuhinjska keramika	238
stolna keramika	240
ostali keramički predmeti	300
METALNI PREDMETI	302
kućni uporabni predmeti	304
dijelovi odjeće	306
nakit	306
poljoprivredni alati	308
obrtnički alati	308
oprema konjanika i konja	310
oružje i vojna oprema	310
predmeti građevinske namjene	312
KAMENI PREDMETI	354
KOŠTANI PREDMET	358
BULA – PEČAT PAPE GRGURA XI.	358
KRONOLOŠKI POLOŽAJ I DATACIJA ARHEOLOŠKIH NALAZA U NASELJU METODOM ¹⁴ C	362
ARHEOZOOLOŠKA ANALIZA KASNOSREDNJOVJEKOVNOGA NASELJA	364
Tajana Trbojević-Vukičević	
KLIMATSKI UVJETI SREDNJEGA VIJEKA – Katarina Botić	374
LITERATURA	380
IZVOD IZ RECENZIJA	392
ADRESE	398

LATE MEDIAEVAL SETTLEMENT	175
HIGH AND LATE MIDDLE AGES IN SLAVONIA	177
THE ARCHAEOLOGICAL AND HISTORICAL PICTURE OF THE WESTERN PART OF THE VUKOVO COUNTY	177
ÚJLAK, KISÚJLAK (LITTLE ÚJLAK OR WESTERN ÚJLAK) IN HISTORICAL SOURCES	189
THE ARCHITECTURE OF THE LATE MEDIAEVAL SETTLEMENT	199
residential structures	205
leather workshops	219
smithies	223
pottery workshops - pottery kilns	227
barn	229
accessory features	229
storages, working pits and refuse pits	231
wells	233
partitions and fences	235
PORTABLE ARCHAEOLOGICAL FINDS	
POTTERY	239
kitchenware	239
tableware	241
other ceramic objects	301
METAL OBJECTS	303
functional household objects	305
clothing items	307
jewellery	307
forming tools	309
crafting tools	309
horse-riding and horse gear	311
weapons and military equipment	311
objects used in construction	313
STONE OBJECTS	355
A BONE OBJECT	359
BULLA – SEAL OF POPE GREGORY XI	359
CHRONOLOGICAL POSITION AND RADIOCARBON DATING OF THE ARCHAEOLOGICAL FINDS IN THE SETTLEMENT	363
ARCHAEZOOLOGICAL ANALYSIS OF THE LATE MEDIAEVAL SETTLEMENT	365
Tajana Trbojević Vukičević	
CLIMATIC CONDITIONS OF THE MIDDLE AGES - Katarina Botić	375
BIBLIOGRAPHY	380
EXCERPTS FROM THE REVIEWS	392
ADDRESSES	398

Činite male stvari s velikom ljubavlju

Majka Terezija

Do small things with great love

Mother Theresa

PROSLOV

Institut za arheologiju, kao krovna znanstvena ustanova Republike Hrvatske bio je, u razdoblju od 2006. do 2009. godine, uključen u realizaciju arheološko-konzervatorskih istraživanja na nekoliko registriranih arheoloških položaja u okviru velikog infrastrukturnoga projekta Vlade Republike Hrvatske – izgradnje dijela europskoga prometnoga koridora, tj. autoceste 5C od Budimpešte do Ploča. Istraživanja djelatnika iz Instituta za arheologiju obuhvatila su dva nalazišta na dionici auto-ceste između Osijeka i Đakova. Pored položaja Čepinski Martinci (AN 17), istraživanja su obuhvatila i arheološko nalazište na položaju *Bentež* kraj Beketinaca (AN 18). Stručna voditeljica arheološko-konzervatorskih istraživanja na arheološkom nalazištu Beketinci – *Bentež* bila je dr. sc. Kornelija Minichreiter, znanstvena savjetnica, a njezin zamjenik dr. sc. Zorko Marković, viši znanstveni suradnik Instituta za arheologiju.

Pred čitateljima serije *Monografije Instituta za arheologiju* (MIA) je novi, vrlo zanimljivi uradak marljivoga autorskoga para, voditelja arheološko-konzervatorskih istraživanja, koji je na površini većoj od 6 hektara uspio registrirati, odnosno detaljno istražiti i, dakako, stručno i znanstveno obraditi vrlo složenu i nadasve slojevitu sliku nalazišta Beketinci – *Bentež*. Unutar položaja *Bentež* dr. sc. Kornelija Minichreiter i dr. sc. Zorko Marković, otkrili su i prepoznali velike segmente prapovijesnoga eneolitičkoga naselja lasinjske kulture koje se datira oko 4000. godina prije Krista, potom ranosrednjovjekovnoga naselja iz 9. do 11. stoljeća, odnosno kasnosrednjovjekovnoga naselja u kojemu je život materijalno zasvjedočen u vremenskome okviru od 14. do početka 16. stoljeća.

Novim brojem *Monografije Instituta za arheologiju* prikazana je, možemo to slobodno istaknuti, uobičajena višestruka kulturna slojevitost jednoga posebice važnoga i iskazljivoga dijela hrvatskoga Podunavlja. Zahvaljujući opsežnim infrastrukturnim radovima koji su na pragu 21. stoljeća oblikovali novi kulturni krajobraz, tj. novi sloj života, realizirani su zaslugom Ministarstva kulture Republike Hrvatske, hvale vrijedni i vrlo zahtjevni zaštitni arheološki radovi, praćeni uobičajenim interdisciplinarnim istraživanjima. Stoga je razumljivo da se unutar prikaza o spomenutim istraživanjima, pored autora dr. sc. Kornelije Minichreiter i dr. sc. Zorka Markovića, u novom broju *MIA* pod naslovom: BEKETINCI, BENTEŽ, NASELJA IZ ENEOLITIKA, RANOGA I KASNOGA SREDNJEGA VIJEKA, susrećemo i s autorima priloga o klimatskim prilikama, kamenim artefaktima, arheozoološkim, odnosno pojedinim unikatnim nalazima te, konačno, posebice o dragocjenim radioizotopnim datiranjima.

Glavni i odgovorni urednik edicije:

Prof. dr. sc. Željko Tomićić

FOREWORD

In the period between 2006 and 2009, the Institute of Archaeology, as the leading scientific archaeological institution of the Republic of Croatia took part in archaeological and conservation investigations at several registered archaeological sites within the Croatian Government's large-scale infrastructure project – the construction of a part of the European traffic corridor, i.e. motorway 5c from Budapest to Ploče. The staff of the Institute of Archaeology carried out investigations at two sites on the Osijek-Đakovo section of the motorway. In addition to the Čepinski Martinci site (AN 17), investigations were carried out at the archaeological site of *Bentež* near Beketinci (AN 18). The professional manager of archaeological and conservation investigations at the Beketinci-*Bentež* archaeological site was Dr. Kornelija Minichreiter, scientific advisor, whose deputy was Dr. Zorko Marković, a senior scientific associate of the Institute of Archaeology.

We present to the readers of the series *Monographs of the Institute of Archaeology* (MIA) the latest, very interesting work by this diligent pair of authors, the managers of the archaeological and conservation investigations, who succeeded in registering, or in other words, excavating in detail and carrying out a professional and scholarly analysis of the highly complex and above all multilayered picture of the Beketinci-*Bentež* site, which covers more than 6 hectares of land. Dr. Kornelija Minichreiter and Dr. Zorko Marković discovered and recognized at *Bentež* large segments of a prehistoric Copper Age settlement of the Lasinja culture, dated around 4000 BC, as well as the remains of an early mediaeval settlement—dated between the 9th and 11th century—and a late mediaeval settlement, whose material remains bear testimony to life between the 14th and 16th century.

The new volume of the *Monographs of the Institute of Archaeology* presents—we can safely point this out—the usual multiple cultural stratification of a particularly important and expressive part of the Croatian Danubian region. Thanks to the comprehensive infrastructure works that shaped, at the threshold of the 21st century, a new cultural landscape, i.e. a new layer of life, praiseworthy and highly demanding archaeological investigations were carried out under the aegis of the Croatian Ministry of Culture, accompanied by the usual interdisciplinary research. It is therefore understandable that within the publication of the mentioned investigations, in addition to the authors Dr. Kornelija Minichreiter and Dr. Zorko Marković, in the new volume of the MIA entitled: BEKETINCI BENTEŽ – ENEOLITHIC, EARLY MEDIAEVAL AND LATE MEDIAEVAL SETTLEMENTS, we also come across authors of contributions on the climatic conditions, stone artefacts, archaeozoological finds, as well as certain unique finds and, finally, on valuable radioisotope dating.

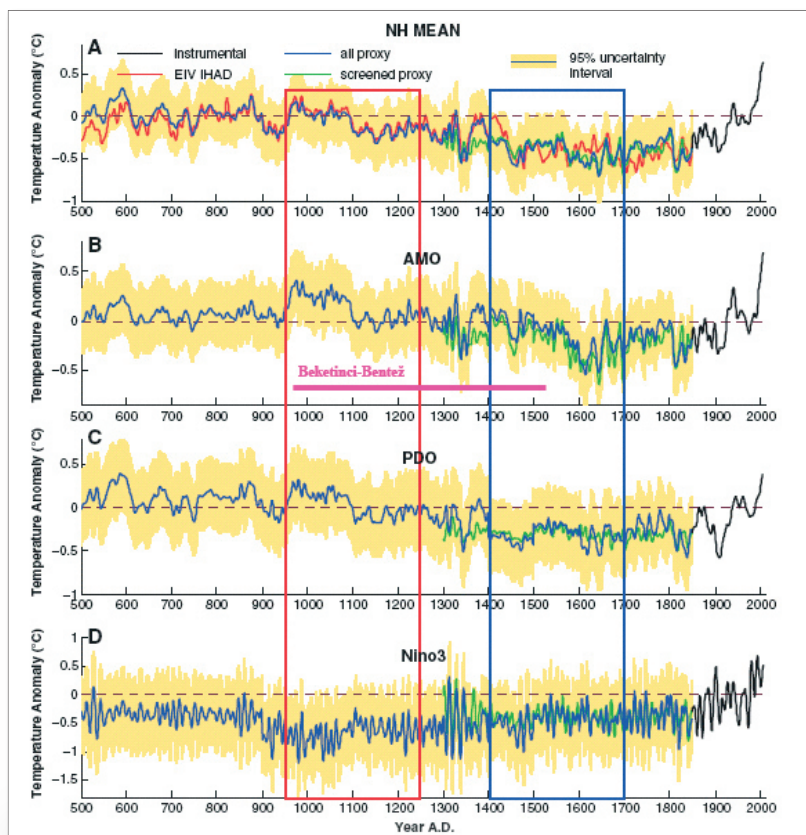
Editor-in-chief:

Prof. dr. sc. Željko Tomičić

KLIMATSKI UVJETI SREDNJEGA VIJEKA

Katarina Botić

Razvojem društva i napretkom tehnologije, nije prestao utjecaj okoline, a posebno klimatskih prilika, na socijalne i ekonomske aspekte društva. Prvo tisućljeće naše ere odlikovalo se relativno povoljnim klimatskim uvjetima uz nekoliko hladnijih razdoblja (od kojih je najjače bilo između 900. i 950. g.), ali i nekoliko toplijih razdoblja, najtoplija su bila ona oko 680. i 870. g. (sl. 1) (MANN et al. 2009, 1257, Fig. 1)



Sl. 1 Temperaturni prikaz razdoblja od 500. do 2000. g.: A. cijela sjeverna hemisfera; B. sjeverni Atlantik; C. sjeverni Pacifik; D. El Niño područje (prema: MANN et al. 2009, 1257, Fig. 1)

Fig. 1 Temperature in the period between 500 and 2000: A. the entire northern hemisphere; B. northern Atlantic; C. northern Pacific; D. El Niño area (after: MANN et al. 2009, 1257, Fig. 1)

Padom Rimskoga carstva Europa je izgubila svoju dobro organiziranu strukturu, no ponovo organiziranje trgovačke mreže, obrazovanja, urbanizacije, umjetničkoga izričaja i javne potrošnje te povećanje populacije kao posljedica, javljaju se nakon 600. g. (FRASER 2011, 1270). Vrlo veliku ulogu u organiziranju nove srednjovjekovne civilizacije odigrala je pojava i razvoj crkvenih redova, posebno benediktinskoga. Svojom organizacijom rada, podržavanjem trgovačke mreže i činjenicom da su bili jedina institucija koja je pružala mogućnost socijalne pokretljivosti prihvaćanjem članova svih društvenih položaja u svoje redove, vrlo su brzo postali jedan od vodećih čimbenika novoga društva čiji su prosperitet potaknuli i osiguravali (FRASER 2011, 1271, 1272). Tijekom 9. i 10. st. dolazi do zamaha poljoprivrede, krči se sve više šuma koje su se nakon pada Rimskoga carstva ponovo proširile te se uvodi sistem rotacije tri polja (za razliku od dotadašnjega sistema od dva polja), uzgoj zimskoga i ljetnoga usjeva i uvođenje povrtnih nasada na ljetnim poljima (DOTTERWEICH 2008, 196; WILLIAMS 2000, 38). Novi sistem rotacije polja javlja se u 9. st. na crkvenim posjedima sjeveroistočne Francuske i širi se na veći dio sjeverozapadne Europe (WILLIAMS 2000, 38).

Oko 1000. g. nastupilo je toplo srednjovjekovno razdoblje (CROWLEY, LOWERY 2000, 51), tzv. Mediaeval Optimum (npr. DOTTERWEICH 2008, 196), s jednim vrlo hladnim intervalom oko 1240. g. (sl. 2) (SICRE et al. 2008, 140). Ovo je razdoblje trajalo do 1300. g., a najbolje ga opisuje činjenica da se u povijesnim izvorima kaže kako je grožđe za proizvodnju vina raslo u Engleskoj (CROWLEY, LOWERY 2000, 51). U ovome se razdoblju javljaju tri posebno topla intervala: 1010.–1040., 1070.–1105.



CLIMATIC CONDITIONS OF THE MIDDLE AGES

Katarina Botić

The influence of the environment, and the climatic conditions in particular, on social and economic aspects of the society did not cease with the development of society and the advancement of technology. The first millennium of the common era was characterized by relatively favourable climatic conditions, with the exception of a few colder periods (the coldest was between 900 and 950 AD), but also with several warmer periods, the warmest were around 680 and 870 AD (Fig. 1) (MANN et al. 2009, 1257, Fig. 1)

With the fall of the Roman Empire Europe lost its well-organized structure, but the resumption of trade networks, education, urban planning, artistic expression and public expenditure, as well as consequential population growth, occurred after 600 AD (FRASER 2011, 1270). A very important role in organizing this new mediaeval civilization was played by the emergence and development of ecclesiastical orders, Benedictine in particular. Their organization of labour, their support of trade networks and the fact that they were the only institution that provided social mobility through acceptance of members from all social positions into their ranks, they quickly became one of the leading factors of the new society, whose prosperity they both encouraged and fostered (FRASER 2011, 1271, 1272). Through the 9th and 10th c. farming gained momentum, while forests, which had spread considerably in the wake of the collapse of the Roman Empire, were increasingly cleared, and a three-field rotation system was introduced (supplanting the previous two-field system). Other novelties include winter and summer crops and the introduction of vegetable crops on summer fields (DOTTERWEICH 2008, 196; WILLIAMS 2000, 38). The new field rotation system appeared in the 9th c. on church estates in northeastern France and spread to the larger part of northwestern Europe (WILLIAMS 2000, 38).

Around 1000 a warm mediaeval period began (CROWLEY, LOWERY 2000, 51), the so-called Mediaeval Optimum (e.g. DOTTERWEICH 2008, 196), with a very cold interval around 1240. (Fig. 2) (SICRE et al. 2008, 140). This period lasted until 1300, and it is best described by the fact that historical sources mentioned that grapes for the production of wine were grown in England (CROWLEY, LOWERY 2000, 51). There were three particularly warm intervals in that period: 1010–1040, 1070–1105 and 1155–1190 (CROWLEY, LOWERY 2000, 52). At that time, mean annual temperatures did not differ significantly from those between 1901 and 1970 (BRADLEY et al. 2003, 405). The possible causes for this warm period were the increased activity of the sun and strong volcanic activity. Intense farming and forest clearance continued, but already towards the end of the 12th c. the aristocracy increasingly demanded that forests be protected as hunting grounds, which led to confrontations with the peasants, who were using the remains of forests for gathering firewood, herd grazing, hunting or expanding their ploughfields (WILLIAMS 2000, 40).

The gradual decline of the temperatures after 1300 ushered to a period known as the “Little Ice Age” – its duration is approximately placed between 1450 and 1850 (MATTHEWS, BRIFFA 2005, 19). Several factors influenced this cooling, whose causes are still intensively discussed (see e.g. CROWLEY, LOWERY 2000), although it is interesting that those temperatures differed by mere 0.45–0.50°C from those in the mid-20th c., that is, that they were only around 0.20°C lower than those between 1000 and 1200 (CROWLEY, LOWERY 2000, 54).

In the period between 1300 and 1400 diseases, famine and wars decreased the contemporary population of Europe by almost 50%, which destroyed the trade connections, taxation system and investment into cultural development, which in turn led to very high inflation (FRASER 2011, 1270). By the 14th c. the population density rose from 5 to 25 inhabitants/m², and in combination with intensive farming that exhausted the soil and caused soil erosion, as well as with cooling, food increasingly became scarcer, so many villages were deserted at that time (see e.g. WILLIAMS 2000, 30 – around 1/5 and 1/4 of settlements throughout Europe were abandoned). Population density rapidly declined (down to 16 inhabitants/m²) and farming was replaced by livestock rearing (DOTTERWEICH 2008, 198). Warm and cold years alternated in that same period, but there was also abundant precipitation in central Europe which, especially in the first half of the 14th c. caused severe floods, for which there are well-documented historical sources (DOTTERWEICH 2008, 196). One of the possible additional



i 1155.–1190. g. (CROWLEY, LOWERY 2000, 52). U to se vrijeme prosječne godišnje temperature nisu znatnije razlikovale od onih između 1901. i 1970. g. (BRADLEY et al. 2003, 405). Mogući uzroci ovoga toplijega razdoblja bili su pojačano djelovanje sunca i jaka vulkanska aktivnost. Nastavlja se intenzivna poljoprivreda i krčenje šuma, no već krajem 12. st. javlja se sve veći pritisak plemstva da se šume očuvaju kao lovišta što je dovodilo do sukoba sa seljacima koji su ostatke šume iskorištavali za prikupljanje ogrjeva, napasanje stada, lov ili proširenje obradivih površina (WILLIAMS 2000, 40).

Nakon 1300. g. temperature polako padaju, pa je uslijedilo razdoblje poznato pod nazivom „Malo ledeno doba“ – okvirno se njegovo trajanje smješta između 1450. i 1850. g. (MATTHEWS, BRIFFA 2005, 19). Više je faktora utjecalo na ovo zahlađenje i još se intenzivno traže uzroci (v. npr. CROWLEY, LOWERY 2000), no zanimljivo je da su se temperature razlikovale za samo 0,45 – 0,50°C od temperatura sredinom 20. st. odnosno da su samo za oko 0,20°C bile niže od onih u vrijeme između 1000. i 1200. g. (CROWLEY, LOWERY 2000, 54).

U vremenu između 1300. i 1400. g. bolest, glad i ratni sukobi smanjili su tadašnju europsku populaciju za gotovo 50% što je uništilo trgovačke veze, porezni sistem i ulaganje u kulturni napredak, a to je zatim dovelo do vrlo visoke inflacije (FRASER 2011, 1270). Do 14. st. populacija se povisila s 5 na 25 stanovnika/m², a u kombinaciji s intenzivnom poljoprivredom, koja je iscrpljivala tla i dovodila do njihove erozije te zahlađenjem, hrane je bilo sve manje, pa su mnoga sela u to vrijeme napuštena (v. npr. WILLIAMS 2000, 30 – između 1/5 i 1/4 naselja širom Europe bilo je napušteno). Gustoća populacije naglo pada (na 16 stanovnika/m²) te se poljoprivreda zamjenjuje stočarstvom (DOTTERWEICH 2008, 198). U istome se razdoblju javljaju naizmjenično tople i hladne godine no javljaju se i vrlo obilne padaline na području srednje Europe koje su, posebno u prvoj polovici 14. st. izazivale teške poplave, a povijesno su dobro dokumentirane (DOTTERWEICH 2008, 196). Jedan od mogućih dodatnih uzroka poplava ovakve jačine je i velika erozija tla izazvana ekstenzivnom poljoprivredom u prijašnjemu povoljnome razdoblju. Od 15. st. pa do polovice 19. st. temperature su bile još niže.

Dugo i nepovoljno razdoblje zabilježeno je širom sjeverne hemisfere mjerenjem različitih parametara – temperaturnih oscilacija mora sjeverno od Islanda (sl. 2), mjerenjem $\delta^{18}\text{O}$ stalagmita u središnjim Alpama (MAGNINI, SPÖTL, VERDES 2005), mjerenjem i uspoređivanjem srednjih ljetnih temperaturnih vrijednosti (npr. MATTHEWS, BRIFFA 2005, 24).

Islandski podatci pokazuju da se iza 1200. g. led počeo pojačavati, a plovni je put prema istočnome Grenlandu bio zatvoren od 1476. do 1822. g. (SICLE et al. 2008, 140).

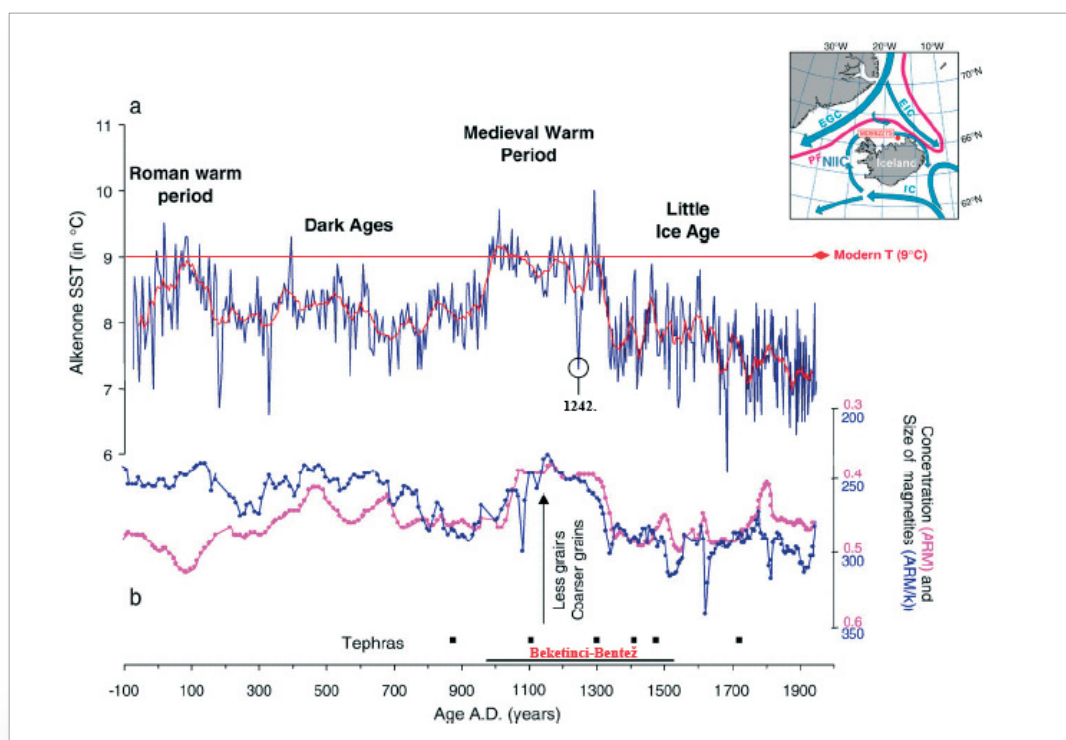
Ovaj se podatak preklapa s mjerenjima u Alpama gdje se pokazalo da se između 1400. i 1850. g. ledenjaci prestaju povlačiti te da se na nekim mjestima i pojačavaju (MAGNINI, SPÖTL, VERDES 2005, 742). Zanimljivo je da se podatci za južni dio Europe tj. za mediteranski pojas, javljaju obrnuto proporcionalno onima u srednjoj Europi za isto razdoblje (MATTHEWS, BRIFFA 2005, 24; MAGNINI, SPÖTL, VERDES 2005, 748) što se vjerojatno može objasniti povlačenjem toplih Atlantskih struja prema jugu.

Prema radiokarbonskim datumima ranosrednjovjekovnoga horizonta na lokalitetu Bentež kod Beketinaca može se zaključiti da se naselje razvijalo u povoljnim klimatskim uvjetima te da je možda nastalo nešto nakon hladnoga razdoblja oko 950. godine. Razvoj ovoga naselja može se povezati s razvojem i prosperitetom naselja cijele Europe u ekonomskome, duhovnome i kulturnome smislu (sl. 3) (FRASER 2011, 1271, Fig. 1).

Faza razvijenoga srednjega vijeka na ovome lokalitetu već zadire u početke tzv. „Maloga ledenoga doba“. Prosječne godišnje temperature se spuštaju, ljeta su hladnija i vlažnija, pa često ljetina propada prije žetve. Nastupaju razdoblja neimaštine i gladi, a od 1347. godine, kada se pojavila na Siciliji, pa preko Venecije u 1348. g. i širenjem preko Alpa i Pirineja, *Crna Smrt* ulazi u Europu (FRASER 2011, 1275). Prema sadašnjemu stanju istraženosti nema podataka da li je kuga pogodila i ovo naselje.

Naselje Bentež, prema radiokarbonskoj dataciji, nastavlja živjeti sve do kraja 15. st. odnosno početka 16. stoljeća. Mogući razlozi nastavka života u ovome naselju i u klimatski vrlo nepovoljnim uvjetima za ostatak Europe mogu se možda naći u činjenici da se nalazilo na jednome od glavnih križanja putova te na samoj granici. Jedna od kovačnica u naselju datirana je u drugu polovicu 15. stoljeća, vremenu koje pripada vladavini Matijaša Korvina, knezova Iločkih i vremenu nadiranja turske opasnosti. Može se pretpostaviti da je u takvim vremenima kovačnica bila od vrlo velike važnosti.

Na kraju još jedna zanimljivost – godina 1242. u kojoj su Tatari u veljači prešli zaleđeni Dunav i krenuli prema jugu za kraljem Belom IV., javlja se kao najhladnija godina u toplome dijelu srednjega vijeka (sl. 2) i predstavlja najavu vrlo nepovoljnoga klimatskoga razdoblja. Ona je također u povijesnome smislu prekretna godina za politička i društvena pitanja na prostorima sjeverne Hrvatske i šire. Time se stvara jasna slika u kojoj su mjeri klimatske prilike bile duboko utkane u tkivo povijesnih događaja te u nekim slučajevima odigrale vrlo važnu ulogu njihovog pokretača.



Sl. 2 Prikaz površinske temperature mora na području sjeverno od Islanda, crnim kvadratima označena je prisutnost vulkanskoga pepela (prema: SICRE et al. 2008, Fig. 1)

Fig. 2 Surface sea temperature in the area north of Iceland; black squares mark the presence of volcanic ash (after: SICRE et al. 2008, Fig. 1)

causes for floods of that magnitude is the large-scale soil erosion brought about by extensive farming in the preceding favourable period. From the 15th c. until the mid-19th c. the temperatures dropped even further.

The long and unfavourable period was documented throughout the northern hemisphere through measurement of various parameters – oscillations in the sea temperature north of Iceland (Fig. 2), measurement of $\delta^{18}\text{O}$ stalagmites in central Alps (MAGNINI, SPÖTL, VERDES 2005), as well as by measuring and comparing mean summer temperatures (e.g. MATTHEWS, BRIFFA 2005, 24).

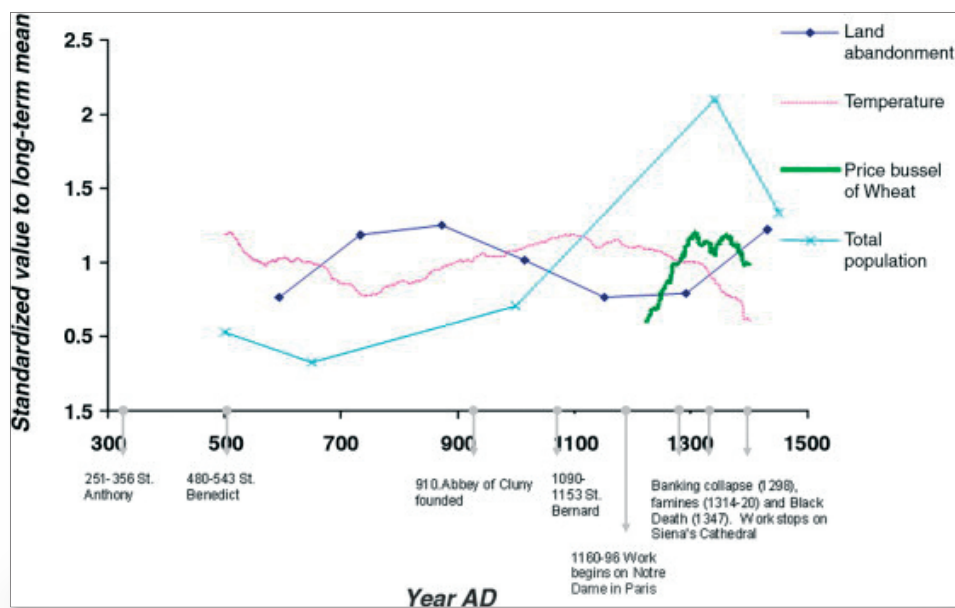
The data from Iceland show that ice intensified after 1200, while the navigation route towards eastern Greenland was closed from 1476 to 1822 (SICRE et al. 2008, 140).

This piece of information provides an overlap with the measurements in the Alps, where the retreat of the icebergs not only ceased between 1400 and 1850, but they also advanced (MAGNINI, SPÖTL, VERDES 2005, 742). Interestingly, the data for the southern part of Europe, i.e. the Mediterranean belt, are inversely proportional to those in central Europe for the same period (MATTHEWS, BRIFFA 2005, 24; MAGNINI, SPÖTL, VERDES 2005, 748), which can probably be explained by the southward retreat of the warm Atlantic currents.

Based on the radiocarbon dates for the early mediaeval horizon at Bentež near Beketinci it can be concluded that the settlement developed in favourable climatic conditions, and that it was perhaps established a little after the cold period around 950. The development of this settlement can be connected with the development and prosperity of settlements throughout Europe, in the economical, spiritual and cultural sense (Fig. 3) (FRASER 2011, 1271, Fig. 1).

The High Middle Ages phase at this site already enters into the beginnings of the so-called “Little Ice Age”. Mean annual temperatures declined, the summers were colder and more humid, so the crops were often ruined before they could be harvested. Times of poverty and famine ensued, and from 1347, when it first appeared on Sicily, through Venice in 1348 and across the Alps and the Pyrenees, the *Black Death* entered Europe (FRASER 2011, 1275). At the present level of research we cannot conclude whether the plague struck this settlement too.

The radiocarbon dates show that the settlement at Bentež continued living until the end of the 15th c., or the beginning of the 16th c. The possible reasons to continue living in this settlement even during the very unfavourable climatic condi-



Sl. 3 Tablica odnosa temperature, napuštanja zemlje, cijena i porasta populacije u razdoblju od 300. do 1500. g. (prema: FRASER 2011, Fig. 1)

Fig. 3 Table showing the interrelation of temperature, land abandonment, prices and population growth in the period 300-1500 (after: FRASER 2011, Fig. 1)



tions for the rest of Europe can perhaps be found in the fact that it lay on one of the main junctions of roads, right on a border. One of the smithies in the settlement is dated to the second half of the 15th c., the time of rule of Matthias Corvinus, the Ilok princes and the advancement of the Ottoman forces. It can be assumed that in such times a smithy played a very important role.

At the end, let us mention another interesting fact – the year 1242, when the Tatars crossed the frozen Danube, heading south in pursuit of King Bela IV, was the coldest year in the warm period of the Middle Ages (Fig. 2), a harbinger of a very unfavourable climatic period. In a historical sense, it is also a turning point for political and social issues in northern Croatia and in the wider region. This helps clarify the picture as to how deeply the climatic conditions influenced the historical events, playing in certain cases the very important role in setting them in motion.