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LETNIK 9
ŠTEVILKA I
2021

VOLUME 9
NUMBER I
2021



STUDIA UNIVERSITATIS HEREDITATI

Znanstvena revija za raziskave in teorijo kulturne dediščine

Letnik 9, številka 1, 2021 / Volume 9, Number 1, Year 2021

Glavna in odgovorna urednica ter urednica številke / Editor-in-chief

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Univerza na Primorskem – Založba Univerze na Primorskem

University of Primorska – University of Primorska Press

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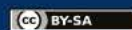
Zanjo/For Publisher: prof. dr. Klavdija Kutnar, rektorica

Titov trg 4

SI-6000 Koper

ISSN 2350-5443

DOI: [https://doi.org/10.26493/2350-5443,9\(1\)](https://doi.org/10.26493/2350-5443,9(1))



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Uvodnik

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Letošnji, že deveti, letnik revije *Studia Universitatis Hereditati* in njegovo prvo številko težko začnemo brez pogleda nazaj, v svet in globalno epidemijo ter z njo povezane dogodke, ki so nam v dobrem letu na različnih nivojih iz dneva v dan spreminjali življenje. Kljub temu sta naša revija in njena prva letošnja številka dokaz, da se tudi v negotovih časih da hodi naprej, delati in raziskovati. Z uredniškim delom smo nadaljevali z utiranjem zastavljenih smernic, ki predvidevajo dve letni številki, eno arheološko, kot svojevrsten *hommage* Oddelku za arheologijo in dediščino UP FHS, ustanovitelju revije, in drugo številko, katere cilj je pokazati razsežnosti raziskovanja na področju humanistike in družboslovja.

V branje vam prinašamo arheološke teme iz evropskega sveta in vam želimo pričarati bogastvo, širino in možnosti arheološkega sveta, v katerem intenzivno raziskujemo. Prispevki obsegajo čas od kamene dobe do danes, prinašajo nove podatke in interpretativne nastavke ter tudi nove tehnologije.

Številko začenjamo daleč v preteklosti in v geografskem pogledu. Ljubo Fidanoski se v svojem prispevku ukvarja z analizami materialne kulture zgodnje neolitskih skupnosti na območju Severne Makedonije in Bolgarije ter kljub različnim substratom poskuša identificirati podobnosti in povezave.

Prispevke nadaljujemo z večjim sklopom poznoantičnih najdišč. Prvi med njimi, prispevek Alessandre Cianciosi, nas vrača nazaj na

Severni Jadran in prinaša analizo zbirke marmornih najdb (*crustae*) iz pomembnejših stavb poznoantične *mansio* na podeželju v bližini današnjega Jesola. Interdisciplinarno zastavljena raziskava prinaša nove in zanimive interpretativne nastavke, nastavlja pa tudi trdne temelje in izhodišča za raziskovanje tega lagunskega najdišča in tudi širše slike poznoantičnega obdobja.

Sledi članek Andreje Biondija, ki analizira sedem kosov na novo odkritega langobardskega orožja iz depojev Arheološkega muzeja v mestu Fiesole na severovzhodu Toskane. Te predmete, ki so bili le delno objavljeni, odkriti pa so bili na langobardski nekropoli na območju Garibaldi in tudi v neznanih kontekstih, smo primerjali s podobnimi gradivi po Kr., odkritimi po vsej državi. Omenjena objava teh predmetov iz 6. in 7. stoletja predstavlja pomemben doprinos k razumevanju prehoda iz pozne antike v čas prevlade Langobardov.

S prispevkom Alenke Tomaž in Zrinke Mileusnić ostajamo v Kopru in spoznavamo rezultate novejših arheoloških raziskav starem mestnem jedru, ki dopolnjujejo in nadgrajujejo koprsko sliko v času pozne antike in novega veka.

Zadnji prispevek nas ponovno odpelje proti Balkanu, kjer so se iz srednjega veka ohranili srednjeveški kamniti nagrobniki – stečki. Gre za široko razprostranjen fenomen, ki je zavarovan tudi kot UNESCOVA dediščina. A zaenkrat stanje raziskav žal še ne odraža pomena teh spomeniku v prostoru. Zato je Saša Čaval v okviru

programa Marie Curie začela s sodobnimi raziskavami stečkov. Čeprav deluje na tujih univerzah, je v raziskave povabila tudi slovenske raziskovalce in študente. V pričujočem prispevku, napisanem v soavtorstvu s Špelo Prunk, Mašo Sakaro in Tjašo Miklavčič iz Pokrajinskega muzeja v Kopru, predstavljajo natančen potek tri-dimenzionalnega skeniranja stečkov in njihovo analizo.

Čeprav je bilo leto za nami negotovo in ga večinoma želimo pozabiti ter prepustiti preteklosti, upamo, da boste v tej številki našli nova znanja, nove misli in nove ideje, saj je arheologija pogosto prinašalka novega in razburljivega iz preteklosti.

Želimo vam prijetno branje!



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Early Neolithic in North Macedonia and Bulgaria: geographical and cultural relations

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Zgodnji neolitik v Severni Makedoniji in Bolgariji: geografski in kulturni odnosi

Prispevek se osredotoča na različne vidike materialne kulture skupnosti, ki so naseljevale dve izmed najpomembnejših regiji Balkana v zgodnjem neolitiku, Severno Makedonijo in Bolgarijo. Prispevek išče vzroke podobnosti pri nekaterih zvrsteh artefaktov v skupnostih, ki sicer proizvajajo in uporabljajo relativno različno materialno kulturo.

Ključne besede: zgodnji neolitik Balkana, zgodnjeneolitska najdišča in kulture, problem 'kulture', mikro-regionalne specifičnosti, kulturni stiki.

The paper focuses on different aspects of material culture in communities that inhabited two of the most important regions in the Early Neolithic Balkans, North Macedonia and Bulgaria. Paper seeks to discover the causes for similarities of certain artefact types in communities that produce and use relatively different material culture.

Keywords: Balkans EN, EN sites and cultures, the problems of 'culture', microregional specifics, cultural contacts.

The exquisite beauty of the Balkans lies in the diversity of nature: the forests, meadows and pastures, the diversity of relief forms represented by mountains, ravines, hills, highlands, valleys and plains, the interwoven hydrographic network composed of natural lakes, many rivers and tributaries, groundwater and springs, and ultimately the presence of diverse peoples and communities, each with its own past, traditions and authenticity. The rich Balkans cultural heritage, archaeology, history and art history interpret it in different ways, with different methodological approaches and under the influence of different schools, often intertwining each other. After the dominance of scientific approaches in the archaeological research in the second half of the 20th and especially in the 21st century, especially with the application

of new methodologies and the significant presence of interdisciplinarity, many practiced approaches, methodologies and schools have been changed, but the results of their interpretations have not been substantially altered, which in fact proves the reliability of most hypotheses, most of them, set long time ago.

In the paper below, I will make an attempt to corroborate some of the already set topics in Southeastern prehistoric archaeology in the context of the EN cultures of North Macedonia and Bulgaria (especially its western part), but also to propose some new considerations. For this purpose, I will direct my attention to several sites from Amzabegovo-Vršnik culture and Velušina-Porodin culture in North Macedonia and to some sites (known by cultures of different names according to different authors) in

western Bulgaria. I underline that in the framework of this analysis I will try to get out of the practiced approaches so far, first in relation to the cultural-historical context. Taking into account the different state of research at the sites in North Macedonia and Bulgaria, in a narrower and broader context, the different methodological approaches, as well as the different level and quality of the published material this study should be accepted conditionally and hypothetically. Also, in advance, I refer to the limitations regarding the relatively small number of selected reference sites (cultures), in order to direct specific cultural associations on this territory in the Central Balkans region, not taking into account the large number of EN sites, cultures and complexes from Greece, Albania, Kosovo, Serbia, Romania, etc.

Special emphasis will be put on the EN painted pottery as a dominant feature that (in the literature) most often defines and separates the sites and cultures among themselves. With this analysis, I will unquestionably touch upon those characteristics and properties that set this significant prehistoric cultural heritage under a common denominator. Therefore, the unbreakable common culture and history of all today's entities in the Balkans will again be confirmed, hoping that with such studies it will be possible to find new insights into the Neolithic welfare of this very important part of Europe.

The research so far

The Neolithic is the most interesting and probably most enigmatic prehistoric period in the entire Balkans and it is especially diverse in North Macedonia and Bulgaria. With scholars from Europe and beyond, even today, this issue on this territory daily provokes new challenges and ideas for new research activities. The specific Neolithic artefacts on the surface of the Macedonian soil – in the past still unknown and unexplored – have attracted the attention of many archaeologists, historians and various enthusiasts (Naumov 2009a, 3). The earliest historically documented interests of Macedonian Neolithic

are associated with the research of a series of foreign and domestic archeologists in the 20th century (Naumov 2009a, 3–5; Fidanoski 2017a, 31).

In the 1930s, the pioneering studies of Fewkes, concentrated in Pelagonia should be highlighted. From the same period Heurtley (1939) is also an important explorer of Macedonian prehistory, one of the first authors who pointed out several prehistoric sites, and his extensive work was completed within the monograph *Prehistoric Macedonia*. The second half of the 20th century is a turning point in the research of Macedonian Neolithic. Reaching Neolithic issues not only in North Macedonia but also in the wider space of the Balkans, an inevitable name in the literature is Miložević, as one of the pioneers of the Balkan Neolithic periodization. Since the end of the 1950s, a number of archaeologists have emerged that are intensively beginning to deal with this interesting prehistoric period, in particular, the research of Grbić, Galović, P. and J. Korošec, and especially the work of M. and D. Garašanin. In this period, perhaps the most significant archeological investigations on the Neolithic sites in North Macedonia were performed, and from their results, several papers and two monographs were published. Here, in particular, the works of Grbić and his associates (Grbić et al. 1960), *Poročin*, and *Barutnica* by P. and J. Korošec (Korošec and Korošec 1973). In the period after the 1960s, M. and D. Garašanin have a great contribution to Macedonian prehistoric archaeology which explored most of the prehistoric sites in North Macedonia (at that time known), regularly publishing the obtained results.

As one of the rare foreign scientists, a special place in the archaeology of the Macedonian Neolithic has Gimbutas (USA), which explored the site Barutnica-Amzabegovo in the late 1960s and early 1970s, and for the first time (together with collaborators), published a comprehensive monography of the site – *Anza* (Gimbutas 1976a). It contains a series of interdisciplinary analyzes, first made on a Macedonian archaeological site. The analyses refer to the geological site characteristics, the mov-

able and immovable heritage, animals and plants remains, the anthropological remains and the reconstruction of site's paleo-environment. The period of the seventies marks the appearance of the journal *Macedoniae acta archaeologica*, which regularly publishes the latest data on Macedonian archaeology in general.

In this period and then, the work of a dozen domestic archaeologists is notable throughout the whole territory of North Macedonia: Sanev, Saržoski, Simoska, Kitanoski, Todorović, Kuzman, Bilbija, Zdravkovski, Jovčevska, Mitkoski and others. In the early 1980s, one of the most important monographs on Balkan Prehistory – Prehistory of the Yugoslav Countries (*Praistorija Jugoslavenskih zemalja*), edited by Benac, was published, thus validating the benefits from the previous studies of the Neolithic in North Macedonia and other countries of former Yugoslavia. In this edition for the first time are formulated the two most important Neolithic cultures in Macedonia: Amzabegovo-Vršnik and Velušina-Porodin. The results of recent investigations, as well as the revision of some of the views, were-actualized several years ago in an edited book in honor of M. Garašanin – *Homage to Milutin Garašanin*, edited by Tasić and Grozdanov (2006), and in two monographs: *Neolithic communities in the Republic of Macedonia* by Naumov, Fidanoski, Tolevski and Ivkovska (2009) and *Patterns and Corporeality: Neolithic Visual Culture from the Republic of Macedonia* by Naumov (2009b). In the last ten years other edited books and monographs were published, enlightening the newest insights on Macedonian Neolithic, such as: *Anzabegovo: naselba od raniot i sredniot neolit vo Makedonija (Anzabegovo: Settlement from the Early and Middle Neolithic in Macedonia)* edited by Sanev (2009a); *Neolitski antropomorfni predmeti vo Republika Makedonija (Neolithic Anthropomorphic Objects in Republic of Macedonia)* by Naumov and Čausidis (2011); *Grnčarica: naselba od raniot neolit (Grnčarica: Settlement from the Early Neolithic)* by Jovčevska (2013); *Neolitski figurini vo Makedonija (Neolithic Figurines in Macedonia)*

by Naumov (2015); *Grnčarica: a Contribution to the Early Neolithic Puzzle of the Balkans* by Stojanovski (2017); *Dragiša Zdravkovski In Memoriam: Cultural Manifestations during the Neolithic Period on the Territory of the Republic of Macedonia and neighboring Regions* edited by Stojanova Kanzurova (2018); *Geneza i razvoj na Anzabegovo-Vršničkata kultura grupa (Genesis and Development of the Anzabegovo-Vršnik Cultural Group)* by Zdravkovski (2018) and the edited series by Fidanoski and Naumov (2016; 2017; 2018) *Neolithic in Macedonia*.

Prehistoric sites and cultures on the territory of Bulgaria are probably one of the best studied in the Balkans. At the very beginning of the 20th century, the work of Čilingirov and Popov, the first Bulgarian prehistorians, should be noted, leaving behind important data on prehistoric sites in Bulgaria.

In the period prior to the Second World War, the name of Mikov should be noted, which first started the research of the eponymous prehistoric site of Karanovo, and in the postwar period, together with one of the pioneers of the Bulgarian archaeological school, Georgiev, lay the foundations of the Karanovo culture and periodization, thus strengthening the foundations of Bulgarian prehistoric archaeology. The latter, especially in the second half of the 20th century, is intensively investigating prehistoric sites and regularly publishes the results. The work of Gaul, who first noticed the homogeneity of the Neolithic of western Bulgaria, formulates the culture of West Bulgarian painted pottery (Todorova and Vaysov 1993, 97).

After postulating the periodization and cultural specifics of the Bulgarian Neolithic, the work on this prehistoric period was further intensified in the period after the 1960s. In this period, the research of: Detev, Petkov, Todorova, Radunčeva, B. Nikolov, V. Nikolov, M. Čohadžiev, S. Čohadžiev, M. Kănčev, K. Kănčev, Stanev, Perničeva, Bakamska, Grębska-Kulov, Kulov, Gatcov, Vaysov, Bojadžiev, Leštakov and others should be pointed out. During this period, international cooperation was inten-

sified, whereby the quality of studies has been enhanced, taking into account the interdisciplinarity, which is a direct result of the joint international research, headed by: Merpert, Hiller, Lichardus, Pavúk and others.

During the last forty years, the results of a large number of archaeological investigations were published in several important monographs mainly on concrete sites and reviews on Bulgarian Neolithic: *Kapitan Dimitriev* (Nikolov 1999a), *Balgarčevo* (Pernicheva-Perets, Grębska-Kulow and Kulov 2011), *Oboden* (Ganecovski 2009), *Yabalkovo* (Roodenberg, Leshtakov and Petrova 2014), *Ново-каменната епоха в България (New Stone Age in Bulgaria)* (Todorova and Vaysov 1993), and other volumes. This period is marked by many works in Bulgarian and foreign scientific publications and especially active participation in scientific meetings, symposia, conferences, etc. Apart from the regular publication of the journals *Arheologiya (Archaeology)*, *Arheološki otkritija i razkopki (Archaeological discoveries and excavations)*, *Razkopki i proučvanija (Excavations and studies)*, reaffirmation of one of the most important scientific journals of the last century, *Studies of Prehistory (Studia praehistorica)* is of key importance. Also the publication of several edited books from several scientific meetings – namely in honor of the older generation prehistorians and scientific conferences, such as: *Karanovo* (Hiller and Nikolov 1997; Hiller and Nikolov 2000; Hiller and Nikolov 2002; Hiller and Nikolov 2005), *Praistoričeska Trakiya (Prehistoric Thrace)* (Nikolov, Băčvarov and Kalčev 2004), *In the Steps of James Harvey Gaul* Vols. 1 and 2 (Stefanovich, Todorova and Hauptmann 1998; Todorova, Stefanovich and Ivanov 2007), *Von Domica bis Drama, Gedenkschrift für Jan Lichardus* (Nikolov and Băčvarov 2004), *Prae in Honorem Henrieta Todorova* (Stefanovich and Angelova 2007), *Southeast Europe and Anatolia in prehistory: Essays in honor of Vassil Nikolov on his 65th anniversary* (Bacvarov and Gleser 2016) and others.

In short, it can be concluded that in the past period in North Macedonia and Bulgaria

the Neolithic is relatively well studied and appropriately presented. However, one should bear in mind that Bulgarian literature abounds with more bibliographic units, unlike the Macedonian one. I think that this is due to two decisive conditions, longer traditions of research (and therefore continuous publication in several scientific journals, edited books and monographs) and the scope of the research itself (many Neolithic sites are explored in full or on a large scale).

The material

The large number of Neolithic sites (and cultures) in the Balkans, in order to get more objective evaluation of their characteristics and properties they carry with them, require equal scientific treatment. The deliberate “exclusion” of a large number of related sites from Greece, Albania, Serbia and Romania has been made in order to preserve the core of the topic i.e., preventing the spread of the focus towards the larger Central Balkans’ area. In other words, further in my work, I will pay full attention only to specific Macedonian sites (Pelagonia, Skopje and Ovče Pole Plains) and Western Bulgaria (Sofia and Pernik Plains as well as Struma Valley), minimally touching other sites important for the topic from the rest of Bulgaria and the wider Balkan regions.

Bearing in mind the state of Macedonian and Bulgarian knowledge of the Neolithic in this area (explained in the chapter above), in the paper below I will make a selection of a total of 11 sites from North Macedonia and Bulgaria. In North Macedonia, I will focus on five sites: Barutnica-Amzabegovo, Cerje-Govrlevo, Veluška Tumba-Porodin, Čuka-Topolčani and Vrbjanska Čuka-Slavej, and in Bulgaria on six: Slatina-Sofia, Krajnici, Galabnik, Vaksevo, Rakitovo and Kovačevo. In addition, I emphasize that I will analyze exclusively the sites, not cultures, cultural zones, blocks and complexes, for one reason – the large number of cultures and other social categories by themselves bear more ambiguity rather than explanations (see the chapter below).

The focus of this work will be directed to only one important segment of pottery, animal husbandry and architecture. As I have stated above, due to possible (unwanted) spreads in different directions, the scope will be limited to stated social, economical and cultural categories as the basic characteristics of the Balkans Neolithic communities. However, I am fully aware of all possible comments because of not discussing the largely discovered so-called coarse pottery, the various symbolic ceramic objects, funeral practices and the economy. Part of these aspects will get their place, but only as an additional illustration of the thesis. It should be noted again, that this limited selection of sites and elements of material culture has been made in order to avoid generalized views. If all the geographical and cultural-historical aspects should be taken into account, we can reaffirm the familiar views on the homogeneity of the Balkan Neolithic – in that way entering into a full generalization of the various EN communities inhabiting large territories in Southeastern Europe.

Neolithic in North Macedonia and Bulgaria: territory, timeline, cultures, cultural zones, blocks and complexes

The Neolithic in Macedonia and Bulgaria appears as an already formed culture introduced by the EN settlers from Anatolia, most probably through Greece mainland, according to the majority of authors (Gimbutas 1976b, 76; Garašanin 1989, 27; Nikolov 1990, 11; Todorova and Vaysov 1993, 58–63; Sanev 1995, 23; Thissen 2000, 149–51; Pavúk 2007, 165; Naumov 2009c, 19). In general, this model has long been set and accepted in contemporary prehistoric archaeology, with few additions and corrections. In short, these hypotheses are made on the basis of analyzes of immovable and movable archaeological cultural heritage: architecture, funeral practices and ceramics; and economy: agriculture, hunting, craftsmanship, and exchange. As a direct result of these elements, certain insights have been

obtained about the social aspects of mankind – whether it is today, 1,000 or 10,000 years ago.

Territory

Within the Balkans prehistoric archaeology several views on the pathways under which the first Neolithic settlers moved, where they originally settled and how they continued the processes of neolithization of Europe, are relevant. The most important region for the emergence of the EN in the Balkans is Thessaly, because from here probably through different pathways, the rest of the peninsula was inhabited. It is quite certain that the Neolithic man was orientated on the natural-geographical characteristics of the relief, and as a result, he probably moved along the river flows. The two main routes where the first Neolithic communities in the Central Balkans region probably migrated, were the valleys of Vardar and Struma rivers. This topic is of great importance in the literature (Gimbutas 1976a; Sanev 1978; Garašanin 1979; Garašanin 1989; Čohadžhiev 1990; Nikolov 1990; Todorova and Vaysov 1993; Sanev 1995; Nikolov 1996a; Nikolov 1996b; Nikolov 1999b; Nikolov 1999c; Lichardus-Itten et al. 2002; Nikolov 2002a; Nikolov 2003; Sanev 2004; Zdravkovski 2006; Bogdanović 2007; Čohadžhiev 2007; Pavúk 2007; Naumov 2009c; Zdravkovski 2009); and the hypotheses are most often argued on the basis of natural pathways in the above mentioned river flows. Bearing in mind the great Neolithic heritage on the wider territory of North Macedonia and Bulgaria, there are basically not more than two or three views on the pathways used by the EN population. According to Nikolov (1990, 11, 15), those roads are the river flows of Mesta, Struma and Vardar, the most important of which is along the Struma river, and according to him the Vardar Valley, has a secondary role. Todorova and Vaysov (1993, 94), agree that these river flows had crucial role in the neolithization processes, but they see the Vardar valley pathway as the main one. The course of Vardar is crucial for the *formation of Neolithic settlements in the Republic of Macedonia* according to Nau-



Figure 1. EN sites in North Macedonia and western Bulgaria (group 1: 1. Barutnica-Amzabegovo, 2. Cerje-Govrlevo, 11. Kovačevo; group 2: 3. Veluška Tumba-Porodin, 4. Čuka-Topolčani, 5. Vrbjanska Čuka-Slavej; group 3: Slatina-Sofia, 7. Krajnici, 8. Gálábnik, 9. Vaksevo, 10. Rakitovo).

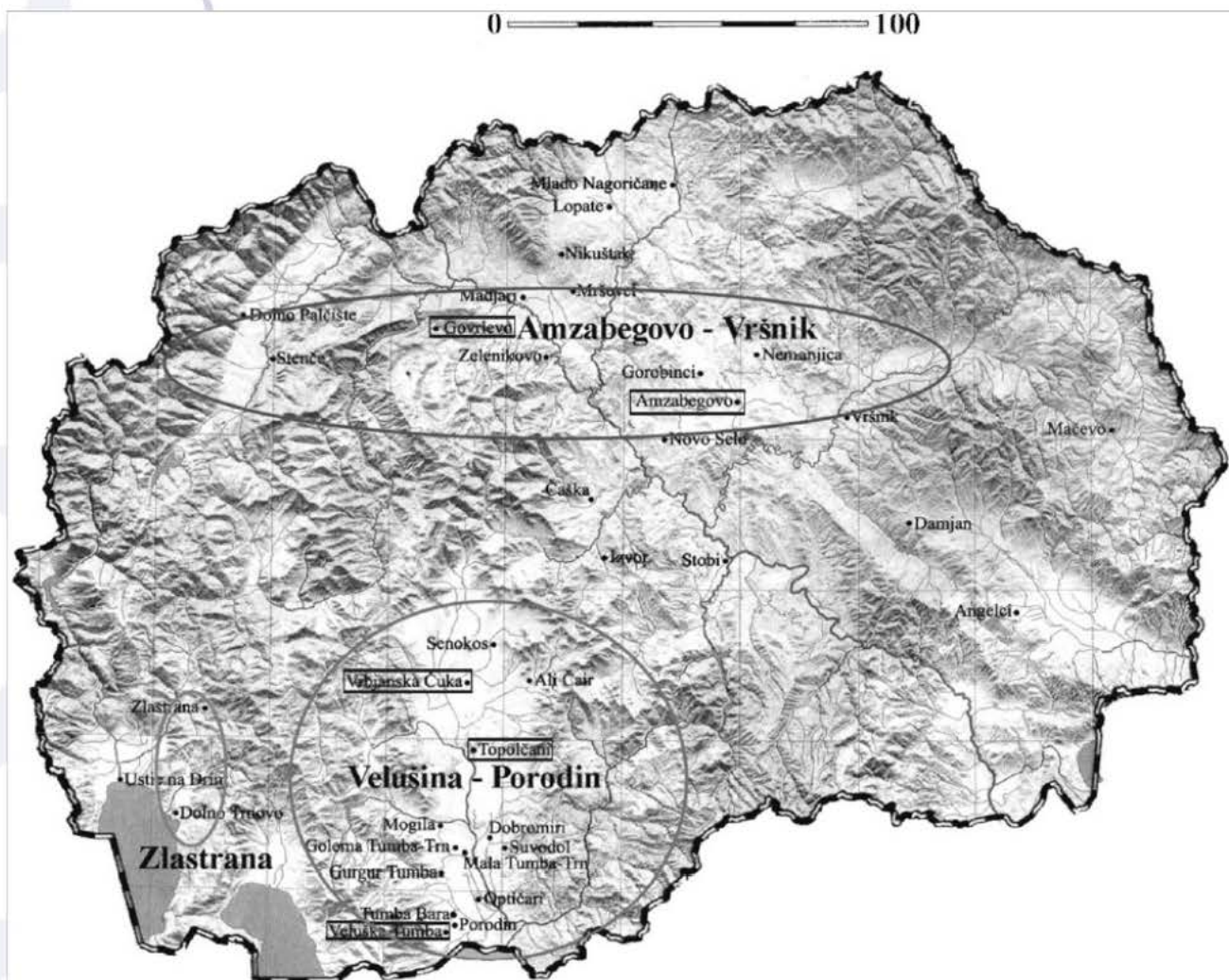


Figure 2. EN cultures in North Macedonia (Fidanoski 2009a).

mov's opinion (2009c, 26). Recently, a relatively new idea about the first Neolithic pathways in North Macedonia was suggested by Zdravkovski (2006, 99; 2009, 20) – that Pelagonia was initially inhabited, after which the Neolithic communities migrate towards the Polog, the Skopje and Ovče Pole Plains, from where through Bregalnica valley they head eastwards to Struma valley.

Considering the already set theses for natural communications as the basis for the EN pathways of movements and contacts, thus supported by the rich material culture, I consider that a model of territorial “borderlines” should be established (Fig 1–3).

Namely, by reduction of the geographical space one internal model of geographical communication can be obtained, including only

North Macedonia and western Bulgaria. In the central part of this geographical analysis there are three sites containing EN and MN phases/layers: Cerje-Govlevo, Barutnica-Amzabegovo and Kovačevo – *group 1*. The EN sites of Pelagonia: Čuka-Topolčani, Vrbjanska Čuka-Slavej and Veluška Tumba-Porodin, belong to the so called *group 2*. The EN and MN sites: Slatina-Sofia (Sofia Plain), Gălăbnik (Radomir Plain), Vaksevo, Krajnici, Kovačevo (Struma Valley), and Rakitovo (Rhodope massif), belong to *group 3*. From a geographical point of view, *group 1* has direct natural communications with the other two groups, and maybe has the best position (set in this artificially reduced region). Accordingly, *group 1* through the valley of Vardar and Babuna Mountain, Veles region, or through

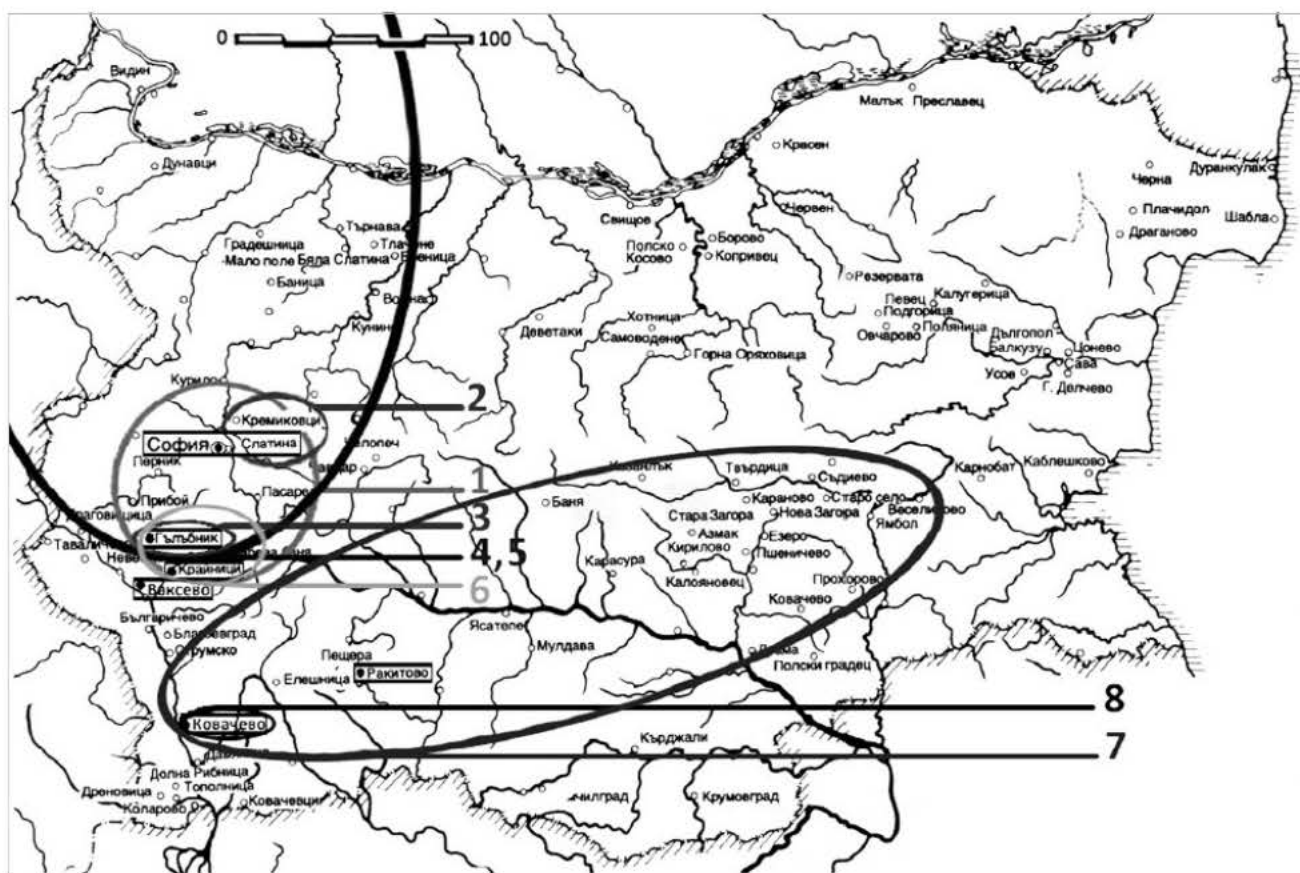


Figure 3. EN cultures in Bulgaria (1. Western Bulgarian Painted Pottery culture, 2. Slatina-Sofia culture in earliest phase and in later phases treated as Kremikovci culture, 3. Gălbănik culture in earliest phase, 4, 5. Protostarčevo and Starčevo culture, 6. Krajnici culture in earliest phase and in later phases treated as Gălbănik culture, 7. Karanovo I culture, 8. Kovačevo).

Gradsko, Selečka Planina (Mountain), Prilep region, communicates with *group 2*. *Group 1* can communicate directly with *group 3* of the Vardar Valley, north to the Pčinja riverflow, or south along Bregalnica riverflow. The communication of *group 2* and *group 3* geographically does not allow a direct approach, that is, it may have taken place southwards through Thessaly, then along the Struma riverflow to north, or north again through Vardar riverflow, and then further to north to Pčinja riverflow or south along the Bregalnica riverflow. From what has been said so far, it can be confirmed that Vardar and Struma and their tributaries are essential for Neolithic migrations. However, on the basis of the material culture the dynamics of communications vary in a different phase/s (see the chapter Neolithic heritage), that is, in the EN *group 2* and *group*

3 although geographically distant show greater similarities, and in the MN this is the case with *group 1* and *3*.

Time

Unlike the dominant approach in older studies – that material culture is the basic chronological and periodization indicator, today absolute dates are the primary means of (precisely) defining Neolithic contexts. Absolute dates, which are continuously made in large numbers for sites around the world for decades, are rare for North Macedonian Neolithic sites. Unfortunately, until today only for a total of 11 (Neolithic) sites are available absolute dates. There is a large number of dates for Barutnica-Amzabegovo, and a smaller number of dates for Cerje-Govrlevo, Vršnik-Tarinci, Grnčarica-Krupište, Čuka-Topolčani, Tum-

ba-Porodin, Vrbjanska Čuka-Slavej, Veluška Tumba-Porodin, Tumba-Mogila, Markovi Kuli and Golema Tumba-Trn (Gimbutas 1976b; Srdoć et al. 1977; Thissen 2000; Thissen 2005; Reingruber and Thissen 2005; Whittle et al. 2005; Fidanoski 2009a; Naumov 2009c; Fidanoski 2012; Naumov 2016; Naumov et al. 2016; Stojanovski 2017; Veljanovska 2017; Fidanoski 2018; Naumov et al. 2018; www.14sea.org). According to the scope of research for the purposes of this analysis, the dates of the following Macedonian EN and MN sites will be given.

Calibrated dates BC (2σ) for Barutnica-Amzabegovo (Whittle et al. 2005).

7,560±70 BP, 6,510–6,230 (95,4%) (2σ) cal BC,
7,230±170 BP, 6,450–5,750 (95,4%) (2σ) cal BC,
7,210±50 BP, 6,210–5,980 (93,3%) (2σ) cal BC,
7,180±60 BP, 6,220–5,970 (85,2%) (2σ) cal BC,
7,150±70 BP, 6,120–5,840 (86,7%) (2σ) cal BC,
7,120±100 BP, 6,220–5,770 (95,4%) (2σ) cal BC,
7,110±120 BP, 6,220–5,730 (95,4%) (2σ) cal BC,
7,110±120 BP, 6,220–5,730 (95,4%) (2σ) cal BC,
7,080±60 BP, 6,070–5,800 (95,4%) (2σ) cal BC,
7,050±150 BP, 6,250–5,600 (95,4%) (2σ) cal BC,
7,050±80 BP, 6,030–5,730 (93,5%) (2σ) cal BC,
7,000±270 BP, 6,500–5,300 (95,4%) (2σ) cal BC,
7,000±280 BP, 6,500–5,300 (95,4%) (2σ) cal BC,
6,830±70 BP, 5,850 (95,4%) (2σ) cal BC,
6,940±80 BP, 5,930–5,660 (85,9%) (2σ) cal BC,
6,840±120 BP, 5,930–5,520 (91,5%) (2σ) cal BC,
6,850±50 BP, 5,810–5,630 (95,4%) (2σ) cal BC,
6,800±140 BP, 6,000–5,450 (95,4%) (2σ) cal BC,
6,700±150 BP, 5,900–5,300 (95,4%) (2σ) cal BC,
6,630±150 BP, 5,850–5,300 (95,4%) (2σ) cal BC,
6,510±110 BP, 5,670–5,260 (95,4%) (2σ) cal BC,
6,440±120 BP, 5,650–5,050 (95,4%) (2σ) cal BC.

Calibrated dates BC (2σ) for Cerje-Govrlevo (Fidanoski 2012, Fig. 38a, b).

6,960±50 BP 5,923–5,735 (86,9%) (2σ) cal BC,
6,955±34 BP 5,893–5,728 (94,4%) (2σ) cal BC,
6,894±34 BP 5,814–5,714 (85,9%) (2σ) cal BC,
6,516±139 BP 5,714–5,228 (94,4%) (2σ) cal BC.

Calibrated dates BC (2σ) for sites of Velušina-Porodin culture (Whittle et al. 2005).

Čuka-Topolčani
7,680±160 BP, 6,862–6,236 (87,7%) (2σ) cal BC,
7,010±190 BP, 6,253–5,558 (95,1%) (2σ) cal BC.
Vrbjanska Čuka-Slavej
6,996±24 BP, 5,981–5,807 (95,4%) (2σ) cal BC,
6,946±44 BP, 5,972–5,732 (95,4%) (2σ) cal BC.
Veluška Tumba-Porodin
6,950±120 BP, 6,034–5,635 (95,4%) (2σ) cal BC,
6,900±90 BP, 5,928–5,641 (89,2%) (2σ) cal BC,
6,890±140 BP, 6,032–5,553 (95,4%) (2σ) cal BC.

For Barutnica-Amzabegovo dates, according to stratigraphical data and comparative analyzes on the material, Gimbutas (1976b, 29) positioned the EN between 6,100–5,800 cal BC and the MN between 5,800–5,500 cal BC. According to comparative and contextual data for the transitional phase between EN and MN the values for Cerje-Govrlevo fall in the interval between 5,900–5,700 cal BC. Regarding the data for Čuka-Topolčani, Vrbjanska Čuka-Slavej and Veluška Tumba-Porodin, according to some authors, later dates are expected i.e., between 6,000 and 5,500 cal BC (Thissen 2000, 207; Naumov 2009c, 26; Fidanoski 2009a, 34).

The dataset of Bulgarian Neolithic is much larger and obtained from several EN, MN and LN sites, but still new dates are welcome (Nikolov 1992, 11–2; Todorova and Vaysov 1993, 86–91; Reingruber and Thissen 2005; Görsdorf and Bojadžiev 1996; www.14sea.org). For the purposes of this work the EN and MN dates of

the mentioned sites with available dates shall be provided below.

Calibrated dates BC (1σ) for Slatina-Sofia, Gălăbnik and Kovačevo (Reingruber and Thissen 2005).

Slatina-Sofia
6,970±60 BP, 5,970–5,780 (1σ) cal BC,
6,960±60 BP, 5,900–5,760 (1σ) cal BC,
6,940±60 BP, 5,880–5,750 (1σ) cal BC,
6,890±60 BP, 5,840–5,720 (1σ) cal BC,
6,860±50 BP, 5,800–5,675 (1σ) cal BC,
6,840±60 BP, 5,780–5,660 (1σ) cal BC,
6,830±60 BP, 5,760–5,650 (1σ) cal BC,
6,810±50 BP, 5,730–5,660 (1σ) cal BC,
6,780±60 BP, 5,720–5,640 (1σ) cal BC.
Gălăbnik
7,220±80 BP, 6,210–6,010 (1σ) cal BC,
7,120±70 BP, 6,070–5,910 (1σ) cal BC,
7,114±53 BP, 6,050–5,920 (1σ) cal BC,
7,140±80 BP, 6,090–5,910 (1σ) cal BC,
7,100±80 BP, 6,060–5,890 (1σ) cal BC,
7,030±70 BP, 5,990–5,840 (1σ) cal BC,
7,070±180 BP, 6,090–5,740 (1σ) cal BC,
7,070±60 BP, 6,010–5,890 (1σ) cal BC,
7,020±60 BP, 5,990–5,840 (1σ) cal BC,
7,020±150 BP, 6,020–5,740 (1σ) cal BC,
6,970±50 BP, 5,970–5,780 (1σ) cal BC,
6,950±70 BP, 5,900–5,740 (1σ) cal BC,
6,790±80 BP, 5,750–5,620 (1σ) cal BC,
6,760±80 BP, 5,740–5,570 (1σ) cal BC,
6,760±60 BP, 5,720–5,630 (1σ) cal BC,
6,710±60 BP, 5,710–5,560 (1σ) cal BC,
6,670±70 BP, 5,650–5,530 (1σ) cal BC.
Kovačevo
7,245±36 BP, 6,210–6,050 (1σ) cal BC,
7,222±37 BP, 6,210–6,020 (1σ) cal BC,
7,235±40 BP, 6,210–6,040 (1σ) cal BC.

7,210±40 BP, 6,100–6,010 (1σ) cal BC,
7,180±45 BP, 6,080–6,000 (1σ) cal BC,
7,157±37 BP, 6,060–6,000 (1σ) cal BC,
7,140±40 BP, 6,050–5,990 (1σ) cal BC,
7,105±40 BP, 6,030–5,920 (1σ) cal BC,
7,090±70 BP, 6,030–5,890 (1σ) cal BC,
7,055±40 BP, 5,990–5,900 (1σ) cal BC,
7,028±35 BP, 5,990–5,880 (1σ) cal BC,
6,990±45 BP, 5,970–5,810 (1σ) cal BC,
6,980±65 BP, 5,980–5,790 (1σ) cal BC,
6,975±50 BP, 5,970–5,790 (1σ) cal BC,
6,760±160 BP, 5,840–5,520 (1σ) cal BC,
6,830±85 BP, 5,800–5,630 (1σ) cal BC.

According to Todorova and Vaysov (1993, 89), the first phase of the EN in western Bulgaria is the so-called monochrome phase in which no painted ornaments are found – registered at some sites in Greece, Bulgaria and Serbia. From the sites that are the subject of this analysis, only one is included – Krajnici, determined within the earliest, monochrome or early ceramic phase (Todorova and Vaysov 1993, 75; Čohadžiev, Bakamska and Ninov 2007, 181). On the basis of the comparative method and the absolute chronology Todorova and Vaysov (1993, 89) propose the following periodization of the EN in Bulgaria: the monochrome phase or the BRN – M (Bulgarian EN – Monochrome) between 6,400–6,200 cal BC; the EN with white painted pottery Neolithic BRN – A (Bulgarian EN – phase A) (comparable to the Macedonian EN) between 6,200–5,700 cal BC; and the dark painted Neolithic or BRN – B (Bulgarian EN – phase B) (comparable to the Macedonian MN) between 5,700–5,500 cal BC.

On the basis of the absolute dates, the above mentioned authors created periodization of the Macedonian and Bulgarian EN. In this context, I propose the acceptance of the highest values according to Todorova and Vaysov for Western Bulgarian Neolithic and the highest values for Macedonian Neolithic according to Gimbutas with wider range for the EN dates, be-

tween 6,200–5,800 cal BC. The same should be made, for the MN or the second phase of the EN (phase B) according to the Bulgarian archaeological school (see below) in the interval 5,800–5,500 cal BC.

Cultures, cultural zones, blocks and complexes

By using comparative approach, primarily on the basis of analyzes of pottery and absolute chronology, in North Macedonia and Bulgaria, several cultures, cultural zones, blocks and complexes have been defined. Keyfactor for these determinations were forms' analyzis and pottery decoration. According to Todorova and Vaysov (1993, 74, 89, 98–99), monochrome vessels or Monochrome Neolithic is unequally present and scarce in the earliest appearance of Neolithic in Bulgaria and in the larger Balkans' territory. Generally, the rounded forms of red colored vessels and the appearance of a white painted ornamentation on a red (reddish) background are typical for the EN on a very wide area in the Balkans (Gimbutas 1976b, 37–65; Garašanin 1979, 92; Garašanin 1989, 27; Nikolov 1990, 11; Todorova and Vaysov 1993, 89; Sanev 1995; Nikolov 2003, 103, Sanev 2004). In North Macedonia, according to most of the authors, the next phase after EN – the MN, is characterized by identical forms that originate from the EN phase, but with a dark painted ornamentation (Gimbutas 1976b, 37–65; Garašanin 1979, 92; Garašanin 1989, 27; Sanev 1995; Sanev 2004). The MN within the Bulgarian archaeological school is only a hypothetical phase and should be referred to as late or second phase of the EN (Nikolov 1990, 11; Todorova and Vaysov 1993, 77, 78, 107; Nikolov 2003, 103; Čohadžhiev 2007, 92).

In North Macedonia, the EN is registered in three cultures: Amzabegovo-Vršnik (eastern and northwestern parts of North Macedonia), Velušina-Porodin (southwestern part of North Macedonia – Pelagonia) and Zlastrana (Ohrid region) (Fig 2) (Fidanoski 2009a, 31). These cultures were formulated by Garašanin and Sanev, with a special emphasis on the first of them, Amzabegovo-Vršnik, which, unlike

others contains also contains MN phases i.e., the phase Amzabegovo-Vršnik I belongs to the EN, and the phases II–IV to the MN (Garašanin 1979, 90–92; Sanev 1995, 29). According to Gimbutas, the LN is present at the site of Barutnica-Amzabegovo, and on the basis of her research she created chronology for the site, thus – the phase Amzabegovo I belongs to the EN, phases II–III to the MN and phase IV to the LN (Gimbutas 1976b, 29). Nikolov (1999b, 2) formulates a new group, Kremenik-Amzabegovo, and places it chronologically as second phase of the EN. Velušina-Porodin culture with the determined four phases (I–IV) belongs only to the EN, although most of the authors consider that the MN phase(s) also occurs (Garašanin 1979, 108; Simoska and Sanev 1975, 77, 78, 82; Sanev 1995, 40–42; Fidanoski 2009a, 31–32). Concerning the considered sites in this study, Barutnica-Amzabegovo and Cerje-Govrlevo belong to Amzabegovo-Vršnik culture, while Veluška Tumba-Porodin, Čuka-Topolčani and Vrbjanska Čuka-Slavej belong to Velušina-Porodin culture (Fidanoski 2009a, 34).

The Bulgarian EN sites considered in this study were included in different cultures by different authors (Fig 3). According to Todorova and Vaysov (1993, 98–105), Slatina-Sofia and Gălăbnik belong to the culture of the Western Bulgarian Painted Pottery Neolithic, and according to Nikolov (1996a, 1) and Pavúk (2007, 165) both sites form separate cultures i.e. Slatina-Sofia in its early phase belongs to the culture of Slatina, and in its later phase to that of Kremikovci (Nikolov 1999c, 1–2). Gălăbnik is the eponymous site for the Gălăbnik culture (Nikolov 1996b, 2). Phases from 1 to 7 of the Gălăbnik EN, according to Pavúk and M. Čohadžhiev, belongs to the Protostarčevo culture, and in later EN phase (parallel with the MN of the Macedonian chronology) belongs to the Starčevo culture (Bakamska 2007, 175). The above mentioned monochrome or Early Ceramic site Krajnici consisting three horizons of living, the earliest of which is characterized only by monochrome pottery and is thus determined (with-

out cultural affiliation), while the other two horizons belong to the Gălăbnič EN (Čohadžiev et al. 2007, 182). According to Nikolov (1996a, 1), Rakitovo and Kovačevo belong to a *southwestern variant* of Karanovo I culture. As far as Kovačevo is concerned, its researchers carefully place the site closer to the contact zone of Greece (Nea Nikomedeia and Giannitza) and North Macedonia (Barutnica-Amzabegovo and Veluška Tumba-Porodin), but not in Karanovo culture (Lichardus-Itten et al. 2002, 130). On the other hand, for Pavúk (2007, 165) Kovačevo should be considered a separate culture. Similar to Kovačevo, the researcher of Vaksevo (Studena Voda), S. Čohadžiev (2001, 58–59), according to the material from the earliest phases, argues that there are many similarities with Kovačevo Ia and Ib, and in the later phases with Karanovo I. The end of the site's EN (comparable to the Macedonian MN) the author places within Starčevo culture.

In archaeology, as in other related disciplines, certain terms are defined in order to obtain more detailed picture of the cultural, social and economical heritage and the reconstruction of human life in the past, while at the same time facilitating the analysis and assisting in methodological approaches. However, the specialized terminology and definition of (cultural, social, economical, etc.) prehistoric communities' categories hide many pitfalls at the very start of any analysis.

The framework of our basic notion of "archaeological culture" has proved to be very narrow for the interpretation of the observed broad-band synchronous and diachronic phenomena. This imposed the use of a new scientific toolkit which enables systematic-structural analysis. With this certain structural units, their hierarchy and the dynamics of their development can be established, which for prehistory is equal to the reconstruction of the basic, available to us, tendencies of the historical process. Lately, a number of new transregional terms have emerged, such as "cultural-historical zone", "ethno-cultural complex", "metallurgical

province" and others /.../. Of particular importance is the view that within the cultural blocks, the historical processes flow in parallel: cultures cross through synchronous stages of development, appear and leave at the same time. In this context it can be said that global historical processes are reflected in the development of the blocks. From a historical point of view, in fact, there would be no historical tendencies that concern only one archaeological culture without affecting the neighboring ones. Cultural blocks, even territorially constrained, do not represent constant formations in the diachronic plane. They react flexibly to the various changes in the natural environment and to the various influences – they reorganize internally, transformed, disappear, and reappear, so in each particular case the model of their changes should be analyzed individually. (Todorova and Vaysov 1993, 69–71)

The quotation above vividly explains the need to form new terms that would enable easier insight into the everyday life of the prehistoric man, the characteristics of the community, the elements of culture and the structure of economy. Having in mind the above mentioned cultures in North Macedonia and Bulgaria (especially the different cultural determinations for the western Bulgarian sites), the question arises whether a more developed system is really needed – *a new scientific toolkit which enables systematic-structural analysis*, by means of which – *certain structural units, their hierarchy and the dynamics of their development can be established?* Before addressing this question, a little bit more about the cultural zones, blocks and complexes should be said.

As it was already stated, Kovačevo (I) according to its researchers (Lichardus-Itten et al. 2002, 130), is the core site of a wide zone of close influence between it, Giannitza and Nea Nikomedeia in Greece, as well as Veluška Tumba-Porodin and Barutnica-Amzabegovo in North Macedonia. According to Pavúk (2007, 165), the cultures of Gălăbnič, Slatina-Sofia and Amzabe-

govo-Vršnik belong to the Starčevo and Protostarčevo zones, and the cultures Kovačevo (Bulgaria), Velušina-Porodin (North Macedonia), Giannitza (Greece) and Podgori (Albania) in the southern trans-Balkan zone or in the zone of Sesklo (Greece) – which reaches Protostarčevo in its northern boundary. Nikolov (1990, 11) defines, in the wider Central Balkans region, four ethnocultural complexes: Kremenik-Amzabegovo, Kremikovci, Gradešnica-Kărča and Starčevo. In the literature of former Yugoslavia, and mainly for that territory, the following four zones were suggested: *Central Balkan*, *Adriatic*, *Transitional* and *Northern* (Benac, Garašanin and Srejović 1979a, 24). In the course of defining the sites and cultures' characteristics, in the former Yugoslavian science and wider, the *Balkan-Anatolian EN complex* and the *Northern Balkans-Panonian complex* (Benac, Garašanin and Srejović 1979b, 642) are also known. Todorova and Vaysov (1993, 74), for the *Balkan-Anatolian EN complex* refer as *Balkan-Anatolian cultural block*. Within the Adriatic zone, the cardium-impresso culture was determined (Batović 1979, 484), that Todorova and Vaysov (1993, 74) insert into a wider geographical and cultural area, the so-called *Mediterranean EN block*. Finally, the same authors, Todorova and Vaysov (1993, 77), the second or later phase of the EN (according to the Bulgarian archaeological literature) or the MN (according to the Macedonian literature) in the Central Balkans region and Thessaly, established the complex of EN cultures with painted pottery.

Bearing in mind the already discussed models for cultural determination and interpretation, it is noticeable that many sites were included in different cultures, zones, blocks and complexes, often artificially determined. This, in my opinion, is due to the complexity of the rich material culture from a large territory in the Balkans, which contains both similarities and differences. The problem is even more pronounced with the almost regularly encountered cultural occurrence at the sites – the thick deposits of several layers, whose phases rarely coincide with each other, and also at some sites the phase-to-

phase gaps are registered. In the end, Balkan prehistoric archaeology, on the basis of a large database, quite inadvertently, enters the trap of predetermined (artificial) models created by the need for defining material culture.

Neolithic legacy: pottery, architecture and animal husbandry

From the archaeological investigations of Macedonian and Bulgarian sites a rich fund of movable and immovable cultural heritage has been collected. Previously, on several occasions, the significance of the material culture was underlined in the attempt to reconstruct the Neolithic populations' life on this territory. Therefore, in the analysis below, I will look at three key elements of this really rich prehistoric period: pottery, architecture and animal husbandry.

Pottery

One of the key Neolithic innovations was pottery. Aside its significance in social, economical and cultural means, especially in the mental shifts of the first communities that created it, its mass appearance at Neolithic sites is obvious. The Balkans' Neolithic pottery is known by its high quality and quantity and thanks to it, the image of the Neolithic continuity was created.

About the Balkans' Neolithic pottery, a lot of studies have been published so far, more or less, based on the basic elements for pottery research and analysis (Shepard 1956; Rice 1987; Sinopoli 1991; Nikolov 1998). The properties, meaning and significance of EN, MN and LN pottery from the Macedonian and Bulgarian sites were elaborated in numerous works (Gardner 1976; Gimbutas 1976b; Mock 1976; Mount-Williams 1976; Garašanin 1979; Nikolov 1982; Sanev 1995; Nikolov 1998; Nikolov 2002b; Čohadžhiev 2007; Vaysov 2007; Fidanoski 2009b; Lichardus-Itten 2009; Salanova 2009; Vieugué, Gormart and Salanova 2010, Angeleski 2012). The main focus here will not be manufacturing technology, forms' analysis or classification, but the comparative aspect of pottery collected on different sites and regions in both countries.

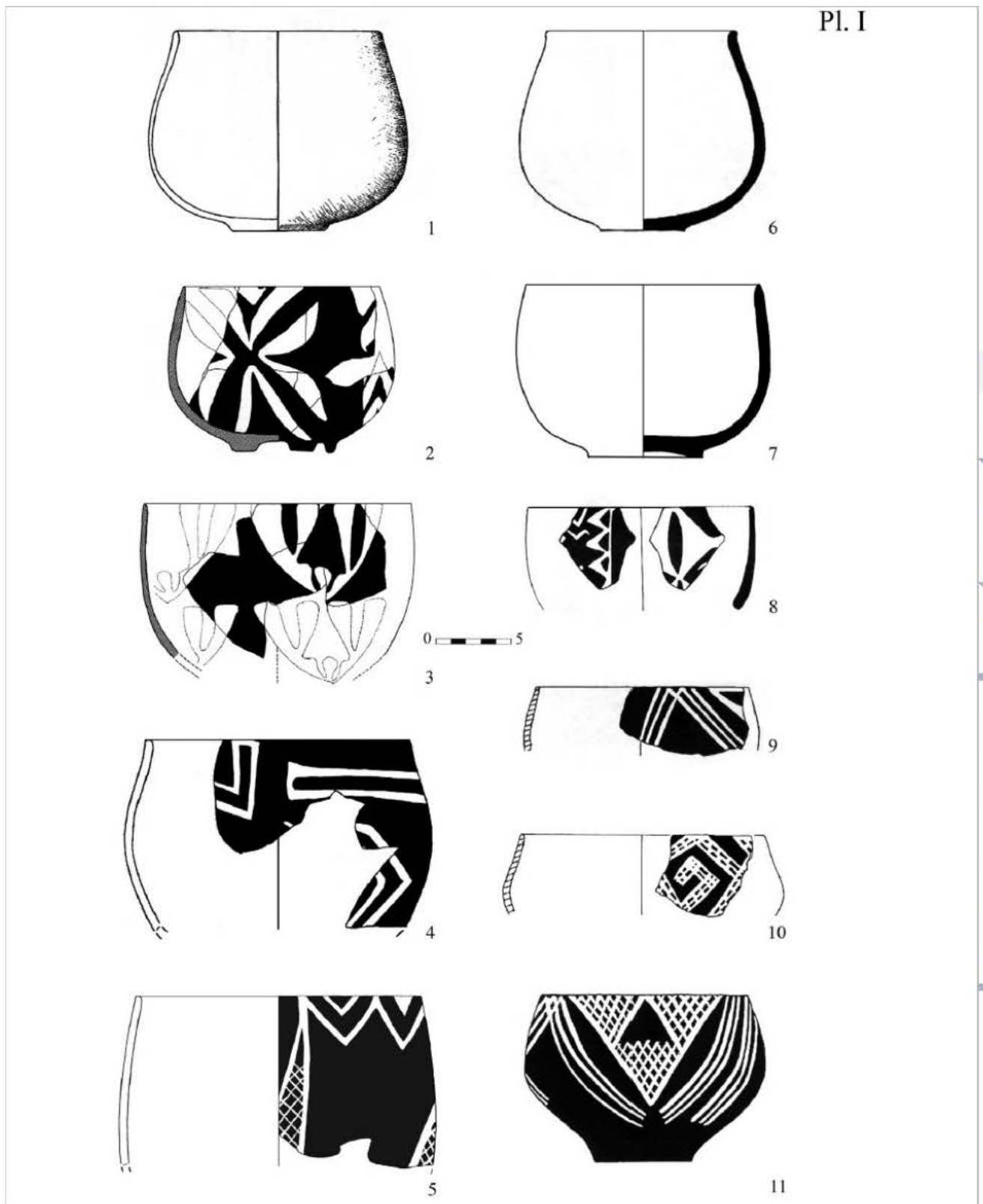


Figure 4. North Macedonia Barutnica-Amzabegovo. 1 (Fidanoski 2009b, Pl. 16, 2); 2, 3. (Garašanin and Garašanin 2009, T. III, 1, 170; T. VI, 2, 173); Cerje-Govrlevo 4, 5 (Naumov 2009d, Fig. 85, 3, 125); Bulgaria Slatina-Sofia. 6 (Nikolov and Sirakova 2002, Taf. 9, 4, 187); Krajnici 7 (Čohadžhiev et al. 2007, Fig. 6, 2, 185); Vaksevo 8 (Čohadžhiev 2001, Fig. 28, 16, 97); Kovačevo 9–11 (Lichardus-Itten et al. 2002, Pl. 15, 3, 8, 2, 151).

In literature the Balkans' EN pottery is recognized by rounded forms, especially the most characteristic vessels – bowls and jars (and jar-like forms). The most common color is red with various dark and pale nuances, on which (especially on the bowls) is painted ornamentation with white or black pigment. It should be stressed that painted pottery is very scarce on the sites bearing individual and collective, technological, symbolical and social properties within the communities, thus being one of the more relevant chronological and cultural markers for comparison. *Jars* (jar-like) vessels comprise many different types, some of their variants are almost identical with bowls and interestingly they can be decorated by almost all known Neolithic decoration techniques. Hence, apart from the characteristic forms and decorations the comparisons of these vessels decorated with rarely practiced techniques, between one site and another, that is, between culture and culture, can lead to more confusion. The situation is worse with the *plates* – the most abundant form on the Neolithic sites, which are chronologically and culturally almost indifferent of changes in the EN and MN phases/periods.

Bowls are one of the abundant forms in Balkans' EN and MN pottery represented by many variants and subtypes. According to Stoilov-Bunkera (1992, 130), the bowls from Slatina-Sofia, were coil made (building a vessel of clay bands which are placed in vertical rows one above the other, later covered with wet clay), which can be accepted as the main manufacturing technique for other EN and MN Balkan Neolithic sites. In the EN phase of Amzabegovo-Vršnik culture the bowls are characterized by (almost) equal height and width of the rim (Fidasoski 2017b, 126), and very often have a slightly larger belly diameter (Fig. 4: 1–5). Generally, the rim is stressed and the bottom can be flattened (Fig. 4: 1, 2) or discoid (placed on a very shallow ring) (Fig. 4: 2). Similar forms can be found in Cerje-Govrlevo (Fig. 4: 4, 5). The specimens from Barutnica-Amzabegovo in some cases have two or four handles resembling vertically perforated,

massive applied ellipsoid clay mass (Fidasoski 2009b, Pl. 15, 5, 6, 11). There are almost identical variants from the earliest living horizons of Slatina-Sofia (Fig. 4: 6) and Krajnici (Fig. 4: 7). One specimen from Vaksevo (Fig. 4: 8) is very similar to the more opened bowl from Barutnica-Amzabegovo (Fig. 4: 3). The bowls with slightly closed rims – the variants of Kovačevo (Fig. 4: 9–11) are similar with two from Barutnica-Amzabegovo (Fig. 4: 1, 2). Closeness of these variants is also noticed in the MN (the second phase of the EN according to the Bulgarian literature), where the same forms continue, with one difference – the appearance of high conical, hollow leg (a feature which should be regarded conditionally, see Fidasoski and Tomaž 2018, 138). However, the presence of these (MN) legs is well documented in the MN layers of Barutnica-Amzabegovo (Fig. 7: 1–3), Cerje-Govrlevo (Fig. 7: 4, 5) and in the later horizons of Gălăbnik (Fig. 7: 6, 11). The bowls' dimensions vary between 14 and 20 cm, rarely exceeding the larger value.

These vessels' color varies in all hues of red, orange, brown and even black. Namely, one of the characteristics of the EN pottery (and also MN in the Macedonian literature) according to literature so far, is the red-engobed bowls production. Generally, it is considered that on their surface the painted ornaments with pale hues of white and yellowish pigment, are typical for the EN (Fig. 4), and in the MN the bowls painted with ornaments of reddish, brownish and black pigment (Fig. 7). However, the cultural and chronological differentiation on the basis of this pale and dark ornamentation should also be considered conditionally (Gardner 1976, 171; Fidasoski and Tomaž 2018, 138). Concerning the ornamental systems the white painted bowls from Barutnica-Amzabegovo and Vaksevo are characterized by more dynamical, even 'organical' (vegetal?) motifs, unlike those from Cerje-Govrlevo and Kovačevo painted with geometrical motifs. However, due to limitations of space to present here all the white painted specimens from the mentioned sites, I underline that depending on the EN stages/phases

es or affinities, two general types of motifs can be found at all sites. Here, only those who illustrate the greatest similarities are presented. The situation with MN bowls is similar, hence the stricter geometrical-linear motifs and compositions are found in Barutnica-Amzabegovo (Fig 7: 1, 2), Cerje-Govrlevo (Fidanoski and Tomaž 2018, Figs. 22, 23), Gălăbник (Fig 7: 6) and Slatina-Sofia (Fig 7: 7). The more dynamic compositional structures of this phase/s include certain almost figural representations created by spiraloid or/and meandroid rows, such as in Barutnica-Amzabegovo (Fig 7: 3), Cerje-Govrlevo (Fig 7: 4, 5), Gălăbник (Fig 7: 10, 11) and Slatina-Sofia (Fig 7: 8, 9). However, it should be pointed out that the MN dark painted bowls are very similar in forms and ornamentation structures on a much larger territory than North Macedonia and western Bulgaria. Such specimens are often discovered in Kosovo, Serbia, Croatia and Romania, thus providing space for more general interpretations such as establishing cultural complexes in the literature especially in the past. Therefore, it is understandable that this period is often identified as EN (or MN) period (or culture) of Starčevo.

The bowls from Velušina-Porodin culture belong exclusively to the EN, bearing in mind that MN phase(s) was not documented (see in the previous chapter). The only specimen (from Vrbjanska Čuka-Slavej) which is similar to the previous ones from this culture (Fidanoski 2009b, Pl. 44, 18), clearly demonstrates the cultures' admixtures and problems of interpretation and periodization. Concerning manufacturing technology, it is safe to say that it is the same as the above mentioned. Having in mind the typological spectrum of the pottery of Velušina-Porodin sites, I consider that the essential characteristics of this culture are the bowls forms, as well as jars with high necks (Fidanoski 2009b, Pl. 34, 5; Pl. 43, 12; Pl. 67, 1-3). The bowls of this culture have elongated forms, slightly or heavily stressed rim inwards, rounded or carinated belly that almost always ends in a rounded or slightly flattened bottom (Fig 5: 1-6). The cari-

nated bowls from Čuka-Topolčani (Fig 5: 1) and Veluška Tumba-Porodin (Fig 5: 2, 3) have direct analogies in the material from the earlier horizons of Gălăbник (Fig 5: 7-9), showing minimal differences in the milder belly carination and the discoid bottoms, and even in some cases also with the high cylindrical formed bottom (Fig 5: 7). The rounded bowls of Veluška Tumba-Porodin (Fig 5: 4) and Vrbjanska Čuka-Slavej (Fig 5: 5, 6), on the other hand, point to close analogies with the material from the early living horizons of Slatina-Sofia (Fig 5: 10, 11) and Rakitovo (Fig 5: 12). The specimens from Vrbjanska Čuka-Slavej are also interesting for their unique decoration – the protuberances, which are typical only for this site. Given that there is scarcity of published material on paint-decorated bowls from Velušina-Porodin culture, except one white painted specimen with motifs in the form of the Greek letter Σ (Todorova and Vaysov 1993, Fig. 59, 69), as well as several jars and jar-like vessels with the same ornamentation, Pavúk (2007, Abb. 2, 13, 168) logically finds, on the basis of ornamentation, analogies in Kovačevo. Additional interpretation problems in the comparative and cultural studies are the various composition systems painted on the bowls from Gălăbник and the specimens from Slatina-Sofia. Namely, two of the Gălăbник bowls (Fig 5: 7, 9) have some analogies in ornamentation with some specimens from Velušina-Porodin culture. These also have similarities with the ornamentation of Amzabegovo-Vršnik culture, and finally one specimen of Gălăbник (Fig 5: 8) and one of Slatina-Sofia (Fig 5: 10), on the basis of the ornamentation, have no close analogy with the other sites or cultures. Given the complexity of the ornamentation, both within and out of the sites, the focus should be set more on forms than decoration, thus I consider that Veluška Tumba-Porodin and Vrbjanska Čuka-Slavej have a great familiarity with Gălăbник, Slatina-Sofia and Rakitovo.

Two more phenomena that can be seen on the EN (and MN) painted pottery from western Bulgaria should be noted, but in North Macedonia they are very rare or do not exist. The painted

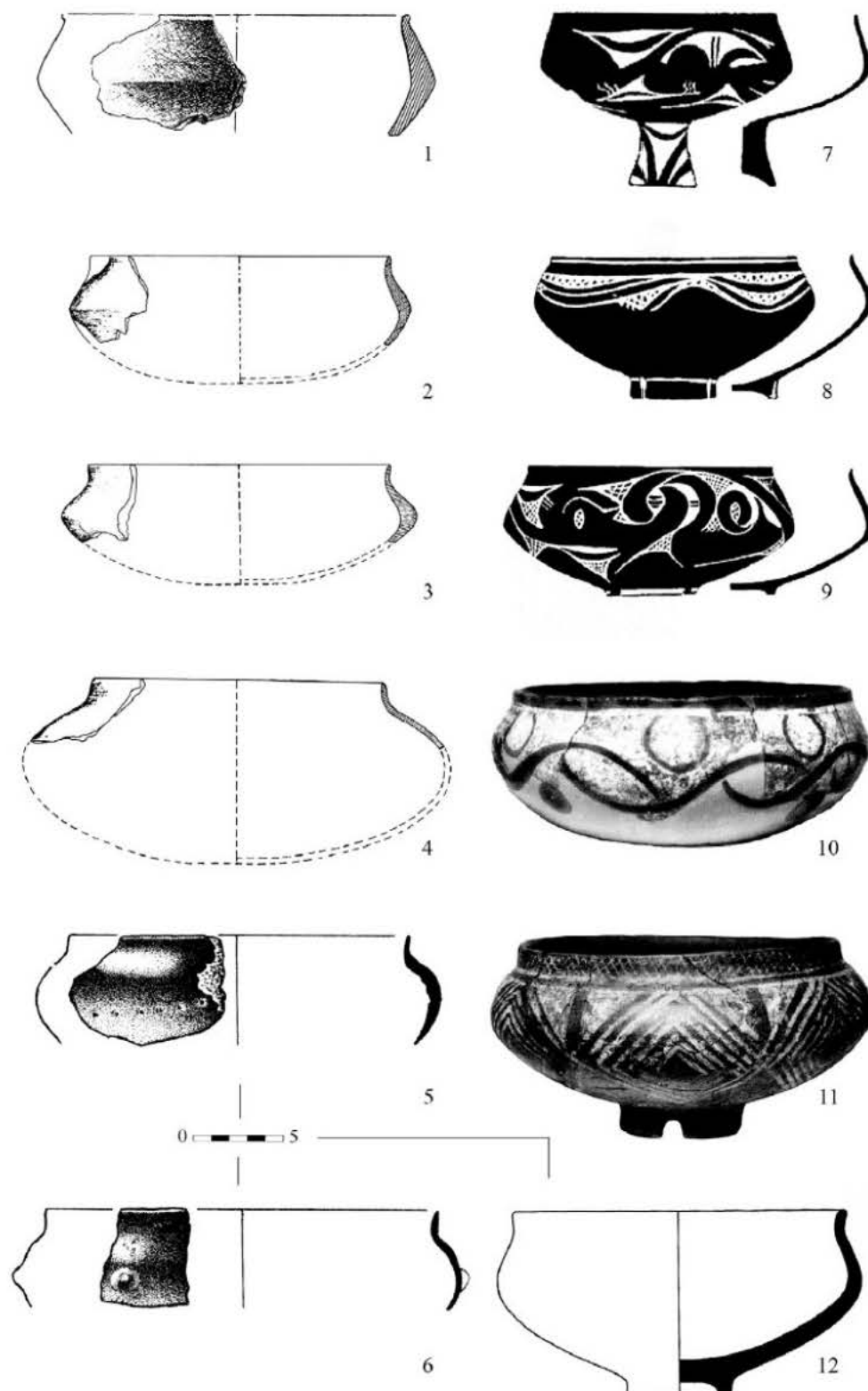


Figure 5. North Macedonia Čuka-Topolčani 1 (Fidanoski 2009b, Pl. 39, 8); Veluška Tumba-Porodin 2-4 (Fidanoski 2009b, Pl. 30, 2-4); Vrbjanska Čuka-Slavej 5, 6 (Fidanoski 2009b, Pl. 41, 15, 16); Bulgaria Gălăbnik 7-9 (Pavúk 2007, Abb. 3, 6-8, 169); Slatina-Sofia 10, 11 (Todorova and Vaysov 1993, Fig. 41, 42, 299); Rakitovo 12 (Macanova 2002, Taf. 12, 2, 217).

ornamentation of the (visible parts of the) bottoms, especially the higher ones, is nowhere to be found in Macedonia. Also painting of the plates (both on the inside and outside), which is especially common in western Bulgaria, is very rare in North Macedonia.

The precise conceiving and employment of the painted compositions, as well as the active using of the iconography in the accentuation of the local identities clearly indicates the mental capacity of the Neolithic populations which settled Macedonia and the Balkan Peninsula in general. This potential for detailed organizing of a micro space (a vessel), but also a larger cultural environment (a settlement), points to the complex character of the visual culture applied in the symbolic communication. Hence, it can be considered that the painted compositions did not content geometrical principles only for the simple enhancement of the vessels, but also because of the implementation of more complex and essential concepts of the Neolithic communities. The employment of symmetry within the imagery media is often in relation with the metaphorical transposition of the permanent values of one culture and its essential living processes.

In this context it can be considered that the Neolithic painted compositions were closely related to the processes that consolidate the unity of the communities and made possible the maintenance of their continuity. (Naumov 2009d, 125)

One could conclude that every closed geographical space (valley or plain) enabled suitable conditions for isolated, independent existence of the communities, which succeeded to develop specific visual characteristics in each region for a really short time. It points to the fact that the communities inhabiting these regions: i) have already had developed authentic visual features, prior to settling there, ii) developed new local visual identities contacting with the native

Mesolithic populations and iii) gradually formed autochthonous cultural characteristics as they moved from the point of origin, regardless of whether those were Thessalian or Anatolian settlements.

Later, probably in the following Neolithic phases [in North Macedonia], a more intense communication among these regions commenced, which resulted in occurrence of similarities in the painted patterns, alternately in each region. Such visual communication culminated in the Middle Neolithic when within what is now considered Amzabegovo-Vršnik group, identical motives and composition units could be identified, equally in the regions of Ovče Pole, Skopje and Polog. In the same period the communities from Pelagonia continued using the 'old' visual elements on the vessels, which shows that the Early Neolithic traditions have much longer continuance in this region, partly entering what could conditionally be referred Middle Neolithic. (Naumov 2009d, 23)

Of special interest is one unusual variant of jars with a horizontally elongated form, an almost imperceptible rim (which seems more like an opening in the body than a rim), and a rounded bottom (Fig. 6: 3–6). Such variants of jars are very rare in Balkan's EN (and MN) even for well-studied collections. Within this study five specimens are analyzed: Vrbjanska Čuka-Slavej, Čuka-Topolčani and Veluška Tumba-Porodin from Velušina-Porodin Culture; Rakitovo (Karavano culture) (Nikolov 1996a, 1); and Čavdar from the culture of Western Bulgarian Painted Pottery Neolithic (Todorova and Vaysov 1993, 20, 293, 97–99). The specimen from Vrbjanska Čuka-Slavej (Fig. 6: 3) is unique due to its perforated (horizontal) handles, but given its slightly carinated form it is analogous with the jar of Veluška Tumba-Porodin (Fig. 6: 5). The jars from Čuka-Topolčani (Fig. 6: 4), from Rakitovo (Fig. 6: 6) and Čavdar are characterized by a well rounded form. That these vessels probably bear more than only utilitarian purpose, can be

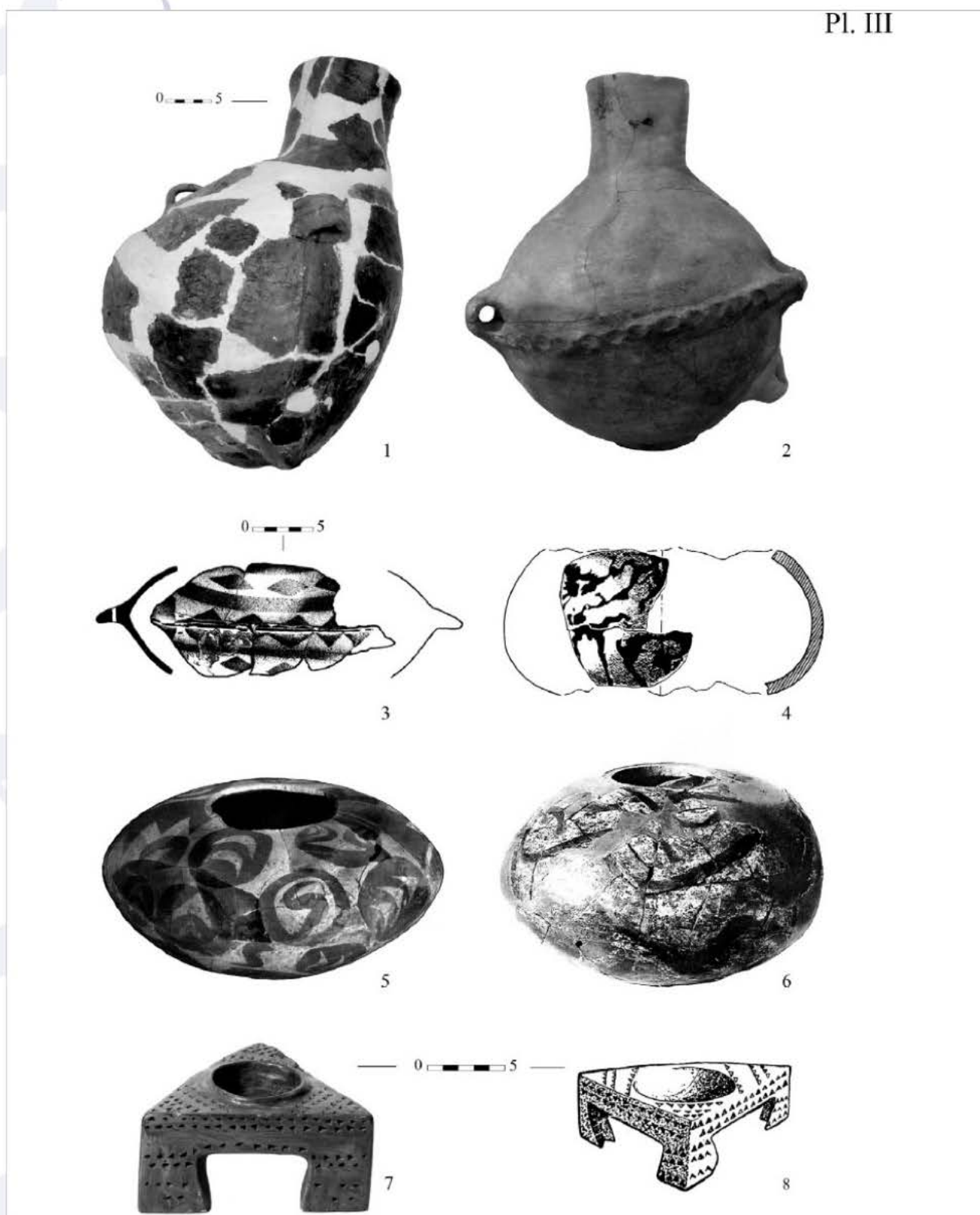


Figure 6. North Macedonia Cerje-Govrlevo 1 (Fidanoski 2011, Fig. 21, 85); 7 (Fidanoski 2012, Fig. 62); Vrbjanska Čuka-Slavej 3. (Fidanoski 2009b, Pl. 42, 6); Čuka-Topolčani 4, 5 (Fidanoski 2009b, Pl. 40, 1; Pl. 66, 5); Bulgaria Vaksevo 2 (Čohadžiev 2001, Fig. 19, 88; photo by Lj. Fidanoski); Rakitovo 6 (Macanova 2002, Taf. 12, 2, 217); Krajnici 8 (Tchohadjiev and Bakamska 1990, Tabl. 25, 1, 75).

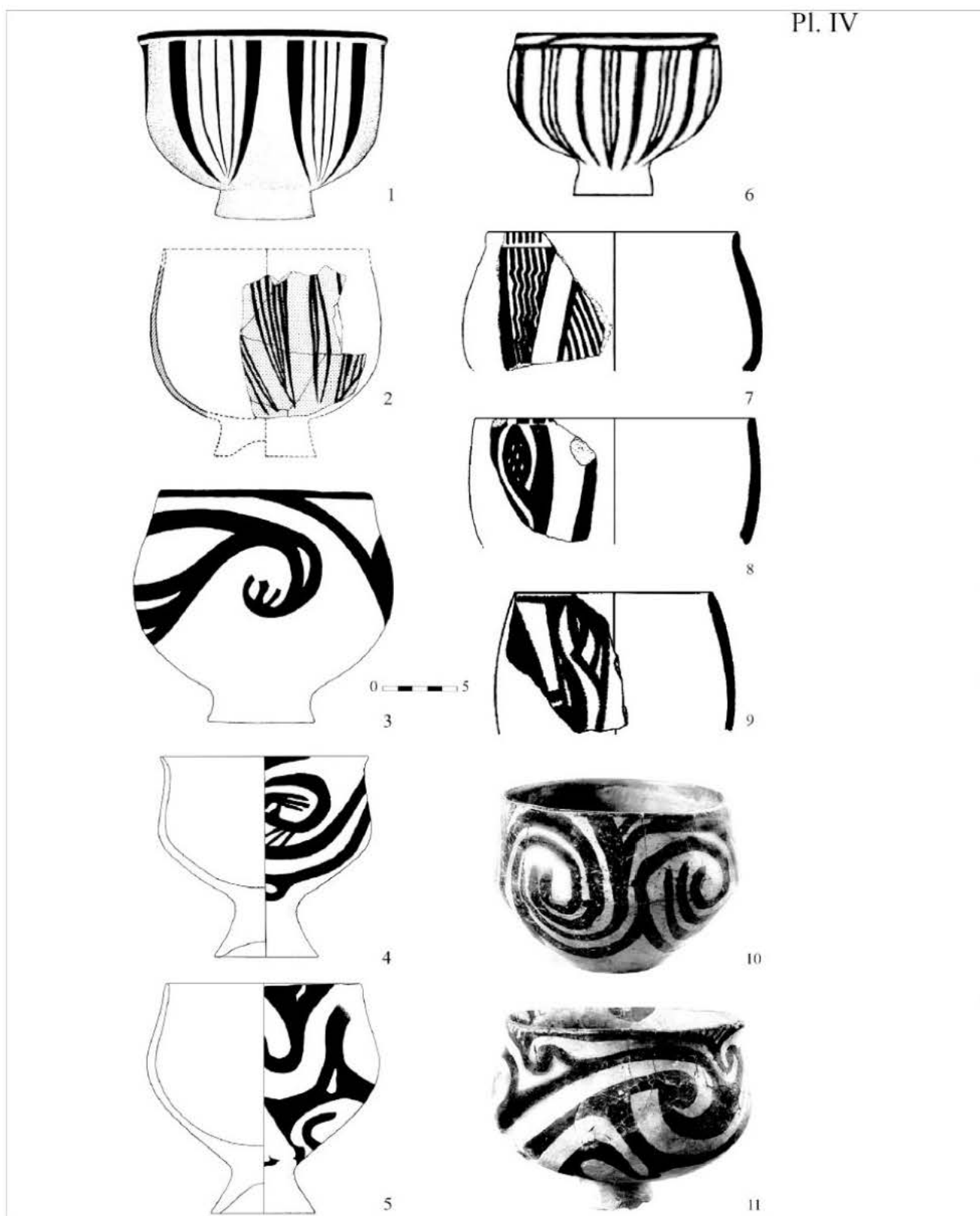


Figure 7. North Macedonia Barutnica-Amzabegovo 1, 3 (Gimbutas 1976b, Fig. 35. 2, 58; Fig. 29. 1, 52); 2 (Garašanin and Garašanin 2009, T. XXI, 1, 188); Cerje-Govrlevo 4, 5 (Fidanoski 2009b, Pl. 58, 4, 5); Bulgaria Gălăbnik 6 (Čohadžiev 1990, Fig. 7, 11, 14); 10, 11 (Todorova and Vaysov 1993, Fig. 11, 12, 292); Slatina-Sofia 7-9 (Sirakova 2004, Fig. 1, 2, 16; Fig. 2, 1, 18; Fig. 4, 2, 22).

concluded based on the painted ornamentation (with pale white paint on their entire surface, except for the specimen from Čuka-Topolčani, which has dark brownish/black paint). Their composition is dynamic and diverse, for which is difficult to find analogies in related cultures.

Askoi are rarely found in the Neolithic, with the exception of some sites in North Macedonia, but this is a topic for another study. Of interest for this paper is the askos discovered in Vaksevo, which has analogies with the specimens from Cerje-Govrlevo, thus suggesting very probable communication (Fig. 6: 1, 2). Here presented specimen from Cerje-Govrlevo (Fig. 6: 1) is typical for the site – with an eccentrically manufactured neck on an irregularly rounded belly (the severe irregularity probably derives from secondary reasons as layer/deposit destructions and fire), while the one from Vaksevo (Fig. 6: 2) is characterized by a centrally placed neck on a curved belly. Minor differences are present within the handles' position – the handles on the specimen from Cerje-Govrlevo are placed more apart and the fifth handle is placed higher, than those on the specimen from Vaksevo.

At the very end, I point to two more specimens of ceramic objects. This category of objects contains a wide range of artifacts: anthropomorphic and zoomorphic representations, altars, tables, models of houses, anthropomorphic models of houses, and sometimes a combination of some of them – well defined by Naumov (2010, 234) as *Neolithic concepts of hybridism*. Given the economical, social and symbolic complexity of this ceramic objects' category, a completely different analysis is needed to clarify some of the questions arisen concerning these objects. For this study, I decided to present only two almost identical altars of three-legged tables found in Cerje-Govrlevo (Fig. 6: 7) and Gălăbник (Fig. 6: 8). They are made of bulky clay lump, well flattened and smoothed on the upper surface with a shallow oval recipient, placed on three legs on the corners, thus forming a triangular object. Both specimens have the same ornaments of triangular incisions in parallel rows on the upper

surface and on the legs. In a word, they are very interesting for this study given that they appear as if they were made by one manufacturer.

Architecture

The settlement of Cerje-Govrlevo was positioned on a flattened terrace (plateau) on a mountain slope, surrounded by two streams and several mountains (Bilbija 1986, 35). Relatively similar to the previous one is the settlement of Barutnica-Amzabegovo which was settled on a river terrace, in a hilly relief (Weide 1976). Both of them belong to the so-called flat settlements (or settlements on river terraces). In contrast, the settlements in Pelagonia – the ones of Velušina-Porodin culture are mounds, such as Veluška Tumba-Porodin, Čuka-Topolčani and Vrbjanska Čuka-Slavej, thus artificially made, slightly higher than the surrounding area. Pelagonia Plain which is the largest plain in North Macedonia is characterized by small rivers and swamps in some periods of the year (Naumov et al. 2018, 256–57). These not so high elevations (mounds or tells), referred as *mogila*, *čuka* or *tumba*, are often the toponyms from which the name was derived. In western Bulgaria, low elevated settlements are rare, unlike flat settlements on river terraces, which in Thrace is opposite (Todorova and Vaysov 1993, 150). Except Gălăbник, being a mound – has settlement analogies with the Pelagonia sites (artificial elevation), the rest of them (Slatina-Sofia, Krajnici, Vaksevo, Kovačevo and Rakitovo) were positioned on river terraces in the immediate vicinity to mountainous relief (Nikolov 1992; Todorova and Vaysov 1993, 150; Lichardus-Itten et al. 2002; Bakamska 2007, 175; Čohadžiev 2007; Čohadžiev et al. 2007, 182). In that context, the affinity of settling flat areas on river terraces in Amzabegovo-Vršnik culture and almost all sites in western Bulgaria, except Gălăbник is evident – unlike the settlements of Velušina-Porodin culture and Gălăbник.

Concerning architecture, in all the sites included in this paper, without exception one common element is present – the aboveground houses were built of wooden construction daubed in

clay (Čohadžhiev 2007, 63, Tolevski 2009, 61–62). However, within three settlements: Barutnica-Amzabegovo, Gălăbник and Kovačevo, the mud-brick technique has also been used (Gimbutas 1976b, 32, 34; Čohadžhiev 2007, 63). Talking about houses' groundplans, there are examples with a rectangular, square and trapeze plans. Houses with rectangular and square foundations were discovered in Cerje-Govrlevo, Veluška Tumba-Porodin, Vrbjanska Čuka-Slavej and Gălăbник (Grbić et al. 1960, 12; Mitkoski 2005, 33, 35; Čohadžhiev 2007, 63, Fidanoski 2012, 35). The houses with a trapezoidal groundplans are much more frequent and are registered in Cerje-Govrlevo, Barutnica-Amzabegovo, Veluška Tumba-Porodin, Slatina-Sofia and in large number in Rakitovo (Grbić et al. 1960, 20; Nikolov 1999d, 101; Radunčeva 2002, 14–33, 50; Sanev 2009b, 40; Fidanoski 2012, 35). Concerning objects' size (Grbić et al. 1960, 12; Zdravkovski 1990, 75–6; Nikolov 1999c, 101; Radunčeva 2002, 14–33; Mitkoski 2005, 33, 35; Čohadžhiev 2007, 63; Sanev 2009b, 40; Fidanoski 2012, 35, 41), there are houses with different dimensions, as in

Cerje-Govrlevo (4 x 4,5 x 4,5 x 4,7 m, 5,5 x 5,5 m, 7,6 x 6 m);

Barutnica-Amzabegovo (8,3 x 8,7 m);

Veluška Tumba-Porodin (6 x 4 m, 12 x 11 m);

Vrbjanska Čuka-Slavej (9 x 12,5 m – first house phase of house 1, 11,3 x 13 m – second phase of house 1, 8,7 x 10,3 x 4,9 m);

Gălăbник (4,5 x 5,7 m, 5,2 x 6,7 m, 6,6 x 7,2 m, 7,4 x 6,8 m, 7 x 8,8 m);

Slatina-Sofia (9,7 x 9,3 x 12,4 x 12,3 m);

Kovačevo (4 x 4 m, 4 x 6 m, 5 x 6 m, 10 x 10 m) and

Rakitovo (second EN phase – 7,4 x 7,4 x 3 x 3,1 m, 7,4 x 7,4 x 4,3 x 6 m, 7,5 x 4 x 3,8 m, 7 x 7 x 4 x 3,5 m, 7,4 x 6,5 x 3 x 4 m, 7,6 x 7,8 x 7,6 x 5 m, first EN phase – 4 x 5,5 x 2 x 1 m, first phase of house 13 – 5,5 x 5,5 x 3,5 x 4,7 m, second phase of house 13 – 4 x 7,5 x 4 x 8 m, 10 x 7 x 3 m).

Of particular interest for the topic is another element (except the inventory in which almost always an oven was constructed, and sometimes even a parapet walls) – the floor construction. In general, the most common are two techniques: 1. a thick layer of tamped clay and over it another final layer of clay/mud and 2. a construction of parallel wooden piles covered by clayish layer. Unfortunately, in this respect, we do not have much data except for Slatina-Sofia, where a well-preserved house whose floor is derived from the second technique was documented (Nikolov 1992). In North Macedonia, both in Cerje-Govrlevo and Veluška Tumba-Porodin, both techniques are used, with one difference. In the first settlement within the earliest phase of living, the floor was made with the second technique, and in the following (MN phases) the floors were made by the first technique – which is vice versa in Veluška Tumba-Porodin (Simoska and Sanev 1975, 44; Fidanoski 2012, 47).

Animal husbandry

Analyzing the faunal remains of the Balkans' EN and MN sites, several regional tendencies can be noticed. Unfortunately, in North Macedonia archaeozoological analyzes are rare (Ivkovska 2009, 53) and hence, the data on this important economical, social and cultural aspect is very limited. However, the faunal analyzes of the material from all phases of Barutnica-Amzabegovo are thorough, from which the ones belonging to the EN (phase I) and the ones of the MN (phases II and III) are the most interesting for this study. In contrast to North Macedonia (Bökönyi 1976, Tab. XXXIII), in Bulgaria (Bökönyi 1992, Tab. 1; Ninov 2001, Tab. 8; Bencke and Ninov 2002, 558; Kovačev and Georgiev 2002, Tab. 1; Čohadžhiev 2007, Tab. 6) the level of archaeozoological data is much better:

Barutnica-Amzabegovo (domestic animals from phase I – 96,58%, from phase II – 97,07% and from phase III – 94,23%; wild animals from phase I – 3,42%, from phase II – 2,93% and from phase III – 5,76%);

Kovačevo (domestic animals – 97,2% and wild animals – 2,8%);

Slatina-Sofia, horizon 1 (domestic animals – 90,64% and wild animals – 9,36%);

Krajnici (domestic animals – 87% and wild animals – 13%);

Rakitovo (domestic animals – 70,79% and wild animals – 29,21%) and

Vaksevo (domestic animals – 69,8% and wild animals – 28,4%).

Concerning domestic animals distribution, more differences were noted. So, apart from everywhere marginally present dogs, the relations between sheep/goat, cattle and pig differ in all sites (Bökönyi 1976, Tab. XXXIII; Kovačev 1988, Tab. 8; Bökönyi 1992, Tab. 1; Ninov 2001, Tab. 8; Benecke and Ninov 2002, 558; Čohadžhiev et al. 2007, 188):

Barutnica-Amzabegovo (phase I: sheep/goat – 78,3%, cattle – 9,6% and pig – 8,26%; phase II: sheep/goat – 72,4%, cattle – 13,47% and pig – 9,87% and phase III: sheep/goat – 76,42%, cattle – 6,84% and pig – 8,83%);

Kovačevo (sheep/goat – 52,6%, cattle – 29,8% and pig – 17,6%);

Slatina-Sofia, horizon 1 (sheep/goat – 42,86%, cattle – 46,68% and pig – 9,98%);

Krajnici (sheep/goat – 38,8%, cattle – 55,5% and pig – 5,7%);

Rakitovo (sheep/goat – 28,98%, cattle – 62,81% and pig – 7,79%) and

Vaksevo (sheep/goat – 12,38%, cattle – 64,6% and pig – 21,23%).

According to the faunal remains one general conclusion can be made: the dominant economical aspect of EN and MN sites is stockbreeding, the role of hunting is marginal, with almost equal distribution in Barutnica-Amzabegovo, Kovačevo, Slatina-Sofia and Krajnici, while in Rakitovo and Vaksevo the hunting had more important role. As for the domestic animals distribution, the higher percentage of sheep and goat in Barutnica-Amzabegovo and

somewhat less in Kovačevo, in Slatina-Sofia, the sheep/goat distribution is more or less equal with cattle, whereas in Krajnici, Rakitovo and Vaksevo, the cattle was preferred. Ivkowska (2009, 61–63) believes that this is primarily due to the climate – the cattle favors humid climate, unlike sheep and goat that prefer drier and warmer climates. Therefore, according to her, closer analogies with regard to the livestock structure have the southern (warmer and drier) parts of the Balkans – North Macedonia and Greece, while the Bulgarian and Serbian Neolithic animal husbandry is more oriented towards animals which prefer more humid environment.

Concluding remarks

Thanks to the archaeological research in the Balkans, today we have a vivid image of the Neolithic processes on this territory. The accumulated knowledge on this remarkable period of human history has already been more than a century old. But, still there is a plenty of space for new analysis and research, not only of newly discovered sites, but also for those who are well known today. The processes of Balkans neolithization, the earliest settlements, their development and communications even today present a challenge for many authors.

Based on the knowledge so far, the significance of the natural pathways for the first Neolithic settlers in the Balkans, the river flows of Vardar, Bregalnica, Struma, Mesta and others is confirmed. It was along their streams that the earliest Neolithic pioneers were moving and communicating with the remote regions of Pelagonia, Skopje and Ovče Pole Plains, the Struma Valley, the Sophia, Pernik and Radomir Plains, the Rhodope massif, etc.

In accordance with absolute chronology, relative chronology and the comparative method, the time intervals and phases in which the Neolithic communities flourished in the Balkans. Although there are still ambiguities regarding periodization, it can be concluded that in the period from 6,200 to 5,800 cal BC a large number of micro-regions were inhabited in North Mace-

donia and Bulgaria. In the period from 5,800 to 5,500 cal BC there is an absolute dominance of a large community/ies, regardless of whether we refer to it as the second phase of EN, MN, developed Neolithic, Starčevo, Amzabegovo-Vršnik, Kremikovci, Kremenik, etc.

In order to improve our knowledge about the Neolithic in North Macedonia and Bulgaria based on the analogies or closeness of the material culture, many cultures, cultural zones, blocks and complexes have been established. However, at this point they are not of great benefit because of the specificity that every site carries, especially in the EN. Without undermining the significance of the hierarchy in systematic and methodological approaches – long time ago introduced into archeology – material culture does not allow an absolute generalization of the communities that lived on this territory (and basically everywhere in the world) during a particular period. On the other hand, cultures and complexes are already firmly grounded in the archaeologists' minds; so, on this territory there are several cultures formulated: Amzabegovo-Vršnik, Velušina-Porodin, Western Bulgarian Painted Pottery Neolithic, Gălăbник, Slatina, Kovačevo and Karanovo culture – all of these considered as members of the Balkan-Anatolian EN Complex. In this analysis, eleven sites have been individually considered: Barutnica-Amzabegovo, Cerje-Govrlevo, Veluška Tumba-Porodin, Čuka-Topolčani, Vrbjanska Čuka-Slavej (from North Macedonia), Slatina-Sofia, Krajnici, Gălăbник, Vaksevo, Rakitovo and Kovačevo (from western Bulgaria).

Pottery, architecture and animal husbandry as a new phenomenon in the Neolithic are the essential economical, social and cultural aspects according to which we define the sites, cultures, etc. Based on the considered material culture in this study, differences were noted in all sites, but in the same time and more importantly, many analogies were found. In brief, in relation to the EN and MN painted pottery, Cerje-Govrlevo, Barutnica-Amzabegovo, Krajnici, Kovačevo, Vaksevo, Slatina-Sofia (later phases)

and Gălăbник (later phases) show many similarities. The same can be concluded for the pottery from Veluška Tumba-Porodin, Čuka-Topolčani, Vrbjanska Čuka-Slavej, Rakitovo, Slatina-Sofia (earlier phases) and Gălăbник (earlier phases). Accordingly, it can be concluded that in the EN, the material culture of Pelagonia has more similarities with the sites of the Struma Valley and Sofia Plain, and the sites of Skopje and Ovče Pole Plains have stronger communication with the same sites from the later phases of the same regions in Bulgaria. This thesis according to absolute chronology is problematic, which raises a number of questions that have yet to be answered.

Do we have a sufficient ^{14}C dataset?

Are the phases well and precisely defined or they need revision?

In which directions and in what way do remote groups of sites communicate?

On which factors is this communication dependent?

What is the number of unpublished material from the explored sites?

Has the time been right for new surveys and explorations of the known unexplored Neolithic sites?

Regarding the selected locations to form settlements there, on one hand there is tendency that some sites, as Cerje-Govrlevo and Barutnica-Amzabegovo and the Struma and Sofia Plain sites, to be positioned on river terraces, while on the other hand, the ones in Pelagonia and exclusively Gălăbник (from Radomir Plain) artificially elevated the settlement space, thus creating mounds. It is logical to conclude that this is closely related to the natural environment and geomorphological features – the sites in plains and valleys are vulnerable to serious hydrological impacts and those on the river terraces or flat settlements rely on more stable water-level. The architecture itself is almost identical in all analyzed sites - aboveground houses built of wooden construction daubed in mud, rectangular,

square or trapeze groundplans and almost in all cases oven was made in the interior. Small differences are noted in building techniques, but this can also be considered as one of the specifics of each site or other economical, social or natural resources.

Finally, it can be concluded, on the basis of the animal husbandry, that almost in all sites for which there is archaeozoological data, there is absolute dominance of stockbreeding, while hunting was not so important. Larger differences are noted in the domestic animals distribution – the domination of the sheep/goat and cattle, which is in favor of sheep/goat in North Macedonia, which is not the case in Bulgaria. According to the studies this is probably a result of the different climatic conditions.

From all of the above mentioned we can conclude that EN (and MN) communities in North Macedonia and Bulgaria have very similar material culture, but each one preserves its own specificities that separate it from others. In fact, due to the inevitable economical (and social) contacts and natural (geographical) communication, these two pathways intertwine, thus not allowing either precise identification of their identity nor broad generalization.

Summary

One of the key topics of European prehistory – the Neolithization of the Balkans is still subject to a variety of explorations, polemics, ideas and hypotheses. Bearing in mind the geographical position of this territory in Southeastern Europe and wider in the immediate vicinity of the hotspot of the large (both Aceramic and Ceramic) Neolithic cultures and sites of the Eastern Mediterranean, in the second half and especially towards the end of the 7th millennium cal BC, a large number of Neolithic sites has been documented. The earliest Neolithic sites in Europe were discovered in Greece, which are characterized by a particularly authentic material culture, and later a number of EN sites were discovered in North Macedonia, Bulgaria, Serbia, Romania, and a smaller number in Albania. Considering the rich material culture some sites from North Macedonia and Bulgaria are of special interest, which apart from the visi-

ble differences, are distinguished by great similarities in some categories of artefacts, in different micro-regions within the two countries. Hence, the paper focuses on discovering the causes of similarities in certain artefacts in communities that, although living in the same period, practice almost the same lifestyle, but are somewhat characterized by a relatively different material culture.

Povzetek

Ena ključnih tem evropske prazgodovine - neolitizacija Balkana je še vedno predmet številnih raziskav, polemik, idej in hipotez. Upoštevajoč geografski položaj ozemlja v jugovzhodni Evropi in širše v neposredni bližini žarišča velikih neolitskih kultur ("keramičnih" in "akeramičnih"), je bilo tu dokumentiranih veliko število neolitskih najdišč, ki sodijo v čas druge polovice, oziroma na konec 7. tisočletja pred našim štetjem. Najstarejša neolitska najdišča v Evropi so bila odkrita v Grčiji. Zanje je značilna še posebej avtentična materialna kultura. Pozneje so bila odkrita številna zgodnjeneolitska najdišča še v Severni Makedoniji, Bolgariji, Srbiji in Romuniji ter manjše število v Albaniji. Glede na bogato materialno kulturo so še zlasti zanimiva nekatera najdišča Severne Makedonije in Bolgarije, ki jih v različnih mikroregijah v obeh državah poleg vidnih razlik odlikujejo tudi velike podobnosti v nekaterih kategorijah artefaktov. Prispevek se osredotoča na odkrivanje vzrokov, ki so botrovali podobnostim nekaterih artefaktov v teh skupnostih, katere, čeprav živijo v istem obdobju in prakticirajo skoraj enak življenjski slog zaznamuje precej drugačna materialna kultura.

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Le crustae marmoree dalla mansio tardoantica di Equilus-Jesolo (Venezia). Ipotesi interpretative per le ricerche future

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The marble crustae from the late antique mansio of Equilus-Jesolo (Venice). Interpretative hypotheses for future research

This paper aims to describe and discuss the assemblage of marble finds (*crustae*), probably used to decorate some 'first class' accommodation or a bath-building of the Late Antique mansion in the countryside around the present-day town of Jesolo, formerly called Equilus. The validation of the presence of this kind of buildings is important to evaluate if the mansio was promoted and managed by public or private agency and to know which community frequented this site. The aerial photos analysis associated with a geophysical survey contributed to recognize many new traces related to the mansio. The combination of archaeological data derived from different methodologies and scales of analysis seems to be promising for developing future fieldwork and interdisciplinary research in this lagoon site.

Keywords: Late Antiquity, Road Stations, Equilus-Jesolo, Venetian Lagoon, Marble Decorations

Marmorne najdbe iz poznoantičnega mansija Equilus-Jesolo (Benetke). Interpretacijske hipoteze za prihodnje raziskave

Pričujoči prispevek skuša opisati in analizirati zbirko marmornih najdb (*crustae*), ki so verjetno služile kot okras nekaterih »prvorazrednih« bivalnih ali pa kopaliških objektov poznoantične *mansio* na podeželju v bližini današnjega Jesola, ki se je nekoč imenoval *Equilus*. Potrditev prisotnosti tovrstnih zgradb je pomembna za ugotovitev, ali je *mansio* upravljal zasebnik ali kak javni subjekt in kateri javnosti so bile namenjene. Posnetki iz zraka in z njimi povezane geofizikalne raziskave so omogočili nova spoznanja o številnih sledih, povezanih z *mansio*. Sestavljeni podatki, pridobljeni s pomočjo različnih metod in raziskav v različnih obsegih, veliko obetajo za razvoj prihodnjih terenskih in interdisciplinarnih raziskav tega lagunskega najdišča.

Ključne besede: pozna antika, cestne postaje, *Equilus*-Jesolo, Beneška laguna, marmorni okras

Negli ultimi decenni la letteratura sulle stazioni di sosta collegate al *cursus publicus* di età romana e tardoantica si è arricchita di alcuni studi complessivi e di ricerche su alcuni specifici contesti, non solo nel territorio della penisola italiana, ma anche in altre aree dell'impero romano (si vedano i riferimenti bibliografici in Black 1995, Di Paola 1999 e da ultimo in Zanini, Basso 2016). In particolare, l'af-

finamento interpretativo sviluppato dalla ricerca archeologica ha consentito di ampliare il numero di siti riconducibili a questa vasta categoria, che include varie definizioni dalle fonti coeve, quali *mansiones*, *stationes*, *mutationes*, *tabernae*, *hospitia*, *stabula* etc. (Corsi 2000, 70; Di Paola 2016, 10; Uggeri 1995). Le analisi di più lungo corso in merito a questi punti nevralgici della rete viaria di età romana sono state quelle di carattere to-

pografico, spesso correlate a ricerche di carattere storico-filologico e basate per lo più sulle fonti itinerarie ed epigrafiche, oltre che sulla cartografia antica (Chevallier 1997; Quilici 1991). Tali indagini hanno consentito da una parte l'identificazione dei luoghi di sosta indicati nelle fonti, anche in relazione agli insediamenti attuali, e dall'altra la ricostruzione della topografia legata a tempi, luoghi e modi della mobilità antica. Le indagini archeologiche, invece, hanno esaminato in maniera più cogente la caratterizzazione materiale, l'organizzazione spaziale e le specificità legate alla funzione di questi siti, ponendoli in comparazione con altri insediamenti rurali, in particolare le ville rustiche o i piccoli insediamenti rurali, consentendo di compiere osservazioni analitiche anche in merito al loro sviluppo diacronico (i censimenti al momento più esaurienti sono ancor quelli di Black 1995 per la Britannia e Corsi 2000 per la penisola italiana). A livello di definizione, l'uso del termine *mansio* con un significato generico, utilizzato per definire un luogo di sosta o le tappe in cui un viaggio era scandito, è giustificato dall'uso che ne fanno le fonti tardoantiche (Corsi 2005, 260, ma anche Di Paola 2016 e Kolb 2016). Nondimeno, la crescita quantitativa e qualitativa delle indagini di scavo ha favorito la documentazione materiale di tipologie di insediamenti variamente articolati, anche per siti preliminarmente accomunati dalla medesima definizione, comportando di conseguenza una oggettiva difficoltà nell'elaborare uno o più modelli insediativi di riferimento. Il particolarismo, derivato dall'impegno degli archeologi su singoli siti riconosciuti come *mansiones* è accentuato poi dai diversi approcci e obiettivi dei singoli progetti di ricerca, rendendo ancor più complesso il raggiungimento di vere e proprie sintesi. Tuttavia, gli studi condotti finora nella penisola italiana, in particolare dalla già citata Cristina Corsi, sulla scorta di analoghi esempi d'oltralpe, offrono un ottimo punto di riferimento per gli studiosi, storici e archeologi, che si trovino ad affrontare questo tipo di insediamenti. La varietà nella casistica documentata archeologicamente è da imputare a due

specifici fattori: uno è quello della diacronia, la persistenza nel corso dei secoli della necessità di luoghi più o meno strutturati per la sosta e l'ospitalità, gestiti e frequentati sia da privati che da rappresentanti del potere pubblico lungo i percorsi più battuti, ha comportato mutamenti, ristrutturazioni, momenti di maggiore sviluppo o di stasi che talvolta caratterizzano in maniera molto specifica i singoli siti, che, se di lunga durata, hanno potuto rivestire funzioni anche molto diversificate nel corso dei decenni o dei secoli. L'altro è correlato alla mobilità stessa e alle variazioni che il sistema viario, non solo terrestre, ma anche per via d'acqua, ha conosciuto nel corso del tempo dall'età antica in avanti. A proposito di quest'ultimo punto, proprio nelle fasi di maggiore trasformazione e cambiamento infrastrutturale della rete di comunicazione, i luoghi di sosta assurgono al ruolo di indicatori fondamentali per inquadrare la transizione e la stabilizzazione di nuovi tracciati. Tali trasformazioni, anche repentine, non trovano un analogo riflesso nelle fonti itinerarie o cartografiche, caratterizzate solitamente da forme descrittive che rimangono più cristallizzate nel tempo.

Per quanto riguarda il primo fattore, è stato comunque elaborato un tentativo di classificazione che ha permesso di individuare alcuni elementi distintivi per la qualifica delle *mansiones*, quali la disponibilità di risorse essenziali, prima tra tutte l'acqua, la presenza di aree sepolcrali e di luoghi di culto anche di piccole dimensioni, oltre al più ovvio legame con la viabilità. Dal punto di vista materiale e architettonico, le strutture distintive sono state identificate con gli edifici anche di notevoli dimensioni dedicati all'ospitalità non solo di uomini, ma anche di animali o per il ricovero e la manutenzione dei mezzi di trasporto, a cui si aggiungono *tabernae*, magazzini e piazzali recintati (Corsi 2000, 70-7). Infine, tra gli elementi unificanti delle strutture ricettive di età romana e tardoantica è stata accertata nella maggior parte dei casi studiati la presenza di strutture per la balneazione come 'dotazione infrastrutturale caratteristica' (Medri 2016, 92 che ricorda un'analogha considera-

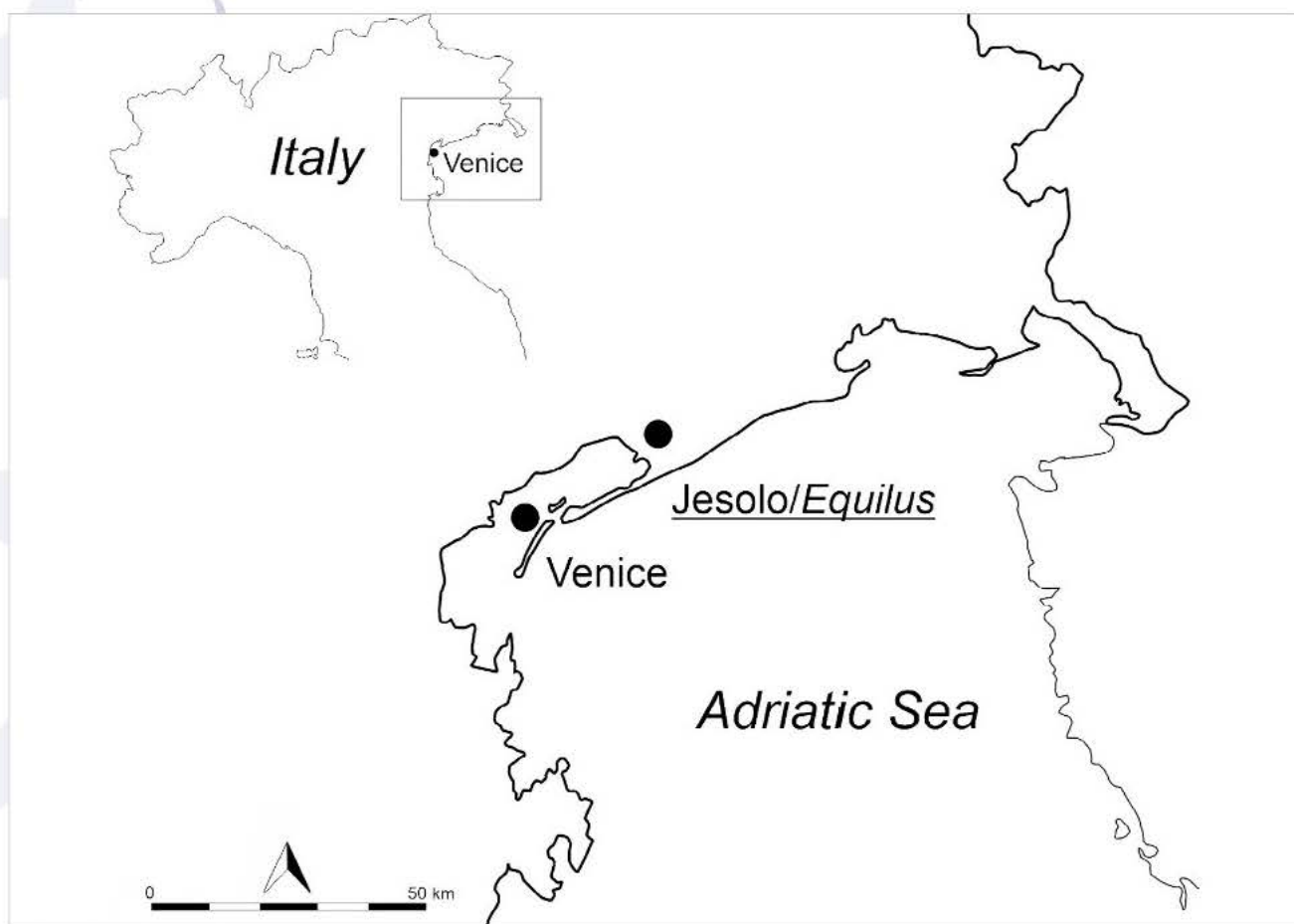


Figura 1. Localizzazione di Jesolo-Equilus sul litorale nord Adriatico. A. Cianciosi, Laboratorio di Archeologia Medievale, Università Ca'Foscari di Venezia (LAM-UniVE).

zione per il contesto della Britannia: Black 1995, 89-96). Per quanto riguarda, invece, il secondo fattore, in questa sede si intende concentrare l'attenzione su una delle aree più rappresentative dei nuovi assetti viari in età tardoantica, vale a dire la regione dell'alto Adriatico, attraversata da una rete di comunicazione in cui vie di terra e vie d'acqua erano strettamente interconnesse e complementari tra loro.

Sulla base di queste premesse, il presente contributo si propone di offrire un approfondimento circoscritto, ma si auspica significativo, in merito alla *mansio* di età tardoantica, rinvenuta recentemente a *Equilus* (o Equilo), un insediamento nella laguna nord di Venezia, corrispondente approssimativamente all'attuale Jesolo, anche se la posizione geografica dell'abitato in età moderna è stata traslata verso sud rispetto all'antico insediamento (fig. 1).

In particolare, in questa sede si vuole fornire una riflessione interpretativa a partire dai materiali lapidei, nello specifico dalle *crustae* marmoree interpretabili come elementi di rivestimento parietale o pavimentale. Nel caso di *Equilus*, infatti, pur trattandosi di reperti rinvenuti non in opera, ma in giacitura secondaria, il numero cospicuo di *crustae* e la distribuzione stratigrafica all'interno dei depositi archeologici esplorati offrono l'opportunità di elaborare alcune ipotesi sulla loro collocazione e funzione originaria, ovviamente considerando i contesti nel loro complesso. In questa sede, perciò, tali manufatti saranno analizzati in base al loro ruolo come indicatori di una specifica caratterizzazione edilizia che consente di puntualizzare alcune linee interpretative sulla *mansio* di *Equilus*, già preliminarmente tracciate sulla base di altre classi di materiali (Gelichi, Cadamuro, Cianciosi 2018).



Figura 2. Il sito archeologico di Equilus con il dettaglio delle aree di scavo delle campagne 2013-16 (A. Cianciosi, LAM-UniVE).

Equilus: una mansio lungo l'itinerario endolagunare dell'alto Adriatico

L'Insegnamento di Archeologia Medievale dell'Università Ca' Foscari di Venezia, sotto la direzione scientifica del prof. Sauro Gelichi, ormai da una decina di anni sta svolgendo nel territorio di Jesolo un articolato progetto archeologico. Le campagne di scavo svolte in regime di concessione ministeriale, tramite la Soprintendenza Archeologia, Belle Arti e Paesaggio per il Comune di Venezia e Laguna, e le attività di ricerca e divulgazione sono state finanziate in parte dall'ateneo veneziano, ma soprattutto dal Comune di Jesolo, che ha contribuito in maniera essenziale nel sostenere la programmazione, lo svolgimento e la valorizzazione dell'intero progetto scientifico¹. Il progetto avviato a Jesolo nel 2011 ha rivelato fin dalle prime attività sul campo, le notevoli potenzialità di indagine, offerte da un sito di lunga durata, la cui vitalità è ben at-

testata nel corso dei secoli, almeno tra la tarda antichità e la fine del medioevo. Benché fosse possibile dedurre tale *excursus* diacronico già sulla base dei risultati delle campagne di scavo svolte nel corso del secolo scorso (Croce da Villa 2006; Cuscito 2007; Dorigo 1994; Tombolani 1985), le ricerche degli ultimi anni hanno consentito di rinvenire una varietà di depositi e di raccogliere informazioni di notevole qualità e quantità, grazie anche all'approccio interdisciplinare di carattere geoarcheologico, applicato in funzione della comprensione dell'insediamento lagunare all'interno del suo mutevole contesto paesaggistico. Infatti, l'apertura dei diversi saggi di scavo, programmaticamente indirizzati alla ricerca del tessuto insediativo dell'antica *Equilus* è stata preceduta e affiancata costantemente dalle indagini di carattere geologico, con l'obiettivo di ricostruire le concomitanti trasformazioni dell'ambiente, offrendo così l'opportunità di riscrivere o, ancora meglio, di scrivere per la prima volta la storia, ma soprattutto il ruolo di questo centro lagunare tra antichità e medioevo (Ca-

¹ Il Progetto è ancora in corso di svolgimento e dal 2017 si sta concentrando nell'area del cosiddetto monastero di S. Mauro, collocato a circa 260 metri a nord rispetto alla Cattedrale (vedi fig. 2).

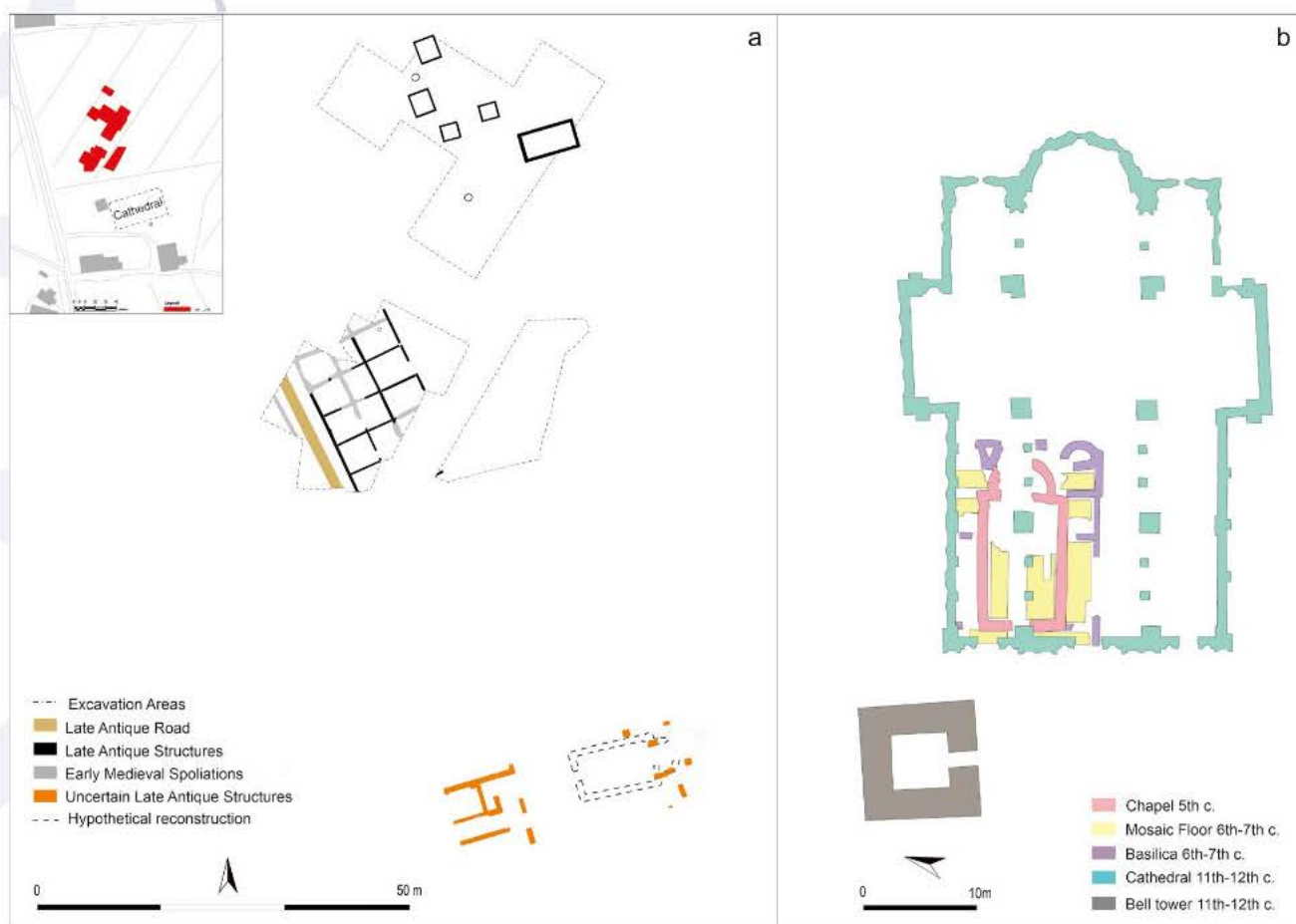


Figura 3. Planimetria delle principali strutture di età tardoantica messe in luce a Equilus. A destra: dettaglio della pianta di fase del complesso religioso presso il sito archeologico delle Antiche Mura (A. Cianciosi, LAM-UniVE).

damuro, Cianciosi, Negrelli 2015; Cadamuro, Cianciosi, Negrelli 2017).

Le considerazioni del presente contributo riguardano essenzialmente le indagini svolte tra 2013 e 2016 che hanno portato al rinvenimento di porzioni significative dell'abitato di *Equilus* nella fase più antica finora documentata dell'insediamento tardoantico, corrispondente ai secoli IV-V d. C.² (fig. 2).

Benché siano state rinvenute tracce di frequentazione anche anteriore (risalenti almeno al I d.C.), queste ultime, al momento, non sono state documentate in estensione, ma solo attraverso alcuni limitati saggi di approfondimento, che hanno consentito di individuare strati antropici di età pieno imperiale, privi però di elemen-

2. Le campagne di scavo sono state svolte annualmente per 1-2 mesi e dirette sul campo dalla scrivente insieme alla dott.ssa Silvia Cadamuro con la partecipazione di studenti universitari di vari atenei italiani ed europei.

ti strutturali e di concentrazioni di reperti particolarmente significativi. Il periodo tardoantico segna invece un evidente cambio di passo per l'insediamento di *Equilus*. Le evidenze archeologiche finora documentate rivelano un piano articolato finalizzato all'organizzazione di un nuovo insediamento, riportato alla luce per una buona porzione corrispondente all'area immediatamente a nord rispetto alle rovine delle Antiche Mura. Le strutture identificate con il sito delle Antiche Mura (o 'Le Mure') corrispondono al palinsesto di tre edifici con funzione religiosa, riportati alla luce dagli scavi del secolo scorso: si tratta per la fase più recente delle rovine tuttora visibili della cattedrale di età romanica di S. Maria Assunta (XII secolo d. C.), le cui fondamentazioni avevano inglobato nell'angolo nord-occidentale una precedente basilica a tre navate, decorata a mosaici e risalente all'alto medioevo (VI-VII se-

colo d.C.). A sua volta la basilica risultava sovrapposta a una precedente aula mononave, di ancor più ridotte dimensioni e ipoteticamente interpretata come edificio religioso per analogia con gli edifici successivi. Quest'ultima struttura, datata al V secolo d. C., è correlata strettamente al periodo cronologico preso in considerazione in questa sede e per questo sarà più esplicitamente esaminata (fig. 3).

L'insediamento equilense tardoantico è stato identificato con una *mansio*, un nodo essenziale in funzione della viabilità endolagunare, potenziata proprio in quel periodo di transizione, in seguito a una serie di trasformazioni di carattere politico ed economico che avevano interessato l'intero impero romano d'occidente e in particolare l'area settentrionale della penisola italiana (Bosio 1991: 239-243; Uggeri 1987: 343-344). Lo spostamento del baricentro dall'entroterra verso l'area adriatica, già assestato grazie alla centralità politica e religiosa conferita ad Aquileia, culminò al principio del V secolo con la scelta di Ravenna come capitale dell'impero d'occidente (402 d.C.). Tra III e V secolo, dunque, la viabilità nell'arco dell'alto Adriatico conosce diversi interventi di ristrutturazione e potenziamento soprattutto nella rete legata alle aree lagunari (Corsi 2000, 171). Tra i centri inseriti all'interno di questa rete alcuni siti furono rifunzionalizzati, altri vennero creati appositamente. Tra i primi, per esempio, si ricordano San Basilio di Ariano Polesine (D'Abruzzo *et al.* 1982) e Corte Cavanella di Loreo, identificata con la *mansio Fossis* della *Tabula Peutingeriana* (Sanesi Mastrocinque *et al.* 1986). Un caso rappresentativo dei secondi sembra essere, invece, proprio quello di *Equilus*, che in base agli itinerari noti e alla sua connotazione di *insula* alla confluenza tra la foce del Piave e una bocca di porto tra mare e laguna, sembrerebbe avere avuto un legame esclusivo con le vie d'acqua, essendo priva di un collegamento diretto con un percorso terrestre di una certa portata. L'ipotesi al momento più plausibile è che si tratti di un nuovo insediamento litoraneo, nato soprattutto in funzione commerciale, probabilmente in diretto contatto

con Cittanova (*Civitas Nova Eracliana*), un altro porto più arretrato nella laguna e quindi più prossimo alla Via Annia, che a sua volta consentiva i collegamenti con altri importanti centri del comprensorio, quali Altino, Concordia e Oderzo. Rimane però incerto se la *mansio* di *Equilus* sia sorta in seguito a un diretto interessamento statale, quindi in funzione anche della gestione fiscale e del controllo della viabilità, o se possa essere stata frutto di un'iniziativa privata, più direttamente dedicata quindi agli interessi di natura commerciale dell'alto Adriatico (Gelichi *et al.* 2017; Negrelli 2018).

Le aree di scavo hanno restituito resti strutturali e piani d'uso di almeno due quartieri distinti dell'insediamento tardoantico. La prima area, più prossima all'aula monoabsidata, rinvenuta in corrispondenza delle Antiche Mura, è occupata da un grande edificio (l'area messa in luce finora misura 20x15 metri, ma le dimensioni complessive nel senso della lunghezza potrebbero essere il doppio), articolato in numerosi ambienti, distribuiti in successione ordinata lungo tre file contigue (i settori di scavo corrispondono alle Unità Topografiche di Scavo (UTS) 6000, 7000, 8000). È stata proprio la morfologia di questo edificio ad aver suggerito da subito l'identificazione con una struttura ricettiva (*hospitium* o *deversorium*) e, quindi, l'ipotesi della funzione di *Equilus* come luogo di sosta. Non solo la caratterizzazione degli ambienti, analoghi per dimensioni e dotati di focolari in mattoni, ma anche la presenza di una strada ammattonata, orientata sudest-nordovest, perfettamente parallela a uno dei lati lunghi dell'edificio appariva pertinente a tale interpretazione. Oltre a questa area, in gran parte rappresentativa dell'ultima fase d'uso del *deversorium*, distrutto e sigillato da un incendio, e delle sue immediate pertinenze esterne, a circa 30 m in linea d'aria in direzione nord-est, sono stati indagati altri 4 settori (UTS 1000, 2000, 3000, 4000), tra loro in contiguità e quindi rappresentativi di un'altra porzione dell'insediamento tardoantico, caratterizzato dalla presenza di un'area aperta occupata da un pozzo e da edifici di dimensioni limitate composti da uno o

due ambienti con funzione non solo residenziale, ma anche manifatturiera. Gli indicatori più significativi, infatti si riferiscono a semilavorati e scarti di produzione della lavorazione del ferro e dell'osso animale. Benché questo settore non sia stato sigillato da un evento repentino e drammatico come l'incendio che ha investito il grande edificio della porzione meridionale, anche qui il rinvenimento di un numero molto consistente di reperti appartenenti a diverse classi di materiali ha consentito una lettura non solo diacronica, ma anche l'elaborazione di una interpretazione puntuale sulle specifiche funzioni e sulle diverse attività ivi svolte (Gelichi, Cadamuro, Cianciosi 2018, 56-65). Nella pubblicazione di questo catalogo preliminare era stato fatto solo un rapido cenno ai numerosi frammenti di lastre lapidee e marmoree rinvenuti, che trovano qui una loro prima sistematizzazione. Si avverte, tuttavia, che il presente contributo propone una valutazione complessiva e non analitica dei reperti, poiché al momento non sono stati effettuati esami archeometrici mirati, pertanto si è volutamente sorvolato sulle problematiche legate al riconoscimento puntuale dei molteplici litotipi, e quindi ad eventuali riflessioni sulla loro provenienza. A tal proposito, è possibile confermare, anche se sulla base di una valutazione di carattere generale su questa classe di materiali, il ruolo inequivocabile di Jesolo come emporio commerciale, ampiamente attestato dagli innumerevoli reperti di importazione, tra cui le ceramiche da mensa e i contenitori da trasporto, che testimoniano sicure e intense relazioni sia con l'area nordafricana, in particolare la Tunisia e la Libia, sia con il Mediterraneo orientale, in particolare la Grecia, l'Asia Minore, la Siria e la Palestina. Dunque, pur non pretendendo di offrire uno studio esaustivo, l'obiettivo principale della presente trattazione è quella di includere le *crustae* marmoree nell'elaborazione interpretativa complessiva del sito, sulla base di alcuni specifici contesti di scavo ad esse associati, che consenta di formulare una proposta operativa in vista della prosecuzione delle indagini future.

Le lastre in materiale lapideo e marmoreo dalla *mansio* di *Equilus*: i contesti di rinvenimento

Il numero totale di reperti riferibili ad elementi decorativi in pietra o marmo ammonta a più di 500 e proviene da tutte le aree precedentemente citate (UTS 1000-8000). Si tratta di elementi molto variegati tra loro, sia per tipologia di materiale litico impiegato sia per forme e dimensioni registrate. Tra i litotipi più facilmente riconoscibili ci sono sicuramente il serpentino, il cipollino verde, il porfido, il fior di pesco, il marmo preconnesio, quello di Chio e quello di Sciro. Accomuna tutti questi reperti il fatto di essere stati rinvenuti in giacitura secondaria, non in opera, e talvolta in vere e proprie fosse di scarico di rifiuti. Già da una preliminare analisi della distribuzione all'interno delle varie aree di scavo si distinguono alcune concentrazioni rispetto a un discontinuo "rumore di fondo", vale a dire la presenza diffusa di sporadici frammenti in tutti i contesti indagati e in quasi tutte le fasi della sequenza di scavo. Tale effetto di diffusione indistinta si registra soprattutto nei livelli superficiali, talvolta profondamente intaccati dai lavori di aratura nei campi che nel corso degli ultimi decenni hanno intercettato a più riprese tali stratigrafie, causando lo sconvolgimento e talvolta il trascinarsi dei reperti stessi. Tenendo conto anche di questi effetti post-deposizionali, sono stati selezionati quattro contesti specifici che si distinguono per numero e qualità di reperti registrati, oltre che per la caratterizzazione stratigrafica dei depositi. Procedendo da sud verso nord, il primo si trova al limite esterno sud-est dell'edificio con funzione ricettiva, poco lontano da una fornace da calce di età altomedievale. Il secondo nucleo, invece, si trova proprio all'interno del *deversorium*, in corrispondenza di due ambienti contigui. Il terzo e il quarto, infine, si trovano entrambi nell'area più settentrionale, il quartiere produttivo, ma uno in corrispondenza dei livelli di abbandono di un edificio residenziale di età tardoantica, l'altro invece è stato rinvenuto all'interno del riempimento di una fossa di forma rettangolare usata per lo scarico di rifiuti, il

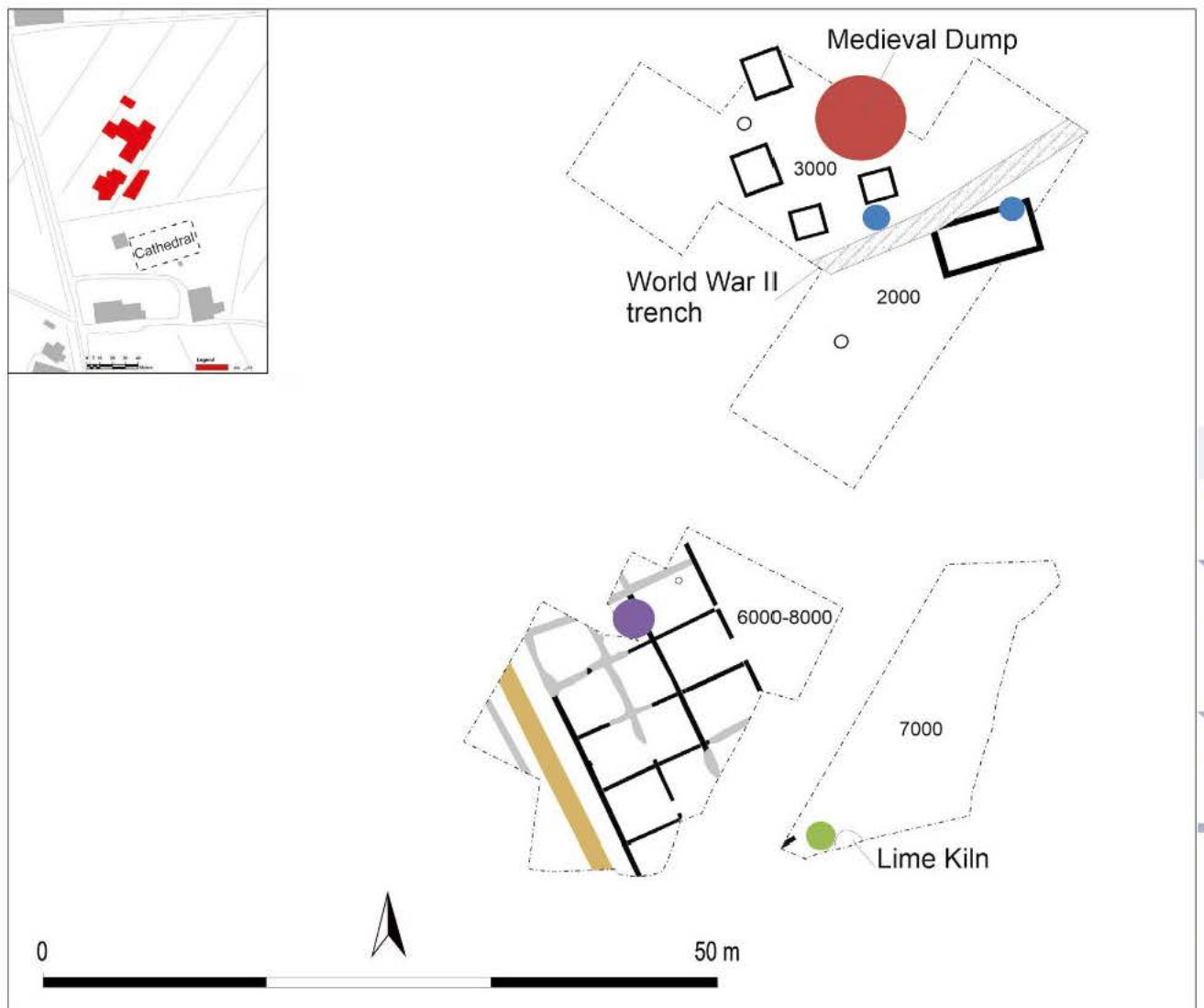


Figura 4. Planimetria con la localizzazione delle principali concentrazioni di *crustae* marmoree e lapidee rinvenute nel corso degli scavi 2013-16 (A. Cianciosi, LAM-UniVE).

Percentuali delle *crustae* lapidee dalle diverse UTS di scavo

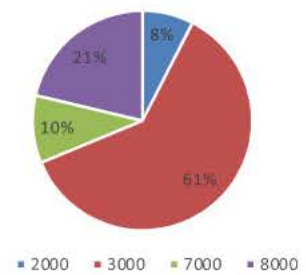




Figura 5. UTS 7000: contesto da cui provengono le *crustae* nei pressi di una fornace da calce (A. Cianciosi, LAM-UniVE).

cui riempimento è con certezza riferibile all'età pieno medievale.

Il primo deposito è costituito da una trentina di frammenti concentrati soprattutto in uno strato di limo argilloso individuato nell'angolo sud-occidentale dell'area di scavo UTS 7000, al di sotto di un livello di abbandono di età tardoantica, caratterizzato da una grande quantità di macerie, soprattutto pezzame laterizio, tra cui si registra il rinvenimento di una trentina di frammenti di *crustae* residuali. Questo strato di abbandono è stato poi intaccato dal taglio della fossa di una fornace da calce datata al radiocarbonio al 670-710 d.C. e pertinente con ogni probabilità alla fase edilizia che ha portato alla costruzione della basilica a tre navate decorata con pavimenti musivi, al di sopra della piccola aula di V secolo d.C. (fig. 5).

L'analisi stratigrafica ha permesso di accertare, quindi, la cronologia di età tardoantica

del deposito all'interno del quale sono stati rinvenuti oltre che le *crustae* marmoree, anche alcune tessere di mosaico sia in pietra che in pasta vitrea, un frammento di cornice scanalata in marmo bianco e un unico esemplare di mattonella in cotto a forma di pelta. I frammenti di *crustae* appartengono a litotipi diversi, tra i quali si riconosce il serpentino, impiegato per quattro elementi di ridotte dimensioni con uno spessore di 0,5 cm, mentre la maggior parte degli altri frammenti presenta dimensioni più ragguardevoli e spessori anche pluricentrici (da 1,2 a 3,7 cm). Nella maggior parte di questi esemplari si possono riconoscere i segni di lavorazione e levigatura, il profilo è tendenzialmente regolare, anche se la forma sub-rettangolare e triangolare è riconoscibile solo per alcuni esemplari. Si segnala, inoltre, la presenza di evidenti tracce di calce e malta di preparazione, indizio dell'originaria posa in opera, probabilmente come pavimenti o



Figura 6. UTS 6000 e 8000: immagine zenitale del grande edificio utilizzato come *deversorium* con la denominazione dei singoli ambienti tramite lettera alfabetica (A. Cianciosi, LAM-UniVE).

come rivestimento dello zoccolo alla base di un ambiente, dato lo spessore consistente di gran parte dei frammenti.

Il secondo nucleo è rappresentato, invece, da più di sessanta frammenti, la cui giacitura in alcuni livelli di distruzione è circoscritta a due ambienti contigui all'interno del grande edificio, corrispondenti alle lettere I-O della planimetria generale (fig. 6).

Sfortunatamente la presenza di un palo dell'elettricità proprio in corrispondenza dell'area centrale del primo vano, non ha consentito la sua integrale esplorazione, pertanto l'indagine si è concentrata nella porzione nordorientale. La stratigrafia all'interno dell'ambiente I era

caratterizzata come per gli altri ambienti del *deversorium* da uno strato di macerie, in parte nel caso specifico dovuto anche allo scavo recente per la posa del palo dell'elettricità, oltre che all'attività di spoliazione delle murature perimetrali dell'edificio attestato per il periodo alto-medievale (VI-VII secolo d. C.). Al di sotto dello strato di carbone è stata rinvenuta un'ampia e consistente traccia di calce, un vero e proprio battuto pavimentale attestato solo in questo spazio. Contiguo ad esso, lungo il suo perimetrale nordoccidentale anche l'ambiente O presentava alcune peculiarità. Tale vano era inserito lungo la terza fila di stanze, posta sul retro dell'edificio che, rispetto alle due file affacciate verso la

strada, avevano dimensioni lievemente maggiori e una caratterizzazione più variegata dei reperti archeologici associati ai piani di calpestio, costituiti da veri e propri piani in cocchiopesto negli ambienti M e Q. In particolare, l'ambiente O si distingue nettamente dagli altri perché al di sotto dello strato di crollo, caratterizzato dalla presenza di frammenti di tegole e coppi che iniziavano la tipologia di copertura dell'edificio, non è stato documentato il consueto strato di copertura di limo giallastro, interpretato per gli altri vani come il risultato del crollo delle pareti costituite da argilla cruda e materiale deperibile. Lo strato di incendio, invece, era particolarmente consistente e ricco di materiale eterogeneo, tra cui numerosi resti di fibre lignee carbonizzate e innumerevoli reperti paleobotanici, costituiti soprattutto da cereali e legumi carbonizzati. Al di sotto di questo livello è stato possibile intercettare le tracce di una struttura in legno che delimitava lo spazio interno formando una sorta di sopralco retto da travature disposte a 'elle', lungo il perimetro sud-orientale. Nell'angolo nord-occidentale, invece, si apriva un pozzo poco profondo e di dimensioni ridotte, incamiciato con pezzame laterizio. Il piano di calpestio era costituito da un battuto in limo sabbioso, compatto e pulito, del tutto simile a quello dell'ambiente adiacente (N). I frammenti marmorei qui rinvenuti sono con ogni probabilità da riferire proprio all'apparato decorativo che ornava questi ambienti prima della loro distruzione. Infatti, per l'intero edificio è stata verificata una sostanziale buona conservazione dei piani riferiti all'ultima fase d'uso, antecedente all'incendio che ne ha determinato il definitivo abbandono, nonostante le innegabili azioni post-deposizionali. Infatti, sono state documentate vere e proprie obliterazioni dei depositi archeologici, dovute in particolare alla spoliatura di alcune strutture murarie e allo scavo di sepolture in fossa terragna, pertinenti al cimitero altomedievale (VI e VII secolo) sviluppatosi a nord della basilica decorata a mosaici (Gelichi, Cadamuro, Cianciosi 2018, 66-77). Tuttavia, i reperti rinvenuti, soprattutto nei livelli di incendio indisturbati, forniscono

un riflesso abbastanza fedele di quello che doveva essere il repertorio di materiali in uso all'interno dell'edificio. La casistica di frammenti lapidei rinvenuti negli ambienti I ed O è variegata, tuttavia un sottoinsieme di una trentina di frammenti è rappresentativo del medesimo litotipo di colore grigio chiaro, con analoghi spessori (da 1,5 a 2,5 cm) e in alcuni casi fratture riconoscibili e ricomponibili. Si tratta propriamente di frammenti di lastre marmoree, probabilmente di dimensioni medio-grandi, non di *crustae*. Inoltre, presentano su una faccia un sottile ma omogeneo rivestimento in calce bianca, segno evidente della posa in opera probabilmente come pavimentazione all'interno dell'ambiente I, ipotesi avvalorata dalla presenza del piano in battuto di calce ben conservato su gran parte della sua superficie. Non abbiamo analoghi evidenti indizi per l'ambiente O, tuttavia all'interno dello strato di crollo, sono stati rinvenuti frammenti del tutto analoghi a quelli dell'ambiente I. Data la presenza di un ambiente aperto e porticato in corrispondenza dell'ambiente O, è probabile che i materiali ivi rinvenuti siano stati traslati dalle arature o dagli interventi di spoliatura rispetto al vicino ambiente I. Si ritiene, dunque, che l'insieme di questi frammenti di lastre marmoree sia da riferire unitariamente alla decorazione dell'ambiente I.

Il terzo contesto, infine, è dislocato nel settore più settentrionale dell'insediamento, in particolare in corrispondenza dell'UTS 2000 nei livelli di abbandono di un ambiente con funzione residenziale di cui non è stato possibile eseguire un'indagine in estensione, ma la cui restituzione di manufatti su una porzione limitata dei piani di calpestio risulta particolarmente significativa. Infatti, pur non avendo potuto documentare in maniera complessiva i perimetrali di questo edificio, l'ambiente di forma rettangolare, parzialmente messo in luce, presentava una successione di strati di abbandono ricchi di materiale ceramico, per lo più contenitori da mensa di importazione, da fuoco e da trasporto anche ricostruibili, molti frammenti in vetro, anche di pregio (un paio di frammenti in vetro azzurro con de-



Figura 7. UTS 2000: contesto da cui provengono le *crustae* nei pressi del quartiere produttivo con le foto di dettaglio di alcuni frammenti vitrei di pregio rinvenuti in associazione (A. Cianciosi e Davide Vallotto, LAM-UniVE).

corazioni figurate incise e alcuni frammenti con la superficie decorata a nido d'ape) e anche una decina di *crustae* marmoree. A ridosso di questo ambiente è stato documentato un contesto interpretato come una bottega utilizzata per la lavorazione del ferro, poiché, oltre alla presenza di un focolare con base in mattoni associato a diffuse tracce di concotto e ferro, sono state rinvenute molte scorie, e una serie di buche di ridotte dimensioni, probabilmente funzionali all'allocazione di strumenti e attrezzature per l'attività metallurgica (fig. 7).

È probabile che sia da associare al precedente contesto anche un livello di abbandono coerente ad esso, ma la cui eventuale continuità stratigrafica è stata irrimediabilmente obliterata dallo scavo di una trincea anti-carrarmato, aperta nel corso della Seconda Guerra Mondiale. Si tratta infatti, anche in questo caso, di un livello di abbandono dell'area contigua in forma di strisciata, composto da numerose macerie, soprattutto pezzame laterizio, ma anche da moltissimo materiale, sia ceramico che vitreo, oltre che da una ventina di *crustae*. Per entrambi i conte-

sti, separati dalla trincea anti-carrarmato, si tratta di frammenti di vari litotipi, per lo più di ridotte dimensioni e spessore esiguo (il valore di quest'ultimo è compreso tra 1,2-1,7 cm). Si segnala anche la presenza di *crustae* di piccole dimensioni con forme più ricercate quali una tessera in serpentino cuoriforme, alcuni elementi in forma di listelli, un elemento circolare e uno semicircolare in marmo bianco.

Tali caratteristiche potrebbero far pensare a una decorazione, pavimentale o parietale, riservata a un ambiente di pregio, difficile però da identificare tra le strutture finora messe in luce, caratterizzate da una tecnica edilizia piuttosto povera (pezzame laterizio di reimpiego e alzato in materiale deperibile).

Infine, poco più a nord, sempre nell'UTS 3000, è stata rinvenuta una fossa di scarico di rifiuti che ha restituito l'ultima, ma più consistente concentrazione di *crustae* marmoree. Il deposito all'interno della discarica è stato accumulato probabilmente nel corso dell'XI-XII secolo, data la presenza negli strati di riempimento più superficiale di una quantità cospicua di frammen-

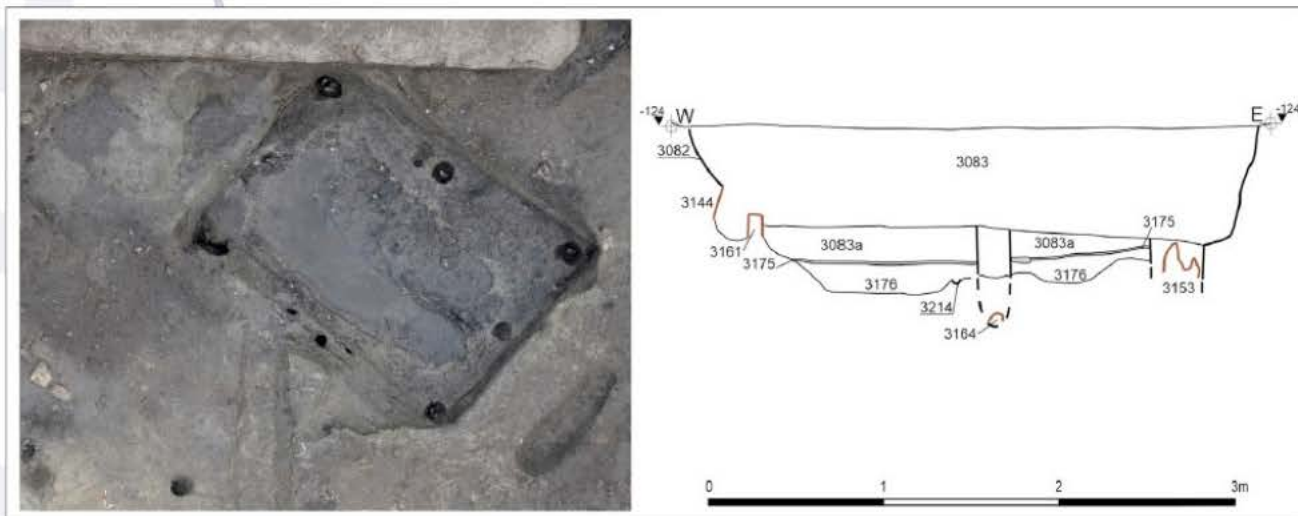


Figura 8. UTS 3000: fotografia zenitale e sezione della discarica di rifiuti da cui proviene la maggiore concentrazione di *crustae* (in particolare da UUSS 3175-3176) (A. Cianciosi, LAM-UniVE).

ti di ceramiche rivestite di provenienza bizantina che indicano questo range cronologico (Gelichi, Sabbionesi 2018). I numerosi rifiuti furono ammassati all'interno dello spazio lasciato libero dalla dismissione di una struttura rettangolare in legno, datata al X secolo e interpretata come granaio o altra struttura di servizio per la conservazione di derrate alimentari, costruita su pali e sopraelevata rispetto al piano di calpestio coevo. L'analisi stratigrafica della struttura di età pieno medievale consente di riconoscere due momenti distinti nella stratificazione del riempimento presente all'interno della fossa. Infatti, si riconoscono due riempimenti più profondi (UUSS 3175 e 3176) distribuiti sull'intera superficie di fondo della cavità rettangolare, aperta in origine per l'alloggiamento della struttura lignea di pali e assi in legno, che hanno restituito più di 200 *crustae* lapidee, associate tra l'altro anche a un notevole quantitativo di frammenti ceramici tardoantichi, soprattutto di contenitori anforici. Dal punto di vista stratigrafico questi due riempimenti possono essere identificati come un livello di costipamento atto a consolidare il fondo della struttura (US 3176), contenente gran parte delle *crustae* marmoree, al di sopra del quale è stato disposto un piano realizzato in travi e assi lignee (US 3175). È probabile, dunque, che al momento della costruzione della struttura siano sta-

ti selezionati e raccolti appositamente i materiali lapidei e ceramici per rinforzarne le fondazioni. È presumibile che tale materiale sia stato recuperato in loco, forse dallo stesso edificio residenziale sopra citato o anche da un'altra struttura decorata con pavimenti o pareti rivestite in marmo. Questo insieme di *crustae*, così numeroso, presenta molte varianti, sia dal punto di vista della materia prima utilizzata che della morfologia.

Il riempimento creatosi nella fase successiva (US 3083), quando il granaio fu dismesso e la fossa fu trasformata in discarica di rifiuti ha uno spessore molto più consistente e, come già anticipato, conteneva per lo più frammenti di ceramiche da mensa bizantine ed egiziane, resti di pasto, soprattutto ossa animali e malacofauna, insieme però a molto materiale residuale, che comprende un'ingente quantità di scorie ferrose, frammenti di contenitori ceramici tardoantichi, oltre che una quarantina di frammenti lapidei e *crustae* (fig. 8).

Data la varietà tipologica e dimensionale dei frammenti recuperati da tutti i contesti sopra descritti (rari gli elementi modanati, mentre prevalgono i frammenti di lastre, fasce e listelli) è arduo stabilire la tipologia decorativa che andavano a comporre. Sarebbe un'ipotesi più remota l'uso delle *crustae* in veri e propri *sectilia*, mentre è più plausibile che provengano da pavi-



Figura 9. Tavola con gli esemplari più rappresentativi di crustae dai quattro contesti descritti (scala metrica: 5 cm) (A. Cianciosi, LAM-UniVE).

menti cementizi con inserti litici o marmorei³. Ad eccezione degli esemplari rinvenuti all'interno dell'edificio ricettivo che rivestivano in maniera omogenea il pavimento e forse lo zoccolo alla base delle murature con marmo bianco uniforme, tutti gli altri si conformano ad apparati decorativi pavimentali o per zoccolature alle pareti, dati gli spessori al di sopra del centimetro e le forme per lo più irregolari. Decisamente più rari sono i frammenti compatibili con rivestimenti parietali (fig. 9).

Discussione sulle ipotesi interpretative

La varietà dei contesti descritti non consente un'interpretazione univoca dei rinvenimenti lapidei provenienti da Jesolo. Tuttavia, la connotazione dell'insediamento, luogo di passaggio e di sosta per viaggiatori, ma probabilmente anche di funzionari e ufficiali dell'impero, consente di formulare alcune ipotesi in merito all'utilizzo originario di questi materiali. Infatti, come già accennato, le *mansiones* potevano avere funzioni diversificate, legate non solo alla gestione delle infrastrutture viarie, ma anche in supporto all'amministrazione del governo centrale in materia di fiscalità e di rifornimenti annonari. È chiaro che se la *mansio* di *Equilus* era sfruttata anche da funzionari e da dignitari imperiali, non desterebbe meraviglia la presenza di un edificio o di una serie di strutture di maggiore pregio, appannaggio di ospiti di una certa levatura sociale. Oppure, dato che effettivamente al momento non si hanno specifiche testimonianze della presenza di strutture di alto tenore architettonico, assimilabili per esempio alla tipologia dei pretoria, un'ipotesi più accreditata potrebbe essere la presenza di *balnea* o terme, strutture documentate nella maggior parte delle *mansiones* archeologicamente note e che tradizionalmente

presentavano rivestimenti in materiale marmoreo. Quest'ultima ipotesi sarebbe ulteriormente avallata dal confronto con un sito specifico, la *mansio Ad Vacanas* sulla via Cassia che presenta significative analogie con il caso jesolano, soprattutto nella scansione e nelle dimensioni degli spazi dedicati all'accoglienza. Nel sito laziale, però, uno dei settori maggiormente indagati è proprio quello deputato alle terme confermando l'importanza di questo tipo di strutture di servizio nei luoghi di sosta (Gazzetti 1986; Medri 2016, 91-98). Sulla base di tale confronto, è plausibile ipotizzare che anche nella *mansio* lagunare ci fosse un settore dedicato ai *balnea* e che da questo possano provenire almeno una parte delle *crustae* sopra descritte.

Se ci basassimo, invece, esclusivamente sulle strutture riportate alla luce a *Equilus*, si potrebbe pensare che l'aula monoabsidata localizzata a sud, presso le Antiche Mura, avesse un apparato decorativo realizzato in *crustae*. Di fatto, un'ipotesi non esclude l'altra: è possibile che ci fossero più ambienti con apparati decorativi in marmo, sia un edificio religioso che un ambiente di pregio o ulteriori strutture di servizio, quali *balnea*, a cui fosse riservato una specifica accuratezza edilizia.

Riconsiderando i singoli contesti, sicuramente quello di più facile interpretazione riguarda il grande edificio con funzione ricettiva che evidentemente era stato dotato di un ambiente (o più d'uno, dato che non è stato scavato completamente) di maggior pregio, forse perché deputato in maniera specifica all'ospitalità di persone di un certo rango. E' infatti plausibile che all'interno della struttura fossero ospitati viaggiatori di diversa estrazione sociale, anche se gli esempi noti indicano solitamente una separazione tra il '*deversorium* standard' e gli alloggi destinati a personaggi di più alta levatura. In effetti, la tipologia edilizia e il repertorio di reperti rinvenuti al suo interno avvicineranno il grande edificio di Jesolo ai casi di Vindonissa, Inchtuthil e Richborough, descritti da Black (1995, 17-20, 122-125 e 128-129) come alloggi di livello non elevato, assimilabili ai precedenti *con-*

3 Per la definizione delle varie tipologie di decorazioni pavimentali è tuttora valido il lavoro di Blake 1930. Si vedano anche gli atti pubblicati in suo onore nel 2013: Guidobaldi, Pedone 2013. Da ricordare per la penisola italiana gli innumerevoli dati raccolti e in gran parte pubblicati, grazie all'ambizioso progetto TESS, finalizzato al censimento e alla schedatura informatizzata del patrimonio dei pavimenti in pietra e marmo suddiviso per le varie *Regiones* di età romana: da ultimo Angelelli, Tortorella 2016 con riferimenti bibliografici ai risultati del progetto pubblicati in precedenza.

tubernia di ambito militare. Non si esclude tuttavia che, nel caso jesolano la funzione specifica dell'ambiente I, decorato con lastre marmoree non fosse semplicemente per l'alloggio, come di certo erano gli altri ambienti indagati affacciati lungo la strada, poiché la sua posizione nel cuore dell'edificio, nella parte più protetta, e a ridosso del locale usato come magazzino per la conservazione delle derrate agricole, potrebbe suggerire che fosse il luogo di ricevimento o di rappresentanza, dove avveniva la distribuzione dei vettovagliamenti che soldati e viaggiatori necessitavano lungo il loro tragitto di attraversamento della laguna e per questo fosse dotato di rifiniture di maggior pregio.

Per quanto riguarda, invece il repertorio individuato in corrispondenza dell'area produttiva posta più a nord, il ventaglio delle interpretazioni si articola in alcune ipotesi. Considerando che dal punto di vista formale la *mansio* di *Equilus* rientrerebbe nella tipologia definita 'per padiglioni distinti', dato che non è stato individuato un portico che circonda una corte, ma diversi corpi di fabbrica separati da spazi aperti, è probabile che poco lontano da qui, forse in direzione nord-est, fossero collocati edifici residenziali di un certo pregio (Corsi 2000, 175-176). Si potrebbe trattare della dimora del funzionario deputato al funzionamento della *mansio*, se questa era gestita a livello pubblico, che avrebbe avuto un più diretto controllo anche sulle attività produttive ivi svolte. Seguendo questa linea interpretativa, anche le attività produttive assumerebbero un ruolo cruciale non solo per la mera sussistenza della comunità locale coinvolta nel funzionamento della *mansio*, ma anche come volano per lo sviluppo economico dell'insediamento, che avrebbe rappresentato un polo di aggregazione per gli abitanti del territorio circostante (Basso, Zanini 2016).

La lettura più incerta concerne invece il repertorio di *crustae* più corposo, recuperato dal piano di preparazione della struttura in legno, usata probabilmente come granaio nel corso del IX-X secolo. In questo caso si tratta sicuramente di materiale totalmente reimpiegato, probabil-

mente anche selezionato appositamente per fungere da strato di sottofondazione della struttura. Per quanto sia impossibile stabilirne l'esatta provenienza è plausibile che tutte queste *crustae*, insieme anche agli innumerevoli frammenti anforici, fossero state recuperate unitariamente da un unico luogo posto poco lontano, forse gli stessi edifici di pregio o i *balnea* ipotizzati per l'area precedenti.

Non bisogna, inoltre, dimenticare la presenza nell'area meridionale di *Equilus* di una ipotetica aula di culto monoabsidata, le cui spoliazioni sono state rinvenute al di sotto della basilica altomedievale e della Cattedrale romanica. Forse in maniera più diretta a questo edificio è da relazionare il nucleo di *crustae* più prossimo all'area ecclesiastica e cronologicamente datato alla fase che precede la costruzione della basilica altomedievale. Purtroppo, i dati di scavo desunti dalle ricerche archeologiche del secolo scorso non indicano nello specifico la presenza, anche in forma residuale, di apparati decorativi attribuibili a quella struttura (Croce da Villa 2006). Tuttavia, è da considerare la particolare problematicità di lettura dei livelli tardoantichi all'interno del palinsesto delle Antiche Mura, data la sovrapposizione di altre due strutture particolarmente "invasive" che hanno obliterato le tracce dei piani d'uso dell'aula più antica. Infatti, i dati archeologici più consistenti si riferiscono esclusivamente agli apparati decorativi dei due edifici religiosi di età medievale: da una parte i lacerti di tappeti musivi della basilica altomedievale, la cui conservazione è stata garantita dallo strappo delle decorazioni e dalla conservazione non *in situ* (Cuscito 2007), dall'altra i resti del pavimento in tessellato bianco e nero combinato con riquadri in *opus sectile* della cattedrale romanica di S. Maria Assunta (Fabbiani 1994). La riconoscibilità di tali decorazioni è stata ovviamente favorita dalla presenza ancora in opera di alcuni lacerti per entrambe le chiese e, per quanto riguarda l'*opus sectile* dell'edificio religioso più monumentale, l'individuazione di specifici moduli di tessere compatibili con la realizzazione di motivi ricorrenti anche in altre chiese coeve dell'arco del

nord Adriatico (si veda Fabbiani 1994 per l'analisi anche dimensionale dei frammenti recuperati).

Per quanto riguarda l'edificio tardoantico, invece, abbiamo solo scarse informazioni relative ai tagli di spoliatura dei perimetrali e la documentazione di ulteriori lacerti di strutture poco leggibili in corrispondenza dell'area occidentale antistante l'ingresso del complesso ecclesiastico. L'incertezza della funzione religiosa attribuita a quest'aula (data l'assenza di ulteriori indizi in merito), le dimensioni e la morfologia dell'edificio stesso e la presenza di questi resti di strutture nelle vicinanze porterebbe a considerare l'eventualità che proprio qui ci fosse un complesso di *balnea*, la cui visibilità archeologica sarebbe rimasta inevitabilmente molto limitata.

Conclusioni

Le prospettive di ricerca offerte dal sito di Jesolo si stanno rivelando di anno in anno sempre più promettenti anche sotto l'aspetto interdisciplinare. Infatti, oltre alla buona conservazione dei depositi archeologici, subito al di sotto dell'arativo, e alla possibilità di eseguire indagini in estensione, i dati desunti anche da altri metodi analitici permettono di ricostruire diacronicamente il mutevole contesto ambientale in cui *Equilus* è nata e si è sviluppata. In particolare, la rilettura dei dati ottenuti tramite *remote sensing* (Serra 2011; Serra 2013) combinati con i dati geoarcheologici (Mozzi, Negrelli 2013; Granzo 2018), derivati oltre che dall'attività di scavo anche da una serie di carotaggi mirati, permettono di precisare la ricostruzione della rete di vie d'acqua e i progressivi interventi di bonifica che hanno portato all'ampliamento o all'erosione delle terre emerse, di pari passo con i mutamenti delle linea di costa e dei percorsi fluviali presenti in questo comprensorio della laguna. Ulteriori indicazioni fondamentali, soprattutto in funzione predittiva, sono state desunte dal rilievo gradiometrico a cui è stata sottoposta sistematicamente un'area di circa 9 ettari, a sud e a nord delle Antiche Mura, grazie alla collaborazione con l'Università di Siena, nello specifico con il team del Prof. Stefano Campana (Saito, Campana, Cianciosi

2018). Tra le numerose tracce degne di interesse e di approfondimento, oltre a quelle particolarmente fitte ed evidenti dei canali lagunari, in gran parte rintracciabili anche dalle foto aeree, sono state intercettate alcune anomalie riconducibili più direttamente alla presenza di strutture in muratura. Combinando i dati diagnostici derivati da queste differenti tecniche non invasive con i risultati desunti dallo scavo archeologico, è possibile circoscrivere alcune aree specifiche per indirizzare la prosecuzione delle indagini sulle strutture della *mansio*. In particolare, in relazione all'analisi qui presentata sulle *crustae* marmoree e quindi all'ipotesi che la *mansio* fosse dotata di strutture anche di un certo pregio, due aree sembrano essere più promettenti per avvalorare o meno tali ipotesi. Infatti, grazie al riesame dei dati già noti derivati dalla fotointerpretazione è possibile dedurre l'ampiezza complessiva del grande edificio, di cui finora circa la metà è stato riportato alla luce⁴. L'eventuale scavo dell'intero *deversorium* permetterebbe di appurare se al suo interno fossero presenti altri ambienti di maggior pregio, come il vano I, che indicherebbero un'organizzazione gerarchica nella struttura ricettiva e consentirebbero di chiarire le eventuali funzioni anche di rappresentanza di alcuni ambienti di questo corpo di fabbrica. L'altra area, invece, si trova a nord-est del quartiere artigianale, dove il rilievo gradiometrico indica la localizzazione di un *cluster* di dipoli che corrisponde a un'area di circa 25x18 m a margine della quale, effettivamente, anche i dati di scavo sembrano corroborare la presenza di livelli di abbandono con reperti di una certa ricercatezza, più pertinenti ad una struttura di pregio (fig. 10).

La prosecuzione delle indagini di scavo in questa zona potrebbe riportare alla luce la struttura, l'edificio o il quartiere da cui provenivano le *crustae* marmoree rinvenute ad *Equilus* e fornire ulteriori dati in merito all'organizzazione e alla composizione sociale della comunità

4 Nel lavoro di Serra 2013 (in particolare: 56-8) erano state descritte analiticamente molte tracce significative, tra cui anche quella identificabile con il grande edificio. Le interpretazioni date dall'autore sono talvolta fuorvianti, ma perché antecedenti alle attività di scavo.

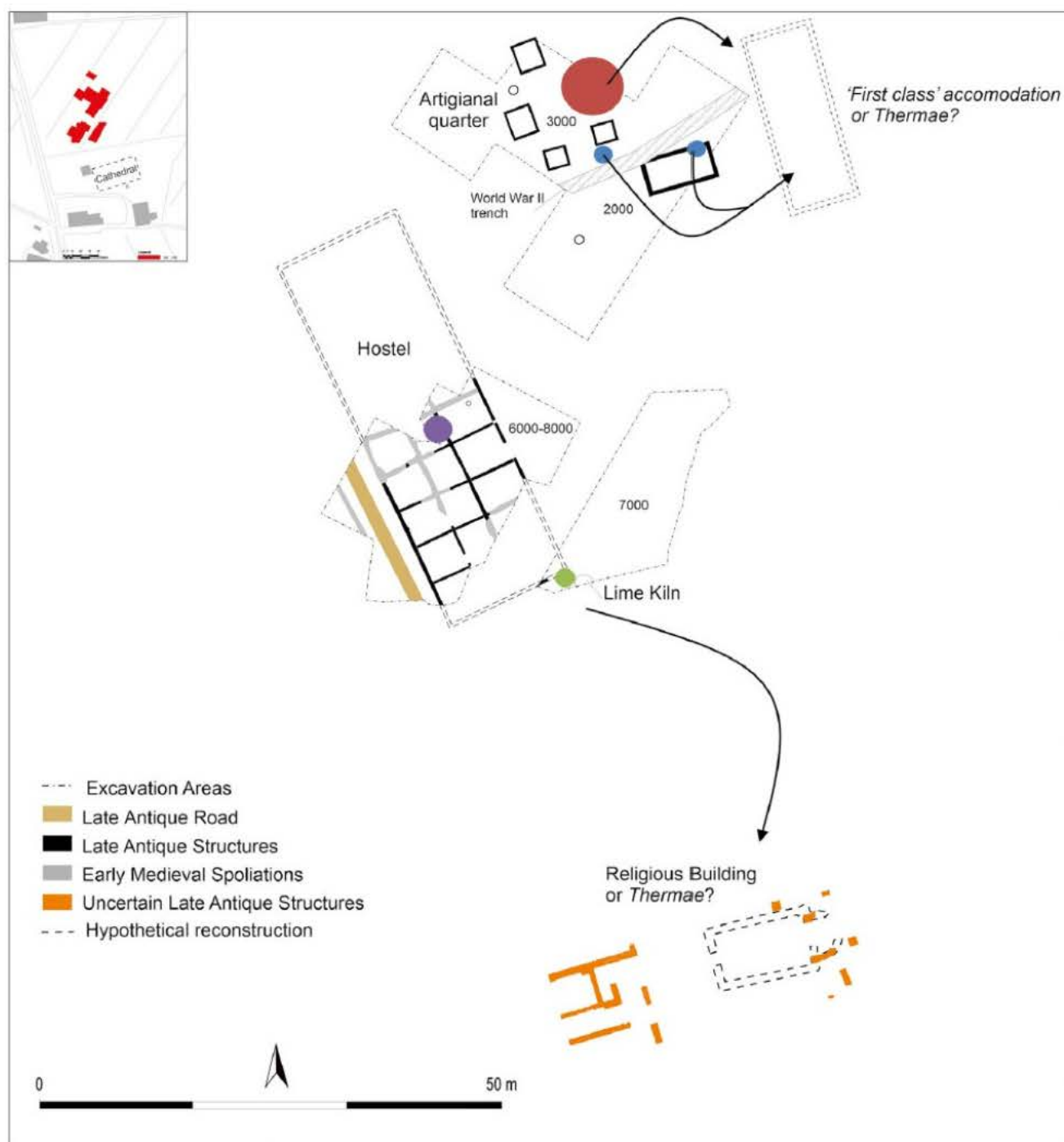


Figura 10. Ipotesica prosecuzione e interpretazione delle strutture della mansio di Equilus (A. Cianciosi, LAM-UniVE).

che gravitava intorno alla *mansio*. Rimane ancora difficile stabilire quanto l'intervento pubblico sia stato necessario o decisivo per la nascita e il funzionamento di questo centro lagunare in età tardoantica, tuttavia il potenziale informativo offerto dalle ricerche pregresse, dalla rilettura

e ricombinazione di dati vecchi e nuovi, dall'approccio interdisciplinare, dall'osservazione puntuale anche di quei reperti che talvolta sembrano destinati a rimanere sottovalutati, è innegabile e garantisce la possibilità di progredire nella conoscenza non solo di *Equilus*, ma anche delle com-

plesse dinamiche insediative che hanno interessato la laguna nord tra tardoantichità e medioevo.

Summary

Recently, an archaeological project conducted by the Ca' Foscari University of Venice investigated a late antique *mansio* in the countryside around the present-day town of Jesolo, formerly called *Equilus*. The ancient *Equilus* was inhabited by a lagoon community between Antiquity and the Middle Ages, and played a crucial role in relation to the development of coastal settlements in the northern Adriatic basin, especially in relation to the Venetian lagoon. This paper aims to describe and discuss the assemblage of marble finds (*crustae*), probably used to decorate some buildings of this Late Antique *mansio*. Although all the finds of this class were recovered from secondary depositions, the stratigraphic analysis and the comparison with other coeval sites allowed us to propose some hypotheses on their original location and use. In particular, the most likely interpretation seems to be that they decorated 'first class' accommodation or a bath-building. The validation of the presence of this kind of buildings is important to evaluate if the *mansio* was promoted and managed by public or private agency and to know which community frequented this site. Furthermore, the aerial photos analysis associated with a geophysical survey contributed to recognize many traces, some of which can be attributed to yet unexcavated structures related to the *mansio*. The combination of archaeological data derived from different methodologies and scales of analysis seems to be promising for developing future fieldwork and interdisciplinary research in this lagoon site.

Povzetek

Univerza Ca' Foscari v Benetkah je med nedavnim projektom raziskala poznoantično *mansio* na podeželju v okolici današnjega Jesola, ki se je nekoč imenoval *Equilus*. Antični *Equilus*, kjer je med antiko in srednjim vekom živela lagunska skupnost, je igral ključno vlogo v razvoju obalnih naselij v severnem jadranskem bazenu, zlasti v zvezi z beneško laguno. Pričujoči prispevek skuša opisati in odpreti razpravo o zbirki marmornih najdb (*crustae*), ki so verjetno služile kot okras nekaterih stavb tega poznoantične *mansio*. Čeprav so bile vse najdbe te kakovosti odkrite v sekundarnih nanosih, nam je strati-

grafska analiza in primerjava z drugimi sorodnimi najdišči omogočila nekaj hipotez o njihovem prvotnem položaju in uporabi. Predvsem se zdi najverjetnejša razlaga, da so služile kot okras »prvovrstnih« bivalnih ali kopalniških zgradb. Okrasili „prvovrstno“ nastanitev ali kopalnico. Potrditev prisotnosti tovrstnih zgradb je pomembna za ugotovitev, ali je *mansio* upravljal zasebnik ali kak javni subjekt in kateri javnosti so bile namenjene. Poleg tega je analiza zračnih posnetkov v namen geofizičnih raziskav so omogočili prepoznavo številnih sledi, od katerih je nekatere mogoče pripisati še neizkopanim strukturam, povezanim z *mansio*. Sestavljeni podatki, pridobljeni s pomočjo različnih metod in raziskav v različnih obsegih, veliko obetajo za razvoj prihodnjih terenskih in interdisciplinarnih raziskav tega lagunskega najdišča.

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Lombard weapons from Fiesole, Tuscany (6th–7th century C.E.): old archaeological data for new considerations

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The article focuses on the analysis of seven Lombard weapons datable between the end of 6th and the 7th century C.E. and present in the Archaeological Museum of Fiesole, in the north-eastern area of Tuscany in Italy. These objects, only partially published, and coming both from the Lombard necropolis of Area Garibaldi and from unknown contexts, have been compared with similar materials on national scale of the 6th-7th century C.E. and represent a relevant term of archaeological analysis for the transition between Late Antiquity Era and Lombard domination in Fiesole.

Keywords: Fiesole, Lombards, axe, spear, scramasax.

Langobardsko orožje iz Fiesole v Toskani (6. - 7. stoletje n. št.): stari arheološki podatki za nove razmisleke

Članek se osredotoča na analizo sedmih kosov langobardskega orožja, ki jih je mogoče umestiti v obdobje med koncem šestega in sedmega stoletja po Kr. in ki se nahajajo v Arheološkem muzeju v mestu Fiesole na severovzhodu Toskane. Te predmete, ki so bili le delno objavljeni, odkriti pa so bili na langobardski nekropoli na območju Garibaldi in tudi v neznanih kontekstih, smo primerjali s podobnimi gradivi iz 6. in 7. stoletja po Kr., odkritimi po vsej državi. Omenjeni predmeti predstavljajo pomemben del arheoloških analiz za prehod iz obdobja pozne antike v čas prevlade Langobardov v Fiesolu.

Ključne besede: Fiesole, Langobardi, sekira, sulica, scramasax.

The presence of Lombards and the formation of their identity are significant research themes that over time have attracted various interdisciplinary studies. The weapons analyzed in this paper were found on the site of the current Town Hall of Fiesole at the end of the 19th century. They represent only a small part of the larger Ph.D. study by the writer (*The definition of Lombard identity (cc. 5th - 8th A.D.). Archaeology of social construction between barbaricum, Italy and Tuscany*) underway at the Faculty of Humanities at the University of Primorska in Slovenia.

From a European point of view, the reminded themes are deeply related to the general European matters concerning the integration between German invaders and local communities in terms of migration, identity, and social construction problems. From this point of view, that is the same of the reminded Ph.D. project, also the analysis proposed here on the selected weapon is related to all those archaeological and historical studies that concern the relationship between the *barbaricum* and the Mediterranean world and the formation of European consciousness. From the 5th century, the societies that characterized the European contest deeply

changed. This great historical phase brought on a new civilization that, among various differences, spread all over Europe and that was created by the early Christian culture and by multicultural values. The archaeological materials presented here represent this historical phase in Fiesole. In a broad sense, these objects allow us to understand the development of Fiesole, thus considering them as a fundamental material aspect of the Lombard society that characterized the town since the end of the 6th century C.E. As we will see, the weapons in question do not come from scientifically documented archaeological layers, but their analysis, however, constitute a fundamental part for the study of the Lombard heritage of Fiesole.

In the last years, various studies have been carried out on the Lombard presence in Tuscany between the 6th and the 8th century C.E., though at the moment there is not a complete or defined research. All these cases regard coastal Tuscany or the south-western part of the region, but the northeastern part (along the Apennine mountains) is the richest from an archaeological point of view. Furthermore, between the end of the 6th C.E. and the end of Lombards' Kingdom, it was the site of the military border between Lombards and Imperials. Tuscany was not conquered by the Lombards in the first phase of their Italian invasion, but in a second one, at the time of King Agilulf of the Bavarian dynasty around 593-594 C.E. From this moment (or little before), in *Tuscia* there was one of the most important Italian Lombard cities, that is Lucca as a ducal capital. However, also other cities, such as Chiusi (the other Tuscan ducal city), Arezzo, Pistoia, Siena, and Pisa have Lombard traces. Besides these cases, several significant early medieval urban burials were dug also in Fiesole, between 1986 and 2015. Fiesole could be a particularly important step forward for the knowledge of Lombard presence in Tuscany because of the presence of 90 partially or completely unpublished tombs from the various cemeteries dated between the 6th and the 8th centuries C.E. One of the most important scholars who

published on Fiesole Lombard materials (but not on the complete amount) was Otto von Hessen in 1971 (von Hessen 1971b).

Fiesole during Lombard domination

As already mentioned, between the second half of the 6th and the 7th century C.E. Tuscany saw many changes in political and historical conditions so that several cities (Ciampoltrini 1994, 615-633; Vaccaro and Citter 2003; Brogiolo 2005; Citter 2012) – such as Lucca (Ciampoltrini and Notini 1990; Ciampoltrini 2011), Pisa (Alberti and Paribeni 2011), Pistoia (Vannini 1985; Vannini 1987; Vannini 1997, 37-54), Florence (Scampoli 2010), Fiesole (von Hessen 1971b; Von Hessen 1975; Biondi 2018b; Biondi 2019a), Siena (Cantini 2005), Arezzo (Molinari and Nespoli 2005), Luni (Lusuardi Siena 2003), Cosa (Celuzza and Fentress 1994), Roselle (Celuzza and Fentress 1994), and Chiusi (Falluomini 2009) – met some sensitive topographical and material transformations while the stability of the urban structures proved to be particularly firm in those more strategically important demic centers (Jarnut 2002; Petersen 2013).

Following the Lombard invasion of Italy in 568 C.E., the duchies of Lucca and Chiusi were created (perhaps due to the pre-existence *in loco* of garrisons of Lombards *foederati* and *exercitales* of the Empire) and *Tuscia* gradually went out from the political influence of the Eastern Roman Empire (Jarnut 2002). Only with the offensive of King Agilulf of 593-594 C.E., also the north-eastern portion of the region, with the centers of Pistoia, Fiesole, and Florence (Vannini 1997; Magno 1998; Biondi 2018a), were finally included in the Lombard *Regnum*, through the *diverticulum* of the *via Cassia* between Lucca and Pistoia (Alfieri 1992).

Moving on to the topography of Fiesole (Fig. 1), the actual Archaeological Area is located in its northern portion with the remains of the theater, the baths and the temple dating from the 1st century C.E. and progressively deconstructed from the 4th century C.E. and partially used for funerary purposes between the 4th and

Fiesole between the 6th and the first half of the 8th century C.E.

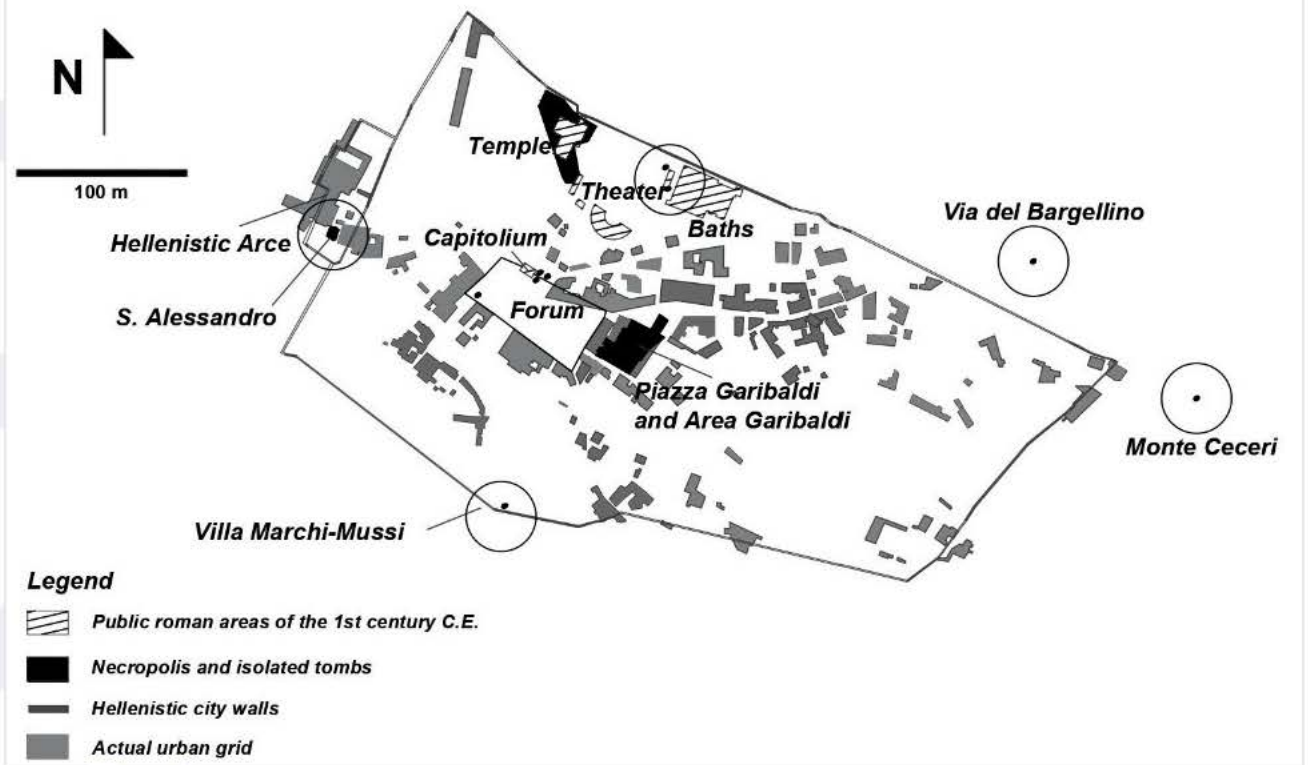


Figure 1. Plan of the city of Fiesole between the 5th and the 8th century C.E. (plan: Andrea Biondi).

the 7th century C.E. (von Hessen 1971b; Alcardi 1990; Biondi 2019a).

The area of the temple was investigated by E. Galli between 1910 and 1924 and it returned late ancient and early medieval deposits with a necropolis of 27 tombs of the Lombard phase datable between the end of the 6th and the middle of the 7th century C.E. (von Hessen 1971b; Biondi 2019a). The burials had homogeneous characters from an organizational (east-west oriented, excavated respecting the volumes of the 1st century C.E. temple), stratigraphic, structural, and depositional point of view. Furthermore, the tombs contained sets of weapons, belt elements, ceramics, and ornaments from the end of the 6th to the mid of the 7th century C.E. (von Hessen 1971b).

In the central area of the city, the Cathedral of S. Romolo and Piazza Mino da Fiesole were places of excavations between 1955 and 2004 (Alcardi 1990; De Marinis 1995; Biondi 2019a). Between 1955 and 1990, 7 graves were brought to

light: they had no funeral equipment, were oriented east-west and were located between the northern area of the transept and the crypt of the Cathedral of S. Romolo (De Marinis 1995). According to the archeologist and Superintendence functionary G. De Marinis, under the current Cathedral of S. Romolo were to locate the remains of the city *capitolium*, while the *forum* had to be identified in the area of the current Piazza Mino da Fiesole (De Marinis 1995). Also in 1955, an isolated tomb was found at the site of the seminary of Fiesole: it was oriented south-west-north/east, it had no funeral equipment and limited bone remains of the deceased. Therefore, the central area of the city would have been de-functionalized as early as the 5th-6th century C.E. and from the 7th century C.E. some burials without funeral equipment would have been implanted, suggesting a necropolar destination of the entire northern side of the urban ancient *forum* (Biondi 2019a).

In the southern portion of Fiesole, in the park of Villa Marchi-Mussi, a single isolated tomb with two silver pins and a pottery (now missing) was found during the 20th century (Pasqui 1907).

The western portion of the city would have been the seat of an *arce*, a strong point of the city defenses, placed to guard the road network between Florence and the Mugello and datable to the Etruscan-Hellenistic age (4th-3rd century B.C.E.). The basilica of S. Alessandro (mentioned since 966 C.E. with the name of San Pietro in Gerusalemme) is located in the south/east of the *arce* and it is dedicated to one of the oldest bishop-saints of the diocese of Fiesole. In 1814, 10 tombs dug directly in the rock were brought to light under its churchyard (Aleardi 1990). One of these was covered by a stone slab with a carved cross comparable with a case of Arsago Seprio in Lombardy (De Marchi 2015), while a gold cross with decorations (today missing) was recovered within a second tomb (Aleardi 1990). These elements and the fact that the tombs were arranged in relation to the church would lead to date them between the late 7th and 8th centuries C.E., a moment in which the practice of burying with funeral equipment was gradually lesser-used and the social distinction would no longer be entrusted to the materiality of the objects, but to the relationship of burials with ecclesiastical buildings, as a consequence of the catholicization of Lombard society (Rotili 2001; Giostra 2014).

The eastern part of the city was characterized by a predominant necropolar function between the end of the 6th and the middle of the 7th century C.E. In this context is located the site of Area Garibaldi (where were found some of the analyzed weapons), the site of Piazza Garibaldi, and that of via del Bargellino. The necropolis of via del Bargellino is the only extra-urban one known for Fiesole and was identified by G. Maetzke in 1957 (Aleardi 1990). Here, among the collapses of the Hellenistic burial chambers of the 3rd-1st century B.C.E., were brought to light two tombs with bone remains of adult indi-

viduals and some fragments of pottery currently missing. The tombs of Piazza Garibaldi, found between 1878 and 1882, would be framed in a 7th century C.E. period of deposition inside still visible but partially defunctionalized buildings of the 1st-2nd century C.E. that were probably used as a sepulchral area already from the 4th-5th century C.E. (Aleardi 1990). According to the analysis of the grave goods (ceramics, belt elements and glass objects) of these burials made up by O. von Hessen (von Hessen 1971b), R. Francovich (Francovich 1984), and C. Giostra (Giostra 2000), the tombs could be datable to the second half of the 7th century C.E.

Finally, the Area Garibaldi (Fig. 2) was excavated between 1986 and 2015 and would have seen the foundation of at least two *domus* in the upper imperial era (1st-2nd century C.E.) directly on outcrops of natural rock (Cianferoni, Minucci and Pianigiani 2009). From the 4th-5th century C.E. these *domus* were subdivided into small rooms for craft and production use with shops open around the courtyard of the previous southern *domus*, a *caupona* and at least a *macellum* (De Marinis 1990; Cianferoni, De Tommaso and Megale 2015). The 6th century C.E. (especially its second half) would have represented a more sensitive moment of urban change as massive layers of collapse of Roman structures were formed throughout the area and, above all, a clear promiscuity between structures and tombs was established (Biondi 2019b).

In detail traces of housing structures (in perishable materials) and some burials have been documented (Aleardi 1990). Finally, the first Lombard tombs were excavated in these collapses from the last decade of the 6th century C.E. and, overall, the area would have seen a Lombard presence till the middle of the 7th century C.E. with at least 40 tombs (Biondi 2019c). From a general point of view, when Lombards arrived in Fiesole, they would not have substantially changed the necropolar destination of Area Garibaldi, reconfirming, on the contrary, a trend in land use already started between the end of the 4th and the 6th century C.E. (Biondi 2019c).

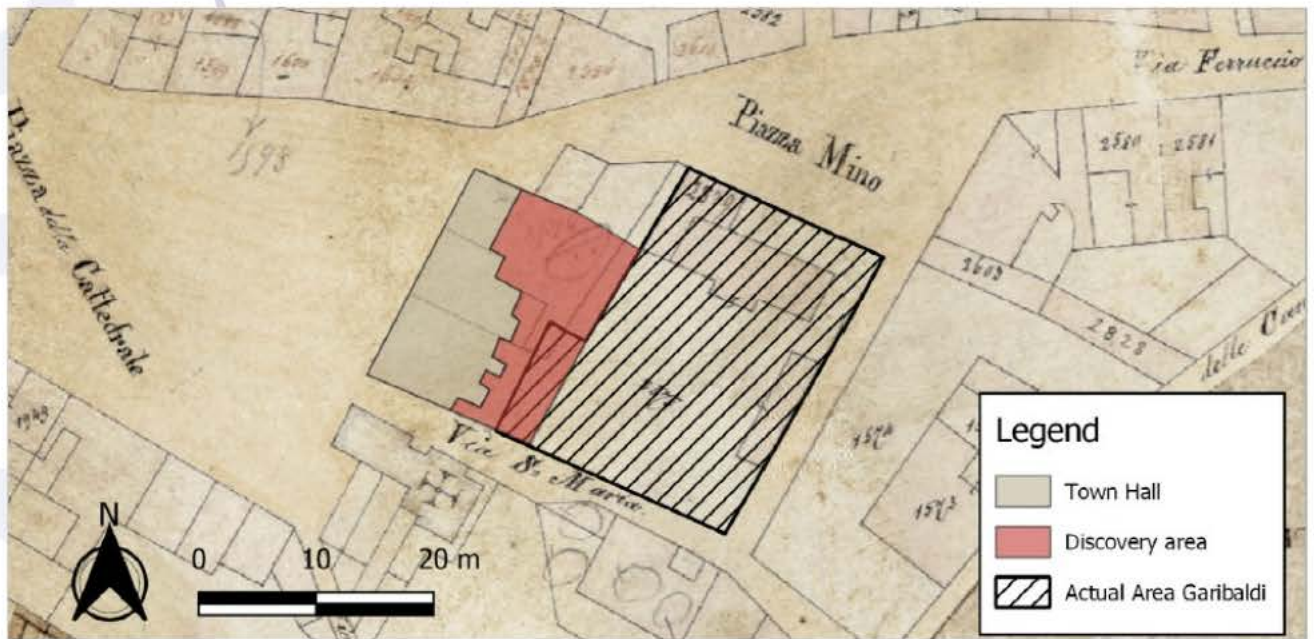


Figure 2. Detail of the Area Garibaldi in Fiesole and of the zone of the finds of the 19th century (plan: Andrea Biondi after the free and open source database of Tuscany Region – CASTORE).

To conclude the discussion about the eastern part of the city, we want also to remember an isolated tomb discovered under the Monte Ceceri Middle School, in the locality of Borgunto (east of Fiesole): this was characterized just by the presence of few ceramic fragments (currently missing) with a generic dating to the full 7th century C.E. (Alardi 1990).

The objects

As already anticipated, the objects analyzed do not come from scientifically documented tombs. In the inventory of the Archaeological Museum of Fiesole, realized by the archaeologist E. Galli, the first conservator of the reminded institution, they are reported from various origins. We have also to remind that the inventory is datable in its first edition to 1910 and was created by E. Galli several years after the discovery of the finds in question. However, in the pages describing the objects, some relevant informations are reported which overall reflects the knowledge of the time regarding materials that were defined with the generic and improperly definition of barbaric. In the inventory, for each object, with the exception of a single spear head, it is recorded the specific

number, the provenance and a sort of summary description with all the available informations about the context. In detail, the findings chosen and analyzed for this contribution are the following (in numerical order):

- Number 650, spear head (Figg. 5 and 10);
- Number 657, *scramasax* (Figg. 5 and 11);
- Number 666, axe head (Figg. 3 and 6);
- Number 667, axe head (Figg. 3 and 7);
- Number 670, axe head (Figg. 4 and 8);
- Number 679, axe head (Figg. 4 and 9);
- A spear head without inventory number and not cited by Edoardo Galli (Figg. 5 and 11).

Following the order just mentioned, the first spear head (number 650) is described by E. Galli in 1910 as “*Ferro di lancia di schema rettangolare, con tozza punta, angoli inferiori delle pinne arrotondati e corto cannone conico d’innesto. Non si nota la costola longitudinale nel mezzo. Lunghezza: 0,34*” (Galli 1910, 335)¹. Regarding the

¹ Here the English translation from the original document: Spearhead with a rectangular design, with a stubby tip, rounded lower fin corners and a short conical graft socket. The longitudinal rib in the middle is not noticed. Length: 0.34.

provenance of the object, E. Galli reports “*Ignota; dono del Marchese Carlo Strozzi, epoca indeterminata*” (Galli 1910, 335)². Therefore, the find comes from the private collection of the Marquis Carlo Strozzi, representative of one of the most illustrious and ancient Florentine noble families, who donated various finds to the Archaeological Museum of Fiesole at the end of the 19th century. The Marquis, as it is known, acquired the objects of his collection both as a family inheritance and by purchasing them on the antiques market. For this reason, therefore, the provenance of this object is completely unknown.

Also the axe head number 670 derives from a donation of the Marquis Carlo Strozzi as it has been reported: “*Località ed epoca indeterminata; dono del Marchese Carlo Strozzi*” (Galli 1910, 344)³. Subsequently E. Galli describes the axe head as “*Accetta di forma identica a quelle menzionate sotto i numeri 666-7, con questa sola differenza, che l'esemplare Strozzi ha la parte posteriore foggiate a martello molto più prolungata. Lunghezza: 0,20; taglio 0,15*” (Galli 1910, 344)⁴. Also in this case we do not know neither the provenance of the object, nor the exact date of discovery. However, E. Galli noticed some similarities between the specimen in question and the numbers 666 and 667 that we will see in the next lines.

The specimens 657, 666 and 667 are identifiable in order as a *scramasax* and two axe heads and were found in 1879 in the rear portion of the Town Hall of Fiesole: “*Fiesole, Piazza Mino a tergo del Palazzo Pretorio, 1879*” (Galli 1910, 342)⁵. In detail, the *scramasax* (number 657) is described as

- 2 Here the English traduction from the original document: Unknown; gift of the Marquis Carlo Strozzi, undetermined period.
- 3 Here the English traduction from the original document: Indeterminate place and time; gift of the Marquis Carlo Strozzi.
- 4 Here the English traduction from the original document: Axe head identical in shape to those mentioned under numbers 666-7, with this only difference, that the Strozzi model has a much longer hammer-shaped back. Length: 0.20; cut 0.15.
- 5 Here the English traduction from the original document: Fiesole, Piazza Mino on the back of the Palazzo Pretorio, 1879.

Lama di coltello di forma rettangolare, ad un sol taglio e con largo codolo per fissarvi il manico. Frammentata alla punta; lunghezza: 0,27 (Galli 1910, 339)⁶.

The other two specimens, already mentioned in connection with the comparison with the axe head number 670, are described on the same page of the inventory by E. Galli. In detail the scholar reports:

Numero 2 accette (seures) formate da un taglio o penna molto prolungata in basso, di schema rettangolare, dal foro ovale per il manico, fiancheggiato sulle due aperture da orecchiette, e dal dorso foggiate a martello. L'aspetto generale di siffatte scuri richiama quello della cateia celtica dei più antichi monumenti etruschi e liguri (cfr. stele fiesolana di Sarthi Animies e stele primitiva della Val di Magra di proprietà Baccani a Pontremoli). Lunghezza rispettiva: 0,15 e 0,17; taglio 0,14 e 0,15 (Galli 1910, 342)⁷.

From the description of E. Galli, it is clear that the axe heads had been identified not as a Lombard weapons but, on the contrary, as objects of possible Etruscan or Ligurian origin. This erroneous consideration can be attributed to the fact that at the time, at least for Tuscany, the material knowledge on the phases following the 5th century C.E. was still rather scarce and, at the same time, the scientific community and public opinion were more attracted by roman and etruscan origins rather than by Middle Ages.

Furthermore, the area in which these 3 weapons were found could be identifiable with the current Area Garibaldi. Unfortunately, it is

- 6 Here the English traduction from the original document: Rectangular knife blade, single cut and with a wide tang to fix the handle. Fragmented at the tip; length: 0.27.
- 7 Here the English traduction from the original document: Number 2 axes (seures) formed by a very prolonged cut or pen at the bottom, with a rectangular pattern, with an oval hole for the handle, flanked on the two openings by orecchiette, and a hammer-shaped back. The general appearance of such shutters recalls that of the Celtic cateia of the most ancient Etruscan and Ligurian monuments (see Fiesolan stele of Sarthi Animies and primitive stele of Val di Magra owned by Baccani in Pontremoli). Respective length: 0.15 and 0.17; cut 0.14 and 0.15.

not possible to exactly place the objects analyzed but, considering the presence of the currently documented necropolis, it is absolutely plausible that these come from tombs destroyed during some agricultural activities or works linked to the extension of the Town Hall at the end of the 19th century. In fact, as we can see from the historical cartography, the area seems to be used for cultivation between the 1820 and 1830 (the period in which was realized the cadastral cartography reported), while, on the west front towards the current Piazza Mino da Fiesole (formerly Piazza della Cattedrale), stands the actual Municipal Palace of Fiesole, dating from the 15th century C.E. at least.

The last cited objects in the inventory is an axe head identified with number 679. E. Galli describes it as

Accetta di tipo analogo ai nn. 666-7 e 670, però col taglio largo prolungato in basso e desinente a punta in alto. Manca del prolungamento a martello sul dorso. Lunghezza: 0,15, taglio: 0,14 (Galli 1910, 347)⁸.

About its provenance, we just know that it was found in Fiesole in 1895 but in an indeterminate place: “*Fiesole, località indeterminata, 1895*” (Galli 1910, 347)⁹. As already considered for the other axe heads, E. Galli recognized a certain material and technical similarity between the axe head number 679 and the other objects, but he remained convinced of their greater antiquity, wrongly dating them back to the Etruscans and the Ligurians.

As already mentioned, the last object analyzed, a spear head, does not have any inventory number and, today, are both unknown the exact date of entry into the collections of the Archaeological Museum of Fiesole and its provenance.

Finally, all the objects are currently exhibited in a showcase in the Room 5 of the Archae-

8 Here the English traduction from the original document: Head axe of a type similar to nos. 666-7 and 670, but with a wide cut extended at the bottom and ending with a point at the top. The hammer extension on the back is missing. Length: 0.15, Cut: 0.14.

9 Here the English traduction from the original document: Fiesole, undetermined locality, 1895.

ological Museum of Fiesole, at the beginning of the section dedicated to the local Middle Ages.

The analysis

From a methodological point of view, after the analysis of the archaeological, archival, and written data available, we moved on to the analysis of the material and morphological characteristics of the weapons.

Starting from the axes, as known, their presence among the Lombard grave goods in Italy is quite rare. This low recurrence it has been interpreted also as the result of their limited use in battle and, from another point of view, it must be reminded that there is a current scientific problem related to the concrete definition of their use (Parenti 1994b, pp. 483-486). Some known axe heads, in fact, could have been used both for war purposes and as a simple carpentry tool (Parenti 1994a; Parenti 1994b; Giostra 2014). Nevertheless, the axe heads found with other objects typical of warrior kits are usually considered weapons.

In Fiesole, it is present a tomb, under review by the writer but of uncertain position, excavated in 1988 in the Area Garibaldi with an axe head (in addition to the four analyzed here). In this case, the kit belonging to a male individual aged 50-60 consisted of a blue glass cup, a hernial belt, a knife, and a short blade axe head¹⁰. If placed in relation to some anthropological characteristics of the individual, such as the consistent development of the musculature of the trunk and upper limbs, and considering also the absence of other important elements of a warrior kit, this axe head actually represents same interpretative problems as, considering the reminded physical aspects, it could have belonged to an individual that may just not even have been specifically a warrior (Biondi 2019a). Therefore, relying on the current available data, neither for the tomb of 1988 it is possible to distinguish the function of the axe solely on the basis of its morphological features. Remaining in Fiesole, we must

10 The axe head of the tomb was found in the same position of that of tomb 4 identified in Povegliano Veronese (Giostra 2014).

also remember the considerations expressed by R. Parenti in 1994 on the axe heads examined here (Parenti 1994b). Although R. Parenti had already included these last objects in some general considerations relating to the actual use of bearded axes, we believe that the reinterpretation of the 1910 inventory documents of E. Galli, proposed here, will definitively help to include in the scientific debate the objects examined in the light of more general considerations on the Lombard presence in Fiesole.

Starting with the material and morphological analysis of the axe heads, it has been firstly considered the shape of the blade. As known, the blade technically corresponds to the portion of the weapon that includes the cut (the side with which the shot was carried), the upper back and the lower back. The nape and the form of the handling can be used as other criteria for classification.

The four axe heads examined are all belonging to the type of bearded axes (*Bartäxte*) but some differences can be identified among them. As known, the distinctive feature of the specimens from this group of shape blade is the downward development of the blade, whose cut assumes a L profile (Parenti 1994b; Cagnana 2003).

The two axe heads marked with inventory numbers 666 and 670 (Figg. 3, 4, 6 and 8) are both characterized by sub-rectangular blades slightly narrowing from top to bottom. The upper backs are curved and inclined upwards. The axe head marked with inventory number 667 (Figg. 3 and 7) has the width of the rectangular blade that is more constant in its length than for number 666 and 670 but has a similar upper back that is slightly inclined upwards. The last axe head, inventory number 679 (Figg. 4 and 9), has a trapezoidal bearded blade: the particular conformation is characterized by a sensitive variation in width along the development of the blade.

Regarding other morphological aspects related to the axe heads, the number 670 has two couples of triangular reinforcement shoulders symmetrical to each other (one on the up-

Inv. n. 666



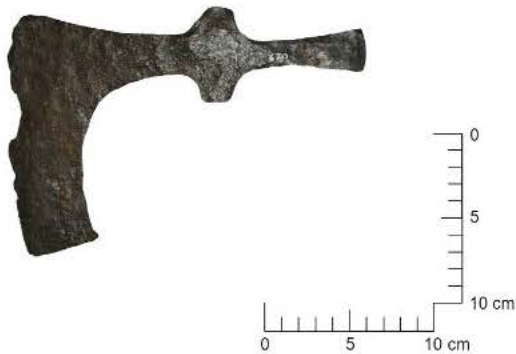
Inv. n. 667



Figure 3. Head axes n. 666 and n. 667 (photo: Andrea Biondi).

per back and one on the lower back). Number 667, on the contrary, has a simple cylinder handle. Numbers 666 and 679 have T-shaped handles with characteristic dilations of the final portion that curves into two shoulders (one upper and one lower). About the napes of the four axe heads (that, as known, is an element collocated behind the handle hole whose function was above all related to the balancing of the object), these are present in 3 of the 4 analyzed specimens (number 666, 667 and 670). In two of the specimens (667 and 670), napes are distinct from the backs and have a rectangular shape. For 667 the nape has a small shape (3 cm) whereas the nape of number 670 has a large shape (8 cm). Regarding numbers 666 and 679, with T-shaped handles, the first has just a 1,5 cm long nape before the T end, whereas number 679 has not nape.

Inv. n. 670



Inv. n. 679

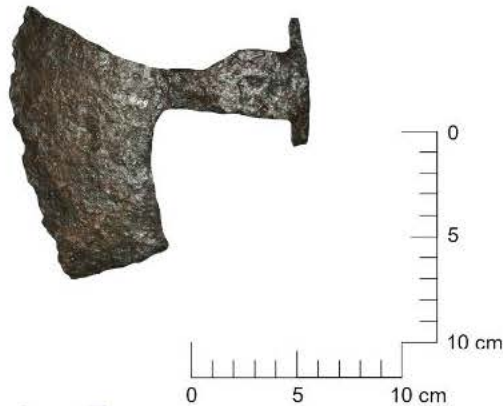


Figure 4. Head axes n. 670 and n. 679
(photo: Andrea Biondi).

Overall, axe heads number 667 and 670 have a width between the nape and the blade of 18 and 21 cm. The other two axe heads are smaller in this value, presenting 14 cm (number 666) and 16 cm (number 679). Finally, the downward development of the blades of all the specimens oscillates between 14 (numbers 666, 667 and 670) and 15 cm (number 679).

According to current literature, from a chronological point of view, the bearded axes found in Italy are generally dated to the late 6th and throughout the 7th century (Parenti 1994a, 117; Parenti 1994b, 483) and, about the specimens considered here, they would be in line with the frequentation currently known for the necropolis of the Area Garibaldi dated between the end of the 6th century and the 7th century. Just to make a concise summary, in Italy speci-

mens of bearded axes have been found between Cividale del Friuli (Ahumada Silva, Lopreato and Tagliaferri 1990, 43, XIX, 1), Testona (von Hessen 1971a), Sirmione (Bolla 1996), Langasco di Camporone (Bianchi and Cagnana 1995), Tesis di Vivaro (Ahumada Silva 1991, 76, 165), Castelvecchio di Peveragno (Micheletto 1996, 122-123) and near Imola (Baruzzi 1978, 426-427; Gelichi 2005, 367, 16.3). In particular, a specimen very similar to the one with a trapezoidal blade from Fiesole (number 679), but with a slightly narrowed blade, it has been found near Imola in Emilia Romagna and reported by S. Gelichi (Gelichi 2005, 367, 16.3). However, the find, now kept in the Museum of Imola, does not come from a certain context and it is not datable with certainty. Another possible comparison for the axe head number 679 from Fiesole, is constituted by the axe head found in tomb 24 of the necropolis of S. Stefano in Pertica in Cividale del Friuli (Ahumada Silva, Lopreato and Tagliaferri 1990, 43, XIX, 1). This last one is overall slightly smaller than the Fiesolan specimen and, with the tomb, is dated to first years of 7th century C.E. (Brozzi 1990). In conclusion, among all the Italian sites, in this moment Fiesole retains the highest number of specimens of bearded head axes with a total of 4 currently known cases.

About the two analyzed spear heads, as known, this type of weapon is one of the most frequently attested weapons in the depositions of warriors (on foot and horsemen) in Italy, in association with *spatha* and shield (Giostra 2012, 232). Therefore, for Lombard the spear was an object which, in addition to its functionality, had also a strong social and cultural value sanctioning, in fact, the maturity of a young man and was also deeply related to kings' power (Gasparri 1983).

From a material point of view, it is possible to classify the spear heads on the shape of the blade, which corresponds by definition to the part of the weapon between the two wires. Other criteria of analysis are the blade-socket ratio and the shape and decoration of the socket.

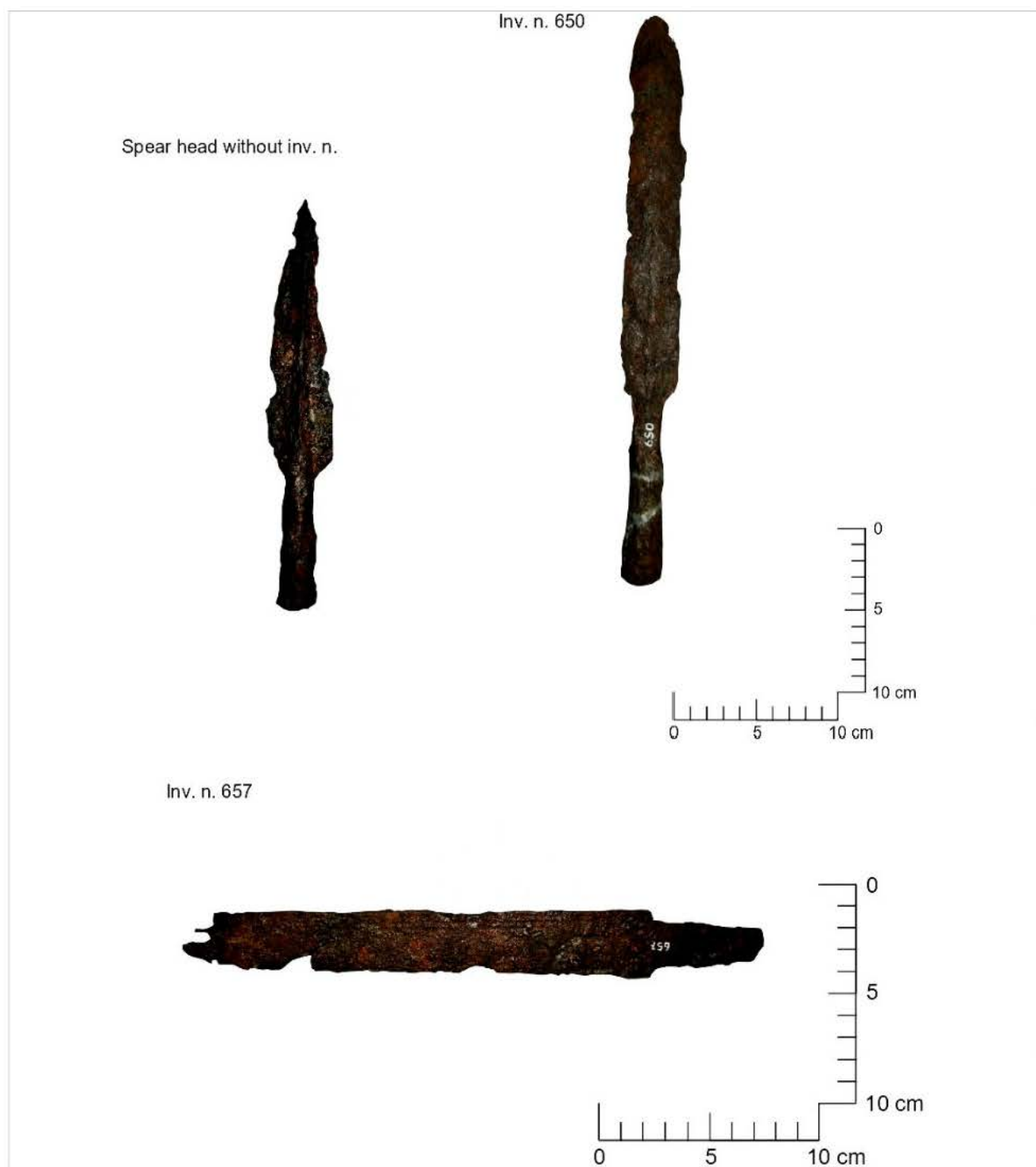


Figure 5. Spear head without inv. n., spear head n. 650 and scramasax n. 657 (photo: Andrea Biondi).

The spear head number 650 (Figg. 5 and 10) can be identified as a cusp with parallel wires and with an elongated and narrow body whose width does not noticeably vary along the blade (with the exception of the tip and the narrowing that precedes the socket). This specimen has also

a spine that runs out in the middle of the blade. The other spear head (Figg. 5 and 10) that, as we have reminded, unfortunately has not an inventory number, has a triangular body blade with the width growing progressively from the end up at the base, where the narrowing that precedes

the socket is dampened with oblique edges converge towards the socket. There is also a median spine all along the blade.

About other aspects, both the spear heads have blades longer than the sockets and present truncated cone-shaped simple socket without any decoration (as burin engraving or metal molding).

The specimen number 650 belongs to one of the oldest variants attested for the Lombards. The considered specimen from Fiesole is 40 cm length and 3,2 cm width and, at the moment, in addition to the unpublished example of Fiesole analyzed here, this variant is known in Italy in north-eastern contexts, like Lombardy, Veneto (De Marchi and Cini 1988) and Friuli Venezia Giulia and it is more present abroad than in Italy. As comparisons we consider the specimen from tomb 5 of Trezzo sull'Adda (Roffia 1986, 93) and other examples from Pacengo (von Hessen 1968, 31), from Brescia (Panazza 1964, 168), from tomb 35 of the necropolis of San Mauro in Cividale del Friuli (Ahumada Silva 2010, 76) and from Ofanengo (von Hessen 1965, 31). From a chronological point of view, this type can be placed between the beginning and the last third of the 7th century C.E. (De Marchi and Cini 1988).

The second specimen of spear head (without inventory number) is characterized by a rhomboid-shaped blade, longer than the socket and has been found both in North Italy and in the Centre of the peninsula (von Hessen 1971a; Sesino 1989; Rupp 1997; Paroli and Ricci 2007). The example of Fiesole is 26 cm length and 4 cm width and, from a chronological point of view, could be dated throughout the 7th century C.E. In conclusion, as seen for the axe heads, the two specimens of spear head considered would also be in line with the frequentation of the Area Garibaldi, dated between the end of the 6th century and throughout the 7th century C.E.

The last object analyzed in this paper is a specimen of *scramasax* (Figg. 5 and 11) which is described as a spearhead in the aforementioned inventory of the Archaeological Museum of Fie-

sole by E. Galli (number 657)¹¹. *Scramasax*, in association with *spathae* or alone, is a frequent object that has been found in various sites and warriors' burial in Italy (von Hessen 1971a). As known, the morphological evolution of this weapon follows a progressive increase in the length and also in the width of the blade. The presence of grooves (*Blutrillen*) near the back on both sides of the blade is another usual aspect for this type of weapon.

From a material point of view, the *scramasax* in Italy are divided into 3 groups depending on the length of the blades (Giostra 2012, 229-231). Regarding this aspect, we have the *kurzsax* (datable to the 6th century and to the beginning of the 7th century C.E.) that presents a length of the blade between 19 and 30 cm and a maximum width between 2,6 and 3,5 cm. Between 570 and 640 C.E., a more massive short *sax* (blade length 23-30 cm) with a width of 3,5-4 cm is also documented. Since the end of the 6th century C.E. and up to the third quarter of the 7th century C.E., a medium-sized *sax* (blade length 30-46 cm; width 3,5-5,8 cm) spread, while, from the last quarter of the 7th century C.E. there is the *Langsax*, with a significant increase (between 48 and 80 cm) in the length of the blade (Giostra 2012, 229-231).

The *scramasax* number 657 here analyzed has not a good complex state of conservation with a 27 cm residual length (without the tip), a thickness of 0,5 cm and a 3 cm width with the usual grooves (*Blutrillen*) near the back on both sides of the blade. The specimen number 657 from Fiesole can be considered as a *Kurzsax*. In Italy, reporting the comparisons listed by C. Giostra (Giostra 2012, 229-230), this type of weapon was found in the tomb 24 of necropolis of S. Stefano in Pertica (length 25 cm; width 3,3 cm, first decades of the 7th century C.E.; Ahumada Silva, Lopreato and Tagliaferri 1990, 47 (n. 5), 102 (n. 11), tav. XXIII, 2) and in the tomb 43 of necropolis of S. Mauro (length 24 cm, but the tip is missing; width 3,6 cm; last third of the 6th

¹¹ There is also another *scramasax* known for Fiesole and it belongs to tomb XX in the Area Garibaldi that was discovered in 2010. This last specimen is inedited and is being studied by the writer.

century C.E., Ahumada Silva 2000, 202, n.3) in Cividale del Friuli, Monselice (tombs 748 and 749; De Marchi and Possenti 1998, 202-203, tavv. 17n e IV/a), tomb 3 of via Monte Suello in Verona (length 20 cm approx.; width 2,8 cm; early 7th century C.E.; Modonesi and La Rocca 1989, 69, tav. V, 2), Sirmione (hypothetical length approx. 28,5 cm; width 3,4 cm; find without context; Sesino 1989, 73, 5.b, tav. IX), Testona (6 specimens partly fragmentary, however with a length that can be reconstructed between 26 and 29,2 cm; width 3,3-3,6 cm; decontextualized; von Hesse 1971a, 18, 63, nn. 92, 93, 95-98, tav. 10), in the tombs 6, 51, 76, 84, 86, 119, 122, 137, 145 of Nocera Umbra (length 22,6-25,5 cm; length *sax* t. 119 2,9 cm; 570-630 C.E.; Rupp 2005, 11, 69, 96, 105, 108-109, 139, 142, 155, 163, tavv. 15,10; 69,8; 92,20; 100,17; 103,5; 130,5; 133,11; 145,6; 152,9), in the tombs 90 (length 19 cm; width 2,5 cm; beginning of the 7th century C.E.), 111 (length 23,5 cm; width 2,3 cm; first quarter of the 7th century C.E.), 170 (length cm 28,2; width 3,2 cm; end of the 6th century C.E.), 176 (length 28 cm; width 3,4 cm) and 180 (length 26 cm) of Castel Trosino (Paroli and Ricci 2007) and in the tomb inside the oratory of SS. Nazaro and Celso (length 29,1 cm; width 4 cm; first decades of the 7th century C.E.) at Garbagnate Monastero (Sannazaro 1994, 300-301, n. 2, fig. 190,1). In conclusion, as already seen for the axe heads and spear heads, also for the *scramasax* number 657 there is a chronological confirmation of what is known for the Area Garibaldi, since the object can be dated between the end of 6th and the beginning of the 7th century C.E.

Conclusion

An essential part of the work presented here was the preliminary research carried out on the inventory of the Archeological Museum of Fiesole by E. Galli in 1910. As already mentioned, the scholar made a list of all the objects present in the museum collections long after the first acquisitions and after at least 20 years with respect to the finds analyzed. Despite some aspects revised from an interpretative point of view, such

as the question relating to the attribution of axe heads 666 and 667 to the Etruscan era, overall E. Galli recognized some material aspects recurrent among the axe heads, while limited itself to an unspecified dating, as regards the tip of spear head (number 650).

Unfortunately, the fact that at least one axe (number 670) and the aforementioned spearhead (number 650) are not surely from Fiesole does not help to improve the reconstruction of the context of the Area Garibaldi but, at the same time, they nevertheless offer the possibility of describing a further part of the medieval heritage of Fiesole and of updating the actual state and origin of local museum's collections. From an archaeological point of view, in Italy the axes (of all specimens) do not represent a particularly frequent find in tombs: consequently, having the described four bearded axes, together with the one already known and discovered in 1988 in the Area Garibaldi, is a relevant fact.

About the social value related to weapons, even if we do not know nothing about the original positions of the objects within any possible burials, they represent elements of medium and high level within the Lombard material panorama. About these aspects, the analyzed spearheads could have been important material and symbolic objects also among the Lombards' community of Fiesole and they could be also accompanied by eventual complete outfits. An example of this hypothetical statement is given by the case of tomb XI of the Area Garibaldi, datable to the first quarter of the 7th century C.E. (Biondi 2019c, 322). Studied and published by the writer, tomb XI belonged to a young warrior with a complete set of weapons and objects composed by *spatha*, spear, shield, belt elements (without decorations) and a bone comb. However, the dispersion of the original contexts does not allow further evaluations for the two specimens here analyzed. Finally, the type of the considered *scramasax*, is a rather frequent weapon in Lombard depositions of the 6th-early 7th century C.E. Also in this case, as for the spear heads, it was probably an integral part of a burial set

and, although it is not possible to reconstruct the original context, it represents the second known specimen for Fiesole, and the only one published at the moment.

In conclusion, the result of the application of the type of material and historical analysis (referring to local museum's documents) used in this paper will be that, extending it to the entire Lombard material heritage of Fiesole, it will be possible to try to trace a chronological occurrence of the town between the 5th and the 8th century C.E. From this point of view, as already affirmed, Fiesole seems to constitute a promising case study for the archaeological analysis of the passage between the first and the second phase of the Lombard settlement in Tuscany and, more generally, for the debate on regional and national urbanism in the transition from Late Antiquity to the early Middle Ages.

Catalogue

The 7 finds analyzed in this contribution are presented following the order of the discussion in the text starting with the 4 ax heads (inv. nn. 666, 667, 670 and 679), followed by the 2 spear heads (inv. n. 650 and that one without number) and, finally, concluding with the *scramasax* (inv. n. 657). As seen, the finds are reported on the basis of the corresponding inventory numbers of the Archaeological Museum of Fiesole, except for one of the two spearheads currently devoid of any numerical reference.

Furthermore, the objects have been described following the following order:

- Data about discovery, context, year, and data available;
- Analysis, brief description of the find with relative dimensional, morphological, and conservation data. In the description of the objects the following abbreviations referring to dimensional aspects are used:
 - L. = length (maximum value);
 - W. = weight (maximum value);

- T. = thickness (maximum and minimum value);

- D. = diameter (maximum value referring to sockets and maximum and, eventually, minimum value for handle holes);

- Pres. = preserved dimensional value (in case of fractured objects).

- Dating, definition of the chronological period in which the object can be dated.

Finally, to complete the catalog, there have been inserted the descriptive drawings of the finds together with the photos of each object.

- Axe head (inv. n. 666, fig. 6)

Data about discovery: found in 1879 in the rear portion of the Town Hall of Fiesole without any other archaeological indications.

Analysis: forged iron; intact. L.= 14 cm; W.= 14 cm; D. (handle hole) = 3,5 cm; T.= 3,5 - 0,5 cm.

Iron bearded axe head characterized by sub-rectangular blade slightly narrowing from top to bottom. The upper back is curved and inclined upwards. The specimen has T-shaped handle with a circular handle hole and the characteristic dilations of the final portion that curves

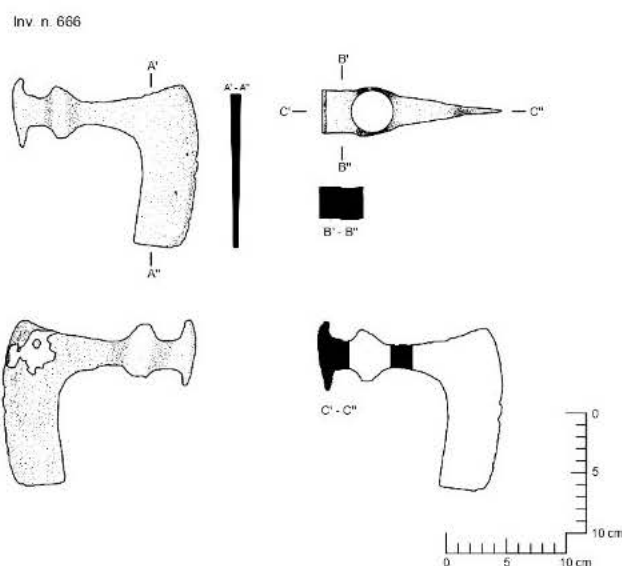


Figure 6. Head axe n. 666 (drawing: Andrea Biondi).

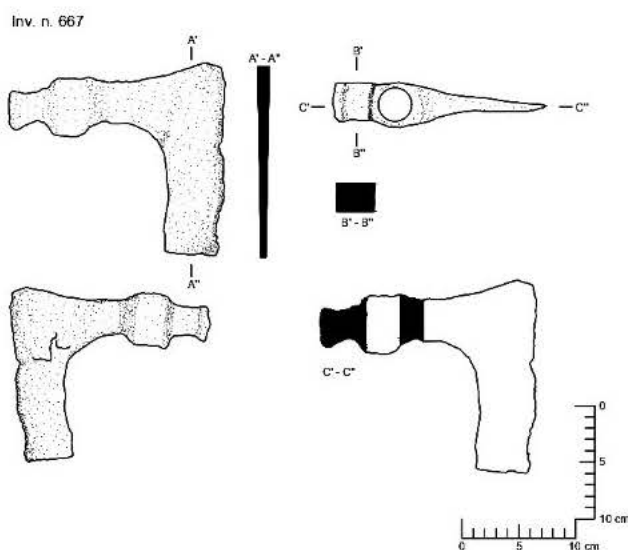


Figure 7. Head axe n. 667 (drawing: Andrea Biondi).

into two shoulders (one upper and one lower) and a 1,5 cm long nape before the T end.

Dating: end of the 6th century - 7th century C.E.

- Axe head (inv. n. 667, fig. 7)

Data about discovery: found in 1879 in the rear portion of the Town Hall of Fiesole without any other archaeological indications.

Analysis: forged iron; intact. L.= 18 cm; W.= 14 cm; D. (handle hole) = 2,5 cm; T.= 3 - 0,5 cm.

Iron bearded axe head characterized by sub-rectangular blade slightly narrowing from top to bottom with the width of the rectangular blade that remains constant in its length. The specimen has a simple cylinder handle hole with rectangular shoulders and a nape with a small shape (3 cm).

Dating: end of the 6th century - 7th century C.E.

- Axe head (inv. n. 670, fig. 8)

Data about discovery: unknown origin. The object was donated to the Museum of Fiesole by the Marquis Carlo Strozzi at the end of the 19th century.

Analysis: forged iron; fractured along the central part of the blade. L.= 21 cm; W.= 14 cm; D. (handle hole) = 3 cm; T.= 2 - 0,5 cm.

Iron bearded axe head characterized by sub-rectangular blades slightly narrowing from top to bottom. The upper back is curved and inclined upwards. The axe head has with a circular handle hole and two couples of triangular reinforcement shoulders symmetrical to each other (one on the upper back and one on the lower back) and a long rectangular nape (8 cm).

Dating: end of the 6th century - 7th century C.E.

- Axe head (inv. n. 679, fig. 9)

Data about discovery: the object was found in Fiesole in a undetermined locality in 1895.

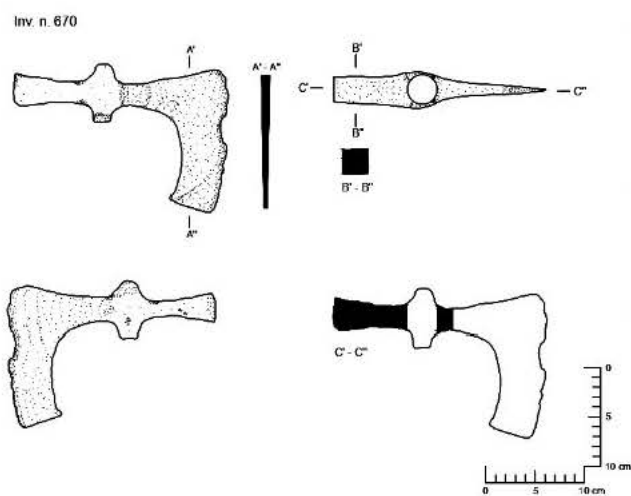


Figure 8. Head axe n. 670 (drawing: Andrea Biondi).

Analysis: forged iron; intact. L.= 16 cm; W.= 15 cm; D. (handle hole) = 4x3 cm; T.= 4 - 0,5 cm.

Iron bearded axe head characterized by a trapezoidal blade with a sensitive variation in width along the development of the blade (the lower edge of the cut measures 1/3 less than the maximum width). The upper back is curved and strongly inclined upwards, unlike other specimens belonging to this type (where it is generally perpendicular to the rod). The axe head has a T-shaped handle with an elliptical handle hole, characteristic dilations of the final portion that curves into two shoulders (one upper and one lower) and has not nape.

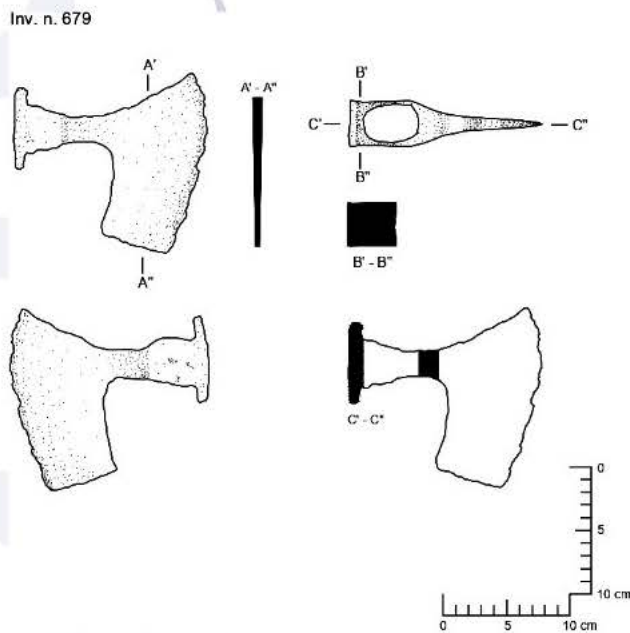


Figure 9. Head axe n. 679 (drawing: Andrea Biondi).

Dating: end of the 6th century - 7th century C.E.

- Spear head (inv. n. 650, fig. 10)

Data about discovery: Unknown origin. The object was donated to the Museum of Fiesole by the Marquis Carlo Strozzi at the end of the 19th century.

Analysis: forged iron; fractured along the blades and at the tip. Restored in the socket. Pres. L.= 40 cm; Pres. W.= 3,2 cm; D. (socket) = 2,5 cm; T.= 1 - 0,1 cm.

Iron spear head with parallel wires and with an elongated and narrow body whose width does not noticeably vary along the blade (with the exception of the tip and the narrowing that precedes the socket). The object has also a spine that runs out in the middle of the blade. The length of the blade exceeds that of the socket and the object has a truncated cone-shaped simple socket without any decoration (as burin engraving or metal molding) and partially restored.

Dating: 600-670 C.E.

- Spear head without inv. n. (fig. 10)

Data about discovery: the exact entry into the collections of the Archaeological Museum of

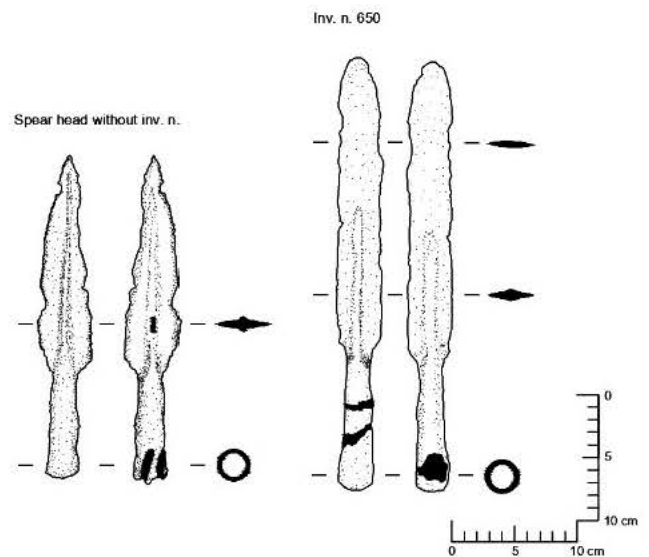


Figure 10. Spear head without inv. n. and spear head n. 650. The restored parts are marked in black (drawing: Andrea Biondi).

Fiesole and the provenance of the spear head are unknown.

Analysis: forged iron; fractured along the blades and at the tip. Restored in the socket and the central spine. Pres. L.= 26 cm; Pres. W.= 4 cm; D. (socket) = 2,5 cm; T.= 1,5 - 0,1 cm.

Iron spear head with triangular body blade and with the width grows progressively from the end up at the base, where the narrowing that precedes the socket is dampened with oblique edges converge towards the socket. There is also a median spine all along the blade. The object has the length of the blade exceeding that of the socket and has a truncated cone-shaped simple socket without any decoration (as burin engraving or metal molding) and partially restored.

Dating: 7th century C.E.

- *Scramasax* (inv. n. 657, fig. 11)

Data about discovery: found in 1879 in the rear portion of the Town Hall of Fiesole without any other archaeological indications.

Analysis: forged iron; fractured along the blade and at the tip. Pres. L.= 27 cm; Pres. W.= 3 cm; T.= 0,5 - 0,1 cm.

Iron *scramasax* with *Blutrillen* near the back on both sides of the blade. From a classifi-

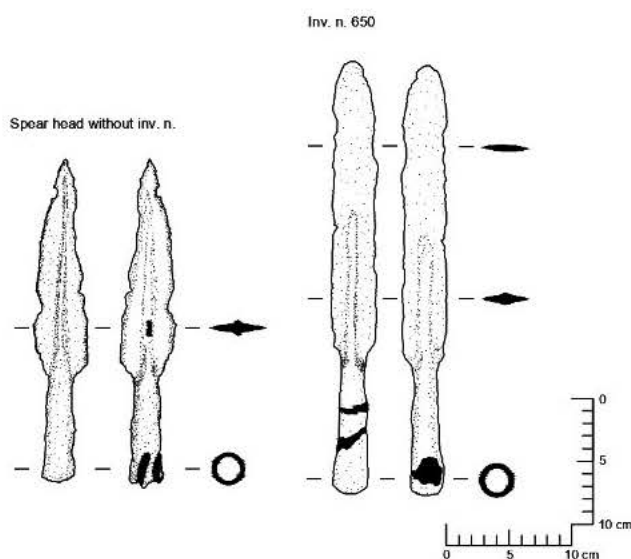


Figure 11. Scramasax n. 657 (drawing: Andrea Biondi).

cation point of view, the specimen can be considered as a *Kurzsaax*.

Dating: end of 6th century - beginning of the 7th century C.E.

Summary

In the last decades researches focusing on material culture and topographical aspects of the 5th and the 8th centuries C.E. have been developed in Italy and in Tuscany in order to analyse the dynamics of urban transformation between Late Antiquity and Early Middle Ages and the Lombard phenomenon. Fiesole, in the north-eastern area of Tuscany, could represent a relevant term of archaeological analysis for the transition between the late antique phase and the Lombard one. The analysis of the weapons presented in the article, only partially published, and coming both from Area Garibaldi in Fiesole and from unknown contexts, can enrich this framework. These objects (axe heads, spear heads and a *scramasax*), datable between the end of 6th and the 7th century C.E., have been compared with similar materials on national scale, which have highlighted multiple analogies between Fiesole and other contexts of the 6th-7th century C.E. in central and northern Italy. The resulting data – once included in an up-to-date discussion about the evolution of Italian city between 5th and 8th century C.E.– could allow to remove the archaeological research in Fiesole from fortuity, from the indication of the punctiform evidence and from the underestimating of its innovative power.

Povzetek

V zadnjih desetletjih so se v Italiji in v Toskani okrepile raziskave, ki se osredotočajo na materialno kulturo in topografske vidike 5. in 8. stoletja po Kr., in sicer z namenom analize dinamike urbane preobrazbe v obdobju med pozno antiko in zgodnjim srednjim vekom ter pojavom Langobardov. Fiesole na severovzhodu Toskane bi lahko predstavljal pomemben del arheoloških analiz za prehod med poznoantično in langobardsko fazo. Orožje, analizirano v pričujočem članku, je bilo doslej le delno objavljeno, prihaja pa tako z območja Garibaldi v Fiesolu kakor tudi iz neznanih kontekstov. Pričujoča analiza lahko potemtakem obogati okvir raziskav. Primerjava teh predmetov (glave sekir, kopja in en *scramasax*), ki jih je mogoče uvrstiti v obdobje med koncem 6. in 7. stoletja po Kr., s podobnimi gradivi, odkritimi povsaj državi, je pokazala na več podobnosti med Fiesolom in drugimi konteksti iz obdobja med 6. in 7. stol. po Kr. v osrednji in severni Italiji. Tako pridobljeni podatki, ki so bili nekoč vključeni v dosedanjo razpravo o razvoju italijanskih mest med 5. in 8. stoletjem po Kr., bi lahko arheološke raziskave v Fiesolu z navedbo natančnih podatkov odstranili iz območja naključnega in podcenjevanja njihove inovativne moči.

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Arheološke raziskave na lokaciji Bazoviška ulica 5a v Kopru

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V starem mestnem jedru Kopra so se ohranile številne arheološke ostaline, naselbinskega, gospodarskega in pogrebne značaja. Najzgodnejša poselitev na območju koprskega mestnega jedra sodi v čas antike, natančneje v čas 1. stoletja n.š., kateri sledi sosledje arheoloških ostalin srednjega in novega veka. V članku predstavljamo rezultate arheološke raziskave na lokaciji Koper, Bazoviška ulica 5a. Odkrite arheološke ostaline lahko na osnovi arheoloških najdb uvrstimo v čas od pozne antike do novoveškega obdobja.

Gljučne besede: urbana arheologija, Koper, pozna antika, srednji vek, novi vek.

Archaeological excavations at the Bazoviška ulica 5a site in Koper

Numerous archaeological remains of settlement, economic and burial character have been preserved in the old town of Koper. The earliest settlement in the area of Koper's city centre dates back to antiquity, more precisely to the 1st century AD, which was followed by a sequence of archaeological remains of the Medieval period, early Modern and late Modern Period. The article presents the results of the archaeological research at the Koper site, Bazoviška ulica 5a. Discovered archaeological remains can be dated on the basis of archaeological finds from the late Antiquity to the late Modern period.

Key words: urban archaeology, Koper, late antiquity, medieval period, modern period.

Arheološko najdišče Koper, ki pokriva staro mestno jedro Kopra, je bilo vpisano v Register nepremične kulturne dediščine (RKD) relativno zgodaj, ob formiranju samega Registra sredi 90-ih let 20. stoletja (RKD, EŠD 236). Vse do 80-tih let 20. stoletja je bilo staro mestno jedro brez sistematičnega natančnega beleženja posameznih lokacij arheoloških dokumentiranj (Trenz, Lazar in Guštin 2011, 99). Prvi topografski pregled arheoloških ostalin v mestnem jedru Kopra je konec 80-ih podal Matej Župančič, ki je za to območje skupno navedel 15 posamičnih lokacij (Župančič 1989). Dobrih trideset let kasneje, v pregledu arheoloških raziskav v mestnem jedru Kopra, avtorjev Alfreda Trenza, Evgena Lazarja

in Mitje Guština, pa je bilo skupno označenih 86 ločenih lokacij raziskav (Trenz, Lazar in Guštin 2011, 99). Množenje dokumentiranih arheoloških lokacij znotraj mestnega se eksponentno dopolnjuje in nadgrajuje tudi v desetletju po objavi knjige *Urbana Arheologija Kopra* (Guštin 2011a), predvsem kot posledica obsežnih gradbenih del v samem mestnem središču. Eno od teh predstavlja tudi lokacija sondiranja na Bazoviški ulici 5a, katerega rezultate predstavljamo v članku.

Lokacija testne sonde, na Bazoviški ulici 5a, se nahaja v severovzhodnem delu nekdanjega koprskega otoka. O historični sliki širšega območja raziskave je bilo v preteklosti že precej povedanega na drugih mestih (Guštin 2011b), tudi

arheološka slika prostora je bila dokaj natančno predstavljena v članku „Pregled arheoloških raziskav v mestnem jedru Kopra“, avtorjev Alfreda Trenza, Evgena Lazarja in Mitje Guština, objavljenem v publikaciji *Urbana arheologija Kopra* (Trenz, Lazar in Guštin 2011), zato jih na tem mestu ne bi ponavljali, nekoliko podrobneje bi osvetlili le nekatere lokacije v neposredni okolici območja raziskave.

Arheološke raziskave na Bazoviški ulici 5a so bile locirane v severovzhodnem delu nekdanjega koprškega otoka v predelu Bošadrage, četrti, ki predstavlja najširše območje znotraj koprškega starega jedra, kjer se je ohranila pretežno stanovanjska gradnja nižjih slojev – manjših trgovcev, obrtnikov, ribičev kmetov. Urbanistično gledano, je Bošadraga sicer organsko zraščena, a vendarle na dokaj pravilni mreži ulic. Stavbe so v glavnem eno- ali dvonadstropne, grajene po aditivnem načelu (Tomaž et al. 2017). Na franciscejskem katastru iz 1818, parcelacija terena sledi značilni mediteranski gručasti zasnovi, kjer se stavbe z daljšo stranico pročelja odpirajo na ulico. Prizidane ena ob drugo tvorijo zamejene otoke, notranja dvorišča pa zapolnjujejo manjši vrtovi.

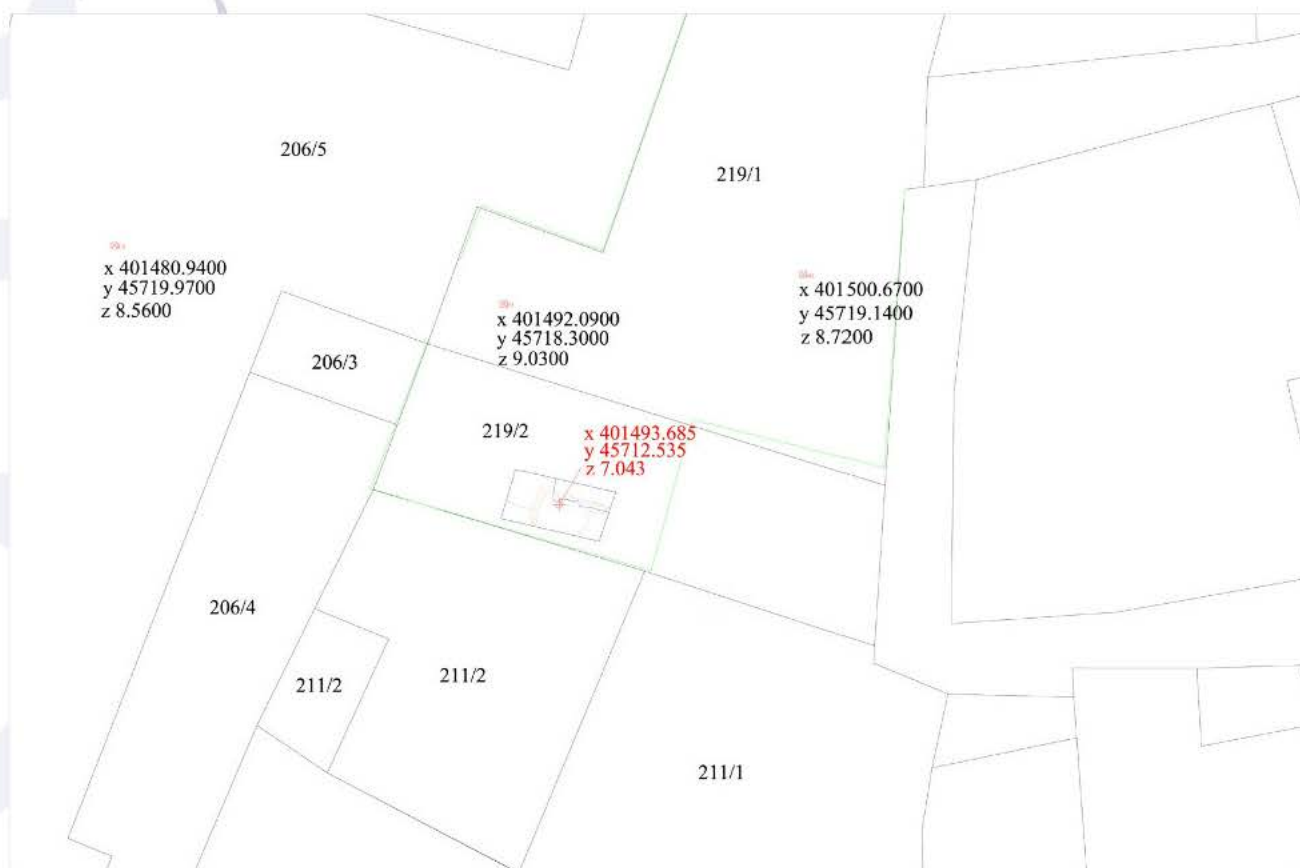
Lokacija stavbe Bazoviške 5a se prostorsko navezuje na dvoriščni del palače De Belli, v kateri tudi delno sega. Kot je razvidno iz franciscejskega katastra (slika 1), je ožja okolica stavbe doživela predelavo tekom 19. stoletja, ko je bila v prazen vmesni prostor vzdana današnja stavba Bazoviška 7. Pred tem lahko intenzivnejšo gradbeno dejavnost umestimo sredino in drugo polovico 16. st., ko je bila zgrajena palača De Belli (Bernik 1968,79) in pa samostan observantov (Naldini 1700 (2001), 140-141). Obravnavana zgradba se je torej nahajala na dokaj prominentnem delu mestne četrti, v ozadju palače kot dominante in ob glavni povezovalni ulici proti obodnemu trgu. Raziskana površina sonde je v središču območja, ki ga na severni steni zamejuje rob klifa in na njem stoječe obzidje, na južni strani glavna komunikacija od središča proti vzhodnemu delu otoka - današnja Cankarjeva ulica in na vzhodu kompleks palače De Belli



Slika 1. Koper, Bazoviška ulica 5a, izsek iz karte franciscejskega katastra (1819, Archivio di stato Trieste) z vrisano sondo (rdeče) (pripravil: A. Ogorelec, arhiv UP FHŠ IAD).

(RKD, EŠD 249). Karta franciscejskega katastra kaže na tem območju nenavadno veliko nepozidanih površin, kar je verjetno povezano z bližino oz. lastništvom minoritskega samostana (današnje gimnazije) in palače De Belli (Tomaž et al. 2017). V neposredni bližini lokacije testne sonde na Bazoviški 5a med pomembnejše arhitekturne spomenike poleg palače De Belli sodi še Rotunda sv. Elije (oz. Marijinega vnebovzetja) (RKD, EŠD 253), ki velja za enega najstarejših arhitekturnih spomenikov Kopra. Njen nastanek nekateri različni avtorji sicer vežejo za različna časovna obdobja, nekateri jo celo postavljajo že v predromansko obdobje (Tomaž et al. 2017), ysekakor pa sodi najkasneje v 11. stoletje (Zadnikar 1982; Zadnikar 2001, 67). Rotunda je bila uporabljena kot krstilnica, kasneje spremenjena v cerkev, leta 1694 pa je doživela tudi spremembo orientacije, pri čemer je bil vhod postavljen na vzhodno stran stavbe (Naldini 1701/2001). Konec 19. stoletja je služila kot skladišni prostor, v začetku 20. kot gledališče, ko je bil na zahodni strani dodan prizidek z zaodrjem (Leiss 1912).

O raziskanih arheoloških lokacijah v neposredni bližini testne sonde na Bazoviški 5a je sicer na voljo kar nekaj podatkov, vendar so le-ti



Slika 2. Koper, Bazoviška ulica 5a, lokacija sonde na katastrskem načrtu k.o. Koper z vrisanim centroidom (pripravil: A. Ogorelec).

tudi precej skopi, čeprav govorimo o enem od bolj izstopajočih geomorfoloških predelov nekdanjega koprškega otoka. V katalogu raziskanih lokacij Kopra iz leta 2011, je zabeleženo, da naj bi bil po navedbah F. Semija oz. M. Župančiča v bližini palače de Belli leta 1917 najden mozaik, omenjata pa se tudi dva Klavdijeva novca; v letu 1972 pa naj bi bil v bližini najden tudi bronast kip Aktajona (Trenz, Lazar in Guštin 2011, 122, št. 46). Na lokaciji Cankarjeve ulice 11, 13, 15 in Bazoviške ulice 1 so bili v 90-ih letih 20. stoletja ob sondiranju in geofizikalnih raziskavah odkriti ostanki iz časa pozne antike (5.-7. stoletje), srednjega veka in novega veka (Mileušnič 2011; Trenz, Lazar in Guštin 2011, 122, št. 47). Seveda ne gre spregledati tudi ohranjenih zidov in struktur vzdolž Cankarjeve ulice, četudi niso dopuščale točnejšo interpretacijo, je pa bilo ob arheološkem nadzoru ob gradnji zaznano, da so bili deloma ohranjeni poznoantični kamniti ob-

jekti postavljeni neposredno na geološko osnovo, sledila pa so jim nasutja in zidane strukture srednjega veka (Trenz, Lazar in Guštin 2011, 120, št. 41). Na območju Gimnazije Koper, na Cankarjevi ulici 2, pa sta bila ob testnem sondiranju odkrita dva zidova, eden v obliki suhozida, drugi je bil vezan z malto (Trenz, Lazar in Guštin 2011, 122, št. 45). Sosledje poznoantičnih ostalin, najdb srednjega in novega veka ter modernih posegov v prostor je bilo dokumentirano tudi ob testni sondi v atriju Dijaškega doma (Tomaž 2013). Glede na dostopne podatke lahko sklepamo, da je bilo širše območje lokacije testne sonde na Bazoviški 5a poseljeno že v (pozni) antiki in, da so bile arheološke ostaline kasneje močno izpostavljene mlajšim, predvsem novoveškim, posegom v prostor. Neredko, namreč poznoantičnim ostalinam sledi sosledje premešanih nasutij in gradbenih posegov, v katerih se v sekundarnem kontekstu pojavljajo drobne najdbe, ki jih lahko



Slika 3. Koper, Bazoviška ulica 5a, sogled na sondo 1 po odstranitvi kamnitih plošč SE 1 (foto: A. Ogorelec, arhiv UP FHŠ IAD).

vežemo za srednji oziroma zgodnji novi vek ter tudi kasneje.

Arheološke raziskave

Predhodna arheološka raziskava v obliki testnega sondiranja je bila izvedena na območju parc. št. 219/4 k.o. Koper (prej del parc. št. 219/2 k.o. Koper), tik ob severni steni objekta na naslovu Bazoviška 5a (parc. št. 211/2 k.o. Koper) z namenom določitve sestave in obsega arheoloških ostalin na obravnavanem območju (slika 2). Izkop ročne testne sonde v skupni površini 4,5 m² je v letu 2017 opravila ekipa Inštituta za arheologijo in dediščino, Fakultete za humanistične študije, Univerze na Primorskem pod vodstvom Alenke Tomaž.

Metodologija in potek raziskave

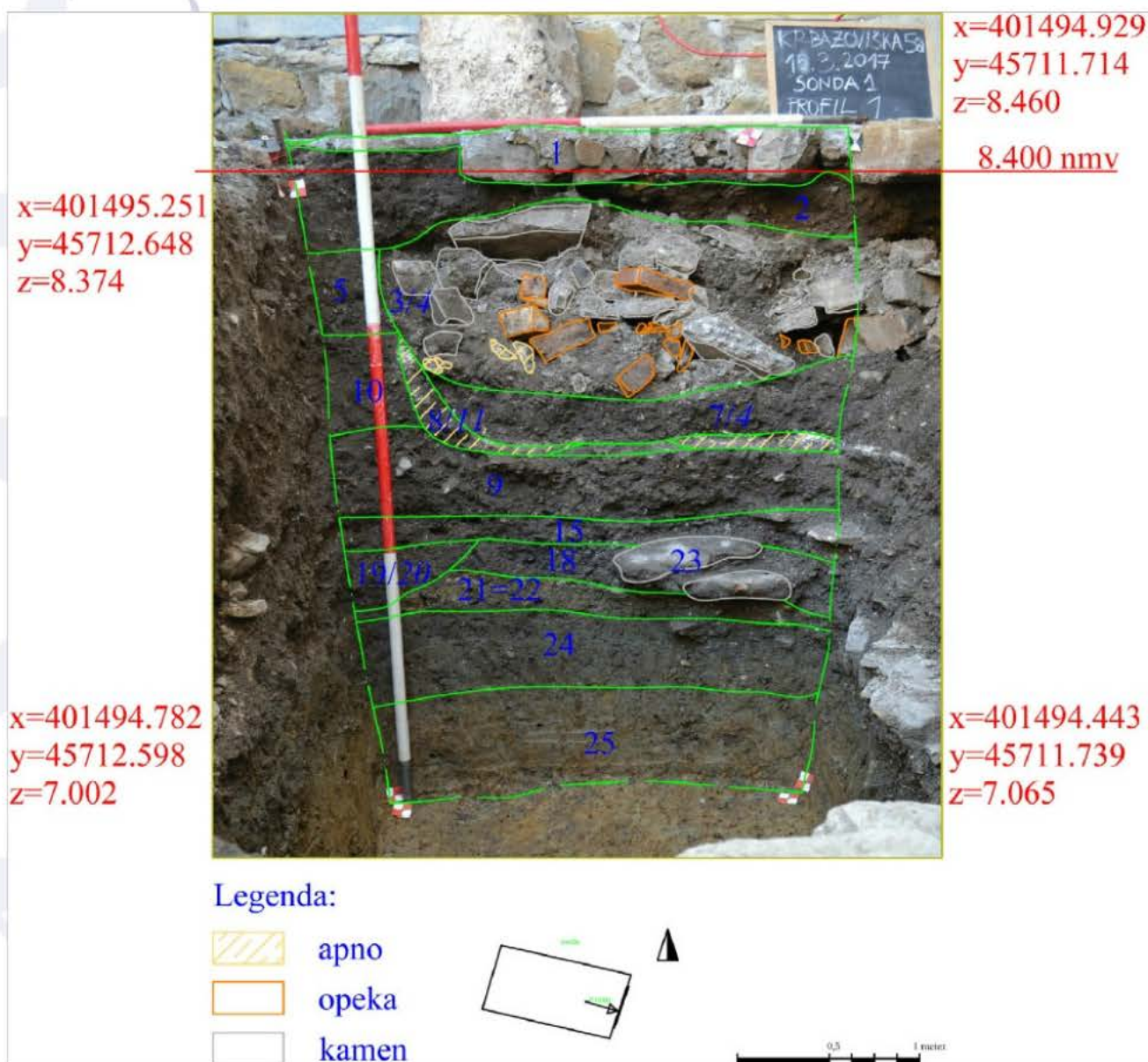
Metodologija terenskih raziskav je bila pogojena s standardi arheoloških raziskav, ki so predvid-

eni za arheološki testni izkop, skladno s Pravilnikom o arheoloških raziskavah (Ur. l. RS 3/2013). Arheološke plasti so bile izkopane ročno stratigrafsko, ohranjali so se ostaline zidanih struktur. Dokumentacija je obsegala geodetsko, fotografsko in opisno dokumentiranje evidentiranih plasti in arheoloških ostalin.

Rezultati arheološkega testnega sondiranja

Testno sondiranje, četudi na relativno majhni raziskani površini, na lokaciji Bazoviška 5a v Kopru je razkrilo zanimivo in precej kompleksno stratifikacijo plasti in arheoloških ostalin.

Stratifikacija plasti in interpretacija stratifikacije sta najbolje razvidni iz vzhodnega preseka sonde (slika 4), na katerem si v sosledju sledi večina odloženih plasti in arheoloških ostalin in pa iz matrike (slika 5), ki razloži vsa razmerja med dokumentiranimi plastmi in arheološkimi ostalinami.



Slika 4. Koper, Bazoviška ulica 5a, stratifikacija plasti in arheoloških ostalin – presek 1 – vzhodni presek (pripravila: A. Ogorelec, M. Ravnik, arhiv UP FHŠ IAD).

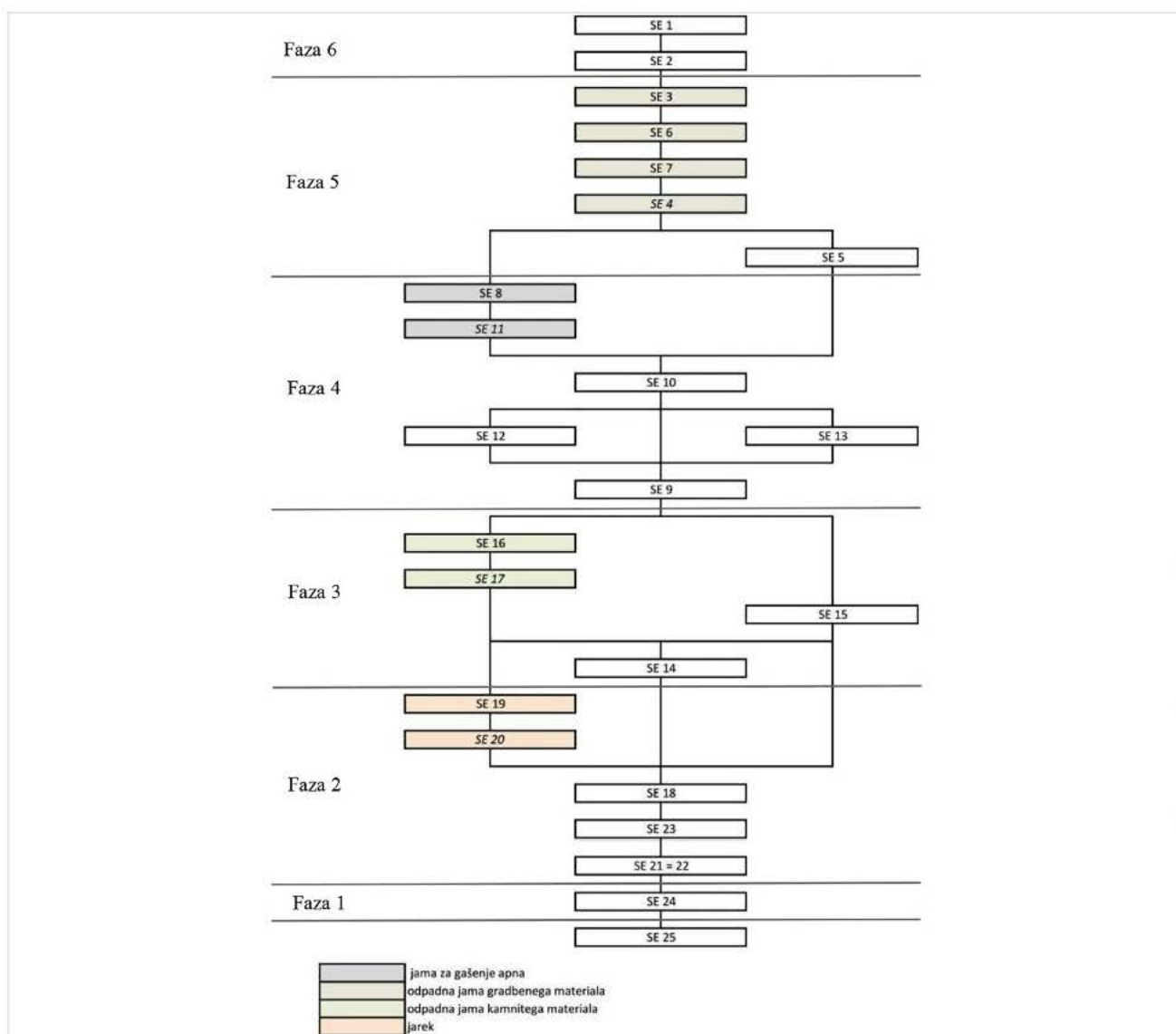
Dokumentirano stratifikacijo plasti in arheoloških ostalin lahko smiselno lahko razložimo skozi šest faz uporabe prostora, ki so se odložile na geološki osnovi (SE 25, svetlo olivno rjava plast ilovice in meljaste ilovice ter oksidov), plasti, ki je nastala pred prvimi človekovimi posegi v prostor.

Najstarejšo fazo uporabe prostora predstavlja *faza 1*, v kateri se je odložila SE 24, plast peščene ilovice, olivne barve, z odlomki keramike, opeke oz. gradbenega materiala, drobcji oglja, kosti, polžev, oksidov (slika 6). Na osnovi

najdb jo lahko opredelimo v poznoantično obdobje.¹

Najstarejšo novoveško fazo uporabe prostora (*faza 2*) definira naslednje nasutij, utrditev in odpadne jame. Najnižje v stratifikaciji je ležala tanka plast oz. utrditev rumenkastim robom SE 21/22, debeline 0,05 m, sestavljena iz peščene ilovice, lisaste olivno in temno sive barve, opek, polžev, oksidov in najdbami, ki je v celoti prekrivala poznoantično plast SE 24. Nad njo se

¹ Za natančnejšo opredelitev odkritih arheoloških najdb glej naslednje poglavje.



Slika 5. Koper, Bazoviška ulica 5a, stratifikacija plasti in arheoloških ostalin – matrika – sosledje in odnosi med stratigrafskimi enotami (pripravili: A. Tomaž, M. Ravnik).

je odložila ruševinska plast s kamni SE 23, debeline okoli 0,40 m, sestavljena iz ilovnatega melja, temno sive barve, kamnov različnih velikosti, školjk, polžev in premešanimi najdbami.

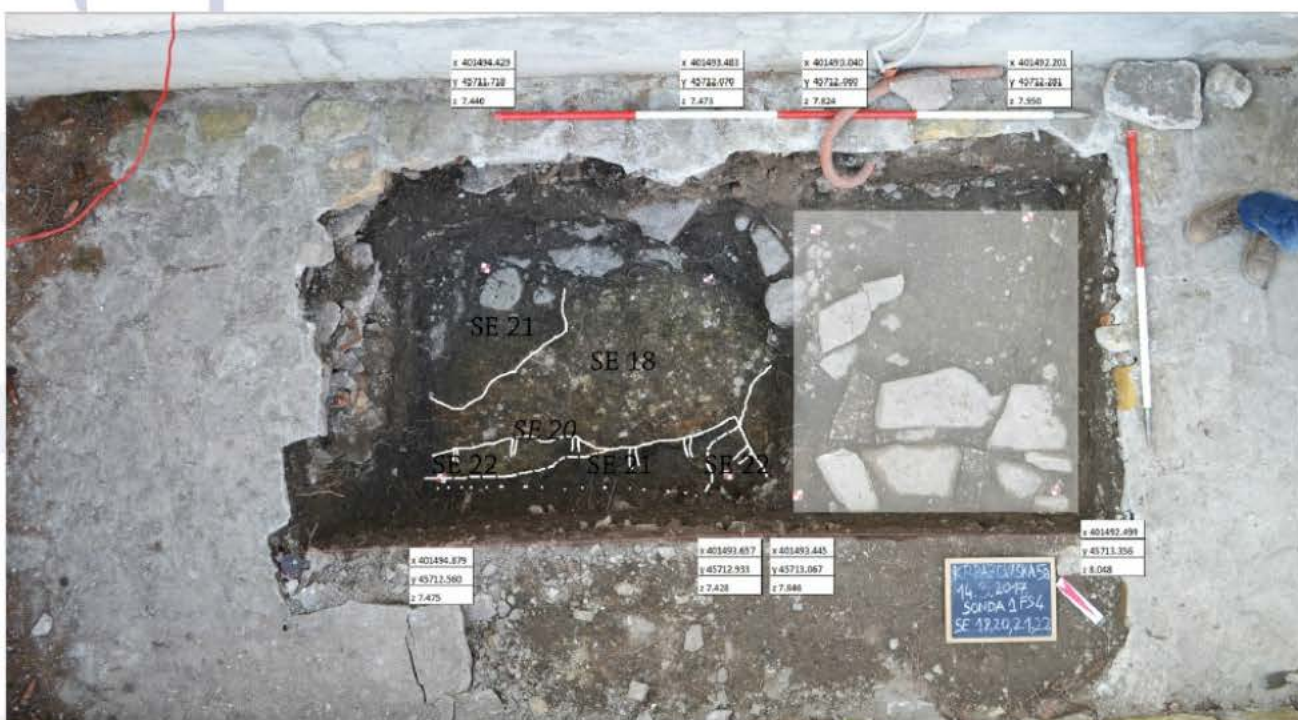
Ruševinsko plast kamnov SE 23 je prekrivala tanka plast oz. utrditev, debeline 0,08 m sestavljena iz peščene ilovice, lisaste svetlo olivno rjave in olivne barve, kamnov (tudi ožganih), opek, drobcov ožgane ilovice, oglja, malte/preperelih kamnov (SE 18), ki predstavlja tudi zadnjo od odloženih plasti *faze 2* (slika 7). Vanjo je bila vkopana večja odpadna jama, v tlorisu oglate oblike, SE 19 (vel. 1,4 x 0,3 x 0,08 m), ki jo je

zaponjevalo polnilo SE 20, sestavljeno iz peščene in meljaste ilovice, zelo temno sivo rjave barve, kamnov, drobcov malte, drobcov oglja, drobcov oksidov in premešanih najdb (keramika, kost).

Tudi naslednjo novoveško fazo (*3 faza*) zaznamujejo nasipavanja območja (SE 14 in SE 15) in gradbena odpadna jama (SE 16/17). Arheološke ostaline *faze 2* je prekrivalo čvrsto nasutje, debeline 0,25 m, sestavljeno iz peščenega in ilovnatega melja, temno sive do temno sivkasto rjave barve, ploščatih kamnov, opek in premešanih najdb (SE 14), nad njim pa se je v enem delu nahajala mehka plast, debeline 0,30



Slika 6. Koper, Bazoviška ulica 5a, kompozitni fototloris – SE 24 – faza 1 (pripravila: A. Ogorelec, M. Ravnik, arhiv UP FHŠ IAD).



Slika 7. Koper, Bazoviška ulica 5a, kompozitni fototloris – SE 18, SE 21=22, SE 20 – faza 2 (pripravila: A. Ogorelec, M. Ravnik, arhiv UP FHŠ IAD).



Slika 8. Koper, Bazoviška ulica 5a, kompozitni foto tloris – SE 13, SE 9, SE 14, SE 15 – fazi 3, 4 (pripravila: A. Ogorelec, M. Ravnik, arhiv UP FHŠ IAD).

m, sestavljena iz ilovnatega peska, temno sivkasto rjave barve, opek, školjk in s premešanih najdb (SE 15). Na drugi strani izkopnega polja je bila na nivoju SE 14 dokumentirana odpadna gradbena jama (SE 17), ovalne tlorisne oblike, zapolnjena z rahlo sprijetim zasutjem, sestavljenim iz meljastega peska, svetlo rjavkasto sive barve, kamnov, opek in najdb (SE 16).

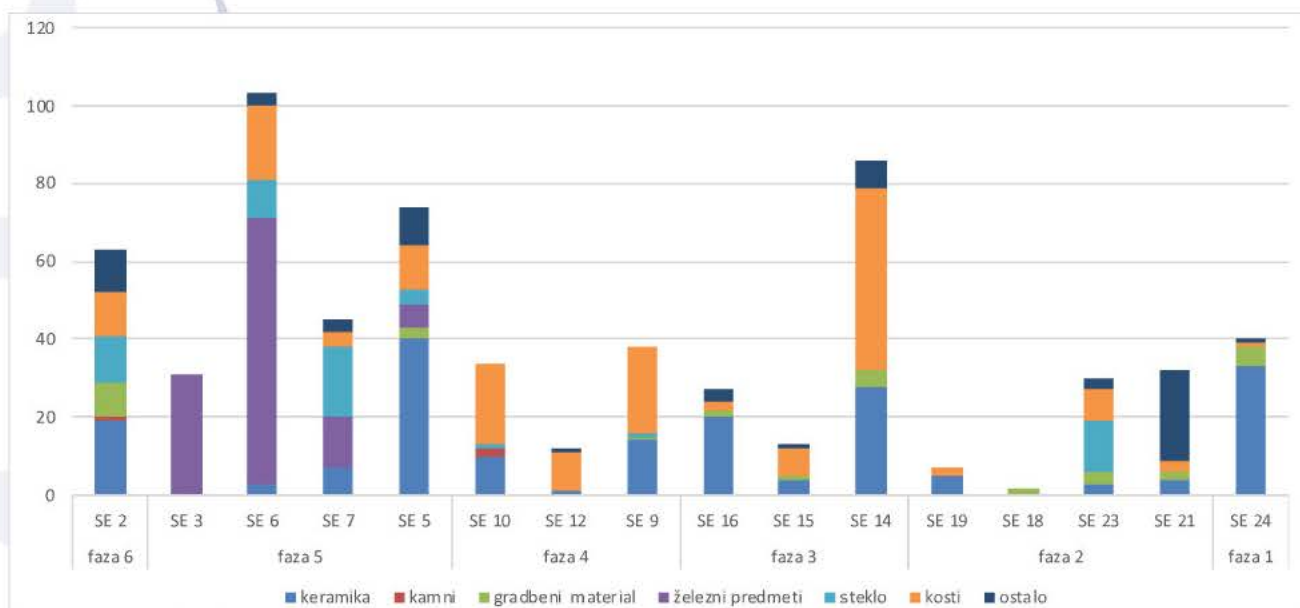
Tudi naslednjo novoveško fazo uporabe prostora (*faza 4*) zaznamuje sosledje nasipavanja in utrjevanja terena. V njeni stratifikaciji so bile evidentirane plasti, povezane z izravnavanjem in utrjevanjem terena (SE 9, SE 12 in SE 10), skromni ostanki suhozida, debeline 0,30 m (SE 13) ter arheološke ostaline pomožnih gospodarskih aktivnosti, kot je npr. apnenica SE 8/11 oziroma jama za gašenje apna, nepravilne tlorisne oblike z močno utrjenim apnenim robom (slika 8).

Novoveško *fazo 5* definira tanjša plast SE 5 (sestavljena iz peščenega melja zelo temno sive barve, kamnov, opek, drobcev malte, ometa, oglja, polžev in premešanih najdb), v katero je vkopana velika gradbena odpadna jama SE 4, zapolnjena z različnimi polnili. Vkop za odpadno jama (SE 4) je bil pravilne oglate tlorisne oblike,

velikosti 1,9 x 1,0 m in nepravilnega preseka ter globine 0,50. Zapolnjevala so ga polnila različnih sestavov gradbenega materiala: SE 3, SE 6 in SE 7. Na osnovi sestave polnil lahko jama SE 4 opredelimo kot odpadno jama, zasuto z odpadnim gradbenim materialom. Vkop jame SE 4 je posegel precej globoko in je poškodoval tudi ostaline *faze 4* (SE 10 in SE 8/11).

Najmlajšo fazo uporabe prostora na območju raziskave predstavlja novoveška *faza 6*, kamor sodita zabetoniran kamniti tlak ob hiši, narejen iz klesancev, velikosti med 0,25 x 0,40 m in 0,60 x 0,40 (SE 1) in pa premešana plast t.i. paleoornica (SE 2), debeline 0,35 m, sestavljena iz peščenega melja temno olivno rjave barve, kamnov različnih velikosti, opek, ometa, polžev, drobci betona in premešanih najdb (keramika, kost, steklo), katero lahko razumemo kot nekdanjo obdelovalno površino (paleo-ornico), kar bi nakazoval tudi izris uporabe prostora na franciscejskem katastru v tem predelu Kopra, namreč tu so na katastru izpričani predvsem vrtovi in obhišnice.

Arheološko testno sondiranje na lokaciji Koper, Bazoviška 5a je pokazalo, da lahko plasti in



Slika 9. Koper, Bazoviška ulica 5a, gradični prikaz distribucije arheološkega gradiva po posameznih fazah uporabe prostora in SE glede na vrsto materiala (pripravila: Alenka Tomaž).

arheološke ostaline smiselno umestimo v šest različnih faz uporabe prostora. Najstarejšo fazo – *faza 1* lahko na osnovi najdb opredelimo v poznoantično obdobje. Poznoantična plast je edina tudi edina intaktna.² Preostalih pet faz uporabe prostora (*faze 2-6*) pa lahko povežemo predvsem z novoveškimi gradbenimi posegi, to je utrjevanji terena, odlaganjem odpadnega gradbenega materiala, ter pomožnimi gradbenimi aktivnostmi (jama za gašenje apna), ki so se odvijale tik ob sami hiši na lokaciji Bazoviška 5a oziroma v *fazi 6* tudi kot prostor, namenjen drugim dejavnostim. Intenzivna uporaba obravnavanega prostora za potrebe gradbene dejavnosti z vidika zarisa uporabe prostora na franciscejskem katastru morda malce preseneča, pa vendar je potrebno ta prostor, ki je sicer bil namenjen vrtovom, v tako ozko zamejenih okoljih, kot je kare Bošadrage, razumeti tudi kot prostor, ki je bil po potrebi uporabljen za pomožne gradbenih aktivnosti.

Analiza in katalog drobnih najdb

V evidentiranih plasteh, nasutih in arheoloških ostalinah so se ohranile številne drobne najdbe.

² Poznoantični odlomki keramike se nahajajo tudi v sekundarnih kontekstih kasnejših novoveških nasutih, kot razvidno v nadaljevanju.

Med njimi so bili odkriti številni odlomki keramičnih predmetov, stekleni predmeti, odlomki kovinskih predmetov in živalske kosti (slika 9). Ohranjenih je bilo tudi precej odlomkov modernega gradbenega materiala in delov modernih kovinskih najdb (pločevinka ipd.). Kovinski predmeti, ki so bili najštevilnejši v *fazi 5*, so bili že ob izkopu v slabem stanju, največkrat fragmentirani in močno korodirani, kar onemogoča njihovo morfološko in kronološko opredelitev. Najbolj številni v vseh fazah rabe prostora in datacijsko tudi najbolj izpovedni so keramični predmeti, praviloma ostanki transportnega, kuhinjskega in namiznega posodja. V nadaljevanju predstavljamo izbor keramičnih najdb v okviru posameznih faz rabe prostora kot izhodišče interpretacije raziskanega najdišča. V pregled smo vključili tudi nekaj boljše ohranjenih predmetov iz stekla in kamna.

Na obravnavanem območju je najstarejša raba prostora z arheološkim gradivom dokumentirana v času pozne antike (*faza 1*). Vanjo sodijo najdbe iz plasti SE 24, med njimi 33 odlomkov lončenine, 5 odlomkov gradbenega materiala in del izkopanih kosti (slika 9). To je edina plast na celotnem najdišču, za katero je značilen časovno enoten material, brez vrinjenih mlajših

predmetov, ki bi bili posledica kasnejših gradbenih dejavnosti na tem območju.

Keramično gradivo je precej fragmentirano in slabo ohranjeno. Med izkopanimi odlomki smo lahko prepoznali le štiri tipološko izpovedne primerke (37-39 iz plasti SE 24 in odlomka 11 iz plasti SE 5 in 23 iz plasti SE 14). Vsi odlomki pripadajo poznoantičnemu posodju, prepoznavnemu po značilnih fakturah, obdelavi površine in morfoloških značilnostih.

Odlomki 23, 37 in 39 so deli transportnega posodja, amfor. Odlomek ostenja amfore z značilno narebreno zunanjo površino (23) lahko na splošno tipološko uvrstimo med poznoantične amfore tipa Later Roman 1 ali 2. Časovno amfore tega tipa uvrščamo v čas od poznega 4. do 7. stoletja, njihova proizvodnja izhaja iz vzhodno sredozemskih delavnic od koder so bile razširjene po celotnem Sredozemlju in uporabljene za transport različnih vsebin (Perko 2000, 439-440; Vroom 2005, 55).

Enaka tipološka opredelitev velja za odlomek 37, del amfore, ki se je ohranila le v predelu ročaja na prehodu v ustje. Natančneje jo tipološko ne moremo opredeliti, na podlagi ohranjene oblike ročaja in prehoda v ustje pa domnevamo, da gre za tip Late Roman 1. Na podlagi prehoda v ustje, ki je kratek, domnevamo, da gre v tem primeru za mlajšo različico tipa Late Roman 1, ki se pojavlja od 5. stol. dalje (Bekljanov Zidanšek 2012, 144, T. 1: 5). Enako tipološko in kronološko opredelitev verjetno lahko pripišemo tudi amfori G39, ohranjeni le v predelu ustja, čeprav bi morda šlo tudi za primer poznoantične amfore siro-palestinske proizvodnje (LR 5/6) ali za veliko poznoantično amforo severnoafriške proizvodnje (Perko 2000, 438: št. 29 in 439: št. 39). V obeh primerih gre za amfore široke razprostranjenosti, katerih proizvodnja in uporaba časovno ustreza že omenjenemu časovnemu okvirju. Poznoantične amfore so široko zastopane v poznoantičnih naselbinah na ozemlju današnje Slovenije, tako v njenem obalnem delu, kjer najdbe izvirajo iz urbanih kontekstov današnjega Kopra, Izole in Pirana in iz morja,

kakor tudi v celinskem delu, kjer jih najdemo v poznoantičnih višinskih naselbinah.

Tem najdbam se časovno pridružujeta še dva odlomka ostenja 11 in 38 s tipično poznoantično fakturo, pri odlomku 38 pa še z metličanjem dodelano površino. Zaradi stanja ohranjenosti bolj podrobna opredelitev ni možna, vsekakor pa skupaj z že omenjenimi odlomki amfor potrjujeta intenzivno življenje koprskega otoka v pozni antiki, kot mesta vpetega v takratne trgovske tokove.

V novoveško utrditveno *fazo 2* sodijo plasti oz. arheološke ostaline z oznakami SE 23, SE 21, SE 18 in jama s polnilom SE 19. V SE 23 so bili odkriti trije odlomki keramike, trije odlomki gradbenega materiala, več odlomkov stekla in 8 delcev kosti. V SE 21 so bili odkriti vsega 4 odlomki keramike, dva delca gradbenega materiala, tri kosti ter večje število polžjih hišic. V SE 19 je bilo odkritih pet odlomkov keramike in dva odlomka stekla, v SE 18 pa le dva odlomka gradbenega materiala (slika 9). Med vsem gradivom je bil le en odlomek tudi tipološko izpoveden, da ga na osnovi njegovih značilnosti lahko okvirno opredelimo v čas 16. - 17. stoletja.

V novoveško fazo nasipavanja in gradbene odpadne jame (*fazo 3*) sodita plasti SE 14 in SE 15 ter polnilo vkopa SE 16. V plasteh te faze je bilo ohranjenega največ drobnega gradiva. V SE 14 je bilo odkritih 28 odlomkov keramike, 4 odlomki gradbenega materiala ter 47 odlomkov stekla. V SE 15 so bili odkriti 4 odlomki keramike in 7 odlomkov stekla, v polnilu odpadne jame SE 16 pa je bilo odkritih 20 odlomkov keramike ter dva odlomka stekla (slika 9). Kar nekaj primerkov keramičnega gradiva je tudi tipološko in časovno opredeljivega. Glede na tipološke in tehnološke značilnosti, gradivo *faze 3* ni homogeno in sodi v različna časovna obdobja.

Med časovno najstarejšimi najdbami *faze 3* je zagotovo odlomek poznoantične amfore (23) iz časa med 5. in 7. stoletjem, ki je bil odkrit v sekundarnem kontekstu (SE 14) in je opisan zgoraj, med gradivom 1. faze dejavnosti na tej lokaciji. Preostale datacijsko izpovedne odlomke lahko opredelimo v čas od 15. stoletja dalje. Gradi-

vo odraža dinamiko gradbenih dejavnosti, ki so vzrok za časovno zelo širok razpon keramičnega gradiva iz plasti 3. faze in obsega različne tipe kuhinjskega in namiznega posodja.

Ohranjeno kuhinjsko posodje pripada posodam za pripravo hrane na ognju, kot so lonci (26, 30) in kotlički (24, 34, 36). Ohranjena primerka loncev (26, 30) sta izdelana iz zrnate gline in sta črne barve, kar je značilnost novoveškega kuhinjskega posodja. Zaradi izpostavljenosti ognju pri kuhanju, so lončarske mase vsebovale različne primesi, ki so bile dodajane zaradi povečanja funkcionalnih lastnosti posode tj. povečanja njihove odpornosti na visoke temperature. Pri loncih gre za lokalno izdelano keramiko, enkrat žgano, praviloma v redukcijski atmosferi, ki se odraža v temnejših barvah, praviloma temno sivih ali temno rjavih in črnih odtenkih. Tipološko gre za skupino, katere oblika se prilagaja uporabi in zato ne kaže večjih razvojnih trendov. Njihovo okraševanje pa z enostavnimi posegi (vbo-di, odtisi, vrezji) najdemo na zunanjem zgornjem delu recipienta, kot je tudi primer okrasa s horizontalno linijo odtisov na odlomku 26. Čeprav je, kot je že povedano, oblika takšnega posodja bila dokaj stabilna in jo lahko povežemo s tradicijo poznoantičnega lončarstva, na podlagi analogij omenjena odlomka lahko uvrstimo v 16. stoletje (Bradara 2016, 114-117, št. 26).

Ohranjeni deli kotličkov (24, 34, 36) pripadajo tipu posodja, ki je bil v uporabi od 10. do 19. stoletja po celotnem severnojadranskem območju, bolj množično pa stopijo v uporabo v 13. in 14. stoletju. Za kotličke je značilno ustje, oblikovano na način, da vanj trdno namestimo pokrov, iz ustja pa sta modelirana po dva polkrožna ročaja ali ušesi z luknjo za vstavljanje kovinskega dela za obešanje. Ta del se je ohranil pri odlomku 36 in ponuja dovolj podatkov za tipološko opredelitev. Vse ohranjene odlomke lahko uvrstimo v novoveško fazo uporabe in sicer od 16. do 18. stoletja, kar je tudi čas najbolj intenzivne rabe kotličkov na območju Istre, kot kažejo tudi številne datirane najdbe iz različnih lokacij (Mileusić in Badovinac 2012, 148, T.1:3).

Glazirane posode iz bolj prečiščene lončarske mase (28, 32) sodijo med posodje, ki je bilo v uporabi v kuhinji in za mizo. Na podlagi primerjalnega gradiva pa omenjena odlomka lahko datiramo v 16. ali 17. stoletje (Bradara in Saccardo 2007, 174, št. 144).

Med namizno posodje 16. stoletja sodita odlomka gravirane keramike (35) in majolike (31). Oba odlomka sta skromno ohranjena in ne dopuščata natančnejše analize in tipološke ali morfološke opredelitve, razen okvirne.

Najmlajši predmeti iz plasti 3. faze pripadajo mlajšim tipologijam namiznega posodja, okrašenega z engobo, ki je lahko monohromna in bele barve (25) ali nad engobo še poslikana z rumeno, oranžno in zeleno barvo, kot je primer pri odlomkih krožnikov 27 in 33. Tovrstno posodje je bilo zelo razširjeno v 18. in 19. stoletju, verjetno zaradi cenejše izdelave in večje dostopnosti uporabnikom (Bin 2007, 378, T.113: 35).

Na temelju opaženega, lahko rečemo, da gradivo iz 3. faze večinoma dokazuje potek gradbenih dejavnosti v času od 16. stoletja dalje.

V naslednjo novoveško fazo nasipavanja in utrjevanja terena (*faza 4*) sodijo plasti SE 9, SE 12, SE 13, SE 10 ter apnenica SE 8/11. Drobnogradivo *faze 4* je bilo odkrito v plasteh SE 12, SE 10 in SE 9 (slika 9), pri čemer se je tipološko pričevalno gradivo nahajalo le v SE 9. Najdbe so časovno raznolikega nastanka in odražajo dinamiko gradbenih posegov. Kot najstarejšo, lahko opredelimo posodo 20, okrašeno z značilno gravirano risbo vrezano v engobo in dodatno poslikano z zeleno in rjavo barvo. Čeprav je ohranjena le v predelu dna in je površinski premaz dokaj slabo ohranjen, pa kompozicijske značilnosti ohranjenega okrasa, razpotegnjenega čez celotno notranjo površino omogočajo okvirno časovno opredelitev v čas 15. – 16. stoletja.

Čeprav manjši, odlomek ostenja majolike 19, ponuja dovolj podatkov za natančnejšo opredelitev v čas 16. in 17. stoletja. Gre za značilen način okraševanja majolike iz delavnic v Deruti, imenovan *a raffaellesca* (Bradara 2016, 145, št. 57). Zanj je značilen okras vejic in drugih rastlinskih motivov po večjem delu bele površi-

ne, ki obkroža notranji okvir, v katerem je upodobljen glavni motiv. Na ohranjenem primerku je viden samo okras vejic, izveden s slikanjem v oranžni, rumeni in modri barvi.

Najmlajši odlomek pripada krožniku 18 iz beloprstene keramike s transferno potiskanim okrasom v modri barvi. Tako okrašeno posodje je zelo razširjeno in ga uvrščamo v čas med 18. in 20. stoletjem (Bradara in Saccardo 2007, 90, št. 221-223).

V novoveško fazo nasipavanja, *fazo 5*, sodijo plast SE 5 ter polnila SE 3, SE 6 in SE 7 vkopa SE 4. V polnilu SE 3 je bila odkrita moderna kovinska posoda, v SE 6 so bili odkriti trije odlomki keramike ter številni odlomki kovinskih najdb, stekla in kosti, v polnilu SE 7 pa 7 odlomkov keramike, deli kovinskih predmetov ter stekla (slika 9). V glavnem gre za gradivo, ki ga lahko povezujemo z 19. - 20. stoletjem, kot je primer skodelice z ročajem izdelane iz porcelana (14).

V plasti SE 5 pa je bilo odkritih 40 odlomkov keramike, delci gradbenega materiala, deli železnih modernih predmetov, odlomki stekla ter kosti. Časovno je gradivo nekoliko bolj raznoliko in jasno kaže na premešan značaj plasti, s katerimi so nasipavali teren, morda celo z materialom iz drugih lokacij, kar je razvidno iz njegove vsebine in večjega kronološkega razpona predmetov kot v prejšnji fazi, saj se poveča število starejših najdb, med katerimi prevladujejo najdbe 15. in 16. stoletja.

Najstarejša najdba pripada prej obdelanemu odlomku ostenja poznoantičnega lonca (11). Poleg tega najdemo tudi ostanke kuhinjske keramike iz 15. in 16. stoletja. Takšen primer je lonec 6, katerega ustje in prehod v vrat zagotavlja ta jasne diagnostične elemente za navedeno časovno opredelitev in umestitev v široko razprostranjeno tipologijo (Bradara 2016, 117).

Posebnost med najdbami 5. faze predstavlja odlomek španske majolike (9). Gre za krožnik, na notranji strani okrašen z belo glazuro, na kateri je okras izveden s slikanjem z modro barvo. Enostaven, a značilen okras sestavlja mreža z velikimi očesi, ki predstavlja preplet vejic znotraj katerih je naslikan rastlinski motiv. Tako

okrašeno posodje sodi med izdelke keramičnih delavnic Valencije iz 15. stoletja (Bradara 2016, 161, št. 62). Španska keramika, nastala pod vplivom vzhodnih islamskih delavnic, je doživela razvojne spremembe, ki so vključevale tudi vsebinsko oz. spremembo motivov, predvsem s krščansko simboliko. Njeno distribucijo, za razliko od npr. italijanskih tipov majolike, ne povezujemo s klasično trgovino, temveč predvsem z individualnim in verjetno direktnim prenosom pod močnim vplivom romarjev. Zato lahko rečemo, da med ostalim gradivom tovrstne najdbe predstavljajo luksuzne izdelke 15. stoletja. Za ohranjeni odlomek 9 pa domnevamo, da je kot del nasipne plasti na lokacijo, na kateri je bil najden, prinesen iz nekega mestnega smetišča, kjer je bil deponiran po prenehanju uporabe oz. po tem ko je bil odvržen.

Majoliki pripada tudi vrč, ohranjen le v spodnjem delu, na prehodu iz noge v ostenje (G10). Na podlagi ohranjenih elementov okrasa, vrč okvirno lahko uvrstimo med izdelke delavnic italijanskih pokrajin Marche ali Romagna iz 15. in 16. stoletja (Bradara 2016, 150, št. 51).

Ostali datacijsko okvirno opredeljivi odlomki pa sodijo v mlajši čas in sicer v obdobje med 18. in 20. stoletjem. To so odlomek beloprstene keramike s transfernim potiskom v rjavi barvi (8), nekoliko mlajša, verjetno iz 19. ali 20. stoletja, pa sta ustje keramične posode za mineralno vodo (7) in odlomek porcelana (12).

V *fazi 6*, ki predstavlja recentno fazo paleo-ornice (SE 2), na kateri je bil izgrajen kamnit tlak, je bilo odkritih 19 odlomkov keramike, 9 odlomkov gradbenega materiala, 12 odlomkov stekla, 11 kosti ter deli plastike, ometa, varovalke, polžev in školjk (slika 9). Najdbe, ki so bile evidentirane v SE 2, sodijo v različna časovna obdobja novega veka. Nekaj najdb lahko povežemo s časom med 18. in 20. stoletjem (2, 3, 4), posamezne najdbe pa zagotovo sodijo v 20. stoletje (1, 5).

Katalog najdb

Katalog izbranega gradiva je oblikovan po posameznih stratigrafskih enotah (SE). Gradivo



Slika 10. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 2 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHS IAD).

je predstavljeno v opisu in s fotografijo. Velikost je zabeležena v centimetrih (cm). Za skupine predmetov so podane najmanjša in največja dimenzija.³

1 SE 2, sonda 1, zap. št. KPBI7 2-4.

Odlomek ustja z ostenjem globokega krožnika, izdelanega iz beloprstene keramike. Okrašen s podglazurnim slikanjem v rdeči barvi. Velikost: 7,0 x 6,0 cm. Datacija: 20. stoletje.

2 SE 2, sonda 1, zap. št. KPBI7 2-6.

Odlomek ustja z ostenjem sklede iz beloprstene keramike. Velikost: 7,1 x 7,1 cm. Datacija: 18. - 20. stoletje.

3 SE 2, sonda 1, zap. št. KPBI7 2-8.

Odlomek prstanastega dna z ostenjem krožnika, izdelanega iz porcelana. Površini sta okrašeni z zelenim transfornim potiskom. Velikost: 3,0 x 4,6 cm. Datacija: 20. stoletje.

4 SE 2, sonda 1, zap. št. KPBI7 2-9.

Odlomek prstanastega dna z ostenjem krožnika, izdelanega iz beloprstene keramike. Notranja površina okrašena s transfornim potiskom. Velikost: 2,7 x 2,5 cm. Datacija: 18. - 20. stoletje.

5 SE 2, sonda 1, zap. št. KPBI7 2-1.

Steklenička iz brezbarvnega prozornega stekla v obliki smrečice. Na ustju viden navoj. Velikost: 5,0 x 3,2 cm. Datacija: 20. stoletje.

6 SE 5, sonda 1, zap. št. KPBI7 5-13.

Odlomek roba ustja z ostenjem lonca, izdelanega iz drobnozrnate lončarske mase. Groba površina je siva. Velikost: 3,0 x 4,3 cm. Datacija: 15. - 16. stoletje.

7 SE 5, sonda 1, zap. št. KPBI7 5-14.

Odlomek ustja z ostenjem lončenke z glazuro rumene barve. Velikost: 3,7 x 2,8 cm. Datacija: 19. - 20. stoletje.

8 SE 5, sonda 1, zap. št. KPBI7 5-5.

Odlomek ostenja posode iz beloprstene keramike. Okrašen s transfornim potiskom v rjavi barvi. Velikost: 1,7 x 2,2 cm. Datacija: 18. - 20. stoletje.

9 SE 5, sonda 1, zap. št. KPBI7 5-12.

Odlomek dna z ostenjem krožnika, izdelanega na vretenu iz zelo fino zrnate keramike. Notranja in zunanja površina sta engobirani in glazirani z brezbarvno glazuro. Na notranji strani slikan okras modre barve v motivu mreže. Velikost: 5,5 x 10,0 cm. Datacija: 15. stoletje.

10 SE 5, sonda 1, zap. št. KPBI7 5-3.

Odlomek dna z ostenjem vrča iz majolike. Na zunanji strani ima slikan okras z modro, rjavo rumeno in črno barvo. Velikost: 2,3 x 6,0 cm. Datacija: 16. - 17. stoletje.

11 SE 5, sonda 1, zap. št. KPBI7 5-17.

Odlomek dna z ostenjem posode, izdelane na vretenu iz drobnozrnate lončarske mase. Gladka površina je na notranji strani siva, na zunanji

³ Legenda: zap. št. – zaporedna številka; KPB – Koper – Bazoviška ulica



Slika 11. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 5 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).



Slika 12. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 6 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).

rjava. Velikost: 2,4 x 3,0 cm. Datacija: pozna antika (?).

12 SE 5, sonda 1, zap. št. KPBI7 5-6.
Odlomek vratu in ostenja posode, izdelane iz porcelana. Velikost: 3,5 x 3,9 cm. Datacija: 20. stoletje.

13 SE 6, sonda 1, zap. št. KPBI7 6-1.
Odlomek stojne ploskve kozarca na pečju (?), izdelanega iz svetlo zelenega prozornega stekla. Velikost: 1,0 x 2,0 cm. Datacija: novi vek (?).

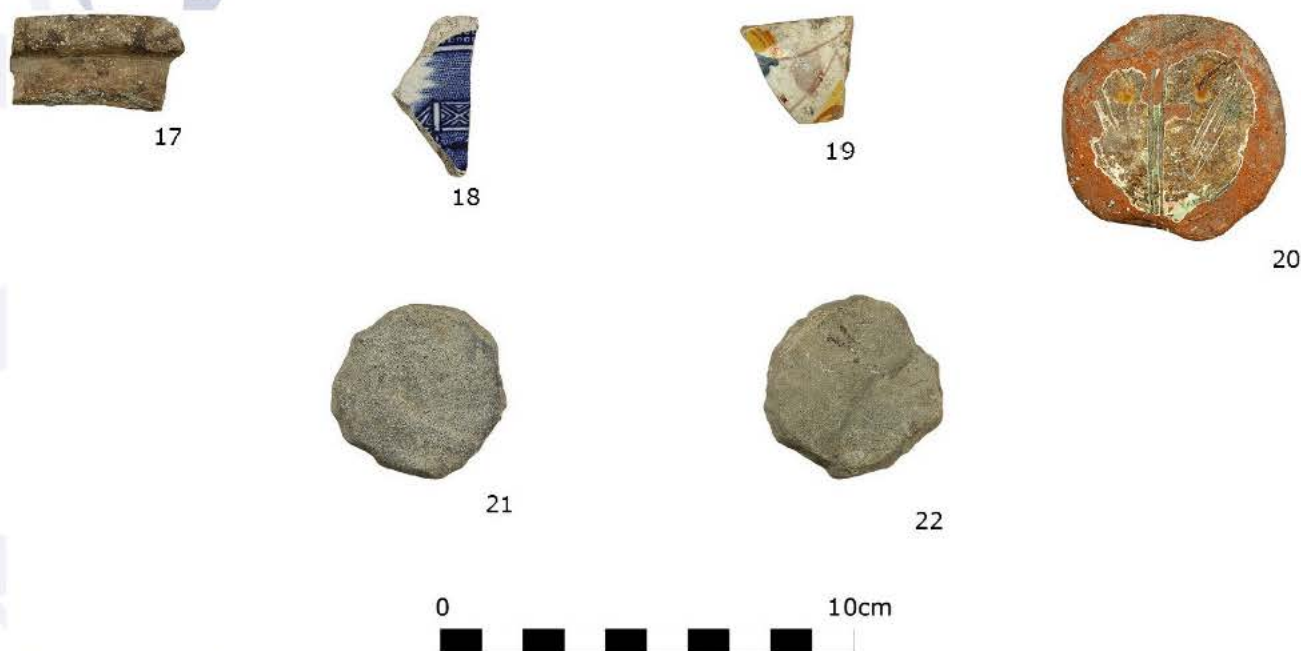
14 SE 6, sonda 1, zap. št. KPBI7 6-4.
Odlomek skodelice s prstanastim dnom in ročajem, izdelane iz porcelana. Premer: 7,2 cm, višina: 5,5 cm. Datacija: 19. – 20. stoletje.

15 SE 7, sonda 1, zap. št. KPBI7 7-2.
Odlomek ustja z ostenjem lonca, izdelanega na vretenu iz drobnozrnate lončarske mase. Gladka površina je temno siva. Velikost: 2,2 x 3,2 cm. Datacija: novi vek.

16 SE 7, sonda 1, zap. št. KPBI7 7-3.
Odbitek obsidiana črne barve z belimi vložki. Vidne sledi odbijanja (?) Na posameznih delih



Slika 13. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 7 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).



Slika 14. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 9 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).

prekrit z malto. Velikost: 3,7 x 2,5 cm, debelina: 0,4 cm.

17 SE 9, sonda 1, zap. št. KPBI7 9-3.

Odlomek ustja z ostenjem lonca, izdelanega na vretenu iz drobnozrnate lončarske mase. Gladka površina je na notranji strani rdeče rjava na zunanji pa rjava. Velikost: 2,0 x 4,0 cm. Datacija: novi vek.

18 SE 9, sonda 1, zap. št. KPBI7 9-2.

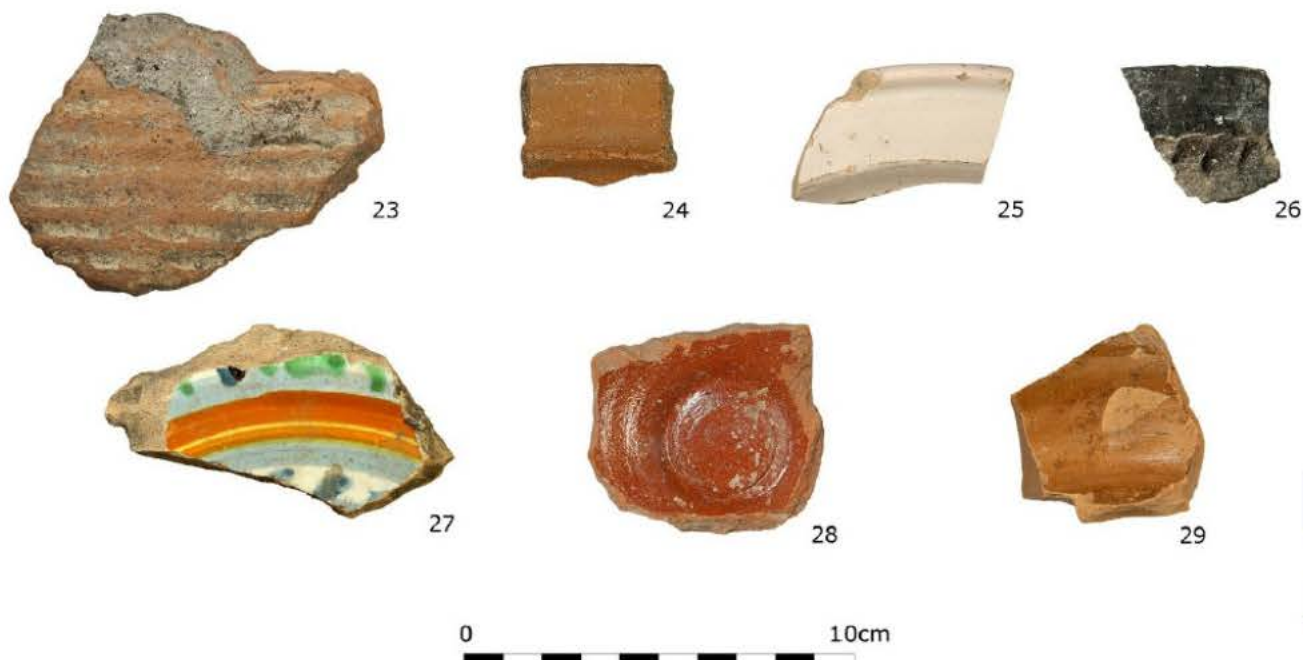
Odlomek prstanastega dna in ostenje krožnika iz beloprstene keramike. Notranjost okrašena s transfernim potiskom v modri barvi. Velikost: 4,0 x 1,6 cm. Datacija: 18. – 20. stoletje.

19 SE 9, sonda 1, zap. št. KPBI7 9-4.

Odlomek ostenja posode, izdelane na vretenu iz fino-zrnate lončarske mase. Površina je glazirana z belo glazuro in poslikana z modro, rumeno, oranžno in rjavo barvo. Velikost: 2,7 x 2,3 cm. Datacija: 16. – 17. stoletje.

20 SE 9, sonda 1, zap. št. KPBI7 9-7.

Odlomek dna posode. Notranja površina je engobirama, gravirana, poslikana z rumeno in rjavo in glazirana. Premer: 5,4 cm, višina: 1,2 cm. Datacija: 15. – 16. stoletje.



Slika 15. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 14 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).

21 SE 9, sonda 1, zap. št. KPBI7 9-5.

Ploščata, krožno oblikovana, kamnita ploščica, sive barve. Pokrov? Premer: 4,0 cm, debelina: 1,1 cm.

22 SE 9, sonda 1, zap. št. KPBI7 9-6.

Ploščata, krožno oblikovana, kamnita ploščica, sive barve. Pokrov? Premer: 4,0 cm, debelina: 0,9 cm.

23 SE 14, sonda 1, zap. št. KPBI7 14-/-.

Odlomek ostenja poznoantične amfore (LRA 1). Velikost: 3,0 x 3,5 cm. Datacija: 5. – 7. stoletje (Vroom 2005, 52-53).

24 SE 14, sonda 1, zap. št. KPBI7 14-14.

Odlomek ustja z ostenjem kotlička z nastavkom za pokrov, izdelanega na vretenu iz fino zrnate lončarske mase. Gladka površina je rdeče rjava. Velikost: 3,0 x 3,5 cm. Datacija: 16. – 18. stoletje.

25 SE 14, sonda 1, zap. št. KPBI7 14-13.

Odlomek ustja z ostenjem krožnika, izdelanega na vretenu iz zelo fino zrnate lončarske mase. Površina je glazirana z belo glazuro. Velikost: 3,5 x 4,7 cm. Datacija: 18. – 20. stoletje.

26 SE 14, sonda 1, zap. št. KPBI7 14-8.

Odlomek posode, izdelane na vretenu iz drobnozrnate lončarske mase. Gladka površina je na notranji strani siva, na zunanji pa lisasta siva in temno sivo rjava. Ostenje je okrašeno z razčlenjenim plastičnim rebrom. Velikost: 3,4 x 3,5 cm. Datacija: novi vek.

27 SE 14, sonda 1, zap. št. KPBI7 14-11.

Odlomek ostenja posode, izdelane iz fino zrnate lončarske mase. Na zunanji strani premaz bele gline, notranjost je glazirana in poslikana z rumeno, modro, oranžno, črno in zeleno barvo. Velikost: 5,0 x 8,5 cm. Datacija: 18. – 20. stoletje.

28 SE 14, sonda 1, zap. št. KPBI7 14-1.

Odlomek dna z ostenjem posode, izdelane na vretenu iz fino zrnate lončarske mase, z glazuro rjave barve na notranji strani. Premer dna: 4,4 cm, višina 1,5 cm. Datacija: novi vek.

29 SE 14, sonda 1, zap. št. KPBI7 14-5.

Odlomek dna z ostenjem posode, izdelane na vretenu iz fino zrnate lončarske mase, z glazuro rjave barve na notranji strani. Velikost: 4,1 x 4,9 cm. Datacija: novi vek.



Slika 16. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 15 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).



Slika 17. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 16 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).

30 SE 15, sonda 1, zap. št. KPB17 15-2.

Odlomek ustja z ostenjem lonca, izdelanega na vretenu iz drobnozrnate lončarske mase. Gladka površina je črna. Velikost: 2,0 x 3,5 cm. Datacija: novi vek.

31 SE 15, sonda 1, zap. št. KPB17 15-1.

Odlomek ustja z ostenjem sklede iz majolike. Površina je glazirana z belo glazuro in slikana z modro in črno barvo. Velikost: 2,7 x 4,5 cm. Datacija: 18. – 20. stoletje.

32 SE 15, sonda 1, zap. št. KPB17 15-3.

Odlomek dna z ostenjem posode, izdelane na vretenu iz fino zrnate lončarske mase, z glazuro

rjave barve na notranji strani. Velikost: 4,0 x 7,5 cm. Datacija: novi vek.

33 SE 16, sonda 1, zap. št. KPB17 16-9.

Odlomek ostenja sklede, izdelane iz fino zrnate lončarske mase. Na zunanji strani premaz bele gline, notranjost je glazirana in poslikana z rumeno, modro, oranžno in zeleno barvo. Velikost: 5,0 x 9,3 cm. Datacija: 18. – 20. stoletje.

34 SE 16, sonda 1, zap. št. KPB17 16-2.

Odlomek ustja z ostenjem kotlička z nastavkom za pokrov, izdelanega na vretenu iz fino zrnate lončarske mase. Gladka površina je na notranji



Slika 18. Koper, Bazoviška ulica 5a, izbor arheološkega gradiva iz SE 24 (foto gradiva: Aleš Ogorelec, priprava tabel: Alenka Tomaž, arhiv UP FHŠ IAD).

strani rjava in na zunanji črna. Velikost: 3,0 x 6,5 cm. Datacija: 18. – 20. stoletje.

35 SE 16, sonda 1, zap. št. KPBI7 16-13.
Odlomek ustja z ostenjem krožnika, izdelanega na vretenu iz finoizrnat lončarske mase. Notranja površina je engobirana, gravirana, poslikana z zeleno barvo in glazirana. Velikost: 4,0 x 5,8 cm. Datacija: 16. stoletje.

36 SE 16, sonda 1, zap. št. KPBI7 16-1.
Odlomek ročaja kotlička, izdelanega na vretenu iz finoizrnat lončarske mase. Gladka površina je na notranji strani rdeče rjava, na zunanji pa črna. Velikost: 3,5 x 6,7 cm. Datacija: 16. – 18. stoletje. [Slika 17 približno tukaj]

37 SE 24, sonda 1, zap. št. KPBI7 24-1.
Odlomek ročaja z ostenjem posode, izdelane na vretenu iz finoizrnat lončarske mase. Gladka površina je rdeče rjava. Velikost: 4,0 x 3,8 cm, debelina: 1,3 cm. Datacija: pozna antika.

38 SE 24, sonda 1, zap. št. KPBI7 24-2.
Odlomek ostenja posode, izdelane na vretenu iz drobozrnate lončarske mase. Gladka površina je rdeče rjava. Na zunanji strani sledi metličinja. Velikost: 3,1 x 4,4 cm. Datacija: pozna antika.

39 SE 24, sonda 1, zap. št. KPBI7 24-3.
Odlomek odebeljenega in profiliranega ustja z ostenjem vrča, izdelanega na vretenu iz finoizrnat lončarske mase. Gladka površina je rdeča. Velikost: 3,5 x 6,0 cm. Datacija: pozna antika.

Zaključek

Arheološka raziskava izvedena s testnim sondiranjem na lokaciji Bazoviška ulica 5a v Kopru

je omogočila vpogled v stratifikacijo plasti in arheoloških ostalin iz šestih različnih faz uporabe prostora. Najstarejšo fazo uporabe prostora ohranjene v arheološkem zapisu – *faza 1* z najdbami umeščamo v čas pozne antike. Plasti iz prve faze so tudi najmanj poškodovane in brez najdb, ki bi predstavljale mlajšedobno gradivo, ki bi v plast pripela kot posledica intenzivnih gradbenih dejavnosti v mlajših obdobjih.

Preostalih pet faz uporabe prostora (*faze 2-6*) povezujemo s poznosrednjeveško in predvsem novoveško rabo prostora in z novoveškimi gradbenimi posegi, ki so se odvijali tik ob sami hiši na lokaciji Bazoviška 5a.

Najstarejšo fazo uporabe prostora na sploh predstavlja *faza 1* (SE 24), ki jo na osnovi odkritega arheološkega gradiva lahko opredelimo v poznoantično obdobje. Najstarejšo novoveško fazo uporabe prostora (*faza 2*) definirajo nasutja, utrditve in odpadne jame (SE 18, SE 19/20, SE 23, SE 21/22, SE 18), kateri sledi *faza 3*, katero zaznamujejo nadaljnja nasipavanja območja (SE 14 in SE 15) in gradbena odpadna jama (SE 16/17). V naslednjo novoveško fazo nasipavanja in utrjevanja terena (*faza 4*) sodijo plasti SE 9, SE 12, SE 10, ostanki suhozida (SE 13), ter ostaline pomožnih gospodarskih aktivnosti, kot je npr. apnenica SE 8/11. V novoveško fazo nasipavanja z gradbeno odpadno jamo (*faza 5*) sodijo plast SE 5 ter odpadne jame z gradbenim materialom SE 4 s polnili SE 3, SE 6 in SE 7. Najmlajšo fazo na obravnavanem območju predstavlja novoveška *faza 6*, kamor sodita kamniti tlak ob hiši, narejen iz klesancev, SE 1 in paleoornica SE 2, t.j. obdelovalna zemlja nekdanjih vrtov obravnavanega območja.

Keramično gradivo, najdeno v plasteh znotraj izkopane arheološke sonde, odraža dve ločeni zgodovinski obdobji. Najstarejšo fazo in posamezne najdbe v sekundarnih kontekstih povezujemo s poznoantičnim obdobjem, natančneje od 5. - 7. stoletjem. Na drugi strani pa večina odkritih arheoloških ostalin sodi v novoveški čas med 15. in 20. stoletjem. Novoveške najdbe se pojavljajo premešane, predvsem v nasutjih in izravninah oz. odpadnih jamah, v vseh novoveških fazah najdišča (*faze 2 - 6*), zaradi česar ugotavljamo, da je njihova lega sekundarna in ustreza novoveškemu kontekstu v obalnih mestih, za katere je značilna intenzivna gradbena dejavnost, kljub zaznanemu ohranjanju osnovnih srednjeveških urbanih zasnov.

Sosledje poznoantičnih, srednjeveških in novoveških arheoloških kontekstov najdemo na območju Kopra na številnih lokacijah, kot npr. primer na Muzejskem trgu (Mileusnić, Predan 2011, 25-34), Kapucinski vrt (Cunja 1996), na Kreljevi 1 (Guštin in Sakara Sučević 2011), pa na Kreljevi 6 (Zanier 2011), ali pa bližnji lokaciji Dijaškega doma (Tomaž 2013). Rezultati arheoloških raziskav na Bazoviški 5a zatorej potrjujejo sosledje arheoloških ostalin in uporabo prostora na raziskani lokaciji in dopolnjuje širšo sliko poselitve koprskega otoka in rabe prostora, ki jo je moč slediti tudi na drugih arheološko raziskanih, a večinoma neobjavljenih lokacijah v Kopru.

Povzetek

V članku predstavljamo rezultate arheološkega testnega sondiranja na Bazoviški ulici 5a, v predelu Bošadrage v Kopru. Testno sondiranje je potrdilo stratifikacijo plasti in arheoloških ostalin, ki smo jih umestili v šet različnih faz uporabe prostora. Najstarejšo fazo uporabe prostora – *fazo 1* je na osnovi arheoloških najdb opredeljena v poznoantično obdobje. Preostalih pet faz uporabe prostora (*faze 2-6*) pa povezujemo predvsem z zgodnjimi in poznimi novoveškimi gradbenimi posegi. Najzgodnejšo novoveško fazo uporabe prostora (*faza 2*) definirajo nasutja, utrditve in odpadna jama, kateri sledi *3 faza*, katero zaznamujejo nadaljnja nasipavanja območja in večja gradbena odpadna jama. Tudi naslednji novoveški fazi uporabe prostora (*fazo 4* in *fazo 5*) zaznamujejo nasipa-

vaje in utrjevanja terena, pri čemer so bile v *fazi 4* odkrite še ostaline pomožnih gospodarskih/gradbenih aktivnosti, v *fazi 5* pa večja odpadna jama z modernim gradbenim materialom. Najmlajšo fazo na obravnavanem območju predstavlja novoveška *faza 6*, kamor sodita kamniti tlak ob hiši, narejen iz klesancev in paleoornica, nekdanja obdelovalna zemlja vrtov obravnavanega območja.

Keramično gradivo, najdeno v plasteh in arheoloških ostalinah sonde, odraža dve ločeni zgodovinski obdobji. Najstarejšo fazo in posamezne najdbe v sekundarnih kontekstih povezujemo s poznoantičnim obdobjem, natančneje od 5. - 7. stoletjem, na drugi strani pa večina odkritih arheoloških ostalin sodi v novoveški čas med 15. in 20. stoletjem. Novoveške najdbe se pojavljajo premešane, predvsem v nasutjih in izravninah oz. odpadnih jamah, v vseh novoveških fazah najdišča (*faze 2 - 6*), zaradi česar ugotavljamo, da je njihova lega sekundarna in ustreza novoveškemu kontekstu v obalnih mestih, za katere je značilna intenzivna gradbena dejavnost, kljub zaznanemu ohranjanju osnovnih srednjeveških urbanih zasnov. Sosledje poznoantičnih, srednjeveških in novoveških arheoloških kontekstov najdemo na območju Kopra na številnih lokacijah. Lokacija na Bazoviški 5a tako dodatno potrjuje sosledje arheoloških ostalin, ki ga je moč slediti tudi na drugih lokacijah v Kopru.

Summary

In this article, we present the results of archaeological test excavation at Bazoviška ulica 5a, located in the area of Bošadraga in Koper. The test excavation produced stratification of layers and archaeological remains, which were placed in several different phases of land use. According to archaeological finds, the oldest phase of land use, Phase 1 dates to the Late Antiquity period. The remaining five phases (Phases 2-6) are associated mainly with construction interventions in the Early and Late Modern Period. The earliest modern phase of land use (Phase 2) is defined by levelling, earthworks and waste pit, followed by Phase 3, which is marked by further levelling of the area and a more extensive construction waste pit. The subsequent modern phases of space use (Phase 4 and Phase 5) are also marked by backfilling and consolidation of the terrain. Phase 4 is also associated with secondary economic/construction activities, while in Phase 5 there is an enormous waste pit with

modern-day construction debris. The youngest phase in the area in question is Phase 6, defined by a stone pavement next to the house and a sub-surface soil, the former arable land of the gardens of the area in question. Ceramic finds discovered in layers, and archaeological remains of the test probe belong to two separate historical periods. The oldest phase and specific finds from secondary contexts are associated with the Late Antiquity Period, more precisely from the 5th to the 7th Century. On the other hand, most discovered archaeological remains belong to modern times between the 15th and 20th Centuries. Modern finds appear mixed, especially in fillings and levelling or waste pits, in all Modern phases of the site (Phases 2 - 6), due to which we find that they are deposited in the secondary contexts, which corresponds to other modern contexts in coastal towns, which are characterized by intensive construction activity, despite the apparent continuation of the basic medieval urban designs. A sequence of Late antiquity, Medieval and Modern archaeological contexts can be found at many locations in Koper. Location at Bazoviška 5a thus further confirms the archaeological remains, which can also be traced at other locations in Koper.

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hereditari



Tridimenzionalno dokumentiranje stečkov srednjeveške župe Dabar v Bosni in Hercegovini

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Stečki so srednjeveški kamniti nagrobniki, ki jih najdemo še vedno *in situ* v pokrajinah držav Zahodnega Balkana. Okoli 8% stečkov ima raznovrstne dekoracije v obliki nizkega reliefa, medtem, ko manj kot 400 nagrobnikov nosi tudi napise. Zaradi klimatskih vplivov vrezani napisi in ornamenti izginjajo s površine stečkov, zaradi česar jih je vse težje odkriti in prepoznati. V sklopu arheoloških raziskav stečkov na območju srednjeveške župe Dabar (današnji občini Berkovići in Bileća), je bil izveden pilotski projekt 3D skeniranja stečkov z ročnim skenerjem. Osem stečkov, dva z napisom in šest z dekoracijami, je bilo skeniranih v celoti, z namenom da bi lahko ovrednotili vidnost in prepoznavanje umetnostnih izrazov, ter samo tehniko detajlnega dokumentiranja materialne kulture. Članek predstavlja potek skeniranja in analizira rezultate.

Ključne besede: stečki, srednji vek, tridimenzionalno skeniranje, 3D, dediščina, kamniti spomeniki, Bosna in Hercegovina

Three-dimensional documentation of the tombstones of the medieval parish of Dabar in Bosnia and Herzegovina

Stećci are medieval tombstones that can be found *in situ* in the landscapes of the Western Balkans. Only approx. 8% of stećci have various decorations in the form of low relief, while less than 400 tombstones also bear inscriptions. Climate influences often cause erosion of these engravings, which makes them increasingly difficult to detect and identify. As part of the archaeological research on the stećci phenomenon in the area of the medieval župa Dabar (modern municipalities of Berkovići and Bileća), a pilot study of 3D scanning of these monuments with a hand-held scanner was performed. Eight tombstones, two with an inscription and six with decorations, were thus scanned in their entirety, in order to evaluate the visibility and recognition of the engravings, and to assess the technique for detailed documentation of material culture itself. The article presents the process of scanning and analyzes the results.

Keywords: stećci, medieval period, three-dimensional scanning, 3D, heritage, tombstones, Bosnia and Herzegovina

Digitalno zajemanje podatkov postaja vse pomembnejši del dokumentiranja, proučevanja in predstavljanja arheološke dediščine (Zachar et al. 2017). Z razvojem tehnik 3D digitalizacije je ta vedno bolj dostopna in posledično prisotna tudi v dokumentiranju in predstavljanju arheoloških predmetov. Digitalni tridimenzionalni model predmeta oz. objekta, kot njegova kopija v virtualni obliki, nam omogoča njegov ogled in opazovanje na drugačen način v primerjavi s preučevanjem fizičnega predmeta. Lahko ga razumemo kot njegov digitalni nadomestek (Štuhec 2012, 94; 2017, 15–19; Jončić in Zachar 2017, 23–30).

3D skeniranje je še posebej primerno za predmete z različnimi reliefnimi značilnostmi, kot so okraši ali napisi, ki so zaradi procesov staranja predmeta pogosto težko prepoznavni ali berljivi. Prav zato smo metodo želeli preizkusiti na srednjeveških nagrobnih spomenikih oz. stečkih v Bosni in Hercegovini. Ti so namreč okrašeni z reliefnimi upodobitvami in napisi, ki so zaradi atmosferskih dejavnikov, ki so nanje vplivali v zadnjih stoletjih, velikokrat težko berljivi. Za proučevanje podobnih reliefnih okrasov in branje napisov na objektih in predmetih si raziskovalci običajno pomagajo s papirjem, ki ga pristonijo na reliefno površino, pobarvajo ali zmočijo in oblikujejo po površini ter na ta način dobijo obris oz. obliko vrezanih motivov ali črk. Vendar pa ročna oblika kopiranja takšnih okrasov in napisov (npr. kopiranje na paus papir ali pa t.i. squeeze) ni dovolj natančna in je odvisna od posameznikove sposobnosti prepoznavanja omenjenih elementov ter od mehko-be in oblikovalnosti papirja. Poleg tega se predmet običajno natančno pregleda tudi z uporabo različnih načinov osvetlitve in opazovanjem iz različnih smeri (Hameeuw in Willems 2001, 163). Tudi prenos oz. dostop do takšnih rezultatov je še vedno omejen na osebni pristop h kopiji. Prav v tem je prednost digitalnega dokumentiranja, saj omogoča enostaven prenos informacij med raziskovalci in olajša nadaljnje preučevanje.

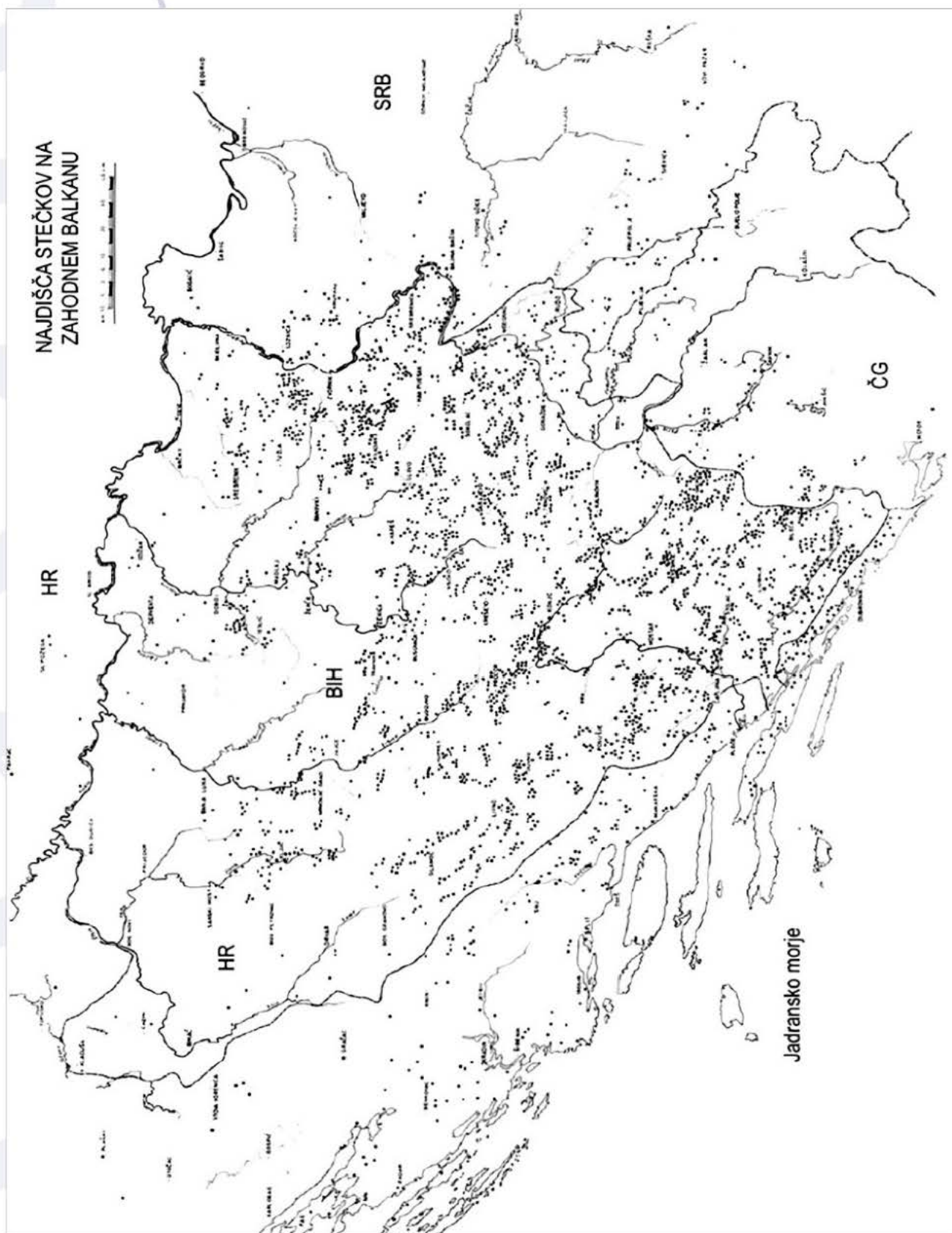
3D dokumentiranje stečkov je potekalo v okviru projekta *Social Landscapes as Multicul-*

tural Spaces: Stećci in Bosnia and Herzegovina (SOLMUS), financiranem preko programa EU Horizon 2020, MSCA-IF-2017 (797881), ter s sodelovanjem Pokrajinskega muzeja Koper in Parka Škocjanske jame, Slovenija.

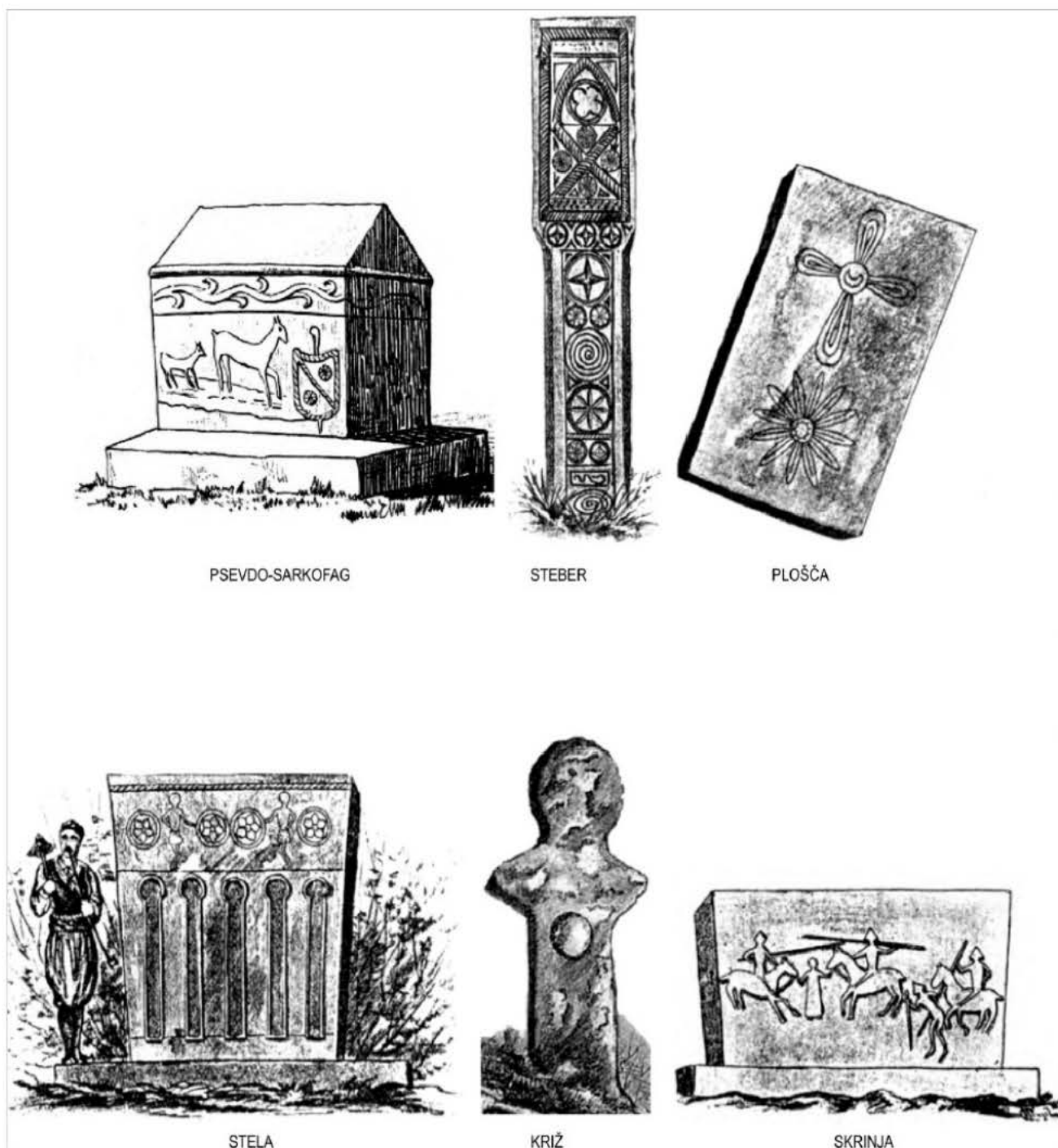
Stečki

Stečki so srednjeveški nagrobniki, razpršeni po krajinah Srbije, Hrvaške, Črne gore, in zlasti Bosne in Hercegovine (BiH) (sl. 1). Predstavljajo poseben pogrebni pojav, v katerem se prepletajo tradicije, vere, umetniški in estetski izrazi ter pisave. Morfološko so zelo raznoliki, saj jih najdemo v obliki psevdosarkofagov, križev, plošč, stebrov in skrinj (sl. 2). Približno 8% stečkov nosi napise in okrase, ki ikonografsko kažejo na kontinuiteto srednjeveške Evrope, kakor tudi edinstvene lokalne tradicije. Število teh spomenikov je izjemno visoko: trenutno je na Zahodnem Balkanu zabeleženih več kot 72.000 stečkov, in samo v BiH jih najdemo več kot 60.000. Stečki utelešajo zgodovinske, kulturne in verske elemente srednjeveškega Zahodnega Balkana ter pričajo o pogledih srednjeveških skupnosti na življenje in smrt, o prepletu simbolizma in resničnosti. Poosebljajo stoletja bosanske strpnosti, ki se je razvila iz dolgotrajnega sobivanja lokalnih raznolikih etničnih in verskih skupin, vendar se stečki ne pripisujejo nobeni od teh etničnih ali verskih skupin in še vedno veljajo za skrivnostne spomenike preteklosti.

Kdaj naj bi se stečki začeli pojavljati ostaja nejasno. Nekatere teorije jih povezujejo z megalitskimi tradicijami, druge pa jih predstavljajo kot romanske ali gotske obmorske urbane hiše, kot lokalne srednjeveške krščanske sarkofage ali bosanske podeželske hiše. Zakaj se pojavijo v 12. stoletju, kaj je sprožilo njihovo začetno ustvarjanje ter morebiten obstoj predhodnih oblik ostaja večinoma neznan. Najzgodnejši steček, datiran po napisu, je nagrobnik župana Trebinja Grdeše (1151-1177), v južni Hercegovini. Trenutno poznavanje začetkov te dediščine, ki je že od leta 2016 vpisana tudi na UNESCO-v seznam svetovne dediščine (<https://whc.unesco.org/en/list/1504>), je rezultat stanja raziskav saj so vsi do



Slika 1. Razširjenost stećkov na Zahodnem Balkanu (Bešlagić 1982).
 Stećci sites in the Western Balkans (Bešlagić 1982).



Slika 2. Tipi stečkov (Asboth 1890).
Types of stećci tombstones (Asboth 1890).

sedaj raziskani grobovi ali napisi datirani v čas po Grdešinem spomeniku.

Napisi in okrasi na stečkih

Od preko 72.000 nagrobnikov jih ima le približno 6000 (8,3%) okrase, izdelane večinoma v

nizkem reliefu, nekaj pa tudi v ugreznjenem reliefu. Motivi so tako posvetni kot religiozni, in povezujejo srednjeveško stvarnost s predhodnim rimskim obdobjem in prazgodovinsko tradicijo. Ameriška umetnostna zgodovinarica Marian Wenzel je v šestdesetih letih 20. stoletja podrob-



Slika 3. Ikonografija in napisi na stećkih (povzeto po Wenzel 1965; Vego 1962b, 40; fotografije: E. Bujak, www.nekropola.ba).

The iconography and epitaphs on the stećci tombstones (after Wenzel 1965; Vego 1962b, 40; photos: courtesy of E. Bujak, www.nekropola.ba).

no pregledala okrase stećkov, vzpostavila tipologijo in ugotovila, da naj bi večina ikonografije izvirala iz lokalnega srednjeveškega kovinskega posodja, pri čemer je izoblikovala izraz „bosanski slog“ (Wenzel 1965, 14; 1962; 1999). Preprosti motivi, razdeljeni na družbene in verske simbole, figuralne človeške in živalske kompozicije, arhitekturne postavitve, rastlinski in geometrijski okraši delujejo kot abeceda opusa stećkov (sl. 3). Ti številni motivi so bili nadalje kombinirani za bolj dodelane scenske predstavitve kot so npr. ples kola, viteški turnirji, lov na divje živali, itd. Wenzlova je menila, da so spomeniki ritualni, narejeni zato, da pomagajo blaginji pokojnikov v posmrtnem življenju. Prepričana je bila, da so nastali v razmeroma ozkem časovnem obdobju,

v 14. in 15. stoletju. Vendar pa njena hipoteza, ki povezuje ikonografijo stećkov s krščanskimi elementi, »ojačanimi z nekaterimi klasičnimi ikonografskimi ureditvami«, in podobnost s pogansko ikonografijo (Wenzel 1965, 11–21; Lovrenović 2009) petinpetdeset let pozneje zveni bolj kot domneva in kliče po reviziji. Ker sta evolucija in razvoj teh okraskov še vedno nejasna, ta prvi in izredno pomemben prispevek M. Wenzel predstavlja začetni korak v raziskovanju pogosto neodvisne teme fenomena stećkov.

V okrasih na stećkih je mogoče zaznati kulturno osmozo prazgodovinske in srednjeveške, predkrščanske animistične in krščanske doktrinarne religije (prim. Thomas et al. 2017). Vprašanje njihove verske pripadnosti je v zgodovinopis-

ju prisotno že od začetka usmerjenih študij, pri čemer so ga poskušali razrešiti z mnogimi, tudi povsem nasprotujočimi si teorijami. Povezovali so jih s predkrščanskim sredozemskim, ilirskim, vlaškim, japonskim (Mužić 2009), mitraističnim (Purgarić-Kužić 1995), megalitskim verskim in duhovnim pojmovanjem (Bešlagić 1982), pa tudi s krščanskimi tradicijami. Od sredine dvajsetega stoletja dalje so postopoma začeli prevladovati pogledi na njihov nebogomilski izvor oziroma medkonfesionalnost (Lovrenović 2009).

Nekaj manj kot 400 stečkov ima vklesane napise v dveh pisavah v lokalnem jeziku (sl. 3). Obe pisavi, glagolica in bosančica, sta povsem lokalni, nastali v osrednjejužnoslovanski redakciji v 9. oz. 10. stoletju, in danes izumrli (Nakaš 2012; Kardaš 2015). Posebne politične, kulturne in konfesionalne okoliščine v srednjeveški bosanski državi so se odražale v razvoju pismenosti in same pisave (Đorđić 1971). Glagolica, najstarejša slovanska pisava, se je v hrvaški rimskokatoliški cerkvi ohranila do 19. stoletja. Zgodnejšo glagolico naj bi konec trinajstega stoletja nadomestila izrazito ločena različica cirilice, t.i. Bosanska cirilica ali Bosančica (glej in primerjaj Nakaš 2012, 2018; Jurić-Kappel 2005; Kardaš 2015; Vražalica 2018). Bosančica se je pogosto uporabljala tako v lokalni bosanski kot v rimskokatoliški cerkvi v zgodovinskih deželah Bosne, Hercegovine in Dalmacije (Lovrenović 2009; Vego 1962a).

Napisi na stečkih so bili zbrani in objavljeni že v šestdesetih letih dvajsetega stoletja (Vego 1962a–70), vendar je sama disciplina srednjeveške epigrafike od takrat le malo napredovala. Poleg 325 napisov, ki jih je objavil prof. Vego v svojih monografijah (Vego 1962a–70), jih je danes znanih še dodatnih 59 (Bešlagić 2004, 13). Ker večina napisov imenuje pokojnika, so zgodovinarji poskušali identificirati imenovane posameznike preko zgodovinskih dokumentov, ki se hranijo predvsem v Državnem arhivu v Dubrovniku na Hrvaškem (npr. Markotić 1990; Kurtović 2010). Vendar to gradivo ponuja več kot le potrditev, da je oseba res obstajala, saj je dragocena ilustracija družbenega in ekonomskega položaja ter ideoloških stališč ljudi, tako političnih kot

verskih. Vkllesani napisi hkrati prikazujejo odnos do pokrajine in okolja, stopnjo pismenosti in obrti in, čeprav geografsko obrobni del, stečki dokazujejo ideološko in versko pripadnost srednjeveškega Zahodnega Balkana Evropi.

Napisi na nagrobnikih so zapisani v klasični formuli: *Tu leži...* (*A se leži...*), ki je kot taka znana že iz klasičnih grških časov. Glede na vsebino so razdeljeni na verske formulacije, epitafe, ki prenašajo moralna sporočila ali priklice, sekularne opise (junaške) smrti in družinske vezi ali preprosto nosijo samo ime pokojnika (Lovrenović 2009). Napisi so na stečke pisali pisarji, t.i. *dijaki*. Stečki nimajo osnovne, glavne ploskve za napis. Napise najdemo največkrat ob robu stečka, na sekundarnem mestu, kjer se zdijo bolj kot dopolnilo k okrasu (če ta obstaja), a brez očitne povezave med vsebinama. Napisi pogosto sledijo obliki in robovom stečka in so vgravirani pod kotom, ki ustreza kotu pogleda bralca napisa (Vego 1962a–70; Lovrenović 2009).

Metoda 3D skeniranja stečkov

Tridimenzionalne modele stečkov smo izdelale z dvema tehnikama: fotogrametrijo in uporabo 3D skenerja. Na ta način smo dopolnile osnovno dokumentacijo, ki jo sestavljata fotografija in risba. V nadaljevanju bomo predstavile potek zajema podatkov s 3D skenerjem.

Za delo smo uporabile prenosni skener *Ein-Scan Pro 2X Plus (Multifunctional Handheld 3D Scanner)*. Gre za skener, ki deluje na strukturirano belo svetlobo (ang. *structured light scanner*). Z oddajanjem linearnih vzorcev sistem prepozna geometrijske značilnosti predmeta in na podlagi sprememb na vzorcu izračuna 3D koordinate skeniranega predmeta (Ebrahim 2011, 20–21). Osnovni podatek, ki ga dobimo s skeniranjem, je oblak točk. Programska oprema, ki je na voljo skupaj z uporabljenim 3D skenerjem, omogoča osnovno obdelavo podatkov, kot je preoblikovanje zajetih točk v poligonalno mrežo, osnovno odstranjevanje šuma, zapolnjevanje manjših praznin, ipd. Za naprednejšo obdelavo 3D modelov in manipulacijo podatkov pa se je potrebno posluževati dodatnih programov

(npr. SolidEdge, MeshLab, idr.). Dotični skener ima možnost statičnega (ang. *fixed mode*), ki je primeren za manjše predmete, ali ročnega (ang. *handheld mode*) načina skeniranja, pri čemer lahko uporabimo visokoločljivostni (ang. *HD mode*) ali hitri (ang. *rapid mode*) način skeniranja. Za skeniranje stečkov smo uporabile način hitrega ročnega skeniranja (ang. *handheld rapid scan*). V tem načinu lahko skeniramo predmete do velikosti 4 m.

Terenski zajem podatkov

Skeniranje poteka tako, da se s skenerjem obkroži predmet ob čemer naprava sprotno zapisuje prežete podatke. Pri tem je potrebno paziti na ohranjanje razdalje med skenerjem in predmetom, ki varira med 45 cm in 55 cm, z optimalno razdaljo 51 cm (Shining 3D 2018). Skener torej zaznava površino predmeta in povezuje skenirana področja med seboj na podlagi že dokumentiranih točk. Za povezovanje skeniranih površin med seboj smo uporabljale povezovanje na podlagi geometrije predmeta (ang. *feature alignment*). Za takšen način skeniranja je potrebna razgibana površina oz. predmet z več geometrijskimi elementi, čemur stečki praviloma ustrezajo.

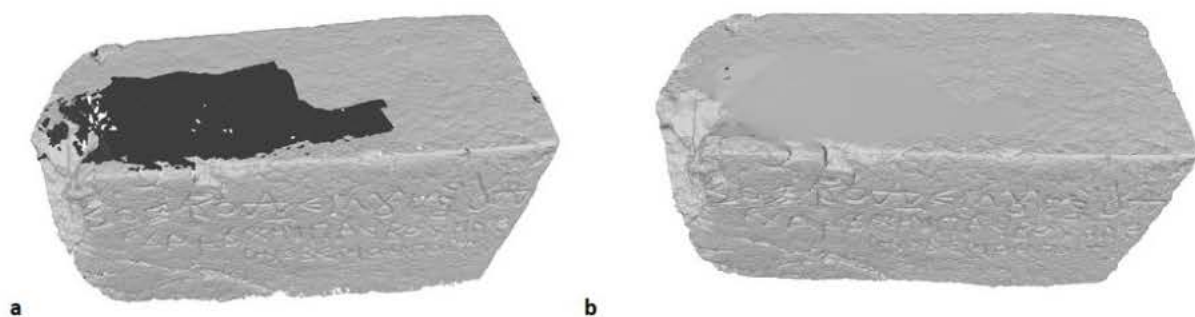
Drugi možnosti povezovanja skeniranih površin sta uporaba markerjev (ang. *marker alignment*), pri katerem potrebujemo dodatne točke (dodamo jih sami, točke običajno nalepimo na predmet) ali hibridna poravnava (ang. *hybrid alignment*), pri kateri uporabljamo kombinacijo predhodno opisanih načinov poravnave. Za uspešno zajemanje podatkov je najbolje, da je potek skeniranja kontinuiran in enakomeren. Ker se podatki sprotno shranjujejo, lahko tudi v primeru, da skeniranje predčasno prekinemo, kasneje nadaljujemo od zadnjega dokumentiranega mesta, vendar le v primeru, da je površina dovolj razgibana. V nasprotnem primeru skener nima dovolj referenčnih točk za prepoznavanje mesta prekinitve in nadaljnjo poravnavo.

Površino predmeta lahko skeniramo z uporabo dodatne kamere, ki poleg reliefa predmeta zazna tudi njegovo teksturo in barvo. V našem primeru dodatne teksturne kamere nismo upo-

rabljali, saj so nas zanimali predvsem geometrijski podatki o spomeniku. Poleg tega je teksturo mogoče dodati iz fotografij kasneje tekom obdelave podatkov (Jončič in Zachar 2017, 28). Poleg določitve načina poravnave in odločitve glede uporabe kamere, je pri nastavitvah potrebno določiti tudi način delovanja skenerja (ang. *operation mode*). Za skeniranje stečkov smo uporabili klasičen (ang. *classic*) način delovanja, pri katerem je hitrost skeniranja 15 zajemov na sekundo (ang. *frames/sec*). Procesiranje podatkov pri tem načinu deloma poteka že tekom samega skeniranja, kar skrajša čas procesiranja podatkov po končanem skeniranju. Resolucijo skeniranja prav tako določimo sami, izbiramo pa lahko med nizko, srednjo ali visoko (ang. *low, medium, high detail*), na lestvici med 3,0 mm in 0,2 mm. Za skeniranje stečkov smo uporabile srednjo resolucijo.

Izbor omenjenih metod sta pogojevala časovna omejitve, ki smo jo imele za izvedbo skeniranja ter velikost podatkov, saj drugačni načini delovanja skenerja, kot je npr. uporaba teksturne kamere ali višja resolucija skeniranja, občutno povečajo čas zajemanja ter velikost podatkov, kar obenem zahteva tudi zmogljivejšo računalniško opremo. Ker je za uporabo skenerja nujno potrebna elektrika, smo se raziskavo odločili izvesti na dveh lokacijah, kjer je bila ta dovolj blizu za priključitev instrumenta. Na lokalnem pokopališču v Milavičih smo ob izkopavanjih dokumentirali šest stečkov, na zaščitenem arheološkem najdišču Trebesin pa dva, skupno torej osem stečkov.

Že takoj na začetku skeniranja smo naleteli na problem, katerega glavni razlog je bil preosvetljenost predmeta. Skener je namreč močno občutljiv na svetlobo podatkov (Jončič in Zachar 2017, 31), ki v kombinaciji z belo površino (naravna barva apnenca, iz katerega so izdelani stečki) onemogoča izdelavo ne le kvalitetnih posnetkov, temveč kakršnihkoli posnetkov sploh. Nagrobnike smo zato poskusile zasenčiti, vendar se je svetloba od njihove površine še vedno odbijala tako močno, da skener površine ni zaznal. Poskusile smo s skeniranjem ob manjši jakosti svetlobe, torej po sončnem zahodu oz. ob mra-



Slika 4. a - Primer odprtega oz. nezapolnjenega modela stečka (površina, ki ni bila zajeta tekom skeniranja je temnejše barve); b - Primer zaprtega oz. zapolnjenega modela stečka.

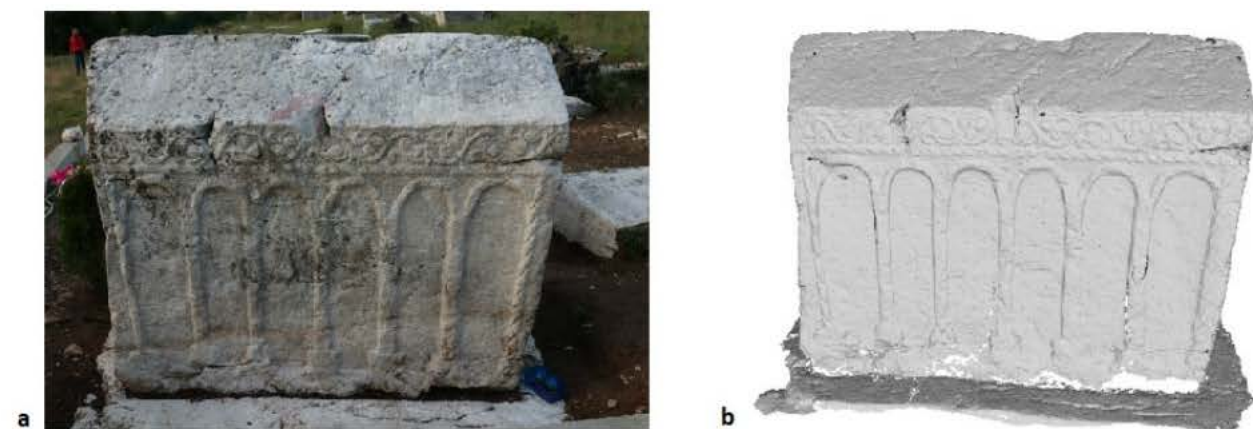
a - An example of open or an unfilled tombstone model (the surface that was not covered during the scanning is darker in color); b - Example of closed or filled tombstone model.

ku in nadalje v temi, kar se je izkazalo za uspešno. Skeniranje v takšnih pogojih je potekalo brez večjih problemov. Druga možnost izvedbe skeniranja stečkov ob dnevni svetlobi bi bila, če bi jih premazale s temnejšo barvo (npr. z v vodi raztopljenim ogljem), kar bi omililo bleščanje. V tem primeru bi bilo potrebno preveriti, kakšna barvila lahko uporabljamo, da na ta način ne poškodujemo spomenikov.

Računalniška obdelava

Po terenskem delu je sledila osnovna računalniška obdelava zajetih podatkov. To omogoča že programska oprema samega skenerja, za zahtevnejšo obdelavo pa se je, kot že omenjeno, potrebno posluževati dodatnih programov, ki omo-

gočajo večjo manipulacijo s podatki. Osnovni podatek skeniranja je oblak oz. množica točk definirana s tridimenzionalnimi koordinatami. S pomočjo programske opreme oblak točk preoblikujemo v poligonalni model (*mesh*), ki je sestavljen iz množice trikotno oblikovanih ploskev. Gostota ploskev narekuje resolucijo 3D modela. Ta podatek nam služi za izdelavo končnega modela predmeta (sl. 5b). Pri izdelavi modela predmeta lahko izbiramo med dvema opcijama: nezapolnjen oz. odprt (ang. *unwatertight*) ali zapolnjen (ang. *watertight*) model (sl. 4). Pri slednjem program površine, ki niso bile zajete tekom skeniranja (manjkajoče površine oz. luknje), avtomatično zapolni (sl. 4b). Pri tem se je potrebno zavedati, da so te površine arbitrar-



Slika 5. Milavići nekropola, enota 1: a - fotografija in b - 3D model stečka (tip psevdosarkofag oz. slemenjak z arhitekturnim okrasom ter z vitico in trilistnim trakom).

Milavići cemetery, unit 1: a - photo and b - 3D model of stečak (a pseudo-sarcophagus or gabled type, with architectural decoration and a tendril and a three-leaf ribbon).

ne, kar moramo upoštevati pri nadaljnji uporabi modela. Oblike datotek v katerih lahko shranimo 3D podatke in modele izdelane v programu skenerja so: .prj, .asc (separated), .asc (whole), .stl, .obj, .ply, .3mf in .p3.

Prednost tridimenzionalnih modelov je v tem, da omogočajo opazovanje predmeta na drugačen način kot to počnemo s fizičnim predmetom. Modelu lahko spreminjamo osvetlitev, barvo, dodajamo ali odvezujemo teksturo, obračamo, ipd. Določeni reliefi na zgornji površini stečkov so denimo že močno poškodovani zaradi vpliva atmosferskih dejavnikov (erozija kamna), kar otežuje njihovo berljivost. Takšne površine enostavneje preberemo oz. prepoznamo prav iz tridimenzionalnega modela. Poleg tega nam ta omogoča dodatno raziskovanje spomenikov tudi po opravljenem terenskem delu ter kot tak predstavlja pomemben del dokumentacije najdišča. Obenem so tridimenzionalni modeli predmetov pomembni tudi z vidika njihovega predstavljanja širši zainteresirani javnosti tako v izvornem okolju, kot tudi drugje, recimo v tujini, kjer tovrstni spomeniki niso poznani. Služijo lahko kot podlaga za njihovo preučevanje, varovanje, promocijo ter predstavljanje, bodisi z izdelavo kopije ali kot virtualna vsebina.

Rezultati skeniranja stečkov

Osem skeniranih stečkov se nahaja na dveh najdiščih: Milavići v današnji občini Bileća in Trebesin v današnji občini Berkovići. Obe lokaciji sta v srednjem veku sodili v župo Dabar.

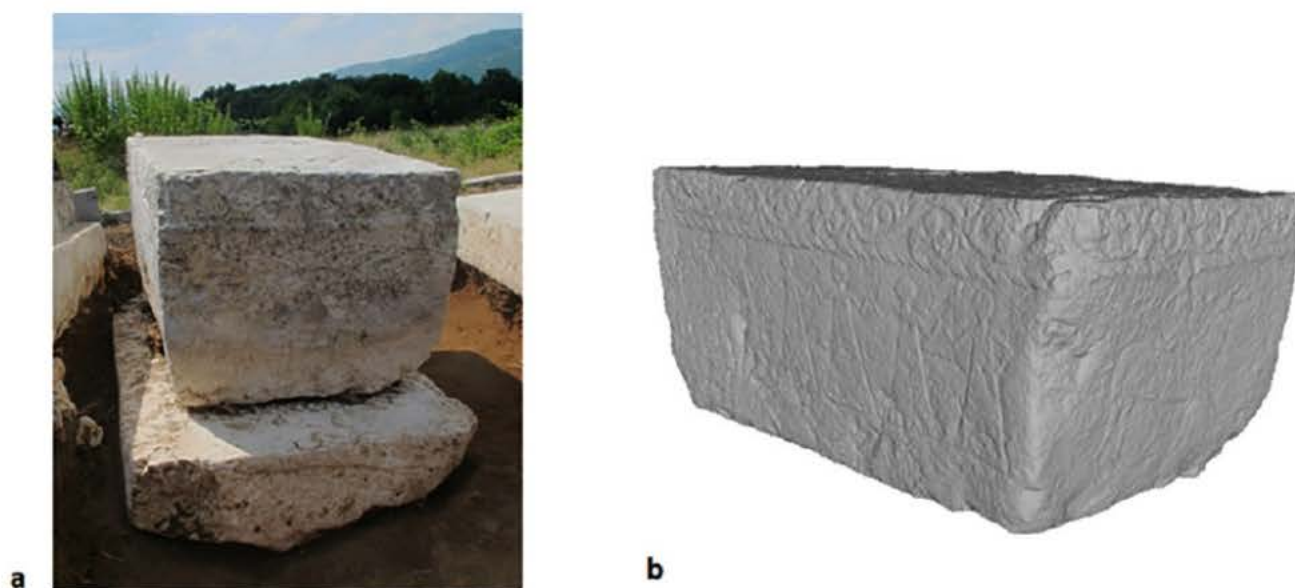
Milavići

Pokopališče v Milavićih je v uporabi že vsaj zadnjih 650 let. Sodobni pokopi so skoncentrirani v osrednjem spodnjem delu pokopališča, medtem ko so srednjeveški stečki postavljeni v večjem delu ograjenega pokopališča, še posebej v njegovem zahodnem delu. Danes je na tem pokopališču ohranjenih 352 stečkov (Pekić 2005). Naše raziskave so se osredotočile na dve lokaciji znotraj pokopališča (območje 1000 in 2000), in sicer na grobove s stečki v skrajnem JZ vogalu pokopališča (območje 1000) in na osrednji, dvignjeni

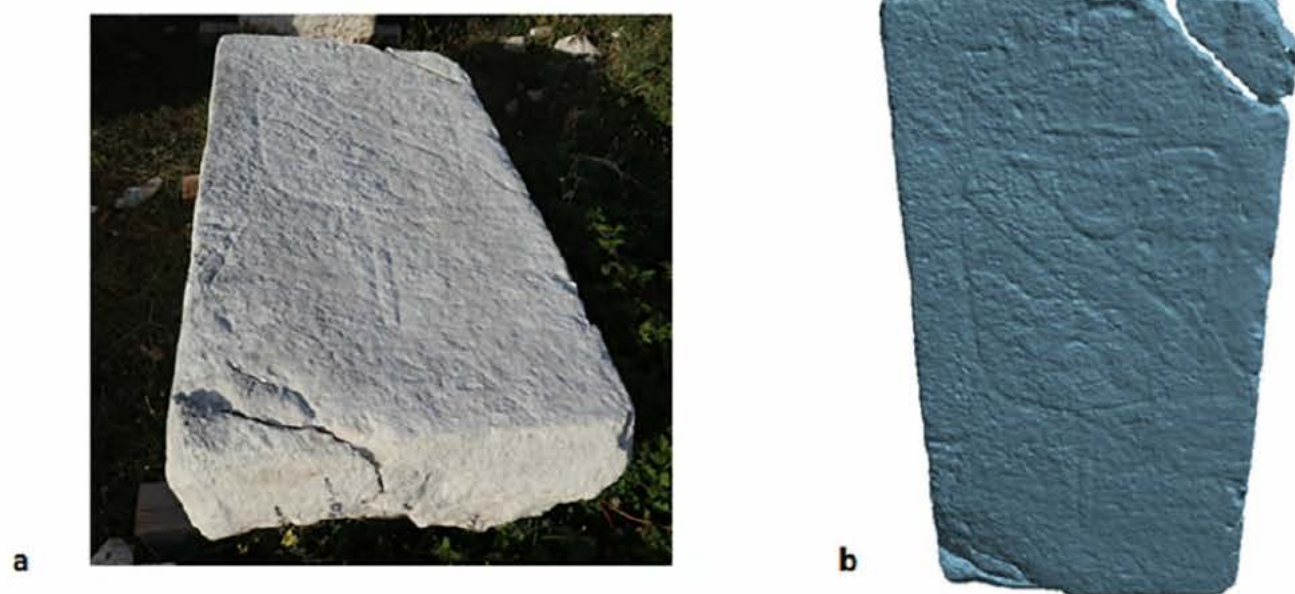
del (območje 2000), kjer stečkov ni bilo. 3D skeniranje je bilo opravljeno na nagrobnikih v območju 1000, ko so bili ti že premaknjeni s svojega originalnega mesta na začasno odložišče izven pokopališča.

Nagrobniki s pripadajočimi grobovi in pokopi so bili dokumentirani kot ena enota in tako smo torej arheološko raziskali enote 1 do 7. Pri teh enotah smo prvotno nagrobnike fotografirali z namenom, da z vnosom fotografij v Agisoft Metashape program izdelamo 3D modele nagrobnikov. Takšen format bi omogočil trajni posnetek tedanjega stanja vsakega posameznega stečka ter omogočil lažji dostop za preučevanje in analiziranje oblik, okrasov, napisov itd., torej za neomejeno napredovanje znanstvenega raziskovanja stečkov. S fotogrametričnimi rezultati smo bili srednje zadovoljni, zato smo poskusili še s 3D skeniranjem. Pri prvih treh enotah je bil dokumentiran le prvi nadzemni element, tj. steček prve enote (sl. 5), medtem ko so bile pri enotah 4 do 7 nadzemni elementi dokumentirani in skenirani, podzemni elementi pa tudi stratigrafsko izkopani, dokumentirani in vzorčeni. Nadzemni del enote je vseboval kamniti nagrobnik, stečak, ter kamnite opore pod vogali in stranicami nagrobnika v obliki naravnooblikovanih kamnov. Vloga teh kamnov je bila zagotoviti statično oporo stečku, da je ta ostal v bolj ali manj vodoravnem oz. prvotno zamišljenem položaju. Podzemni del enote je vseboval grobno jamo z grobno strukturo, znotraj katere je ležal skelet v iztegnjenem položaju. Grobna struktura je bila v našem primeru sestavljena ali iz kamnitega suhega zidu v dveh vrstah, ali pa iz apnečastih naravnih plošč, ki so omejevale grobno kamro. Enake apnečaste plošče so bile uporabljene tudi za pokrov grobne kamre.

Tridimenzionalno skeniranje se je izkazalo kot zelo uporabno, saj je ponudilo dokumentiranje z izredno visokim nivojem zajema informacij. Dobro vidne dekoracije na stečkih so pridobile pri detajlih (enota 4, sl. 6), medtem ko so se na dveh nagrobnikih pokazali okrasni, ki so bili prostemu očesu slabo vidni (enota 6; sl. 7b) ali celo nevidni.



Slika 6. Milavići nekropola, enota 4: a – fotografija; b - 3D model stećka z dobro vidnimi dekoracijami.
Milavići cemetery, unit 4: a – a photograph; b – a 3D model of stećak with well visible decorations.



Slika 7. Milavići nekropola, enota 6: a – fotografija; b - 3D model stećka z dobro vidnimi dekoracijami v obliki meča in ščita na zgornji površini.
Milavići cemetery, unit 4: a – a photograph; b – a 3D model of the tombstone with well-visible decorations in the shape of a sword and shield on the upper surface.

Tudi iz skeniranja globoko vrezanega napisa na nagrobniku Bogdana Hateljevića (sl. 8; Pekić 2005, 202; Čaval, v tisku) smo pridobili nove informacije, ki prej niso bile prepoznane. Ta nagrobnik smo tridimenzionalno dokumentirali zato, da ovekovečimo edini napis na tem poko-

pališču; napis, ki ga je prof. Vego (1962b, 40, 41; št. 93) datiral v konec 14. in začetek 15. stoletja, medtem ko so kasnejše zgodovinske raziskave postavile napis v drugo polovico 14. stoletja, a vsekakor pred leto 1390 (Pekić 2005, 202). Napis je edina dekoracija nagrobnika in se razpro-



Slika 8. Milavići nekropola, stečak Bogdana Hateljevića: a – fotografija stečka z napisom; b - Vegov prepis (Vego 1962b, 40, št. 93); c – 3D skeni vseh štirih stranic z dobro vidnim napisom in novo odkrito peto vrstico na prvi stranici napisa. Milavići cemetery, stečak of Bogdan Hateljević: a – a photograph; b – transcription of the inscription by M. Vego (Vego 1962b, 40, No. 93); c – a 3D model of the tombstone with well-visible inscription and newly discovered fifth line of inscription on the first side of the tombstone.

stira na vseh štirih stranicah nagrobnika. Kljub globoko vrezanem napisu je skeniranje izluščilo dodatno vrstico napisa, in sicer kot peto vrstico na prvi strani nagrobnika. Celoten napis se sedaj bere

ta se leži B(o)gadaný Hateljević Rodiča voevode slúga ú dobri ~asý rodih sé ú dobrá ú dru'ini pravo ~iné i úmráhý g(ospo)d(i)nú várno slúhé a sai biljegý sinové moi postavíšé ména«. V prevodu v današnji bosanski jezika pa »A se leži Boga(!) dan Hateljević R(a) diča vojvode sluga. u dobri čas rodih se u Dobre. U družin(i) pravo (prava?) činje(h) i umreh g(ospo)d(i) nu vjrnó služé(ći). A sai biljeg sinovi moji postaviše meni (Vego 1962b, 41; prof. Radmilo Pekić ustna informacija)

Trebesin

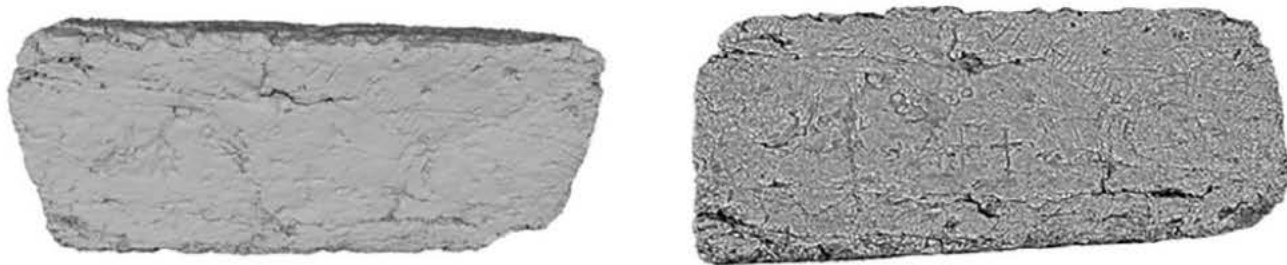
Druga lokacija, kjer smo poskenirali dva stečka je Trebesin, zaselek vasi Klečki nad mestom Berkovići (Pekić 2005, 194–195, 202–203). Izven ograjenega srednjeveškega in novoveškega pravoslavnega pokopališča je nekaj razmetanih skupin skupno sedemnajstih stečkov, ki dajejo vtis ovac,

ki se pasejo okoli hiš. Prvi je bil prevrnjeni nagrobnik v obliki visokega slemenjaka na podstavku, močno obrasel z grmovjem in ga je bilo zato težko dokumentirati (sl. 9). Zanimivo je, da v Vegovem opusu tega napisa ni, ga je pa objavil Šobajić (1954, 40) desetletje prej. Iz zelo težko berljivega epitafa je Šobajić lahko razbral le začetek, ki sicer pravi »A sé le' i Ranéua Pi}ovi}(ý) bih(ý) slúga«, oziroma »A se leži Raenia Pičović bih sluga /.../«. Skenirana oblika napisa potrebuje dodatno obdelavo.

Drugi skenirani nagrobnik je delno vkopan v zemljo in še bolj erodiran od prvega. V surovi digitalni obliki je zgornja stranica stečka še vedno težko berljiva, predvsem zaradi naravnih razpok in klimatskih poškodb nagrobnika (sl. 10). Vseeno so vidni vrezani križi in poševni napis, ki do sedaj še ni bil ne registriran, ne prebran. Obe daljši stranici nagrobnika sta okrašeni z motivom žensk, ki plešejo kolo, ki je na vrhu stranice zaključeno z vitičnim in trolistnim trakom. Omenjeni trak se nadaljuje tudi na krajših stranicah, ki so hkrati okrašene še z živalsko figuraliko, morda predstavitev konj, kar pa je zaradi vkopanosti stečka v zemljo trenutno nevidno.



Slika 9. Trebesin, steček 1: a – fotografija; b - 3D model stečka z dobro vidnim napisom v različnih vizualizacijah.
Trebesin: a – a photograph; b – a 3D model of the tombstone with well-visible inscription in various visualisations.



Slika 10. Trebesin, steček 2: a – fotografija; b - 3D model stečka z vidnim napisom in dekoracijami na vrhnji in stranskih straneh.
Trebesin: a – a photograph; b – a 3D model of the tombstone with visible inscription and decorations on the top and side surfaces.

Vsi okraji razen najglobljšega križa so prostemu očesu nevidni.

Zaključek

Očitno je, da je tridimenzionalno skeniranje v našem primeru prineslo izredno bogate informacije, ki jih sicer ne bi bilo mogoče zajeti. Tridimenzionalno modeliranje iz fotografij se je sicer izkazalo za bogatejši podatkovni paket od samega branja informacij samo iz fotografij, a 3D skeniranje z ročnim skenerjem je neprimerno bolj natančna tehnika. Znotraj institucij, ki dokumentirajo, varujejo, vrednotijo, raziskujejo in interpretirajo kulturno dediščino se z uporabo digitalizacije odpirajo nove obsežne možnosti raznovrstnega predstavljanja in interpretacije materialne kulture. Moderne tehnologije, kot na primer 3D skeniranje in modeliranje, so čedalje bolj dostopne in hkrati enostavne za uporabo.

3D skeniranje predstavlja pomemben element tudi pri muzejskem delu, saj je prvobitno poslanstvo muzejev varovanje in preučevanje premične kulturne dediščine, in nato njeno predstavljanje javnosti. Obe vlogi zahtevata dobro oz. popolno dokumentacijo predmetov, ki jo ta tehnika ponuja. Digitalna vsebina tako dokumentiranega predmeta ima izjemno dokumentarno vrednost, ki jo lahko opredelimo znotraj treh osnovnih muzejskih vidikov: varovanje, proučevanje, predstavljanje. Ker je ves arheološko pridobljen material predan v kuratorstvo muzeju, velja omeniti vlogo 3D informacij znotraj omenjenih treh vidikov.

Varovanje: vse muzealije, ki so vpisane v inventarno knjigo muzeja imajo status spomenika in predstavljajo neprecenljivo dediščino, ki jo moramo skrbno varovati. Muzealije so zato zavarovane za primere kraje, poškodovanja, požara in

naravnih nesreč. V primeru poškodbe, kraje ali uničenja predmeta je ključna zelo dobra dokumentacija, ki omogoča njegovo rekonstrukcijo, izdelavo kopije ali identifikacijo v primeru kraje. V tem primeru ima tridimezionalni model predmeta odlično dokumentarno vrednost, ki parira originalu.

Preučevanje: preučevanje predmetov kulturne dediščine se v primeru digitalnih modelov lahko enostavno in hitro prenaša med napravami. Metoda 3D skeniranja je primerna dopolnilna tehnika preučevanju, saj lahko izdelan 3D model digitalno poljubno obračamo, osvetljujemo z različnih kotov, povečamo ali pomanjšamo, in tudi natisnemo. Pri tem se moramo zavedati tudi pomanjkljivosti, ki jih digitalna oblika predmeta ima. Te se kažejo predvsem pri določanju strukture materialov, barvnih tonov ter teže in velikosti muzealij.

Predstavljanje: Z ustrezno računalniško izdelavo 3D modelov predmetov lahko pridemo do atraktivnih in zanimivih predstavitev ter interpretacij. 3D modeli predmetov se lahko uporabijo v animacijah, kot na primer predstavitev njihove postopne izdelave ali pa arheološkega postopka izkopa predmeta. Uporabijo se lahko v hologramih, ki pogosto služijo kot nadomestilo za originalne predmete, predvsem na občasnih razstavah. Prav tako je na ta način olajšano predstavljanje večjih predmetov, ki jih muzeji hranijo v depojih ali pa so, kot je to primer stečkov, ohranjeni in situ. V kombinaciji s 3D tiskom predmetov za potrebe praktičnega pristopa pa približamo kulturno dediščino tako otrokom kot tudi slepim in slabovidnim obiskovalcem muzejev. 3D dokumentiranje kulturne dediščine torej prispeva k boljši dostopnosti kulture ranljivim skupinam, vpliva na pozitivnejše muzejske izkušnje vseh segmentov obiskovalcev, širi obzorje muzejskih delavcev in vzpodbuja splošno vključenost javnosti ter senzibilizira splošno javnost za položaj ranljivih skupin v družbi.

Glede na podatke, ki nam jih tridimenzionalno skeniranje posreduje, ima ta tehnika izredno pozitivno prihodnost ne le v muzeologiji in raziskovanju, temveč tudi veliko širše. V pri-

hodnosti nameravamo to tehniko uporabiti na vseh stečkih, ki bodo del arheoloških izkopavanj. V primerjavi s finančnim zalogajem, ki ga nakup ročnega 3D skenerja zagotovo predstavlja, je vrednost pridobljenih informacij vsekakor neprimerljivo večja, saj skeniranje praktično zamrzne trenutno stanje predmeta in tako omogoči časovno neomejeno raziskovanje, analiziranje, in manipulacijo pridobljenih informacij.

Zahvala

Avtorice se zahvaljujejo študentkam in študentom ter kolegicam in kolegom, ki so sodelovali pri izkopavanjih v Milavićih leta 2019, še posebej dr. Alessandri Cianciosi in dr. Krishu Seetah, kolegicama Prof. Ljubici Srdić in Ljiljani Vrućinić in Republiškega Zavoda za ohranjevanje zgodovinske, kulturne in naravne dediščine Banja Luka, BiH, ter zgodovinarju Prof. Radmilu Pekiću za pomoč, svetovanje in vzpodbudo pri raziskavah stečkov in uporabi novih tehnik dokumentiranja kulturne dediščine.

Summary

Digital data capture is becoming an increasingly important part of documenting, studying, and presenting archaeological heritage. With the development of three-dimensional digitization, this technique is becoming more accessible and present in the documentation and presentation of archaeological objects. 3D scanning is especially suitable for objects with various relief features, such as ornaments or inscriptions, which are often difficult to identify or read due to the ageing processes of the object. This is the reason why we tested the method on medieval tombstones in Bosnia and Herzegovina.

Three-dimensional models of the stećci tombstones were made using two techniques: photogrammetry and 3D scanning. For scanning, we used a portable scanner EinScan Pro 2X Plus (Multifunctional Handheld 3D Scanner) based on structure light technology. The scanner projects a series of linear light patterns on an object, the camera records them and a software then calculates the distance of each point in the pattern. The result of a scanning process is a point cloud, which can be further processed.

The eight stećci that were scanned in this pilot case study originated from two sites: from Milavići, an over 650 years old orthodox cemetery with 352 stećci, and still in use, where we scanned six tombstones, and Trebesin, a smaller site with 17 stećci, from which two were scanned. Since the scanner is highly sensitive to light data, which in a combination with the white surface (limestone) prevents the production of quality images or any images at all, the fieldwork was conducted after sunset and further in dark. The fieldwork was followed by basic computer processing of the captured data. This is already made possible by the scanner's software itself, yet for more complex processing it is necessary to use additional software that enable greater data manipulation. The file formats in which we can store 3D data and models created in the scanner program are: .prj, .asc (separated), .asc (whole), .stl, .obj, .ply, .3mf, and .p3.

The advantage of three-dimensional models is that they allow us to observe an object in a different way than we do with a physical object. The model can be changed lighting, colour, add or subtract texture, turn, etc. Certain reliefs on the upper surface of the stećak tombstones, for example, are already severely damaged due to the influence of atmospheric factors (stone erosion), which makes their readability difficult. Such surfaces are easier to read from the three-dimensional model. In addition, it allows us to explore monuments further even after the fieldwork and, as such, represents an integral part of the documentation of the site. (Simultaneously, three-dimensional models are also significant for their presentation to the broader interested public, both in the original environment and elsewhere. They can serve as a basis for their study, protection, promotion, and presentation, either by making a copy or virtual content.

A simple glance at the results displays that three-dimensional scanning in our case yielded extremely rich information that would not otherwise be identified and captured. Three-dimensional modelling from photographs has proven to be a richer data package than just reading information from photographs alone, but 3D scanning with a hand-held scanner is disproportionately richer and more accurate with data it teases out. 3D models enable detailed research, analysis, and manipulation of the obtained information in every sector dealing with the cultural heritage.

Povzetek

Digitalno zajemanje podatkov postaja vse pomembnejši del dokumentiranja, preučevanja in predstavljanja arheološke dediščine. Z razvojem tridimenzionalne digitalizacije je ta tehnika vse bolj dostopna in prisotna v dokumentaciji ter predstavitvi arheoloških predmetov. 3D skeniranje je še posebej primerno za predmete z različnimi reliefnimi lastnostmi, kot so okras ali napisi, ki jih je zaradi staranja predmeta pogosto težko prepoznati ali prebrati. To je razlog, da smo metodo preizkusili na srednjeveških nagrobnikih v Bosni in Hercegovini.

Tridimenzionalni modeli nagrobnikov (stečkov) so bili narejeni z dvema tehnikama: fotogrametrijo in 3D skeniranjem. Za skeniranje smo uporabili prenosni skener EinScan Pro 2X Plus (večnamenski ročni 3D skener), ki temelji na strukturni svetlobni tehnologiji. Optični bralnik projicira vrsto linearnih svetlobnih vzorcev na predmet, kamera jih zabeleži in programska oprema izračuna razdaljo vsake točke v vzorcu. Rezultat postopka skeniranja je oblak točk, ki ga je mogoče nadalje obdelati.

Osem stečkov, ki so bili skenirani v tej pilotni študiji primera, izvira iz dveh krajev: iz Milavičev, več kot 650 let starega pravoslavnega pokopališča s 352 stečki, ki je še vedno v uporabi, na katerem smo pregledali šest nagrobnikov, in Trebesina, manjšega mesta s 17 stečki, kjer smo skenirali dva nagrobnika. Ker je optični bralnik zelo občutljiv na svetlobne podatke, kar v kombinaciji z belo površino (apnenc) preprečuje nastanek kakovostnih slik ali kakršnih koli slik, smo terensko delo izvajali po sončnem zahodu in kasneje v temi. Terenskemu delu je sledila osnovna računalniška obdelava zajetih podatkov. Obdelavo omogoča že sama programska oprema optičnega bralnika, vendar je za zahtevnejšo obdelavo treba uporabiti dodatno programsko opremo, ki omogoča večjo manipulacijo s podatki. Formati datotek, v katere lahko shranimo 3D podatke in modele, ustvarjene v programu za optični bralnik, so: .prj, .asc (ločeno), .asc (celo), .stl, .obj, .ply, .3mf in .p3.

Prednost tridimenzionalnih modelov je, da nam omogočajo opazovanje predmeta na drugačen način kot pri fizičnem objektu. Modelu je mogoče spremeniti osvetlitev, barvo, dodati ali odvzeti teksturo itd. Nekateri reliefi na površini stečkov so na primer že močno poškodovani zaradi vpliva atmosferskih dejavnikov (erozija kamna), zaradi česar so težko berljivi. Takšne povr-

šine je lažje razbrati iz tridimenzionalnega modela, ki nam poleg tega omogoča nadaljnje raziskovanje spomenikov tudi po terenskem delu in kot tak predstavlja sestavni del dokumentacije o lokaciji. Hkrati so tridimenzionalni modeli pomembni tudi za njihovo predstavitev širši zainteresirani javnosti, tako v prvotnem okolju kot drugod. Lahko so osnova za njihovo preučevanje, zaščito, promocijo in predstavitev, bodisi z izdelavo kopije oz. navidezne vsebine.

Preprost pogled na rezultate pokaže, da je tridimenzionalno skeniranje v našem primeru dalo izredno bogate informacije, ki jih sicer ne bi mogli prepoznati in zajeti. Tridimenzionalno modeliranje na fotografijah se je izkazalo za bogatejši podatkovni paket kot samo branje informacij s fotografij, toda 3D skeniranje z ročnim optičnim bralnikom je nesorazmerno bogatejše in ponuja natančnejše podatke. 3D modeli omogočajo podrobnejše raziskave, analize in obdelavo pridobljenih informacij v vseh sektorjih, ki se ukvarjajo s kulturno dediščino.

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