Fortifications, defence systems, structures and features in the past: Proceedings of the 4th International Scientific Conference on Mediaeval Archaeology of the Institute of Archaeology

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Fortifikacije, obrambeni sustavi i strukture u prošlosti

Zagreb, 2019.

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FOREWORD

This edition brings the conference papers from the 4th International Conference on Mediaeval Archaeology organised by the Institute of Archaeology in Zagreb in 2017. It is a result of efforts of the medievalists of the Institute of Archaeology to establish continued international gathering of the academic community in Zagreb in order to discuss current archeological topics on mediaeval archeology. Each year the topic of the conference covers the specific issues of mediaeval archeology, and the conference proceedings are published in the edition *Zbornik Instituta za arheologiju / Serta Instituti Archaeologici* (ZIA). Proceedings of the 1st Conference *Groblja i pogrebni običaji u srednjem i ranom novom vijeku na prostoru sjeverne Hrvatske (Cemeteries and funeral customs in mediaeval and early modern period in the northern Croatia),* held in 2014, have been published in *ZIA*, Vol. 4 in 2016. Proceedings of the 2nd Conference *Srednjovjekovna naselja u svjetlu arheoloških izvora (Mediaeval settlements in the light of archaeological sources)*, held in 2015, have been published in *ZIA*, Vol. 6 in 2017, and Proceedings of the 3rd Conference *Sacralization of Landscapes and sacred places*, held in 2017, have been published in *ZIA*, Vol. 10 in 2018.

The 4th International Scientific Conference on Mediaeval Archaeology ***Fortifications, defence systems, structures and features in the past***, organized by the **Institute of Archaeology** in cooperation with **the Croatian Institute of History**, took place from the 7th till the 9th of June 2017 in Zagreb. Our wish was to encourage the researchers to present, through this topic, their knowledge on technical solutions of certain defensive elements of different fortifications, different manifestations and changes in the organization of defensive structures and systems over time, with regard to the causes of those changes and identification of possible patterns of defence systems, structures and features in a certain area, region or in a certain archaeological or historical period.

Although based on knowledge yielded mostly by the archaeological research, the topics of the Conference exceeded the basic framework of the archaeological discipline, and the it has been conceived as a multidisciplinary encounter of different ideas, approaches, methods, results and interpretations. Furthermore, the topics of the Conference have been open to wider archaeological and historical periods, not only the Middle Ages. We were interested in how different developmental processes took place before the Middle Ages (Prehistory, Roman Period), which inevitably affected the human life in the Middle Ages, and how different phenomena of the Mediaeval Time influenced the human life in the Modern Period as well.

The Conference has gathered large number of experts and professionals from different countries, who have presented their research, discussed the topic and exchanged their knowledge. As many as 107 participants took part in the conference, coming from Croatia, Hungary, Czech Republic, Italy, Slovenia, Serbia, Romania, Bosnia and Herzegovina, Poland, Russia, Slovakia, Turkey, Denmark, Germany, Macedonia and Austria. All in all, they contributed a total of 74 presentations by lectures and 14 posters. Within the Conference programme museum exhibition *Mediaeval Fortification Architecture* by the authors Ratko Ivanušec and Zorislav Horvat was opened at the Archaeological Museum in Zagreb, while at the Croatian Institute of History the photo-exhibition by Darko Antolković entitled *Encounters with Fortifications* has been presented. Conference participants have jointly visited the permanent exhibition of the Zagreb City Museum, and an expert excursion to Medvedgrad Castle has also been organized.

Since the aim of the scientific conference was to perceive the given topic in an interdisciplinary and multidisciplinary manner, we are pleased that in this book, besides the papers dealing with mediaeval fortifications, we have the opportunity to publish papers that study the defence systems in the preceding and following periods (Prehistory, Antiquity, Modern Period) and that archaeological studies are complemented by the studies of historians, art historians and architects as well.

Here we publish 37 reviewed presentations which were adapted into papers by their authors. By publishing the Proceedings in English, we have tried to provide to the authors the widest visibility in the international scientific community.

I would like to thank once again all the participants of the Conference for excellent cooperation, as well as to the institutions and individuals that helped make it a great success. I also thank the colleagues from the Institute of Archaeology for their help in the organization of the conference and the publication of these proceedings. We are also grateful to the Croatian Institute of History for their support in the organization of the Conference, as well as to the Archaeological Museum in Zagreb and the Zagreb City Museum for the accompanying programmes of the Conference. Acknowledgements go also to the reviewers and the members of the Editorial board of the volume. The publication of the proceedings would not be possible without the financial support of the Croatian Ministry of Science and Education.

We sincerely hope that the conference papers gathered in this publication are going to inspire archaeologists and colleagues from various scientific disciplines in their further research of the fortifications and different defence systems, structures and features dating from the Middle Ages as well as from other archaeological and historical periods.

Tatjana Tkalčec

JOSEF HLOŽEK, PETR MENŠÍK, MILAN PROCHÁZKA

Continuity and Discontinuity of Hill-top Settlements in Southern Bohemia

Southern Bohemia belongs to the regions where many hilltop settlements were built from the Early Stone Age. However, the first fortified systems were built in the Late Bronze Age as hill-tops, mountain peaks and promontories were fortified by complex systems of ramparts and ditches. This phenomenon thereafter continued into younger prehistoric periods, especially the Early Iron Age, resulting in hillfort foundation in the Early Medieval Period from the 9th century, with frequent continuity in the form of castles and manor houses, to the Medieval and Modern Period. The paper not only tries to summarize and survey the use of hill-top sites and the continuity of settlement, but it tries to make their classification, characteristics and function considering practical, social and symbolical functions which can be detected in both prehistoric (sophisticated fortifications with no practical use, depositing) and medieval (power demonstration, question of defence) heritage.

Key words: Southern Bohemia, hill-top settlement, classification, detection over time

I. INTRODUCTION

The paper concisely informs about use of hill-top settlements from the Stone Age to the end of the Middle Ages in Southern Bohemia (Fig. 1), which represented one of the transit regions influenced from the west, north and southeast.

II. THE STONE AGE (PALAEOLITHIC 2.500000 BC – 8500 BC, THE MESOLITHIC 8500 – 5500 BC, NEOLITHIC 5500 – 4500 BC, ENEOLITHIC 4500 – 2200 BC)

The oldest evidence of hill-top settlement in southern Bohemia comes from the Palaeolithic and Mesolithic (the Early and Middle Stone Age). However, these cases are represented by short-term, although reused hunting camps often with a distinctive outlook on the surrounding landscape and local watercourses (Vencl et al. 2006: 374–376). The Neolithic (Early Stone Age) settlement is characterised by establishing long-term stable settlements, and building solid houses as a basis for settled, agricultural life. Characterizing the Neolithic settlement on the Bohemian territory are the older Linear Pottery and younger Stroked Pottery cultures. In southern Bohemia, the knowledge of this period is limited, and the density of settlement was probably lower than in the central area of Central Bohemia.

The only two well-surveyed and published settlements so far are located at Žimultice u Týna nad Vltavou (Pavlů 2001) and Radčice u Vodňan (Michálek at al. 2000). Even though hill-top settlement can be, to a small extent, found in the Bohemian Neolithic Period, this kind of evidence for southern Bohemia is missing. In the Eneolithic, southern Bohemia was less extensively settled and the traces of human presence are basically missing with the expectation of the Middle Eneolithic period as only hill-top settlements connected to the Cham and Řivnáč Cultures appear. So far, 20 hill-top settlements have been found in southern Bohemia (Beneš, Chvojka 2007; Fröhlich, Eigner 2010; Chvojka et al. 2012: Abb. 1; John et al. 2012), located at dominant sites as all of them have been based on promontories with significant cants over the river flows**.** They were accessible via heightened places over valleys by narrow ridges, and protected by steep slopes from three sides. In the case of Kostelec nad Vltavou, detachment from the promontory by the trench is evidenced. The sites are generally characterized by small built-up areas up to 300 square meters. The first environmental samples bear the evidence of presence of agricultural population.

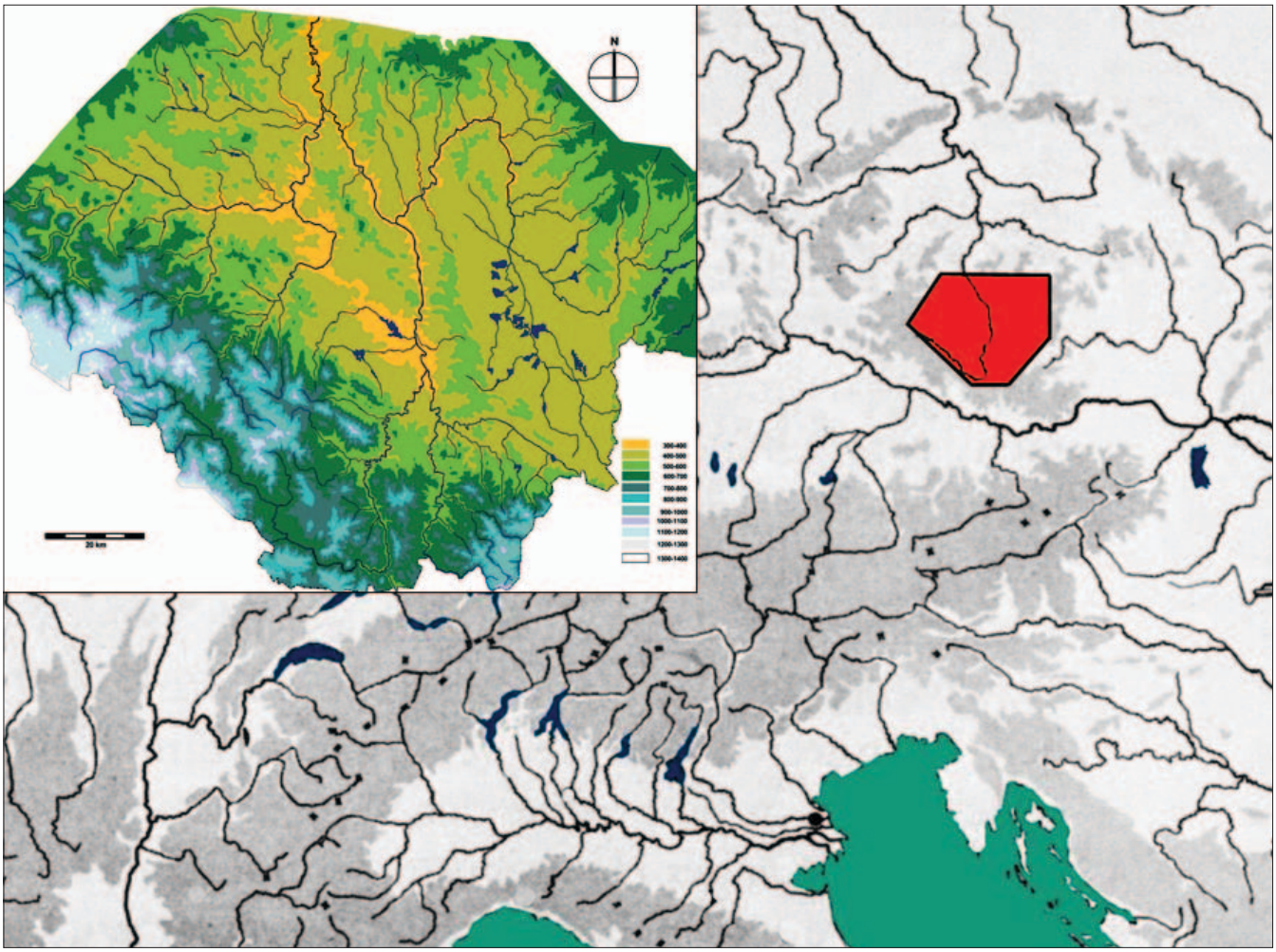

Fig. 1 Map of middle and southern Europe with highlighted area of southern Bohemia (made by: P. Menšík and K. Vávra)

III. THE BRONZE AGE (2200 – 750 BC)

The earlier stage of the Early Bronze Age (Br A2), and the transitional period to the Middle Bronze Age (Br A2/B1) represent a major breakthrough concerning settlement density of the southern Bohemian area compared to the Eneolithic. The specific Bohemian Únětice Culture had appeared, and the region became a place connecting such cultural areas as Central Bohemia or the Danube region (Hájek 1954; Chvojka 2007: 29–36). In a number of cases, we can observe overlap of cultural and symbolic impulses originated from distant areas. In the central area of southern Bohemia, the evidence of probably uninterrupted human activities can be traced back to this era. One of the possible reasons for stabilisation of settlement network may be copper transport (and probably salt as well as other artefacts) from its Alpine deposits, especially the regions of Mitterberg and Salzburg (Chvojka 2015b: 115–116). Discovered hoards can indicate the presence of trade routes, along river flows in particular, through southern Bohemia to the central area of Bohemian Basin with footholds located in their vicinity in form of hill-top settlements. Both fortified and unfortified hill-tops of southern Bohemia represent typical monuments of Early/Middle Bronze Age origin, reaching the total of 31 sites (Chvojka 2007: fig. 1; Chvojka et al. 2012: 86-89). With the upcoming Middle Bronze Age, hill-top settlement fades away as settlement is evidenced at only five sites (Boudy, Chřešťovice, Mříč-Dívčí Kámen: Chvojka 2004: 42, Abb. 2, 11; Strakonice: Michálek 2008: 272, Zvíkovské Podhradí). In all cases small pottery assemblages have been found, but are unable to hold evidence of neither character of settlement, nor connection to existing fortification. Hradiště u Písku (Chvojka 2001: 89, Taf. 10–12) and Šipoun-Čichtice (Parkman 2004: 417, fig. 7–9) are thereafter connected to the transitional period BC2/BD. Subsequently, intensified use of hill-top settlements followed in the Late and Final Bronze Age (cf. Hrubý, Chvojka 2002). The majority of hill-top settlements was situated at the hill peaks, promontories (Velešín) or hillocks, fortified hillforts can be found at the hill peaks (Dobřejovice,

Skočice) or promontories (Bechyně, Nuzice, Týn nad Vltavou, Vrcovice). Presence of this hill-top settlement at difficult to access locations highlighted the strategic placement advantageous for many reasons (cf. Havlice, Hrubý 2002) as it is necessary to acknowledge multiple functions such as practical, social and symbolic (e.g. Neustupný 1995; Chroustovský 2015). However, it has to be said that knowledge about functional features of southern Bohemian Late Bronze Age hill-tops are limited due to insufficient research. Systematic surveys have been conducted at Mříč-Dívčí Kámen and Vrcovice, less extend excavations were carried out especially at Dobřejice, Chřešťovice, Opařany, Skočice, Slavňovice, Všemyslice and Zvíkovské Podhradí. The sole radiocarbon data comes from Vrcovice (1631–1509 – 95,4%, 1611–1453 – 95,4%), (Hlásek et al. 2014; 2015b; Chvojka 2015c). The fortification system was surveyed at Vrcovice (Beneš 1964: 95-96; 1965a: 112–114; 1965b: 84–87) which had consisted of two rampart lines (Fig. 2). The inner rampart with a dry, frontal stone revetment wall had inner beam construction with stone-clay filling, supported by stakes recessed into the bedrock in the rear. A similar construction was discovered at other southern Bohemian Early Bronze Age hill-tops such as Dobřejovice, Týn nad Vltavou or Všemyslice (Chvojka 2007: 32). Dating of other sites, usually with documentation of poor quality like Mříč-Dívčí Kámen, or of polycultural character can be found uncertain at least. It seems that fortification systems of southern Bohemian Early Bronze Age hillforts are different from contemporary sites in Central and East Bohemia where only shallow ditches with no overground rampart can be found (e.g. Plotiště nad Labem, Praha–Vinoř). South Bohemian hill-top settlements, thanks to mightiness of their fortification systems, usual use of stone and building techniques, stand very close to the Ottomány-Maďarovce-Větěřov group. The hillforts have been frequently and intensely excavated, and the majority of them provided numerous collections of artefacts from this period (Hlásek et al. 2015a: 244–246, tab. 37; Chvojka 2016: 83). In many cases however, the evidence of any settlement features is missing, and only four hillforts were fortified. Other 13 sites had fortifications, but due to polycultural character of settlements, their dating is inconclusive. Vrcovice hillfort, however, represents a rare exception since 41 post and stake holes have been documented. Some of them might have formed building

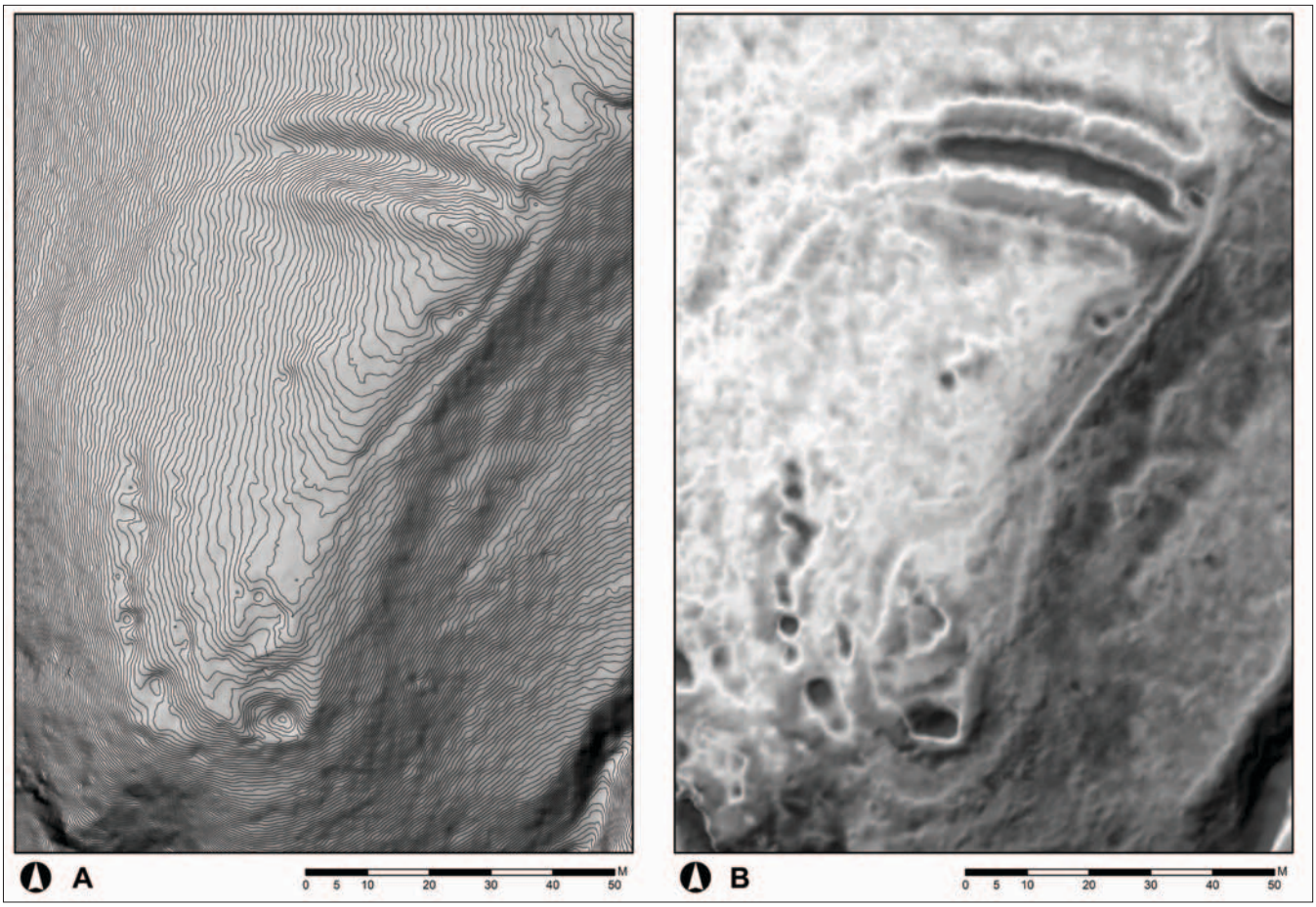

Fig. 2 ALS plan of Vrcovice hillfort from Early and Middle Bronze Age (made by: D. Hlásek)

ground plans, but those buildings have been found impossible to reconstruct (Hlásek et al. 2015a: 220–221). There were hearths in each of the buildings, and in one case a stone-panelled sunken cellar was found (Beneš 1964, 95). The alleged features from Mříč-Dívčí Kámen are not, due to lack of documentation, unequivocal (Poláček 1966; Chvojka 2004: 37; 2007: 32). In the Urnified Period, the number of evidence of hill-top settlement of central character grew across Central Europe. Overall, there are 18 documented sites in southern Bohemia belonging to the Knovíz Culture, but the quality of knowledge varies (Chvojka 2009: 138–144; Chvojka et al. 2012: 88, Abb. 4). Southern Bohemian hill-top settlements are located in the centres or peripheries of microregions, and none of them is located outside the settled areas. The majority of Bohemian hillforts with the presence of the Urnified Period settlement can be divided into at least two areas (acropolis and bailey), their dating, however, might be put into question. The sole unambiguous southern Bohemian fortification dated back to the Urnified Period can be found at Hradiště u Písku where stone destruction has been found in the rampart. This destruction seems to be oval in ground on the southern side of the acropolis (Chvojka 2007: 47). Chřešťovice hillfort is also fortified, but its dating remains disputed, and in the case of other abovementioned sites, no fortification has been documented. Moreover, no evidence of settlement features whatsoever has been acquired at these sites. In southern Bohemia, nine hill-top sites are known which can be dated to Ha B (Chvojka 2009; Chvojka et al. 2012: 88, 93, Abb. 5). In a large number of cases, the sites are located at promontories as hills and hillock peaks seem to be less common. The total area varies between 0.5 – 12 ha with the most common size of 2-5 ha (Hrubý, Chvojka 2002: 585–587). Unfortunately, knowledge of most of the sites is limited due to both the absence of modern excavations and especially the polycultural character which makes dating unambiguous (Chvojka 2015a: 114–118). A fortification radiocarbon dated to the Final Bronze Age (1010–890 BC – 95,4%; 1010–840 BC – 95,4%) can be found at two-part Voltýřov hillfort (Smejtek 1984; 2011: 321, Fig. 263; Čtverák et al. 2003: 343–346). At Voltýřov, a rampart has been found with a frontal stone revetment wall which had been built in the first phase, with additional core of the rampart - 2 meters high and 2.4 meters wide burned construction made by stones interspaced with thick oak round locks - built in the second phase (Smejtek 1987: 328; Čtverák et al. 2003, 344). The same dating holds the stockade bedding trench at Nezvěstice (Drda 1987: 525, Fig. 4: g). Although fortification systems at other sites have not been surveyed using modern approaches, they form dominant components of settlement associated with the Final Bronze Age at Brloh 2 (Fröhlich et al. 2014) and Hluboká nad Vltavou (Chvojka, John 2006), (Fig. 3, 4). Knowledge about the inner area of the Final Bronze Age hillforts is either insufficient or has not been published so far, we only know a settlement feature with a sunken storage vessel and flat hearth from Zvíkovské Podhradí (Chvojka 2007: 44) and remains of an oven from Voltýřov (Smejtek 1984: 135–137).

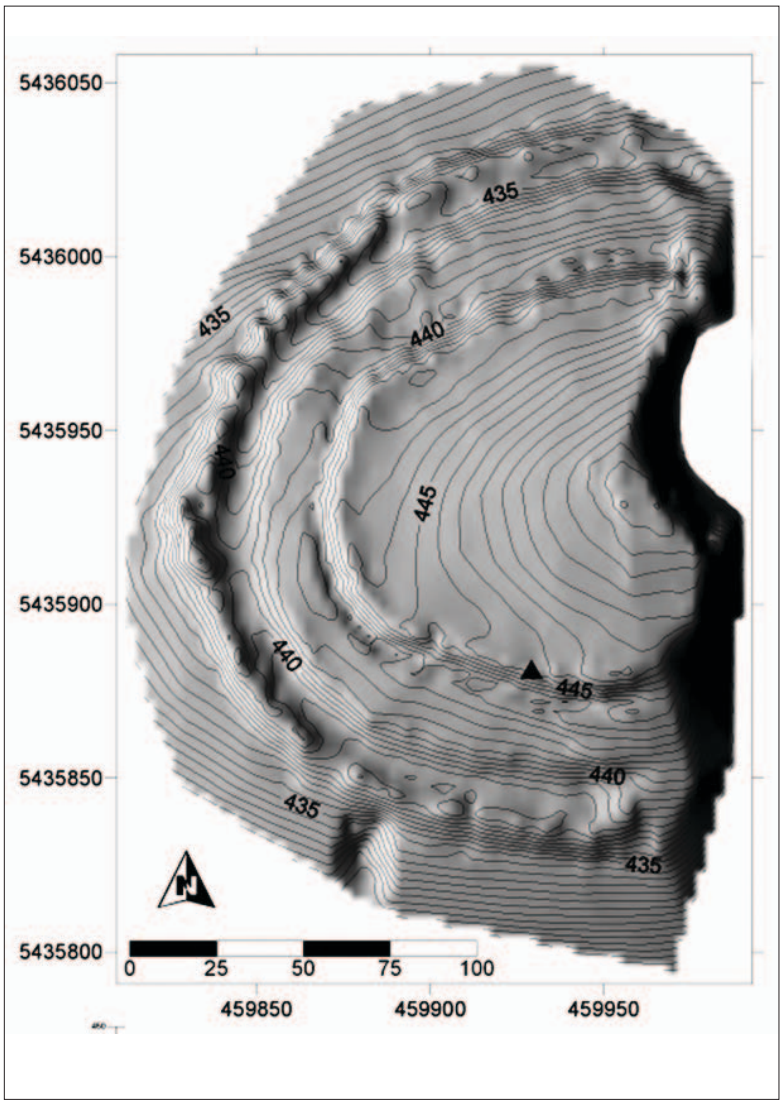

Fig. 3 3D model of Hluboká nad Vltavou – Baba hillfort, Late Bronze Age (made by J. John)

Fig. 4 Photo of Hluboká nad Vltavou – Baba hillfort, Late Bronze Age (photo by: O. Chvojka)

IV. THE IRON AGE (THE HALLSTATT CULTURE 750 – 420 BC AND THE LA TÈNE CULTURE 420 – 35/25 BC)

The development of distinctive farmsteads and older hillforts probably continued in the 8th and 7th centuries B.C. in a similar way we know it from the end of the Bronze Age. The Late Hallstatt period represents one of the peaks of hill-top site and hillfort usage from the beginning of the 6th century, continuing to the end of the 5th century BC. New sites were built in variable conditions, generally with a significant cant over the surrounding landscape (promontories, hilltops, terraces, edges and ridges of mountain chains). Fortifications placed on distinctive promontories were built as partition and were slightly arcuate-shaped. Circumferential fortifications are also known, especially at hilltop-built hillforts. Expect of extensive sites, much smaller ones are known comprising of profound fortifications made by a section ditch and circumferential wall. Another type of small entrenched sites is represented by fortified manor houses situated on the terrace edges over watercourses. Inner areas of fortified sites usually vary from hundreds of square meters to several dozen hectares and are situated in considerable altitudes. No evidence of fortification was found in the number of southern Bohemia sites, only pottery findings are known (e.g. Bechyně, Jáma, Lazec: Hrubý 1998: 8–10). Fortified hillforts are situated on both the edges of settlement areas and inside settled regions (Chvojka et al. 2012: 93, 96, Abb. 6). Some of them lie straight over the watercourses; others are located at high-elevation locations in the Bohemian Forest (Obří Hrad u Studence, Věnec u Lčovic, Sedlo u Albrechtic). Their walls were usually built using dry stone wall construction (sometimes completed by a stone revetment wall, inner timber-clay construction and surrounded by a ditch from the external side). The gateways usually have side wings (Libětice, Skočice, Třebanice), a tongs gate is also evidenced (Věnec u Lčovic), (Michálek 2007). Unfortunately, without wide archaeological excavation and evaluation of the overall settlement of the southern Bohemian Hallstatt period, it is impossible to attribute specific functions and roles to single hillforts and hill-top sites. The archaeological excavation of Hrad u Bud hillfort points to possible ceremonial function of the whole fortified area (Dreslerová 2004; Dreslerová, Hrubý 2004). A significant, closely excavated site is represented by Hallstatt princely farmstead of Hradec u Nemětic (Fig. 5, 6), interpreted as the seat of elite (Michálek, Lutovský 2000). The overall area is fortified by a ditch and wooden stockade with simple entrance and its form does not correspond to contemporary settlements and hillforts as it is rather similar to the Herrenhof type sites located west of Bohemian area. This are is, in the La Tène Period, represented by the Gaelic Boii tribe. From the beginning of the 2nd century BC, fortified centres were founded, called *oppida*. They are considered admini-

Fig. 5 Aerial photo of elite seat from Hallstatt Period/Early Middle Ages: Hradec u Němětic (photo by: J. Michálek)

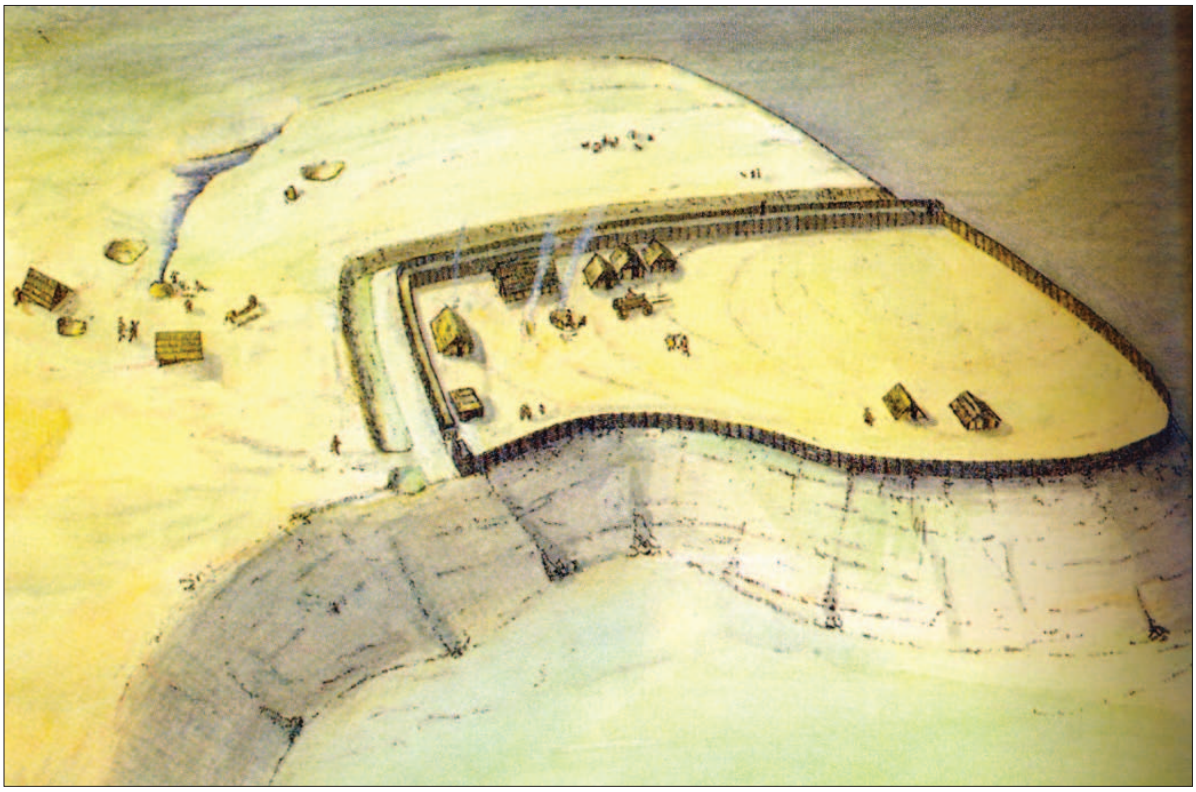

Fig. 6 Ideal reconstruction of elite seat of Hallstatt Period: Hradec u Němětic (made by: M. Ernée)

strative centres of both larger and smaller areas having extensive commercial contacts. One of the basic characteristics of Bohemian oppida (exc. Závist) is their ostentation within landscape (Chvojka et al. 2012: 96, Abb. 7). Their inner area, always protected by massive fortification, varies from dozens of hectares up to more than 100-hectare areas. Some of them are divided into a central area, extramural settlements and, in certain cases, unfortified baileys. Oppida Nezvěstice and Třísov are located in southern Bohemia together with smaller fortified areas called castella (Albrechtice-Sedlo, Lčovice-Věnec, Týn nad Vltavou, Zvíkov) and unfortified hill-top settlements (Tábor), (Čtverák et al. 2003: 17–18). The oppidum of Nevězice was fortified by the wall 1650 metres in length, enclosing the area oh 13 hectares. The entrance to the area led over a 120 metre-wide neck from the northwest, where the wall was reinforced by a pair of outer trenches. The less steep side vales were also fringed by another forward trench 800 metres in length. The frontal side of, originally 5 metres wide, wall was made of a quarry stone massive wall about 60 centimetres wide. The outer side of the wall was completed by vertically placed, 30 x 30 centimetres wide frontal beams with 0.7 – 1.3 metre spacing. The wall itself was linked to the clay dyke by a dense timber-laced system. The original height of the wall has been estimated to 3 – 3.5 metres. The outer ditch had a cuspidate shape with the maximum width of 3 – 4 metres and around 1.5 metres in depth. Another trench, which protected both the neck and whole southern and western side of the site, reached the width of 5 – 6 metres and depth up to 1.8 meters. The entrances to the hillfort were secured by two features, the northern gateway and south-eastern tongs gate (Dubský 1949: 378–379; Drda 1987; Waldhauser 1993). The artificial fortification of Třísov oppidum is protecting the settlement from the western and south-western sides, therefore the places where the fortified area merges with surrounding terrain almost fluently (Fig. 7). The fortification is formed by two parallel walls fringed by deep cuspidate trenches from the outer side. The space between the ramparts is 15 – 20 metres wide, and was separated by low transverse walls. The inner timber-laced rampart had a frontal stone revetment wall, originally 4 – 5 metres high. The front was reinforced by vertical stakes with approximately 2 metre spacing and two horizontal lines of flat, vertically-placed stone plates. The outer wall was made of a timber-clay rampart with frontal wall. Both ramparts were (approximately in the middle of their lengths) breached by a paved tongs gate of a complicated ground plan with inside-cranked wings. The gate fortification was completed by a rampart guarding the access to a water spring. The eastern side of the hillfort was also fortified by a tongs gate with the entrance towards the Vltava River. The oppidum itself covers an area of 26 hectares with two acropoleis, between which dense settlement has been evidenced in the form of overground stakeholes, or sunken features. Traces of artificial terraces have also been discovered. The southern acropolis probably served as a seat of elite while the northern is usually interpreted, based on the octagon-shaped building, as a cult district (Dubský 1949: 372-378; Břeň 1966; 1967; 1971; 1975).

Fig. 7 Aerial photo of Třísov oppidum. Retrieved from: http://www.archeologickyatlas.cz/cs/lokace/trisov_ck_oppidum#&gid=undefined&pid=8 (accessed 18 July 2017)

V. THE ROMAN PERIOD AND THE MIGRATION PERIOD (35/25 BC – 600 AD)

The era of the end of the last millennium BC and approx. the first six centuries AD is characterized by the arrival and presence of Germanic population in southern Bohemian space. Although certain cultural elements resemble the previous period, the settlement pattern is limited for its use of planar, unfortified settlements of agricultural character. Some sites demonstrate an above-standard extend, and concentration of specialized production and commerce (esp. Sedlec u Českých Budějovic and Přešťovice u Strakonic: Břicháček et al. 1991; Zavřel 2007: 82–83). So far, no site of the Roman and Migration Periods has provided any evidence of fortification (Chvojka et al. 2012: 96. Abb. 8), although rather featureless Germanic activities have been evidenced at older hillforts (Sedlo u Sušice – a transition period between the Later Roman and Migration Period: Zavřel 2000: 153–160; Zvíkov – The Later Roman Period: Beneš, Braun 1981: 165; Zavřel 1999: 497, 502, fig. 4) and at Třísov Oppidum. Its character is, however, ambiguous.

VI. THE EARLY MIDDLE AGES (600/650 – 1200 AD)

The last phase of the evolution of prehistoric fortification continues to, and ends in the Early Middle Ages. From the 7th century AD, it is possible to document various kinds of stockade as well as other kinds of wooden walls, cuspidate trenches, eventually lower ramparts and other simple fortification features, however, their number remains limited up to the 8th century AD. Moreover, prehistoric fortifications were often reused. The change occurred in the first half of the 9th century together with the raising Bohemian elite. Older, simple fortifications were substituted for more complex ones combining timber, clay and stone. Hillforts were both enclosed and internally divided by timber-clay walls of different construction from simpler testaceous to more demanding timber-laced and girder constructions. Walls of both several meter thickness and height were enforced by building dry frontal stone revetment walls (Čtverák et al. 2003: 18–20). In Bohemian area, the beginning of the Early Middle Ages is possible to connect with the Prague Type pottery dated to the 6th and the majority of the 7th century AD. This type can be found in a wide area from Ukraine to Bohemia and Saxony and is commonly associated with the first historic Slavs, replacing, and probably assimilating, native Germanic inhabitants. The situation is, however, problematic in the southern Bohemia as evidence of neither Germanic nor Slav settlement is present. It gradually appears in the late 7th century (Lutovský 2011: 178–183). Although the first traces of hill-top settlement are evidenced at Bechyně or Týn nad Vltavou, it is impossible to assess whether the fortifications were new or secondarily used as fortified settlements at these sites are evidenced and dated to the prehistoric period. In the 8th century, the number of southern Bohemian sites increased compared to previous periods, the density of settled areas was rising, and the movement to hill-top sites and less fertile areas is also observable. The featureless, unfortified settlement of hill-top sites continues (Písek), secondarily use of older hillforts is also present (Skočice), but the new phenomenon arises as new, distinctively placed hillforst are founded. For the course of the 9th century, it is possible to consider the coexistence of eleven sites: Bechyně, Branišovice, Hudčice, Katovice, Kuklov, Libětice, Litoradlice, Němětice, Písecká Smoleč, Řepice and Soběslav (Chvojka et al. 2012: 96, 100, Abb. 9–10). The hillforts form approximately regular network of sites spreading across then settled landscape, their form and placement is, however, heterogeneous. Based on current knowledge of fortification features, it is possible to assume frontal stone revetment walls with timber-laced elements. However, it is not possible to clearly identify a distinctive centre of power within Southern Bohemia; the only expressive area arises in the Central Otava Region (cf. Michálek, Lutovský 2000) as the network of massive, fortified hillforts is present (Hradiště u Litoradlic, Hradec u Řepice and esp. Katovice – Kněží hora which surely was, with its acropolis, three to four bailies and an overall size exceeding 10 hectares, an important, transregional centre (see Fig. 8, 9). These three hillforts are added by a small fortified settlement Hradec u Nemětic, probably a seat of local elite. At some point in the early 10th century, all abovementioned hillforts ceased to exist as the traces of fire are present. Especially Hradec u Nemětic holds solid evidence of violent demise. At the edge of the hillfort, the remains of wooden, hammered buckets (probably used to extinguish fire) have been found together with many iron arrowheads. The majority of military artefacts are represented by Early Medieval types with sockets and airleons and in 27 cases, the stud type appears, traditionally associated with nomadic environment (in this case, the Early Hungarian horizon- more in Kouřil 2003). The question remains, whether the demise of Hradec u Nemětic - together with more contemporary hillforts - was influenced by a sudden invasion of several nomadic groups in synch with Moravian rulers into the southern Bohemian area (Lutovský 1999, 2000), or a little later by warriors of the rising Přemyslid dynasty of Central Bohemia (cf. Lutovský 2011: 212–213). The fact remains that the influence of southern Bohemian rulers in the first decades of the 10th century demises, their seats are destroyed or abandoned and their land comes under the influence of the Přemyslids, as well as the whole Bohemian Basin, controlled by duke Boleslaus I no later than around 950. In the second half of the 10th century (eventually

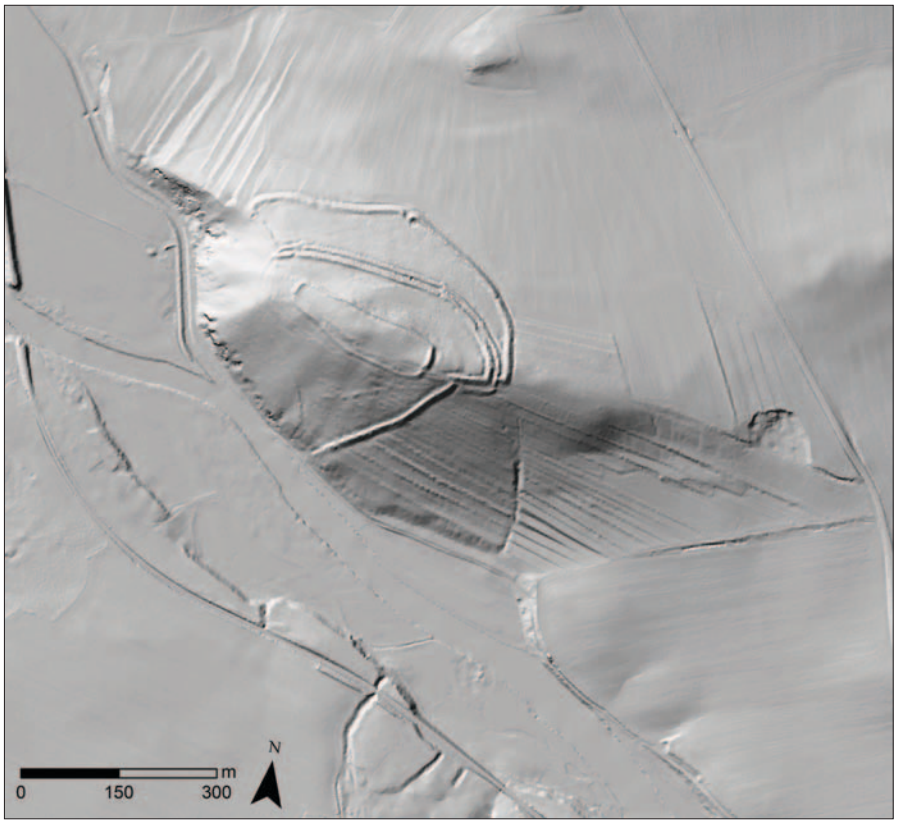

Fig. 8 ALS plan of Katovice – Kněží Hora hillfort from Early Middle Ages (9th – 10th century) (made by: J. Plzák)

Fig. 9 Photo of double fortification betweem inner and outer bailey of Katovice – Kněží hora hillfort (photy by: P. Menšík)

at the beginning of the 11th century), a network of new hillforts emerged, becoming the new administrative centres of the Přemyslid state for two following centuries (Lutovský, Michálek 2007). However, the centres were not extensive and their fortifications enclosed only smaller sections. It is also possible to consider gradual expansion of those sites where more bailies were being added to their acropoleis. The western part of southern Bohemia was controlled by Prácheň hillfort,

the hillforts of Netolice and Doudleby were founded in the south. Jindřichův Hradec probably served as the south-eastern centre with Chýnov being the north-eastern one. New hillforts are mentioned in the 12th century annales and settlement at these sites usually continues to the High Middle Ages, often in form of medieval castles (e.g. Jindřichův Hradec, Prácheň). Although the political and economic importance of these sites is undisputed, their influence did not reach the level of certain Central Bohemian centres. Moreover, southern Bohemian hillforts also became centres of Christianisation as later reconstruction of sacral buildings is evidenced (Lutovský 2011: 220–221). In the beginning of the 12th century, the administrative functions of hillforts were taken over by castles and newly founded cities like Horažďovice or České Budějovice.

VII. THE HIGH AND LATE MIDDLE AGES

Evidence of spectral continuity of archaeologically graspable human activities resulting from similar settlement patterns dated to prehistory, medieval period and modern age is uncovered by each excavation of a polycultural archaeological site. Based on given results, it is possible to state that similar requirements were claimed for the place of settlements' foundation, and for surrounding features connected to various agricultural activities, in both the prehistoric and Early Medieval periods. Primarily, the climatic optimum and technological innovation brought by the High Medieval Period (e.g. Klápště 1994; Klápště 2012) enabled further foundation of settlement agglomerations of different character in less climatically suitable areas, or in locations of lesser soil quality (e.g. Klír 2008; 2010; Černá, Klír 2014; Dudková et al. 2008: 63–64; Novotný 2012). During the colonization process, proper prospection focused on raw materials (esp. iron, non-ferrous and precious metal) was crucial (e.g. Anderle, Švábek 1989; Gersdorfová et al. 2015). From the 13th century in particular, strategic and economical potential of the prospected site was important as well. Furthermore, it is also possible to mention connection of newly-founded cities and castles to remote communications (Durdík 1998a), stabilization of production and market circuits (e.g. Gabriel 2000: 207), administration of newly formed possession of prominent noble houses, and pursuit of strengthening the royal power, which was, however, confronted with growing pressure and ambition of nobility and medieval cities (Durdík 1995; Lavička et al. 2016). In the southern Bohemian area, the processes aiming towards creating extensive, castle and settlement agglomerations of different character-supported domain is well illustrated by Bavors of Strakonice (Kotlárová 2004; Svoboda 2010) and more noticeably, by the widely-branched Vítkovci family (more in Pánek 2011) and their cadet branches of the Rožmberk, Krumlov, Hradec, Landštejn and Stráž and Ústí Houses. Equally ambitious members of lesser nobility were usually bound to these houses. From the 13th century, it is possible to distinguish between various castle types. Some of them were, especially in the thirties of the 13th century, bound to the royal and elite noble house environment (Durdík 1998b; 1999: 568–569; 2007).

Within southern Bohemian castles, it is possible to observe evidence of settlement continuity of different level. During a castle survey, we often find traces of secondarily positioned evidence of prehistory and Early Medieval settlement activity within later medieval layers. For example, a pottery fragment dated to the Late Bronze age has been found on the slope below the castle of Pořešín (Fig. 10), (more in Durdík 2008, Hložek 2015). Unfortunately, any closer interpretation of these activities, due to the level of older features' disturbance by later activities, is often an unsolvable problem. The connection of castle areas to prehistoric and Early Medieval fortifications usually resulted from strategic potential of chosen locations as the sole purpose and importance of fortifications might have significantly changed during the prehistoric and Early, High and Late Medieval Periods. The main reason of different purpose and importance of these sites may be observed in their different roles within contemporary social, legitimate, residential, economic and power structures and symbolic systems. The settlement complex of Zvíkov may serve as an example (Fig. 11) as it is formed by a castle and an extensive, fortified extramural town settlement. The castle was founded as a royal power foothold, probably by Ottokar I of Bohemia (Durdík, Sušický 2002: 146–151) in the strategic location on the promontory over the Vltava and Otava River confluence. The construction activity proceeded during the reign of Ottokar II of Bohemia. The oldest written record comes from 1234. After the end of the Přemyslid dynasty, the castle was pledged to the Rosenberk family. Charles IV later redeemed the castle and put it in the list of inalienable castles of Maiestas Carolina. The original confluence of the Vltava and Otava River together with parts of older fortification is nowadays situated 80 metres under the water surface of the Orlík Dam built in 1954–1961. From the southern entrance, the promontory was secured by quadruplicate rampart fortification from which two ramparts are still apparent. The first rampart, added with a forward ditch, divides the promontory 240 metres south of the first gate. Another rampart is placed 60 metres away from this fortification with another trench 60 metres ahead (Fig. 12). A stone front is observable in the inner rampart in form of frontal stone revetment wall. The site had been fortified from its northern side in the prehistoric period, where a clay wall, placed into a groove cut into the bedrock, had been

Fig. 10 Pořešín castle: aerial photo of central castle (photo by: J. Hložek)

Fig. 11 Zvíkov castle from southeast (photo by Martin Gojda © Archeologický ústav AV ČR, Praha, v. v. i.)

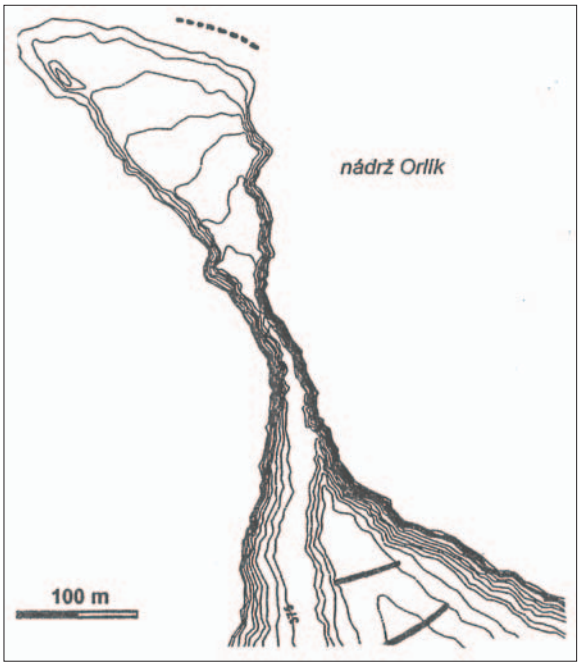

Fig. 12 Zvíkov castle and extramural settlement. Promontory terrain with no castle development and older trench enclosurement (according to Čtverák et al. 2003: 375)

raised and strengthened by a frontal stone wall from both inner and outer sides. The beginnings of this settlement can be dated to the Eneolithic Period and the mentioned fortification could have been founded by the end of the Early Bronze Age and its existence can be considered certain in the Late Bronze Age. The outer rampart of southern fortification is possible to link to the Late Hallstatt period. In the Late La Tène period, the fortification of Zvíkov was part of a chain of hillforts along the Vltava River. Sometimes, it is considered an oppidum, but it rather served as a strategic site called *castellum* (mentioned above). Despite the fact that the northern rampart fortification exhibits similar character to the southern part, possible connection to the medieval siege camp cannot be excluded (Čtverák et al. 2003: 356–357 with additional sources). However, these ramparts and ditches could have played certain role in this conflict or in the Thirty Years' War two centuries later. The fortification of Zvíkov extramural settlement, accessible by two gates, with the Church of St. Nicolas and an extramural mill is located deep under the Orlík Dam water level (Durdík, Sušický 2002: 149, fig. LI). However, some parts of higher extramural settlement are accessible in dry periods and still bring evidence of prehistoric use of this area. Furthermore, an older settlement and prehistoric hillfort succeeded the construction of Maidštein/Dívčí Kámen castle (Fig. 13), which represents another case of settlement area comprises of a large aristocratic castle and attached agglomeration of a town character (for wider context see Durdík 2004; 2006; Durdík, Sušický 2002: 70–73; Hložek 2016a). The promontory chosen for the castle foundation over the Vltava River and Křemže stream confluence had been settled at the end of the Early Bronze Age, when a single-part hillfort fortified by a clay wall strengthened by a dry, frontal stone revetment wall with outer settlement area had been founded. Another settlement horizon can be dated to the Late Bronze Age. A considerable part of relics was destroyed during the construction of the medieval castle in 1349. The remnants of a Late Hallstat and La Tène Period hillfort can be also found in the forelands of Orlík nad Vltavou castle (Fig. 14) built on the promontory over the Vltava River and later shaped by the Orlík Dam (Durdík et al. 1995: 22–34; Varhaník 1998; Durdík 1999: 403–405; Grabolle et al. 2002). The castle was built as a royal foothold over a significant watercourse by Ottokar II of Bohemia, and in 1288–1289, it was held by Zavis of Falkenstein from the Vítkovci family, and later by other noble houses in following periods of its existence. During the Hussite wars, the castle represented a Calixtine counterbalance to nearby Zvíkov. The hillfort had been founded in

Fig. 13 Maidštejn/Dívří Kámen castle with adjacent agglomeration (photo by: L. Sváček)

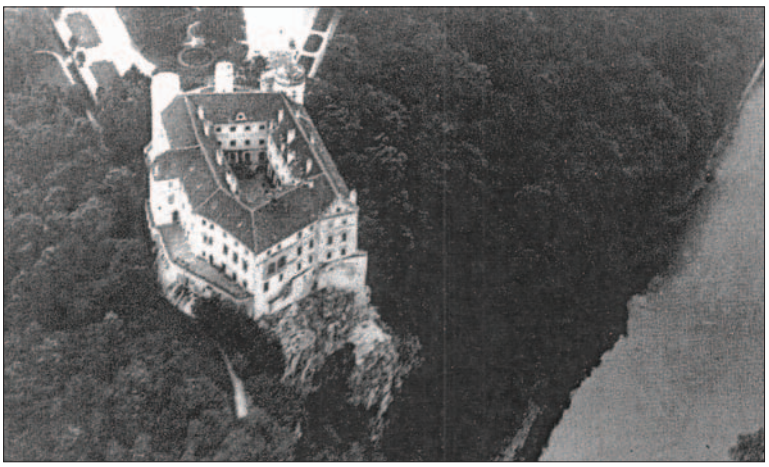

Fig. 14 Orlík nad Vltavou castle before foundation of Orlík Dam in 1925 (according to Durdík 1999: 405)

the south-western section of the promontory, in which south-western part the medieval castle was later built. The top part of the hillfort descending to the northeast was fortified by massive ramparts. The most preserved part of the fortification is situated in the south-eastern side, where the stone rampart reaches up to 1.5 metres (Čtverák et al. 2003: 227 with additional sources). The inner hillfort's area (sized up to 2 hectares) and its fortification were partially damaged during the establishment of the nearby park at the beginning of the 19th century. Nowadays, the question remains whether the fortification played at least certain role in the castle foundation or not. Another possible variation of the relation between an older fortified settlement and a medieval castle can be observed, though partially, by moving the functions of an older centre to a new site, situated in another place. An example from the southern Bohemian Area is represented by the royal castle of Velešín (Fig. 15), accompanied by a town founded on the edge of a terrace placed on the opposite bank of the

Fig. 15 Velešín castle. Castle promontory after finishing Římov Dam (according to Durdík 2008)

Malše River, which valley was later significantly changed by building the Římov Dam in 1971–1978. The first written mention connectable to the castle is the predicate Čéče of Velešín which comes from 1266 (e.g. Durdík 2008: 12–14). However, archaeological evidence allows dating the castle to the thirties of the 13th century (Durdík 2002; 2008: 25–27; Durdík, Hložek 2016: 207; Kovář 2008; Hložek 2016b). This fact would enable to connect the beginnings of the castle to the era of strengthening the royal foothold network at the end of the reign of Ottokar I or at the beginning of the reign of Wenceslas I. The reason of founding a large and, in later era, probably enlarged castle (Durdík, Hložek 2016: 218) could be a compensation for and older, barely surviving centre: Doudleby hillfort (Fig. 16), (Dubský 1949: 542–553; Lutovský 2001 with additional sources; Lavička et al. 2016: 279). The castle promontory itself had been probably used in the Early Bronze Age and Iron

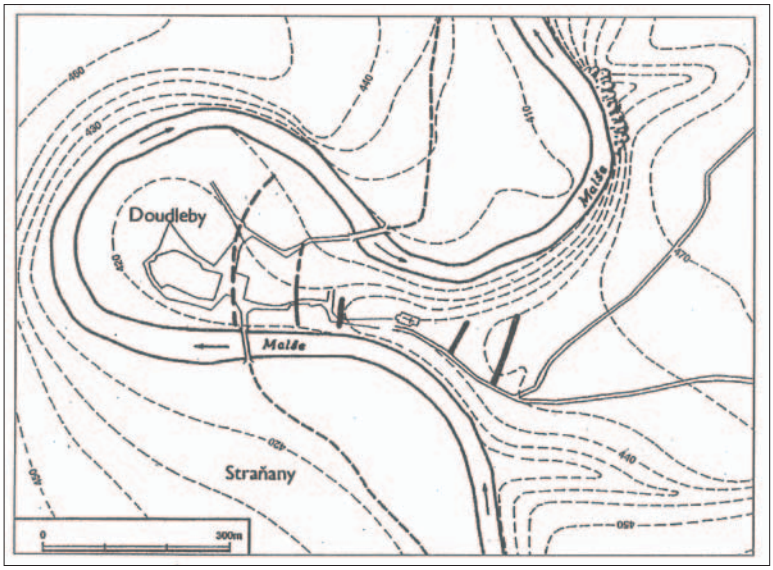

Fig. 16 Doudleby hillfort. Schematic plan of hillfort picturing preserved and presumed fortifications (according to Čtverák et al. 2003: 75)

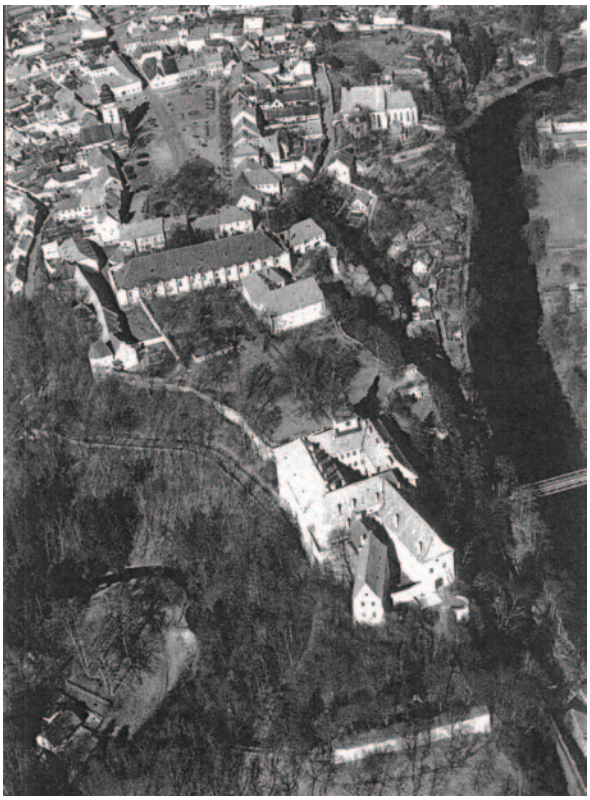

Fig. 17 Castle and palace of Bechyně (according to Durdík 1999: 55)

Age. However, it remains unclear whether this site had been fortified in the prehistoric period, due to extensive earthworks conducted during castle foundation. The castle also held considerable importance as a colonization foothold in the Malše region. The third option of continuity is represented by direct, continuous evolution of a prehistoric or Early Medieval fortified settlement, culminating into foundation of a medieval castle. A good example can be found at long-term used and continuously fortified promontory in the southern part of Bechyně (Fig. 17) above the right bank of the Lužnice River. Castle layout was significantly influenced by older development as the castle had been preceded by a hill-top settlement used in the prehistory and Early Middle Ages. So far, settlement activities dated to the Early and Middle Bronze Age have been evidenced on the promontory, where the hillfort had been founded. Other traces of settlement have been dated to the Hallstatt period. Settlement of this strategically important location continued in the La Tène period, where the settled area reached at least 13 hectares and the promontory was partitioned by a massive double trench (Beneš 1975; Militký 1993; Krajíc 2007: 139; 2010; 2015). In the Early Middle Ages, the site was occupied by an important Přemyslid hillfort using older fortifications, with the Church of St. George (Muk 1979). The hillfort was later a property of the Diocese of Prague. In 1268, Bechyně was acquired by Ottokar II, possibly together with other surrounding properties (Menclová 1972/II: 329–331; Drda, Tecl 1978: 758). Ottokar also built the castle, which was acquired by nobility in the 14th century. An Early Medieval hillfort founded on rocky terrain formation and protected by marshes and the watercourse of Nežárka River was also a predecessor to one of the oldest, originally royal castles in Bohemia – the castle of Jindřichův Hradec (Fig. 18), first mentioned by written sources in 1220. Shortly after that, the castles gave its name to one of the cadet branches (the Hradec family) of the Vítkovci family. During the archaeological excavation conducted by T. Durdík in the twenty- seventies and eighties, a part of the oldest fortification was partially uncovered consisting of timber- laced rampart with a frontal stone revetment wall. During later periods, the fortified area was reduced by a ditch sunken into the bedrock. With both fortifications enclosing the whole hillfort area, the former acropolis was occupied by a medieval castle with its bailey and town built on the place of older hillforts's bailies. The origins of the hillfort are sometimes traced to the 9th century, but its foundation in the second half of the 10th century, or even the 11th century seems more likely (Durdík, Čečelín 1987; Durdík 1988; 1992; Čtverák et al. 2003: 227 with additional sources). However, castles were not the only medieval features built on the places of prehistoric and Early Medieval hill-top settlements as manor houses and features standing between an unclear character between castles and manor houses. A forti-

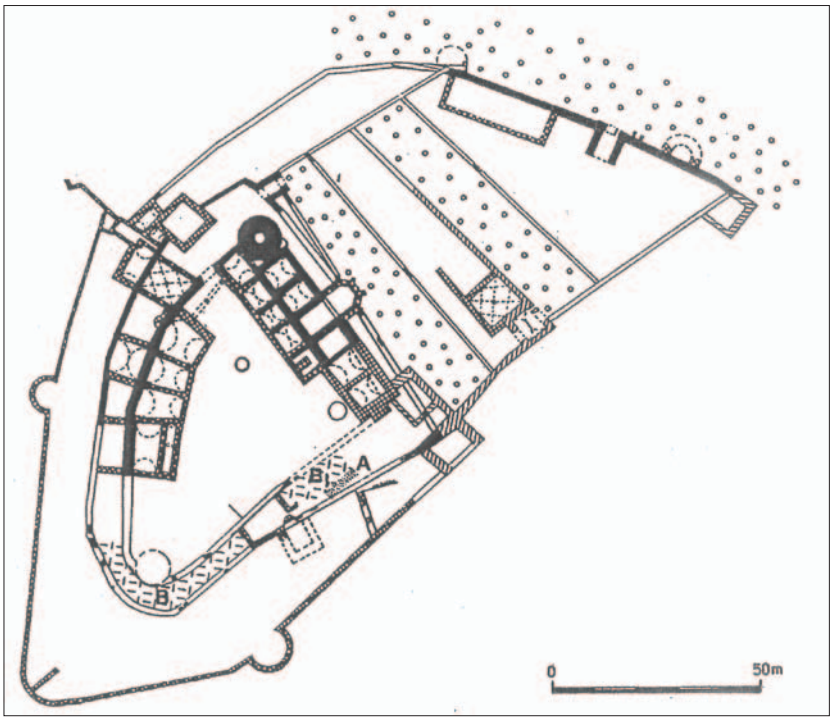

Fig. 18 Jindřichův Hradec castle. Castle plan with depictured relics of Slavic hillfort fortification. A- Early Medieval wall; B- Early Hillfort Period ditch (according to Čtverák at al. 2003: 119)

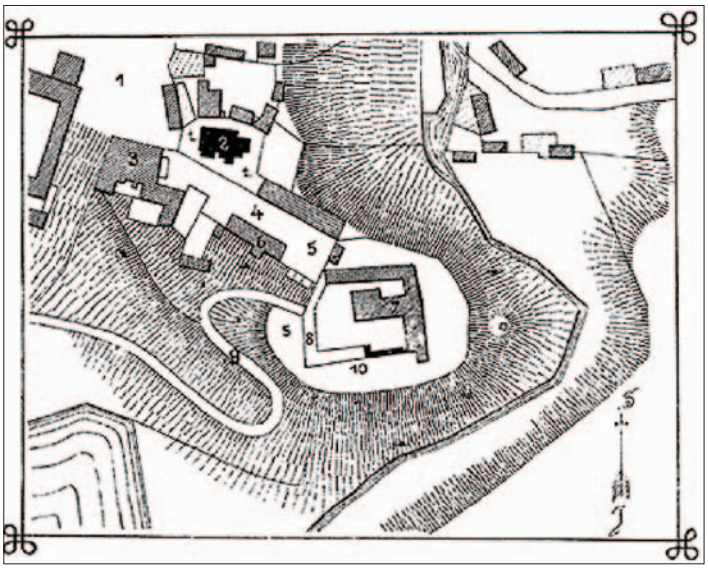

Fig. 19 Chýnov hillfort – plan: 1 – square; 2 – church with cemetery; 3 – brewery; 4 – former bailey; 5 – former ditch; 6 – adjacent building; 7– current palace on place of former medieval feature 8 – former building; 9 – new path; 10 – protrusion; 11 – older wall (according to Sedláček 1933: 283)

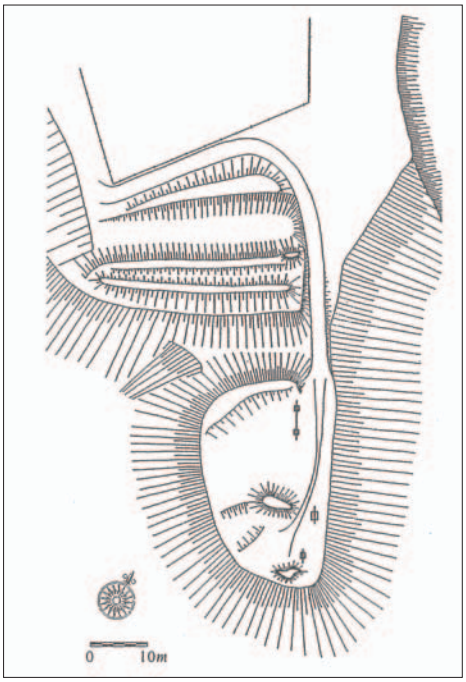

Fig. 20 Podedvorský mlýn castle. Area sketch in context of older hillfort (according to Svoboda et al. 1998: 159)

fied feature called a manor house in Chýňov can be mentioned (Fig. 19) or the manor house of Hrádek nad Podevrovským mlýnem (Fig. 20). Chýnov was founded as a significant Slavník hillfort first mentioned in 981. After the extermination of the Slavník family, the hillfort became a Přemyslid administrative centre and from 1250 was held by the Diocese of Prague. During the rule of Archbishop Arnošt of Pardubice, a fortified settlement was built in Chýnov and referred to by written sources as a manor house until the end of the 14th century, when it started to be referred to as a castle (Krajíc 2010; Durdík 2011: 42–43). The medieval settlement used relics of the Early Medieval hillfort and its still massive, partially preserved fortifications. The manor house of Hrádek nad Podedvorským mlýnem was founded in the southern part of the Early Medieval hillfort which might have been related to a nearby golden placer on the Blanice River. Once more, older fortifications were used. The frontal part of the fortification is still partially preserved, enclosing the area of 140 x 75 metres and comprising of two lines of ramparts separated by a ditch. The relict of a medieval feature is also present in form of a three metres high terrain elevation covered by stone destruction (Collective of Authors 1998: 159–160).

VIII. CONCLUSION

In southern Bohemia, evidence of human activity at hill-top settlements are known from the Early Stone Age. Despite variable hiatuses, it is possible to observe preference of hill-top use in various eras (the Middle Eneolithic, end of Early and Middle Bronze Age, Late Hallstatt Period and Early La Tène Period). In the Early, High and Late Middle Ages, the number of observed sites was reused, acquiring new settlement or fortification. These activities are related to utterly different social and cultural systems, expressively different from the prehistoric period, when, however, the first significant differences can be already observed. Within the framework of presented paper and despite unbalanced level of knowledge, we have tried to outline the basic trends in use of hill-top settlement throughout diverse periods. We have also considered a wide range of archaeological transformations which have formed the current state and information potential of presented archaeological sites. Considering the limitations and scope of work, certain evidence of continuity was omitted such as that based on sacral architecture. For the same reason we do not mention the modern era and contemporary history context of these sites as we will be paying more attention to them in the upcoming paper.

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SNJEŽANA KARAVANIĆ, DARIA LOŽNJAK DIZDAR

Traces of Defence Structures on Dubovac Hill in the Late Bronze Age Communication Network on the Southwestern Edge of the Pannonian Plain

Traces of Late Bronze Age defence structures were found on Dubovac hill in Karlovac during a rescue excavation in 2009 and 2010. The preserved part of the fortifications consisted of burnt earth with traces of burnt wooden planks. Earthen ramparts were the usual type of Late Bronze Age fortifications on the southwestern edge of the Pannonian Plain. Several documented contemporary examples from the neighbouring area of Bela Krajina in Slovenia and from the Zagreb area testify about the collective knowledge of and the exchange of experiences in building Late Bronze Age defence systems.

The traces of Late Bronze Age defence structures on Dubovac were found under a medieval and 16th century fortification, indicating the importance of the position above the interfluve of four rivers: Kupa, Korana, Mrežnica and Dobra. The fact that the same position was reused for habitation and defence systems in different periods is related to the landscape possibilities and communication routes. The location of today's Karlovac is the crossroads of several communication routes leading from the Carpathian Basin to the Caput Adria and from the Balkans to the southeast Alps. These communication routes have been used for thousands of years, down to the present day. The Late Bronze Age fortified settlement on Dubovac will be explained within the network of contemporary regional fortified settlements and with regard to its importance and role in the challenges of the time.

Key words: hillfort, Late Bronze Age, southwestern edge of Pannonian Plain, defence structures, semi-underground house, pottery

INTRODUCTION

The Dubovac Castle stands above the town of Karlovac, on the first slopes by the River Kupa. The uplands along river valleys have always been favoured by settlers for reasons of strategy, economy and climate. The Dubovac site was inhabited during several periods: in the Copper Age, in the late Bronze Age and the beginning of the Early Iron Age, and in the Middle Ages and the Modern Age.

The Dubovac castle stands on a prominence above the River Kupa, on the north-west edge of the town of Karlovac in the strict sense (Fig. 1). It consists of three round towers and a tower with a rectangular ground plan – the defence tower – which has a modern panoramic terrace offering a spectacular view of Karlovac and the surrounding region. The masonry structure was built on a prominent prehistoric mound, which extends in the east into an elevated plateau where the remains of the mediaeval church of St Michael can still be made out.

Historic documents suggest that Dubovac was obtained by the noble family of Sudar before the end of the 14th century. In 1442, Dubovac was rented to Duke Stjepan of Frankopan, Viceroy of Croatia. Soon it became property of the Frankopan dukes of Krk, who held it until mid-16th century, when it came under the ownership of the Zrinski noble family (Tkalčec et al. 2011: 343).

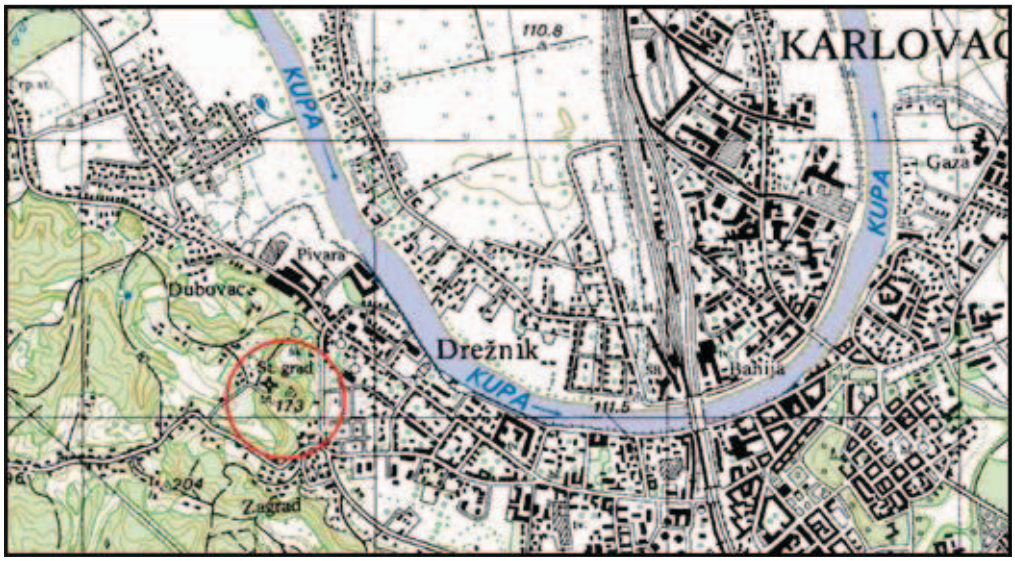

Fig. 1 Location of the Dubovac castle

REVIEW OF RESEARCH

The first archaeological test excavations at the Dubovac castle were made in 1958. Rescue excavations to drain and restore the structure were made by the Karlovac City Museum in 1997, 2001, 2004, and 2008 (Tkalčec et al. 2010: 4–5). Those excavations identified a defence ditch and found the remains of an older wall along the ditch, at the depth of 3–3.5 metres in the foundations of the current wall. Along with mediaeval finds, the excavations uncovered prehistoric finds from the Late Bronze Age and the Early Iron Age, identifying four basic prehistoric layers. The excavations inside the defence tower, up to the depth of 2 metres, identified a basement room from the Modern Age. One trench was opened in the castle courtyard. Finds from the Middle Ages and Antiquity were found close to the surface, while well-preserved remains of houses from the early Hallstatt period were found at the approximate depth of one metre.[1] Finds from the Eneolithic were uncovered at the depth of 2 metres. The test trench in the centre of the courtyard uncovered some of the structure of the cistern and of what is assumed to be a round Romanesque tower (Kruhek 2000: 28, fig.; Čučković L. 2002: 15; Čučković Z. 2002; Čučković L. 2009; Čučković Z., Čučković L. 2011).

2009–2010 EXCAVATIONS

In November and December 2009 and in March and April 2010, the Institute of Archaeology made rescue archaeological excavations at the site of the Dubovac castle (Tkalčec et al. 2010; 2011). The Karlovac City Museum was the project owner, and the financing was provided by the Ministry of Culture and the City of Karlovac. The archaeological excavations of the Institute of Archaeology (dr. sc. Tatjana Tkalčec as leader, dr. sc. Snježana Karavanić as deputy, and dr. sc. Andreja Kudelić) in the area of the rectangular eastern defence tower defined the mediaeval defence ditch and explored all of its filled layers with the finds of fragments of prehistoric and late mediaeval pottery (Tkalčec et al. 2010; Tkalčec et al. 2011). The excavations in the area of sector F, between the towers B and C, uncovered another segment of the defence ditch (Tkalčec et al. 2010; Tkalčec et al. 2011).

In the Late Bronze Age, the site was an elevated settlement. The finds indicate an even longer continuity of life there, reaching back to the Eneolithic and maybe even the Neolithic.

The prehistoric layers appear under the mediaeval layer SJ[2] 029. The yellow clay, which we named SJ 027, contains the traces of a prehistoric structure (Tkalčec et al. 2010: drawing No. 20). We started recording the floor and the phases of collapse of the prehistoric structure (SJ 080) after we removed the 20-centimetre thick layer 027. Remains of wooden posts and burnt clay (SJ 035) were found under the same layer west of the structure, and the posts in trench 1 have a north-south

1 In the publication of the prior results of the excavations at Dubovac castle (Čučković Z., Čučković L. 2011), the researchers use the higher chronology for the Iron Age (Čučković L. 2004: 20, 176), synchronised with the chronology of the Iapydes and the intermediate period corresponding to the Ha B phase of the Central European chronology.

2 SJ is abbreviation of Croatian term "*stratigrafska jedinica*" which is used in archaeological documentation. Translation of *stratigrafska jedinica* is stratigrafical unit – layer, pit, grave – context of finds.

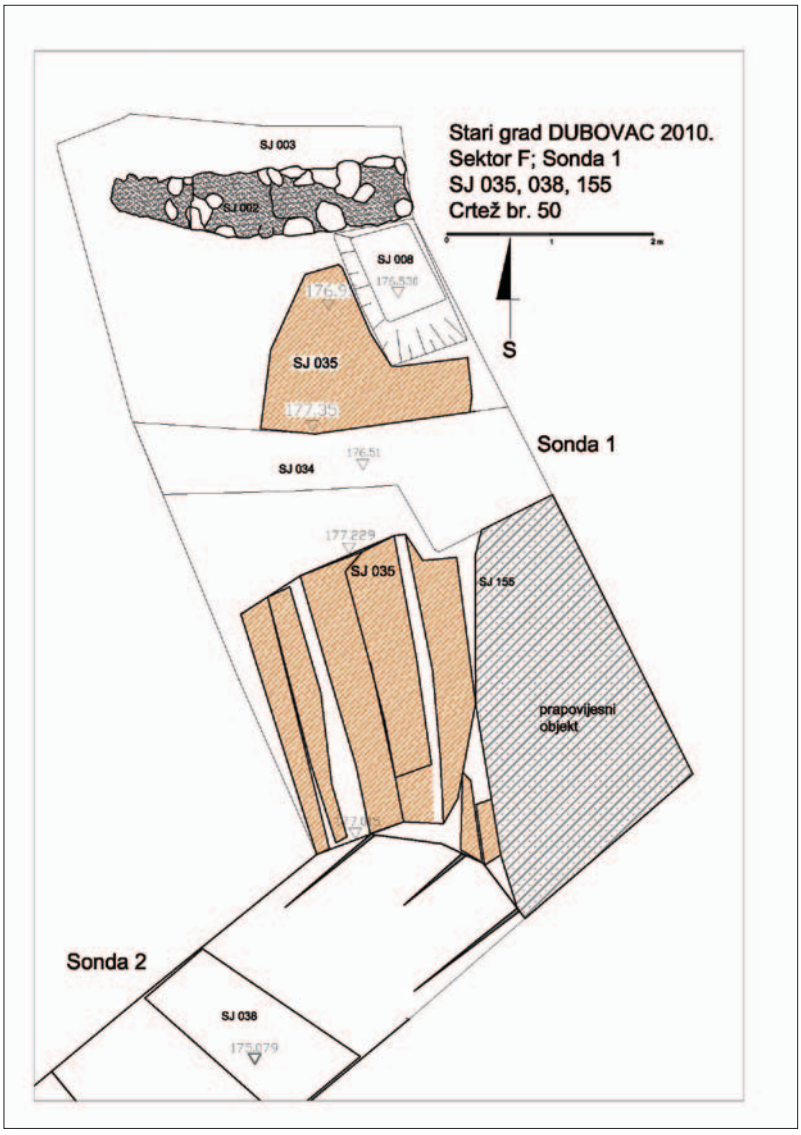

Fig. 2 Ground plan of the Late Bronze Age horizon in trench 1, younger phase, the relation between the wooden lining of the rampart and the house (drawing by: T. Tkalčec, A. Kudelić)

orientation (Fig. 2) (Tkalčec et al. 2010: drawing No. 24). SJ 027 can be described as a yellow clay embankment, standing above the layer with burnt beams as an additional reinforcement of the slope. Excavations in Trench 1 revealed the edge of a Late Bronze Age settlement with an earthen rampart and embankment next to the remains of a prehistoric house (SJ 102, 103, 124, 125, 135, 136, 139, 142), which has two stratigraphic phases with a single levelling between them. These stratigraphic units are different layers within the structure: SJ 102–SJ 135 is the younger phase of the structure and SJ 136–142 is the older phase. The structure is transected by the digs for the foundations of the castle walls (SJ 10) on the north side and the dig for the trench SJ 038 (Fig. 3) on the south side.

Since the excavated area did not allow for more precise interpretations, the next step was the recording and removal of layers within the structure. Under the yellow clay layer SJ 027 there was an olive yellow compact layer (SJ 102) containing a small quantity of pottery and tiny pieces of coal and daub. Under SJ 102 there was a darker layer of earth with much soot and a large concentration of pottery (SJ 103) in the part along the foundations of the castle wall and along the south edge of trench 1 (Tkalčec et al. 2010: drawing No. 18). Under the darker brown olive layer there was layer 124, which included red burnt earth (SJ 125) next to pieces of a portable fireplace (Tkalčec et al. 2010: drawing No. 21). The layer contained much Late Bronze Age pottery – mostly potsherds, but also large bowls and cups. Under the layers with pottery, we found a layer of olive yellow pressed clay with tiny fragments of coal and daub (SJ 135). This layer was the foundation for the segmentation of layers SJ 102, 103, 124, 125. There was very little pottery here, and the thickness of the layer was around 25 cm. This layer

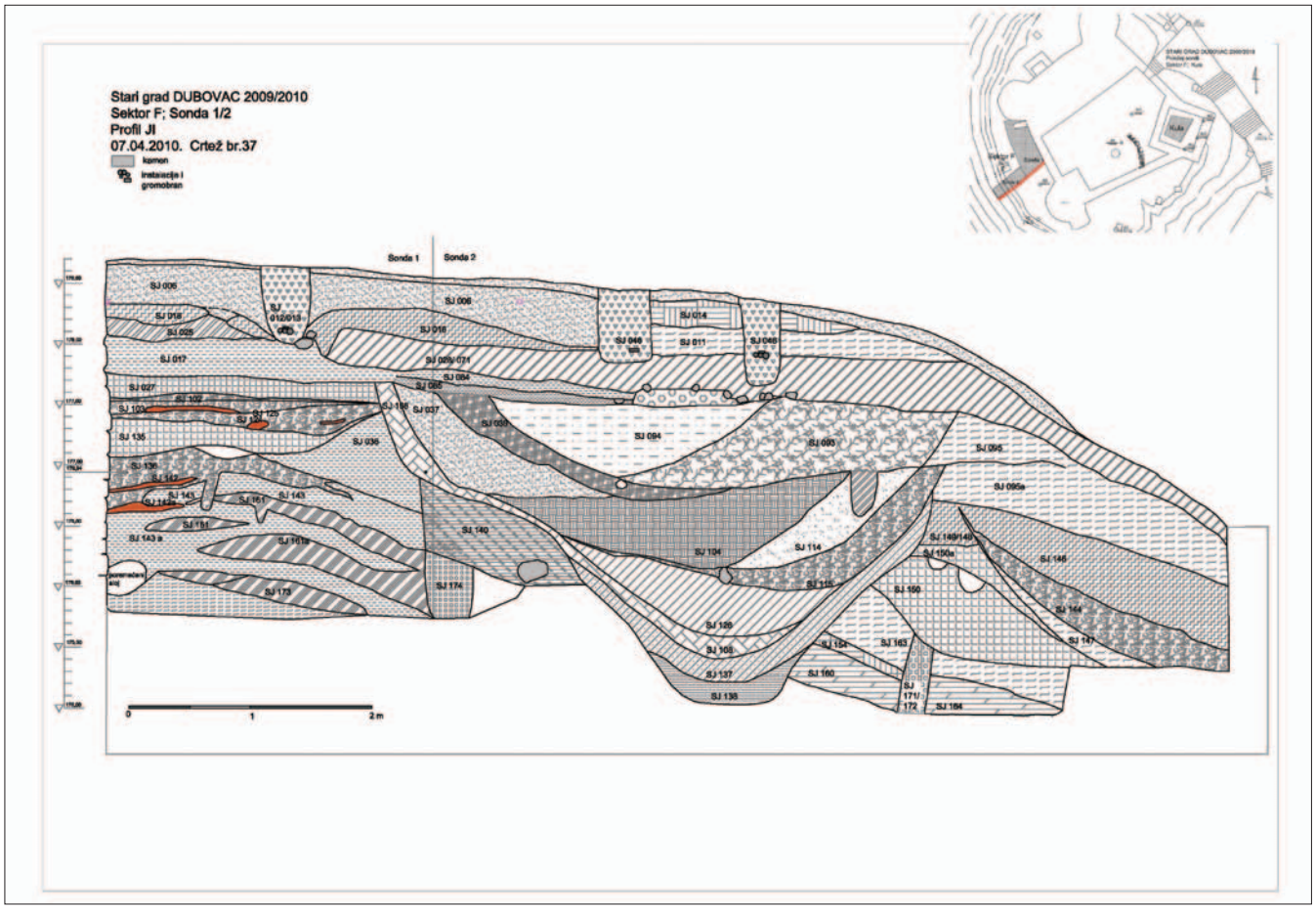

Fig. 3 The southeastern profile of the trench 1–2 (drawing by: T. Tkalčec, A. Kudelić)

is some sort of levelling, i.e. the beginning of the younger phase or horizon 1 (Tkalčec et al. 2010: drawing No. 22). Under this levelling layer, there is an older layer of loose and markedly dark soil (SJ 136) with small pieces of coal and daub and larger pieces of burnt earth (SJ 139) (Tkalčec et al. 2010: drawing No. 23). The profile clearly shows the dig for a pillar with a fill that has the same composition as SJ 136, although the dig was not visible in the ground plan. At the bottom of the structure, there was a layer of red burnt clay (SJ 142) which could have been some kind of house floor, but there is no certainty because of the small area of the dig. Whatever it was, it extended over the entire area of the dig. It is interesting to consider the level of layer 136 in relation to the younger horizon (Tkalčec et al. 2010: drawing No. 27). Layer 135 and younger layers extend horizontally, while older layers (those under SJ 135) suddenly break off. It seems that ground movement prompted a renovation of the settlement or structure (SJ 136, 139, 142) starting from layer SJ 135, and life in the settlement went on (SJ 124, 125, 103, 102). It could be the period in which the edge of the settlement was reinforced with layers of wooden posts and burnt earth, which we recorded as SJ 035 (Tkalčec et al. 2010: 34). This leads to the hypothesis of two building phases on the Dubovac site in a very short time, both probably situated in the younger phase of the Late Bronze Age. Moreover, there is the interesting profile (Tkalčec et al. 2010: drawing No. 27) which suggests that the renovation could have been undertaken because of ground movements and landslides on the edges of the settlement.

Under the Late Bronze Age layers, there is almost sterile yellow clay (SJ 143) as probably another layer of terrain levelling, under which there are older layers with the Lasinja culture finds.

THE LATE BRONZE AGE SETTLEMENT AND FORTIFICATION HORIZON AT DUBOVAC

THE RAMPART

Trench 1 documented the described settlement horizon, which was dated to the younger phase of the Late Bronze Age on the basis of the portable finds and radiocarbon dates. Stratigraphy indicated two phases within the Late Bronze Age horizon, with one particularly interesting find: an earthen rampart which used to be lined with wooden planks which

burned up, judging by the burnt layer containing the carbonised wooden planks. How the fire came about – whether by accident or by deliberately burning the wooden lining to reinforce the slope – cannot be said with certainty.

There is no lack of examples of Late Bronze Age earthen ramparts. In earlier excavations of elevated settlements, an earthen rampart[3] from the younger phase of the Late Bronze Age was identified at Lobor (Filipec 2008: 58), while an earthen rampart with a ditch was recorded around the settlement at Turska Kosa (Čučković L. 1989: 438, Fig. 1; Čučković L. 2006: 274)[4] and at Staro Čiče (Balen–Letunić 1996: 15). The Early Iron Age is the time period of the parts of the rampart found at Gradec in Zagreb (Škoberne 2004: 162) and the explored part of a stone rampart, probably built with the coffering technique, at Sv. Križ Brdovečki (Cvitković 2012: 283; 2014: 241). Also, the hillfort near the village of Klinac has a dry wall rampart built of large pieces of broken rocks on the outside and small stones and earth on the inside (Krmpotić 2013: 342). The settlement contained pottery finds from the Late Bronze and Early Iron Age (Majnarić Pandžić 1986: 34; Krmpotić 2013: 342). Probable remains of a rampart were discovered at Gradišće in Orišje near Bosiljevo, but they were not dated more precisely within the Iron Age (Osterman 2010: 304–305). A burnt part of a rampart was found at Gradišće in Orišje, on the northern and northwestern part of the slope (Osterman 2013: 401). A rampart was found at the Doljani Žumberački hillfort near Ozalj and dated to the Late Bronze or Early Iron Age on the basis of the finds from the field survey (Želle 2013: 395). A field survey in the Dobra river valley found Polaki, a hillfort site surrounded by an earthen rampart, which was dated to the Late Bronze and Early Iron Age on the basis of surface finds of potsherds (Čučković Z. 2013: 402). A defence ditch and rampart was found at Markovac near Donje Dubrave, between the rivers Dobra and Mrežnica; the settlement was dated to the Iron Age and included finds from antiquity (Balen–Letunić 1987; Čučković Z. 2013: 403). Among the numerous hills that were settled and used in the surroundings of Karlovac in the Late Bronze Age and the beginning of the Early Iron Age, there is the Bukovlje hillfort by the Mrežnica river valley. Explored over several years (Karavanić, Kudelić 2011: 83; Azinović Bebek, Sekulić 2014: 293–294), the hillfort displays the horizon of the younger phase of the Late Bronze Age and the beginning of the Iron Age, but the excavations did not reveal traces of ramparts or any man-made fortifications. The hillfort has very steep slopes, which were a natural defence against hostile visitors. The Bukovlje hillfort was also used in late antiquity and high Middle Ages (Azinović Bebek, Sekulić 2014: 294). In the Korana river valley, a rampart was identified during the excavations at the Končalovići hillfort, which was dated to the Late Bronze and Early Iron Age on the basis of finds. The rampart stands at the eastern side of the hillfort, which is the most accessible side (Mihelić et al. 2014: 299), showing that the inhabitants adapted the natural environment to their needs, as the other sides of the hillfort were steep enough to provide natural defence to the inhabitants.

The parallels with the defence structures explored at the Dubovac castle and the insights into the nearby contemporary hillforts in central Croatia indicate that the fortification of hills was commonplace, with differences arising from the place to be fortified and the surrounding conditions. The settlements that grew on more accessible sites (Dubovac, Zagreb–Gradec) had more complex fortification systems – usually earthen ramparts on the sides with easier access to the settlements. The settlements on less accessible sites (Končalovići, Orišje etc.) had ramparts and/or ditches on the sides where the access to the hillfort was the easiest.

Since the excavated areas of the mentioned settlements have a small perimeter, little is known about the internal infrastructure of the settlements. For this reason, the results of the excavations in trench 1 at Dubovac in 2009 and 2010 are interesting, because there is knowledge about the internal infrastructure of the settlement and its relation to the contemporary fortification.

THE HOUSE

The interesting find of a part of a half-buried structure in trench 1 indicates the existence of a dwelling; its younger usage phase was contemporary with the wooden lining (SJ 35) of the earthen rampart.

The explored portion of the half-buried structure measures 3.05 x 1.80 m and has a depth of 0.54–0.51 m. Its central part has the dig for a pillar that probably supported the roof. In the older horizon, there is a markedly red burnt layer of clay at the bottom of the house (SJ 142) – probably the floor of the older phase of the structure which was used for activities, as testified by the find of a whorl (Fig. 4: 1).

3 There are three known rows of earth ramparts at the Budinjak settlement, but since no trenches have been made and the settlement was there in the Early Iron Age, it is unclear when the ramparts were built (Škoberne 1999: 18). The Marića hillfort in Mikleuška had a ditch on the southern side of the hillfort, but excavations have not confirmed whether it was a fortification from the Late Bronze Age or earlier, since a Vučedol culture settlement has also been recorded there (Iveković 1965: 54).

4 It is unclear when the rampart on Turska Kosa was built, since there was a settlement in the same place during the entire first millennium BC (Čučković L. 2006).

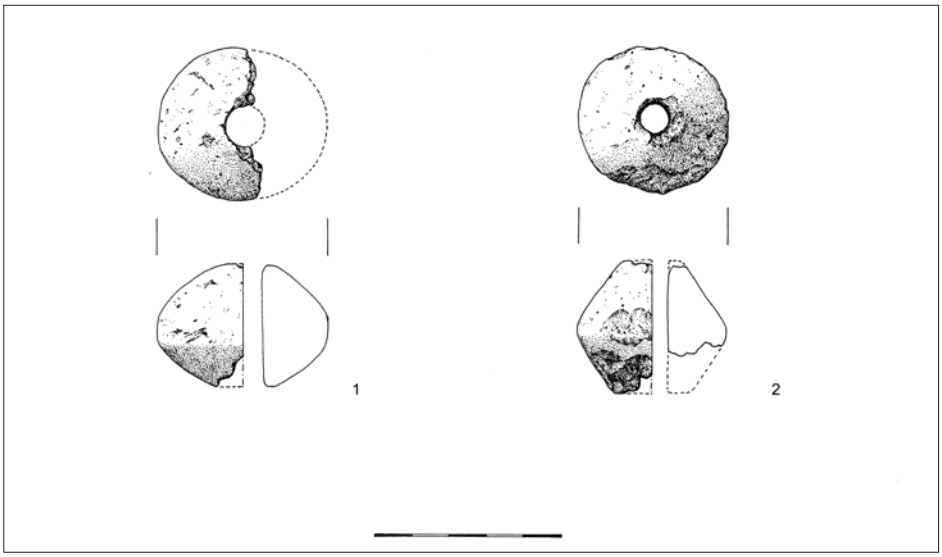

Fig. 4 Whorls from SJ 142 (1) and SJ 140 (2) (drawing by: Matilda Marijanović Lešić)

The layer above the floor contained potsherds: pots with spherical body and everted rim (Pl. 1: 1–2), some decorated with horizontal incisions on the vessel shoulder (Pl. 2: 2), parts of lids, and bowls with a rounded inverted rim, decorated with dense vertical fluting (Pl. 1: 3). Ceramic vessels decorated with incisions were found in previous excavations at Dubovac in horizon I, which was associated with the Iron Age by L. Čučković and Z. Čučković,[5] even though the typochronological analysis indicates that they were used since the younger phase of the Urnfield culture, i.e. from the Ha A2 phase through the Ha B13 phase (Čučković Z., Čučković L. 2011: 73:79, Pl. 3: 1–2, 4, 8).[6] Bowls with a spherical body and inverted rim decorated with dense vertical fluting were recorded at Dubovac (Čučković Z., Čučković L. 2011: Pl. 4: 1, 5–6; Pl. 6: 2, 4), Belaj (Majnarić–Pandžić 1986: Fig. 3: 1–2; Fig. 5: 2–3), Kiringrad (Balen–Letunić 1987: Pl. 1: 3), Sv. Marija Okićka (Ložnjak 2002: Pl. V: 7), Staro Čiče (Balen–Letunić 1996: Fig. 7: 5), Kalnik (Vrdoljak 1994: Pl. 18: 2), and can be defined as a local form in the areas of the Kupa valley and the Sava valley around Zagreb, or the area of the southwestern Pannonia if we consider the parallels from Slovenia and northern Bosnia. Such local form of a bowl, found on the floor of house D at Brinjeva Gora, has been dated to the older Ha B phase (Oman 1981: 151, Pl. 14: 10; Pl. 30: 2). This type of bowls appears in the settlement of Brinjeva Gora, in the 4th layer, which has been dated to the older Ha B phase (Pahič 1981: Pl. 30: 2; Teržan 1990: 37, Fig. 4: 21). Such bowls also appear in the contemporary graves in nearby Ozalj, where the decoration is organised in metopes (Balen–Letunić 1981: 13–14, Pl. 1: 7; Pl. 2: 11), Trešćerovac (Vinski–Gasparini 1973: Pl. 10: 8–9), and Novo Mesto (Križ et al. 2009: 243, cat. no. 4. 6. 5.). Such bowls appear in the Ruše group and are marked as the type S7 (Črešnar 2006: 117, Fig. 23: S7). These bowls are known from the Older Settlement in Donja Dolina and belong to the forms that are characteristic for the Ib phase (Marić 1964: 28, Pl. V: 1). This type of bowls remained in use until the Stična–Novo Mesto horizon 1 and 2 in Dolenjska (Lower Carniola), as shown by J. Dular in his typology (Dular 1982: 76, no. 253–257). Bowls with a spherical body and inverted rim with vertical flutes or grooves, which have been found in the explored structure at Dubovac, appear in the southwestern Carpathian Basin from the Ha B phase to the Ha C2 phase according to the current state of research.

After the usage period of the dwelling, this phase was a short interruption or renovation, judging by the SJ 135 layer of greenish clay, which is probably related to the reinforcement of the slope and the wood lining. The younger phase of the structure includes the fills SJ 124, 125, 103, 102, with most of the finds included in SJ 124, which lies on the SJ 135 floor. The SJ 124 fill contained fragments of spherical pots (Pl. 6: 1–3) and bowls with a spherical body and a flat or inverted rim (Pl. 4: 1–4, Pl. 5: 1–2). Some of the bowls are decorated with dense, almost vertical fluting that looks like grooves (Pl. 4: 4). The fill contained pots decorated with relief ribs which are laid horizontally or in the shape of garlands (Pl. 3: 2).

The same layer contained an almost complete portable fireplace (Pl. 7). The preserved lower portion includes a part of the opening, which is decorated with three pasted vertical ribs and probably a part of the grate opening. Such fireplaces are frequently found in the Late Bronze Age settlements of the Ha B phase. Similar complete fireplaces were found in the

5 Footnote 1 describes the reasons for this discrepancy in the use of terms “Late Bronze Age” and “Iron Age”.

6 Iron Age horizon I corresponds to the stratigraphically oldest horizon after the Bronze Age layer (Čučković Z., Čučković L. 2011: 73).

settlements of Bregana–Kosovac, dated to the Ha B phase (Vrdoljak 1996: Pl. 4), and Križevci–Ciglana, dated to Ha A2 (Homen 1982: Pl. I: 8). Another one was found in the settlement of Sv. Petar Ludbreški in Podravina, which was inhabited from the Ha B3 phase to the Early Iron Age (Vinski–Gasparini 1987: Pl. XXIII: 8; Balen–Letunić 2004: 304, cat. no. 22). A fragment of a portable fireplace is known from the settlement of Grič in Sv. Marija Okićka, which contains traces of habitation from the younger phase of the Late Bronze Age and the beginning of the Early Iron Age (Ložnjak 2002: Pl. 1: 7). The fireplace found in the settlement of Kekića Glavica in northwestern Bosnia was dated to the younger phase of the Late Bronze Age (Čović 1962: 51, 57, Fig. 8).

The rest of the ceramic inventory fits into the ceramography of the younger Urnfield culture. A black polished ceramic fragment is indicative of the period; its shape cannot be determined, and it is decorated with relief garlands. This fragment probably belongs to finer pottery. Decorating vessels with horizontal and vertical relief ribs is important for the Ruše group pottery (Lamut 1989). Vertical ribs on ceramic vessels were found in the settlements of Bregana (Vrdoljak 1996: Pl. 1: 1) and Zagreb (Balen–Letunić 1996: Fig. 3: 3), as well as the settlement of Poštela in horizon I, which is equivalent to the Ha B3 phase (Teržan 1990: 32, Pl. 14: 3; Pl. 20: 16; Pl. 37: 27), but this does not preclude an earlier appearance of this kind of decoration in the Ha B phase. Pots found at the Špičak hillfort near Bojačno have a relief strip on the upper body or in the middle (Pavišić 1987: Pl. 1: 10; 1993: Pl. 7: 1, 5–6); the strip is sometimes decorated with fingerprints (Pavišić 1993: Pl. 4: 1) or arranged in the shape of a garland, as in the settlements of Belaj and Zagreb (Majnarić–Pandžić 1986: Fig. 4: 2; Balen–Letunić 1996: Fig. 8: 1, 3). These are large pots that probably served for storage. Kiringrad contained bowls with a spherical body and everted rim, horizontal facets on the inside wall, and the outside wall of the upper body with a relief strip in the shape of a garland decorated with incisions (Balen–Letunić 1987: Pl. 1: 4, 7).

These settlements are dated to the end of the Ha B phase or, in some cases, to the beginning of the Early Iron Age.

On the basis of the finds of portable fireplaces, and a large number of bowls and fragments of ceramic vessels, especially pots and small bowls, it is assumed that it was a residential area where people lived every day.

The position of the half-buried house – right next to the ramparts reinforced by wooden planks – indicates important information about the infrastructure of elevated settlements in the younger phase of the Late Bronze Age. The explored part of the dwelling with several fills and finds inside them indicate the use during the younger phase of the Late Bronze Age, which is also indicated by the radiocarbon date obtained by measuring the carbonised planks lining the ramparts (SJ 35, KIA 41271). The date (KIA 41271)[7] points to the 11th and 10th centuries BC, which is a high date in comparison with the found ceramic material and the results of typo-chronological analyses. We are not inclined to ascribe the date obtained by radiocarbon analysis of the carbonised wood to pottery finds without question or reservations, as we believe other parameters should also be taken into account, e.g. the effect of old wood. More caution is required because there is just one dated sample; new papers, which try to link absolute dates with the typo-chronological analysis of archaeological items and which are therefore relevant when considering the absolute chronology of the Late Bronze Age, have open issues in similar cases and impose the necessity of combining a large number of radiocarbon dates from definite contexts for the most reliable result (Teržan, Čeršnar 2014: 697–700). The radiocarbon dates for the younger phase of the Late Bronze Age on the territory of Slovenia, which include many typological parallels for the ceramic material from Dubovac, indicate the period from the end of the 11th century BC to the 9th century BC (Teržan, Črešnar 2014: 697).

The younger phase of the use of the explored structure at Dubovac could have come soon after the first phase, judging by the similar types of vessels found in the older and younger horizons of the structure. The incision technique of vessel decoration appeared in the older horizon, while the relief ribs appeared in the younger horizon. A similar situation for the explored material was recorded by other researchers of Dubovac, with grooves being recorded more often in younger horizons (Čučković Z., Čučković L. 2011: Pl. 9–11).

The half-buried structure was on the edge of a slope which was additionally fortified in the younger phase of the Late Bronze Age. Remains of houses above ground have been found at numerous contemporary elevated settlements: parts of house floors and parts of a fireplace were found in Orešje–Donje Pogorišće (Balen–Letunić, Bakarić 1984: 38) and during the excavations at the Kuzelin hillfort near Sesvete (Sokol 2006: 151). Remains of houses above ground were also found at hillfort II at the Špičak site near Bojačno, where they were dated to the Ha A2 and Ha B phases on the basis of pottery finds (Pavišić 1987: 9) and at the Belaj hillfort (Majnarić–Pandžić 1986: 29–33). Remains of houses above ground, but also a half-buried pit-house with several separate rooms, were found at the Turska Kosa hillfort, which was inhabited from the Late Bronze Age to the Iron Age (Čučković L. 2004: 190–194). Remains of houses above ground and pit-houses from the Late

7 Radiocarbon Age: BP 2833 ± 27 (One Sigma Range: cal BC 1017 – 969 (Probability 43.0 %) (Probability 68,3%) 962 – 931 (Probability 25.3%) Two Sigma Range: cal BC 1076 – 1065 (Probability 1.0%) (Probability 95,4%) 1056 – 909 (Probability 94.4%).

Bronze and Early Iron Age were also recorded at Gradec in Zagreb (Mašić, Bugar 2007: 183).

When comparing with the results of the previous excavations of Late Bronze Age horizons and the excavations from 2009–2010, we can conclude the following: the half-buried structure and its two phases can be related with horizons I and II as defined by Z. and L. Čučković (2011: 73–81, Pl. 1–8). The younger third horizon was not recorded *in situ* during the excavations in 2009 and 2010. Only some isolated finds from mediaeval contexts (e.g. a pyramidal weight) from trench 2 point to younger finds that could be related with horizon III (Čučković Z., Čučković L. 2011: 81–86, Pl. 9–11). The oldest horizon of the Late Bronze Age included burnt house floors and fills and layers related to that phase; horizon II included pillar holes for what was probably a wooden palisade, which was also recorded in horizon III (Čučković Z., Čučković L. 2011: 73–86). The excavations at the Dubovac castle have revealed at least three settlement horizons during the Late Bronze Age and at the beginning of the Early Iron Age.

DUBOVAC IN THE COMMUNICATION NETWORK OF THE LATE BRONZE AGE IN THE SOUTHEASTERN CARPATHIAN BASIN

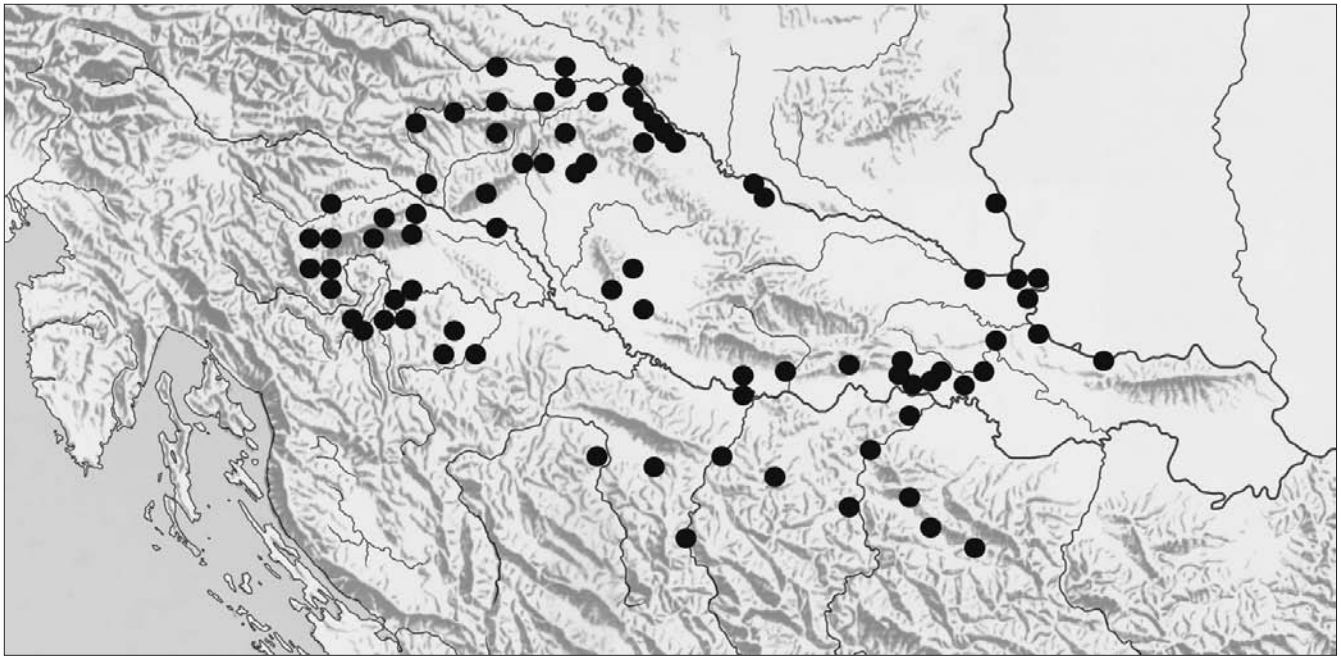

Fig. 5 Settlements from the younger phase of the Late Bronze Age in southwestern Pannonia (map by: D. Ložnjak Dizdar)

Settlements with and without fortifications, both lowland and elevated, have been recorded in the younger phase of the Late Bronze Age in the southwestern Pannonian plain and the first slopes around it (Fig. 5). Life in elevated and lowland settlements is not linked with either cultural or chronological differentiation, except for the fact that the number of elevated settlements increased from the older to the younger phase of the Urnfield culture. Both in elevated and lowland settlements, the construction of fortifications depended primarily on the accessibility of the terrain and the need for protection, as shown by the provided examples from northwestern Croatia and the neighbouring regions of Bela Krajina (White Carniola), Dolenjska, and northern Bosnia. Since excavations have covered only a small part of the fortified settlements from the Late Bronze and Early Iron Age in northwestern Croatia, it is too early to make any conclusions about possible changes in the infrastructure of settlements and type of fortifications at the beginning of the Iron Age, as was the case in southeastern Slovenia. The Late Bronze Age settlements in the region were characteristically fortified with earthen ramparts; they may have used wooden palisades too, but this has not been proven yet. The Early Iron Age settlements were fortified with dry stone walls (Dular 1993: 106). E.g. the settlements from the 9th century BC in the area of Mokronog stood on Križni Vrh and Žempoh in Slovenia. They were not particularly fortified, as the hill was safe enough. The excavations at the easiest access route to Križni Vrh found the remains of the stone foundations of a wooden palisade (Svoljšak 1990: 50), testifying that the inhabitants used the fortifying material that was available. Great importance is given to the discovery of short-term settlements from the Late Bronze Age in Dolenjska (Ljubljana I–II), belonging to the Ljubljana group. These

were settlements on prominences, without stone walls, fortified with earthen ramparts and possibly wooden structures, or not fortified at all. They belong to the period of the cremation graves from Novo Mesto, Bela Krajina, and Ostrožnik (Gabrovec 1999: 182). These settlements did not bury their dead under tumuli yet (the Žempoh settlement and the Pašnik cemetery above Ostrožnik; the Gradišče settlement above Stična and the Pristavlja Vas cemetery; the Marof settlement in Novo Mesto and the flat cremation cemeteries at Kapiteljska Njiva and Mestne Njive). These settlements have no slag remains, which are characteristic for Iron Age settlements. Their pottery is most similar to the Ljubljana group, with 17 settlements identified from the period (Gabrovec 1999: 182). In the area of central Slovenia, Late Bronze Age elevated settlements were completely abandoned and replaced by the new *gradišća* (hillforts) fortified with stone walls, which were founded in the Early Iron Age (Dular 1993: 101). The greatest number of fortified settlements has been recorded in the neighbouring southeastern Slovenia, with some of them originating in the older phase of the Late Bronze Age, and some being founded in the younger phase (Dular, Tecco Hvala 2007: 70–72, Fig. 24). There were also short-term elevated settlements in Dolenjska, such as e.g. the Gradišče settlement near Gradišče Pri Trebnjem and the Žempoh settlement near Ostrožnik, both dated to the end of the Late Bronze Age and the beginning of the Iron Age, and inhabited for a very short time according to the pottery found during the excavations (Dular et al. 1991: 84). The greatest number of settlements appeared at the beginning of the Iron Age and were inhabited in the Early and Late Iron Age (Dular, Tecco Hvala 2007: 73). At the beginning of the Iron Age, the number of *gradište* was halved, but their aggregate surface almost doubled (Dular, Tecco Hvala 2007: 138, Fig. 80). The chief development in the habitation structure in the 8th century BC was a new type of settlement with a location, size and function that were significantly different from the Bronze Age settlements. There are several causes for the abandonment of the old settlements: social changes; the Late Bronze Age settlement locations which did not have the necessary material for the construction of fortification systems, which were the main characteristic of the Hallstatt sites; the unusable micro-locations of the Late Bronze Age settlements which did not allow for expansion; finally, the influence of natural resources, which was not crucial. The old and new settlements were less than a kilometre apart (Dular, Tecco Hvala 2007: 139–140, Fig. 81). In the Early Iron Age, the link between Dolenjska and Bela Krajina lost its importance together with the communication across Gorjanci; both of them used to be important in the Late Bronze Age (Dular, Tecco Hvala 2007: 142).

Central Dolenjska and Bela Krajina were very densely inhabited in the Late Bronze Age (Dular, Tecco Hvala 2007: 132–133, Fig. 76). A similar population pattern can be seen in the recorded and researched settlements in the regions of the Sava valley around Zagreb, the Kupa valley, and the Croatian Zagorje. The prehistoric settlements or hillforts on Žumberak appeared precisely in the Late Bronze and Early Iron Age. The settlements and hillforts on the perimeter edge of Žumberak are particularly interesting. From Bregana to Okić and Vivodina, there are more than thirty of them, with only 3 to 5 kilometres between settlements (Škoberne 2004: 148).

The settlements in Križevci, Staro Čiče and Karlovac (Gradac) indicate that the Ha B phase already included not only elevated settlements, but also lowland settlements, for which it has not been confirmed whether they were inhabited in the Iron Age. Among the elevated settlements, there are those carrying on from the Ha A2 phase – Špičak (Pavišić 1987: 9) the younger settlements inhabited only in the Ha B phase: Bregana (Vrdoljak 1996), Kuzelin (Sokol 2006: 151), Belaj (Majnarić–Pandžić 1986: 29–33), Bukovje (Karavanić, Kudelić 2011), and the contemporary settlements that were still inhabited in the Ha C phase, i.e. in the Early Iron Age: Dubovac (Čučković Z., Čučković L. 2011: 73–81), Mikleuška (Iveković 1965; Rakvin 2015: 96), Lobor (Filipec 2008: 58), Zagreb (Balen–Letunić 1996; Škoberne 2004: 162; Mašić, Bugar 2007: 183), Sv. Marija Okićka (Ložnjak 2002), Kiringrad (Balen–Letunić 1987), Turska Kosa (Čučković L. 2006). Like the examples from Dolenjska, there are settlements that originated at the very end of the Late Bronze Age and carried on into the Early Iron Age: Budinjak (Škoberne 2004), Sv. Križ Brdovečki (Škoberne 2004; Cvitković 2012; 2014). For now, the state of research leaves open the question of the length of habitation in specific types of settlements, which could have depended on economic/ecological conditions. Moreover, since there is no research on the associated cemeteries, there is no data on the communities that built and inhabited those settlements and their possible local movements and changes in settlement locations. Future archaeological research should be more focussed on settlement infrastructure, fortification types, and locating the associated cemeteries in order to examine the microtopography of specific sites. Also, field surveys should be made in order to set up a network of neighbouring settlements and isolate specific centres in a specific time and space.

There were elevated settlements in the area of northern Bosnia, such as e.g. Kekića Glavica on the middle Una (Čović 1962) and the Čungar hillfort near Cazin (Radimský 1896a).[8] On the basis of the pottery, which is associated with the oldest

8 Hillforts with ramparts from different time periods in the area of northwestern Bosnia were recorded and measured by F. Fiala (1896) and W. Radimský (1896b).

part of these settlements – bowls decorated with oblique fluting on the inverted rim and vessels with an everted rim and horizontally faceted on the inside – they have been dated to the younger phase of the Late Bronze Age (Čović 1962: 56, Pl. I; Fig. 1: 1c; Fig. 2: 3a, 5a). B. Čović believes that the settlement on Kekića Glavica was founded at the end of Ha B, which corresponds to the end of the 9th century BC or the beginning of the 8th century BC (Čović 1962: 57). This settlement contains a rampart made of stone and earth material that was not erected at the time when the settlement was founded on this location (Čović 1962: 42–43). The Zecovi hillfort near Prijedor was inhabited throughout the Bronze and Iron Ages. The stratigraphic work on Zecovi identified a continuity between strata III and II, indicating the continuity of this settlement from the Bronze Age to the Iron Age (Benac 1959: 45). There was a fortified settlement in Pod near Bugojno, in the region of central Bosnia,[9] where the continuity of habitation can be followed from the Ha A phase to the 3rd century BC through 16 settlement horizons. That settlement was fortified with a dry stone wall erected in the Ha A phase (Čović 1975: 122). Interestingly, they also built a large earthen rampart at the beginning of the 7th century BC. Aside from houses above ground, the settlement had several organised streets (Čović 1975: 124, Fig. 3), indicating an early urbanisation of this area (Teržan 1995: 349). The typology of the pottery found in the hillfort settlements in northwestern Bosnia – Čungar, Kekića Glavica, Zecovi, and Zemunica (Čović 1965: 85–86, Map 1) – associates them with the horizon of the settlements in Banija, Kordun, and the Karlovac region, which have been dated to the younger phase of the Late Bronze Age, some of them persisting into the Iron Age.

The elevated settlements in the area from the Vrbas, along the Sana and the Una, to the Karlovac region and Bela Krajina and southeastern Dolenjska, show similarities in their choice of the settlement location and fortifying method, but also in their pottery finds, primarily the method of vessel decoration (incision, grooves, relief ribs). Aside from the similar surroundings – the southwestern edge of the Pannonian Plain surrounded by the first slopes which merge into the Dinaric Alps towards the south – it is clear there was a communication network in the younger phase of the Late Bronze Age, which connected the inhabitants of these hillforts, as testified by the exchange of experiences and ideas which is currently seen in the pottery finds.

The causes of the foundation of the large number of elevated settlements are still unknown, but climate changes (Čučković Z., Čučković L. 2011: 105–106) and economic changes (Čović 1980; Dular, Tecco Hvala 2007) should probably be joined by other circumstances that resulted in the foundations of the settlements and their occasionally complex organisation of fortifications, which were usually earthen ramparts.

CONCLUSION

The elevated settlements of the Late Bronze Age are widespread in the Carpathian Basin. They were already used and erected during the older phase of the Late Bronze Age, especially in the 12th century BC, and their number quickly increased during the younger phase of the Late Bronze Age. The location of Dubovac in the southwest corner of the Carpathian Basin has been considered more closely in relation to the surrounding regions of Banija, Kordun, Bela Krajina, northwestern Croatia, and northwestern Bosnia. In the areas of the Sava valley around Zagreb and the Kupa valley (from the Slovenian border to the confluence of the Kupa and the Sava and from the area of Duga Resa across Banovina and Kordun to the regions of Croatian Zagorje and Bilogora), elevated settlements have been recorded in greater numbers than lowland settlements. They are part of a wider picture of the population of southwestern Pannonia in this period.

Elevated settlements usually stand on less accessible dolomite slopes which have retained only a thin layer of soil because of erosion. Since this resulted in a very thin cultural layer, past cases (Zagreb–Gradec , see Mašić, Bugar 2007: 183) rarely enabled the stratigraphy of the sequence from the Late Bronze Age to the Early Iron Age, even though the portable archaeological finds point to frequent occupations of these strategically important positions.

The lowland settlements in this region were excavated very rarely – only in four cases. The lowland settlements lay near small courses of water such as streams (Staro Čiče–Gradišće) or rivers (Karlovac–Gradac) along the Kupa and/or on an elevated terrace (Križevci–Ciglana). Gradac in Karlovac is naturally protected by a meander of the Kupa and a man-made ditch in the west (Čučković L. 2004: 188), while Gradišće in Staro Čiče is protected by the stream and a wide natural ditch (Težak Gregl, Vojvoda 1987: 46). The excavations at the Ciglana settlement in Križevci (Homen 1982) and Mali Sip in Hercegovac did not find any traces of fortifications, but they discovered pits, portable fireplaces or layers, while there are still no information on residential structures. Also, the caves in the Žumberak mountains were occasionally occupied in the Late

9 The settlement in Pod near Bugojno is offered here as an example of a settlement with a larger explored surface and more data on the fortification type and the settlement infrastructure (Čović 1965; Gavranović 2011).

Bronze and Early Iron Age (Želle 2007: 179, Fig. on p. 180).

Traces of the Late Bronze Age inhabitants of the Dubovac castle, discovered by the archaeological excavations of 2009 and 2010, indicate that the location was already fortified in the Late Bronze Age, and fortifications were built later in history too, primarily because of the strategic position of Dubovac in the southwest corner of the Pannonian Plain and the control of the communications going through the valleys of the Dobra and the Mrežnica towards the Adriatic. The earthen structure of the ramparts was the usual fortification method in this region in the Late Bronze Age, which can be seen as an exchange of experiences of the communities that erected these ramparts. Aside from exchanging such knowledge, the communities also exchanged objects, judging by the shapes and decorations of pottery (e.g. bowls decorated with vertical fluting, incised decorations on pottery). Along with the north-south communication routes that gain prominence from the historical perspective and our own time, we must also emphasise the communication along the edge of the northern slopes of the Dinaric Alps and the Kupa valley, as indicated not only by pottery and fortification methods, but also by funerary rites (Ložnjak Dizdar 2013: 104, Fig. 2). The Late Bronze Age settlements in the regions of Karlovac, Banija, Kordun (Čučković Z., Čučković L. 2011; Čučković Z., Čučković L. 2017; Balen–Letunić 1987; Majnarić–Pandžić 1986), and northwestern Bosnia (Čović 1980), would become even more important at the beginning of the Iron Age probably because of the local deposits of iron. Even though their exploitation in the Iron Age has not been proven yet, the material culture recorded in those cemeteries and settlements points to the continuity and prosperity (Čučković L. 2004) that came about in the Early Iron Age.

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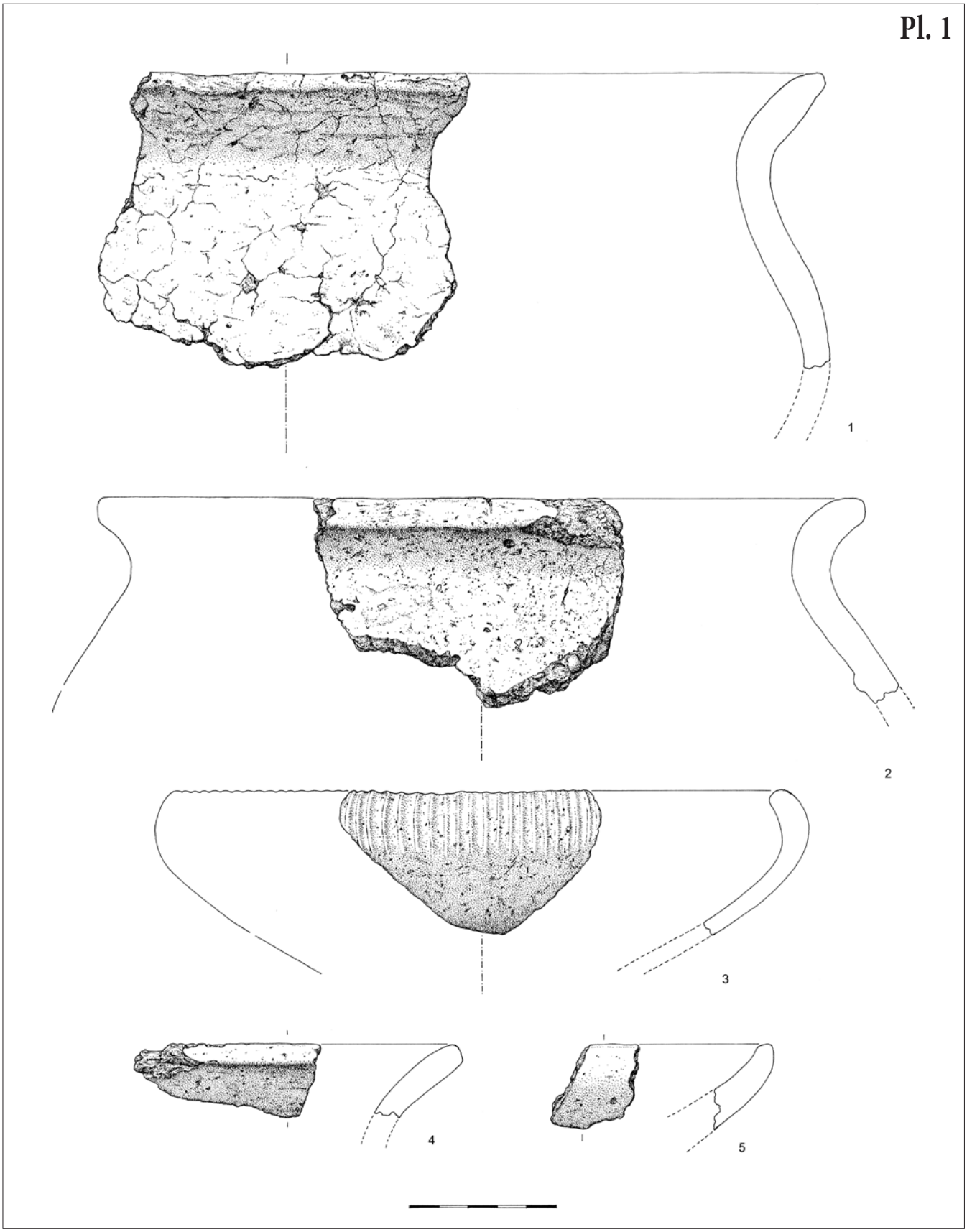
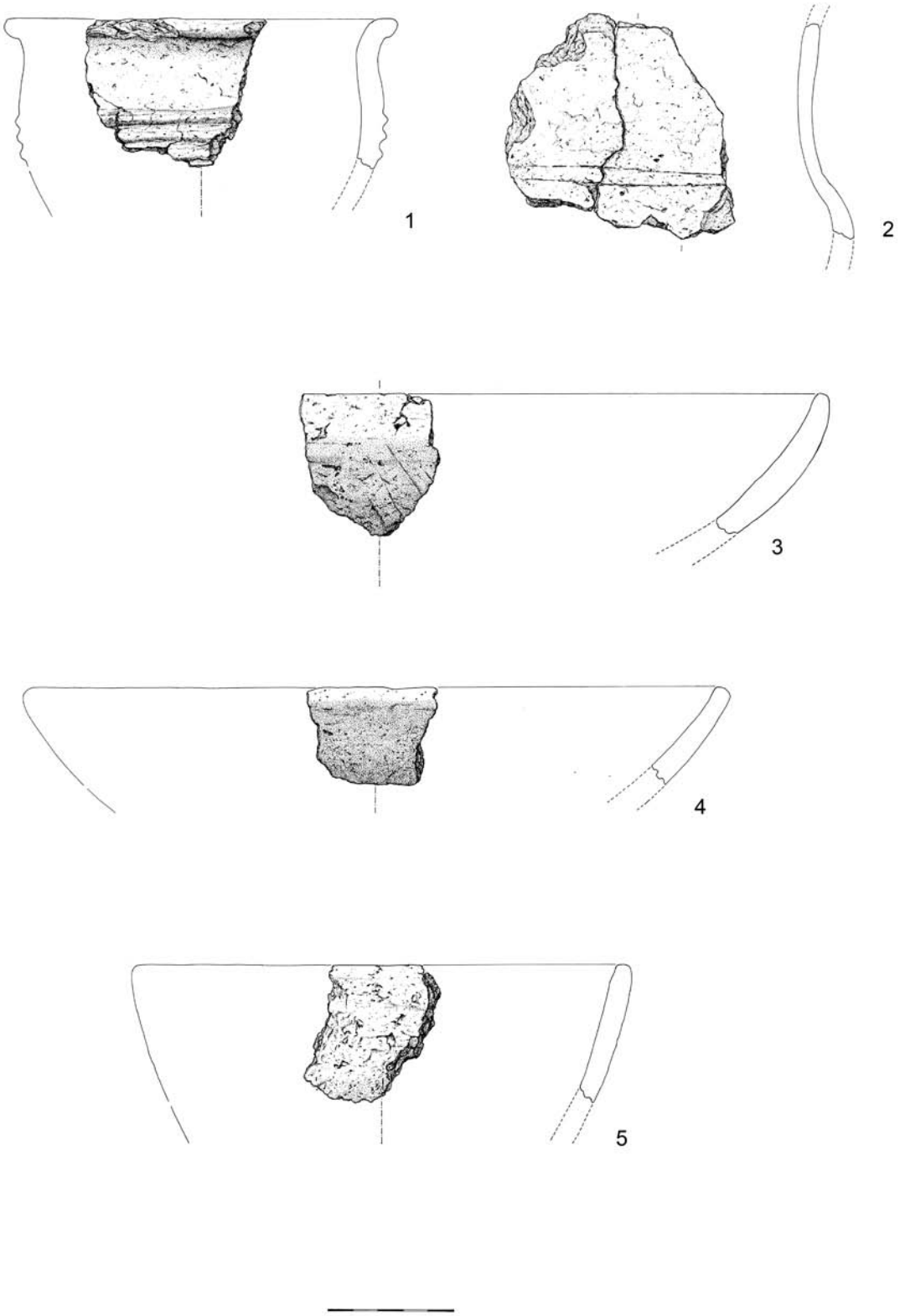
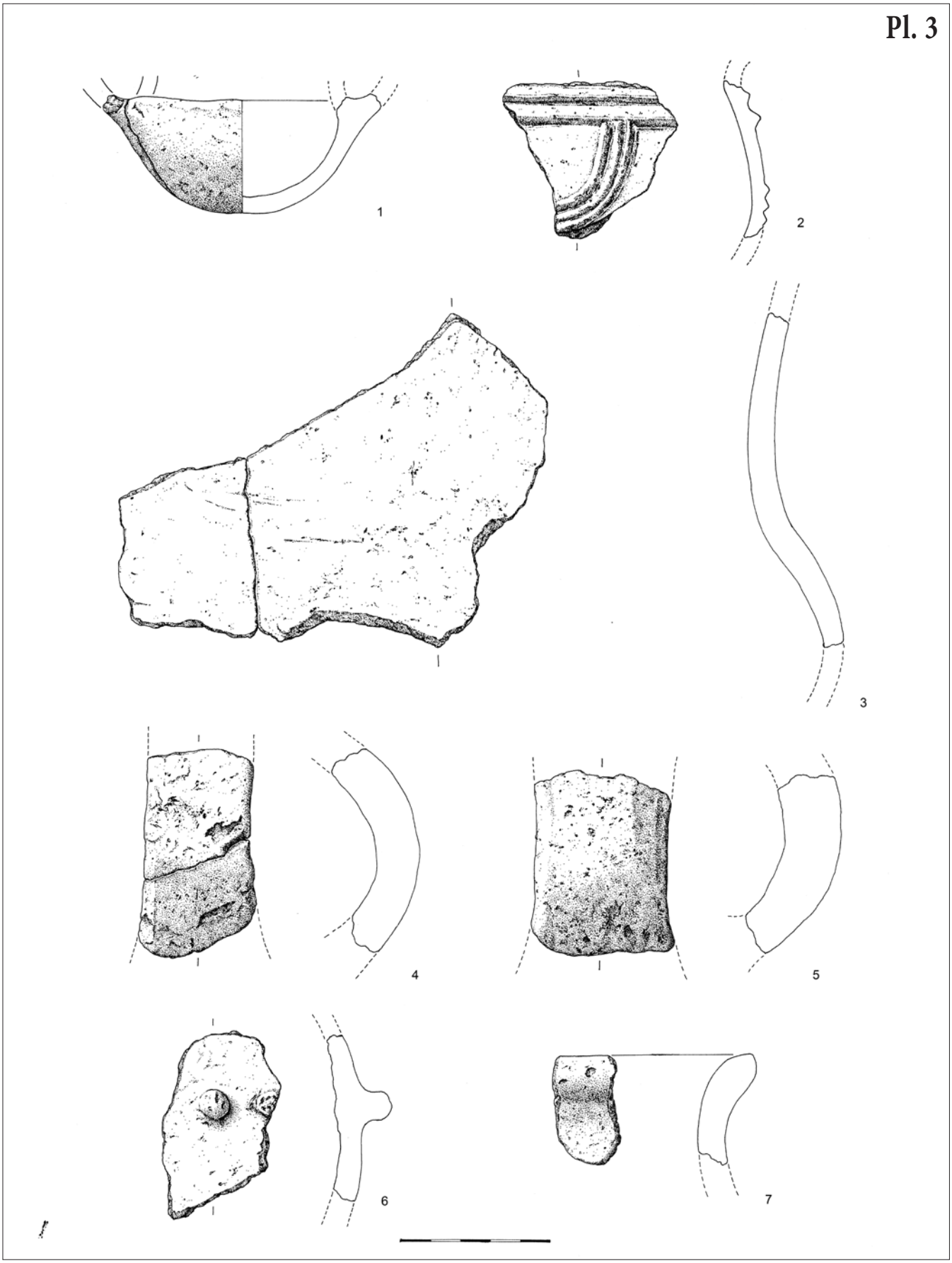


Pl. 1 Finds from a Late Bronze Age house – SJ 136 (drawing by: M. Marijanović Lešić)

Pl. 2

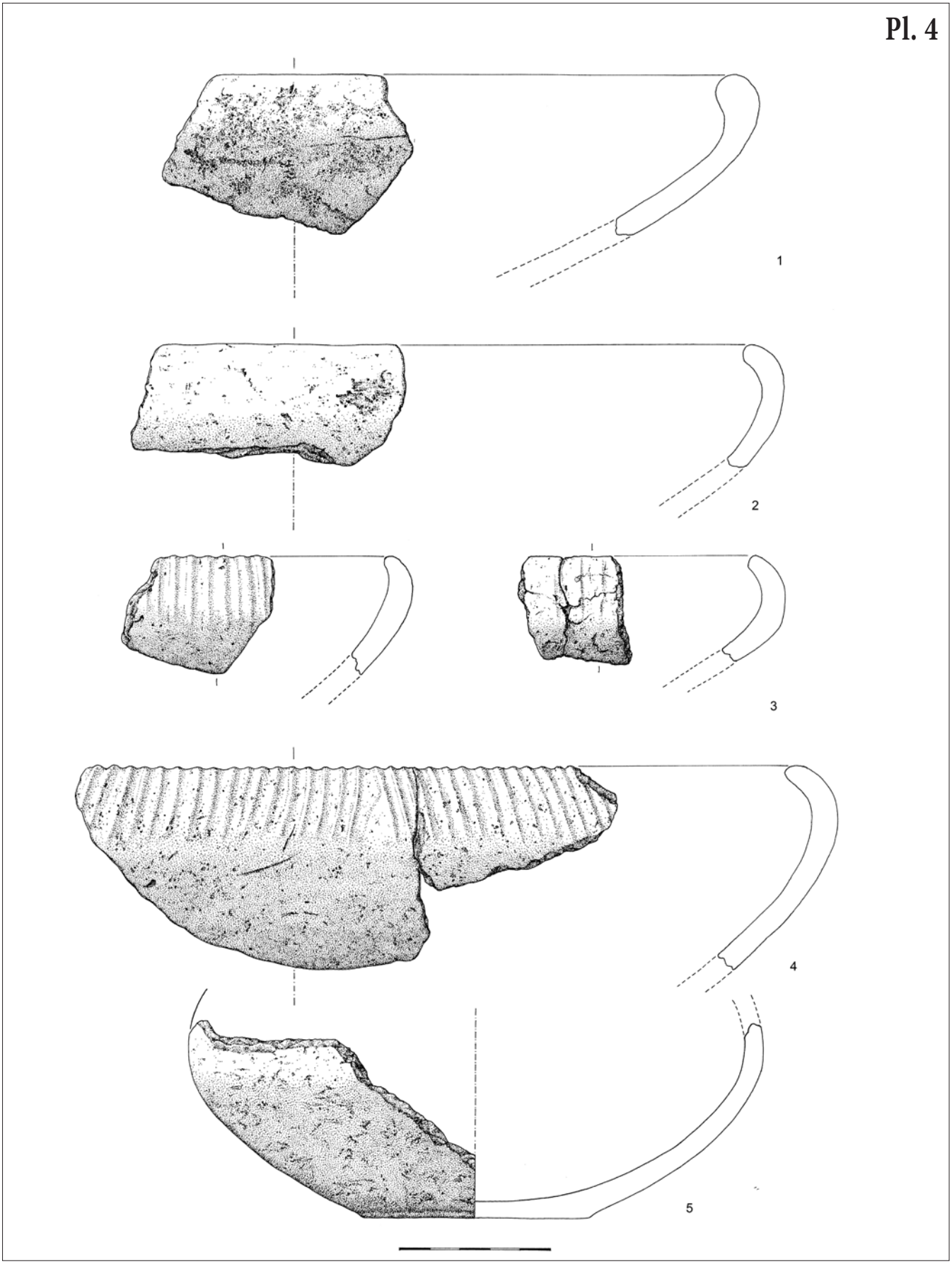


Pl. 2 Finds from a Late Bronze Age house – SJ 136 (drawing by: M. Marijanović Lešić)



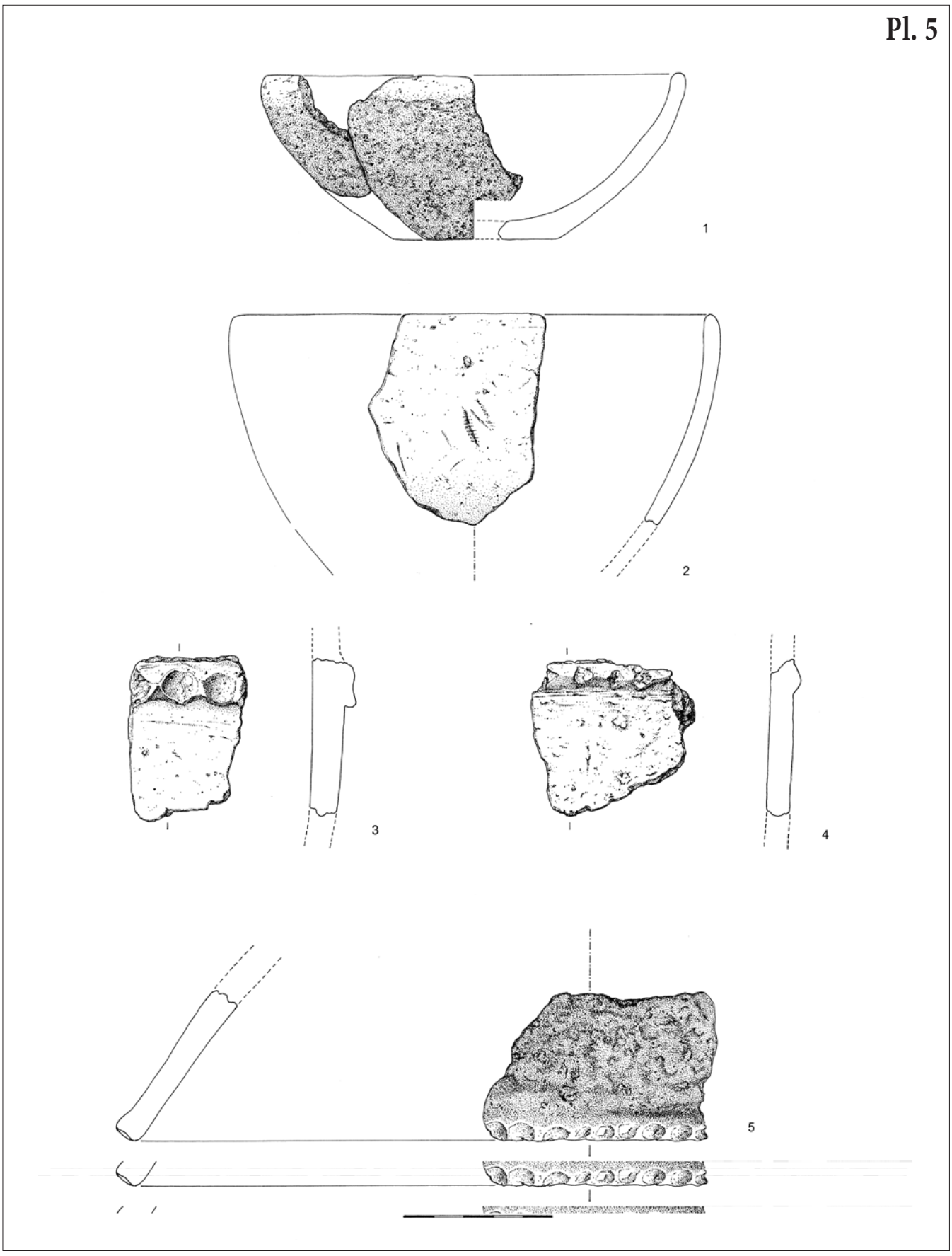
Pl. 3 Finds from a Late Bronze Age house – SJ 124 (drawing by: M. Marijanović Lešić)

Pl. 4



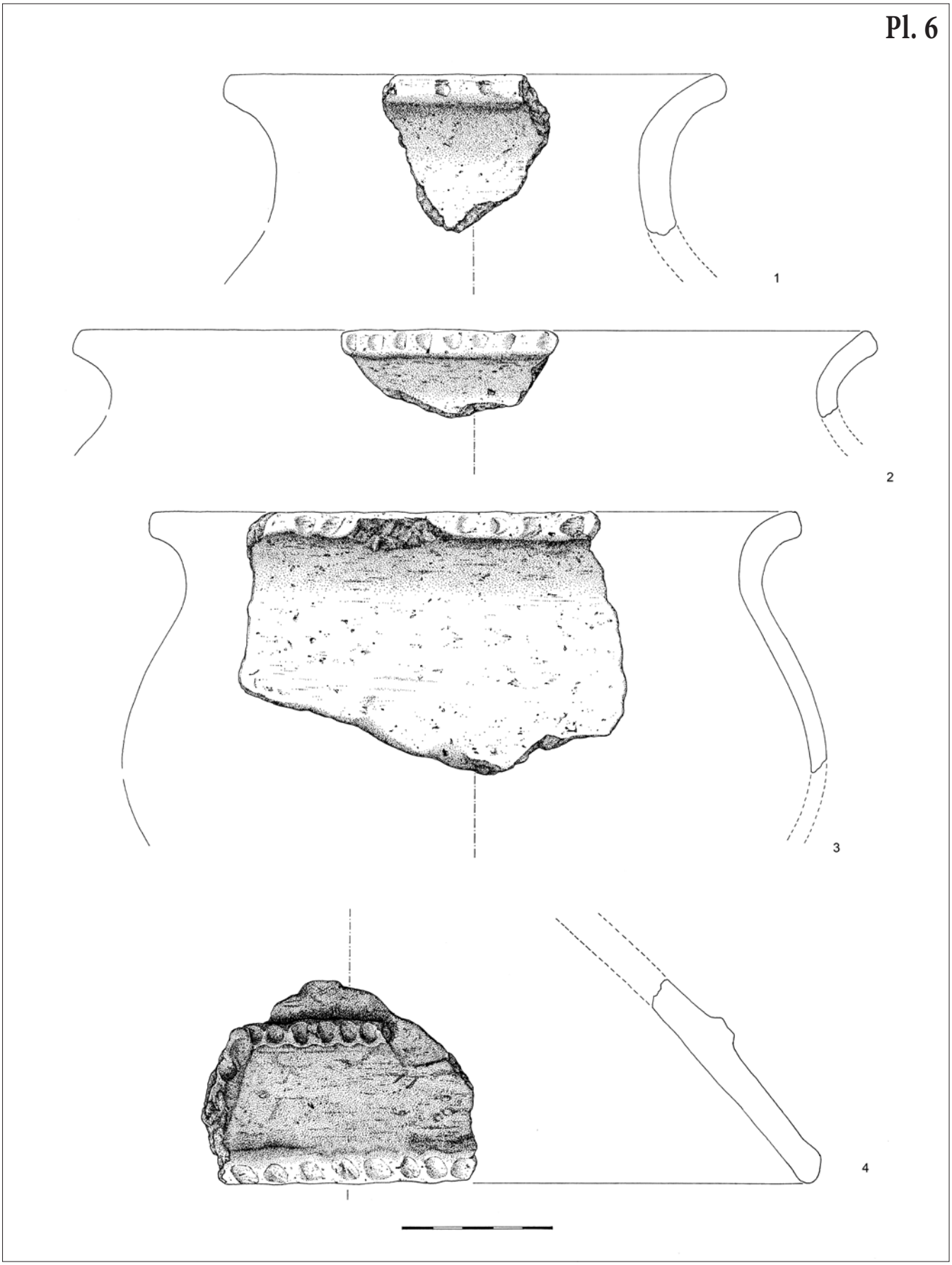
Pl. 4 Finds from a Late Bronze Age house – SJ 124 (drawing by: M. Marijanović Lešić)

Pl. 5



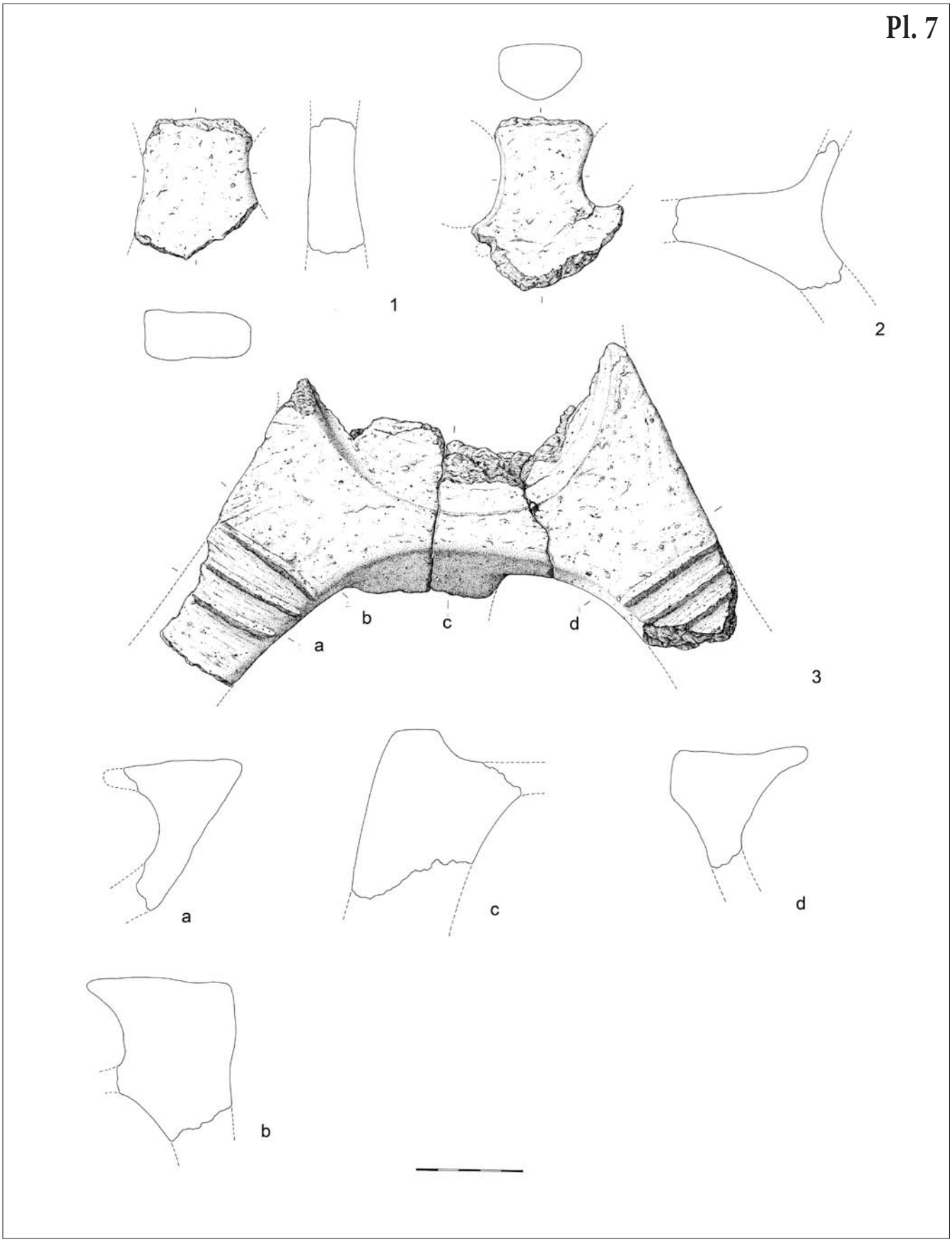
Pl. 5 Finds from a Late Bronze Age house – SJ 124 (drawing by: M. Marijanović Lešić)

Pl. 6



Pl. 6 Finds from a Late Bronze Age house – SJ 124 (drawing by: M. Marijanović Lešić)

Pl. 7



Pl. 7 Finds from a Late Bronze Age house – SJ 124 (drawing by: M. Marijanović Lešić)

BARBARA HORN, BRANKO MUŠIČ, MATIJA ČREŠNAR

Innovative Approaches for Understanding Early Iron Age Fortifications. Emphasize on 2D Subsurface Models in the Light of Electrical Resistivity Tomography

In the framework of our recent research projects also the 2-dimensional electrical resistivity tomography (2D ERT) surveys have been conducted at two prehistoric archaeological sites Poštela and Cvinger in Slovenia. They resulted in additional data of quantitative nature i.e. depth and composition of the buried defence structures, as well as the information on specific geological settings of the local environment. In this paper we are summarizing the results and interpretation of 2D ERT models in order to evaluate the method prospect, analyse and interpret the buried archaeological structures, focused on Early Iron Age fortifications. For that reason, we have tested the method on two archaeological sites, raised on diverse geological settings and fortified with varied defence structures. Based on resistivity distribution analysis, reliable quantitative interpretations of buried structures were enabled. They comprise depths, geometrical properties and characteristics of building materials used for defence structures with comments on the (geo)archaeologically significant resistivity anomalies.

Key words: Electrical Resistivity Tomography (ERT), Early Iron Age hillforts, defence structures, Eastern Slovenia

INTRODUCTION

The research of the Early Iron Age sites and landscape in Slovenia had an intensive upswing in the recent years. It was due to technological and methodological developments in archaeology as a whole, but also due to project based funding, which allowed us to test and develop new approaches. Besides remote sensing (e.g. ALS), it is also the use of various complementary geophysical methods, which play a crucial role of any interdisciplinary research of archaeological sites, even more when it comes to prehistoric settlements, e.g. Early Iron Age hillforts.

Our research approach is not fixed and without variations applicable on every site, but should be rather perceived as a toolbox, from which you take what you need and adjust it to natural or archaeological conditions (Mušič et al. 2015). Such a case are also the steep outer slopes of hillfort ramparts, often combined with defence ditches, which makes it sometimes impossible to apply any other geophysical survey method. Therefore, ERT method was – due to its nature of conducting field measurements – a very appropriate choice for our research ambitions. The difference between results of ERT and other methods is also, that with the exception of GPR, to a limited extent, magnetic and resistivity mapping surveys provide better horizontal extension than insight into the precise depth of buried structures or sediments. The later are always better obtained with ERT.

ERT method was applied at selected Early Iron Age hillforts with several 2D profiles over the defence systems, i.e. remains of ramparts and/or defence walls. Our aim was to evaluate the suitability of the method for research of such objects in general as well as to analyse and finally interpret buried archaeological defence structures on the basis of differences in calculated resistivity inversion models in different geological settings. Two of the studied examples are presented below.

ELECTRICAL RESISTIVITY TOMOGRAPHY

SHORT INTRODUCTION

The resistivity method is one of the oldest and the most commonly used geophysical methods (Reynolds 2011). Up to the late 1980's it has been used essentially as a one-dimensional (1D) mapping method, which was not sufficiently accurate even in moderately complex areas (Loke et al. 2013). Recent developments in field instrumentation, automatic interpretation algorithms and computer software have contributed to revolutionary improvement of the resistivity method over the last decades.

The successful archaeological application of ERT method includes non-destructive characterization of many types of archaeological features, such as buried walls, voids, passage-ways (Negri, Leucci 2006; Leucci et al. 2007; Orfanos, Apostolopoulos 2011), multi-layered settlements (Diamanti et al. 2005; Berge, Drahor 2011a; 2011b; Apostopoulos et al. 2014). It also allows the imaging of ancient city walls and monuments (Tsourlos, Tsokas, 2011), burial mounds (Papadopoulos et al. 2010; Tsourlos et al. 2014), tombs and their geometries (Matias et al. 2006; Elwaseif, Slater 2010). Furthermore ERT contributes to the understanding of geological and geo-archaeological features of archaeological sites (Similox-Tohon et al. 2004; Teixido et al. 2013; Mušič et al. 2015) and improves the comprehension of historic workflows and manufacturing processes (Leopold et al. 2011).

BASIC THEORY

Resistivity measurements are based on the fact that electrical conductivity and/or resistivity of archaeological objects often differ from the medium in which they are located. That is influenced mainly by factors that control the moisture distribution with ionic compounds in the ground, depending mainly on the amount of precipitation, texture, structure and consistency of the subsurface.

With the ERT method the distribution of the electrical resistivity of the subsoil is obtained by injecting electrical current into the ground and measuring the potential difference at two determined points of the surface.

The basic data from a resistivity survey are the positions of the current and potential electrodes (which form the geometric factor), the current (I) injected into the ground and the resulting voltage difference (ΔV) between the potential electrodes. The current and voltage measurements are then converted into an apparent resistivity (ρa) value by using the Ohm's law formula, where *k* is the geometric factor that depends on the configuration of the current and potential electrodes (Koefoed 1979):

$$\rho_a = k\frac{dV}{I}$$

The apparent resistivity values depend on the true resistivity distribution. The true resistivity distribution in the investigated medium can be estimated by an inversion procedure (Olayinka, Yaramanci 2000; Loke, Dahlin 2002; Athanasiou et al. 2007; Boonchaisuk et al. 2008; Wilkinson et al. 2012) based on the minimization of a suitable function. This function is generally the sum of the squared difference between measured and calculated apparent resistivities. The investigated medium is discretized in a 2D (or 3D) grid of cells, where each cell is assigned an initial resistivity value. A finite-difference (Dey, Morrison 1979a; 1979b) or finite-element (Silvester, Ferrari 1990) procedure computes the predicted apparent resistivity at the surface. The solution to the problem, as it is well known, is not unique. For the same measured data set, there is a wide range of models that can give rise to the same calculated apparent resistivity values. To narrow down the range of possible models, normally some assumptions are made, concerning the nature of the subsurface (i.e. geology of the subsurface, whether the subsurface bodies are expected to have gradational or sharp boundaries) that can be incorporated into the inversion subroutine.

The results of inversion represent the final 2D or 3D subsurface models with true subsurface resistivity distribution. Based on the results we can make assumptions on materials, located below the surface, as well as on types of archaeological structures and/or cultural layers and their spatial extension/distribution.

SITE DESCRIPTION

Early Iron Age hillfort Poštela is located in NE part of Slovenia (Fig. 1), on the SE fringes of Pre-Alpine Pohorje hills above the Drava River plain, near the city of Maribor, occupying a sloping area of app. 5.9 ha at an altitude of 490–540 m asl. Cvinger near Dolejske Toplice settlement lies in SE part of Slovenia on Dinaric Karst environment near Dolenjske Toplice (Fig. 1). It is located to overlook the Krka river plain with a position on a lower hilltop at the altitude 250–265 m asl and covers an

Fig. 1 Geographical locations of research areas at the Early Iron Age settlements Poštela and Cvinger (source: Google Earth, modified by B. Horn)

area of 3.4 ha. Both are completely overgrown with forest.

Poštela is placed on the Austroalpine Pohorje massiv (*Pohorski pokrov*) – paleozoic metamorphic complex, which is the south-eastern most extension of the Eastern Alps and was formed during the Eoalpine orogeny. It occupies a weathered amphibolite plateau (Fig. 2, 3) with many gravitational and alluvial debris flows noticeable down the hillslopes in its surrounding.

Cvinger is settled in a geologically different environment in the Dinaric Karst of Norther Dinaric Alps, built from carbonatic rocks – stratified limestone (Fig. 2, 4), formed on a shelf of a shallow sea in Jurasic period (Pleničar, Premru 1977). The most common geological and geomorphological phenomenon karstic areas are dolinas (or sinkholes), which are also present at location.

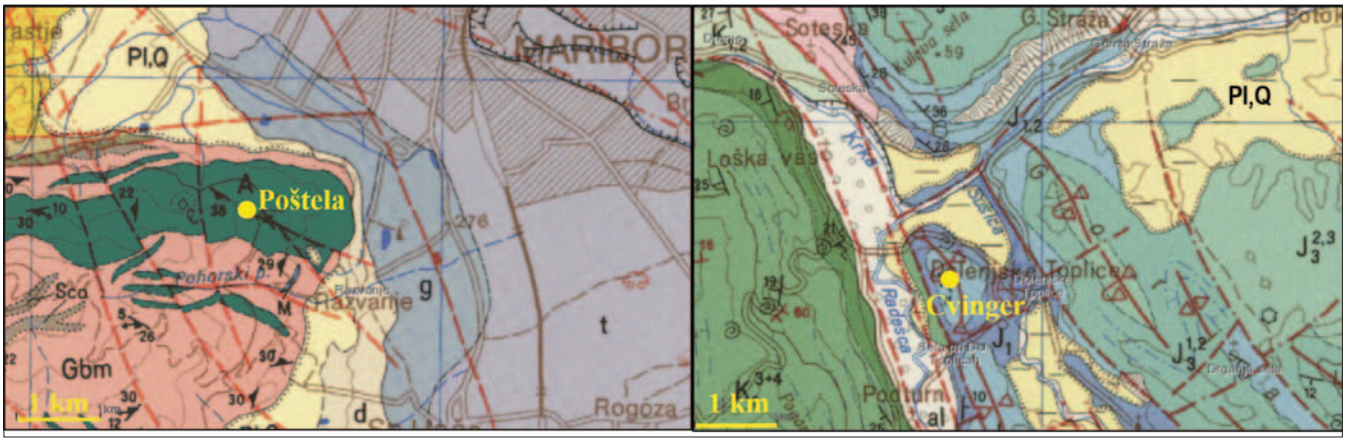


Fig. 2 Geological maps of the researched areas. Left: Poštela: A – amphibolite; Gmb – muscovite-biotite gneiss; Pl, Q – conglomerates, sand, sandy clay, clayey gravel; g–sandy clay; t – fluvial terraces. Right: Cvinger: $J_{1,2}$ – light grey stratified limestone with ooliths (upper lias, dogger); Pl, Q – brown loamy weathered sediment and terra rossa (source: Osnovna geološka karta Slovenije / The basic geological map of Slovenia, excerpts of pages Maribor (left) and Novo Mesto (right), link: http://biotit.geo-zs.si/ogk100/, modified by B. Horn)

POŠTELA

Poštela hillfort is surrounded by a monumental rampart, clearly discernible on ALS map (Fig. 3). The archaeological complex also encompasses three bigger groups of burial mounds and some isolated burial mounds, as well as a flat cremation cemetery. It is known as one of the most important Early Iron Age centres in the broader region (Teržan et al. 2012). On the basis of previous archaeological investigations its several phases of occupation can be followed from the end of 9th century BC until 10th century AD, however with century long hiatuses (Teržan 1990). In the recent years, since 2011, a new wave of research is underway. It also includes extensive geophysical surveys, applying magnetic method, GPR method, resistivity and susceptibility mapping, low-frequency EM method and ERT method (Mušič et al. 2015).

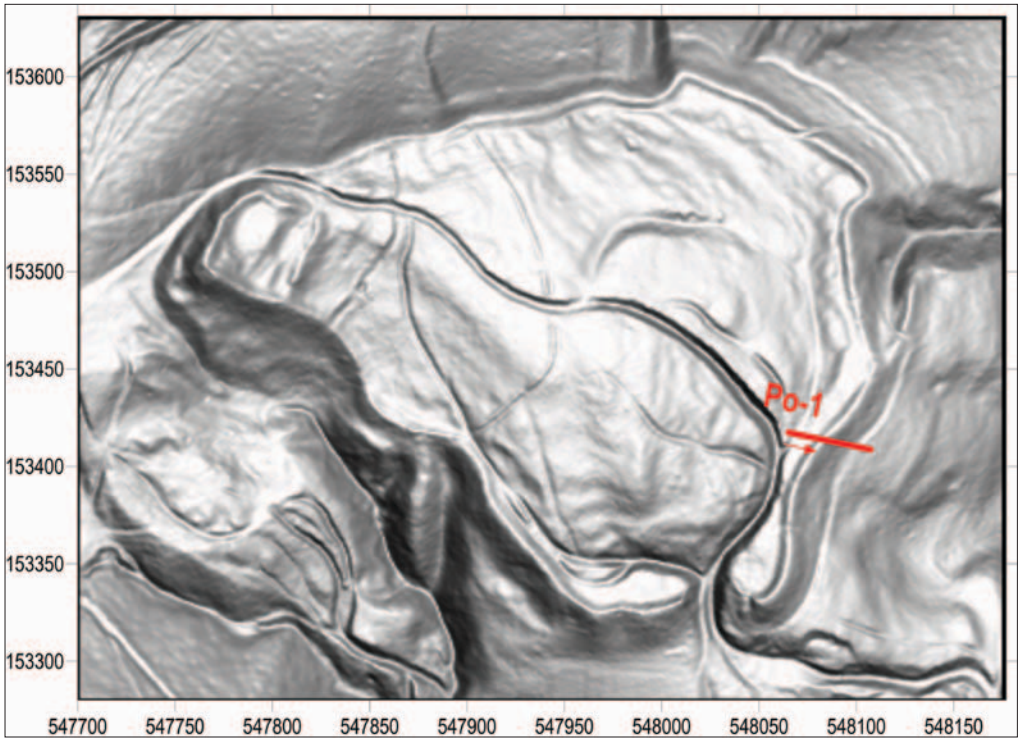


Fig. 3 Hill-shaded DTM of Poštela with the position of ERT profile Po-1. Arrow shows the direction of profile measurements (see also Fig. 5), (source: Agencija RS za okolje / Slovenian Environment Agency – Lidar, modified by B. Horn)

ERT profile Po-1 was measured across the SE part of the rampart for two purposes (Fig. 3). The first was to investigate the geological composition of bedrock beneath the rampart, i.e. to determine whether this part of Poštela settlement is built on a massive mass debris flow, or on relatively solid amphibolite bedrock. The second was to determine the height of the rampart and to define the border between anthropogenic layers and natural geological materials.

CVINGER

According to the results of previous archaeological excavations, the Cvinger settlement was first occupied in the end of Late Bronze Age, when it was fortified with an earthen rampart consolidated with wood (Dular, Križ 2004). After that, it was abandoned until the Late Hallstatt period, when it was inhabited again and fortified with a defence wall, made of limestone. Besides the settlement, the archaeological complex of Cvinger encompasses also three burial mound cemeteries and an iron-production area. The later was investigated already in 1998, when geophysical prospections with magnetic method and magnetic susceptibility method were carried out, to determine the archaeological potential of the iron-production centre (Mušič, Orengo 1998).

The ERT survey was carried out in 2016 on the SW side of the fortification remains (Fig. 4) in order to estimate the dimension of buried remains of the Iron Age defence walls, as well as to possibly estimate the height of the Late Bronze Age rampart beneath it and above the solid limestone bedrock.

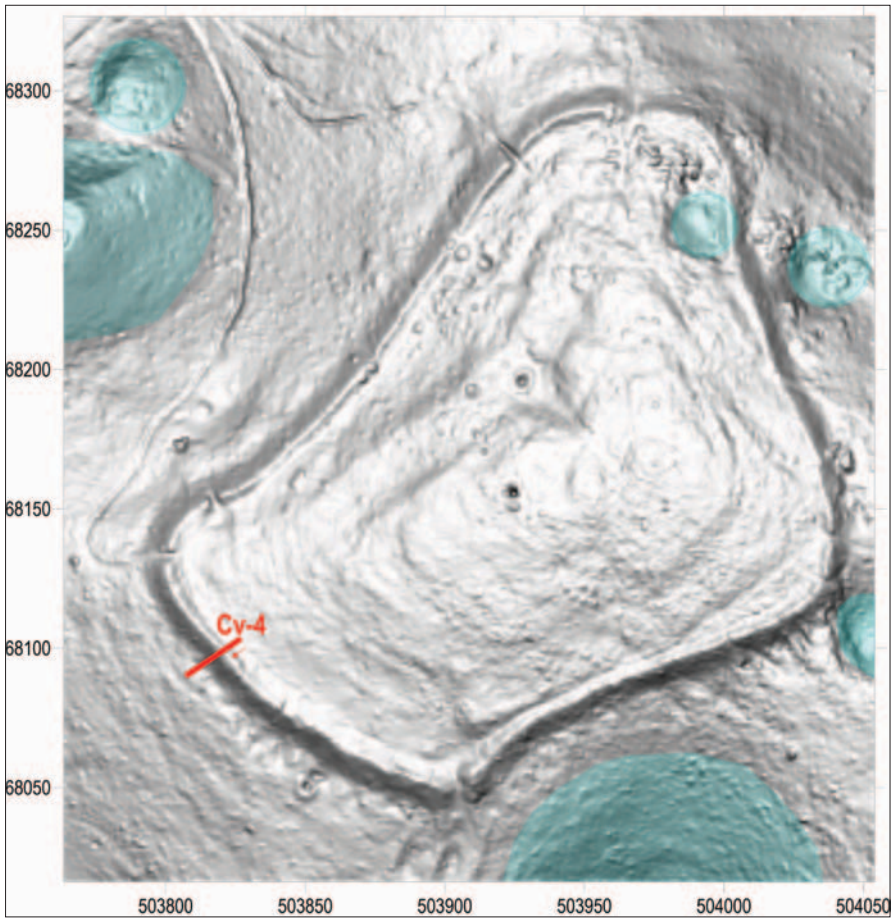


Fig. 4 Hill-shaded DTM of Cvinger with the location of ERT profile: arrow shows the direction of profile measurements – see also Fig. 6; dolinas are coloured in light turquoise (source: Agencija RS za okolje / Slovenian Environment Agency – Lidar, modified by B. Horn)

SURVEY DESIGN AND DATA PROCESSING

Resolution, depth of investigation and lengths of 2D ERT profiles were carefully chosen with the optimum electrode spacing as well as electrode configuration at each location according to the expected dimensions and depths of archaeological structures. *Dipole-dipole* array is very sensitive to horizontal changes, but relatively insensitive to vertical changes in resistivity. Thus it is an excellent choice for mapping vertical structures, such as walls and caverns, but relatively poor in mapping horizontal structures such as sedimentary layers. *Wenner Alpha* is a robust array, relatively sensitive to vertical changes and less sensitive to horizontal changes in subsurface resistivity. Thus it is good in resolving vertical changes (i.e. horizontal structures), but relatively poor in detecting horizontal changes (i.e. narrow vertical structures). *Wenner-Schlumberger* array is moderately sensitive to both horizontal and vertical structures and can be a good compromise between the *Wenner Alpha* and the *dipole-dipole* array in areas where both types of (geo)archaeological structures are expected.

In order to reduce a possible side objects effect, both profiles were positioned perpendicular or at least nearly perpendicular to the main objects under investigation (Fig. 3–4).[1]

At Poštela 1 m electrode spacing was used for the profile length of 47 m (Po-1) in order to achieve greater depth of investigation (app. 8 m) for detection of amphibolite bedrock below the rampart. All three available electrode configurations were used: *dipole–dipole*, *Wenner-Schlumberger* and *Wenner Alpha*. Joint inversion modelling (Athanasiou et al. 2007) was applied for all three configurations data sets.

In order to obtain a better resolution for the insight into the position of fortifications above the limestone bedrock the profile over the fortifications at Cvinger was measured with *dipole-dipole* configuration with 0.5 m electrode spacing.

Both measured resistivity pseudo-sections were modelled with *Res2Dinv* inversion program (*Geotomo software*). Robust inversion was applied with finite-element method and integrated topography with the distribution of model cells

1 At Poštela we had to direct the survey line under the certain angle (Fig. 3), where it was possible to place the line among the lush undergrowth.

with inverse *Schwartz-Christoffel* transformation, based on a quantitative approach with generating the distribution of model cells based on the sensitivity values of the model cells to ensure that the data sensitivity of any cell does not become too small (Loke 2016). Also model refinement was used in all models, each with half width of one unit electrode spacing and for the joint inversion models with quarter width of one unit electrode spacing.

RESULTS

POŠTELA

Based on different resistivity values we can distinguish four layers (Fig 5: A1–A4) of the rampart with the total thickness of up to 3 m. The recognized layers do not necessarily correspond with the different chronological phases of the rampart, although they are quite similar to the results of the trial trench excavated by B. Teržan in 1980 (Teržan 1990, 299–306). However, for a more reliable interpretation, archaeological excavations would be needed.

The most probable boundary between archaeological and geological layers is at the depth around 2 m in the settlement, up to 3 m below the rampart, and a bit less than 2 m on the outer rampart slope. Under the rampart, at depth of 5–8 m, as well as at the inner side of the settlement there is medium resistivity area block (Fig 5: E–120 Ωm).Taking into consideration only the measured values, it could be interpreted as partially weathered amphibolite, as the unweathered amphibolite should have much higher resistivity (at least 800 Ωm, and up to a few 1000 Ωm). However, it can be better explained with the lower sensitivity at deeper parts and therefore lower resolution of the ERT method with depth. This effect usually causes the objects at greater depths to appear as much lower resistivity values on 2D models, or the objects are not sensed at all in the case of using conventional arrays like *dipole-dipole*, *Wenner-Schlumberger* and *Wenner Alpha* (Loke et al. 2010). Area E (Fig. 5) thus most likely represents high resistivity compact amphibolite blocks under the rampart, and below the settlement with dimension app. 4 × 3 m. There is a relatively sharp boundary between the bedrock under the settlement and the area beneath the rampart, which presumably indicates a fault in the bedrock (Fig. 5: PF). Most probably this is a consequence of the meteoric water flow in the weathered, partially resedimented subjacent fine grained colluvium material (Fig. 5: F). It has lower resistivity in comparison to the less weathered sediment under the settlement (Fig 5: G).

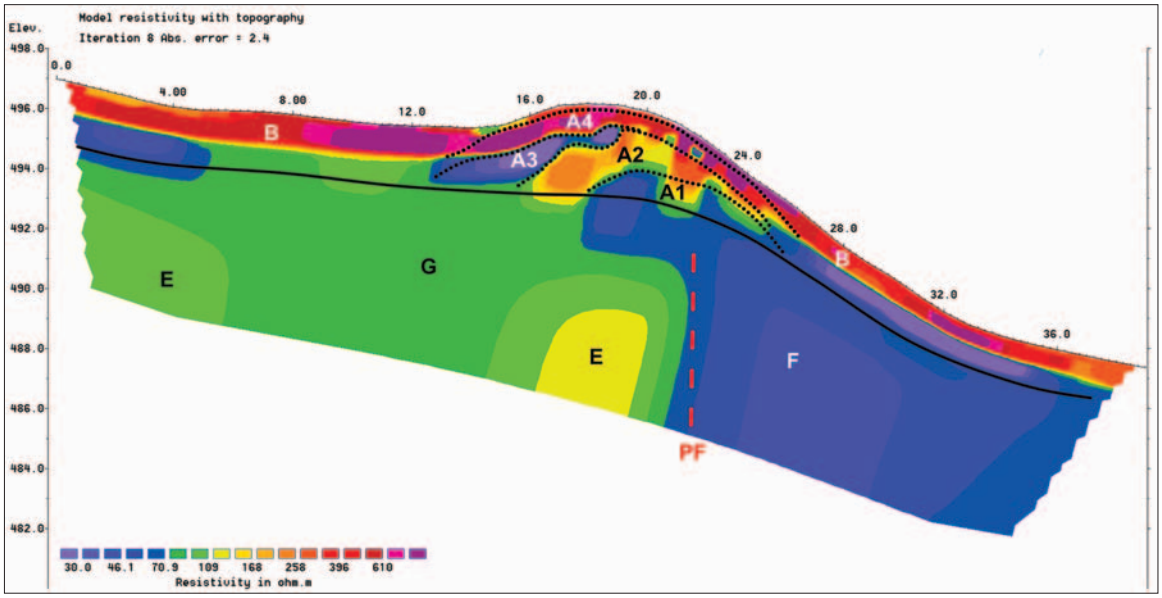


Fig. 5 Poštela, ERT model Po-1. Four resistivity layers of the rampart (A1–A4). A1: low resistivity – clayey to sandy material; A2: medium resistivity–medium to course grained material; A3: very low resistivty – clayey material with higher moisture content; A4: high resistivity – top layer; B – horizon with high resistivity down to 1 m depth and low to medium resistivity below (to 2 m depth); G and F – medim and low resistivity sediment (weathered amphibolite); E – compact amphibolite block; PF – probable fault in bedrock; Solid black line – most probable boundary between archaeological and geological layers (around 2 m in the settlement, up to 3 m below the rampart, and a bit less than 2 m on the outer slope), (author: B. Horn)

CVINGER

The profile Cv-4 shows a good distinction of different layers, therefore we tried to compare it with results of previous excavations of the site (Dular and Križ 2004). The high resistivity areas in the upper part of the profile are most probably corresponding to the Early Iron Age defence wall ruins, predominantly consisting of limestone (A and A1), with thickness

up to 0.7 m. High resistivity anomaly continues into the settlement towards high resistivity archaeological features (D), up to 0.8 m thick. Also a low resistivity area (B), significant for clayey sediments, is visible under the defence wall, which could represent remains of older Late Bronze Age rampart, later used as the base for the Early Iron Age defence wall, built of stone. Solid limestone (E) forms a convex shaped step, which made it a convenient location for building of the defence system.[2]

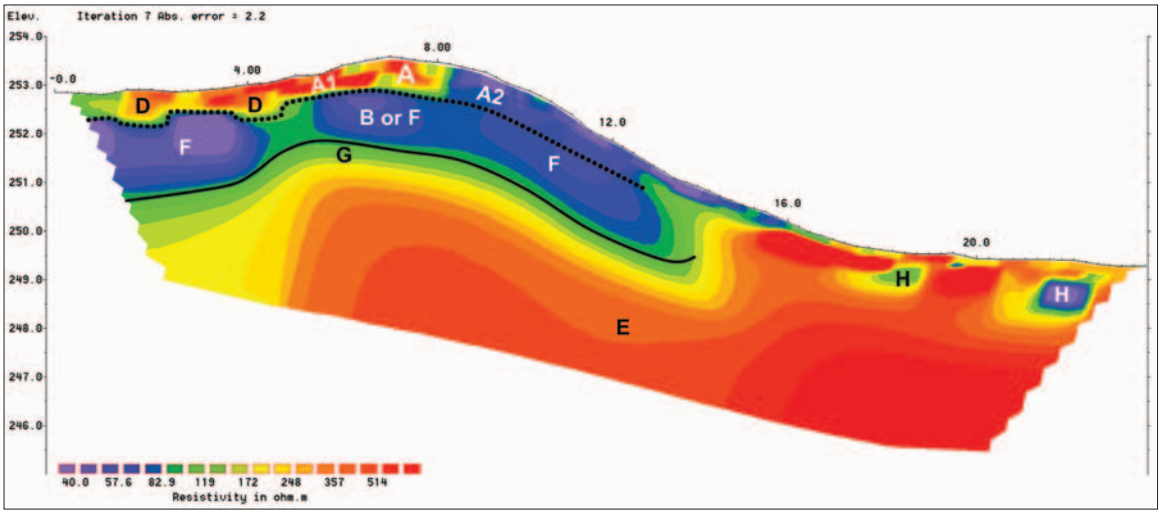


Fig. 6 Cvinger, ERT model Cv-4. A – high resistivity remains of the Early Iron Age defence wall made of limestone, with ruins on the inner side of the wall, with thickness up to 0.7 m (A1); A2 – low resistivity clayey sediment on the outer side of defence wall; B – low resistivity area with thickness of app. 1 m, probably corresponding to a Late Bronze Age rampart; D – high resistivity archaeological features made of limestone on the inner side of defence wall, with a depth of up to 0.8 m; F – low resistivity area of fine grained clayey sediment with high moisture content; G – medium resistivity weathered limestone; E – high resistivity limestone bedrock; H – smaller medium to low resistivity areas in bedrock near the surface could be the areas of extracting limestone, or areas of accelerated weathering. Solid black line represents the maximum depth of app. 2 m below the surface, up to where archaeological cultural layers can be expected, (author: B. Horn)

DISCUSSION

At Cvinger settlement solid limestone bedrock appears close to the surface. At Poštela hillfort the situation is different, solid amphibolite lies buried under several meters of weathered sediments. Although the main purpose of ERT profile at Poštela was geoarchaeological i.e. to investigate the possible presence of amphibolite bedrock under SE part of the rampart (resolution with 1 m electrode spacing is normally too rough for a detailed investigation of the rampart composition), it turned out, that we can distinguish internal structure of the rampart very well (Fig. 5). Four layers of the rampart with total thickness of 3 m are distinctable. A solid amphibolite block was unveiled under the rampart at a depth of 5 m, and the fault is present between the settlement area and the slope of the rampart. On the basis of these results it can be concluded, that this part of Poštela rampart was set on a amphibolite plateau, which was weathered down to several meters. Its formation is the consequence of a range of geological factors, among which two can be explained from this ERT profile. The first one is of tectonic origin, because a fault is present here. The other is of geomorphological origin. Along the fault zone the weathering was accelerated with meteoric water flow through the cracks with the consequence of gravitationally resedimented weathered material to the lower altitudes down the slope.

The ERT profile at Cvinger shows a very good distinction of the high resistivity Early Iron Age defence wall, made of extracted limestone blocks. Bellow this defence wall also remains of a Late Bronze Age rampart are recognized. However, deeper geoarchaeological features were also under investigation and broader horizontal coverage was beneficial, so the 0.5 m electrode spacing with 48-electrode measuring system was the optimal choice at this hillfort, located in karstic environment. The defence walls with ruination material are still well recognizable, while the bigger picture of the whole defence system structure is gained as well as insight into wider geoarchaeological environment. At this part of Cvinger, the

2 The limestone bedrock can be observed at depths 2 m, respectively.

solid limestone bedrock forms the convex shape base, which is a suitable predisposition for the erection of an Early Iron Age defence system. *Dipole–dipole* electrode array is most often the best choice for recognition of vertical archaeological remains and in karstic geological environments like Cvinger it is of crucial importance for detecting pits and caverns filled with thick layers of *terra rossa* soil.

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ROMAN KŘIVÁNEK

Fortified Sites in Bohemian Archaeology from the View of Application of Non-Destructive Geophysical Methods

The Czech landscape includes very various fortified sites built in different dimensions and periods. Only some of these fortified sites were verified mainly by small scale archaeological investigation. The other fortified sites are also without any archaeological trenching, research or exact dating. Application of geophysical measurements can bring in larger scale new information about subsurface preserved archaeological situations, fortifications, settlement and other activities. Five chosen examples of magnetometer or resistivity surveys in this paper should illustrate different possibilities of geophysical methods of various fortified sites. Their results could be used in archaeology, conservation and also heritage care of intangible archaeological monuments.

Key words: geophysical survey, non-destructive archaeology, hillfort, fortification, Bohemia, archaeological prospection

INTRODUCTION

Archaeological sites in the Czech Republic vary greatly with respect to location, scale, extent, structure and character of internal or outer activities. Of course, the intensity of all anthropogenic activities was not the same during different prehistoric, early medieval, medieval and/or post-medieval periods. The dimensions of different fortified sites are also very variable, ranging from 0.X ha to more than 100 ha (e. g. Čtverák et al. 2003). But the variety and density of these sites was also always connected with the landscape, the character of land use and social conditions and relationships varying during the time. Diverse types of fortified sites (prehistoric hillforts, Celtic oppida, early medieval hillforts, smaller medieval strongholds or motte, medieval or modern castles, military camps, etc.) were built in specific, strategic or dominant places in the varied terrain of the Czech landscape. Quite often fortified sites played a very important role in these communities, sometimes on a local, frequently regional, but sometimes even on a superregional scale. These were confirmed by archaeological excavations of some particular areas or situations at these fortified sites. However due to the very large scale of these sites, we have detailed archaeological information and more precise dating from only 1–2% of fortified sites. The scale of sites and the real (financial, personal, time) possibilities of archaeological research do not offer detailed information about more than only smaller areas at some chosen sites. But in many cases, we also did not conduct archaeological excavations at these sites. In a new era of accessible new spatial information (e.g. aerial prospection, remote sensing, LIDAR, etc.) we also have new, unknown, unprotected and fully unexcavated fortified sites. In all of these stages (provided the sub-surfaces layers are preserved *in situ*), we can very effectively use non-destructive geophysical methods and various techniques (e. g. Křivánek 2008; 2010; 2011; 2015a; Křivánek, Drda, Danielisová 2013; Křivánek, Tabaka 2014). The combination of the results of archaeological investigations (or other non-destructive survey methods) with results in the form of various geophysical measurements can be used for identification, documentation and mapping only in subsurface preserved archaeological situations on the scale of individual archaeological contexts or the whole site (Mařík, Křivánek 2012; Křivánek 2013b; 2015b).

METHODS OF GEOPHYSICAL SURVEY

The application of various geophysical measurements at archaeological sites in the Czech Republic (and in the former Czechoslovakia) has a long tradition (67 years). The first archaeological situation (the rampart of the early medieval Old Kouřim hillfort) was verified by geophysical resistivity profile measurement in 1950 (Šolle 1977). Various prehistoric hillforts, other enclosed areas or Slavic hillforts were observed using partial geophysical surveys in several archaeological projects. Surveys were often targeted at specific areas of sites and brought new knowledge about the construction of fortifications, the location of gates, paths and the locations of specific activities. But during the last decade new ways of applying non-destructive geophysical methods for the survey of the whole sites has created new possibilities for the use of geophysical data. Of course, various geophysical methods have different specific limitations, distinct performance and possibilities in the field and a different speed or processing of collected data. In the case of fortified sites in the Czech Republic, magnetometer and geoelectrical resistivity surveys have been the two main geophysical methods for a long time. Only in some specific areas of fortified sites were other geophysical techniques also applied, including electromagnetic or profile GPR measurements. For magnetometer surveys of larger arable fields, pastures or meadows, various types of magnetometers were used. This paper includes results from a gradient variant of the Smartmag SM-4g (Scintrex) caesium vapour magnetometer with single-profile measurement and an approximate 1.0 x 0.25 m network of data. Caesium magnetometer was intensively used for surveys in 1998 and 2010. Later a five channel Magneto-Arch magnetometer system with FMG-650B (Sensys) fluxgate gradiometers was used to obtain parallel five-profile measurements with a data density of 0.5 x 0.2 m. This instrument was used in presented results from 2010 to 2016 in this paper. Some particular areas of fortified sites with an assumed stony construction were then subsequently surveyed using geoelectric resistivity measurements with the RM-15 instrument (Geoscan Research) with a simple apparatus in Wenner or Schlumberger configuration with four separate electrodes (A0.5M0.5N0.5B or A1M1N1B) and a common grid net of 1 x 1 m. A combination of magnetometer and resistivity measurements seemed very efficient in specific particular areas of fortification or other areas inside fortified sites (e. g. gates, roads, ramparts, specific settlement, production or other activity, forested areas, etc.; Křivánek 2013b; 2015a; Křivánek, Tabaka 2014).

EXAMPLES OF RESULTS

A. Geophysical survey of a large area of the prehistoric hillfort near Zlončice in central Bohemia represents the non-destructive result of the verification of a new fortified site to date without any archaeological excavation. This site was discovered only from surface artefact collections (prehistoric and mainly Neolithic finds) by an amateur regional archaeologist. The system of fortification of the site situated on a wider elevated promontory over the Vltava River had never been identified from aerial photographs. But due to the intensive magnetometer prospection, we could finally in 2010 confirm three systems of ditch fortifications of the promontory (Fig. 1; also Křivánek 2013a: obr. 2, 3 or 5; Křivánek 2015a: fig. 27.1). The inner fortification system consists of three parallel bows of ditches with an analogous interruption situation near the SW edge of the promontory. The middle fortification system consists of two ditches interrupted in the middle of the promontory. These two systems fortify an area of about 8–9 ha with very intense settlement activity (many oval magnetic anomalies from probable pits). The outer fortification system consists of one single ditch with some remains of another

Fig. 1 Zlončice, district Mělník. Comparison of aerial photograph and result of magnetometer survey with interpretation of ditch fortifications and entrances on base map (source: www.kontaminace.cenia.cz; surveyed area: approx. 9.5 ha; survey: Křivánek, 2008–2010)

ditch in superposition. The outer fortified area was probably not as intensively settled (only individual oval magnetic anomalies from pits), but some parts were damaged by a trench for a metal water pipe line. Magnetometer measurements together with additional geophysical resistivity surveys provided no indications or relics of internal ramparts. The total fortified area of newly confirmed immovable archaeological monument is about 12–13 ha, and more accurate dating of the probable prehistoric hillfort will be possible after archaeological verification.

B. Geophysical surveys of a narrow sloped area with a headland above the Kokořín valley formed by sandstone rocks near Bosyně in central Bohemia documents an efficient way of survey of polycultural sites with changes in fortifications in different periods. Geophysical verification of the Hallstatt and early medieval site (with later medieval/modern reuse of the headland for a stronghold or small castle) confirmed results of archaeological finds from surface artefact collections and results of aerial prospection. A full-area magnetometer survey in 2001 included all of the ploughed fields and confirmed two hillfort fortifications (Fig. 2; also Křivánek 2000: obr. 1 and 6; Křivánek 2003: fig. 1). The inner fortification system consists of an inner ditch, rampart and outer ditch. The outer fortification system consists of only a single ditch. Unfortunately, these fortifications were heavily destroyed by deep ploughing during the second half of the 20th century. From additional more detailed magnetometer measurements together with a resistivity survey in 2012, we can only separate the last subsurface remains of the inner fortification. In the data from magnetometer, we can identify the inner and outer ditch and some interrupted and irregular magnetic changes at the site of the original rampart. In the data from resistivity, we observe only small resistivity changes without the expected increase of resistivity at the site of the original central rampart – the stone structure of the original rampart was nearly totally destroyed (visible only scattered blocks of stones in the ploughed zone). Geophysical measurements of the fortified area of approx. 1.5 ha confirmed very dramatic landscape changes and the poor state of subsurface preservation of the hillfort fortification.

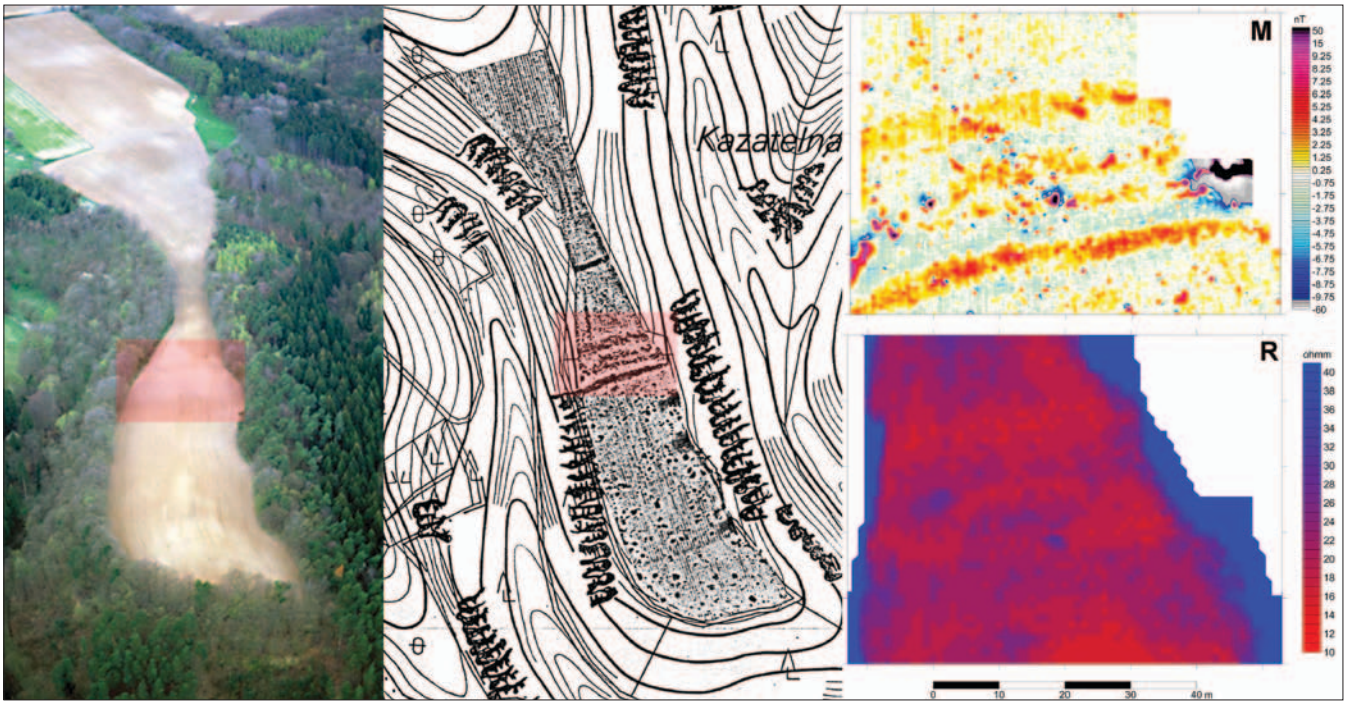

Fig. 2 Bosyně, district Mělník. Comparison of aerial prospection, result of magnetometer measurement of prehistoric and early medieval hillfort with detail of comparison of magnetometer (M) and resistivity (R) measurement of area of ploughed out fortification system (source: M. Gojda - archive of the Institute of Archaeology, CAS, Prague, v.v.i. surveyed area: approx. 2.5 ha + 2x 0.26 ha, survey: Křivánek, 2001 and 2012)

C. The geophysical measurement of large inner areas of the Late Bronze Age and early medieval hillfort near Levousy in north Bohemia represents a new non-destructive result of documentation of the archaeologically documented site with different activities in various periods (Zápotocký 1992). Archaeological excavations of the inner rampart by trenching in 1967 (Váňa 1973) and many surface artefact collections confirmed different prehistoric periods of the settlement (Neolithic, Eneolithic, Iron Age) of the dominant terrace over the south bank of the Ohře River. The first fortification of the originally smaller hillfort was dated to the Late Bronze Age, while the Slavic hillfort was enlarged during the 9th–10th

century AD to a fortified area about 12 ha. But the landscape of the hillfort was also later changed by modern activities, as the strategic location was reused for military purposes during the Austro-Prussian War in the second half of the 19th century. Remains of prehistoric/early medieval settlement and modern military activities were also observed here from aerial prospections. This mixture of various activities at the site were also confirmed by the results of a magnetometer survey in 2015 (Fig. 3; also Křivánek 2017: fig. 2) revealing the many remains of sunken settlement features, the remains of unknown internal divisions, but also the subsurface linear remains of military polygons (two redoubts – fortifications) and magnetic

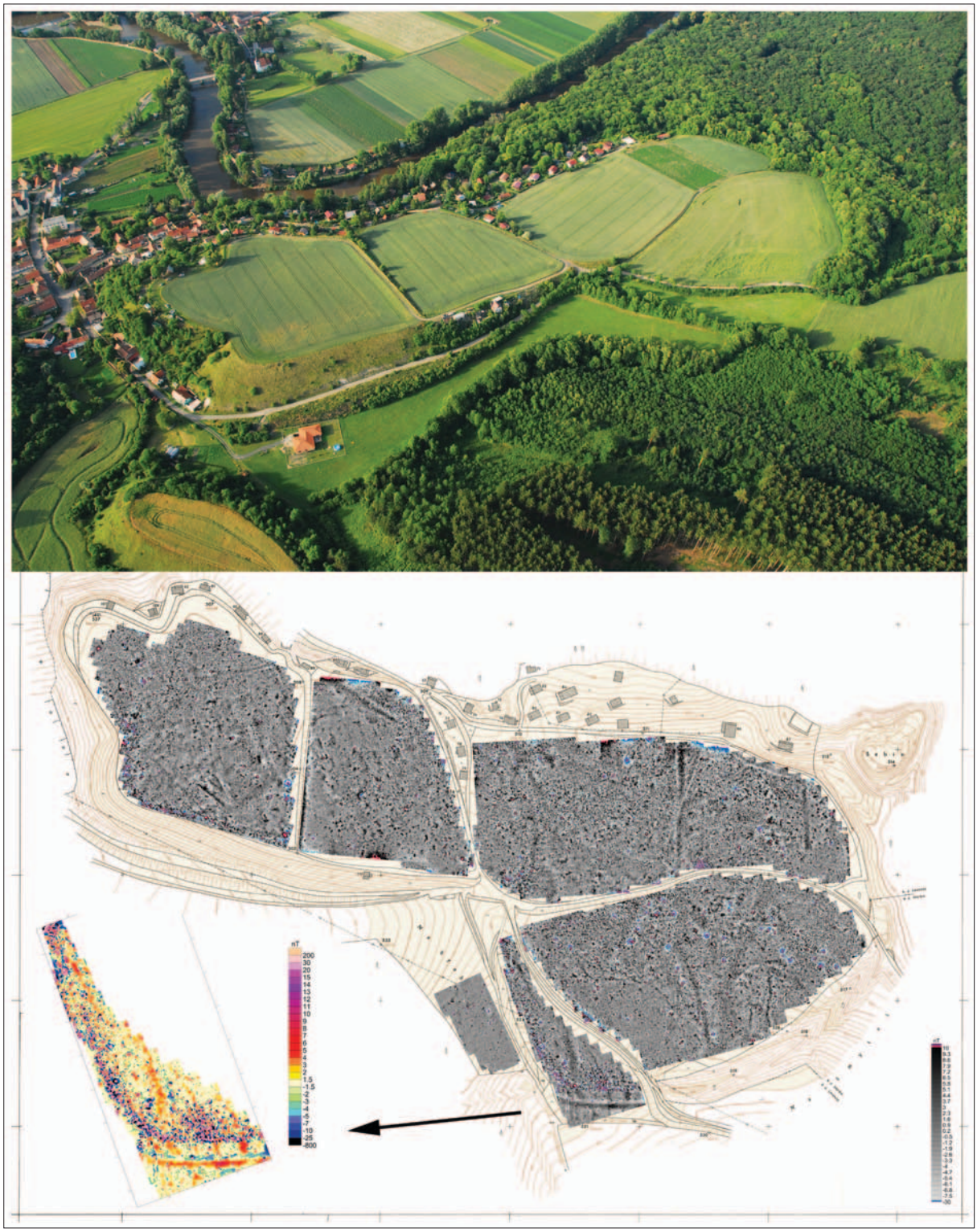

Fig. 3 Levousy, district Litoměřice. Comparison of results of aerial and geophysical prospection of the prehistoric and early medieval hillfort with detail of detected high magnetic destroyed perimeter rampart fortification and other linear remains of military activities from the Austro-Prussian War in the second half of the 19th century (source: M. Gojda - archive of the Institute of Archaeology, CAS, Prague, v.v.i. surveyed area: approx. 9.8 ha, survey: Křivánek, 2015)

disturbances from agricultural and orchard landscape changes. In some parts of the hillfort, separating the origin of anomalies was highly complicated. On the other hand, this result reflects the actual present state of subsurface preservation of subsoil layers. Magnetometer results, in particular combined with resistivity measurements, also helped identify the ploughed-out stone construction of the perimeter rampart, which was fully destroyed on the surface.

D. Geophysical survey of different parts of the early medieval stronghold of Kouřim at the St. John site in central Bohemia could be an example of large-scale mapping of a site after completed archaeological excavations. Archaeological excavations of the central part of the Přemyslid hillfort (between the end of the 10th century and the beginning of the 13th century AD) at the end of the 1960s and the beginning of the 1970s (Šolle 1969; 1993) uncovered the remains of St. John Church, the gate, courtyard and a massive perimeter rampart with a stone wall in front. Archaeological evidence of the size of the fortified area is, since the time of excavation, approx. 6.2 ha with two divided areas. Magnetometer prospection of accessible parts of the area (meadows, fields) confirmed some previously known fortifications, remains of settlement, magnetic disturbances in the areas of former excavations, modern landscape changes, while in the outer part unexpected outer ditches and local concentrations of settlement were identified (Fig. 4). The geophysical survey probably confirmed the presence of a southern, second fortified bailey of the hillfort with the partly ploughed subsurface remains of ditches.

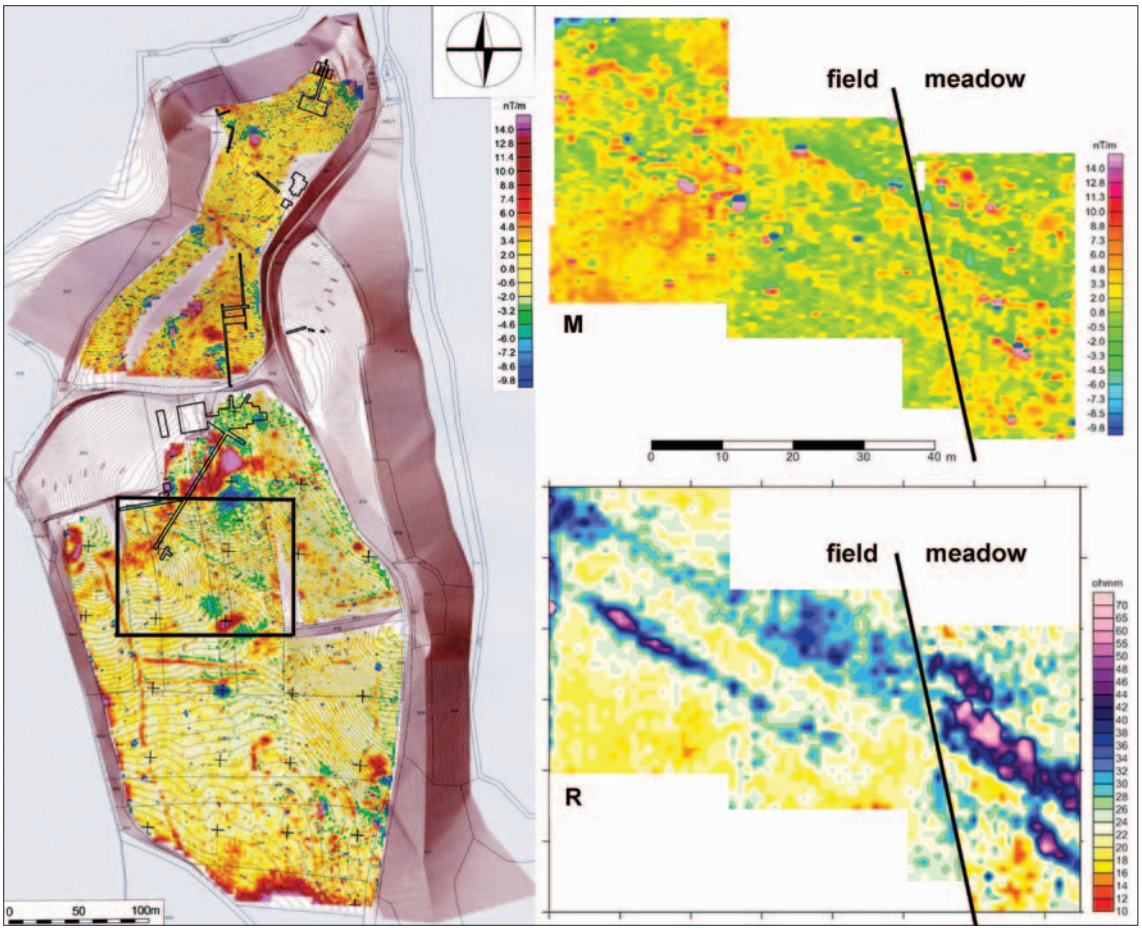

Fig. 4 Kouřim – sv. Jiří, district Kolín. Result of magnetometer survey of early medieval hillfort with detail of comparison of magnetometer (M) and resistivity (R) measurement of area of locally ploughed out rampart – ditch system of fortification (surveyed area: approx. 7.5 ha + 0.3 ha; survey: Křivánek, 2010)

The total fortified area of the hillfort could be over 10 ha. The particular combination of results from magnetometer and resistivity measurements also showed the impact of local long-term and deep ploughing to the subsoil preservation level of the original perimeter rampart. A worse state of subsurface remains of stone walls inside the original rampart was identified in the most intensively ploughed fields of the hillfort.

E. Geophysical survey of the chosen parts of the siege camp in the foregrounds of Nový Hrad ("New Castle") in Prague-Kunratice documents the different possibilities of the prospection of forested medieval sites. Small archaeological excava-

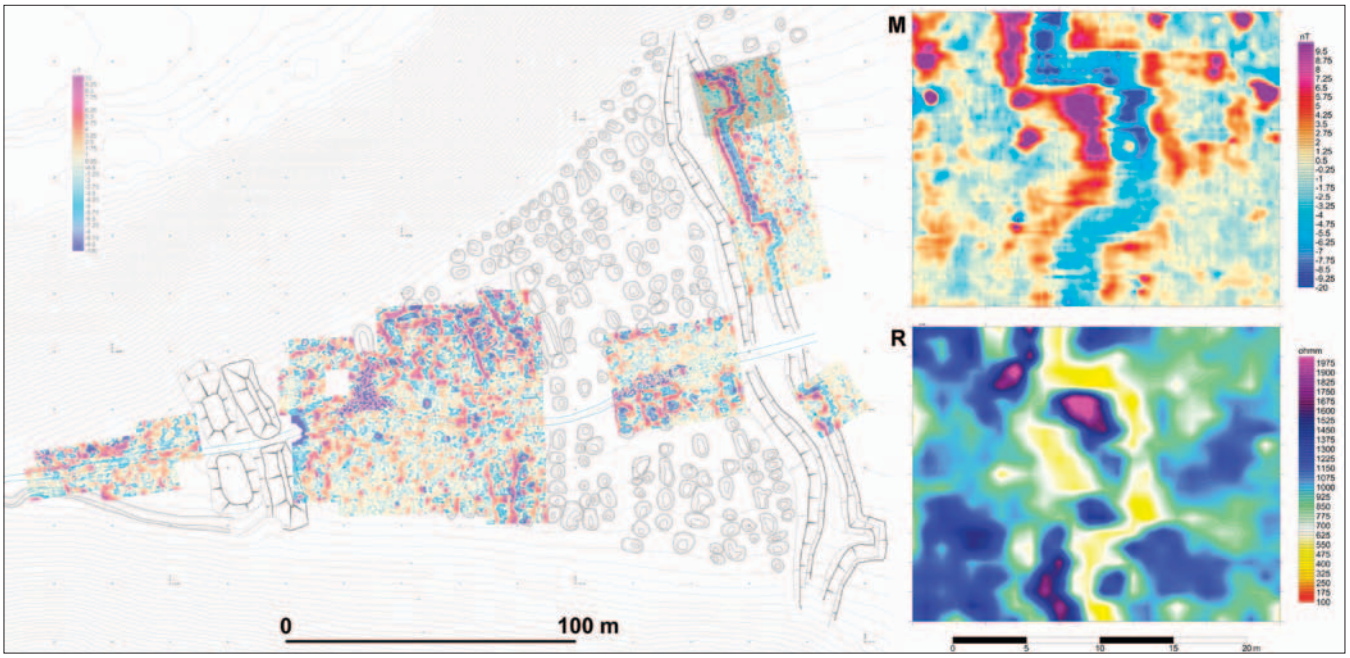

Fig. 5 Praha-Kunratice, district Praha 4. Result of magnetometer survey of chosen parts of forested siege camp in the foreground of Nový hrad with comparison of magnetometer (M) and resistivity (R) measurement of bastion of fortification (surveyed area: approx. 1 ha; survey: Křivánek, 2014)

tions in 1953 by trenching (Drobná 1953) in the inner part of the Hussite siege camp uncovered the remains of sunken features, probably simple sunken dwellings arranged in lines. The surface remains of this settlement were newly documented from surface and geodetic surveys by the National Heritage Institute (Kypta, Podliska 2014). The result of a magnetometer survey inside of the fortified area enabled a reliable demarcation of the built-up (settled) area with many sunken dwellings and concentrated burned material (probably the remains of fireplaces and/or metals) inside sunken features (Fig. 5; also Křivánek 2014: obr. 6, 7 or 12). The presence of fire pits had been uncovered in a former archaeological excavation. These results also confirmed the archaeological assumption of a different use of the inner areas of siege camp, which were open or featured only shallow and above-ground structures. From the point of view of fortifications the combined results of magnetometer and resistivity survey confirmed that the rampart was only made of earth, mostly of soil, or stone and soil nature, without any stone wall or another internal some construction. The terrain at the site of the bastions with a small internal platform was only slightly modified, without any distinguishable subsurface features. The combination of different new data from the field helped describe the present state of the surface and subsurface preservation of the Hussite siege camp located in a forested area and revealed risks to the landscape of the archaeological site.

CONCLUSION

The Czech landscape with its varying terrain has many different types of fortified sites (prehistoric hillforts on promontories, hilltops or hill plateaus, Celtic oppida complexes, early medieval upland, lowland and wetland hillforts, smaller medieval strongholds or motte, medieval or modern castles, military camps or various defence systems, etc.). Many earlier and former archaeological investigations concentrated on dating of fortifications and identifying different phases of ramparts, internal settlement and other activities. The majority of this archaeological information came from individual archaeological trenches or excavated areas of a smaller size. Only a few dozens of prehistoric, Celtic or early medieval fortified sites were systematically investigated more comprehensively. Non-destructive geophysical surveys (together with other modern non-destructive methods and remote sensing techniques) can contribute to the more intensive study or mapping of these fortified sites, especially in areas outside modern settlements, industrial zones or irreversible and deep landscape changes.

In many cases of the Czech fortified sites the results of systematic large-area magnetometer measurements (combined with particular geoelectric resistivity measurements) changed our ideas about the extent, structure and fortification of an area, the way in which it was abandoned or the state of the sub-surface preservation of archaeological features. The spatial

geophysical results were used to verify some aerial or remote sensing data, old maps, surface artefact collections or metal detector surveys. But selected examples of geophysical surveys of various fortified sites will illustrate the wide range of application of geophysical measurements for the needs of field and also theoretical archaeology, for conservation and heritage care of intangible archaeological monuments. The application of non-destructive geophysical methods on various fortified sites can offer a quantitative and also a qualitative view on the subsurface state of archaeological situations. The majority of archaeo-geophysial surveys of fortified sites in the Czech Republic focused primarily on verifying different ditch enclosures and some chosen hillforts or strongholds. But large-scale magnetometer survey (together with particular resistivity or other measurements) seems to be the best combination in Bohemian archaeology for surveys of many different fortified sites. Their rapid results may affect the formulation of new archaeological or archaeological heritage projects and may also prevent the loss of subsurface situations on ploughed or afforested terrain.

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MARIJA BUZOV

Fortifications and Defence Systems in Montenegro

*First fortified urban agglomerations on the territory of today's Montenegro are Illyrian hill forts (gradina). The term "gradina" is given to the fortified Illyrian agglomerations which were extended or repaired in antiquity or which were mentioned in antique sources and Roman itineraries. So, it is about the defence of landscape, about similarities and differences, about changes in the ways defence systems of the forts, towns and regions were organized in similar and different spatial context. Was a natural position used for fort construction, how were fortification architectural elements organized in order to provide efficient, permanent or temporary defence of the region, how were the towns defended? The presentation will be dedicated to the system of defence and the possible recognition of patterns on the territory of Montenegro in antiquity. Special attention will be dedicated to the archaeological finds from towns – Risan (*Risinium*), Kotor (*Acruvium*), Budva (*Buthua*), Ulcinj (*Olcinium*), Duklja (*Doclea*) and Medun (*Meteon*).*

Key words: fortifications, defence systems, Risinium, Acruvium, Buthua, Olcinium, Doclea, Meteon

The first fortified agglomerations on the territory of today's Montenegro were Illyrian hill forts (cro/hrv. *gradina*). The term *gradina* is given to the fortified Illyrian agglomerations that were extended or repaired in the antiquity, or were mentioned in the antique sources and Roman itineraries. Thus, we are talking about the defended areas, about similarities and differences, changes in the ways the defence systems of forts and towns as well as of areas within a similar or different spatial context were organized. We are also talking on whether natural location was exploited in building of fortresses, how the fortification architectural elements were organized in order to provide efficient, permanent or temporary defence of the area, and how the towns were defended. The lecture will also cover defence system and possible recognition of patterns on the territory of Montenegro in antiquity. Particular attention will be paid to the archaeological findings from the towns of – Risan (*Risinium*), Kotor (*Acruvium*), Budva (*Buthua*), Ulcinj (*Olcinium*), Duklja (*Doclea*) and Medun (*Meteon*) (Fig. 1).

On the basis of archaeological and architectural findings and accompanying material we can observe and recognize Illyrian hill forts from later Illyrian-Hellenistic and Illyrian-Roman towns.

P. Mijović and M. Kovačević systemized general and local characteristics of the pre-urban antique development of Montenegro and, based on the research of hill forts and collected archaeological material, they divided the hill forts into: fortified caves-coves (Crvena Stijena, Lista Stijena, Lipci) and circular Illyrian fortresses (Gradac, Grdova Gradina, Ržiška Gradina, Samobor).

HILL FORTS – TOWNS IN THE AREA OF LAKE SKADAR

While analysing hill forts it can be observed that in Montenegro but also in Albania among Illyrian hill forts there is a group with multifold social, even stylistic, structure, i.e. Illyrian, Illyrian-Greek and Illyrian-Roman (Mijović, Kovačević 1975: 15). Hill forts of this type have characteristics of three fortification systems: Illyrian, Greek and Roman. Characteristics are mutually interwoven and it is hard to distinguish them without systematic archaeological excavations. Most often the first layers are covered with the later ones that do not significantly change either the foundation or the structure of ramparts in some places. Such changes were logical and indispensable intervention that any reconstruction of fortification system

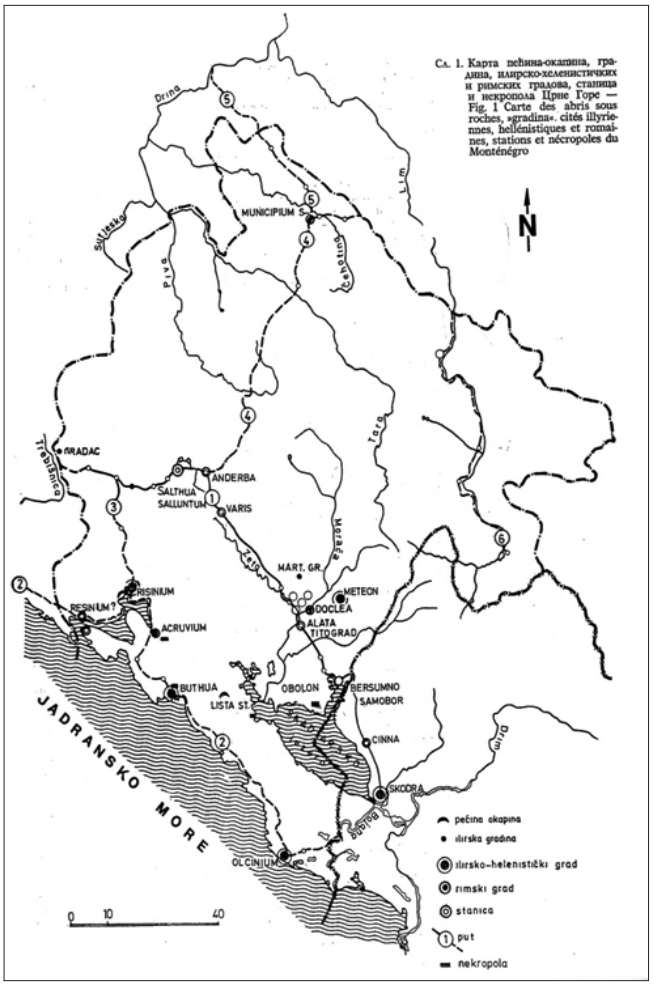

Fig. 1 Map of Montenegro (Mijović, Kovačević 1975: 5, fig. 1)

implies, particularly if it has been damaged in the previous centuries or proved to be insufficiently efficient.

Thus, the first observable signs of reconstruction are square towers on the rampart and straightening of the wall along a straight line between important defence outposts (Mijović, Kovačević 1975: 16). In this phase, a Greek way was adopted of processing big cyclopean stone blocks on the spot within the rock quarry, which were then transported and fit in the right place in the wall. The blocks assumed a rectangular, square or trapezoid shape. They were pulled tight by dentate gaps or fixed in step-like manner (in order to straighten the wall horizontally within the gradation of slope). Also the very dressing of the façade became cleaner, more careful and more beautiful. There were changes in the internal complex as well, the most important one being separation of the upper part of the acropolis, which was fortified by an internal wall, from the lower part. It should be stressed that in this phase the Hellenization of hill forts was clearly visible.

METEON (MEDUN)

Meteon (Medun) is the most famous town in the inland of Montenegro, situated on a mountain ridge oriented southwest, lying in the midst of a pass (saddle) between two bigger hills, Medenjak and Ilijin Vrh, on the most important natural road between Zeta-Skadar encircled valley and Kosovo-Metohija district. This position clearly proves the importance of Meteon in the time of the first urbanization and later, when it took place within great Hellenic and Hellenistic culture embracing the Montenegrin territory as early as from the 6th century BC. Namely, such key strategic position of Medun had a first-class fortification significance.

The rock the town was built on is visible from all sides. Configuration of that elongated rock with a dentated elevation at the end over a deep abys determined the shape of the fortress – acropolis on the elevation, while along the edge in the south and on the slope towards the north there is a "lower town", perhaps a manor (Mijović, Kovačević 1975: 16). In the Middle Ages a fortress was built on the acropolis, while the wall from the south side, particularly along the edge of the rock, has almost completely disappeared and is only partially holding to the hill fort towards the north. On the elevations that the slope in the small field of the Gornji Medun village is ending, several stone barrows (funeral mounds) are preserved as well as in the field of the village Donji Medun. Barrows in the village Donji Medun have been deconstructed. Time the barrows were built in dates back to the oldest period of fortification of Medun. Besides the barrows in the surroundings of Medun graves were discovered buried into the ground and fenced in with a stone wall. A Greek cup, skifos (drinking cup originally with two vertical handles) was found in one of the graves. This is a reliable sign that the hill fort on Medun also assumed new shapes at the time of Hellenization of this area. What and to what extent the Labeates have taken over from Greeks is best shown by masonry technique of the parts of Medun still visible today – under the house of Marko Miljanov (today a museum) – in the north, and between the acropolis and "lower town" in the south.

Taking into consideration that archaeological explorations have not been done there is lack of data that would help a more precise dating of ramparts. However, by the way its cyclopean blocks were cut and set down within the walls it could be concluded that it was built in the same age as the ramparts of Olcinium and Risinium (Rhyzon).

Medun, with its preserved and visible remnants is an excellent example of a settlement – a centre from the proto-urban period that at that time already had all important rudiments of a town emerged on autochthonous traditions (Garašanin 1967; Mijović, Kovačević 1975: 16 et seq.) (Fig. 2). Its system of fortifications, similar to the one in Ošanići, shows clear impacts from Greek Hellenistic world. Thus, it is a significant link in the chain of megalithic fortifications on the east coast of the Adriatic, beginning with the old Epirus in Albania and reaching as far as the territories of Kvarner and Histria (Suić 2003: 35). It is obvious that here a dominant urban influence can be distinguished surrounded by ramparts and the very perimeter below it. Just like Ošanići, Medun does not have a Roman phase so it could also provide valuable data in the observing of the process of development of an autochthonous town (Suić 2003: 35). For the first time *Meteon* was mentioned during the third Illyrian-Roman war in 168.[1] Then the brother of the Illyrian king Gentius, Caravantius, king's wife Scerdilaida and his son Pleuratus were captured. Meteon has not been mentioned after that war, and it is neither among the towns that the Romans declared as *oppida civium Romanorum.* As former centre of the Illyrian tribe of Labeates who, doubtlessly, ruled the entire territory of the Skadar-Zeta valley, Meteon lost its previous significance under the Romans. It remained only as a military station on the road that led to Thracia via the Dardanian territory. The Romans transferred the urban centre of this area to their newly raised municipal town of Doclea, the centre of the Illyrian tribe of Docleates, which stepped onto the political scene after it was left by Labeates. The life of the Illyrian-Hellenistic Meteon lasted within those time boundaries - from the 4th century to the year 167 BC.

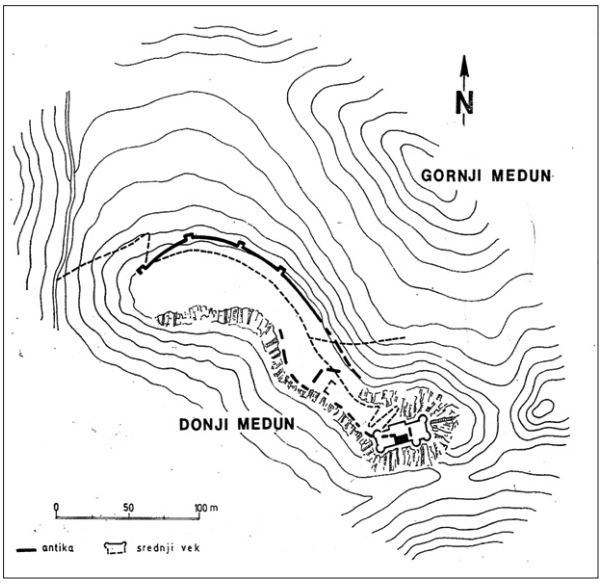

Fig. 2 Plan of Medun (Mijović, Kovačević 1975: 17, fig. 11)

"Settlements" – towns with the interrupted continuity include those towns that in their historical existence and development had achieved certain stage of urbanization, but due to various factors, mostly external and sometimes internal as well, stopped their existence as urban settlements or ceased to exist in general as living settlements" (Suić 2003: 46).

Thus, Meteon ceased to exist in pre-Roman tome in a phase of proto-urban development that had made significant progress (Suić 2003: 46). As yet we do not have reliable answers to the question what caused that.

ILLYRIAN–HELLENISTIC TOWNS IN THE COASTAL AREA

It cannot be reliably said whether Greek emporia and polises in the part of the coast of the Adriatic Sea belonging to Montenegro were founded on a waste, previously uninhabited place or they were just continuation in the development of a hill fort. Also we do not know with any reliability what significance Rhyzon, Buthua, Olcinium had for the Greeks who were sailing on the Adriatic during the period from the 6th to the 4th century BC. They were either small market places where Greek goods was sold or exchanged for Illyrian products or polises, political, religious and moral communities that emerged on a territory with diffused agrarian or rural population.

1 Tit Livius mentions Medun (*Titi Livi Ab urbe condita* XLIV, 23; XLIII, 3) as a town of the land of Labeates (*Meteon Labeatidis terrae*). In the Geographer of Ravenna, it is recorded as *Medione* (*Anon. Rav.* 211, 8–10), see also C. Praschniker and A. Schober who bring a draft of its foundation (Prascniker, Schober 1919: 3–8) (Fig. 11). The draft by I. Zdravković was partially based on it (Zdravković 1953: 127); Istorija Crne Gore I 1967: 127–133, sk. 4, Fig. 20–23).

Archaeological explorations have not yet reached first strata of the mentioned towns so that we could reliably reply to that question. However, judging by their names – Rhyzon and Buthua are Illyrian toponyms while Olcinium certainly is not.

Although the territory of Montenegro in the antiquity was not under the Greek rule, its coastal part was fully within the sphere of Greek culture and civilization. As distinguished from the Roman conquests, the Greeks established market strongholds on foreign territory – the so called emporia. Wherever they could and wherever their trade interests dictated, Greek towns established their permanent colonies (Novak 1940; Abramić 1949: 55 et seq.; Lisičar 1951).

When the exchange of goods was established the emporia were built according to the plans. The example of Empurias on the Catalan coast, built according to all architectural demands of a Greek town, well-fortified and in accordance with town-planning rules an exemplary Emporion, best proves that the difference between emporion and polis is not in its constructive, spatial-planning, but in religious and political nature (Mijović, Kovačević 1975: 21 et seq.). Therefore, it is understandable why *Olcinium*, *Buthua* and *Rhyzon* were raised with ramparts while inside they were built following the rules of Hellenistic urbanism even if they had been only emporia.

The core of urban life of Rhyzon, Buthua and Olcinium could only be found in undifferentiated - economic and defensive entirety. Comparing the towns of Montenegro with colonies of Epidamnos, Issa, Pharos and Korčula (*Κόρκυρα Μέλαινα*) it can be concluded that the agora in Rhyzon, Buthua and Olcinium does not belong to the first plan of urbanization. In the regions where polis is not pronouncedly observable as in Montenegrin coastal area it developed up to a very simple *polismátion* that did not have either acropolis or agora. There is no doubt at all that Strabon had them in mind when mentioning "Rhyzon polis and other small towns" (*Strabo Geo*. VII, 316).

"We do not know whether Greeks were building Buthua or Rhyzon for themselves or for Illyrians, or whether the Illyrians themselves learnt from Greeks how to build them with all characteristics of Greek urbanism. Town planning in Hellenic or Hellenistic way became a general phenomenon in the Mediterranean as was also adoption of Greek styles in architecture. That is why we can consider our towns built in that way and regarding their general plan, construction technique and internal arrangement of town units, as Illyrian–Greek emporia and polises without putting them on a level with parent Greek polises and colonies" (Mijović Kovačević, 1975: 21).

It should be stressed that Greek influence is felt in the towns that were not Greek settlements. However, business people were present and lived there as proved by the samples of golden jewellery of extraordinary quality discovered in a Hellenistic necropolis from Budva (Rendić-Miočević 1959; 1989; Suić 2003: 94). That influence could be followed and seen in the structure of fortifications of more prominent hill forts from southern and middle Illyria, i.e. in Lješ (*Lissos*), Ulcinj and Medun, Ošanići, etc. Their ramparts were built using the technique of megalithic stone shelters (hrv. *bunja*) in the way similar to the one used for building fortresses of pre-Roman period on the territory of today's Albania. However, those influences and contacts did not disturb autochthonous development while new qualities were brought by colonization of old factors i.e. establishment of foreign domination.

Classification of Roman towns and communities according to Suić (1976: 35–36; 2003: 63, 65):

1) TOWNS – CENTRES OF ROMAN MUNICIPIA

Rhisinium (Rhizinium), Risan in the bay of Rhyzon (Croatian: *Rizonički zaljev*) (*sinus Rhizonicus* - Boka Kotorska, Montenegro) *oppidum civium Romanorum*;

Acruvium, Grbalj or **Kotor** itself in the bay of Rhizon (*sinus Rhizonicus* - Boka Kotorska, Montenegro) *oppidum civium Romanorum*;

Buthua, Budva important emporium according to Hellenistic world in pre-Roman times since Augustus *oppidum civium Romanorum*;

Olcinium, Ulcinj, municipium of Roman citizens.

2) PEREGRINUS COMMUNITIES THAT OBTAINED CITIZENSHIP

Rhizinium, Risan, most probably one of the Varro's (in: *Plin. NH* III, 142) autochthonous *civitates* before obtaining citizenship;

Acruvium, Kotor as **Risinium**;

Buthua, Budva as **Risinium**;

Olcinium, Ulcinj as **Risinium**;

Doclea, Duklja near **Podgorica,** a centre of a very large autochthonous community that was among the last to obtain

constitution in the 2nd century AD. Apart from Docleates *(Docleatae)* the members of that community there was a bigger tribe of Docleates who according to Plinius (*Plin. NH* III, 143) were divided into 33 decurions.

Plinius, our main source for learning about topography of the towns on the east coast of the Adriatic Sea in the earlier Empire after Epidaurus (*Plin. NH* III, 144), mentions a series of small towns such as ***Rhyzon*** (*Risinium* in the Roman times, today's Risan) (Garašanin 1967: 36 et seq.; Mijović, Kovačević 1975: 38 et seq.), ***Acruvium*** (Mayer 1927 1931; Mijović 1963: 27 et seq.; 1970: 41 et seq.; Garašanin 1967: 216 et seq.; Mijović, Kovačević 1975: 38 et seq.), **Grbalj** near **Kotor** or **Kotor** itself, ***Buthua*** (Abramić 1938; Lisičar 1951; Rendić-Miočević 1959; Alföldy 1965: 143 et seq.; Wilkes, 1969: 167, 254 et seq.; Mijović, Kovačević 1975: 41 et seq.) and ***Olcinium*** (Ulcinj) (Garašanin 1967: 221 et seq.; Mijović 1971: 33 et seq.; Mijović, Kovačević 1975: 42).

These are urban settlements, centres of municipal communities. Some of them even had a prominent role in Illyrian society, which particularly refers to Risan, one of the centres of Illyrian rulers, a prominent *oppidum* in Boka. During Hellenistic period emporium Budva had an important role with its valuable findings of Hellenistic jewellery from a necropolis. Unfortunately, systematic explorations are still lacking so detailed considerations of urbanistic structure of those settlements are hardly possible. Although during last 17 years, archaeological explorations of Risan have been undertaken on the site of Carina still we have not get a complete picture of the site because the results are only partially published. In any case, extraordinary position and configuration of Risan points to its autochthonous origin, with a hill fort above the area where in the Roman times a town core was formed whose foundations contain preserved ramparts.

RISINIUM

Rhyzon became a Roman town after the ending of the Illyrian war, perhaps as early as in the times of Augusts, in the beginning of the 1st century when it was mentioned as *oppidum civium Romanorum*, a "fortified town of Roman citizens" (*Plin. NH* III, 144*)*, together with other settlements *Acruvium* (Grbalj near Kotor, or Kotor itself), *Buthua* (Budva), *Olcinium* (Ulcinj) and *Scodra* (Skadar). All of those were urban settlements, centres of municipal communities, some of which had important role in Illyrian society (Buzov 2011: 363). Risinium served as a protected port with a tradition of seafaring and traffic toward hinterland as well as towards Roman villages in the Bay and in the area from Kotor to Budva and further. Roman inscriptions from Risan testify to the presence of reputable Italic families, who found there their trade and other interests. According to the preserved inscriptions, there were also some residents of Greek origin in Risinium though in somewhat smaller numbers. However, during entire antiquity period those regions were part of the western, Latin part of the Roman Empire.

We do not have reliable data on when exactly Rhyzon was established. The mentioned Greek historian Polybius was the first to mention it as a town where Illyrian Queen Teuta had her royal seat in 229 BC. Rhyzon was situated on the right bank of the river Spila, approximately from the entrance to the cave Spila along the right bank to the sea and from there along assumed straight line to Sopot, to the bridge behind the house of Petković at Carine and up the hill on the foot of Gradina to the entrance to the cave Spila (Drobnjaković 2002: 107). Acropolis was situated on Gradina (hill fort). A part beneath it, i.e. a shored up part on the site of Carine and mostly in its north-eastern part made one entity with the hill fort. As an Illyrian settlement, Rhyzon was also developed under Greek influence so the Romans after conquering that area found a fortified town, which, as we might assume, had an impact on the further architecture in Risinium.

The antique town, antique in a wider sense, is mainly the settlement 'Centre' (Suić 1976: 11). However, we cannot talk about the general uniformity of the towns in the antiquity regardless their existence and their cultural-ethnic origin, their economic, social and political significance, their appearance, size, etc. The Apianus' thought that "towns like people also have a fate" (Μοῖρα δέ τις και πόλεών ἐστι ὡσπερ ἀνδρῶν.) (*App. Alex., Syr.* 58, 302) is really true when we speak about Rhyzon – Risinium. Specifically, the state of the town in the urbanistic sense as well as configuration of the ground, i.e. orientation of the town along the sea coast, imposed planning in accordance with the existing topographic conditions (Buzov 2011: 365). Previous explorations and excavations, random findings and even the findings that remained unrecorded thus unavailable to the experts and the public, have somewhat completed the picture of an antique town. Unfortunately, in spite of the current long-standing systematic archaeological excavations that started in 2001, there are still not enough data that would contribute to the reconstruction of the view and size of a Roman town.

On the basis of discovered findings of architecture and mobile archaeological material it can be noticed that *Risinium* had character of a town mirroring antique civilization. The town had main street, a forum with the buildings around it and buildings on the right and left banks of the Spila river. Today we can with certainty determine that Rhyzon had its fortress

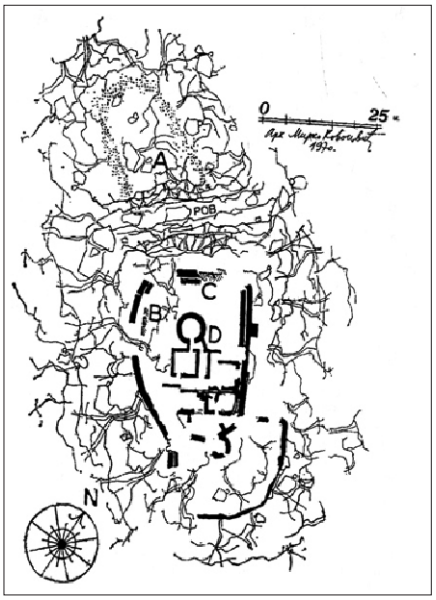

Fig. 3 Risan, Gradina, plan (Mijović, Kovačević 1975: 26, fig. 17)

on Gradina (Fig. 3). Furthermore, it expanded in the area of today's Carine where majority of the archaeological material was found and throughout the left bank of the Spila river towards southeast, which is also proved by the archaeological findings at Gorica, Džamija, former "meadow of Ćatovići", where residential blocks are today situated, on the hill of Gorica, towards Pjaca, around the church of St. Peter and Paul, then in the area around a Roman villa with mosaics, at Stara Slanica, Pješčina and further. Certainly the town followed the line of the sea coast entering more deeply into the bay. A part of the coast i.e. Risan, according to Evans, Cons (Cons 1881), J. Martinović and others, is covered with the sea within which remnants of some streets, buildings and walls can be discerned.

In the area of Carine, a villa was discovered bordering with Cyclops defence walls (Fig. 4) a Roman street as well as the remnants of the walls from Hellenistic age. Works at Carine have been going on for several years and for the time being it is not possible to provide a full picture of that area (Fig. 5). According Dyczek, once all the uncovered remains of fortifications had been mapped, it turned out that the Rhyzon enceinte was one kilometer long (Dyczek 2013: 67). Probably, the broken course of the defences may have followed the course of the river. Considering known parameters, it is likely that the height of these walls reached around 10–12 m.

Fig. 4 Risan, Carine – Cyclopean wall (photo by: M. Buzov)

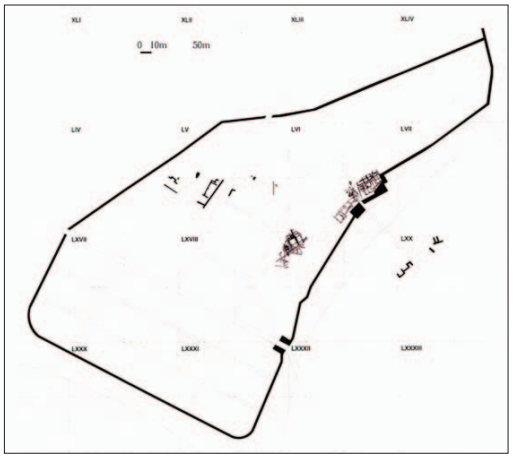

Fig. 5 Plan of Rhyzon in the 4th and 3rd centuries BC as reconstructed by archaeologists (Dyczek 2013: 56)

Fig. 6 Risan, view of the fortress in Gradina hill and mosques in Carine (Padre Coronelli's atlas, after: RepubblicaVenezia, P[arte] IV. S. 1., Venezia ca. 1708, no. 16)

Narrower area of the settlement in Risan is subdued to the well-considered circumstances of defence (Fig. 6). Archaeological findings point out to the conclusion that the settlement developed first on a prominent hill Gradina extending to steep slopes of the hills in the western part of the bay (Faber 1996: 105), where it was also located by M. Garašanin (Garašanin 1967: 29) and P. Mijović (Mijović, Kovačević 1975: 25; Mijović 1987: 42–58) according to the Evans's travelogue (Evans 1883: 40, 42) and relying on topographic situation and remnants of the fortresses that could belong to the times of Illyrian rulers (Figs. 7, 8, 9). During his stay in Risan, A. Faber performed field reambulation of the site based on the aerial shot and detailed instructions of P. Mijović, I. Pušić and J. Martinović (Faber 1996: 107–108). The area of Gradina is bordered by natural obstacles making it hardly accessible, those being bed of the river Spila on the eastern side of the hill,

Fig. 7 Risan, Gradina "upper town" (Dyczek 2013: 35)

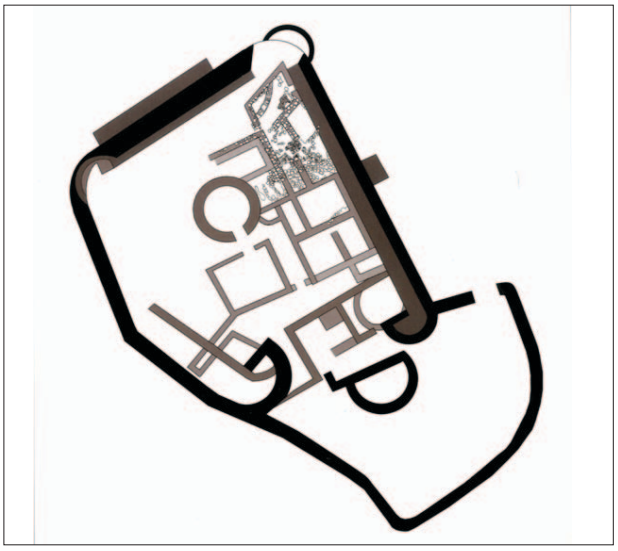

Fig. 8 The Acropolis of Rhyzon (Dyczek 2013: 57)

Fig. 9 Risan, Gradina (photo by: M. Buzov)

deep gully of the water-worn ravine Poljički Otok i.e. Sopot on the western side, while southern side is very steep near the top, but descending mildly towards the sea in the lower part. On that southern side there is a fairly large flat surface of a sandbank accumulated by the mentioned streams at times of heavy rainfall, which is called Carina, probably from times immemorial.

During 1982, A. Faber spotted a part of the cyclopean wall in the bed of the river Spila (Faber 1996: 107; Dyczek 2004: 106–107). Those were big stone blocks of characteristic cutting that we find near ramparts of pre-Roman and early Roman fortifications along eastern coast of the Adriatic (Faber 1976: 227).

After the reambulation done by A. Faber, the explorations of Gradina were continued by a Polish team in 2006. They determined the screen and several phases at the construction of the fortress, i.e. from the oldest walls dated to the 6th–5th centuries BC to the refugees (Dyczek 2004: 107–108) (Fig. 7).

Risan is the most important multilayer archaeological site in Boka with rich antique layer.

The locations in the area of today's Risan were also determined, where archaeological findings *in situ* are situated and where mobile findings were discovered and more findings could be expected while systematic archaeological explorations and excavations have not started yet. Under sea archaeological site has been recorded in Risan, with findings from sunken ships and their loads – amphorae as well as a part of the Illyrian Cyclopean ramparts, which are today under the sea.

ACRUVIUM, GRBALJ OR KOTOR ITSELF

Acruvium was for the first time, indirectly, mentioned by Titus Livius in his Historia (*Titi Livi Ab Urbe condita,* XLV, 26) when describing division of the Illyrian state in 167 BC into three parts. *Agravonites,* Rhizonites and Olciniates (*Agravonitas et Rhizonitas et Olicinates)* lived in one part and were for certain residents of Acruvium, Rhyzon and Olcinium. Plinius in

his *Naturalis historiae* (III, 144) decisively speaks about Acruvium as a Roman town – *Ad Epidauro sunt oppida civium Romanorum: Rhizinium, Acruvium, Butuanum, Olcinium*. Thus the assumption has been confirmed on the indirect mentioning of this town in Livius' work as Roman oppidum that obtained that status in 167 BC meaning that Acruvium had already been a town in an earlier period ((πόλις) in the same sense as Buthua was considered an "Illyrian polis" by Philon (Mijović, Kovačević 1975: 38). *Claudius Ptolemaeus later also mentioned Acruvium in his work Geographia (Ptol. Geo. II, 6). For a long time Acruvium was not located. Based on the archaeological explorations of the southern suburb of Kotor on the site of Šuranj an Illyrian-Roman necropolis was discovered while within the town and its surroundings steles with inscriptions were found. Besides the mentioned factors, geophysical, road communication, strategic, economic and social position of Kotor is of great importance for the ubication of the urban form of settlement such as oppidum Acruvium. In the times of the establishment of the settlement, the territory of Acruvium was almost the same as the one of the later Kotor (Fig. 10). Accordingly, the position between two strong river flows – the river Škurda in the north and the spring Gurdić in the south, between the sea and natural fortification, from the mount of St John (Sv. Ivan), cut off from the mountain massif Lovćen by deep natural cutting - was characterized by* extraordinary *favourable defence conditions (*Mijović, Kovačević 1975: 40). That position determined its urban development so that in all fortification phases, from its very establishment, it had excellent military strategic significance. Such position within naturally protected surroundings predestined it to become a place selected by Illyrians to establish their settlement there as well. Also when the process of urban reshaping started with small Greek emporia and *polismátion* it was predestined that a town would be built there. However, in spite of archaeological findings the main evidence is missing that Acruvium existed in the site of today's Kotor. During the exploration of the east necropolis of Acruvium in 1956, it was determined that due to a geophysical phenomenon of flooding of the coast of Kotor there was a little chance for discovering ancient ramparts of Acruvium, at least in the part of the town near the sea (Mijović, Kovačević 1975: 41, 77, note 62). Certainly, only archaeological excavations in the north part near the very edge of the foot of the mount Sv. Ivan and on Kaštel should and could serve for the discovery of ancient ramparts of Kotor.

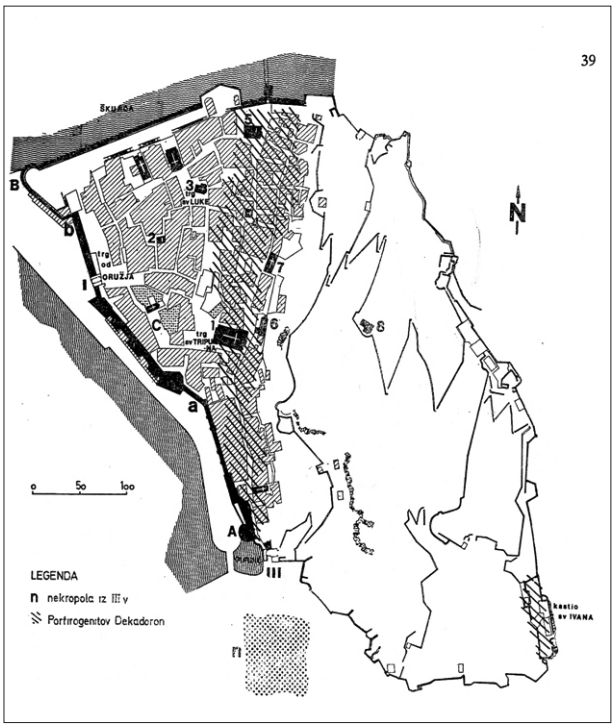

Fig. 10 Kotor, plan (Mijović, Kovačević 1975: 39, fig. 30)

BUTHUA, BUDVA AS RISINIUM

Buthua is an example of a small town on the peninsula near the coast (Suić 2003: 42) with the idea of a Mediterranean town preserved to present day, which it inherited from the antiquity (Bošković 1959: see map; Mijović, Kovačević 1975: 102 et seq.) (Figs. 11, 12). In the Roman times *Buthua* continued the life that had started in the beginning of the Illyrian urbanization. Based on the extraordinary material discovered in the necropolis of Budva, across the current fortified town, the life of an antique settlement lasted to the 6th century AD. The fragments of the rampart wall of the old quay found in 1972 are identical to tombs according to the structure of building (Mijović, Kovačević 1975: 41). Most probably, a part of the Roman Budva has been preserved in the remnants of that quay, but, unfortunately, here in the emporium and polis of *Buthua* as is the case with this Roman town and Kotor it will be impossible to find out anything important due to the same

Fig. 11 Plan of Budva made by Agostino Alberti (Pazzi 2010: 135, fig. 265)

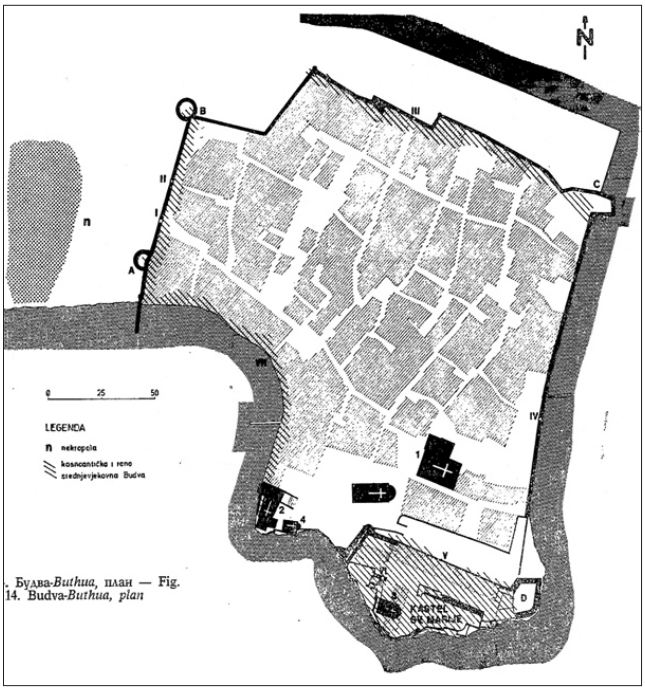

Fig. 12 Budva, plan (Mijović, Kovačević 1975: 22, fig. 14)

phenomenon visible in Kotor, i.e. phenomenon of sinking. Its level can be reached without special exploration by means of caisson (Mijović, Kovačević 1975: 41). According to Plinius, *Buthua* was mentioned as *oppidum civium Romanorum… Buthuanum* in 168 BC, which is confirmed by the inscriptions naming it *municipium*.

OLCINIUM, ULCINJ

Olcinium was mentioned by Plinius (*Plin. NH* III, 144) and *Ptolemaeus* (Ουλκίνιον) as *oppidum*. Unfortunately, there are no Roman inscriptions apart from an ionic pillar discovered in a town citadel and accompanying archaeological material, pottery fragments testifying on very early urbanization of Olcinium and on uninterrupted urban life of the town till the end of Roman Empire (Figs. 13, 14). Of course, the oldest period of the town and its material remnants should be systematically explored within the town (Mijović, Kovačević 1975: 77, note 66). It should be noted with certainty that Roman Olcinium remained within the same borders of an Illyrian-Greek polis while the very configuration of the ground – high rock leaned toward the sea, surrounded by water on three sides and isolated on the forth by a deep cutting between two highest points of the town and neighbouring hillside Meterizi – was its natural cause (Mijović, Kovačević 1975: 42). Necropolis was not found.

Fig. 13 Ulcinj, Padre Coronelli's atlas (Pazzi 2010: 131, fig. 259)

DOCLEA, DUKLJA NEAR PODGORICA

Doclea whose remnants are visible near today's Podgorica was already explored before the World War I. Entire urban wholes were discovered, parts of town fortifications, public spaces (Forum with adjacencies, a basilica and a manor), and buildings, particularly remnants of the temple near forum, thermae, etc. (Suić 2003: 43). After the World War II new areals were explored. All results of those explorations were published (Patsch 1908; Sticotti 1913; Mayer, 1929; 1931; Basler 1963; Garašanin 1967: 194 et seq.; Alföldy 1965:

Fig. 14 Ulcinj, plan (Mijović, Kovačević 1975: 28, fig. 18)

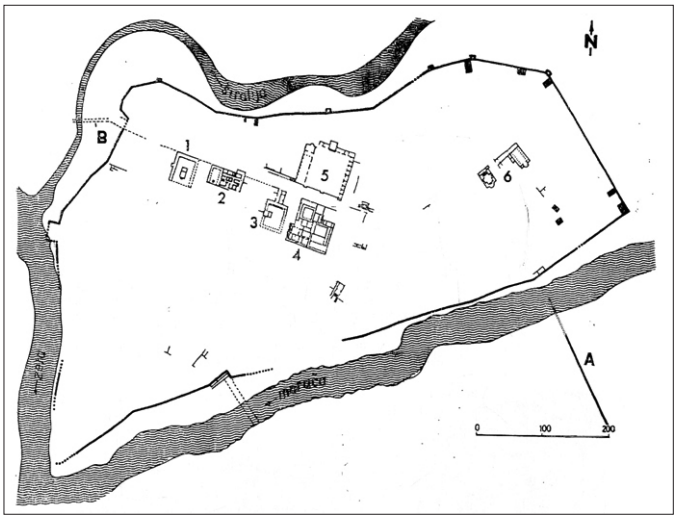

Fig. 15 Duklja, plan (Mijović, Kovačević 1975: 43, fig. 37)

46, 50, 144; Wilkes 1969: 166, 259, 352); Mijović, Kovačević 1975: 42 et seq.).

Doclea is a big urban centre raised even before the reform during which Roman province *Praevalis* was established (Fig. 15). *Doclea* developed due to its prominent position and the crossroads of Roman roads that connected narrow and wider areas. The fact that it was situated on the large Roman road *Narona–Scodra* certainly was a contribution to it. *Doclea* also acquired the status *res publicae Docleatium*, which implied state power only for the territory of the Illyrian tribe Docleates. Plinius did not mention Doclea as a town (*Plin. NH* III, 142–144), but it was first mentioned by geographer Ptolemaeus in middle of the 2nd century. Listing the towns in the inland of Dalmatia, Ptolemaeus also mentioned Doclea - Δόκλεα (*Ptol. Geo.* II, 16, 7). It is interesting to note that Doclea was not mentioned as a colony which leads to the conclusion that it was established later, in the times of the Flavians, most probably in the times of the emperor Vespasian (Mijović, Kovačević 1975: 42). The assumption that the Flavians established Doclea is supported by the fact that their name is most frequently found in this town. They belong to the tribe of Quirina, which was also the name of the members of the most influential family in Doclea (Mijović, Kovačević 1975: 42). After the Flavians, the *Epidii*, had the most prominent status in Doclea, who were connected to the Flavians in the same town and were Illyrians by origin.

In any case, *Doclea* is one of the main Roman towns in Montenegro.

Based on the archaeological material only in Doclea the ramparts were built in the Roman way. Its ramparts were built with regular and dressed blocks of smaller or bigger stones (Fig. 16). It is one of the two ways of masonry that Vitruvius called the Roman way: net-like *reticulatum* and irregular *incertum*. Vitruvius writes: irregular brickwork is not as beautiful as the net-like but it is much older and stronger than the net-like. Furthermore, he writes about how the stones were placed into a wall – one upon the other, and how they were mutually gripped: *Structurarum genera sunt haec reticulatum quo nunc omnes utuntur, et antiquam, quod incertum dicitur. Ex his vetustius est reticulatum ... Incerta vero cementa alia super alia iacentia,inter seque imbricate, non speciosam, sed firmiorem quam reticulata, praestant structuram. Utraque autem ex minitissimis sunt instruenda, uti materia ex calce et arena crebiter parietes satiati diutius contineantur.... (Vitruv. Arch., lib.* II*, cap.* VIII*).* The way ramparts of Doclea were built fully corresponds to the Vitruvius' instructions on construction techniques. The town walls are built in lines of net-like view, but they are made of stones horizontally laid according to their width and thickness in the foundation made of irregularly broken stone poured over with mortar, which testifies about a more recent phase of urban construction (Mijović, Kovačević 1975: 44). The thickness of the wall is 2 to 2.30 m. Due to its natural location on the inaccessible banks of the rivers Zeta and Morača and stream Širalija, water obstacles surrounding Doclea on all sides, it was easily fortified. Only the eastern side was vulnerable regarding defence, but it was best fortified there with strong ramparts and frequent towers, some of which are visible today. Above the estuary of the stream Širalija a small bastion was raised. Other walls followed the edge of the banks so the town got orthogonal shape all over its entire surface. The foundations of ramparts are half a meter dug in, which can be explained by firm base. Blocks of stone are nicely dressed, 1.70 m long and 0.60 m wide. In the towers two lower lines are made of the biggest blocks. Everywhere between blocks, particularly in the lower lines, stones were poured over with mortar, especially in the foundations as base.

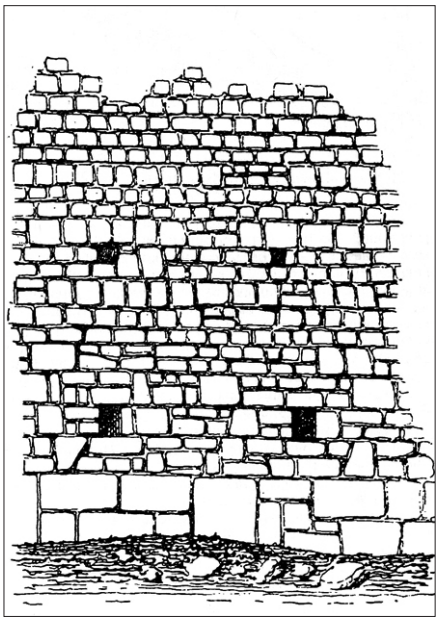

Fig. 16 Duklja, the wall (Mijović, Kovačević 1975: 44, fig. 39)

The entire urban areal of Doclea was encompassed by ramparts and formed a unique closed whole. However, two insulae could be discerned within it (Mijović, Kovačević 1975: 77, note 71).

According to what has been said, we can conclude that the first fortifications on the territory of Montenegro were Illyrian hill forts. The fortresses that can be discussed in more details are the ramparts of Medun, Rhyzon and Doclea. They are mentioned in antique sources and Roman itineraries. Thus, we are talking about the defended areas, about similarities and differences, changes in the ways the defence systems of forts and towns as well as of areas within a similar or different spatial context were organized. When raising fortresses their natural position was always used. Organized fortification architectural elements provided efficient, long-lasting or temporary defence of the territory.

On the basis of current findings and due to the lack of systematic archaeological explorations on the defence system we can identify a pattern on the territory of Montenegro in the times of antiquity. We recall the observations of P. Mijović referring to the construction of the towns of the Montenegrin coastal area, where he stresses out that Roman planimetry in Budva, Kotor and Risan, and in Ulcinj in particular, is imposed by the existing state of urban tissue as is the case with Istria where layout of autochthonous hill fort preserved continuity through Roman times to present day (Mijović 1987: 53). That phenomenon in urban tissue of settlements confirms the tradition of autochthonous way of life that was not superseded neither Rome nor the later conquerors who ruled that part of the Adriatic coast.

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MARIJA D. MARIĆ

Late Roman Fortifications of the Eastern Part of the *Metalla Dardanica* Imperial Domain

The Late Roman period of the Central Balkans was marked by a sharp economic shift in occupation from urban centres to those in rural areas, causing a substantial reorganization of the space and administrative organization of teritoria metallori. *The principal manifestation of this process was the development of* villae rusticae *and fortifications, whose spatial distribution follows certain regularity. This regularity is thus explained using a model where a resource–rich territory is occupied and made up of mine – settlement (*villa*) – fortification.*

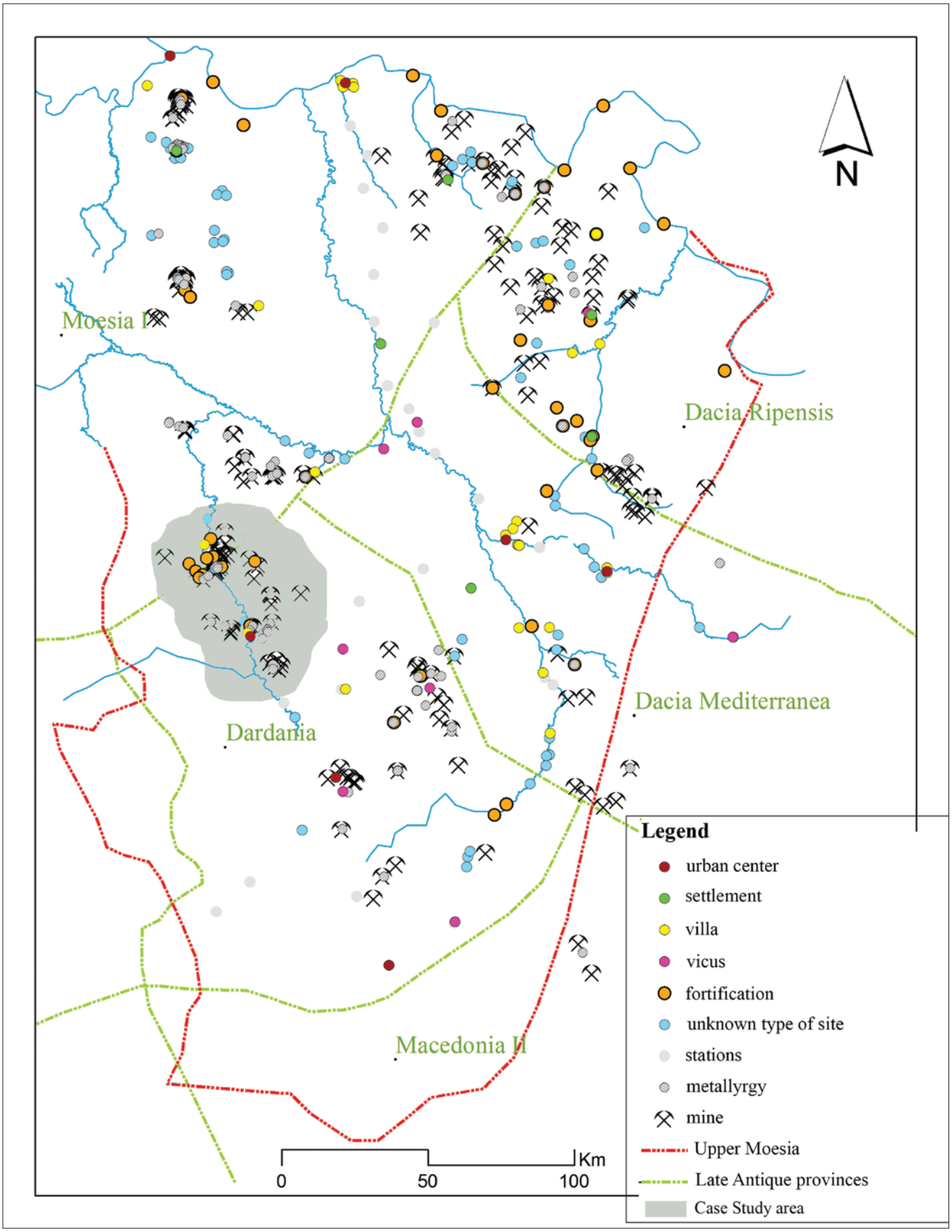
This article examines the role of fortifications in the system of exploitation and processing of ores and relations with the landscape in the territory of the eastern part of the Ibar river domain within the Metalla Dardanica. *The study is carried out using ArcGIS 10.2. by forming the zones of an economic significance of the settlements. The analyses of visibility (viewshed analyses) supported by the material culture analyses carried out on the assemblages from fortifications, have triggered a set of research questions concerning the character of the relationship between settlements and defense structures with the organization of mining and metallurgy, as well as storing and redistribution of ore. This refers to the conditions for the construction and function of the 4th-century fortifications within the imperial domain, which represents a new view of the defense system in the hinterland of the Limes.*

Key words: Late Antiquity, Moesia I, imperial domain, Metalla Dardanica, fortifications, mining and metallurgy, model of settling, analysis

The basis of the Roman economic system consisted of the exploitation of various raw materials throughout the Empire, depending on the natural resources of certain areas. By occupying a wider territory and by forming provinces, sources of exploitation of a wide range of resources, which have been implemented in economic terms, were enabled. For the needs of the Roman economy, ore was the most precious resource that dictated to a certain extent the political strategy of the Empire; In this regard, the mining areas are separated into imperial domains with a special legal status with the centralization of administrative management. This conditioned the adjustment of all structures of provinces to the needs of *rei metallica* (Марић 2015: 386).

Roman mining implied a well-regulated and strictly controlled system, with clearly defined social roles and infrastructure, planned in the service of ore exploitation. The system was established on the enclosed territories (imperial domains) that were under direct or indirect control of the emperor, according to the present knowledge of the problem. In this light, from the mid-20th century, the researchers began to recognize the space of the central Balkans as an organized system of imperial domains, with a special emphasis on the mining areas, and therefore the importance of the Upper Mooesia was more often associated with the use of mineral resources (Марић 2015: 386).

The establishment of the province of Upper Moesia in the early 1st century (Map 1) was followed by the organization of mining domain. The mining areas were set aside acquisition of a special legal status, under the direct authority of the *fiscus*. The mining area of the province was organized as a fiscal and formed mining territories that carried the names of the tribes which were settled at the moment of occupying of Central Balkans: Tricrornenses, Pincenses and Moesi on the north as well as the Dardanians on the south.



Map 1 Late Antique sites in the Central Balkans (Marić 2015: 387; modified by M. Marić)

The paper will process the area of the northern part of the imperial domain of *Metalla Dardanica* (Case Study area – Map 1) in the context of the organization of mining and metallurgy through the formation of a new cultural landscape in the Late Antiquity. This primarily relates to new structures that participate in the organization of domains in Late Roman period and represent the peculiarity of the architecture of this period in rural areas, with particular reference to the fortifications and their role and functionality in the organization and change of the mining landscapes.

LATE ANTIQUE TOPOGRAPHY OF THE EASTERN PART OF THE *METALLA DARDANICA*

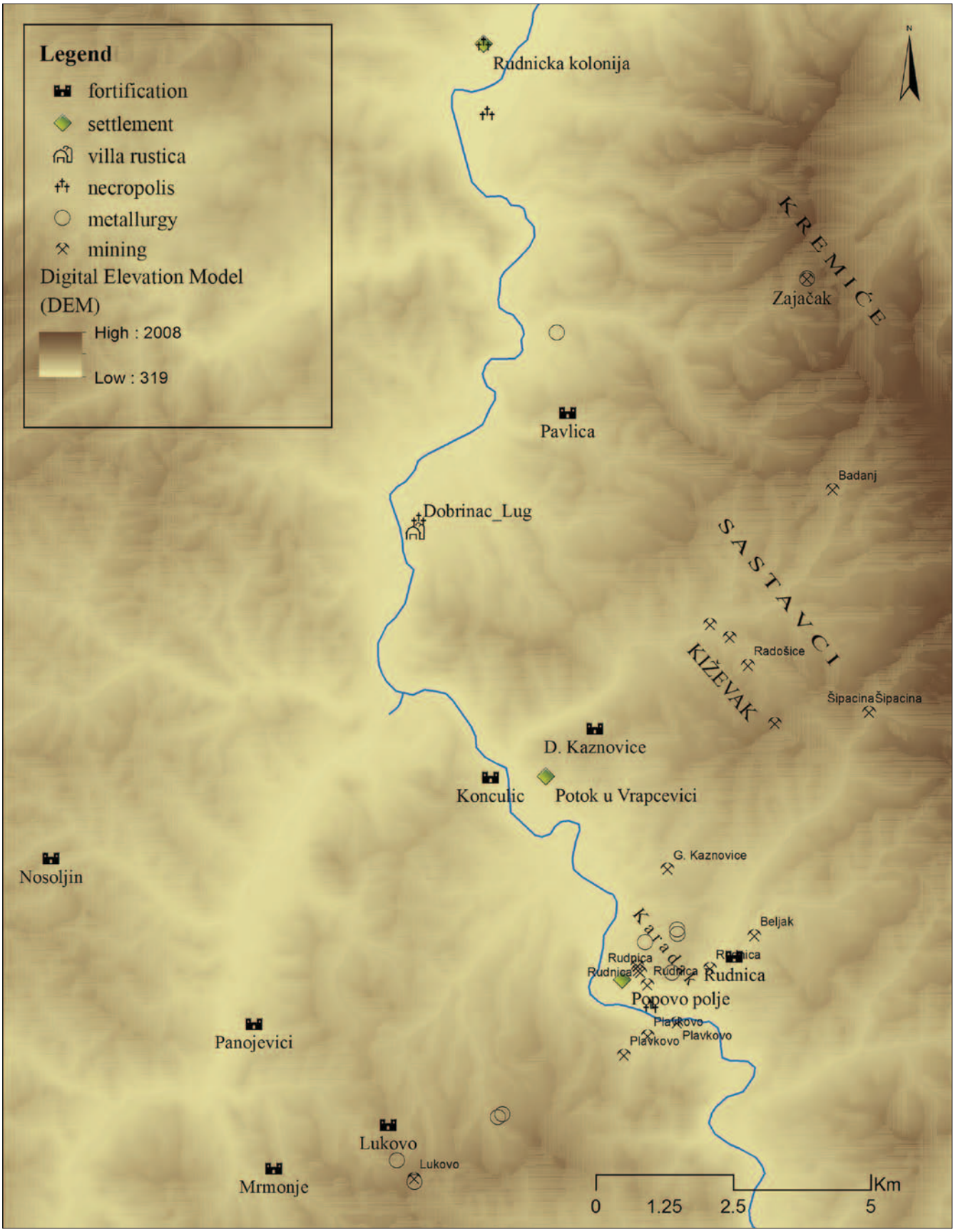
The imperial domain of *Metalla Dardanica* was organized in the area that was inhabited by the Dardanians in the pre-Roman period. The representation of the Dardanian *res metallica* was given by S. Dušanić on the basis of ancient juridical documents and epigraphic inscriptions with the remark that the level of archaeological research did not follow the thematic (Душанић 1980: 27; Марић 2014: 167; Марић 2017: 293). The boundaries of the territory were located from the source of Peak and Timok in the north (excluding the Šumadija region) to the far south of the province (Papazoglu 1969: 187; Душанић 1980: 25–27). According to Dušanić, the Dardanian mines covered a wide area from the mines in Ibar valley, through those in the basins of the rivers of Toplica, Binačka Morava, Moravica and South Morava, to the site at the source of Timok. Dardania was rich with predominantly silver, lead, and gold, but iron ore and copper were also exploited (Dušanić 1982: 120–121). In addition, most of the waters of eastern Dardania were abundant with golden sand (Марић 2014: 90). The administration of the entire Dardanian mining area was probably centered in Ulpiana (Gračanica in Kosovo). *Codex Theodosianus* from the year 386 mentions the existence of *procuratores metallorum intra... Dardaniam* whose jurisdiction in Late Antiquity is conditioned by administrative changes and is limited by the boundaries of the Late Roman province of Dardania (Душанић 1980: 28).

Within the framework of the Dardanian tract, the domain of Ibar was separated, and it extended from the middle course of the Western Morava in the north, to the area of the mine of Trepča in the south (Марић 2017: 293–295). In the west, the region reached Kuršumlija where the customs station *Ad Fines* and probably the *statio Aquar (um) Bas* were located.... These two sites mark the border of the municipal area of Naissus and imperial domain. In the south, the region reached the Sitnica river, where *Vicianum* station might be located with the customs station where the goods that were brought into the domain were charged. To the south of the station, Ulpiana's municipal area continued (Душанић 1980: 28–29). The center of the domain was located in Sočanica[1], where the seat of *coloni argentarium* and mine administration were located.

This study treats part of the Dardanian territory, respectively the northern part of the Ibar domain (Map 1), more precisely the area of the western slopes of the mountain of Kopaonik, the southern slopes of Golija and the eastern slopes of Rogozna (Map 2). This area today belongs to the recent Ore field of Raška, which was experiencing the first expansion in mining in the period of early antiquity, while systematic reorganization of the landscape for the purpose of mining and metallurgy occurred in the period of Late Antiquity. With the extensive research of the eastern Ore field of Raska, three deposits of lead-zinc ore were recorded – Sastavci, Kiževak, and Karadak (Map 2) – with traces of exploitation of ore from antiquity to the present day. All three mines are located in the steep slopes of the hills, on the right bank of Ibar. There are several ore deposits in the area between Sastavci and Karadak, where lead-zinc mineralization is registered: Badanj, Semeteš, Kozja Glava, Rojčići and others. In the northern part of the Ore field of Raška, there is the Kremić ore area (Map 2). In this area, old slags which occupy the area of about 4 ha are recorded, while samples of slags contain up to 35% of lead. Recent geological studies are mainly focused on the Kremićke mountains — primarily on the iron and copper mine of Zajačak, and on the Kremićke bačije and Lokve site (Богосављевић-Петровић 2006: 64). This area was exploited in the period of Late Antiquity. The existence of the ancient metallurgical center at the Zajačak site from the period of the second half of the 3rd century to the second half of the 4th century has been proven (Богосављевић-Петровић 1995: 59–62; Богосављевић-Петровић, Томовић 1995: 1–4; Томовић, Богосављевић-Петровић 1996: 107–113; 1997: 303–306). The second complex of ancient mineralisation in this ore field is postioned in the south, in the immediate vicinity of the modern town of Raška, at the archaeological site of Karadak (Map 2). This is certainly the largest concentration of material remains of exploitation and processing of ore in this area.

In addition to numerous information about mining activity, other sites that complement the data about the life of ancient miners have been recorded within the region, such as settlements and necropolises. The settlement in Sočanica

1 In his monograph about Sočanica, E. Čehrškov (Чершков 1970) did not critically examine all the available arguments and identified the *vicus metallorum* with the *Municipium Dardanorum*. S. Dušanić clarified the status of this settlement in several of his articles.



Map 2 Late Roman topography of the northern part of the Ibar domain (modified by: M. Marić)

(*vicus metallorum*) had a unique urbanistic and architectural concept that included a forum with porticoes, the 2nd century Antique temple, a horea (or a storage place for metal (Петровић 2007: 98)) connected through a common courtyard from the beginning of the 4th century, the baths, a metallurgical sector, an early Christian basilica, and so on. An archaeological excavation has shown two phases of building the settlement: the first phase involved raising the complex on a forum that survived throughout the 2nd century and greater part of the 3rd century, while the second phase occurred at the end of the 3rd century and survived until the end of Late Antiquity (Чершков 1970).

To the north of Sočanica, the site Dobrinac - Lug in Rvati vilage (Map 2) has been discovered, and this site represents the only partially explored settlement of the Late Roman period on the western slopes of Kopaonik. It is a *villa rustica* with a surrounding necropolis dating from the same period. Archaeological material including the coins of Claudius II Gothicus, Diocletian, and Constantine the Great, dates from the Late Antiquity. The strong layer formed by burning testifies to the fire in which the object was destroyed (Богосављевић-Петровић, Тошић 2001: 383–386). In the village of Korlaće at the site of Lanište, there is a necropolis of the skeletally buried deceased persons from the 4th century period, and the layer of older burials of the cremated deceased persons from the 1st and 2nd centuries were discovered. The assumption made by E. Čeršhkov (1970: 70) that it is the necropolis of the local population engaged in mining and metallurgical operations was confirmed by the findings from the graves, as well as the anthropological analysis of the skeleton (Радовић 2013). Beside the different findings of the fundus that have analogies at many sites within mining domains, the older phase of the necroplois also has the finding of *nummi metallorum* with the inscription *DARDANICI*, which is confirmed by the example of mining coins from the period of Emperor Trajan (Спасић 2005: 117–119). Another necropolis was recorded on the left bank of the Ibar river, in the village of Baljevac, within the contemporary recent Mine Colony (Rudnička kolonija), which was devastated during the construction of the modern settlement. On that occasion, several graves of brick masonry were destroyed (Чершков 1970: 70, n. 116). Further excavation of the settlement revealed one masonry tomb dating from the first half of the 5th century, based on grave goods and coins from the time of the rule of Arcadius. In the vicinity of the tomb, the remains of massive foundations have been discovered, which, according to M. Petrović, belonged to the sacral architectural feature (Петровић 1966: 257–258).

To the south of this area, in the immediate vicinity of Karadak mining and metallurgical centre, there are also the remains of the settlement Josova bakčica not far from the settlement named Potok u Vrapčevci, below the fortification of Gradina in Donji Kaznovići. The fragments of brick and ceramic material from the period of Late Antiquity were found at the Potok u Vrapčevici site (Михаиловић 1997: 150) (Map 2). The position and configuration of the terrain indicate the possibility of the existence of a *villa rustica*. Also, in a wide area on the river terrace along Ibar at the Popovo Polje site (Map 2) rubble and ceramic material have been registered. Next to the settlement is a small necropolis Lagumaško groblje with about 50 graves.

Considering the numerous remains of mining and metallurgical activities, a small number of settlements is surprising. On the other hand, based on the analysis of the western slopes of Kopaonik mountain, there is a large concentration of fortified sites on which the existence of a Late Antique layer was confirmed based on the findings of the movable archaeological material. One smaller fort was spotted at the site of Litica, next to the settlement in Sočanica (Fig. 1: 2). Most probably, this was an organic part of the settlement. On the right bank of Ibar, Late Roman fortifications were recorded in the villages of Panojeviće, Pavlica, Donje Kaznoviće, and Donja Rudnica (Михаиловић 1997: 149), while on the left bank of the Ibar river, fortifications were discovered in the villages of Končulić, Nosoljin, Panojevići, Lukovo and Mrmonje (Map 2). All these sites have the uniform name of *Gradina*, which in Serbian is a toponym that indicates a determined height location site (fortification).

MODEL OF THE SETTLING OF MINING DOMAINS

An overview of the Late Antique topography of the northern part of the mining domain of the Ibar indicates the intensive use of this area during Late Antiquity, primarily in the context of exploitation and processing of ore. For a long time, it was considered that mining activities in the Central Balkans ceased during Late Antiquity. This is most often explained by the general crisis of the 3rd century, on the basis of epigraphic inscriptions that frequently appear until the time of the Severan dynasty (and later more sporadically), and finally due to the lack of archaeological excavations on this thematic. However, in the period of Late Antiquity some changes took place in the economic system that caused the reorganization of economic activities. These changes could be the cause of the collapse of the urban economy (Alcock 1993: 219). Cities were no longer able to provide an adequate economy and the exploitation of natural resources was imposed as a poten-

tial economic source. Accordingly, rural areas became the focus of wealthy people - local elites used their influence and transferred their economic activities to rural areas. Many of them were part of the urban administration and also took part in the administration of ore exploitation (Марић 2014: 197).

These changes in economic assumptions led to changes in the landscape of the mining domain that followed the regularity of the spatial distribution of the sites[2]. This regularity is explained by the model of settling the territory under the resource that consists of the mine – settlement (*villa*) – fortification (Марић 2014: 157–158). Through examining the role of each element of the model in the system, their relationship and attitude towards the environment, refers to their connections in the technical, social and economic context. The model was tested using Site Catchment Analysis and the research was carried out using the predefined tool of the ArcGIS software package of the territorial control module, respecting visibility analysis carried out on the fortifications.

Visibility analysis was conducted using the algorithms ESRI ArcGIS 10.2. and a total of nine sites of the fortified type were tested. An existing module for algorithmic visibility calculation (viewshed), which is implemented within the program, was used. Using this module, the system of algorithmic equations, the visual communication of the given point with other points on the digital elevation model (DEM) was calculated. In order to simulate the view of an observer from the fortification walls, approximately five to ten points were set at different positions, depending on the elevation of the terrain and the size of the site since they are not systematically excavated and the complete spatial reference for the recorded parts were not known. Essentially, the view of the observer moving around the defined space (the height of the walls of 10 m (offset) wall compared to the DEM) is simulated. This would mean that, in a mathematical sense, the site (fortification) is a polygon rather than a point, which significantly affects the spectrum of the visible surface. The result obtained is a raster map showing visibility from a specific location. The map is made so that each cell between the observer and the observed space in the raster is interpolated with positive or negative data. The outcome of this result is a binary image map where the visible cells have a value of 1, and those that are not visible from the position of observation is 0. Since the analysis was conducted in the micro space (about 20h20km), it was not necessary to deal with limitations of results such as psychophysical boundaries of human vision[3], environmental constraints[4] and properties of objects of observation and its surroundings[5] (Ogburn 2006: 406–407; Beaulieu 2007: 1; Glavaš 2014). Viewsheed analysis represents an important element in the interpretation of spatial distribution of sites in the landscape in order to understand social activities in the past as well as finding answers about why particular sites are found in a particular space (Gillings, Wheatley, 2001: 26). The results of the visibility analysis, as well as the interpretation of the obtained results in the context of testing the proposed model of settling and the exploitation of the mining resource will be presented below, with a particular emphasis on fortifications as one of the elements of the model.

FORTIFICATIONS OF THE EASTERN PART OF THE IBAR DOMAIN AND RESULTS OF VISIBILITY ANALYSIS

During the research of the northern part of the Ibar domain, several types of sites were distinguished: settlements of an unknown type, villas, necropolises, fortifications and mining and metallurgical centers (Map 2). In comparison to the period of Early Antiquity, from the 3rd to 5th century, two new types of architecture (villas and fortifications) appeared. A. Busuladžić saw the roles of a *villa rustic*a in the area of Dalmatia as the nucleus of the formation of a fortification system (Busuladžić 2011: 110 with literature). This would include planning the construction of fortifications with a specific purpose. The literature often shows that the aim of building a system of fortification is to control roads and mines, as well as villas with estates. S. Jovanović, using the example of the Ravna domain within *Metalla Dardanica*, distinguished several categories of fortifications based on the function of controlling settlements, roads and mines as well as the presence of metallurgical activities inside them (Jovanović 2004). The dominant position of the site certainly provides an insight into the wider territory of the Ibar valley, bounded by the mountain summits of Kopaonik, Golija and Rogozna. In addition, the following text will discuss some other sociopolitical possibilities that would represent the reason for building a fortification system

2 For a complete overview of the change of the landscape of mining domains in the Central Balkans, see the doctoral dissertation M. Марић (2014).

3 Mental and physical limits of human vision and visual acuity observers are essential predispositions in the system of observation. This relates to the issue of information obtained by observing (eg a site that is 5km away is a visible object but people in its surroundings are not recognizable (Glavaš 2014) or a way of distinguishing the movement of friendly from hostile groups in case of military control of the territory).

4 Factors conditioned by the action of man and nature: light reflection of the object and environment, climate, vegetation, time of day, dust, etc. (Beaulieu 2007: 13; Glavaš 2014).

5 Refers to the size of the observed object, contrast, color, etc. (Ogburn 2006: 406–407; Glavaš 2014).

and demonstrate their multifunctional role within the imperial domain.

On the high hills on the left bank of the Ibar, five fortifications were recorded, on which the Late Antique layer was confirmed in the villages of Nosoljin, Panojevići, Lukovo and Mrmonje, as well as in Končulić (Map 2). On the right bank of the Ibar, in the Kopaonik slopes, in the area of the first elevations above the flat valley of the river, there are three fortifications in the villages of Rudnica, Donji Kaznovici and Pavlica (Map 2). Visibility calculation was done for each fortification separately.

Gradina in Končulić (Fig. 1: 1) played a key role in the system of communication with other fortifications because it possessed direct visual communication with a fortification in the central mining settlement of the Ibar domain in Sočanica, which is located near the *vicus metallorum*. In addition to contact with the central *vicus*, from this position it is possible to look at the mine in the Sastavci and a significant metallurgical checkpoint at Karadak with a nearby settlement of an unknown type at the Popovo Polje site. Below the fortifications in Končulić is the settlement of Potok u Vrapčevici, which also controlled Gradina in Donji Kaznovići on the other side of the Ibar valley (Fig. 1: 2). That was also to be expected in the view of the position of these two hills next to the river on the left and right bank and without natural barriers between them.

Gradina in Donji Kaznovići (Fig. 1: 3) has a slightly narrower vision limited to the mines in Sastavci and Kiževak, but also visual communication with Gradina in Nosoljin (Fig. 1: 4). Further observation of visual communication suggests that Gradina in Nosoljin (Fig. 2: 1) has the highest number of fortifications in her sight: besides the previously mentioned Gradina in Donji Kaznovići, it also communicates with Panojevići, Lukovo and Mrmonje on Rogozna, as well as Pavlica on the right bank of the Ibar, the northernmost fortification in this microregion. Its transparency of mines and metallurgical points is also wide: Zajačak, Sastavci, Suva Ruda and mines of Lipovica on the north of Sočanica vicus (Fig. 2: 2).

Gradina in Lukovo (Fig. 2: 3) achieves equally wide visual communication. It controls almost all mining and metallurgical sites on the slopes of Rogoza and Kopaonik, while its visual communication in the system is reduced to the fortification at Nosoljin (Fig. 2: 4).

The situation is similar with the Gradina in Mrmonje (Fig. 3: 1), from which the mines were seen by the line Zajačak – Sastavci – Suva Ruda, and visual communication relies on Gradina in Panojevići (Fig. 3: 2).

It seems that Gradina in Panojevići (Fig. 3: 3) was responsible for the area of Rogozna mountain and visually connected with all other fortifications in this part of the mountain, to the necropolis in Borovići where a settlement can be expected in the vicinity. Accordingly that data on mining or metallurgical activities in this part of Rogozna are missing, cannot be clearly concluded about the need to control this territory in the context of mining and metallurgy (Fig. 3: 4).

Using the analysis of the visibility of the territory the fortifications on the right bank of the Ibar, in Pavlica and Rudnici show a different focus. Gradina in Pavlica (Fig. 4: 1) is the northernmost point in this microregion and had an overview of the Ibar valley from entering the microregion near settlement in Baljevac, to the villa at the Dobrinac-Lug site in Rvati, with visual control on the metallurgical center and surrounding in Zajačak (Fig. 4: 2). If, in the period of Late Antiquity, Zajačak was surrounded by dense forest as it is today, the question is how it could actually control of activities on the site. On the other hand, the situation on the road between Dobrinac and Zajačak could certainly have been monitored. In the system of communication among the fortifications, this fortification was in visual communication with Gradina in Nosoljin (Fig. 4: 2).

The situation was similar with Gradina near Rudnica (Fig. 4: 3). This site did not have the ability for wide control. Visual control was concentrated on the mining sites due to the line of Suva Ruda, Kozja Glava, Suvo Rudište and metallurgical centre in Karadak with an unknown type site in Popovo Polje (Fig. 4: 4).

From all above mentioned, a system of visual communication is identified among the all fortifications that allowed the organization of the transmission of information on a certain area of this part of the Ibar domain, and also among the settlements, mines and metallurgical centers as well as with the central *vicus metallorum* in Sočanica. Therefore, it was clearly possible to retain control over the valley of this part of the Ibar valley (as a potential waterway and alongside the river as land road), over mines and metallurgical centers and settlements within the microregion. The cumulative visibility had not been carried out, since it is clear from the above text that the entire space was visually covered from different positions and that there was not a single site which was not under visual control.

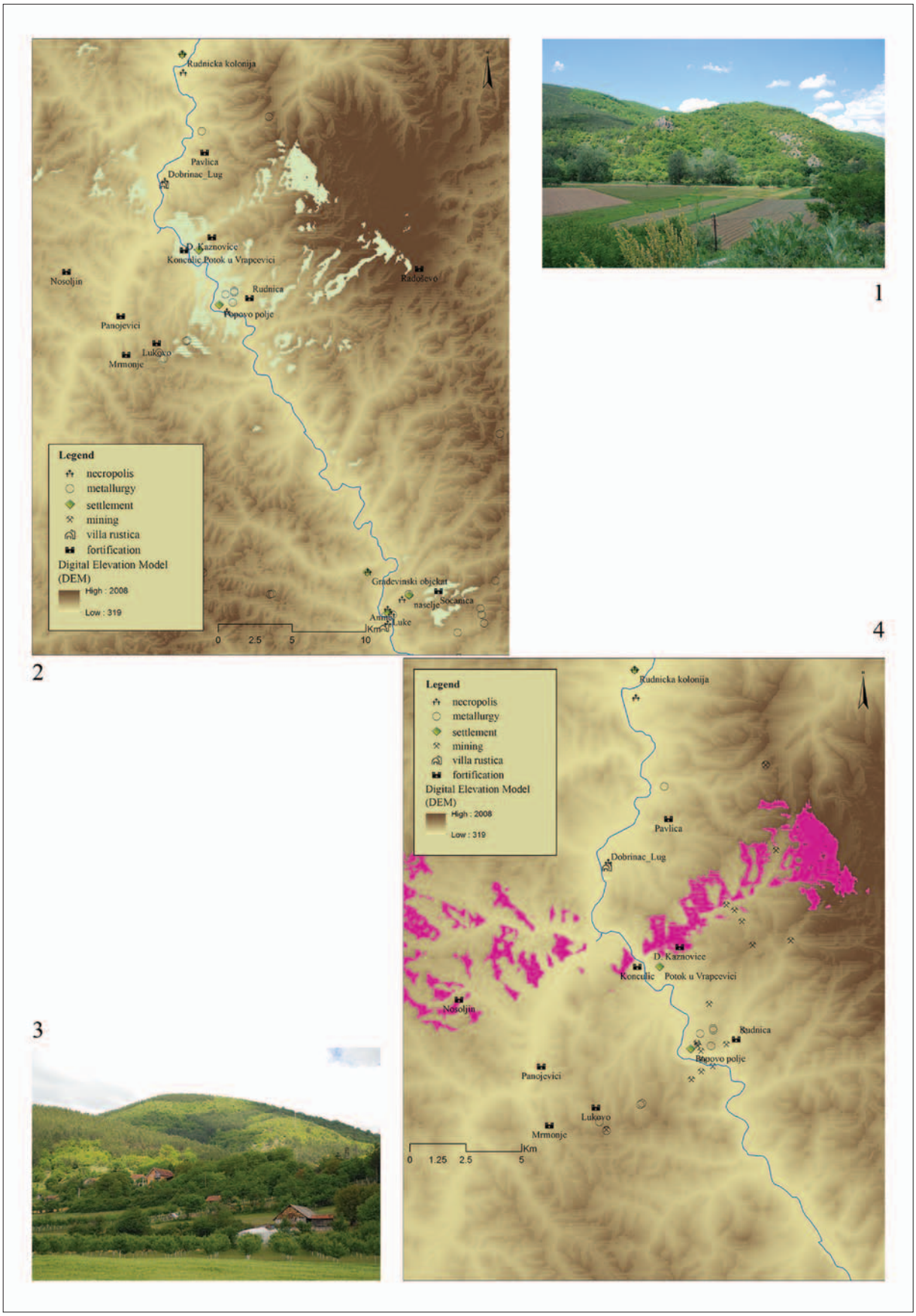


Fig. 1 Fortifications in Končulić and Donje Kaznoviće and the results of visibility analysis (maps and photos by: M. Marić)

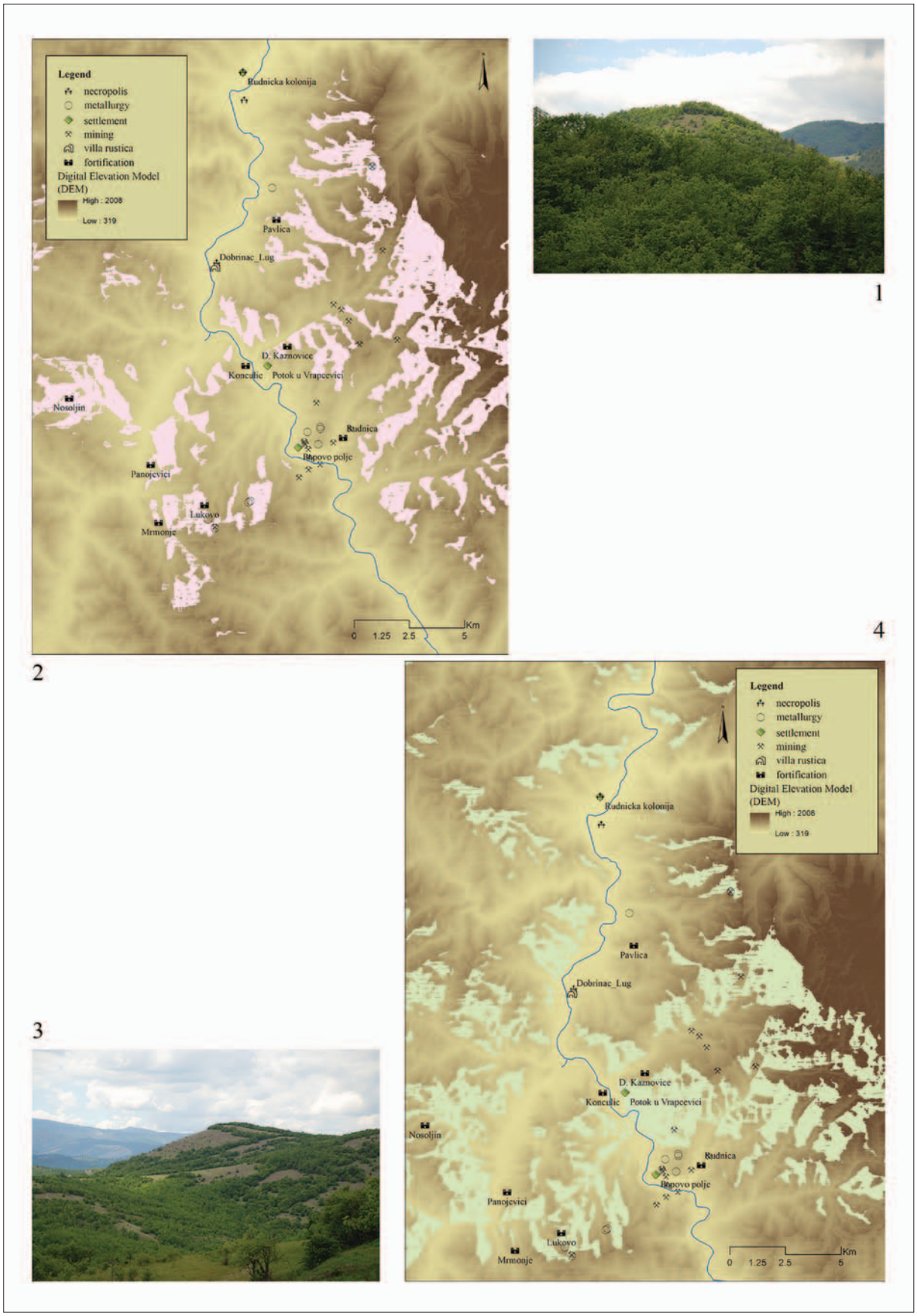


Fig. 2 Fortifications in Nosoljin and Lukovo and the results of visibility analysis (maps and photos by: M. Marić)

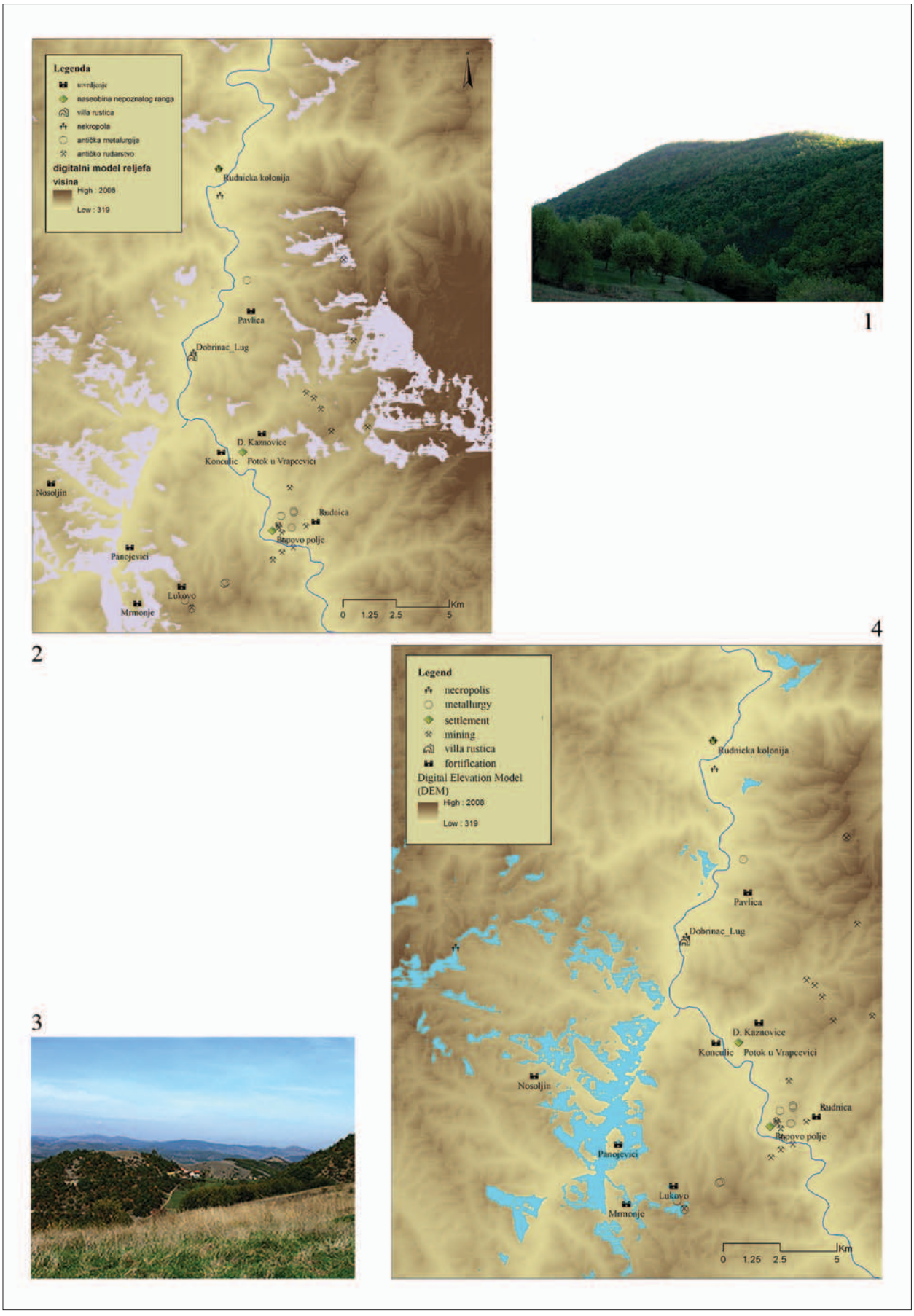


Fig. 3 Fortifications in Mrmonje and Panojevići and the results of visibility analysis (maps and photos by: M. Marić)

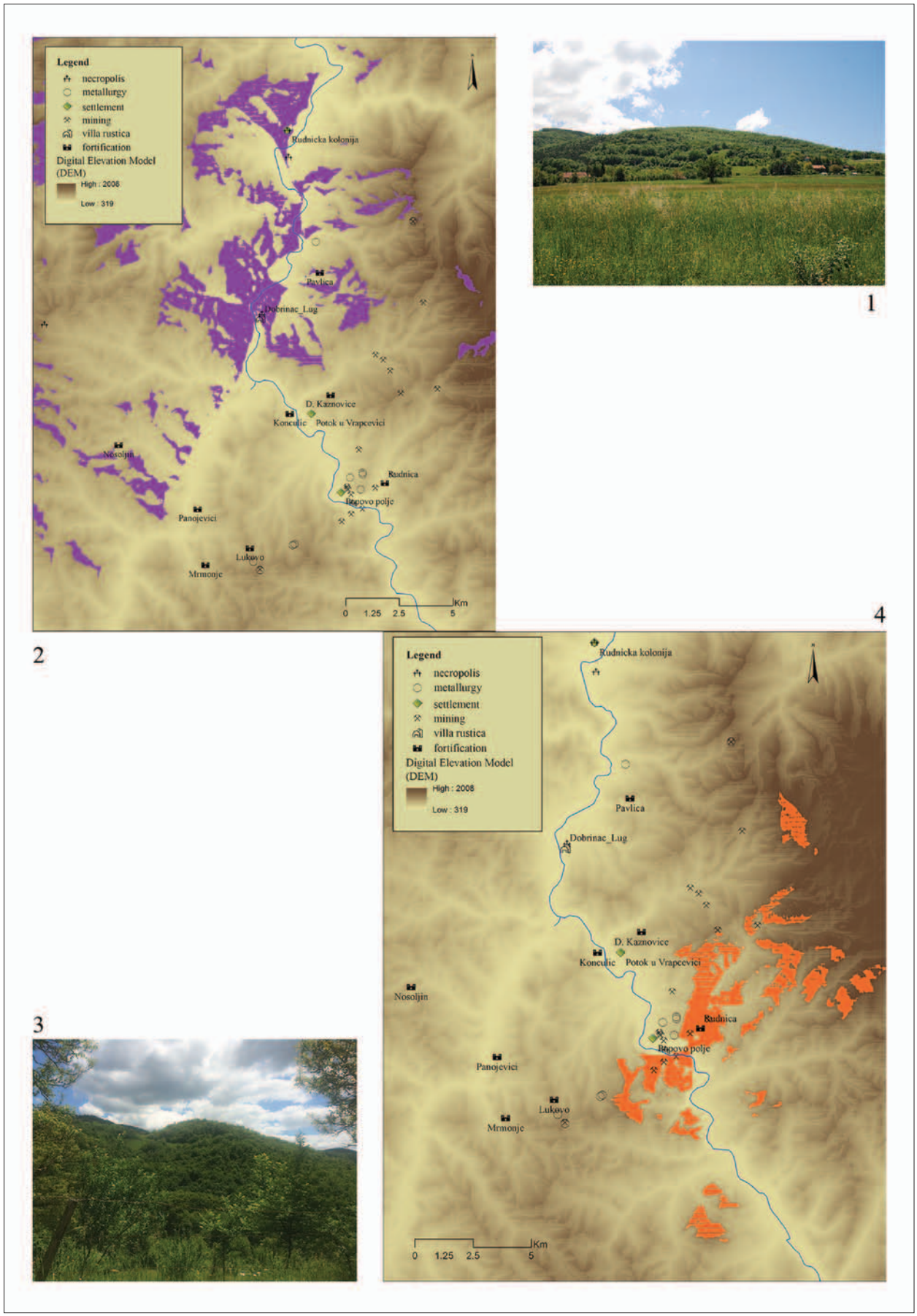


Fig. 4 Fortifications in Pavlica and Rudnica and the results of visibility analysis (maps and photos by: M. Marić)

The implementation of spatial analysis in the territory of the northern part of the Ibar domain gave positive arguments for the application of the model of settling consisting of a mine – a settlement (villa) – a fortification. This is illustrated by examples of applied model from the surveyed territory such as mines (Zajačak, Badanj, Suva Ruda and Kiževak) – villa (Dobrinac-Lug) – fortification (Pavlica), or the next example consisted of mine (Sastavci) – settlement (Potok u Vrapčevici) – fortifications (Končulić and Donji Kaznovići) as well as mine (Karadak) – settlement (Popovo polje) – fortifications (Končulić and Rudnica). The fortifications also communicate among themselves, which leads to the hypothesis of the existence of a system for signaling through the entire area, and probably further.

The presence of resources, the formation of settlements in the vicinity of resources, the organization of exploitation, the supply of basic living needs of the inhabitants of the domain, with the control and protection of the territory, make one liner dimension of the settling pattern. Behind that the social, political, historical, economic and other conditions and causes of the activities should be sought. In order to uncover the symbolic moves of the imperial authorities and the role of individual parts of the system of domain organizations, it is necessary to move to an analysis of at the level of functions of all elements of the system and their relationships, as well as their relations to the landscape and environment.

SOCIAL POLICY BEHIND THE FORTIFICATION SYSTEMS IN THE IMPERIAL DOMAINS

The visibility analysis carried out in the northern part of the Ibar domain produced results related to the possible physical control of mines, metallurgical centers, settlements, villas and roads within the domain. The systematic constructions of fortifications certainly had a basis in the decision of the imperial authority to build particular features on a certain territory for a certain reason. Considering this case of the imperial mining domain, it could be said that the fortifications were built in order to protect the resources, respectively the protection of mines from barbarians that had become frequent occurrences during the Late Antiquity. In accordance with the monetary, social and political reforms, conducted by Diocletian and Constantine, mining and metallurgy experienced significant changes at the end of the 3rd and the beginning of the 4th century. Unfortunately, these changes can not be monitored based on known mining legislation of that period, but through the imperial decrees that regulate other problems in imperial domains (Шајин 2015: 92). It is necessary to mention the statute of Constantine the Great, which ordered fortifying of all households in the Eastern provinces of the Empire (Thomas 1964: 389). Thus, the fortifying of villas at the beginning of the 4th century was also connected to the bilding of fortifications in Central Balkans, in mining regions, as well as alongside *via metallica*. Enclosing within the walls and raising activities to hardly accessible hillforts were usually related to a system of control and protection of a particular territory. The question remains what was the danger recognized by the imperial authorities that threatened territory with resources and organized economic activities, as well as the population of a domain. Was the construction of fortifications and villas a symbolic demonstration of imperial power or measure of economic stabilization?

The main problem that accompanied the mining organization was the lack of labor. From the 4th century, the imperial authorities had a series of legal acts which binded coloni to the territory where they were born, and their descendants for the mining profession. If the land was to be sold, it was sold with coloni, therefore their position was equated with the position of slaves (Busuladžić 2011: 112). This position is becoming increasingly difficult in time, so the descendants of the miners were obliged to accept the profession of their parents. Due to external invasions and suffered losses, the Roman state was significantly weakened, which encouraged miners to leave the parent mines, despite the ban. The escape of the miners from the parent mines was a daily occurrence, which imperial edicts, although strict, were unable to prevent. In order to preserve the fiscal system, in addition to legal measures for preventing miners from abandoning the main mines, the building of the fortification system was another measure for stabilization of the imperial authority. Therefore, there are several levels of protection that fortifications could have had: symbolic, physical, legal, etc. As the construction of fortifications implied a dominant position within the landscape, their function can also be sought in the symbolic representation of the presence of the imperial authorities for those who are *damnati ad metalla*. The escape of the miners from the parent mines was a general phenomenon that the imperial authorities failed to prevent even by the strict edicts (Шајин 2015: 102). The fortifications of the northern part of the Ibar domain, at the moment, are not suitable for supporting this hypothesis because they are not systematically excavated. Likewise there is a lack of information about the organization of metallurgical activity within the ramparts of all fortifications, except for the one in Rudnica where significant areas of slag were recorded. In support of this assumption can serve the fortification of Kraku lu Jordan near Brodica in eastern Serbia, where the iron chains for slaves or prisoners were found (Душанић 1982: 53). The source of slave labor in the 4th century is not well defined. According to Mócsy they were Sarmatians, Gepides, Vandals and Goths (Mócsy 1974: 322). Overall, the insecurity

of the mining domains had steadily increased as a result of the appearance of barbaric tribes and local bandits who were in alliance with groups of indigenous rebels and slaves inside and outside the mining districts causing serious enough crises to be called *bella* (Dušanić 2000: 347–348). It is also known that barbaric attacks on the territory of the Empire were often oriented toward the mining territories. The reasons were stealing raw metal and the possibility of obtaining support from domestic or immigrant peregrines dissatisfied with their position (Dušanić 1978: 240, n. 2; 2000: 348, n. 38; 2003: 262).

Third-century instability, caused by internal and external factors, made the life of the poor rural population extremely unfavourable. As a result of the pressure, they found a way to survive by leaving their land and beginning to deal with banditry[6] (*latrones*) or hiding in fortifying refugia where the situation was safer (Percival 1976). The official political ideology of the developed Empire did not accept the possibility of the existence of a comparable power of the state and bandites (Шо 2006: 361–362). Even at the apex of the Roman Empire, the areas existed within borders that were not under the real control of the state. In the inflexible experience of the Empire, as a complex of urban communities dominating its surroundings, there were mountainous areas outside the cities and villages under the poor control, such as the space that was dealt with in this text. Precisely in such areas, mining domains were formed due to the position and distribution of mineral resources. In those mining, agricultural and cattle-breeding areas, state officials rarely went and the law was enforced to the extent that landowners were present in the area. For that reason, the vicinity of any urban and rural centre was considered as a potentially dangerous (Шо 2006: 364). This particularly applies to a mountainous landscape covered by dense forests, as an ideal place for hiding of the bandits. In such a landscape there were cols as ideal places for plundering a caravan or boat with a load.

Although it remains unclear whether the fortifications were military or metallurgical sites, refugiums, settlements, prisons or combined, it must be taken into account that the inhabitants or the garrison had basic needs such as food and clothing, and further weapons and tools. Here it is necessary to make another look at the proposed model of settling on the mining territories that consists of mine – settlement (villa) – fortification and to emphasise the role of the villa in this system. As the garrison members were agrarian inactive, a hypothesis about the role of the villa for the food supply emerged. In the case of the northern part of the Ibar domain, eight fortifications and one villa with three settlements of the undefined type have been registered. If these three settlements were the miners' habitats that also needed food supplies, the question arises whether the villa in Rvati could produce enough food for all miners, metallurgists and fortification crews, or was food supplied by other sources, or whether new villas in this area might be expected.

CONCLUSION

The Romans were long present in the territory of the Central Balkans (Map 1) and their imperial system brought many social and economic transformations of the rural and urban environment. Some of the changes were forced, while others spontaneously emerged as a reflection of the need of the many aspects of Roman imperialism. In those parts of the Empire where there was a strong imperial interest, the changes were rapid. The most significant change in late antiquity in the Central Balkans was the economic shift from urban centres to the rural countryside. This process of transformation of a rural landscape was accompanied by the construction of new structures such as Villa rustic and fortifications. Such a situation has been recorded in all the provinces of the Empire, but the time, place and cause of these structures' appearance depended from province to province.

This essay has given an overview of late Roman fortifications on the northern part of the Ibar domain without interfering in the architectural analysis of certain objects within fortification. Therefore, the locations of fortifications within the cultural landscape and their relation to other sites of the same period is emphasised in this research. Although it is not easy to draw conclusions about processes when the type, quantity and quality of data are limited, the author attempted to make a general overview of the study of fortifications as a physical and symbolic manifestation of the presence of imperial authority within the imperial domain during Late Antiquity. In conclusion, it can be summarized that the fortifications had a multifunctional role in the organization of mining and metallurgy, as well as a strong influence in the establishment of the life within the mining domain. This refers to the control of territory which allowed a system of communication among fortifications and other sites such as settlements, mining and metallurgical centres, as well as *vicus metallorum* in Sočanica. Likewise, the road network was fully visually covered which enabled the control of the transport of goods. An important indicator of the function of fortifications as a metallurgical centre is the presence of small areas of slag within the ramparts

6 Robbery, as an isolated model of small-scale violence, is a form of personal violence most commonly carried out in small groups (not always) and inherent in rural societies (not necessarily). This form of robbery is declared as a parasitic way of life, where the acquisition of goods and services directly depended on the use of violence and threats – *the economy of violence* (Шо 2006: 361).

of the fortification in Rudnica. There is still no material evidence in the Ibar domain about the role of the fortification in preventing the miners' escape from the mines, but the presence of slaves has been testified by the finding of the chain of captives in the fortification of *Krakul lu Jordan* in the Pek domain (Душанић 1982: 53). As such, it can be concluded that every individual fortification in Late Antiquity represents its own individual paradigm. Nevertheless, this paper is one more step aimed toward the understanding of the circumstances of system erection, as well as of its function and importance. By examining all previous issues and penetrating into the sociopolitical and symbolic background of Late Antiquity, a basis for understanding the idea of building a fortification system in the mining domains of the Central Balkans can be formed.

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ANA AZINOVIĆ BEBEK, PETAR SEKULIĆ

Late Antiquity Hilltop Fortress Crkvišće Bukovlje

Late Antiquity hilltop fortress Crkvišće Bukovlje is being excavated since 2012. The site is located on a naturally protected elevation on the Mrežnica River bend. The shape of the plateau that is slightly inclined towards north is of an irregular tringle (the length of the south-western side is about 110 meters, of the north-eastern about 80 meters and of the south-eastern about 85 meters) and on the western side is naturally protected by the steep slope descending to the Mrežnica River canyon. Presumably, the Roman road Romula – Senia was passing somewhere in vicinity. On the northern, the highest and most dominant part of the plateau there are remains of a single-nave church with a semicircular apse. It is dated to the 5th and 6th centuries, which was confirmed by the radiocarbon analysis. Next to the southwestern defensive wall, two buildings, of 8 x 8 meters and 8 x 5 meters, were explored. They probably were used for dwelling and accommodation of a military garrison. Based on the current degree of research and numerous analogies it can be concluded that it is a hill military fort built in the second half of the 4th century, which during the 5th century became a local administrative center with a church of a simple disposition.

Key words: Crkvišće Bukovlje, late antiquity hilltop fortress, late antiquity church

INTRODUCTION

Crkvišće Bukovlje is located in the central part of Croatia, some twenty kilometres south-west from Karlovac. The site is located on a naturally protected elevation (about 177 m AMSL), on the Mrežnica River bend. The toponym Crkvišće indicates the existence of a church, usually from the pre-Ottoman period. On this position it is possible to find the continuity of settlement from the period of aeneolithic (Lasinja Culture) through the Late Bronze Age and Early Iron Age to the Late Antiquity. The plateau of about 0.5 hectares has a shape of an irregular triangle (the length of the south-western side is about 110 meters, of the north-eastern is about 80 meters and of the south-eastern about 85 meters) slightly rising to the north. On its western side the plateau is naturally protected by the steep slope descending to the Mrežnica River. On the northern side the step slope descends to the fertile floodplain (Popovska luka) on the Mrežnica River bend (Fig. 1). On the eastern side the steep is much milder[1] and an additional protection is provided by the karst landscape or numerous coves (karst valleys) and rocks. Opposite to Crkvišće, on the left side of the Mrežnica River, there are the remains of the medieval castle Zvečaj demolished at the end of the 18th century while the road from Karlovac to Senj was built (Azinović Bebek, Sekulić 2014: 166–168). The Crkvišće site is on the important communication route connecting the Pannonian Basin and the Adriatic Sea since the Antiquity through Middle Age and up to nowadays. In the Antiquity, Crkvišće was positioned by the road *Romula* (present-day Dubovac or St Petar Mrežnički) - *Senia* (Gračanin 2011: 30–31, 34). The strategic position of Crkvišće was the reason for construction of the hilltop fortress in the Late Antiquity. The site is dominated by the remains of single-nave church built at the highest part of the plateau. The Department for Archaeology of Croatian conservation institute has been carried out the research of Crkvišće Bukovlje site since 2012.[2]

1 Defensive walls are adapted to the terrain configuration – while the walls on the unaccessible western side are about 1 meter thick, the eastern defensive walls is 2 meter thick and additionally fortified by the construction of few towers.

2 Researches led by dr. sc. Ana Azinović Bebek from the Department for Archaeology of Croatian conservation institute (Hrvatski restauratorski zavod) have been carried out for five years (Azinović Bebek 2012; Azinović Bebek, Sekulić 2014; Azinović Bebek, Sekulić 2015; Azinović Bebek, Sekulić 2016). The researches have begun under the initiative of conservator Krešimir Raguž from the Ministry of Culture of the Republic of Croatia that financed the researches with the support of the Municipality of Generalski Stol. The Department for Underwater Archaeology of Croatian conservation institute has earlier carried out underwater archaeological recognition of the Mrežnica River flow (Zubčić 2007), while the Institute for Archaeology from Zagreb carried out probing researches at the plateau itself (Karavanić, Kudelić 2011).

Fig. 1 Position of the site by the Mrežnica River (made by: P. Sekulić, Archive of the Croatian Conservation Institute)

HISTORICAL FRAMEWORK

One of the most important characteristics of the Late Antiquity is general militarization of the landscape. It was a gradual process proceeding from the second half of the 3rd century up to the end of the 6th century, as a result of internal (civil wars) and external insecurities (Barbarian invasions) (Ciglenečki 2003: 263; Špehar 2008: 588). In border areas an additional fortifying of the existing fortresses has been noticed and construction of new fortresses and watchtowers, fortification of cities and *mansio*, transformation of river and lake shores into defensive zones and emergence of refuges[3] on hardly accessible points (Sarantis, Christie 2013: 256). Changes are noticeable throughout the Empire where the fortification of cities is also observable (mostly only administrative, religious and military parts of the city) that have been turned into mobilization centers and the construction of the defence system (*clausurae*) (Ciglenečki 2009: 210, Sarantis, Christie 2013: 256). New defence strategies were required due to the weakening of central government, the depopulation and the reduction of the available military forces. The gradual adjustment to the new conditions is evident in fortification innovations and the withdrawal of the population into more inaccessible and easier defendable places at the end of the 4th and early 5th centuries. This was a period of general insecurity caused by the Quadi and the Sarmatians in 374, and the Huns, the Alans and the Goths from 378 to 380 (Gračanin 2010: 14). Using the Roman road network, Barbarian forces devastated the area of the Praetorian Prefecture of Illyricum until the peace agreement with Emperor Gratian in 380, by which they were settled, as Foederati, on the borders of Pannonian Basin Provinces (Gračanin 2010: 55–57). After the collapse of the Hunnic Empire in the middle of 5th century, Ostrogoths were settled as Foederati in the area of the Pannonian Basin Province (Gračanin 2006: 95). The Ostrogoths, encouraged by the Eastern Roman Emperor Zeno, began their raid to Italy in 488, which resulted in the founding of the Ostrogothic Kingdom in 493. At the turn of the 5th and the 6th centuries, the Ostrogothic governemnt spread to the area of Pannonia Savia, which together with Dalmatia was governed by Gothic *comesa* (Gračanin 2006: 108–109). The Eastern–Roman–Gothic War (535–554) ended Goth's presence in the area of Pannia Savia in

3 In the region of north-western Croatia in that period was dated the Kuzelin site (Sokol 1997: 10–11).

537, but at the same time marked the rise of a new military factor – the Lombards (Gračanin 2006: 112–113). As the Imperial Allies, the Lombards first occupied the northern Pannonia (about 526) and some time later southern Pannonia (Gračanin 2007: 36–37). According to Procopius testimony, in the middle of the 6th century the areas of Inner Noricum and Pannonia Savia were ceded to the Lombards, as evidenced by the archaeological finds (Vinski 1972: 48, Ciglenečki 1999: 298, Fig.7, Gračanin 2007: 37–39, Gračanin 2011: 107, 110). The collapse of the late antique system occurred at the end of the 6th century due to the Avarian–Slavic supremacy (Vinski 1972: 63).

In addition to the rise of new fortification elements,[4] since the end of the 4th century hilltop fortresses began to show a new concept of merging of military and civil functions, in which from the 5th century the dominant role belongs to a church (Knific 1991: 19, Špehar 2008: 588).

RESEARCHED STRUCTURES

In 2013, in addition to geophysical researches[5] archaeological research of the western part of the plateau began. At that time, mostly prehistoric stratigraphic units were defined and a smaller waste pit was also excavated that is dated from the middle of the 3rd to the middle of the 5th centuries.[6] Based on the geophysical research of the plateau, the existence of several buildings of unknown purpose was confirmed. One of the buildings (Object 1), excavated in 2014, can be interpreted as an accommodation for a military garrison (Fig. 2). It is a rectangular constructed building of about 8 x 8 meters in size, leant against an outer defensive wall. The walls of the object, 0.70 meters in width, are constructed of irregular rocks arranged in rows and connected by unevenly spread mortar, are preserved only in the foundations. The bottom of the foundation was built on the prehistoric layer and carved out of bedrock. The sample of the charcoal from the door-step of the northern wall of the building is by radiocarbon analysis dated from 235 to 401.[7] During the research numerous finds of late antique ceramics, military equipment and weapons, as well as items of everyday use were found. Based on archeological finds, the building can be interpreted as an object for the purpose of a military garrison accomodation.

Fig. 2 Building excavated in 2014 and the position of probe on the basis of geophysical research (Archive of the Croatian Conservation Institute)

4 Fortifications are adapted to the terrain configuration; the stone is used in the construction instead of bricks, higher defensive walls fortified by more towers of different shapes, the reuse of positions and fortifications from earlier prehistoric periods (Ciglenečki 2000: 127; Špehar 2008: 589; Sarantis, Christie 2013: 256)

5 Researches carried out by the company Gearh d.o.o. from Maribor.

6 Lab. Number LTL14835A Conventional radiocarbon age: 1670±45 BP, 2 Sigma calibrated result (95.4 % probability): Cal 240 AD (88.5%) 440 AD, 480 AD (6.9%) 540 AD, 1 Sigma calibrated result (68.2% probability): Cal AD 260 to 540 (3.1%), 330 AD (65.1%) 430 AD.

7 Lab. Number LTL 14962A Conventional radiocarbon age: 1732±35 BP, 2 Sigma calibrated result (95.4% probability): Cal 235 AD (95,4%) 401 AD, 1 Sigma calibrated result (68.2% probability): Cal AD 252 to 345, 373 AD (2.0%) 376AD

The building (Object 2) about 7 x 5 meters in size, excavated in 2015 had probably the housing purpose (Fig. 3) as evidence the remains of the tubular heating elements, as well as the find of a decorative panel made of volcanic rock. The walls of the object, 0.70 meters in width, built of irregular rocks arranged in rows and connected by unevenly spread mortar, are preserved only in the foundations. The walls are based on carved out bedrock, as evidenced by the preserved traces of the binder. Likewise, on the basis of preserved beam supports in the walls, it is possible to assume that the upper part of the building was made of wood. During this research, numerous finds of late antique ceramics, military equipment and weapons and items of everyday use were also found. This building can be dated to the 6th century.

Fig. 3 Building excavated in 2015 and the position of probe on the basis of geophysical research (Archive of the Croatian Conservation Institute)

During the research in 2015, the remains of the furnace were found, whereon the walls of the Object 2 (Fig. 4) were constructed. Radiocarbon analysis of a sample of charcoal from the layer on which the building is built can be dated to the period from the middle of the 6th to middle of the 7th centuries,[8] while radiocarbon analysis of the charcoal sample from the furnace gave the range from 210 to 420,[9] corresponding to stratigraphic relationships at the site. It can be assumed that the furnace was used in the construction of the fortifications in the late 3rd or early 4th centuries. Since it was not used later, a layer was created around it on which Object 2 was built in the 6th century.

Although three major periods of life are defined in this site, due to large erosion and long-term soil cultivation sometimes it is difficult to distinguish stratigraphic relationships. In layers with late antiquity finds there are also fragments from prehistoric periods. Among the late antiquity movable finds the most common is ceramics. Presently it is possible to date it from the middle of the 3rd until the end of the 6th centuries, with a possible extension to the 7th century.

Fig. 4 Furnace beneath the building excavated in 2015 (Archive of the Croatian Conservation Institute)

8 Lab. Number LTL15993A. Conventional radiocarbon age: 1467±45 BP, 2 Sigma calibrated result (95.4% probability): Cal 530 AD (90,3%) 660 AD, Cal 430 AD to 490 AD (5.1%), 1 Sigma calibrated result (68.2% probability): Cal AD 560 to AD 640 (68.2%).

9 Lab. Number LTL15994A. Conventional radiocarbon age: 1721±45 BP, 2 Sigma calibrated result (95.4% probability): Cal 210 AD (95,4%) 420 AD, 1 Sigma calibrated result (68.2% probability): Cal AD 310 to AD 390 (40.5%), Cal AD 250 to AD 300 (27%).

So far 70 pieces of coins have been found (Fig. 5). The oldest one is the sestertius of Lucius Verus from the middle of the 2nd century, and the latest the coin of Theodosius II from the first quarter of the 5th century. The substantial amount of coins is the production of the 4th century.

Fig. 5 Types of coins found during the research (Archive of the Croatian Conservation Institute)

Based on previous researches and carried out analysis, the position of Crkvišće can be interpreted as a late antique hilltop fortress within which a church was built in the 5th century (Fig. 6). For now, it is not possible to establish precisely the exact time of the fortress building, but it can be assumed that the site was serving as a refuge already at the end of the 3rd century.

Fig. 6 Supposed plan of the fortress (made by P. Sekulić, Archive of the Croatian Conservation Institute)

CHURCH

The one-nave church of 15.17 x 7.41 meters in size, with a semicircular apse of 2 meters in depth, is positioned in the east-west direction with a small deviation to the south (Fig. 7). The church had three entrances (on the south and north walls, and the main entrance on the west wall) with preserved traces of door-step and door-jamb. The walls of the church, about 0.70 meters or 2.5 Roman feet in width, remained preserved in the height of 0.30 to 0.80 meters and founded from 0.40 to 0.80 meters deep. On the walls there are traces of the remains of plaster and coating. In the sanctuary, plastered subselia is preserved in its full length, as well as the remains of the cathedra and the sacrarium or lavatorium, the traces of the foundation of the altar and the traces of the altar screen. Plaster analysis revealed two layers – the lower one, which is coarser and with larger granules and the outer one, which is more refined, consisting mainly of binder (lime). The outer layer is probably the preserved trace of the church's whitewa-

Fig. 7 Aerial photo of the church (Archive of the Croatian Conservation Institute)

shing. In the interior of the church is preserved a floor screed for which medium strength plaster (binder and filler ratio 2.4 : 1) was used. In all analyzed samples there are crushed bricks, all of gray to yellowish colour, of medium strength, the binder is of lime and binder and filler ratio approx. 3.3 : 1. In two samples there is also present soot. The absolute height of the floor surface varies from 177.66 m AMSL in the sanctuary, to 177.58 m AMSL in the eastern part of the nave and to 177.38 m AMSL in the western part of the nave. Since no traces of stairs have been noticed, except the small elevation of 0.05-0.10 meter of the sanctuary at the level of the altar screen, it is probably due to terrain configuration. Inside the sanctuary, fragments and entire tufa ashlar were found, which on the basis of their shape and traces of interconnections can be interpreted as the remains of the collapsed vault (Azinović Bebek 2012: 29; Azinović Bebek, Sekulić 2014: 172). The use of tufa (as a variety of limestone) as a building material is understandable because of the location of the site directly adjacent to the deposit of the raw material (the Mrežnica River) and the qualitative characteristics of tufa such as low weight and ease of processing. So far, only a few tegula fragments have been found and it is not certain whether or not the church was covered by them. The roof could have been made out of roof shingle. According to the aforementioned stylistic characteristics, the church can be dated to the period of late antiquity. By radiocarbon analysis of collected samples the church was dated in the 5–6th centuries.

In addition to its ground-plan, the church in Crkvišće fits in with the Late Antiquity also by its church furniture or spatial organization. In the sanctuary, plastered subselia is preserved in its full length, as well as the remains of the cathedra and the sacrarium or lavatorium, the traces of the base of an altar and the traces of the altar screen.

The Subselia (lat. *subsellium* - bench, *sub* – floor + *sella* - chair, Leksikon 1990: 552) is, in early Christian churches, a long, stone bench with a backrest rounded alongside the apse on both sides of the cathedra on which during the Holy Mass sits the bishop's assistance (priest or deacon) or clergy. From the Romanesque period subselia is very rarely found in church sanctuaries. The found subselia consists of seats (0.32 - 0.36 meters in width), footstool (0.25 – 0.28 meters in width) and backrest which usually is not preserved. The footstool is at the height of 0.38 meters above the passage level and the seat is 0.38 meters above the flootstool. The whole subselia is coated with a plaster layer.

The cathedra (*Greek kathedra* - seat, chair, teacher chair, Leksikon 1990: 326) is the name for an antique type of chair with a twisted backrest without armrests. It is also the name of the official bishop's throne or church chair representing the

bishop's dignity. Until the 11th century the cathedra is located in the apse behind the altar. The position of the cathedra has its roots in the Roman Emperor's ceremony, which has been transferred to other public services, including the church. The elevated position of the cathedra has its meaning in the ministerial function of the priest who is called to supervise the ceremony. Therefore, in the Christian basilicas and churches the cathedra was located on an elevated place in the deepest point of the apse with an open view to the whole community of worshippers. In the sanctuary of the church at Crkvišće the remains of the cathedra are preserved only in the foundations. These are the remains of the trapezoidal form of 0.60 (narrow end) x 0.70 (wide end) x 0.90 (sideways) m, built of stone and rubble connected with plaster. Although the full height is not preserved it is noticeable that the desired form is smoothed with a thick (0.05 – 0.10 m) layer of plaster. The traces of the altar foundation in the sanctuary's base are of 0.80 x 0.90 meters in size.

In the preserved flooring section in front of the sanctuary the traces of an altar screen are noticeable. The altar screen closes the space where the clergy was, separating it additionaly from the common people. Its size is 3 x 3 x 3.61 meters. The material that the altar screen was made of is unknown for now, but according to analogies it is possible that it was made of rocks (tufa) or timber. Namely, in eastern Alpine regions in late antiquity churches the sanctuary is separated from the nave by screens made of timber (Ciglenečki et. al. 2011: 227). The church is most certainly built in the 5th century, and and its duration is connected to the end of life in this fortress, very probably by the end of the 6th or early 7th centuries.

ANALOGIES

By its characteristics, the site Crkvišće is most similar to the site Korinjski hrib whose fortress was built during the second half of the 4th century with the aim of monitoring important communication route. Within the fortress, fortified by several square towers, there is a single-nave church of similar dimensions (Ciglenečki 1984: 152; Ciglenečki 1985: 256, 260–262). According to topographical features, Crkvišće is very similar to the site Tonovcov grad near Kobarid in the northwestern Slovenia. As in most similar sites, the church complex in Tonovcov grad was built in a dominant position while residential buildings were built on the lower, wind-protected slopes (Ciglenečki et al. 2011: 19, 120). The analogie for building with a combination of stone foundations and wooden superstructure (Object 2) provides us a similar researched building from Tonovcov grad (Object 1) dated in the period of 4th–5th centuries (Ciglenečki et al. 2011: 217).

On the territory of present-day Bosnia and Herzegovina, several late antiquity forts with their topographical features remind us of Crkvišće: Biograci–Lištica (Špehar 2008: 578, Fig. 11), Grad–Gornji Vrbljani (Basler 1972: 53, Fig. 24–25), Bugar grad (Špehar 2008: 569, Fig. 3) and Zecovi near Čarakovo (Basler 1972: 55, Fig. 26). In the area of the Roman provinces Raetia and Noricum, according to the topographic features the sites of Neuburg (Ciglenečki 1987: 23, 13), Brinjeva gora (Ciglenečki 1987: 68, 81), Gräzerkogel (Ciglenečki 1987: 33, 23), Mooseberg (Ciglenečki 1987: 22, 12) and St. Peter (Ciglenečki 1987: 60, 65) correspond to Crkvišće.

Common features of the late antique fortress Crkvišće and analogous sites (Fig. 8) from the surrounding area – Korinjski hrib (Ciglenečki 2008: 502, Abb. 11.1), Tonovcov grad (Ciglenečki 2008: 516, Abb. 16), Ančikovo Gradišče (Ciglenečki 2008: 494, Abb. 5), Gradec Prapretno (Ciglenečki 1994: 243, Abb. 4), Gradec Velika Strmica (Ciglenečki 2008: 502, Abb. 11.2) and Zecovi near Čarakovo (Špehar 2008: 569, Fig.3):

- Position on hardly accessible elevations, most often overlooking important roads, rivers, mountain passes and near agricultural area;
- Naturally protected positions further fortified by defensive walls, towers and rampart;
- Church on a dominant, elevated position;
- Residential facilities in a lower position, most often sheltered.

Simple single-nave churches with semicircular apse, subselia, cathedra and altar screen are common in the late antiquity period in the areas of Dalmatia, Pannonia and Noricus. Such churches are often interpreted as simple "military churches" typical of the 5th and 6th centuries, while those with more developed spatial dispositions and the presence of the Baptistery point to more complex organizations in permanent settlements (Ciglenečki 1987: 158, 171; Ciglenečki 2011: 673). Analogies for the Church in Ckrvišće can be found at the sites of Velika Malenica (Dular et al. 1995: 136, Fig. 164: 7), Rifnik (Dular et al. 1995: 136, Fig. 164: 5), Korinjski hrib (Dular et al. 1995: 136, Fig. 164: 6), Gradec nad Mihovim (Dular et al. 1995: 136, Fig. 164: 9), Čarakovo (Basler 1972: 76, Fig. 63), Jelica - Gradina (Milinković 2001: 115, Abb. 33) and Bakinci (Vujinović 2014: 170, Fig. 7) (Fig. 9).

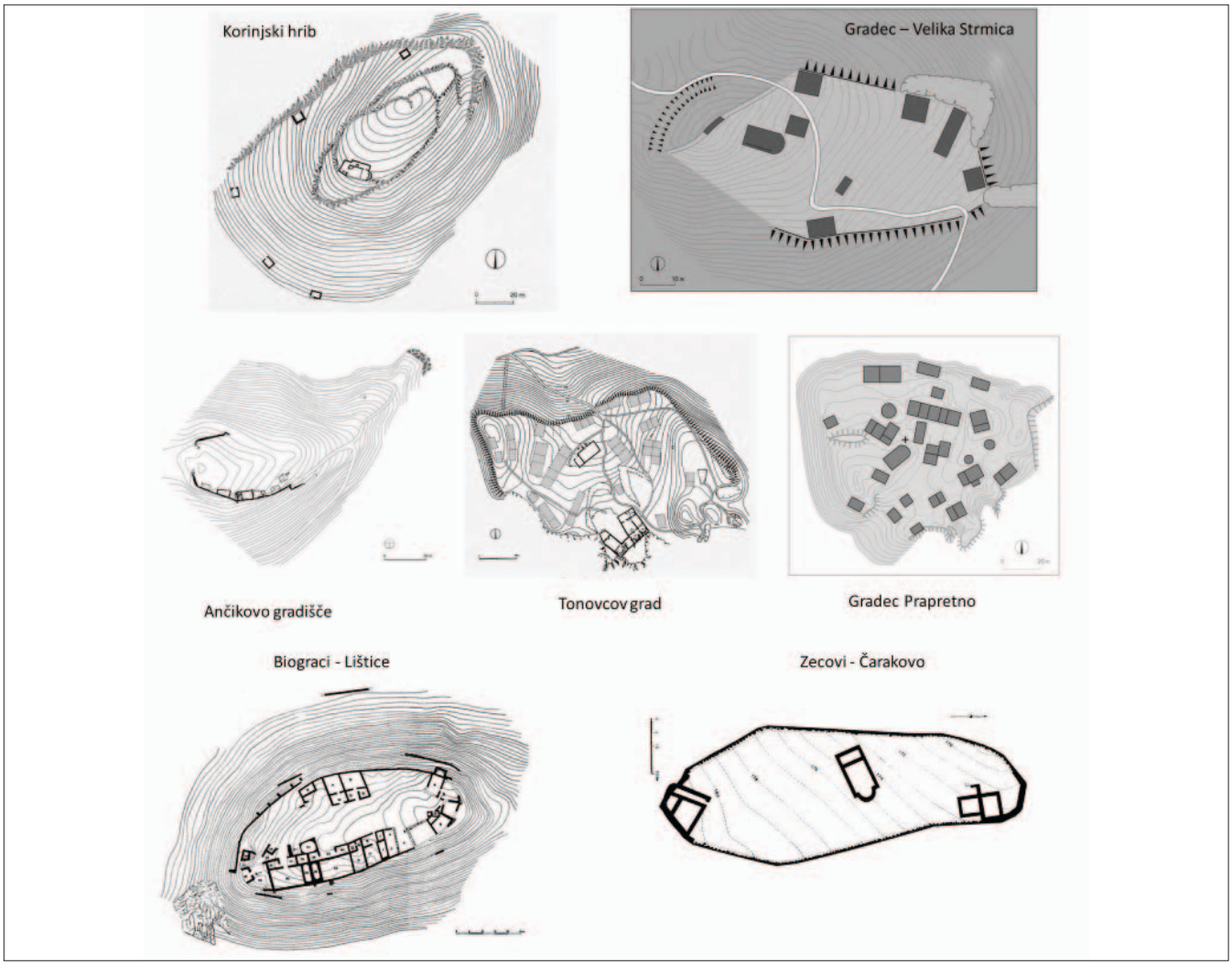

Fig. 8 Comparative fortresses of the neighbouring areas - Korinjski hrib (Ciglenečki 2008: 502, Abb.11.1), Tonovcov grad (Ciglenečki 2008: 516, Abb. 16), Ančikovo Gradišče (Ciglenečki 2008: 495, Abb. 5), Gradec Prapretno (Ciglenečki 1994: 243, Abb. 4), Gradec Velika Strmica (Ciglenečki 2008: 502, Abb. 11.2) and Zecovi near Čarakovo (Špehar 2008: 569, Fig. 3)

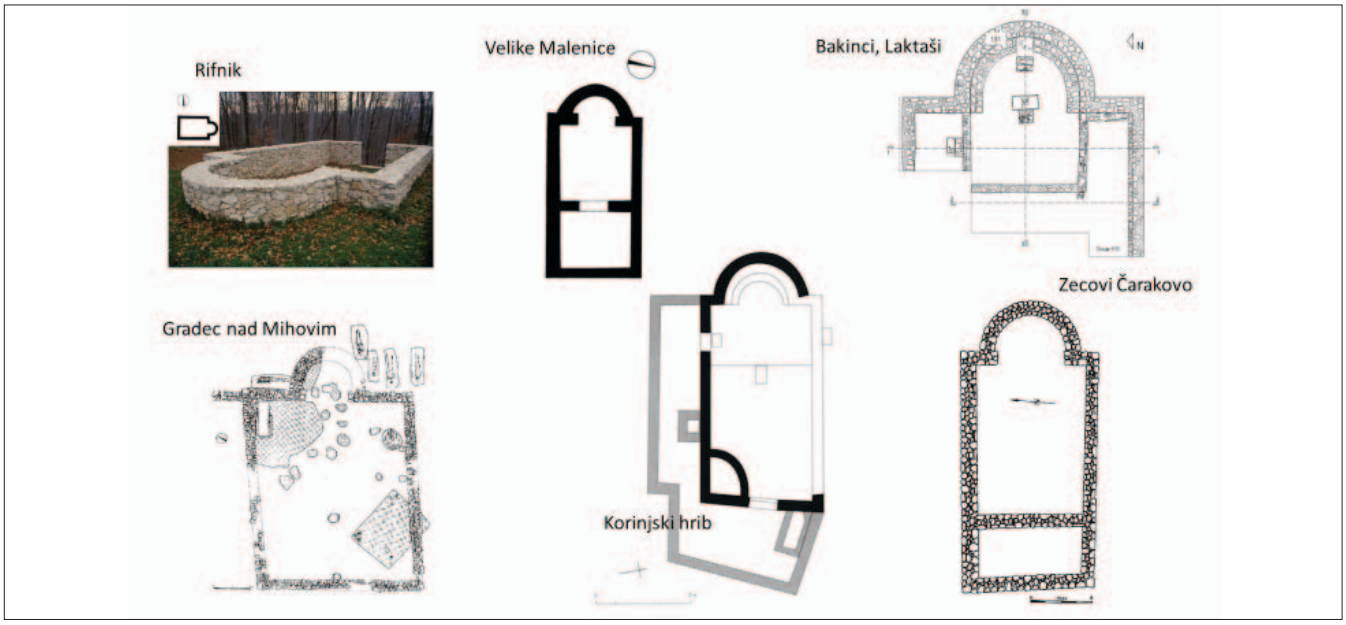

Fig. 9 Comparative churches of the neighbouring area - Velika Malenica (Dular et al. 1995: 136, Sl. 164: 7), Rifnik (Dular et al. 1995: 136, Sl. 164: 5), Korinjski hrib (Dular et al. 1995: 136, Sl. 164: 6), Gradec nad Mihovim (Dular et al. 1995: 136, Sl. 164: 9), Čarakovo (Basler 1972: 76, Sl. 63) and Bakinci (Vujinović 2014: 170, Sl. 7).

CONCLUSION

Located on the border of Roman Pannonia and Dalmatia and on an important road linking Roman Pannonia and the Adriatic Sea, the position and topographical features of the Crkvišće site fully correspond to the concept of late antiquity hilltop fortresses. Based on the current state of exploration it is possible to conclude that Crkvišće is the hilltop fortress built during the second half of the 4th century with the purpose of monitoring important route and providing security to the surrounding population (Azinović Bebek, Sekulić 2016: 39). Despite the existence of sporadic Roman finds from an earlier period, currently it is not possible to detrmine whether it was the original refuge from the late 3rd century which was later transformed into a permanent military fortress. Although the finds from the second half of the 3rd and the beginning of the 4th centuries are somewhat more frequent, the most numerous are certainly those from the 4th to the 6th centuries, i.e. the period of the functioning of the fortress.

The construction of the fortress on the Crkvišće site coincides with the emergence of Lonja-Matušini (Šimek 2012: 167), Lobor (Filipec 2008: 58–66) and Kuzelin (Sokol 1997: 11–12), the only systematically explored late antiquity fortressess, churches or fortified settlements in northwestern Croatia. During the 5th century the Crkvišće military fortress presumably became a local administrative center with a church on prominent position.

At the current level of research, it is not possible to establish whether it was a refuge that was transformed into the hill fort during the second half of the 4th century, nor determine the different stages of its long-term development. Also, currently it is not possible to establish whether the hilltop fortress with the church, which integrated political, military and ecclesiastical functions, became a local administrative center that provided security to the surrounding population at times of danger or became a permanent settlement (Fig. 10). The answer to that question could be provided by future archaeological research that will allow for an insight into spatial organization and chronological relationships.

Fig. 10 Aerial photo of the Crkvišće Bukovlje site (Archive of the Croatian Conservation Institute)

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VLADIMIR SOKOL

Kuzelin – Late Antique Castrum near Zagreb

In his paper the author presents new reconstructions of the Kuzelin castrum and the complex of edifices functionally connected to it at its foot, that is the bathing and the sacral complex with commercial annexes in D. Glavnica and Moravče. According to the determined periodization, the Late Antique fort with an elevation of 511,01 meters above sea level had three Antique and one early medieval phase, while the mentioned edifices at its foot lost their functions during the late 3rd century and the 4th century. The castrum's importance peaked at the end of the 2nd half of the 4th century with the conflict of the Eastern and the Western Emperor in the summer of 388.

Key words: Kuzelin castrum, fort, fortifications, wall, floorings, military artefacts, arms, battle, temple, thermae, villae

The Late Antique castrum on the Kuzelin Hill above Sesvete on the slopes of Medvednica had been the subject of investigations from the 1980s until 2014. Despite the scope of the investigation being considerable, some of its parts are waiting for further investigation – such as its newest defensive trenches below the entrance walls, that is in front of the swing-gate for carriages at its base – which would shed light on this huge Bronze Age, Celtic La Tene Iron Age and Antique fort. The theme of this paper is its second to last large Antique phase of life and renewal, dating back to the beginning of the Migration Period in the 2nd half of the 4th century.

Complex wartime developments on the Danubian Limes resulted in this significant renewal of the castrum for mostly military purposes, that is phase III according to our Antique periodization (Sokol 1998: 11–15). The militarization of the former refuge, which was also a strategic site on the *Aspalatos – Carnuntum* (Adriatic Sea – Danube Valley) communication route, was followed by extensive fortification works. The strongest defensive wall structure, as we already determined (Sokol 1994: 202, sl. 3; 1998: 12–13; 2005: 109–110) (Fig. 1), was erected as part of the mentioned renewal during the mid-4th century or the 2nd half of the 4th century and replaced the prior mostly palisade fortification from the 3rd century, which was clearly visible from the severed flooring of several brick houses of that layer on the line of the later wall where there were no older foundations. The castrum's refortification was prompted by general uncertainty in the Pre-Alpine and Pannonian area caused by the barbarian invasions of Goths, Huns, Alans and many other groups during the late 4th century, which were also mentioned by St. Jerome in his description of Pannonia at the end of that century, a time marked by the mass renewal and erection of castra on hills suitable for defense. Although 4th century Rome was powerful enough to defend its territory and repel the invasions, mass erection of such forts on hills was unavoidable (Ciglenečki 1987; 1992: 8–10). Internal instability also became one of the factors contributing to their renewal, which is what happened with Kuzelin on the slopes of Medvednica. It is situated on the most important road route from Dalmatia and Salona towards the north via Siscia and Poetovio to Vindobona and Carnuntum on the Danube, as well as on the shortest route that goes from Rome to that remote, but significant area of the Roman Empire. Kuzelin's position attracted events that happened in and around it like a lightning rod – from purely political ones such as Diocletian's probable journey from Split to Carnuntum in 307 for a meeting with the tetrarchs to military ones, that is movements of different armies travelling up and down on that route.

Fig. 1 Inner side of the Roman defensive wall – east (photo by: V. Sokol)

It also served as the backdrop for one of the biggest preparatory battles before the final one at Poetovio Valley between the Eastern Roman Emperor Theodosius I and the Western Roman Emperor Magnus Maximus, who was retreating from Siscia via the castrum to Poetovio. Along with the well-known itinerary route of the Emperor Antoninus (Sopron 1980: 211), the fort with an elevation of 511 meters constituted the most important point on the shortest route from Siscia to the north. The significant event that we will address is the mentioned civil war between the two emperors, who first crossed their swords at Siscia where Magnus Maximus was defeated. The hostilities were renewed at summer's end while Maximus was retreating towards Poetovio (Cedilnik 2004: 334–338), where his killing led to the end of the war. Western and northwestern Savia were greatly devastated after the battle due to movement of the armies (Sokol 2012; 199–200, Karta 2), whose traces such as the wrecking of Aqua Iassae and the closing down of the mint in Siscia, as well as the cessation of the circulation of coins in Andautonia and Iovia after 388 left lasting consequences on the province from which it never fully recovered. Kuzelin represents a halfway point between Siscia and Poetovio, two Western Pannonian metropolises, which were the only large cities that survived until the beginning of the 7th century, when they also ceased to exist. Investigations of the Kuzelin castrum unearthed numerous archaeological finds, that is tools, damaged weapons and a large quantity of coins witnessing those dramatic events that happened around it (Sokol 2012: 210, T. 3).

During the mentioned intensified instability of the Rhaetian and the Pannonian-Danubian Limes in mid-4th century or at the beginning of the 2nd half of the 4th century, a 60 (59) centimeters thick defensive stone wall was erected on the accessible northeastern side of the plateau's ellipsis, whose thickness corresponds to that of walls of all classic Antique edifices at its foot in Moravče, D. Glavnica and probably Blaguša). By using the earlier Celtic La Tene construction activity as *oppida*, the Late Antique semi-ringlike wall around the top was erected on the edge of the older, shorter and lower defensive part of the hill with a width of 10 m and a length of 200 m that encloses the acropolis on the northeastern side. Because there are no remnants of walls on the investigated areas close to the edge, a palisade might have been erected on the other, 70-meter wide southwestern side of the castrum's ellipsis, above a big, almost vertical stone slope, whose configuration resembles the top of the hill. On that part of the hill the rocky massif breaks through the surface soil. The remnants of possible wooden or brick towers were observed neither on the inner nor the outer defensive line, which is yet to be wholly investigated. However, judging by the larger extent of concluded excavations the probability of their existence is slim. The route leading to the swing-gate for carriages – which was properly constructed along the slope of the hill from the right to the left side to ensure that the right flank of the attackers which is not protected by a shield could be attacked by defenders from the battlements of the wall – is still visible today. Namely, 90% of people are right-handers and hold their shield in their left hand (Sokol 1998; 2012).

A series of floorings of residential buildings with an approximate 4 x 4 meter base was unearthed along the inner side of the defensive wall (Fig. 2, 3). The older floors were made from a moulded white lime mass with fine aggregate reaching the footing of the wall. Such flooring reached its inner façade. The newer variant of the floorings on the eastern side of the fort's ellipsis was also constructed by using the moulded lime mass technology with riparian fine sand and gravel. However, fine uniformly crushed red brick presents a significant addition. Thus, the whole mass gained a reddish-brown

color (Sokol 1998: 13–14). Such floorings are located 0.75 meter from the defensive wall, which makes them chronologically newer. The remnants of stone or brick walls, as well as those of clay coating or wicker-work were not found, which would point to the construction of wall surfaces made from trimmed beams of the same type found in discovered Antique edifices in the nearby Varaždinske Toplice (Vikić, Gorenc 1973). The prior analysis of material culture and numismatic finds for now does not point to a significant chronological difference. Floorings made from smaller dry brick, mostly on the southern side, were constructed at an earlier date and belong to its phase II, whose dating is, *inter alia*, corroborated by coin finds in the brick floor itself dating back to the 2nd half of the 3rd century. It is also soundly determined by the horizon of antoninianus-type coins which begins with relatively numerous specimens of Emperor Gallienus (253–268) and his wife Salonina, followed by quite numerous coins of emperors Claudius II Gothicus (268–270) and Aurelian (270–275). Statistically speaking, their number far exceeds the finds from its previous phase I dating back to the 2nd half of the 2nd century from Marcus Aurelius to Septimius Severus at the turn of the century (Sokol 1998: 10–11).

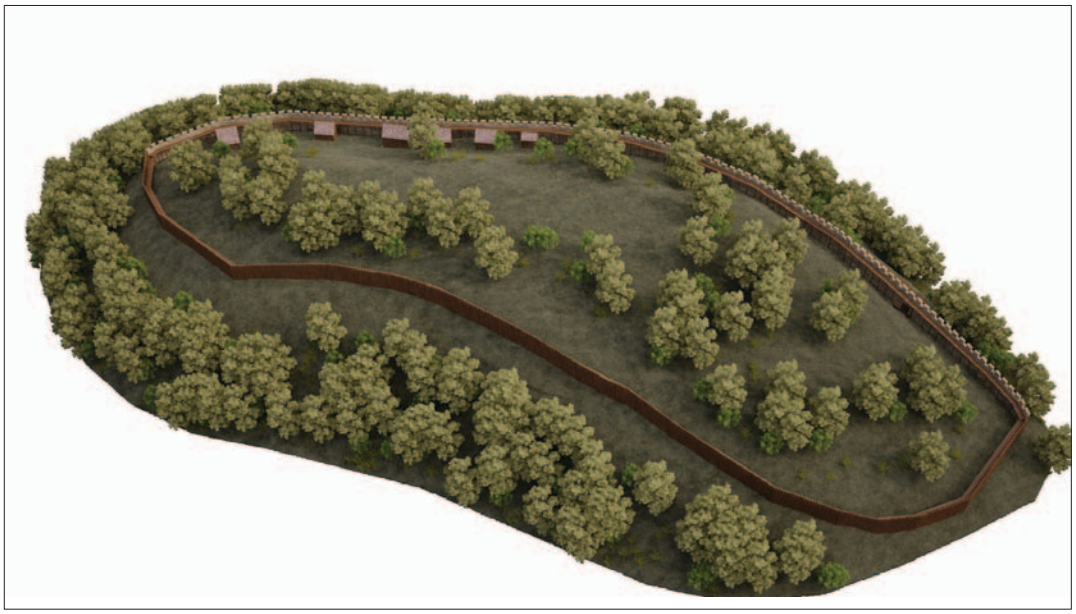

Fig. 2 The Late Antique phase of castrum Kuzelin – with the residential buildings along the inner side of the wall, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

Fig. 3 The Late Antique phase of castrum Kuzelin – view of south-east, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

Other numerous civil and military artefacts are representative of the observed third and most important phase of life in the castrum. Numerous *artes minores* finds from the 4th century known from different investigations were found together with coins mostly dating back the 2nd part of the century (Fig. 4). Along with those finds, generally the most numerous ones are mostly iron weapons and different parts of standardized Roman military equipment. Iron artifacts are mostly relatively well preserved due to effects of hummus soil and loose porous slate and the probable usage of local deposits (in the form of so-called ore pockets) of limonite-type ore which is very rich in iron (36 to 45%) and manganese (up to 9%; Čepelak et al. 1986: map), the deposits of which were uncovered in the same hills of Medvednica. The closest used deposit was found not far from Stubica, above which several thousand pieces of slag resulting from processing were found in a two-kilometer-long stretch of the Kaptolska šuma (Kaptol Forest) (Čepelak et al. 1986: 26–27). The technology of converting iron ore into iron from that time preserved a percentage of that admixture of manganese which thus protected the base metal from corrosion in a better way, so it can be assumed that there is a real chance of local blacksmith production. The mentioned military elements among found artefacts, except their Late Antique origin, belong to the older part of the Late Antique period which is mostly dated back to the 4th century, while two younger periods in the 5th century can be discerned in Pannonia: the first one until 427 and the second one until approximately its middle part, when the finds get barbarized in character (Vago, Bona 1976; Burger 1979; Jevremov et al. 1993; Salomon, Barkoczy 1982: 31, 42, 47). Those two younger periods according to the mentioned periodization cannot be observed at Kuzelin. Its phase IV according to the systematization and periodization of Antique and post-Antique periods belongs to the Early Middle Ages and Early Avar Age (Sokol 1998: 16).

Fig. 4 Late Antique military buckles (photo by: I. Vidošević)

Militaria at Kuzelin mark its military function, which was at a point in time very serious. We already mentioned that the moment happened in mid-388 during the conflict between two emperors, which gives us the possibility of a very precise dating of possibly most such finds, which is corroborated by a majority of coin finds and typical ceramic finds. These are first and foremost military artefacts with traces of damage from some military action: a large number of "deltoid" Kuzelin 1-3 type arrowheads, that is around three hundred specimens with almost one third being visible damaged after release (Sokol 2012: 210) (Fig. 5), as well as many broken *plumbatae* fragments – lead elements of spears (*pilum*), broken bulb-shaped *fibulae* from the 4th century, a repaired and damaged engraved buckle (Fig. 6), repelled massive "wall-breaker", handles from broken military knives, maybe a helmet fragment, a fragment of "damaged" lorica and plate armor, chipped cutting edges of battle axes and a large number of molten lead drops scattered across practically all quadrants larger than 12 000 m^2. There are also other types of weapons: whole battle axes and knives, anti-cavarly and anti-infantry spikes, different types of arrows that include those with dovetail arrowheads and small arrowheads for piercing chain mail, smaller arrows and darts, iron and bulb-shaped *fibulae*, scabbard's chapes, round stones for slingshots etc. Finds of auxiliary, foederati troops, that is barbaric, Gothic combs and possibly Hunnish arrowheads (Sokol 2012: 209) – which according to typological elements belonged to Theodosius's military group – were also found at the location of the fort. The presence

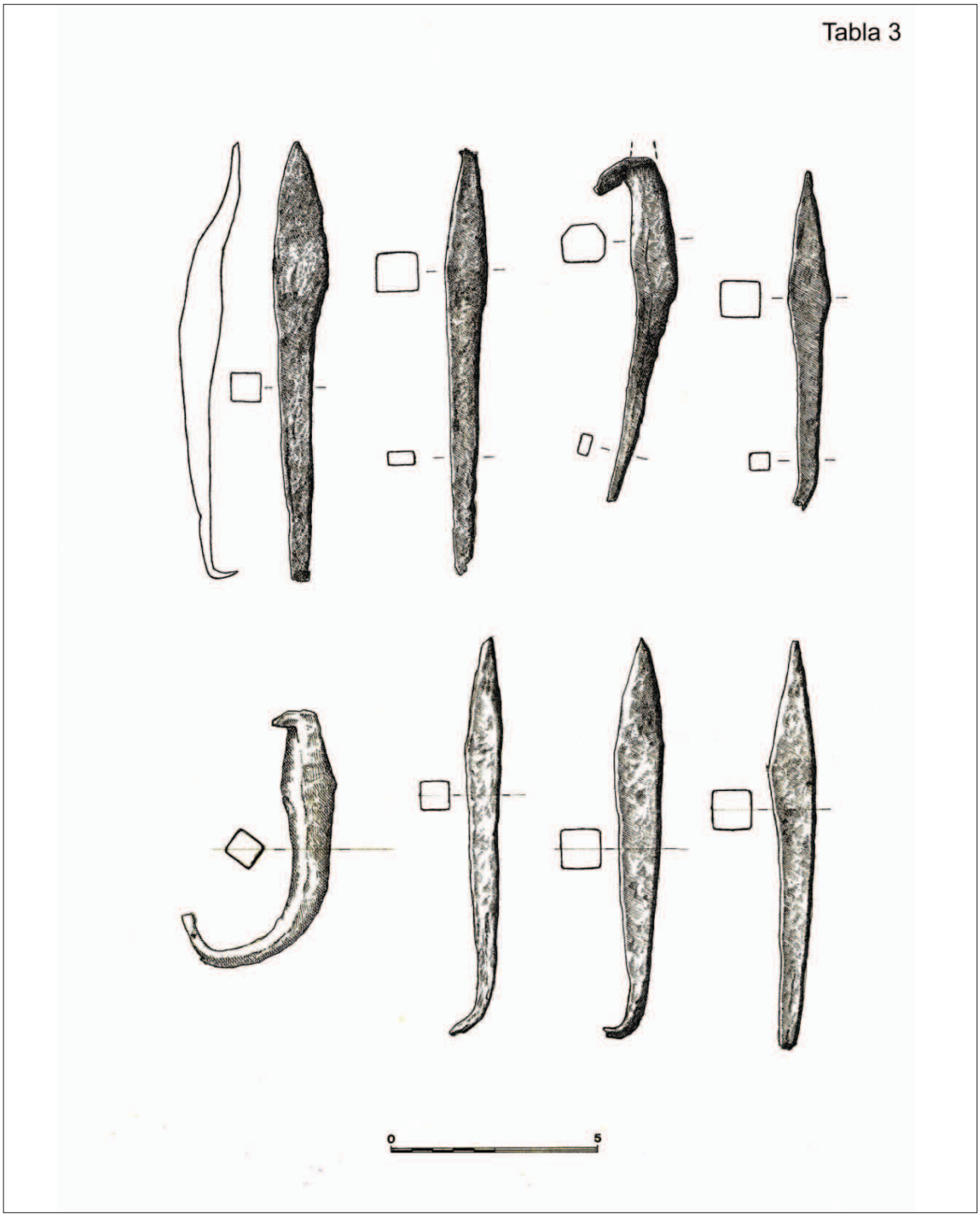

Fig. 5 Kuzelin – Late Antique damaged deltoid arrows (Sokol 2012: 200, Tab. 3)

Fig. 6 Late Antique damaged engraved buckle (photo by: I. Vidošević)

of foederati in Theodosius's troops is historically confirmed. In addition, one cannot fully exclude the possibility that the famous Roman military writer Vegetius wrote a portion of his book "De Re Militari" which he devoted to Theodosius near Kuzelin, since it is assumed that he started writing it around 388 (Brnardić 2002: 9–35). Based on the so far concluded long-standing investigations and already mentioned wartime activities, we can claim a significant historical event happened near Zagreb, that is the battle of emperors, which was unearthed by archaeology despite not being recorded by history. At that dramatic, albeit short moment Zagreb became the center of the Roman Empire, that is center of Europe at that time, where two sides crossed swords and where state politics of the highest level unfolded because "war is the continuation of politics" (Carl von Clausewitz) by other means.

The castrum on the Kuzelin Hill is not a lone point in space since it is not only surrounded by numerous *villae rusticae*, *thermae* and Antique communications in many directions on its southern, Prigorje side, but also located relatively close to Andautonia across the Sava River (Klemenc 1938: catalogue and map; Sokol 1981: 169; 1998, Karta 1; 2012: Karta 3–4) (Fig. 7). Such density of Antique sites, which also include those accompanying peregrine settlements such as the one located in the center of Glavnica Donja (Sokol 1997: 50), and its geostrategic position along the main road routes from north to south and west to east (Sokol 1998: Karta 1) put it in the center of those events upon which at moment in time hinged the future of the Empire during the Late Empire Period. However, its position in space and time would be completely different without the mentioned local infrastructure. The erection of the castrum surely required significant state initiative and probably "other" support, but also maintenance for years. Fifteen located larger sites, e.g. edifices of different purposes only on the southern side of Medvednica in a 10-kilometer semi-circle could have provided such economic and "technical" support to the survival of the castrum. The function that the castrum maintained for the longest time was clearly that of a refuge, which could have been critical for local protection conditions since secondary brick elements (parts of tubuli) taken from walls of local buldings at its foot which were obviously abandoned in the 2nd half of the 4th century were found at Kuzelin. The last coins found at the thermal edifice in Glavnica were third century antoninianus-type coins, while centenionales from the 2nd half of 4th century were found at the Rošnica site in the center of Moravče. Six Antique brick edifices were uncovered in relatively close villages Blaguša, D. Glavnica (belongs to the same cadastral community) and Moravče, that is two in each one. The *thermae* with a *villa* in Glavnica and smaller parts of a *villa* in the center of the neighboring village Moravče were investigated to the greatest extent. A pre-Christian sacral edifice was also uncovered outside of that village towards the castrum and investigated. All those sites closest to the castrum, which together formed a settlement complex at its foot, are proof of the complexity of life in that fort.

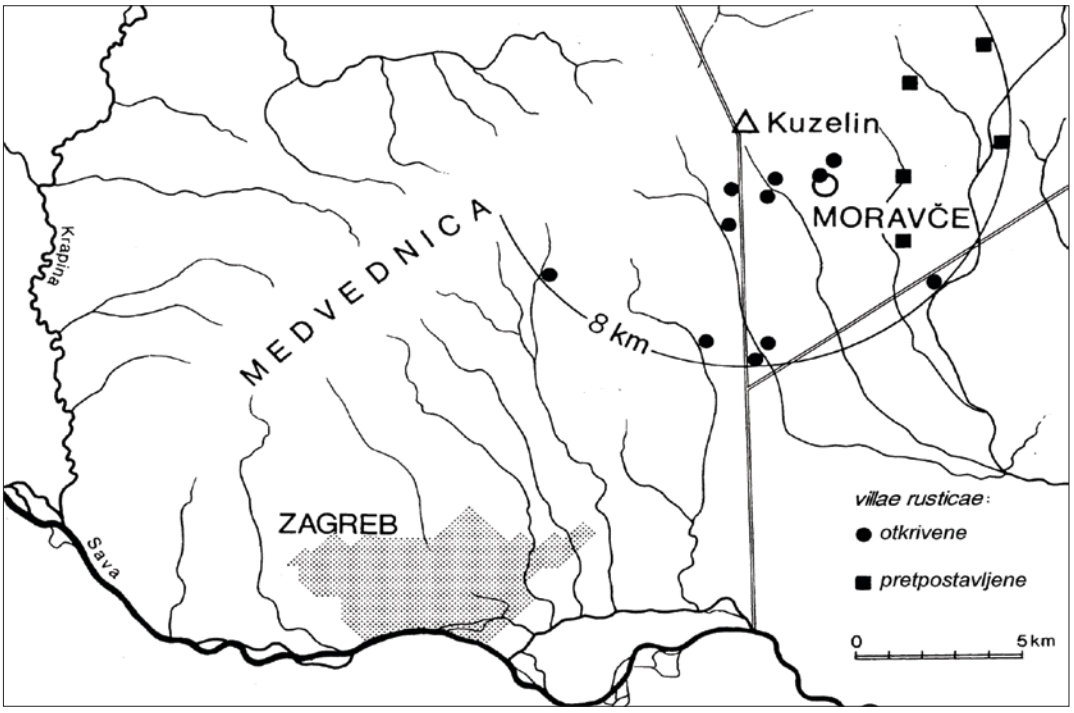

Fig. 7 Distribution of Antique edifices and buildings near Kuzelin: black circles – discovered; black squares – supposed (Sokol 1994: 200; modified by V. Sokol, 2018)

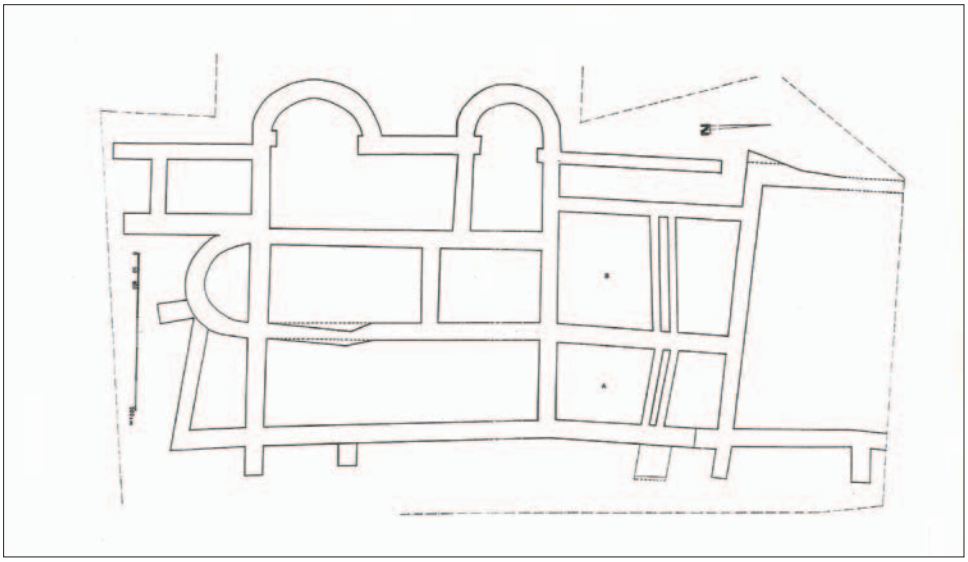

Fig. 8 Layout ot the thermal edifice in Donja Glavnica (Sokol 1981: sl. 8)

The economic-thermal complex in Donja Glavnica (Sokol 1981, together with a plan) (Fig. 8) is located in the vicinity of a still active spring of medicinal mineral water (thermal springs catalogue of the Republic of Croatia – Iveković, Peroš 1981: 75) with a sulfur-like smell similar to the spring in Varaždinske Toplice – *Aqua Iasae*, a large Antique medical complex that serves the same function today (*Aquae Iasae* 2015, exhibit catalogue). The *Aqua Iasae* complex, which is located 35 kilometers as the crow flies from Kuzelin, serves as a reference site for its Antique layers (Sokol 1998, phases I – III). Along with the part for bathing, the *thermae* in Glavnica also had a big commercial yard with a canopy in front of the entrance, which was perfectly reconstructed. Remnants of a hypocaust and a supply canal of hot air from the *praefurnium* which was located in front of the rooms were found in the two northern side rooms, whose walls were lined with tubuli, a large amount of which was found in the collapsed stonewall. Two larger marble plates that served as luxury thermal covering of the pool's walls, as well as traces of an indentation in stone plates of a long gone lead pipe were found in front of the three apses (cold, warm and hot mineral water). It is interesting that we determined the existence of two such *thermae* of the same size and layout basis in Mursko Središšče (Kovačić 1908) and near Stuttgart (Stork 1982: 150). Since archaeologists love finding a convergent series of things, we donned the name Donja Glavnica type to the uniform *thermae* types (Fig. 9–11). The layout situation from Ludbreg near the Drava River is especially interesting due to many similar elements (for example, close layout arrangement of apses), which were also attributed to balneological functions (Pleše 2012: 183, 193)[1]. A certain number of complex buildings with apses of a similar type can be found in Pannonia between the Drava and Danube rivers, which corroborates the close interconnection of that space during the Classical Roman Period (Thomas 1964: 24, 61, 187 etc.).

Fig. 9 *Thermae* in Donja Glavnica – view from south-east, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

1 However, the author of the publication of the investigated site of Ludbreg is not familiar with the find of *thermae* in Donja Glavnica, which could in a better way shed light on the edifices in Ludbreg.

Fig. 10 *Thermae* in Donja Glavnica – view from south-west, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

Fig. 11 *Thermae* in D. Glavnica – view from the height, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

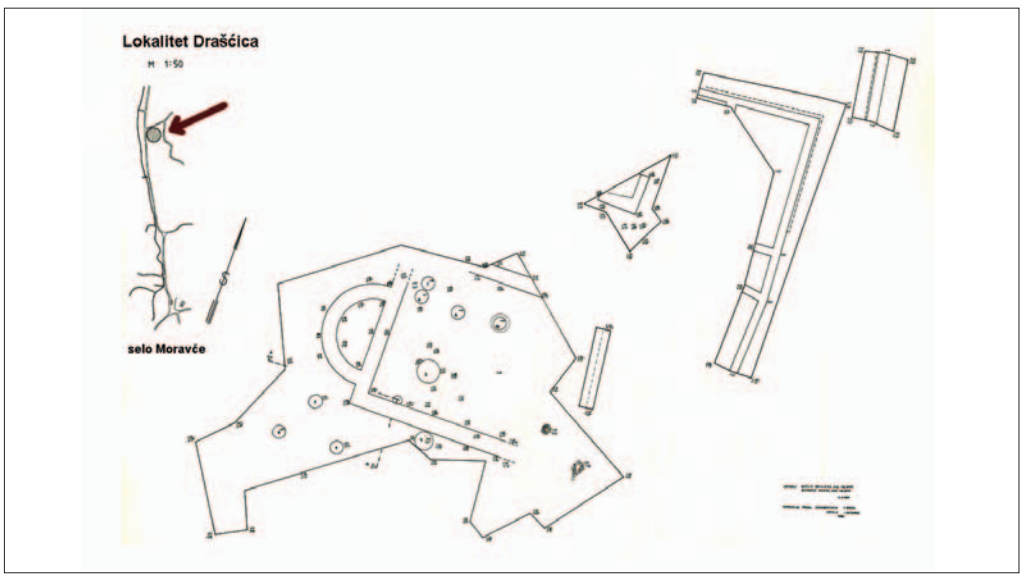

Fig. 12 Layout of the edifice near Moravče (Sokol 1996: 36)

The other relatively investigated edifice below the castrum is in Moravče, at the Draščica site (Fig. 12). Its interesting layout enabled us to produce its ideal, but solid reconstruction and purpose *per analogiam* with a similar sacral building near Stuttgart (Planck 1982: 171–175). The reconstructed edifice had an unambiguously pre-Christian cult purpose and for now presents a *unicum* in the wider area of Northwestern Croatia. The middle-position altar with five or six burnt layers below it, which was there before brick foundations (for the altar) were placed in the open, and an inner structure with an entrance are well confirmed by archaeological investigations (Fig. 13, 14). The edifice with inner buildings is situated next to the current road leading to the castrum, but the original, more western Iron Age road went through Jakopica, between Glavnica and Moravče. Nevertheless, that communication is very close. Also, a wall uncovered in a more northern area was erected at a different angle that those described around the "altar", which could point to the existence of another commercial building (Fig. 15–17). Today it is partially covered by an active landslide. It is an interesting circumstance that the mentioned edifices are situated exactly above a Late Bronze Age necropolis with ten grave units belonging to the Urnfield Culture (Sokol 1996), while the other relatively big Antique edifice with auxiliary buildings is located in the center of present-day Moravče, around 1000 meters from the temple at Draščica, below which there is an investigated mid-Bronze Age tumulus with three skeletal graves without finds belonging probably to the "Tumulus Culture" (Sokol 1986: 104).

All presented facts point to an enduring existence of a large Roman and post-Roman fort/castrum, which dominated the Medvednica pass of the watershed between the Prigorje and the Zagorje regions. The castrum's ruins witnessed the arrival of a new people from the north at the end of the 8th century that ended the dominion of the Avar Khagante, renewed the land and built their shrine dubbing it Kuzelin – a pagan cult worshipping place.

Translated by Ivan Markota

Fig. 13 Moravče – archaeologically discovered altar basement – proposed reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

Fig. 14 Moravče – archaeologically discovered altar basement (photo by: V. Sokol)

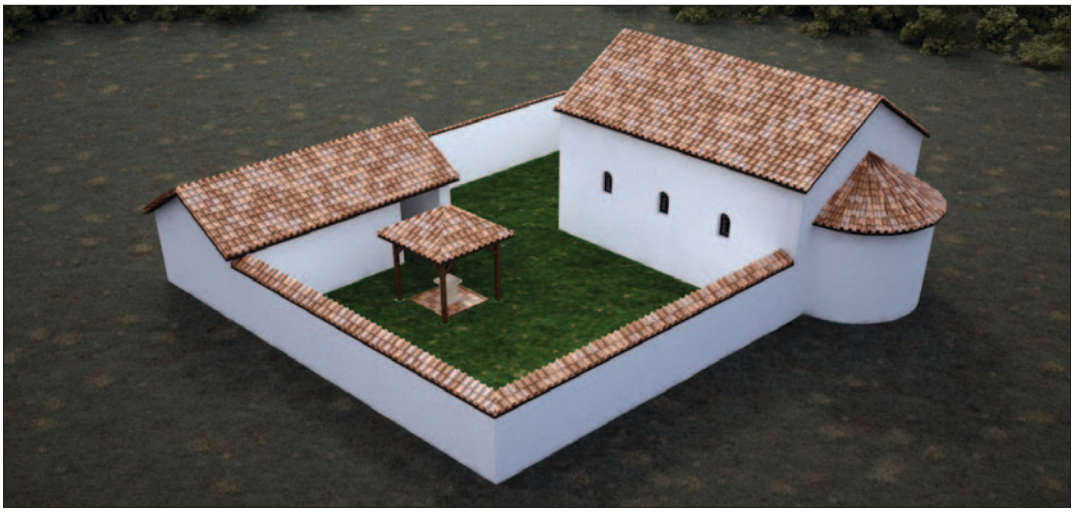

Fig. 15 Sacral edifice in Moravče – view from north-west, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

Fig. 16 Sacral edifice in Moravče – view from south-west, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

Fig. 17 Sacral edifice in Moravče – view from south-east, reconstruction by V. Sokol (3D model made by: D. Fofić and studio GEO3D)

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PERICA ŠPEHAR

Reoccupation of the Late Antique Fortifications on the central Balkans during the Early Middle Ages[1]

After the withdrawal of the Byzantine army from the Danubian limes at the beginning of the 7th century, central Balkans was populated once again, this time by the Slavs and the Bulgarians. Their first settlements differed from previous Roman and Byzantine primarily by the fact that newly arrived tribes didn`t realize the importance of fortifications. Therefore, they inhabited outside the existing ramparts. After the Christianization in the third quarter of the 9th century, the Serbs and the Bulgarians changed their way of life, alongside with their relation toward the fortifications. From that time onward the reoccupation of the earlier forts begun, which finally resulted in the reuse, renovation and reconstruction of late antique ramparts. The reconstruction of ramparts differed from fort to fort, since some of them were restored, while some were erected ex novo. In most cases, the used fortified areas were reduced in size. The aim of this work is primarily to investigate the differences in appearances of the fortifications along the Danube and those in the hinterland of the central Balkans from the 9th to the 11th century.

Key words: central Balkans, late antique, early Byzantine, early Middle Ages, Danubian limes, fortifications, ramparts, palisade

The withdrawal of Byzantines from the Danubian limes at the beginning of the 7th century led to the permanent colonization of diverse peoples, primarily the Slavs and the Bulgarians, in northern border areas of the Empire (Barišić 1969). Their inhabiting mark the beginning of the early Middle Ages in this territory, during which occurred a transition from antique to medieval society, as well as numerous changes in different spheres of everyday life. On this occasion an attention will be aimed at the attitude that newly settled tribes had toward the existing roman and late antique forts on the central Balkans, as well as at reasons that finally led to their reoccupation.

The term "central Balkans" is a modern geo-political idiom used in scientific literature to mark the territory of modern Republic of Serbia south of the Sava and the Danube. Its use has its main support in the fact that the Sava and the Danube downstream from Belgrade were borderlines between Pannonia and Carpathian basin on one and Balkan Peninsula on the other side. This natural border was also a demarcation line between diverse cultures, peoples and states, and it was accepted as such in this paper. The northern limes of the Empire in Late Antique period was likewise situated along the Danube. At that time, within the imperial administrative reforms, a prefecture Illyricum was formed. It consisted of two smaller administrative units, dioceses: Dacia that for most of its part coincides with modern Serbia south of the Sava and the Danube, and Macedonia that was situated south of the former. In scientific literature concerning the Late Antique epoch, a term "northern Illyricum" is often used for the central Balkans (Maksimović 1980: 19). Our focus is on the said territory that during the Late Antiquity gained crucial importance in the Empire, since from the early 7th until the last quarter of the 11th century none of the states that fought for the domination over it could manage to achieve their goal - the indisputable and long term rule. Therefore, this area is chosen for investigation, based on well-excavated fortifications, of the process of reoccupation of Late Antique forts in early Middle Ages (Špehar 2017: 11–13).

1 This paper is the result of work on the project The processes of urbanization and the development of medieval society, suppported by the Ministry of Education and Science of the Republic of Serbia (no. 177021).

In chronological sense, the early medieval period on the central Balkans begun by the collapse of limes at the beginning of the 7th century. The determining of its end is somewhat difficult since there are several important historical events that could mark its closure: the baptism of the Bulgarians and the Serbs in the 9th century, the founding of Ohrid Archbishopric in the first quarter of the 11th century or the ascending of Komnenos dynasty in 1081. Since this area came under the rule of one state for a longer time as late as the time of Komnenos dynasty, the early Middle Ages definitely ended at the last quarter of the 11th century (Špehar 2012: 336). During the mentioned period, the territory of the central Balkans was the scene of many conflicts, mostly between the Byzantines and the Bulgarians, while the Serbs participated only sporadically. In order to emphasize the complexity of the said period, I would like to accentuate some key historical moments.

We are informed by Contantinus VII Porphyrogenitus (913–959) that during the Heraclius` reign (610–641) and with his permission, the Serbs and the Croats inhabited Balkans, which was followed by their christening conducted by the presbyters from Rome (DAI: 31, 32; Maksimović 1996: 156). Several decades later, during the reign of Constantinus IV (668–685) the Bulgarians settled near the mouth of the Danube River. They confronted the Byzantines in 680, managing to save their independence. The Bulgarians formed a strong state during the 9th and the 10th centuries (Ostrogorski 1996: 139–140, 163, 200), which was enabled by large problems Byzantines encountered, such as struggle for icons (iconoclasm) and the war with Arabs on the East. Since the byzantine influence on the Balkans was minimized, the creation of new states went without interference of Constantinople (Ferluga 1968: 55–65). Therefore, the Byzantines started the process of Christianization in order to pacify newly settled peoples, alongside with the creation of the first Slavic alphabet (glagolic) and the translation of Bible to Slavic (Ostrogorski 1996: 225–227; Maksimović 1996: 156). For example, the Empire forced the Bulgarian aristocracy, under the threat of arms, to be baptized by Byzantine priests in 864 (Popović, V. 1978: 33–34; Ostrogorski 1996: 227–229). It appears that Serbs were baptized twice, although there is no information in written sources about an exact moment of the second christening by Constantinopolitan priests. It can be assumed that it occurred not long after the baptism of the Bulgarians (Špehar 2015b: 71). In 869/870 Constantinople gave autocephaly to Bulgarian Church (Popović V. 1978: 33; Snegarov 1995: 3; Ostrogorski 1996: 227–231), while the further rise of Bulgarian state was a merit of Simeon (893–927), who proclaimed himself an emperor in 917 and later founded Bulgarian Patriarchate. The Patriarchate was proclaimed canonical by the Emperor Romanus Lacapenus (920–944).

The conflict between the Bulgarians and the Byzantines was likewise felt in Serbia, where confronted parties alternately brought their protégés to the throne (DAI: 32; Ostrogorski 1996: 248–260). The occasion in which Byzantines took control over Bulgaria after Simeon`s death was also seized by the Serbs, so Serbian prince Časlav Klonimirović (927/928–arround 950) escaped from Bulgaria asking help from Romanus Lacapenus (DAI: 32). After several relatively peaceful decades, Nicephorus II Phocas (963–969) attacked Bulgaria with the help of Russian prince Svyatoslav (964–972). Although Russians defeated Bulgarians, the Byzantines didn`t gain any benefit out of that victory, and the Emperor Phocas was killed in a plot. In 971, during the reign of John Tzimisces (969–976) the Bulgarian capital in Preslav was conquered and the Patriarchate diminished to the Metropolis subdued to Constantinople (Ioannis Scylitzae 434/20–438/2; Popović V. 1978: 35–36; Ostrogorski 1996: 272–282). In early years of his reign, Basil II confronted Bulgarian ruler Samuel (976–1014), who quickly enlarged his territories and re-established Bulgarian Patriarchate with the seat in Ohrid. The military campaign against the Bulgarians started in 1001 and ended in 1014 by the complete annihilation of Samuel`s army (Ioannis Scylitzae 461/5–464/22; Ostrogorski 1996: 283–295; Pirivatrić 1998: 122–124). Four years later, Basil II entered Ohrid and turned Bulgarian Patriarchate into Archbishopric with an Archbishop of Slavic origin. The territory of former Samuel`s state was divided into themes, while on the territory in question written sources mention administrative entities of Serbia and Sirmium (Ioannis Scylitzae 457/9–476/24; Gelzer 1893; Ostrogorski 1996: 295–298; Maksimović 1997: 38–39; Živković 2004: 173–174).

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The central Balkans is a mountainous region rich in ores, with the Danube River and the valley of Morava as main communications, along which led the roads toward the Black Sea region, Thessaloniki and Constantinople. The mentioned territory was included into the Roman state during the 1st century AD, when the erection of fortifications begun, mostly along the Danubian limes but also in its hinterland. Cities were later developed around the forts, for example Singidunum, Viminacium or Naissus. The breakthrough of Huns at the middle of the 5th century (Prisci Fragmenta 1, 1b 7–8: Lemerle 1954: 279–280), left far-reaching consequences, like the disappearance of villae rusticae (Vasić 1970). The renewal of centralized rule over the said territory occurred half a century later, during the reigns of Anastasius I and Justinian I. The early Byzantine period was marked by the restoration of old fortifications on limes and the building of new ones, while in the inland of the central Balkans numerous fortified villages in hardly accessible areas were founded, as the result of the so called vertical migration of the population (Milinković 2008; 2012; 2015: 258–263, with said literature). The renewal of the Empire didn`t have expected results, so after the collapse of limes in the first quarter of the 7th century numerous Avarian attacks, as well as the more intense Slavic colonization, occurred (Barišić 1956; Špehar 2017: 162–164, with said literature).

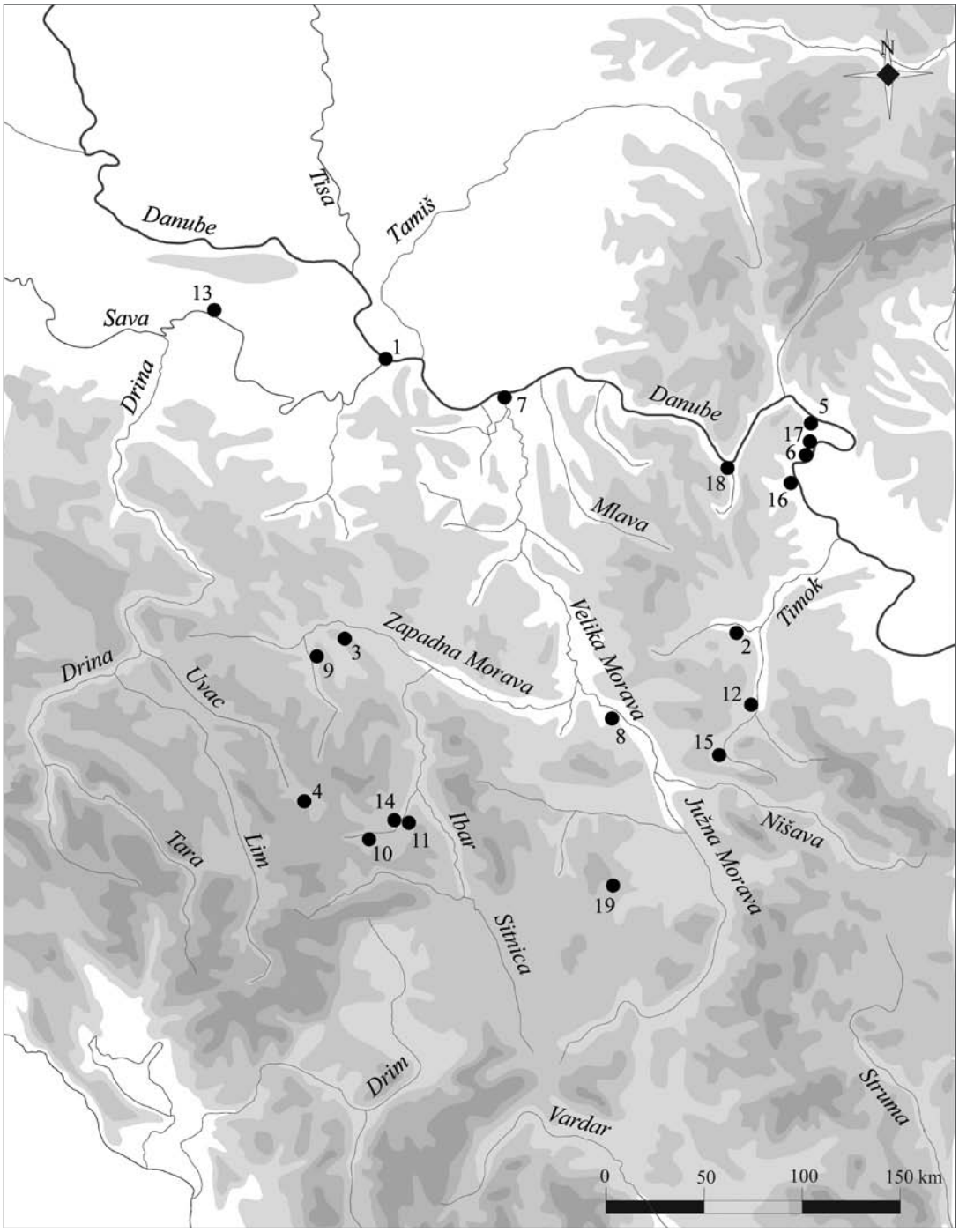

Fig. 1 Early Medieval sites mentioned in the text: 1. Belgrade; 2. Gamzigrad; 3. Gradina on Jelica; 4. Gradina on Vrsenice; 5. Kostol; 6. Ljubičevac-Obala; 7. Morava; 8. Panjevački rit; 9. Prilipac; 10. Ras – Pazarište; 11. Ras – Postenje; 12. Ravna – Slog; 13. Sirmium; 14. St. Peter`s church; 15. Svrljig; 16. Ušće Slatinske reke; 17. Velesnica; 18. Veliki Gradac, 19. Zlata – Kale (drawn by author)

Although we have relatively small amount of archeologically researched and published fortifications, we can clearly observe two phases in the process of forming the early medieval settlements and forts on the Central Balkans (Fig. 1). The analysis of chronologically sensitive small finds suggest that the earlier phase can be dated from the beginning of the 7th century to the baptism of the Serbs and Bulgarians in the second half of the 9th century, while the later can be dated from the end of the 9th to the 11th century (Špehar 2012: 336; 2015a: 330).

During the first phase, smaller Slavic unfortified settlements were mostly situated in Serbian Podunavlje (along the Danube), while in the valleys of West and Great Morava Rivers those can be found only rarely, like in Prilipac (Radičević 2005) or Panjevački rit (Trifunović 1997). Although they must have come upon fortified settlements and buildings made

of permanent materials in the areas they inhabited, Slavs were obviously not ready to accept the way of life that those buildings and forts implied. Therefore, they built their settlements almost exclusively in the vicinity of existing late antique fortifications (Špehar 2017: 92–93 with said literature). Those settlements mostly numbered about a dozen houses, with the exception of the site Ušće Slatinske reke, which could have had between 80 and 100 houses, not used simultaneously (Fig. 2/A/1). The houses had one room used by a single family, and were either semi dug-in or above ground structures, heated by conical kilns made of stone or dirt (Fig. 2/A/2) (Janković, Đ. 1984: 197–200; Jovanović, Korać, Janković 1986: 384–398; Milošević 1997: 51–52; Špehar 2017: 64, sl. 5B). Besides the houses, parts of settlements intended for craftsmanship were

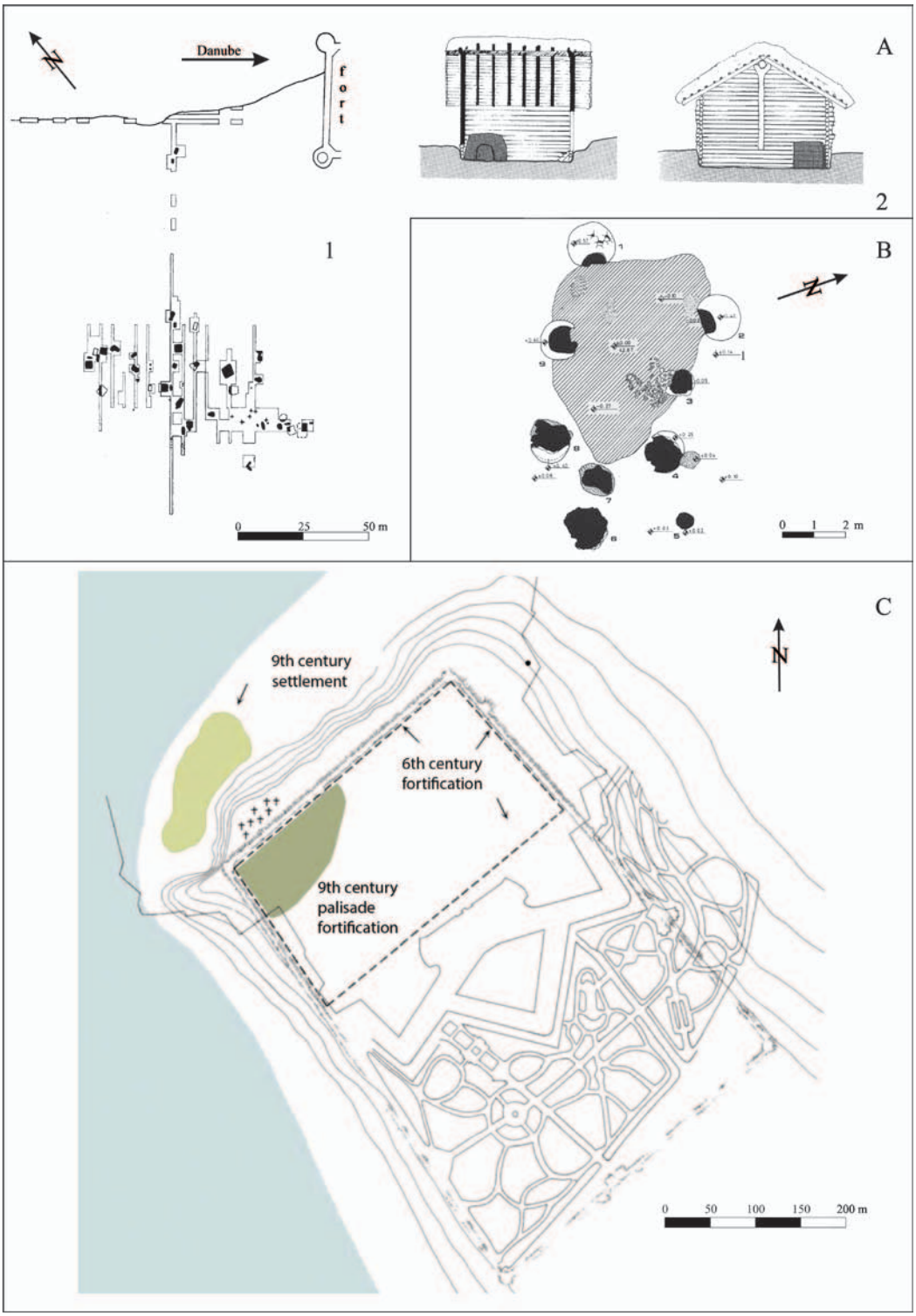

Fig. 2 A. Ušće Slatinske reke: 1 – Ground plan of the site (after Špehar 2012: sl. 4/A/1); 2 – Reconstruction of a house (after: Milošević 1997: sl. 157); B. Ljubičevac – Obala, ground plan (after: Milošević 1997: sl. 55); C. Belgrade fortress in the 9th century, supposed ground plan (after: Popović, M. 1999: sl. 19)

also detected, like for example that with bread kilns on the site Ljubičevac-Obala (Fig. 2/B) or Velesnica (Vasić, Ercegović–Pavlović, Minić 1984: 125–139; Popović, Mrkobrad 1986: 310–311, Fig. 3; Milošević 1997: 48–49; Špehar 2017: 58–59, sl. 3A, 4A).

The second phase in forming the early medieval settlements on the territory of the central Balkans begun in the last quarter of the 9th century. During this period, the first fortified settlements started to occur. It seems that there are several reasons for their appearance. Primarily, the iconoclastic controversy was concluded in Byzantium and the Empire was once again able to participate more intensely into what was happening in its former northern border areas. Except for military campaigns, numerous diplomatic actions were undertaken in order to strengthen Empire`s cultural and political influence, like for example mentioned evangelisation. Besides, Bulgarian State spread its territory toward the west of the Balkans, trying to impose itself as the leading or at least inescapable factor on the central Balkans. Mentioned political situation lead to the escalation of conflicts, which resulted in erecting fortified settlements as the regional centres of power. They appeared primarily in two areas – along the Danube River and in Rascia, southwestern part of modern Serbia (Komatina 2015: 36; Špehar 2017: 232 with said literature).

Fortifications positioned along the right bank of the Danube and in its hinterland allow diverse kind of information concerning the early middle ages. For example, we can only presume the appearance of palisade fortification in Belgrade (Fig. 2/C), mentioned in 876 as a bishopric seat (Popović, M. 1997 with said literature; Popović, M. 2006: 52–54 with said literature). Yet, on the sites Kostol (Pontes) (Garašanin, Vasić, Marjanović-Vujović 1984: 44–45; Milošević 1997: 43 with said literature, sl. 38) and Gamzigrad (Felix Romuliana) (Janković, Đ. 1983, 142–146; Milošević 1997: 54, sl. 69; Petković 2011: 276) the remains of early medieval settlements can be better observed within ancient and late antique ramparts, although the relations between houses and fortifications is not completely defined nor clear. The researched houses were very similar to those discovered on the site Ušće Slatinske reke.

We have more information about the site Morava (Margum) on the confluence of Great Morava into the Danube, where during the 1st century AD Romans built an important fortification around which a settlement and a bishopric centre was later developed. It functioned until the early Middle Ages, when it was moved to Braničevo (Pirivatrić 1997: 173–201; Špehar 2017: 71–72). Unfortunately, the site where ancient Margum and medieval Morava lied was mostly ruined by the meandering of Great Morava River. In 2011 the LiDAR mapping showed a surface of about 7 to 8 hectares, situated between 72 and 74 m above the sea level and above the flooding zone (Fig. 3/A/1). The remains of Roman ramparts were noted in the southeastern part of that area and it was likewise noticed that the area was divided into two uneven parts by a trench 200 m long and 50 m wide. Archaeological traces of the Roman epoch were detected on both sides of the trench, while only in the smaller northern part of the non-flooded area the medieval remains were discovered, like for example semi dug-in houses (Fig. 3/A/2) (Bikić et al. 2012; Ivanišević, Bugarski 2012, 249–251, sl. 6–8). It can be assumed that the trench, that most probably had palisade wall on its inner side, belonged to the medieval defensive structure used to reduce the defended area of the former Roman fortification (Špehar 2017: 74).

The largest quantity of information for early medieval fortresses in the Danubian region were gained by excavations on site Veliki Gradac (Taliata), in the vicinity of Donji Milanovac (Fig. 3/B/1). In the 1st century AD a large fortification was erected (115 by 125 m) while during the late antiquity protruding circular towers were added on the corners. In the 6th century one single naved church with narthex was built inside the fortification. Available archaeological data suggest that fort ceased to be used for some time, and that it came to life once again during the 9th and the 10th centuries. It is testified by about 20 researched houses with single room and a kiln. Besides, certain interventions on rampart were also detected, since in the 11th century a new semicircular tower was built on its south-eastern corner. The number of houses suggests that the numerous population was inhabited there, obviously Christianized, to which testify the erection of a small single-naved church and the restoration of the mentioned early Byzantine Christian temple. Based on archaeological material, two early medieval horizons could be detected in the settlement. To the first, dated to the second half of the 9th and the first half of the 10th century, belong semi dug-in houses, while to the second, dated to the second half of the 10th and the first half of the 11th century, belong above ground buildings with floors made of reused Roman bricks. One of those buildings was used as a workshop (Fig. 3/B/2), to which testify discovered moulds (Janković, M. 1981: 9–21, sl. 6–7).

On the territory of western and south-western Serbia a smaller number of early medieval fortifications was researched, but gained results are more eloquent than those available from the fortifications in the Danubian region. For example, on Gradina on Mountain Jelica, about 8 km south-east from Čačak, an early Byzantine regional centre was discovered, which had five churches and spread over several hectares. Although some shreds of pottery were dated to the 8th century, it is our opinion that this originally early Byzantine fort was not reoccupied before the 9th century. It is suggested by small finds dated to the 9th and the 10th centuries. During the excavations, an early medieval rampart was detected and partly

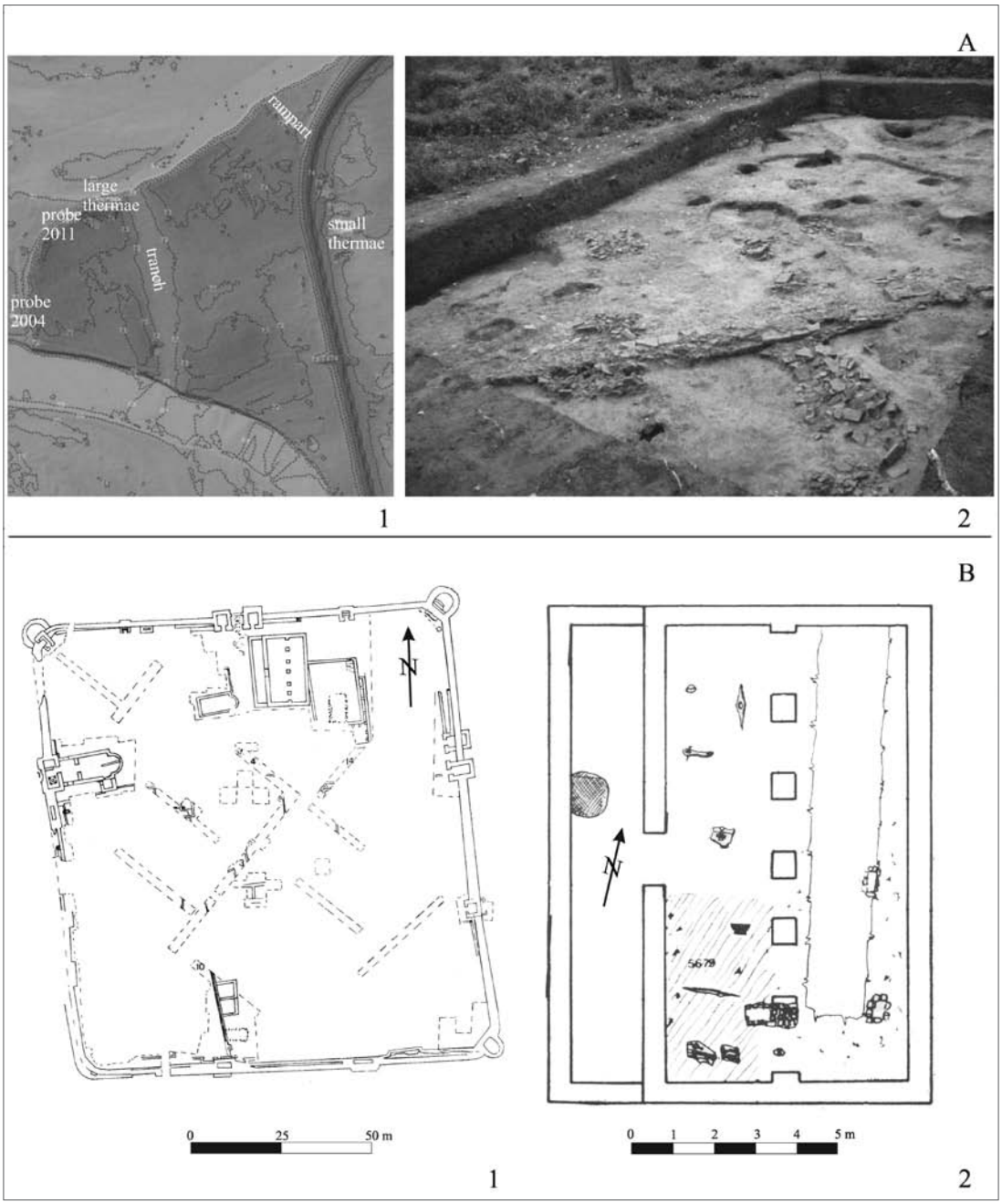

Fig. 3 A. Morava: 1. Processed DTM of the confluence of the Great Morava and the Danube (after: Ivanišević, Bugarski 2012: sl. 8); 2. Probe 1/2011 during the excavations (after: Bikić et all 2012: sl. 1); B. Veliki Gradac: 1. Ground plan of the fortification (after: Janković, M. 1981: sl. 7); 2. House no. 9 (after: Janković, M. 1981: sl. 16).

researched. It was made of stone bounded by whitish mortar and laid on wooden beams. Its preserved width varies from 0.8 to 2.2 m. Although it is not yet completely unearthed, it can be assumed that its direction follows the path of the late antique rampart of the Upper Town, but it protected a much smaller area of around 0.5 hectares (Bulić 2004; Milinković 2010: 205–206 with said literature). Similar situation is noticed on the site Ras – Postenje in the vicinity of Novi Pazar, on the slopes of Rogozna mountain. Ramparts, churches and houses were detected on this multy-layered site. Like most of the fortifications on the central Balkans built on high altitudes, the one at Ras – Postenje was abandoned at the beginning of the 7th century. The reoccupation occurred during the 9th century, when, according to researchers, late antique ramparts were restored, as well as houses and larger church. The dating of said renovation was performed based on the pottery of Bulgarian origin dated to the 9th and the 10th centuries (Mrkobrad 1997 with said literature).

In the same region, about 15 km south-east from Sjenica, the site Gradina on Vrsenice is situated 1330 m above the sea

level. During the excavations, a roman military fort of trapezoidal shape was discovered, around which a late antique fortification was erected, which had an irregular shape and one square tower on southern rampart. Within the fortification the remains of houses were discovered, as well as a single-naved church with narthex. This fortification likewise seized to function at the beginning of the 7th century and was used once again two centuries later (Fig. 4/A/1). The existing tower was than renewed, with the upper part possibly made of wood, as well as the western rampart, originally built in the second half of the 5th century. Southern rampart of the early Byzantine fort was also partially rebuilt, while the newly erected early medieval ramparts stretched in a flat line toward the east. In that way the defended area was enlarged to 0.85 hectares. This is so far the unique example on the central Balkans, since in all other fortifications the defended area kept the same size or was reduced. Medieval ramparts were founded directly onto the rock and its original width was 3 m (Fig. 4/A/2). It was built of large stone blocks bounded by brown-reddish dirt. The preserved height vary from 1.2 to 2.5 meters, while it must have originally been between 3.5 to 4 m. Buildings were discovered in the central part of the protected area. In some cases their positions completely coincide with the position of earlier objects. Except for the usual sized houses, one

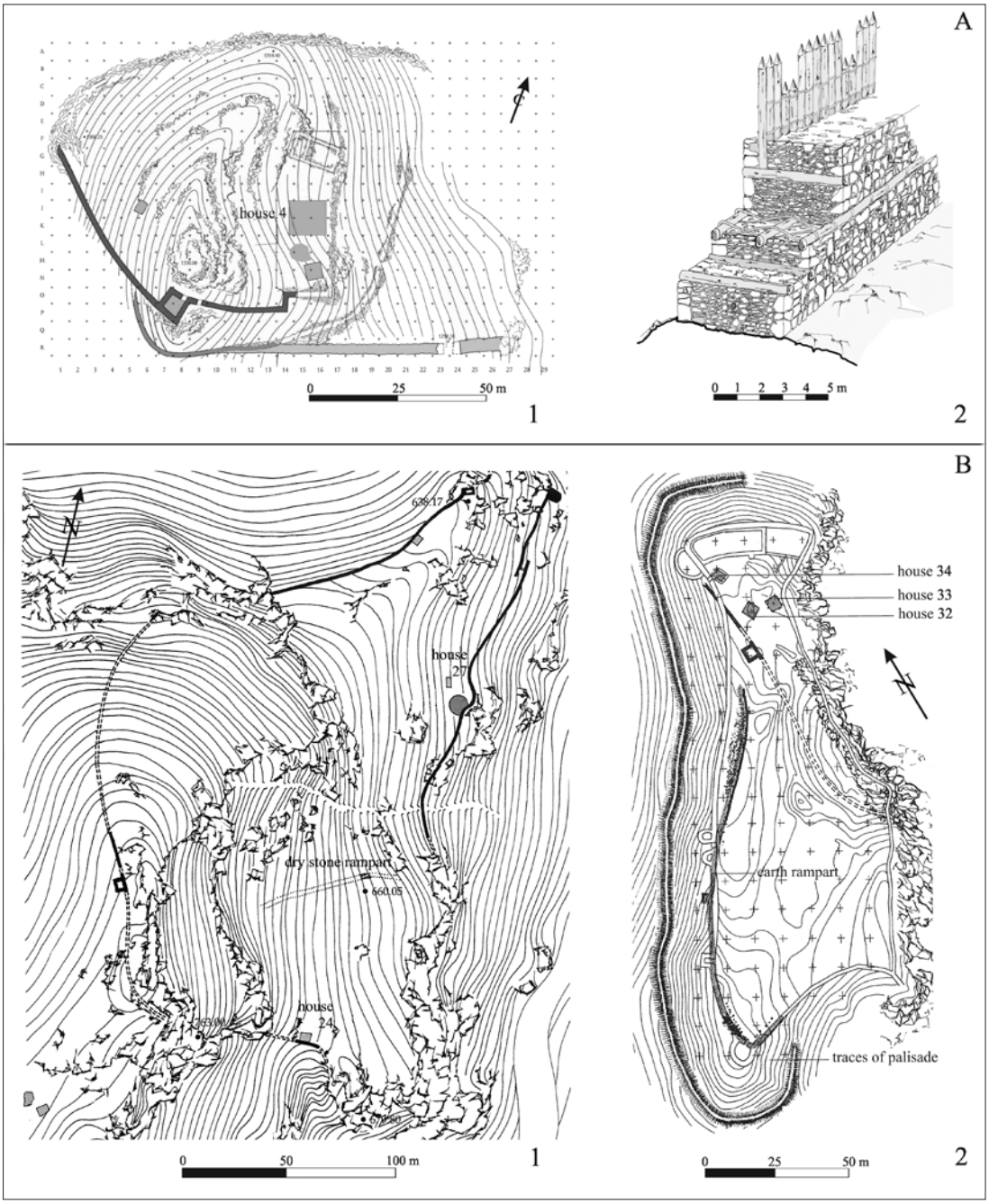

Fig. 4 A. Gradina on Vrsenice: 1. Ground plan of the fortification (after: Popović, Bikić 2009: sl. 78); 2. Hypothetical reconstruction of the southern rampart (after: Popović, Bikić 2009: sl. 106); B. Ras - Pazarište: 1. Ground plan of the fortification from the 9th and the 10th century (after: Popović, M. 1999: sl. 85); 2. Ground plan of the fortification from the end of the 11th century (after: Popović, M. 1999: sl. 107)

larger house having 12 by 12 m, marked as house no. 4, was also discovered. It actually was a preserved substructure of a woodhouse divided by 1 m wide stone wall into two equal parts. It is assumed that once important person in charge of this regional centre lived in it (Popović, Bikić 2009: 13–16, 20, 31–107 with said literature).

On the site Ras – Pazarište a Roman watchtower was built during the 3rd century. At the beginning of the 6th century a late antique ramparts were built around it, which protected only the easily accessible parts of the terrain, while those parts situated above the steep slopes remained unfortified. It was also abandoned at the beginning of the 7th century and reoccupied during the 9th century. Southern and north-western sides of the early Byzantine fortification were still in good shape at that time, as well as a semicircular tower VII and the ramparts around it, while the eastern rampart was damaged (Fig. 4/B/1). Dry stone wall was discovered, between 0.9 and 1 m wide. To the same phase may belong the wall built in the same manner in the southern part of the fortification, which either divided former fort into two uneven parts or reduced former defended area to the size of about 200 by 200 m. Its width was 2.75 m in the base and 2.10 m in upper level. It is believed that it once was 2.5 m high. Several smaller wood houses with single room were built simultaneously. At the end of the 11th century another restoration occurs when the ramparts on the western and southern side of the mount were erected (Fig. 4/B/2). Ramparts didn`t have unique construction, since some parts were dry walls, other were made of dirt and then planked, and some were palisade. Based on preserved elements, a possible reconstruction of ramparts was made, which imply that foundations were made of stone and strengthened by wooden grates. In order to achieve better statics, a layer of burnt earth 0.5-0.6 m thick reclined onto these foundations, and on top of it was another layer of stone. The wooden armature was made of oak beams 7-15 cm in diameter. Another layer of beams was transversely placed onto those, in the distance of not more than 25 to 30 centimetres in between. Those horizontal layers were additionally strengthened by vertical posts 15 cm in diameter. While the appearance of those carrying part of the rampart is clearly defined, its upper parts remained unknown. Its middle section, 60 m long, is very badly preserved, but it is supposed that it was an earthen wall planked by three guttered beams. In the southern part of the rampart the remains of palisade were detected, additionally fortified by a trench placed 10 to 15 m away from the palisade, in front of which was a V shaped fossa. The information about the appearance of the houses are much scarcer and also suggest the existence of wood houses (Popović, M. 1999: 34, 59–138 with said literature).

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Although in scientific circles it is mostly believed that during the first quarter of the 7th century the inhabitants moved away with the disappearing of administrative and church rule in north-western part of the Empire, it must be stressed that certain amount of population most certainly remained in their homeland, which is also suggested by numerous small finds dated to the end of the 6th and first half of the 7th century (Janković, Đ. 1983, 120; Crnoglavac 2005; Milinković 2010, 203–204; Špehar 2010: 154, with said literature; Bugarski 2012, 234–238, 240–243, with said literature; Ivanišević 2012, 62; Petković 2012, 26, sl. 9; Špehar 2017: 93). The survivor of certain part of the Romaic population could be the reason why newly settled people built their unfortified settlements in the vicinity of existing late antique forts and not within them (Špehar 2015a: 337; 2017: 228–229). Namely, it can not be excluded that in some forts the remaining Romaic inhabitants continued to live. Since the structure of that population was more like the agricultural community than the military garrison (Špehar 2010: 145–154), it is very much possible that it didn`t retreat with the army but remained to live on their land even after of the break of the limes (Špehar 2017: 229). It likewise seams that, because of low level of social organization of the rural communities of the new comers, they didn`t feel the necessity to occupy the existing settlements before the 9th century or they simply didn`t know how to use the advantage of the existing ramparts (Špehar 2012: 351; 2015a: 337).

Since the end of the 9th and especially during the 10th and the 11th century, the number of settlements on the central Balkans increased. Those were not founded exclusively in the open spaces along the river valleys anymore, but the reoccupation of earlier fortifications started to occur. The low level of research of the fortifications used during the early Middle Ages, as well as the small amount of published archaeological material, resulted in different statistic concerning the number of forts used during the said period (Špehar 2012; 2015a; 2015b; 2017; Bulić 2013; Bugarski, Radišić 2016). According to some opinions the life was renewed in about 30% of Roman and Late Antique fortifications (Bulić 2013: 191–208, 225), although that number must have been larger.

Historical circumstances suggest that the reoccupation of the Danubian fortifications, as well as those built in the hinterland of the Danubian region, were primarily the consequence of spreading of Bulgarian State (Komatina 2015), which can be testified by the finds of Bulgarian provenance, like for example pottery discovered at the necropolis in Ravna-Slog near Knjaževac (Jovanović, Vuksan 2005) and on the site Zlata-Kale,[2] or small hearth shaped belt applications from Svrljig (Fig. 5/A) (Radišić 2015). Forts could have been erected by the Bulgarians during their struggle with the Slavic tribes

2 This information was presented by prof. dr M. Milinković at the conference *Od Romana do Slovena. Arheološki nalazi iz Srbije i njihov kontekst*, held in Belgrade in 2013.

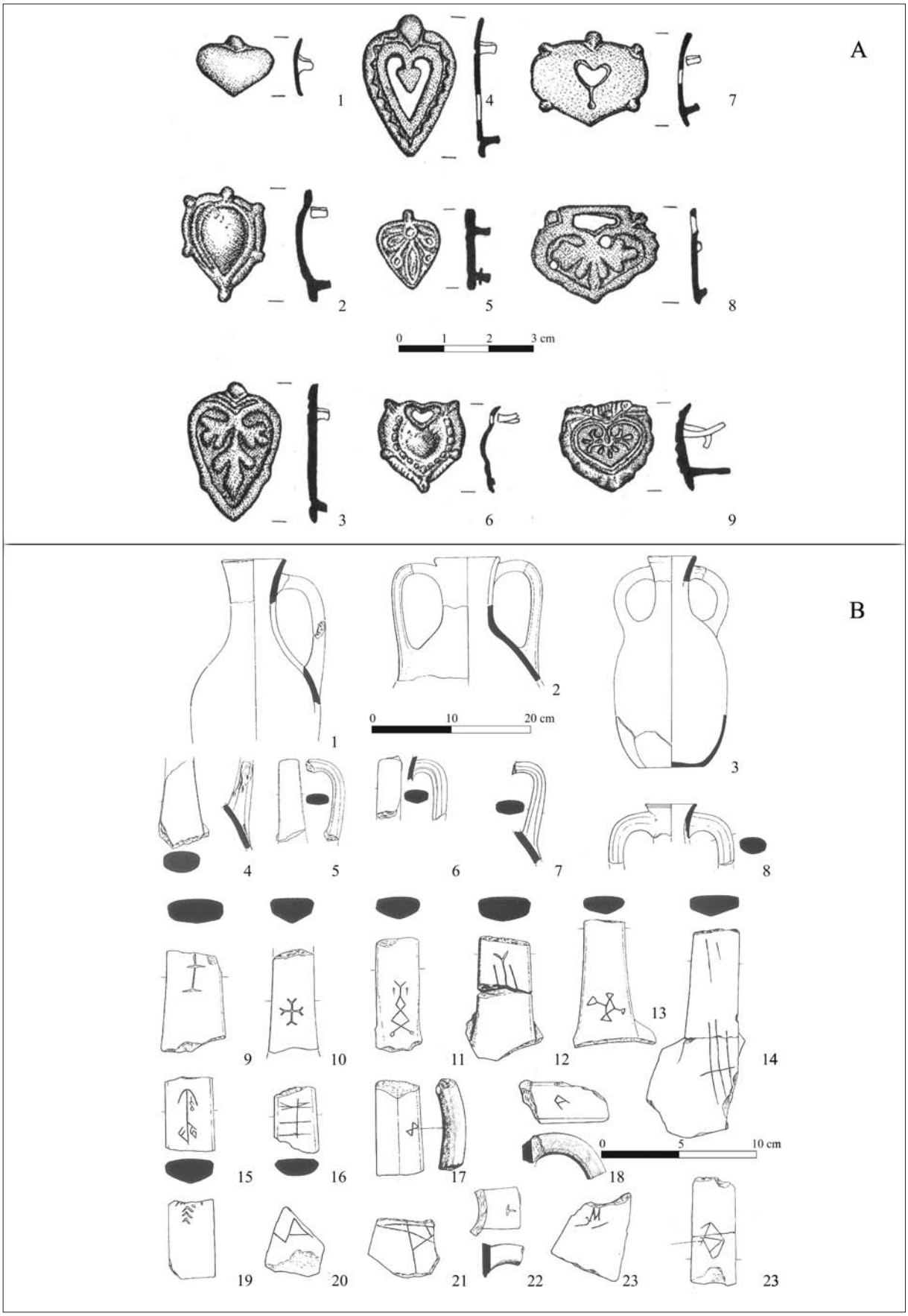

Fig. 5 A. Svrljig, hearth shaped belt applications (after: Radišić 2015: sl. 1); B. Ras – Pazarište, pottery of Bulgarian provenance (after: Špehar 2015b: fig. 15/A)

(Timočani, Braničevci) (Annales Einhardi 6; Ljubinković 1978: 20–21 with said literature) or with Magyars who attacked the central Balkans` territories (Špehar 2015a: 337). Still, it can not be excluded that mentioned Slavic tribes actually took control over those forts even before their struggles with Bulgarians (Špehar 2015a: 337).

During the 10th and the 11th century there is an intensive occupation of the Danubian area, which certainly was the result of further strengthening of the Bulgarian state, primarily in the time of Samuel. It is even more possible that this process was tied to the conquests of Basil II, under whose rule the Byzance re-establish its borders on the Danube, when even the antique Sirmium was once again occupied. It was the period when the inhabitants gradually started to settle inside Roman and late antique fortifications. It is necessary to mention that there are no new fortifications in the Serbian part of the Danubian region during this time. The existing ramparts were mostly restored and sometimes one additional tower was built, like in Veliki Gradac during the 10th-11th century. Although the settling inside the ramparts did occur, the structure of settlements did not change much comparing to the period from the 7th to the 9th century, which is suggested by still predominant simple rectangular houses with wooden walls and kilns.

Numerous conflicts between the Bulgarians, the Slavs and the Byzantine empire in the Danubian region at the end of the 10th and the beginning of the 11th century can be traced through the discovery of coin hoards on several sites (Špehar 2012: 353 with said literature, sl. 2; 2015a: 338 with said literature, Fig. 2). To the rise of Byzantine influence testify the restored circulation of coins from the 9th century onward, while the final return of Byzantine rule is marked by the establishing of new administrative centres, wherefrom the finds of seals originate (Ivanišević 1993: 79-80; Maksimović, Popović 2008a; 2008b; Radić 2010, 201-203; Špehar 2017: 207–218 with said literature), as well as of church organization during the reign of Basil II (Špehar 2015a: 338).

The re-conquering of early Byzantine fortifications in western and south-western Serbia was mainly tied to the confrontations between the Bulgarians and the Serbs considering their borderlines (DAI: 32). Research conducted until today suggest the possibility to identify Gradina on Vrsenice as Destinikon, one of six inhabited forts in baptized Serbia, as Constantinus VII Porphyrogenitus informs us. Destinikon was crucial for establishing and maintaining the rule over the Serbian territory in the early Middle Ages, since it was occupied by Serbian dignitary Klonimir during the unsuccessful attempt of usurping the throne. According to everything said, it was the closest fort to the Bulgarian territories. Although still without certain proves that it really was a border fort of Serbian state, an information should be mentioned that no finds belonging to Bulgarian cultural circle were found on the site Gradina on Vrsenice (DAI: 32; Premović–Aleksić 1995: 306–308; Popović, M. 1999: 298 with said literature; Popović, Bikić 2009: 132-134). Opposing to that, Ras – Pazarište and Ras – Postenje were definitely Bulgarian border forts, that protected bishopric seat in St. Peter`s church in modern Novi Pazar. It is suggested by the fact that both forts were restored in the middle of the 9th century, and that numerous finds of Bulgarian provenance were discovered within them, above all the amphoroid jugs, sometimes with runic inscriptions (Fig. 5/B), or heart-shaped pendants (Popović, M. 1999: 155–161). In the written sources the territory of Ras is mentioned as a border area between the Serbs and the Bulgarians. This information was used by historians in an attempt of defining the exact border of those two peoples (DAI: 32; Ferjančić 1996: 117–150). Since Vrsenice shows complete absence of finds Bulgarian in origin, it can suggest that possible borderline between two peoples was on the Pešter Plato[3]. It seems that both Ras–Postenje and Ras–Pazarište, as the Bulgarian fortifications, had the same role during the 9th and the 10th centuries, i.e. to prevent the expansion of the Serbs from the territories they originally inhabited in the 7th century.

Everything said suggest that the spreading of Bulgarian State on the territory of the central Balkans had the key role in reoccupying of early Byzantine fortifications during the Early Middle Ages in the 9th and the 10th century. The strengthening of Byzantine influence emerged only from the end of the 10th and during the 11th century, especially when Komnenos Dynasty ascended the throne in Constantinople. During their reign, the fortifications along the right bank of the Danube were re-conquered once again. According to the current state of research, the Serbs were only rarely engaged in existing conflicts and obviously had little to do with this phase of reoccupying the earlier forts.

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3 The possible border line further to the north could be suggested by the absence of Bulgarian finds in the area arround present day Čačak in western Serbia. Cf. Radičević 2003: 223–245.

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UMBERTO MOSCATELLI

Defensive Systems and Structures in Central Eastern Italy in Early Middle Ages: a Preliminary Approach Based on Documentary Sources

The theme of the development of systems and defensive structures in Early Middle Ages and Middle Ages has never been appreciated by archaeologists in this side of Italy. Some recent scientific contributions pay more attention on history or on the walls building techniques. However, even if the lack of archaeological excavation makes it difficult the approach to this topic, a comparative analysis of documentary sources and material evidences in fortified contexts paves the way to some interesting remarks. The written sources of early Middle Ages provide a discontinuous patchwork mostly related to the events that accompanied the growth of ecclesiastical power (Abbeys and Roman Church). Sometimes we have only the factual reference to some fortification event, like in the case of the monks of the Farfa Abbey, when they fecerunt castellum to defend themselves against Saracen attacks. Sometimes, on the contrary, we find specific references to the building material of the fortification.

The archaeological sources consist of earthworks or remains of castle (more or less ruined...), usually reflecting building projects dating back to the Late Middle Ages, but often put in the same places where the oldest defences had been raised. Based on those data, the author seeks to identify the tendencies in the topographical choices of the earliest fortifications, as well as in the technical solutions chosen.

Key words: medieval archaeology, early middle ages, Marche, medieval settlement, encastellation

INTRODUCTION

The context concerned in this paper is the inland of southern part of Le Marche, a mountain area affected by the activities of the R.I.M.E.M. Project (Ricerche sugli Insediamenti Medievali nell'Entroterra delle Marche - Research on Medieval Settlements in the inland of the Marche Region) (Fig. 1).

This area is characterized by a significant number of castles, spread since the 9th–10th centuries, as shown in documentary sources, but in the Late Middle Ages most of them were rebuilt on the earliest fortifications or renovated, often during the Seigniory of the Da Varano family, Lords of Camerino (Bernacchia 2002; Antongirolami 2005) (Fig. 2).

The presence of newer buildings in the same locations of previous fortifications is a major problem in this Region, because of the lack of archaeological background. In fact, most archaeologists working here have paid and pay their attention to the Roman or pre-Roman Archaeology[1]; the interest in medieval archaeology is a quite recent phenomenon, mainly thanks to the systematic research work of the Macerata and Urbino Universities (Gnesi et al. 2007; Moscatelli 2014; Moscatelli 2015; Sacco 2016). However, the development of defence systems in the Early Middle Ages and high Middle Ages has never been dealt with, apart from some non-scientific publications. Recent papers regard broader historical issues (Bernacchia 2002; Antongirolami 2005; Virgili 2014) or focus on local contexts or on building techniques (Ermeti-Sacco 2007; D'Ulizia 2008; Antongirolami, D'Ulizia 2015; Antongirolami et al. 2015).

1 Actually, at present there are only two groups who have been operating for the last few years: the team of Anna Lia Ermeti And Daniele Sacco (Urbino University), in the northern area of the Marche Region, and the R.I.M.E.M. team, for the past ten years engaged in archaeological surveys. Despite the shortage of diagnostic pottery, the surface artefacts are the only way to start building a general frame of the rural settlement, but obviously they are useless for the issue dealt with here.

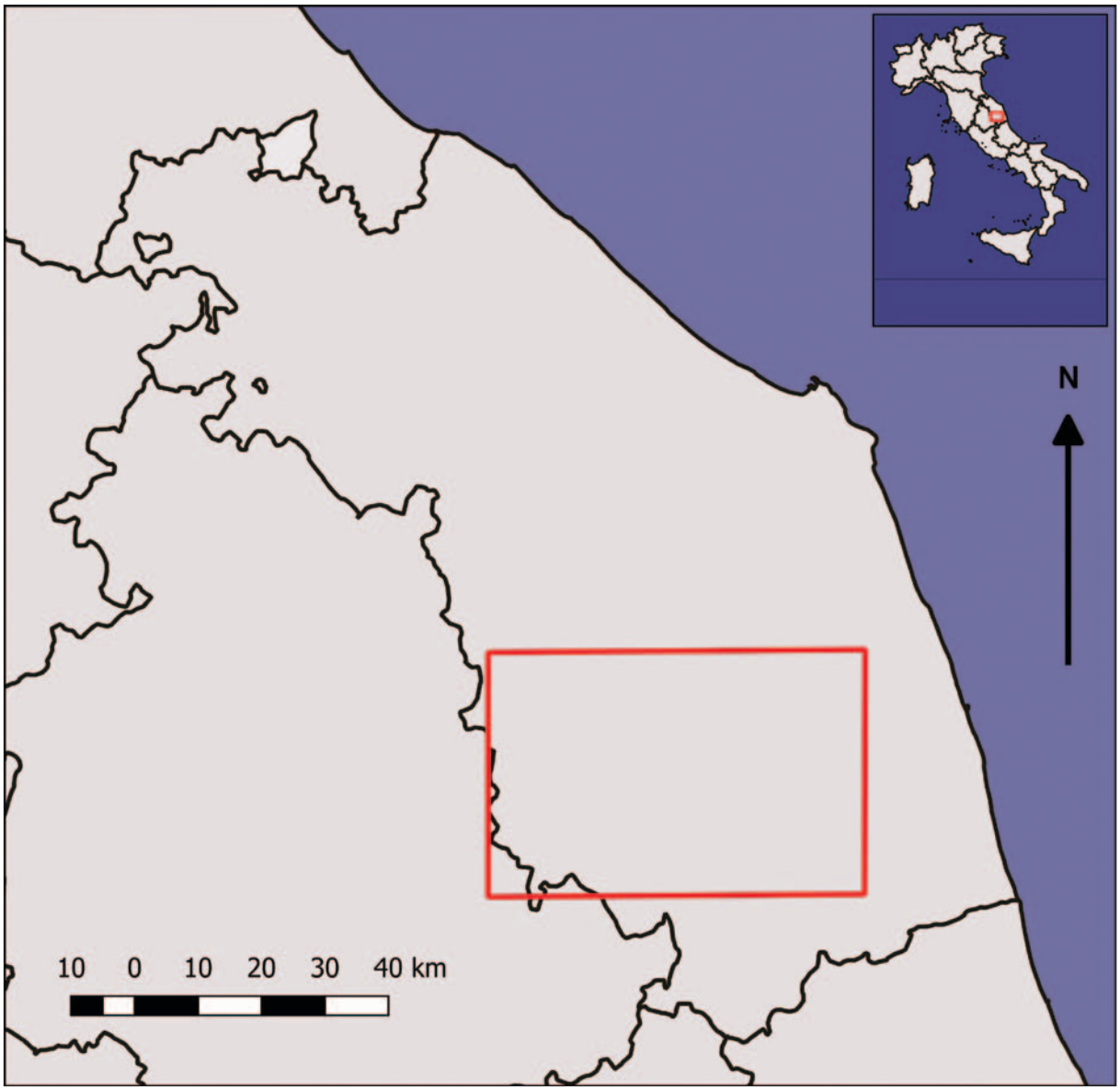

Fig. 1 Position of the area concerned in this paper

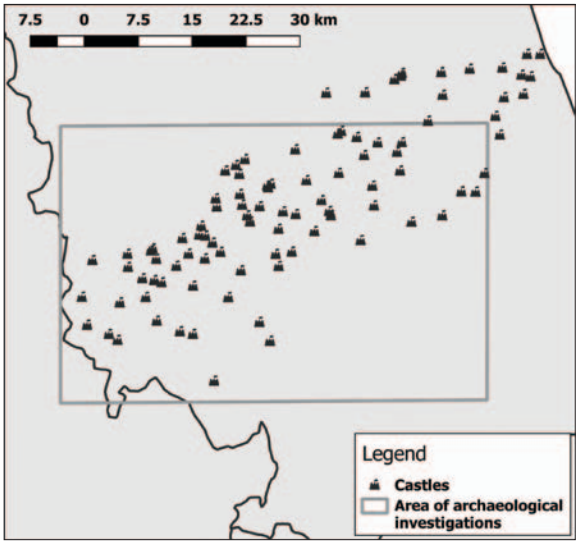

Fig. 2 Map of the castles in the Chienti Valley according to Antongirolami 2005 (modified by: U. Moscatelli)

My comments will be based on the period from the end of the 9th to the 11th century but, in simple terms, at present time all we know about this period arise from documentary sources only, which are mainly:

- the texts from the Farfa Archives (*Regestum Farfense*, *Chronicon Farfensis, Liber Largitorius*), the abbey that enlarged its power and territories during the early Middle Ages (Giorgi, Balzani, 1879–1914; Balzani 1903; Zucchetti 1913–1932);
- the *Chronicon Casauriense* (in: Muratori 1726);
- the *Liber Iurium* of the episcopate and of the town of Fermo, the most important town in this area in the early, high and late Middle Ages (Avarucci et al. 1996).

These sources provide us an important framework which is, however, partial and discontinuous. Written documents represent

a major resource because they draw a significant outline, but it is essential to take their limits into account.

First of all, they are the result of an occasional selection with regard to the way they were produced and to the vicissitudes that have caused their loss or their survival until nowadays. Moreover, most documents do not contain any foundation deeds, but references to castles that already existed; therefore in the majority of cases it is impossible to assess when a castle was built. In addition to this, as several scholars have properly underlined, the term "castle" was given to manors created by local lords to affirm their lordship (Farinelli 2007: 123), and not simply to settlements equipped with more or less complex fortifications, like for example the *curtis* itself or the seigniorial residences of the emerging aristocracies (Farinelli 2007: 104; Virgili 2014: 61). Nonetheless documentary sources are not useful to shed light on this subject, apart from some occasional hints; this could be the case of an *Isula qui fuit de Treseo*, mentioned in 1066 as a place, not as a castle, but equipped with *ripe et carbonarie et cum introitu et exitu suo* (Tab. 1).

Finally, the early medieval texts are sparing with details relating to material structures of castles: as a matter of fact, the information they provide is usually repetitive and insidious, because of lexical vagueness.

In those circumstances, this paper represents a contribution to the research on early middle ages, with specific reference to the period in which the aristocratic classes and other powers started to built castles at the end of a protracted process of reorganization of the landed property.

THE FORMATION OF THE CASTLES FROM THE PERSPECTIVE OF THE DOCUMENTARY SOURCES

The castles with the oldest written records are a district called *ministerium de Castello* (in 897), and Santa Vittoria in Matenano (end of the 9th century; on the ministeria see: Fumagalli 1994: 19–21; Pacini 2000: 28–29, 137–157).

The first one is generally identified with a place named Case Corvello, but the identification proposed is doubtful, because there are no visible remains at all.

The castle of S. Vittoria in Matenano is almost contemporary. It is nowadays a small town between the valleys of Tenna and Aso rivers, near to which was the monastery of S. Ippolito, the oldest property of Farfa, mentioned by the Lombard King Desiderio in a diploma going back to the year 762, where the king himself confirmed to the abbot Alano some goods given in two previous *chartulae* (*Reg. Farf.*, II: 55; Galiè 1987; Crocetti 1996; Pacini 2000: 351–352). In subsequent years, Farfa increased its possessions, but in the last ten years of the 9th century the Abbey was attacked by the Saracens; in 898 the monks escaped, divided in three different groups; the main one, led by Abbot Petrus, reached the *Picenum* and retreated in S. Ippolito Monastery (on the Abbey: Leggio 2008). Shortly after, however, the Saracen threat re-emerged, so that the Abbot decided to encastellate a hill called *Mons Matenanus* (today S. Vittoria in Matenano). The events are narrated in the *Destructio Monasterii Farfensis*:

Prelibatus vero abbas, ut prefati sumus, ad comitatum Firmanum veniens, in monasterio sancti Hippoliti et sancti Iohannis, quod dicitur in Silva, cepit habitare cum fratribus quos secum de Sabinis duxerat et quos ibi invenerat, lugens ac dolens de sui monasterii desolatione. His ita peractis, ceperunt prelibati Sarraceni infra terminos comitatus Firmani ad depredandum introire. Qua de causa predictus abbas in timorem iterum versus, coadunatis monacis et militibus, fecerunt castellum in Matenano monte (*Destructio*: 32).

This is clearly a very important passage, because only rarely written record mention the founding period / year of a castle expressly. Furthermore, the words of the *Destructio* suggest the trends followed in order to choose a place suitable for a castle: *Mons Matenanus* is a steep sandstone peak which could easily be fortified, close enough to the Monastery. Finally, the rapidity with which the monks from Farfa seem to have reacted to the Saracens threat suggests that timber structures were used, even though the passage from the *Destructio* does not provide any detail on the subject (on earthworks and timber structures in Italy see: Settia et al. 2013).

Unfortunately, although *Ministerium de Castello* and *Mons Matenanus* allow us to establish that the introduction of castles started from the end of the 9th century, there are very few texts dating back to the 10th century, consequently we cannot follow the process of encastellation in its development.

On the other hand, some documents illustrate the general features of the landscape rather effectively. In particular, a document dated 977 gives us a window on the landed property along the upper valleys of Tenna and Aso rivers. This is a complex transaction through which the Bishop of Firmum grants a consìderable amount of lands to *Mainardo comes filius quondam Siffredi* and grandson of another Mainardus, who probably lived between the end of the 9th and the beginning

Year	n.	Definition	Name	Area	Access?	Ripa	Carbonaria	Clusimen	Gate	Gate	Murus	Turris
1022	27	castellum	de Posulano	Macerata								*cum turre*
1028	75	*castellum*	*De Saltariccia*	Lapedona			carvonaria		introitu	soitu	mura	
1034	54	*castellum*	*de Stablo*						introitu	exitu		
1034	54	*castellum*	*de Monticelli*									*cum turre*
1035	25	*castellum*	*de Monticelli*	S. Elpidio a M.					introitu	exitu		
1054	36	*castellum*	*de Petra*	Civitanova			carvonarie	clusimine	introitu	exitu		
1054	328	*poium*	*de Monte Granario*	Montegranaro			carvonari					
1055	85	*podium*	*?*									*cum turre*
1055	93	*castellum*	*de Cabiano*	Montecosaro			carvonarie		introitu	exortu		
1055	357	*castellum*	*de Popetiano*	Macerata	*portis*		carbonariis					
1060	47	*poium vel castellum*	*quod vocatur Monte Guarmini*	Rocca Monte Varmine		ripe	carvonarie		introitu	exitu		
1061	39	*poium vel castellum*	*qui vocatur Treveniano*	Montottone		ripe	carvonarie		introitu	exitu		
1062	20	*castellum*	*de Laccio*		portis		carvonarie	clusimine	introitu	exitu		
1062	20	*castellum*	de Cirroli									
1062	20	*castellum*	*de Loro*		portis		carvonarie	clusimine	introitu	exitu		
1062	20	*castellum*	*Palme*		portis		carvonarie	clusimine	introitu	exitu		
1062	74	*castellum*	*de S. Helpidio*		portis		carvonarie	clusimine	introitu	exitu		
1062	74	castellum	qui vocatur Gructa		porta		carvonaria	clusimine	introitu	exitu		
1063	52	*turre*	*de Tronto*		portes		carvonarie	clusimine	introitu	exitu		
1063	52	*castellum*	*M.S. Martini*		portes		carvonarie	clusimine				
1063	52	*poium*	*Iguani*						Introitu	exitu		
1063	103	*castellum*	*Colle Celeri*	?		ripe	carbonarie		introita	exorta		
1063	103	*castellum*	*qui vocatur Montone*	Ripatransone		ripe	carbonarie		introita	exorta		
1063	103	*castellum*	*qui vocatur Morteto*	Ripatransone		ripe	carbonarie		introita	exorta		
1063	103	*castellum*	*qui vocatur Monte Bovario*	Ripatransone		ripe	carbonarie		introita	exorta		
1063	103	*castellum*	*qui vocatur Sancta Cruce*	?		ripe	carbonarie		introita	exoita		
1063	103	*castellum*	*qui vocatur Camporum*	Carassai		ripe	carbonarie		introita	exoita		

Year	n.	Definition	Name	Area	Access?	Ripa	Carbonaria	Clusimen	Gate	Gate	Murus	Turris
1063	103	*castellum*	*qui vocatur Marcelliano*	Carassai		ripe	carbonarie		introita	exoita		
1063	103	*castellum*	*qui vocatur Casale*	S. Claudio Ch.		ripe	carbonarie		introitu	exoitu		
1065	73	*castellum*	*de lu Monte*	?	*porta*		carvonarie	clusimine	introitu	exitu		
1066	95	*castellum*	*de Paterno*	Ripatransone		ripe	carbonarie		introitu	exitu		
1066	95	*?*	*Isula*	S. Claudio Ch.		ripe	carbonarie		introitu	exitu		
1070	32	*castellum*	*de filiis quondam Bonezone*	Montolmo			carvonarie		introitu	exitu	muro	
1079	19	*castellum*	*S. Helpidii*	S. Elpidio a M.	*porta*		carvonaria	clusimine	introitu	exitu		
1083	38	*castellum*	*de Corlliano*	Potenza Pic.	*portis*		carvonarie	clusimine	introitu	exitu		
1083	227	*castellum*	*Ilce*	Macerata	*porte*		carvonarie	clusimine				
1083	227	*castellum*	*Pretezioli*	Civitanova	*porta*		carvonaria		introitu	exoito		
1095	92	*castellum*	*de Tusiano*		portes		carvonarie	clusimine	introitu	soitu		
1095	92	*castellum*	*de Frasso*		portes		carvonarie	clusimine	introitu	soitu		
1095	92	*castellum*	*qui vocatur Monte*					clusimine	introitu	soitu		
1097	28	*castellum*	*qui vocatur Ilice*	Macerata		ripa	carbonarie		introitu	exitu		
1099	61	*castellum*	*qui vocatur Rofiano*	Ripatransone		ripe	carvonarie		introitu	exitu		
1100	88	*castellum*	*de filiis quondam Teuzoni*		porta		carvonaria	clusimine				
1121	219	*mons*	*qui vocatur Tisiano*	?		ripe	carvonarie		introito	exito		

Tab. 1 List of defensive structures according to the *Liber Iurium*

of the 10th century. *Mainardus* the elder was probably a *miles* (maybe from a Frankish family), like the *milites* to which refers the above-mentioned passage of the *Destructio*, thus a member of an aristocratic class (Moscatelli, Ravaschieri 2016; on the aristocracies on this region: Archetti Giampaolini 1987; Saracco Previdi 2006).

In the document the terms *fundus, curtis, res/terra* prevail, while no castles are mentioned. Nonetheless this absence is not especially significant considering the purpose of the transaction that concerned real estates. This should bring us to the settlement patterns before encastellation and to the meaning of *fundus, casalis, casa, terra, villa,* focus of a wider research programme that I can't discuss here; anyway, this is the general framework in which a process of landed property reorganization started, the final stage of which was the castle (on this topic: Castagnetti 1980; Saracco Previdi 1985; Migliario 1992; Farinelli 2000; Pasquali 2002; Francovich, Hodges 2003: 103–104; Francovich 2004; Farinelli 2007: 100; Di Muro 2008; Di Muro 2012; Farinelli, Pocetti 2012; Loré 2012; Volpe et al. 2012; Ficco 2015; Moscatelli, Ravaschieri 2016).

THE MATERIAL STRUCTURES OF CASTLES: VERY FEW ARCHAEOLOGY EXPLORATIONS AND TEXT

Some useful indications about the material structures of the firsts castles are provided by the documents related to the 11th century; one the main sources for the southern part of Le Marche is the *Liber Iurium,* a collection of documents from 977 to 1266, related to the episcopate and to the town of Fermo (Avarucci et al. 1996).

Even though the papers within *Liber Iurium* have already been analyzed in recent works together with some other relevant documents concerning the remaining areas of the Marche region (e.g.: Bernacchia 2002; 2006; Antongirolami 2005; Virgili 2014), it is however possible to enhance some details which probably have been underestimated so far.

Therefore, *Liber Iurium* contains references to about 200 castles; nearly a third of them are mentioned in the period taken into examination. Nevertheless, not all documents contain information related to the fortification system; useful cases are consequently reduced to 44.

A first basic question concerns the technical terms used in documents to indicate fortified structures: *castellum, castrum, podium (poium), castellare, mons* (a single case). Since essential data is missing at the time being, I am not going to go over the aspects related to the development of such terms here, which are clearly used as synonyms sometimes. As a matter of fact, it is not evident whether the differences in terms hide a typological or lexical evolution. As for *castrum* and *castellum*, even recently, Aldo Settia has underlined the ambiguity with which both words are used in documentary sources (Settia 2017: 9–12).

Another case is related to *podium* (*dossum* in northern Italy), a word that, according to Aldo Settia, would indicate a non-rocky hill suitable for the construction of a castle (Settia 1984: 193). According to Roberto Bernacchia, *podium* could be "linked to a primitive phase of an encastellation which has not always been overcome" (Bernacchia 2002–2003: 152–154), but it is a theory only.

The relationship between *podium* and *castellare* is not very clear; some documents provide descriptions like these:

- *medietatem de ipso castellare de Ripa […] cum medietate de ipsa turre, et cum pertinentia suprascripti podii* (*Reg. Farf.*, IV, n. 739, year 1039);
- *cum ripe et carbonarie … et uno poio qui fuit castellare* (Avarucci et al. 1996: 1, n. 95, year 1066).

Castellare and *podium* seem therefore to be used as synonyms; moreover, in the second case it is possible to recognize a lexical switch from *castellare* to *podium*. On the other hand, in later documents, *castellare* appears as a synonym of *castellum*.

As for the words used to indicate material structures, the most frequent terms are *porta, ripa, carvonaria (*or *carbonaria), clusimen, introitus, exitus*. Only rarely is *turris* used (3 cases out of 44) together with references to masonry (1 case). The Fig. 3 summarizes the data percentage of the single terms or combination of terms.

Finally, expressions like *cum omni hedificio*, *cum omnia edificia* are barely relevant because they are too general and references to churches do not provide any contribution to the subject of this conference (Bernacchia 2002–2003; Settia 1984).

A quite debated matter is linked to the meaning of *carvonaria (carbonaria)*, a word which occurs in 35 cases out of 44 and that sometimes we find in the following centuries.

Aldo Settia considers this term perfectly equivalent to *spaldum/spoldum* of northern Italy; it was first used to indicate an embankment facing a fortification work (an *agger*) and later, during the 12th century, "the space between the moat and

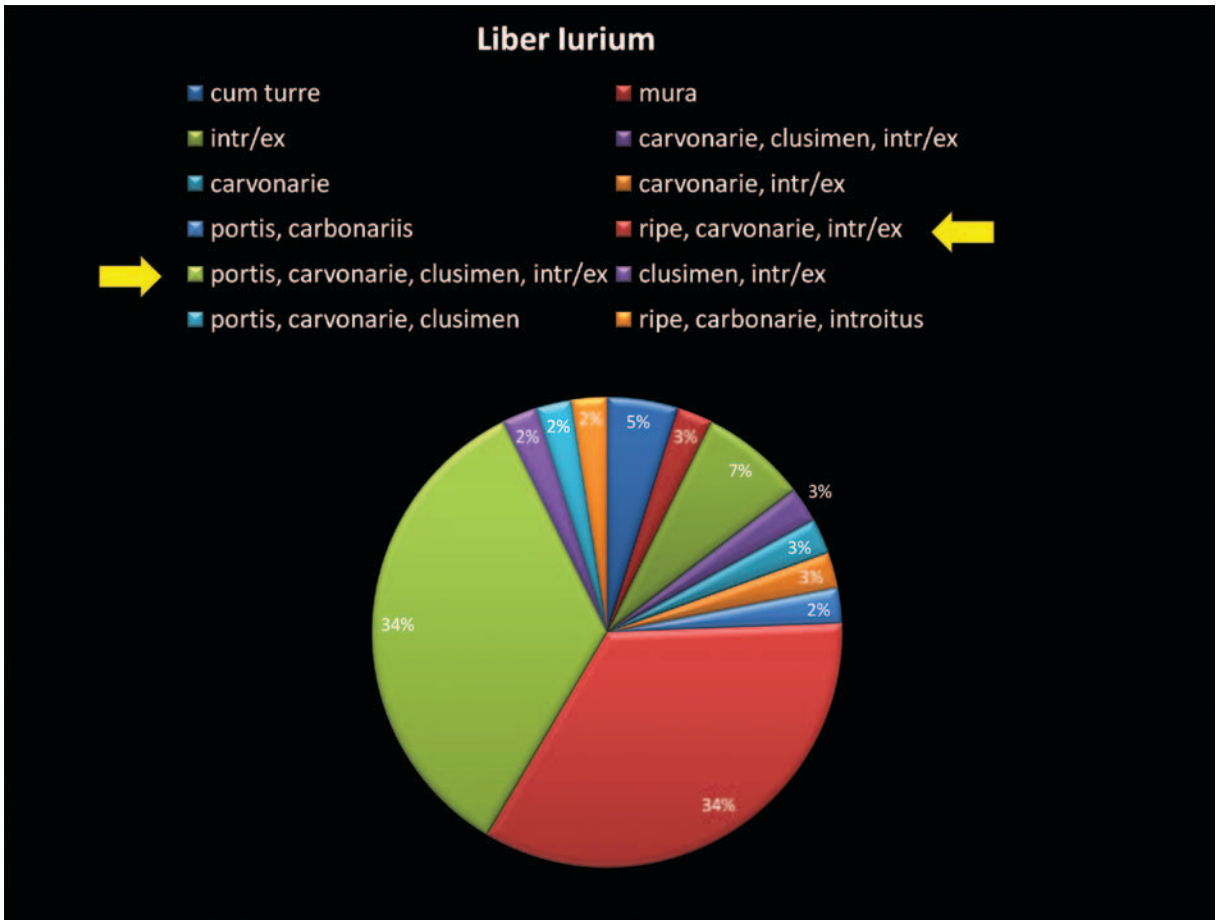

Fig. 3 The material structures of the castles in the *Liber Iurium*

the wall, within which houses and other buildings can be found" (Settia 1984: 203; Antongirolami 2005). Nevertheless, not all scholars agree on this question: some of them believe that it is the moat (Settia 1984: 240, n. 133), some others assume that moat was the original significance, before the word indicated the area close to the moat or included between the moat and the walls (Francovich 1973: 56). Such an interpretation would correspond to the indications contained in the *Glossario dello Stato della Chiesa*[2] (Sella 1944: 124, s.v. *carbonaria*) and would explain the absence of any references to moats (*fossis, fosaris, fossa, fosato, foveis*), which appear north of the area examined starting from the 10th century (Bernacchia 2002–2003). It is possible that *carvonaria* was used to indicate, at least in the older documents, the complex moat-agger, as suggested by Roberto Bernacchia (Bernacchia 2002–2003: 152–154 s.). Despite the ambiguity of medieval documents, this hypothesis could be supported by the frequent association (16 cases out of 44) of *carvonaria* with *porta/portes*, that has been underestimated in the previous studies (Bernacchia 2002; 2002–2003; Antongirolami 2005: 342).

As for the other terms and their combination, in 12 cases out of 16, *porta/portes* appears together with *introitus/exitus*, often in turn associated with *clusimen*. Therefore I suggest that *porta/portes* is indicating the access to the moat-agger system, and that the term *introitus/exitus* refers to the gates located in the inner fence.

This latter probably corresponds to *clusimen*, a word that is mentioned frequently (16 cases out of 44) (Bernacchia 2002–2003: 152–154; Antongirolami 2005: 342; Moscatelli 2006: 193–194; Virgili 2014). *Clusimen* is comparable to *tonimen*, well-known in northern Italy and in Tuscany (Settia 1984: 198–204; 214–218; Augenti 2000: 47), whereas in Lazio *redimen* appears, even if in later documents (Del Lungo 2004: 24–25).

The main question is: how was the *clusimen* made? In this period and in this area, mentions of masonry structures are rare: only 2 cases out of 44 (in 1028 and in 1070). Explicit information occurs in the following centuries, such as for example, in a document dated 1199, where *Presbiter*, bishop of *Firmum*, states that the *palatium castri Montis Sancti* [...] *debet esse bene copertum et suffrenatum arena et calcina et terra* (Avarucci et al. 1996: 11). Moreover, the use of *clusimen* seems not go

2 *Fossatum idest carbonaria*, with reference to some documents of the *Regestum Farfense*.

beyond the 11th century; as a matter of fact, the latest mention of *clusimen* dates back to 1100. Therefore, since systematic excavations are lacking, there are reasonable grounds to believe that *clusimen* could indicate a timber palisade (on this topic see: Settia et al. 2013).

As regards to the patterns of defensive structures, in 15 cases out of 16 *clusimen* appears together with *carbonaria*. In 13 cases out of 16 the castles are equipped with *porta, carvonaria, clusimen, introitus* and *exitus*, then with a defence system consisting of an external line made up of earthworks (moat and rampart), provided with its own access, and of a timber inner fence with its doors.

A final consideration concerns the term *ripa* (escarpment), appearing in 15 cases out of 44, always together with *carbonaria, introitus, exitus* and **never** together with *clusimen* or with any other terms referring to an enclosure.

As mentioned above, any comparative analysis between archaeological and documentary source is impractical at present. However, as for the size of three castles, we may perhaps to draw some useful remarks.

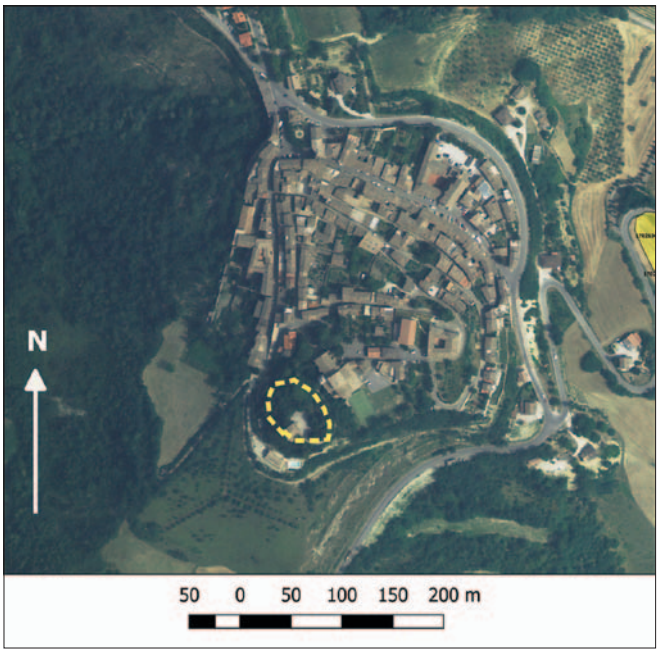

Fig. 4 The original area of the Matenano castle (yellow dotted line) (orthophoto by the National Geportal of the Italian Ministry of Environment and Protection of Land and Sea, modification by: U. Moscatelli)

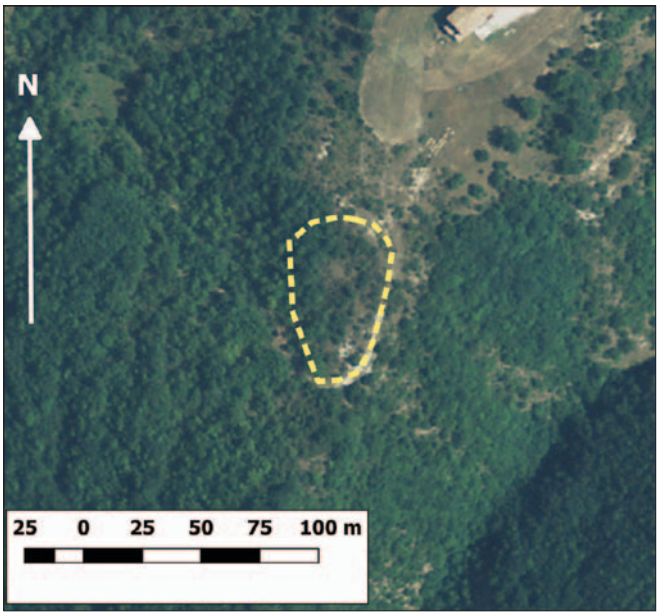

Fig. 5 The area of the *curtis in Castello* castle (yellow dotted line) (orthophoto by the National Geportal of the Italian Ministry of Environment and Protection of Land and Sea, modification by: U. Moscatelli)

At Santa Vittoria in Matenano the original area of the castle is recognizable on the top of the hill (the *mons Matenanus*), characterized by a little peak with a surface area of about 0,23 hectares (Fig. 4). At present the Church of S. Vittoria is only visible, while the remains of a monastery were still present in 18th century (Crocetti 1997: fig. 8).

A comparison is possible with the settlements of Castello and Croce, where the medieval documents in the 10th century mention the *curtes de Castello* and *in Cruce*. The first one, according to the written sources, seems to have been abandoned soon. Therefore the traces clearly recognizable in aerial photos probably refer to the first plant of the castle. They show a nearby triangular area, corresponding to some poor building remains recorded during an archaeological survey, with a surface area of 0,25 hectares (Fig. 5). This area is delimited northward by a moat separating the castle from the hill ridge (Fig. 6, 7).

In the settlement of Croce the core of the castle is a small hilltop with a surface area of 0,15 hectares, surrounded by a late medieval defensive wall (Fig. 8).

CONCLUSION

At the present, in the area taken into examination, the exegesis of the written texts plays a prevailing role in the research on the formation of the castles and their development. The medieval papers tell us the names of the founders of the castles and/or of their holders and shed light on the politic and economic dynamics acting in the landscape changes.

Fig. 6 The moat of the *curtis in Castello* castle (photo by: U. Moscatelli)

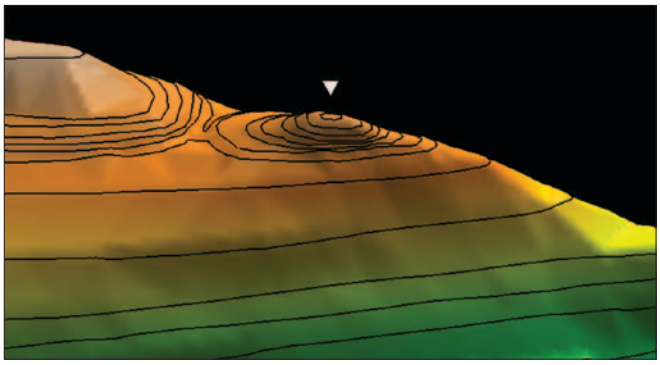

Fig. 7 3d model of the *curtis in Castello* castle (white triangle; view from W) (made by U. Moscatelli)

But, in the absence of archaeological investigation, those texts are quite difficult to interpret because their lexicon is not infrequently ambiguous; furthermore, it is unclear whether the notaries authenticating transactions followed a common standard of technical terms.

Apart from these difficulties, the documents of the *Liber Iurium* (Tab. 1) and the results of research carried out in other contexts seem confirm the idea that there existed a common model, consisting of an inner fence enclosed by an external earthworks ring.

However, a controversial point is represented by the apparent absence of stone walls made with hard concrete, as they are very rarely mentioned in the texts. This should by in opposition to the well-known tendencies in Italy (Francovich, Hodges 2003: 99–102).

Fig. 8 The probably original area of the Croce castle (yellow dotted line) (orthophoto by the National Geportal of the Italian Ministry of Environment and Protection of Land and Sea, modification by: U. Moscatelli)

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Hillfort in Divinka in NW Slovakia[1]

Hillfort in Divinka is located in the mountainous region of north-western Slovakia. It is known in literature since the 18th century. First archaeological excavations were concluded in the 70´s of 20th century. Since the year 2013, modern systematic research of fortification system is concluded. Hillfort was built during the Bronze Age (Lusatian culture), after which it was settled in the Iron Age (Púchov culture) and at last by Slavic population in the Great Moravian Period (9th–10th century).
Site consists of three separated parts: peak area with acropolis and suburbium, all of them fortified by own walls. Whole complex occupies area of 12 ha. Excavations were concluded in six places with focus on wood-earth ramparts. This paper presents the basic overview of the excavated terrain situations, their dating and recovered artefacts. More detailed description is provided for the fortification of acropolis, based on the older research, but in scope of the revision ditch.

Key words: North-western Slovakia, hillfort, Lusatian culture, Púchov culture, Great Moravian Period

Area of todays´ Slovakia is very geomorphologic diverse terrain, in the eastern – western line is the division between two significant units, Pannonian lowland and Western Carpathian Mountains. Around 44% of territory of Slovak Republic is covered by mountainous regions with specific environmental attributes, dividing it from the lowlands (Fecko 2016). Mountain terrain is archaeologically much less researched, compared with the foothills and mostly the plains. This state is the result of subjective and objective reasons. As for the subjective reasons, only few archaeologists yet focused their scientific work on the physically very demanding excavations in mountain terrains, also visible is the lack of big research projects containing the issue of mountainous areas and last, but not least, understaffed and underfunded local museums. For the objective reasons, with comparison to the lowlands, mountains are much scarcely settled and archaeological structures and objects are far harder to recognize in the brash sediments in the mountain river valleys, than in the arid thick loess. Archaeological research is mostly focused on the hillforts, with their ramparts usually easily recognizable in the hard and forested terrain.

Region of north-western Slovakia is not exemption to these rules, with basic communications being river Váh and its right tributary Kysuca. In this part of the Váh valley, there are Bytča and Žilina basins, encircled by the mountains. In the point of their contact, on the right bank of the river Váh, Veľký vrch (Eng. Big hill) rises above the village Divinka, from which is possible to monitor both these basins (Fig. 1). From the surrounding terrain, the hill is separated by the valley of small stream Divina in the north and east, flat mountain saddle in the west, and in the south, its steep slopes fall to the river Váh. Thanks to this very good strategic and inaccessible position, people of the past built here fortified hilltop settlement – hillfort (Fig. 2).

This 12 ha huge site contains of three functional parts. In the south-western slope it is the narrow peak area, 20 – 85 m wide and more than 420 m long. Smallest area is the acropolis, with dimensions of 60 m to 148 m, surrounding the highest point of the hill in the north-western part of the hillfort. North-eastern hillside is the area of trapezoid suburbium, with hu-

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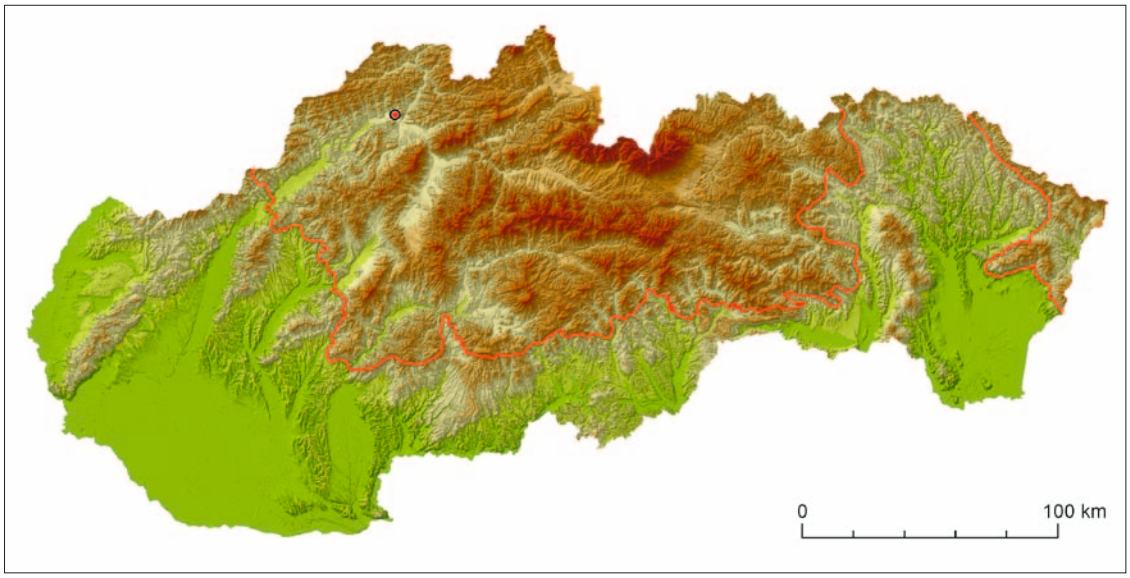

Fig. 1 Map of Slovakia with marked borderline of mountainous regions (according Fecko 2016) and the location of Divinka (illustrations made by authors unless otherwise stated)

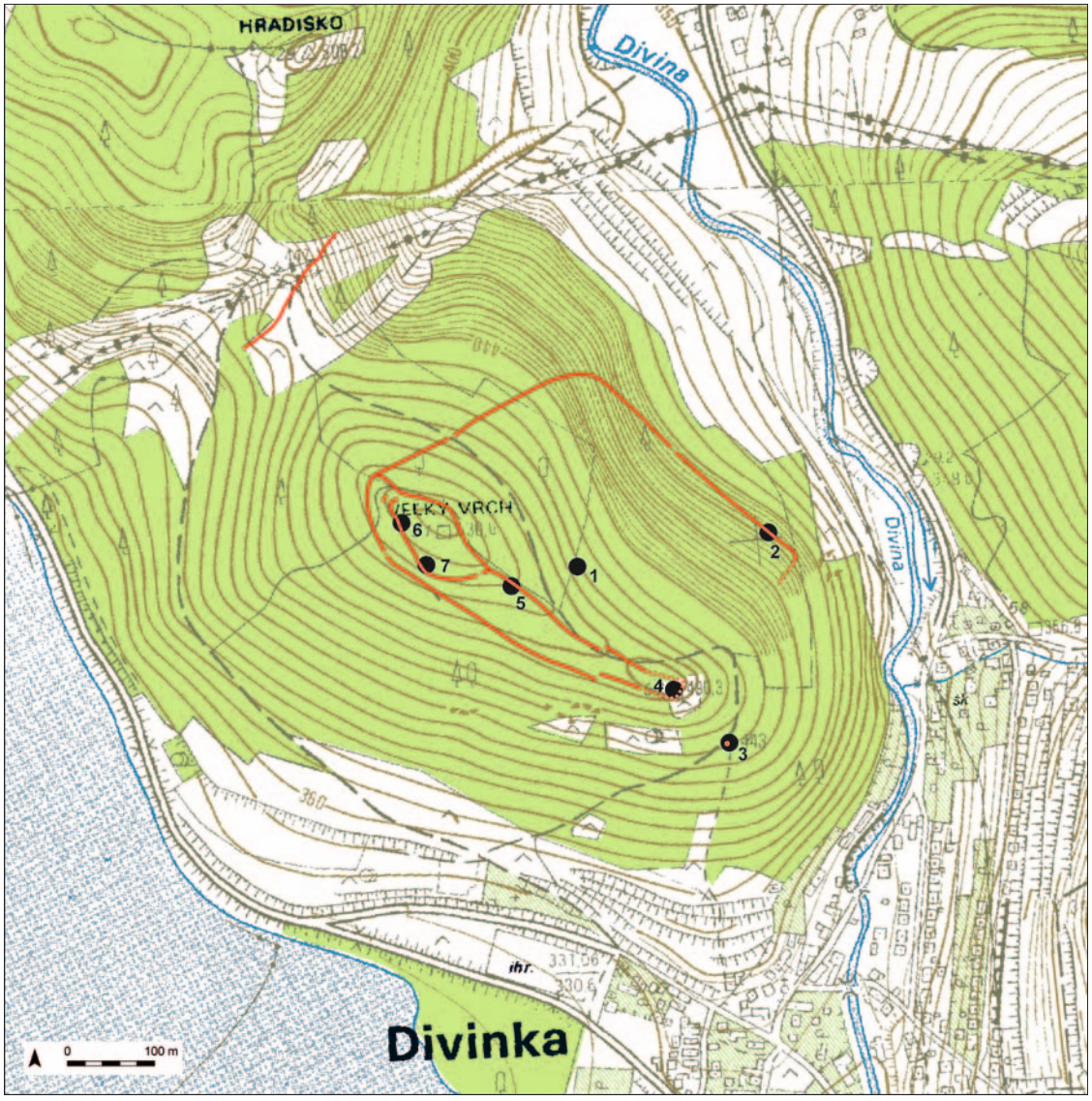

Fig. 2 Divinka, hillfort Veľký vrch with marked locations of archaeological ditches: 1 – Koleso; 2 – Holý prieloh; 3 – Veľké Salašky; 4 – Malý vrch; 5 – central part of the peak area; 6, 7 – acropolis

ge dimensions of approximately 240 x 430 m. The hillfort is fortified by huge ramparts that are missing only in the eastern side of the suburbium which is inaccessible due to the steep slope ending by a stony reef (Fig. 3). It is possible to assume, that this part of the suburbium was protected by a light wooden fortification that did not leave traces in the terrain. Similar situation can be found on the easternmost part of the peak part. Its longitudinal platform called Malý vrch (Eng. Little hill) is from three sides ended by a rocky cliffs (Fig. 4). Western side of the hill is divided from the flat mountain saddle by a rampart, closing the entrance from the river Váh valley.

Fig. 3 Divinka. View of the stony reef under the suburbium on the eastern side of the hill. Photography from the 50´s of the 20th century, today the part is covered by wood (personal archive of Jozef Jaroš)

Fig. 4 Divinka. View of the Malý vrch from the suburbium

Vague mention of the hillfort in Divinka can be found in literature from the first half of the 18th century (Bel 2011: 171), its composition and artefacts from it were for the first time described by the end of the 19th century (Lombardini 1885: 526–527). Beginnings of the modern archaeological research are bound with the name of Anton Petrovský-Šichman who made a survey, created map of the hillfort and published his observations in the 50´s of the 20th century (Petrovský-Šichman: 1957; 1960).

First scientific excavations of Veľký vrch were conducted by Jozef Moravčík (Museum of Považie) and Karol Pieta (Archaeological Institute of SAS) during years 1972 – 1973. Excavations were conducted due planned opening of a quarry, even though the locality was registered as national monument since 1969. Most drastic changes to the area of hillfort and the fortifications were made in the year 1971, when the geological survey was conducted. Bulldozers damaged the historical communications, ramparts and gates and the survey ditches scarred the area of the site.

Brief report from this phase of excavations was published by Moravčík (1978; 1980: 19, 30, 31). According to his writings, the hillfort was built or renewed in three historical ages. It was founded in the Late Bronze Age by the peoples of the Lusatian culture, who settled here until the Hallstatt Age. During the La Tène Period, the hill was again settled by the Púchov culture and lastly by the Slavs during the Great Moravian Period.

For more than three decades, the hillfort is pillaged by illegal treasure hunters with metal detectors. Many solitary items come from these illegal activities, but also five iron hoards from the Great Moravian Period. Three out of them are already published (Turčan 2012: 25–26, pl. LXIX; Majerčíková 2013; Fusek 2017). Extensive robbing of the locality was one of the impulses for renewing the excavations at Veľký vrch. Archaeologists from the Archaeological Institute of Slovak Academy of Sciences in Nitra (G. Fusek, M. Holeščák) and Považie Museum in Žilina (A. Slaná, Z. Staneková) are cooperating on this excavation since the year 2013. Archaeological research was focused mostly on the fortifications of the three main parts of the hillfort (Fig. 2). The project is not yet fully finished, and therefore only preliminary results are presented, with exclusion of the acropolis, which excavations were concluded in the year 2015 and therefore more detailed description can be provided.

KOLESO

Positioned on the very steep slope of the suburbium called Koleso was found a couple of pottery shards, in the soil between the roots of a fallen tree. On this place, small ditch was dug, that proven the presence of thick layer filled by the Lusatian culture pottery and animal bones. The place where they were found indicates that they were not in a primary, but in a secondary or even tertiary position. They could have gotten here naturally, by falling or being flushed down the slope, from under the rampart dividing the peak area from the suburbium. It also cannot be excluded, that they have been thrown away as the trash from the inhabited part of the hill because of the hygienic reasons.

HOLÝ PRIELOH

Lowest point of the suburbium on the location Holý prieloh is in a form of a slightly downhill platform. Ditch in this area cut through the rampart and adjacent part of the hillfort area. No settlement objects were unearthed, only indication of living activities was a thin layer that included bits of burned clay, coals, not dated pottery shard and fragment of unidentifiable iron item. Research, however, proved that there were two destroyed ramparts in superposition. Inner wooden construction of the older rampart cannot be characterised in details, but to the presence of building chambers points the different stone-soil filling of the rampart mass. There were no coals or artefacts that could clarify the date when this older rampart was built. This wall was rebuilt, on the top of the older rampart was built 4m wide new wall, after its levelling. Inside its´ mass were found the charred beams of the chamber inner construction (Fig. 5). It´s building was dated by the radiocarbon method to the younger phase of the Great Moravian Period (Fusek 2017: 41).

Fig. 5 Divinka, suburbium, location Holý prieloh. Prepared log beam from the construction of the chamber of the younger rampart

VEĽKÉ SALAŠKY

On the entrance path from the valley of the river Váh, called Veľké Salašky, can be found conical earth-rock mound with diameter of approx. 9 m that we consider to be the foundations of destructed wooden building which defended the gate to the hillfort. Destruction layers of this object were covering the path with the bedrock surface. Mound was damaged at the beginning of the 20th century by a dug-out shepherd shelter. The path was approximately 2 m wide, lined by the pole holes on the side of the mound. On the other side, the path is cut in the bedrock with carved niches (Fig. 6), probably also used for securing the vertical poles. We assume that this was the remains of the gate construction. Dating of this situation was possible by the radiocarbon analysis of the seven samples from the charred wood. Youngest were the results from the pole holes, according to which the building is dated to the 9th century. Results of the samples from the destruction layers points to the fact, that for the building were used even two hundred years old oaks and pines. During the research season of 2017, iron barbed arrowhead with socket, typical for Early Medieval Period, right above the path level. Other chronologically sensitive items were not discovered. The excavations of this part are not yet concluded.

Fig. 6 Divinka, suburbium, location Veľké Salašky. Entry path with cut bedrock and niches for poles of the gate construction

MALÝ VRCH

At the far end of the platform of Malý vrch, building of touristic watchtower was preceded by rescue excavations. Bedrock was found right under the thin surface layer. Except the pottery shards, no other traces of historic human activities were discovered. The pottery can be mostly aligned with the Lusatian culture, younger, LaTéne or Early Medieval shards are scarce. On the top of Malý vrch was also excavated terrain depression that was interpreted as remains of German army bunker from the final stages of the Second World War.

CENTRAL PART OF THE PEAK AREA

Wall dividing the peak area and the suburbium was cut approximately in the middle of its length. Two phased building of the rampart was identified, similar to the Holý prieloh in the suburbium. Older rampart, laying on the bedrock, contained huge amount of the Lusatian culture pottery. Radiocarbon analysis dates this rampart to the 10th century BC. This situation points out to the fact, that the fortification was built while the hill was already settled for longer amount of time, otherwise there wouldn´t be so many shards inside the filling of the rampart. Before the building of the younger rampart, the old one was levelled and the new, slightly narrower rampart was built on the top of it. In the very thin layer of cut bedrock in between them, the convex-concave tanged arrowhead dated to the Early Medieval Period was found. Both ramparts had similar building structure, consisting of the two stone walls on inner and outer side, with the space between them filled with stones and soil. No inner wooden construction was recognized up to this point.

Research on the peak area was not focused only at the rampart; adjacent part of the settlement was also excavated. The surface settlement layer consisted of soil mixed with a huge amount of stones and included the majority of the finds, probably in the secondary position. Number of the unearthed shards and fragment of a bronze sickle belong to the Lusa-

tian culture. Considerably rare was pottery of the Púchov culture. Most of the finds comes from the Early Medieval Period, represented by a huge amount of pottery fragments, but also small tools or everyday items like knifes, scissors, awls, nails or bucket reinforcements. For the dating in the younger Great Moravian Period speaks the artefacts indicating the presence of higher social structures – spur and a fitting with neck (Fusek, in print: fig. 10).

Opposite to the Malý vrch, this area contained also dugout objects of the Lusatian culture. From the Great Moravian Period is most important the stone foundation of the wooden building, in which interior was found both stator and rotor of the mill, most probably in primary position (Fig. 7).

Fig. 7 Divinka, central part of the peak area. Great Moravian Period stone mill in primary position

ACROPOLIS

Excavations of 1972 – 1973 were made exclusively at this part of the hillfort. Rescue excavations were, however, abruptly stopped due to the results of this survey which pointed out that the exploitation of this hill would not be profitable. The archaeological survey was unfortunately unfinished, since there was no time to conclude the digging, document the situations or even fill the holes due to stopped funding of one more excavation season. Fortunately, the diary of excavation, some plans and the material still exists as well as the memory of the researchers, and by putting the pieces of the jigsaw together, it is possible to summarize the results of these excavations.

Here, two ditches cut through the rampart which is dividing the acropolis from the rest of the peak area. According to the authors of the excavation two building phases are visible. Older wall made of stones was 4 m wide, covered with thin layer of soil which included pottery shards of the Lusatian Culture. On the top of this layer laid second wall, circa 2 m wide, built assumingly during the Púchov Culture (Fig. 8). The fortification was during this time supported by the houses built right next to it, as is suggested by a massive number of pole holes by the rampart. Importance of this site during the

Fig. 8 Divinka, acropolis. Excavations in 1973. Uncovered rampart structure, with building trench, inner wall and the core (photo by: Jozef Moravčík)

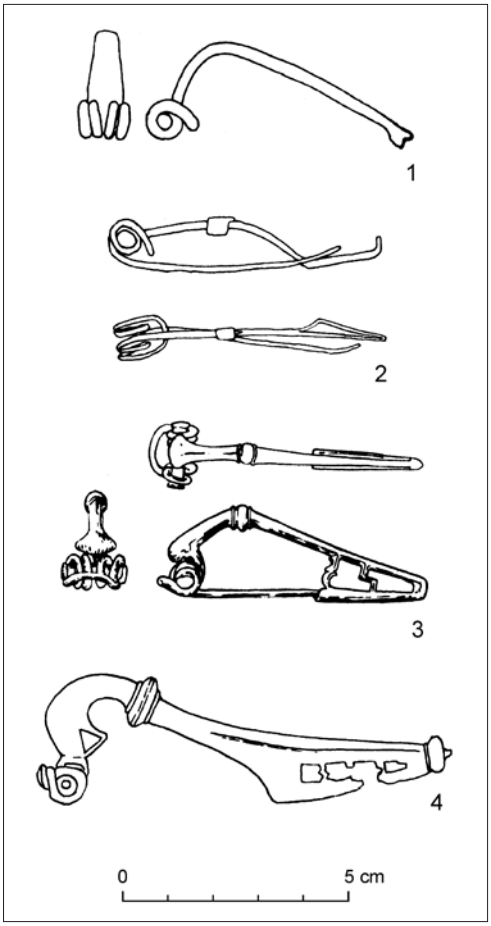

Fig. 9 Divinka, acropolis. Fibulae of the Púchov culture (according Pieta 1982)

La Tène period is documented by the rich finds from these excavations, like fine pottery, fibulas (Fig. 9), but mainly the specific type of the silver coin, named type Divinka (Fig. 10), struck in the years 45 – 35 BC (Kolníková 2000). The settlement was most probably abandoned sometime around the break of the eras, during the second fall horizont of the Púchov Culture, however the exact reason of the ceased existence of this hillfort is not known. Most probable explanation for this phenomenon in the wider area is the movement of the Germanic tribes (Pieta 2008: 58–59, fig. 30). As the finds from this excavations show, the hill was resettled nearly nine centuries later by the Slavs. Even though the Early Medieval phase of the settlement, characteristic by stone foundations of the log houses is visible in the

Fig. 10 Divinka, acropolis. Celtic coin of the Divinka type (without scale)

close vicinity of the acropolis wall, the authors of the excavation does not comment on any building or repair activity of the fortification during this time. Against this notion speaks fragment of Early Medieval spur that was found "in the destruction of the wall", 5 – 20 cm deep under the soil inside the rampart (Fig. 11: 1). Among other characteristic Great Moravian items can be considered richly decorated bronze ring (Fig. 11: 2), also found close to the rampart.

Revision excavation in the place of an old ditch was concluded in the years 2014 – 2015. The aim was to verify the situation excavated by the previous expedition and to properly document the profile of the rampart which was not done in the past due to already mentioned circumstances. Review ditch was placed on the relict of old excavations; it was 2 m wide, stretching through the whole rampart. Half of the width included the eroded part of the non-covered old ditch, still visible in the terrain, while the second half cut through the intact part of the wall. We were able to localize nearly exact position of the old ditch and the soil deposit that created an artificial plateau right next to the rampart, making an illusion that the wall is much wider at this part. Fortification of the acropolis was situated on strategic position and the builders used natural shape of the hill. The slope was then adjusted and three step-like levels were cut into the bedrock, later used as a foundation for the fortification. Unfortunately, the idea of two phased building of the wall couldn´t be verified. The whole rampart in this part consisted mainly of stones, with very little soil between them, which

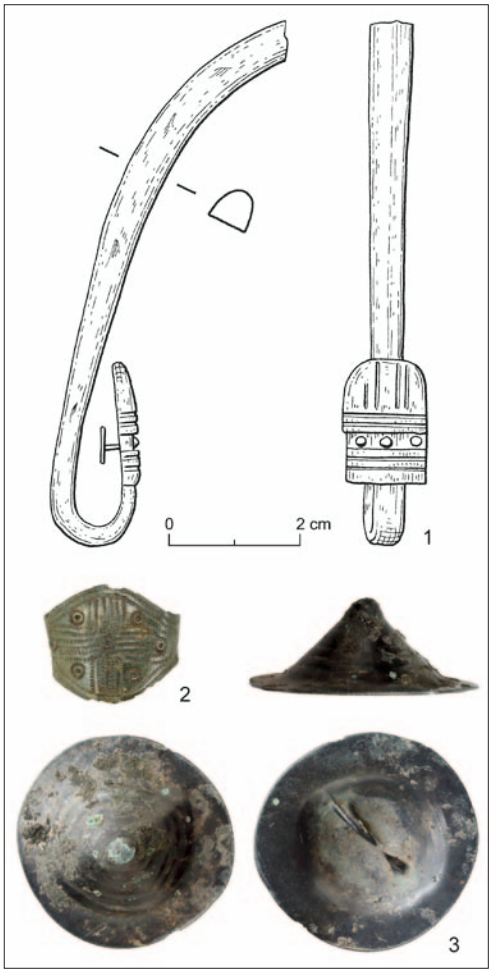

Fig. 11 Divinka, acropolis. 1, 2 – ring and spur of the Great Moravian Period; 3 – conical item of the Lusatian culture

did not offer closer distinguishing of different layers and subsequently of a building process. The stratigraphic units inside and outside the rampart were discerned only by the overall consistence of the stones and just slight differences in the colour which allowed to localize the inner wall, with quite damaged structure similar to the rest of the loosely scattered rocks (Fig. 12). Wall was made out of quadratic or semi-quadratic stones with maximal dimension around 30 – 40 cm. It was positioned less than half of meter from the adjusted slope, making between them ditch-like space. Outer wall was built on the middle of three steps cut into the bedrock and consisted of big flat stone slabs in the base, with smaller quadratic rocks towards the upper part. In front of it, from the outside, lowest step level was a berm, space that except the static function allowed maintenance or repair of a wall. Core of the fortification in between these walls was filled with loosely scattered rocks of various sizes. Remains of the wooden construction mentioned by Moravčík in his excavation diary were not identified. One possible pole hole was discovered from the inner side of the fortification, however without more stratigraphic relations, it´s purpose cannot be stated with certainty. When the locality was abandoned and the ramparts were no longer maintained, the construction fell apart. Stones from the walls and the core fell on the berm from the outside and also inside the settlement. There was no possibility to determine, which of the stones were from the wall, and which from the core part. The fallen outside wall most probably ended up on the lower level of the hillfort, since there was only small number of the stones found on the berm, due to the position and steepness of the slope. Whole situation is covered by thick layer of brown colour with huge amount of rocks. It is possible, that this layer is part of the rampart destruction, and the brown colour that differentiates it from the other layers was due to slow contamination by hummus during the years.

Ceramic material from the rampart consisted mainly from the shards dated in the Late Bronze Age or Early Iron Age

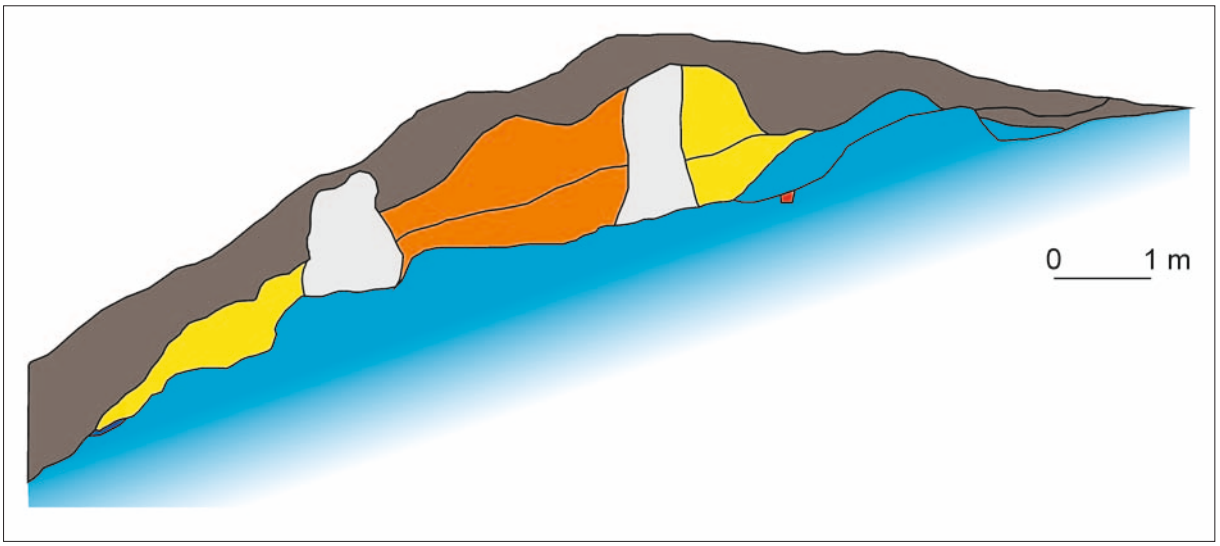

Fig. 12 Divinka, acropolis. Profile of the wall. Bown surface layer covering the whole find situation. Rampart is constructed of the gray walls and orange layers between them. Yellow coulour has the destruction layers of the rampart, red marks the position of the pole hole, blue is bedrock

and can be associated with the Lusatian culture. A group of finds dated to the Late Iron Age, to the Púchov culture, comes from the filling of gaps between the stones of the outer wall. The position of some of them points out, that they could have been part of building process, working like wedges to fix the stone slabs in horizontal position. This indicates, that the fortification was built earliest in the Late Iron age, and the soil filling the core part consisted the remains of already existing Lusatian settlement. Small conical bronze item (Fig. 11: 3) found also in the core of the rampart can be dated in the periods of Young or Late Bronze Age, and is often found in the hoards from this time (Salaš 2005: 117). There is no possibility to say, whether the rampart separating the acropolis was already existing in the Bronze Age or not. Compared with the other parts of the hillfort, where the Púchov culture material is very poorly present, the evidence of the high settlement activity at this time at the acropolis is undisputed. According to to this and the recent knowledge about the site, we can not exclude, that people of the Púchov culture built the dividing acropolis fortification on larger Lusatian hillfort, as is common practice for this culture (Pieta 2008: 119). We can not tell, however, what happened with the ramparts during the Early Medieval Period that is visible in the settlement structure. It is unfortunate, that the small burned layer, mentioned in the excavation diary by Jozef Moravčík was not identified in the recent excavations. The radiocarbon dating would shed a light on dating of the fortification, which is hard to conclude based on the traditional archaeological methods.

In this short paper, we present basic overview and characteristic of the recent excavations at the hillfort in Divinka. Research project containing this site is not yet concluded, survey of the wider surroundings of the site are planned in addition to the excavations. Vast fond of the artefacts is still waiting for its evaluation, but even now it is possible to see, that this locality is most important hillfort in the region, built and renewed in three historical eras.

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DRAHOMÍRA FROLÍKOVÁ–KALISZOVÁ

The Transverse Fortification of the Prague Castle from the 9th–11th Century

The Prague Castle has been a seat of dukes of Bohemia since 9th century. It is situated on the promontory above the river Vltava. The rampart cutting across the neck of the castle promontory was first discovered by Ivan Borkovský in 1929 and again in 1948. Various parts of the transverse fortification were explored in 1982–1983, 2001–2002 and 2010. The research proved that the fortification of the Prague castle at the neck, enabling the easiest access to the promontory, remained in the same location since the beginning. In the first period this was a symbolic division from merely fencing. The second period was the moat only in the promontory probably with palisade. The third period was the new deeper moat with clay-wood wall, the fourth one the same moat with a rampart from wooden construction and frontal stone wall. Frontal stone wall was enlarged in the tenth century, and in its ground we found a stone with gravure of the geometric ornament. This fortification was replaced by a Romanesque rampart from 1135, built of marlstone blocks directly into the former moat.

Key words: Bohemia, Prague Castle, moat, rampart, gravure, middle bis late hillfort period

INTRODUCTION

The Prague Castle was founded in the 9th century atop the promontory extending to the east from the peneplain of the Central Bohemia Plate and at this point declining into the Prague Basin. The promontory was delineated by the banks of the Stag Moat, formed by the Brusnice Creek on the north and the valley shaped by the Malostranský Creek to the south, along with the Vltava river valley to the east (Fig. 1). The most accessible point was on the western side, where a fortification was built at the narrowest part of the promontory, referred to as the neck. This is the subject of our interest.

The development of the Prague Castle is intertwined with the history of the Přemyslid dynasty dukedom. The original hillfort (*bourgwall*) developed into a castle that remained the seat of kings ruling the Bohemian kingdom in subsequent centuries. This brought about a disadvantage of the oldest shape of the castle, subject to later reconstructions. We find the remnants of those original forms in bits and pieces scattered across various areas and uncovered during occasional reconstructions. Since 1926, when the wood-and-clay fortification of Prague castle was first discovered during an archeological research at the 3rd Courtyard by Ivan Borkovský (Borkovský 1949: 52–56), further segments of the fortification were discovered along the perimeter of the castle promontory, as well as at its neck.

The basic construction elements are identical in all segments. The fortification consisted of clay earthworks, fortified by a wooden grate, with a facing stone wall assembled from split marlstone. At access points from the west and east side, the fortification was increased by an external moat, however it differed in detail in various parts. The differences were caused by diverse configurations of the terrain and the necessity to increase the protection of access points. The construction of earlier and later phases of the rampart also differed. These fortifications were often published (summary Borkovský 1969; Boháčová 2001; Frolík 2000; 2006).

The rampart cutting across the neck of the castle promontory was first discovered by Ivan Borkovský in 1929 and again in 1948. He described it as two moats and, among them, *the outlines of a massive clay earthwork embankment with a leveled-off crown* (Borkovský 1949: 55–56). Today we know that what Borkovský considered an earthwork embankment was the bedrock of the actual rampart body. This was accompanied by a deeper moat on the west side, while the shallower moat on the eastern side is earlier. This fortification was replaced by a Romanesque wall from 1135, built of marlstone blocks directly into the former moat.

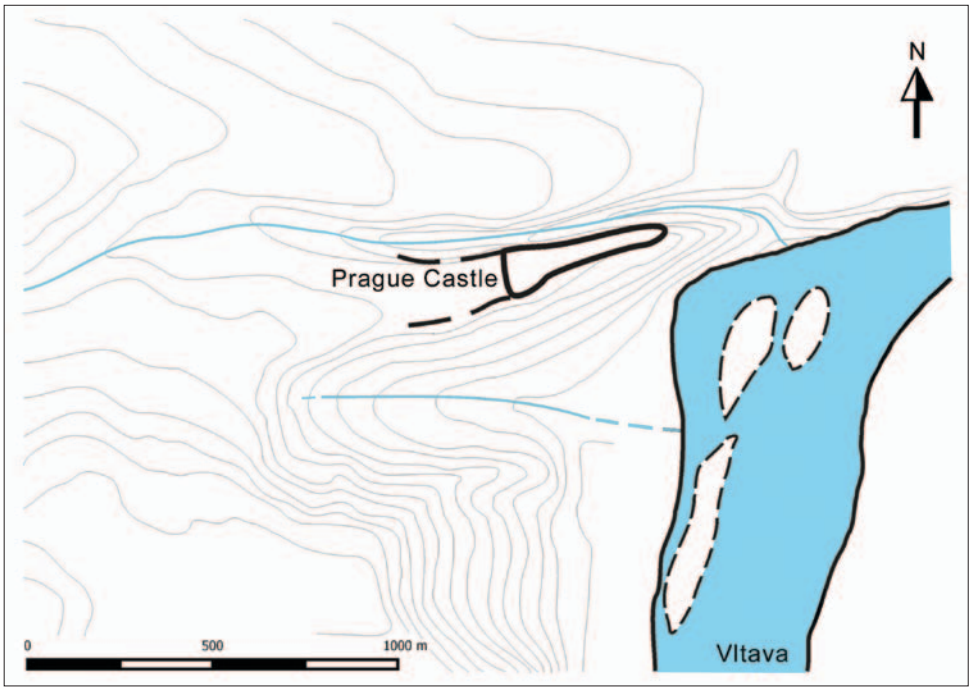

Fig. 1 Location of the Prague Castle on the promontory above the Vltava River (graphic by: R. Brejcha)

Today, this transverse fortification is hidden beneath the buildings of what is called the Middle Wing, built after 1583 during the reign of Rudolph II. The surface that originally declined toward the south was levelled off during this construction (to a level around 257.80 meters above sea level), resulting in the removal of all archeological terrains on its southern side, all the way to the bedrock (Fig. 2, trenches S I–V from 2008). In the northern parts their lower levels remained intact. The northern outfall of the transverse fortification into the gorge, now known as Stag Moat, was captured during the rescue research of J. Frolík's team in the Northern Wing of Prague Castle in 1982–1993, which was partially published (Boháčová 2001: 213–221). Numerous archeological research projects took place in relation to reconstructions of Prague Castle after the 1989 revolution bringing, among other information, new findings regarding the beginnings of the settlement and fortification. In the case of the Middle Wing it was J. Frolík's research from 2001/2002, during which trenches 1 and 2 were established (further referred to as S1 and S2) in the rooms north of Borkovský's trenches (Frolíková–Kaliszová:

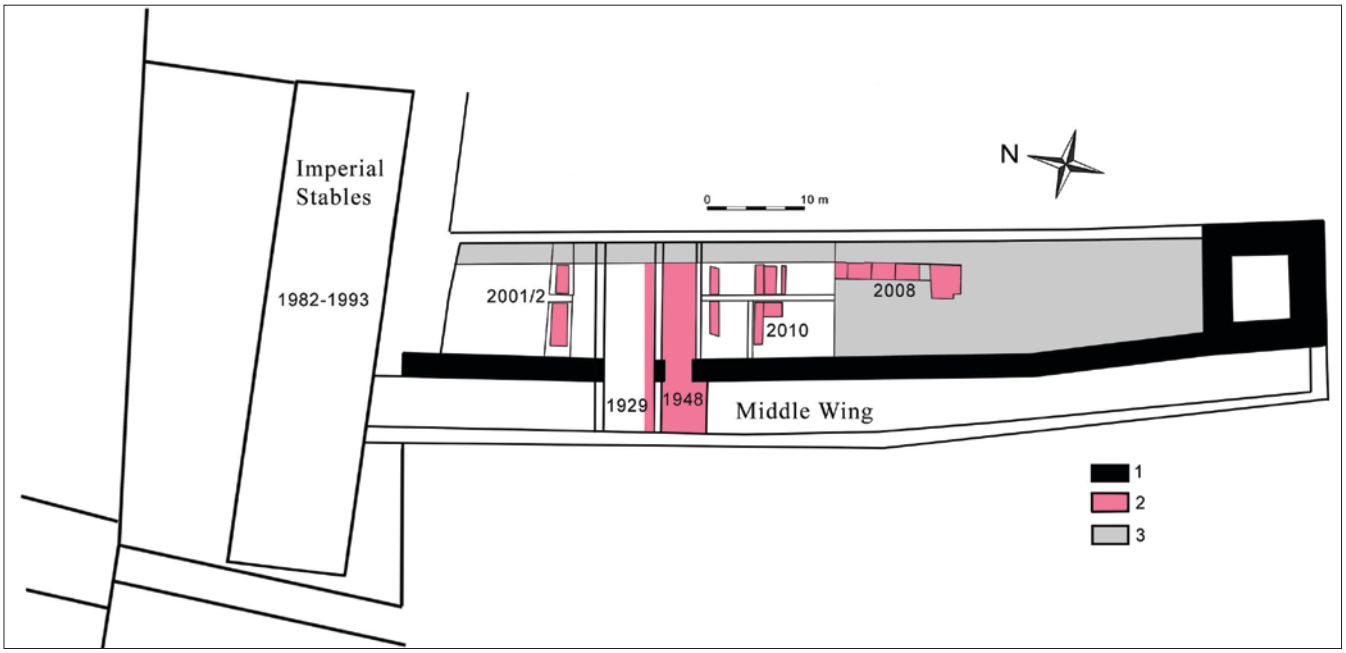

Fig. 2 Prague Castle, the location of trenches in the Middle and North Wing: 1 Romanesque wall, 2 Trenches, 3 Areas destroyed in the past. Dates - years of research (arranged by: D. Frolíková)

2009), and D. Frolíková–Kaliszová's research from 2010, in rooms south of Borkovský's trench work (Frolíková–Kaliszová 2011), establishing the trenches S VI–VIII.

NORTHERN WING

Research in the basement of the Rudolph II Imperial Stables building discovered a continuation of the transverse to the perimeter fortification that was built crosswise and added to the Middle Wing. The above-ground fortification, already uncovered there, belongs to the fortification of the castle promontory, where an earlier neck-moat runs under it (Fig. 3). According to the description, the moat was dug into the dusty horizontal character of the original surface soil with occasional ceramic fragments. The bottom of its southern area, as well as its western bank, were covered by a continuous wooden surface. The moat was approximately 450 cm wide (Boháčová 1996, příloha I, plán 7), and its depth reached a maximum of 120 cm at the time of the research, while on the side closer to the promontory edge it was even shallower (Boháčová 2001: 213). A groove, lined with small stake holes, runs for 3 meters in an easterly direction. I. Boháčová considers this a supplementary wood fencing of the moat, although she also admits that it cannot be definitively assigned to the initial fortification, as it may have also belonged to the settlement buildings (Boháčová 2001: 248–249).

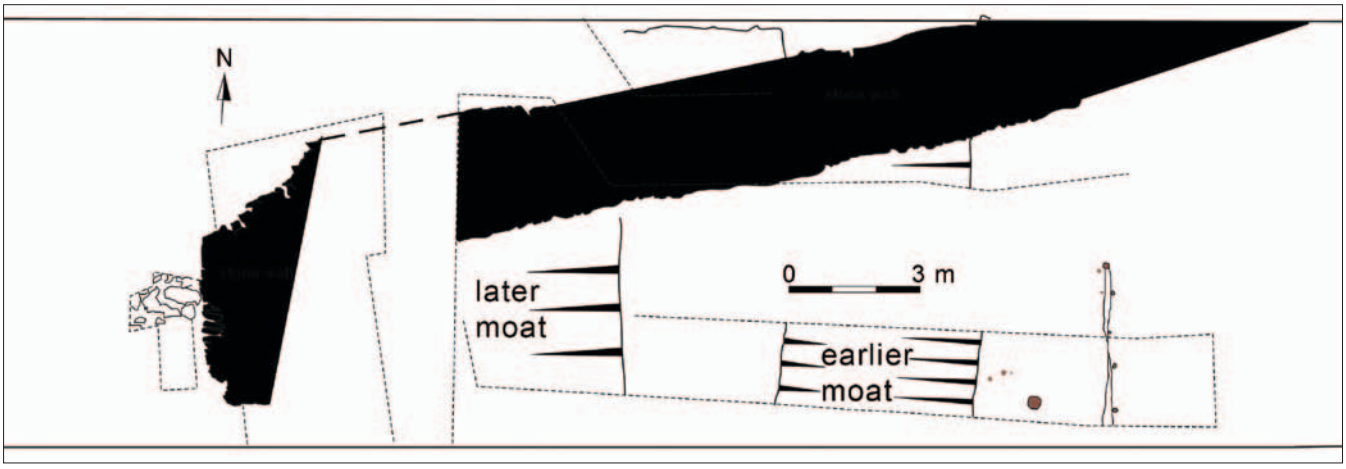

Fig. 3 Prague Castle – Imperial Stables. In black – Romanesque wall, later moat 10th century, earlier moat 9th century, in brown – post holes (material by: I. Boháčová, 1996)

MIDDLE WING - ARCHEOLOGICAL RESEARCH 2001/2002

A stratigraphy of the moat fills (earlier moat 510) was uncovered in S1 under the floors and a layer of soil leveled for the construction of the Middle Wing during the Renaissance (wall 901, Fig. 4, 5). The top layers contained fragments of so-called wide-lip ceramics from 11th century and stones from the deconstructed early medieval rampart (context 902), removed during the construction of a Romanesque castle wall set into the later moat 504. The frontal façade of the stone wall 902,

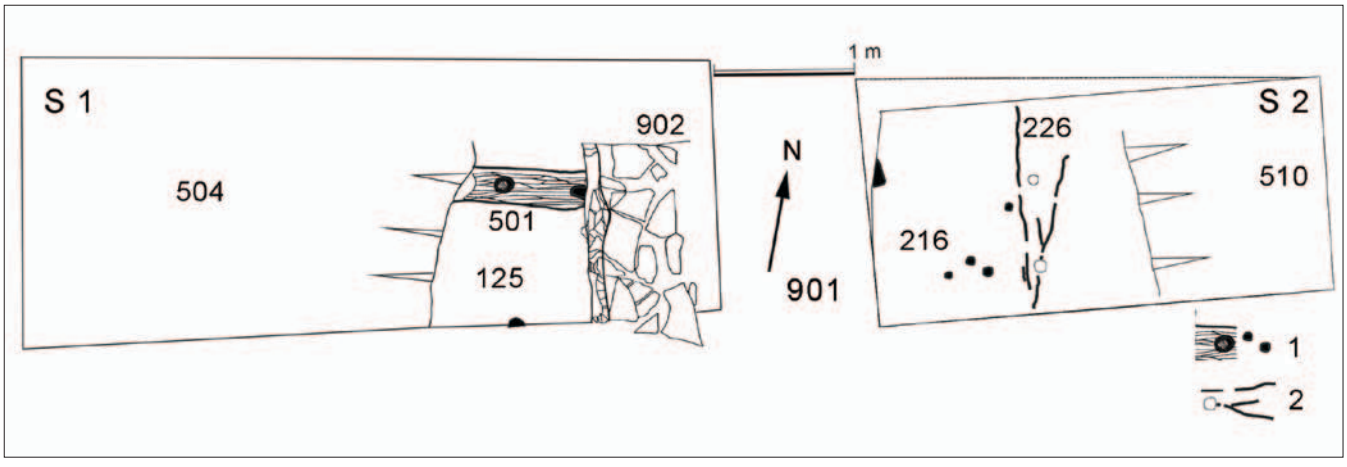

Fig. 4 Prague Castle, Layout of trenches 1 and 2. 902 frontal stone wall, 504 later moat, 510 earlier moat, 1 post holes and a groove with a wood board dug in the earliest layer 125=216, 2 post holes and twigs from the small fence dividing the stone wall from wood-clay wall in the context 226 (arranged by D. Frolíková according to terrain documentation)

Fig. 5 Prague Castle, Middle Wing 2001/2. Frontal stone wall of a rampart from the 10th century (photo by J. Frolík)

built from carefully set stones measuring approximately 55 cm in width and preserved up to the height of 160 cm was left in place. Three square openings were left after beams appeared at the height of 80 cm above its base (Fig. 5). Lower layers filling the moat contained fragments of ceramics from the Middle-Hillfort period, dated to the 9th– first half of the 10th century.

The actual body of fortification was captured in S2 (Fig. 6), however without the rear part, which was destroyed earlier by the construction of a collector. While the frontal stone wall formed a somewhat straight wall bound with clay, its inner area mostly consisted of loosely piled stones filled-in with soil. The overall depth of the stone wall, including the frontal and inner part was approximately 270 cm. It leaned against a clay earthwork fortified with layers of wood, laid crossways and mostly made of thin branches or young tree-trunks. Assuming from the long wider wood in the seventh layer, other massive and long boards or beams were also used at certain intervals, as well as long beams for interconnecting the earthwork with the stone section. In total, eight layers of wood grate were identified up to the height

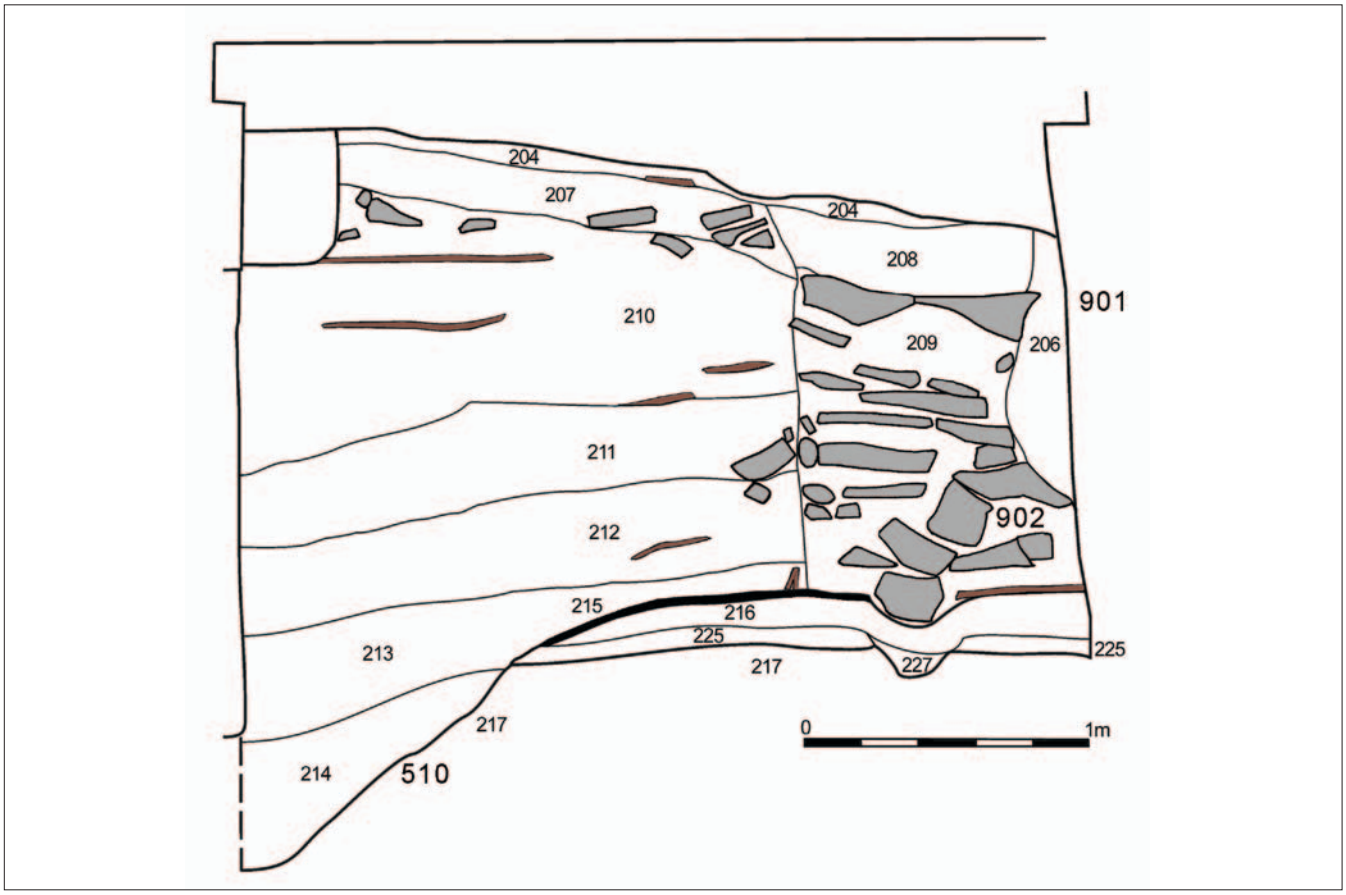

Fig. 6 Prague Castle, north profile in trench S 2 – a slice through the stone-clay and wood-clay portions of the rampart from 10th century above the earlier moat 510 from the 9th century. Brown – wood, black – charcoal (context 215) (material by J. Frolík, 2002)

of 150 cm. Long beams were laid in the base layer 213 of the earthwork body and the space between them laid out with short wide boards. The edges between the wood-filled base of the stone-clay portion and the wood-clay portions were determined by a small fence parallel to the edge of the slope. This was uncovered in the form of two small stake holes and twigs apparently woven between them (Fig. 4, context 226). The thin layer 118 under the frontal stone wall in S 1 shows the same character as layer 213 in S 2, and apparently represents a treatment of the surface prior to the foundation of the stone fortification. To the contrary, the uppermost layer 204 with short wide boards that reach all the way above the backfill 208 in the space above the stone wall, probably relates to the expiry of the fortification (Fig. 6).

The burned-through layer 215 separated archaeological situations former than the above-ground portion of the fortification. Among them were the moat 510, as well as the earliest layer 216 in S 2 identical to 125 in S 1, representing the original land horizon transformed by human activity into a cultivated layer. A groove 501 with remnants of a board and stake holes (Fig. 4, in black) were found in this layer. This finding is so fragmentary that it cannot be individually interpreted.

MIDDLE WING – ARCHEOLOGICAL RESEARCH 2010

The 2010 research explored the section between Borkovský's trenches and the 2008 trench work (trenches S I–V captured only modern-era situations). Trenches VI through VIII were established in 2010, divided into part A and part B due to a partition between rooms. It's newly discovered shallow holes, carved into the walls of the later moat 520 (=504 in the research 2001/2) in irregular intervals, indicate supplemental steps for accessing the moat and climbing out during its excavation or later maintenance.

Fig. 7 Prague Castle, Trench VI A, frontage of the stone wall set on deposits in the later moat (photo by P. Kaplan)

In trench S VI A we uncovered a destruction of the frontal stone wall 906 (identical to 902 from year 2001/2) immediately under the removed floor, preserved up to a height of 60 cm and composed of six rows of stones above one another. Only the three lowest stones remained in trench S VII A, 4 meters further south, already at the inclining bedrock. Unlike in the S 1 situation, where a short berm was placed between the frontal stone wall and the edge of the later moat 520, in S VI and VII the front of the stone wall appeared on a layer of deposits on the slope of the moat (Fig. 7). The lowest stone featured a geometric carving on its frontal face, therefore I decided to remove this stone.

In this process, we had to take apart the front of the fortification with a 20 cm wide and 140 cm long cut (up to the partition between the rooms). We thus obtained a cut through the construction of the castle wall. No such cut had been performed at Prague Castle until now. The frontal stone wall in the thickness of a single line of stone was carefully laid, the stones connected with yellow-brown clay soil, while the inner portion of the fortification wall consisted of piled rocks filled in with powdery soil in a way that left empty spaces between them. Two parallel cavities appeared under the thin layer of grey clay 188 upon removal of the stones. They were oriented cross-wise to the direction of the fortification, with remnants of red-brown crumbling wood D 1 and D 2 that was calcified in some places, in the layer 190. Under them, in a layers 192, were similar pieces of wood D 17 and 18, laid parallel to the direc-

tion of the fortification, as well as two more wood fragments D 19 and 20. This wood grate lay in a thin layer of light-colored clay soil 196. Underneath we found a layer of black burned-through soil 197 (Fig. 8). In the neighboring S VII A trench, the wood grate under the stone frontage of the wall appeared as a thin layer 162 with wood fibers. Trenches VI–VIII B captured a part of filled stone rampart and adjoining layers of grate construction of the rampart earthwork. Unlike the situation in trench S 2, here the bottom layer of the grate was not formed by short wide boards, but rather by short pieces of wood of varied shapes, randomly tossed atop 50 cm of soil that was covering a depression created by the expired earlier moat 521 (=510 from research 2001/2).

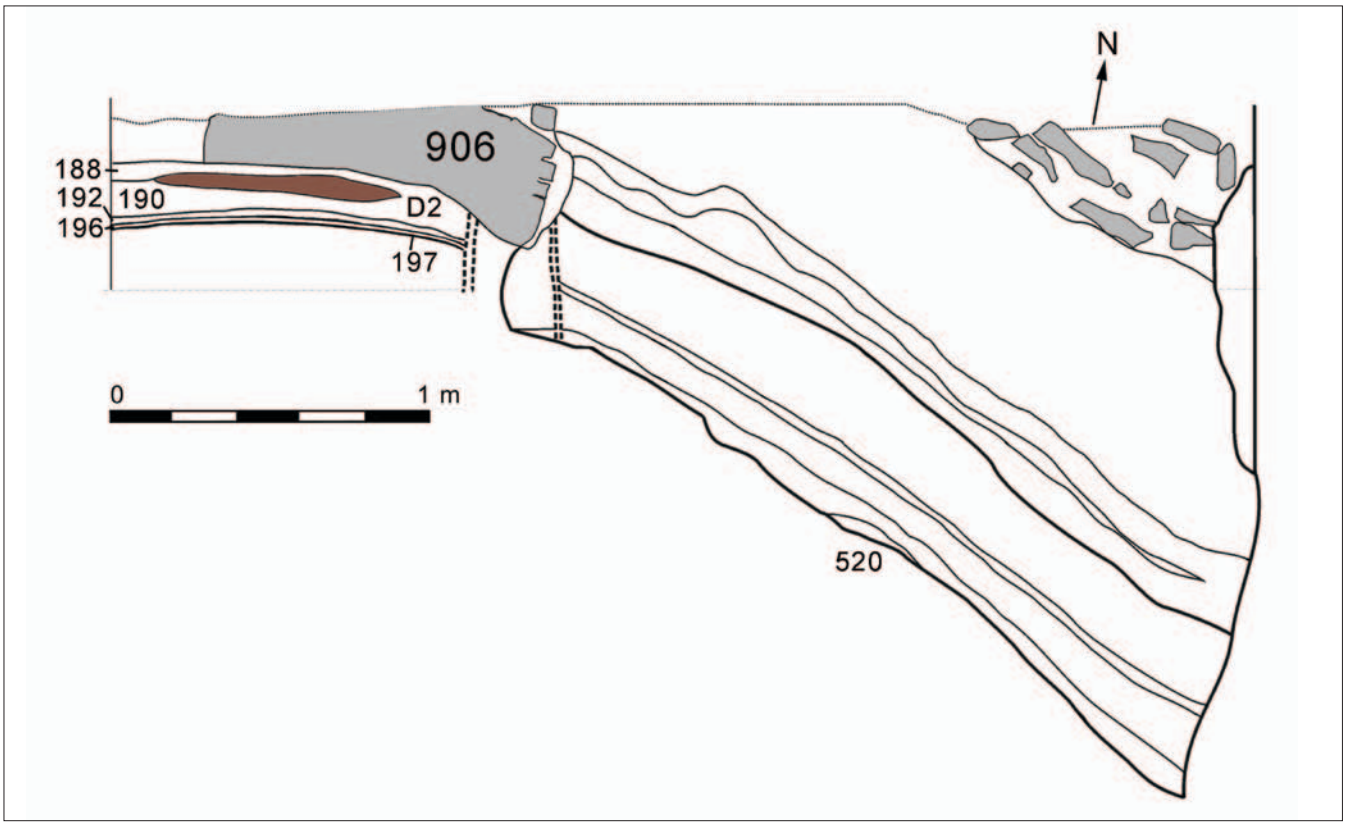

Fig. 8 Prague Castle, north profile of the VIA trench. Dashed – cracks in the soil profile (arranged by D. Frolíková according to terrain documentation)

As is evident from the thin layer of burned-through soil, cinders and ashes (layer 197=142 in the S VII and VIII), the area was burned prior to the construction of the castle earthworks. It is notable that in S VI B the carbon layer was found in the entire area of the earlier moat 521, while in S VII B it disappeared a shortly beyond the edge of this moat, similarly to trench S 2.

In trenches S VII A–B and VIII B–C, the situation was dug under the burned layer. Unfortunately, a concrete box of a utility collector was set into the earlier moat 521 in the 20th century without prior archeological research. We could therefore only explore an area covering 300 cm in width. The maximum depth reached from today's surface (floor) was 150 cm. The moat was filled with clay soil, in higher levels with a considerable amount of burned clay and pebbles burned to red color and also in the layer closest to the surface with traces of wood. These fills may have originated in a nearby building destroyed by fire. The time and purpose relation of filling the moat 521 with material from a burned-down location, and the burned-through surface on which the new fortification was founded, are an interesting option that remains nothing other than a speculation.

The earliest layers 154 and 164 into which the moat 521 was dug, are identical to the situation in trenches S 1 and S 2. Post holes in at least two rows were carved into the eroded surface of the bedrock (Fig. 9). The first row in the north-south direction was formed by 6 small stake holes of 10 cm diameter, carved only 11–25 cm into the bedrock. Two additional smaller stake holes were found in trench S VIII A. Large post holes 525–527 carved into the rock were disrupted by the excavation of the more recent moat that damaged the stratigraphy to such a degree that it is impossible to clearly identify whether they are earlier or later than the burned superficies 142.

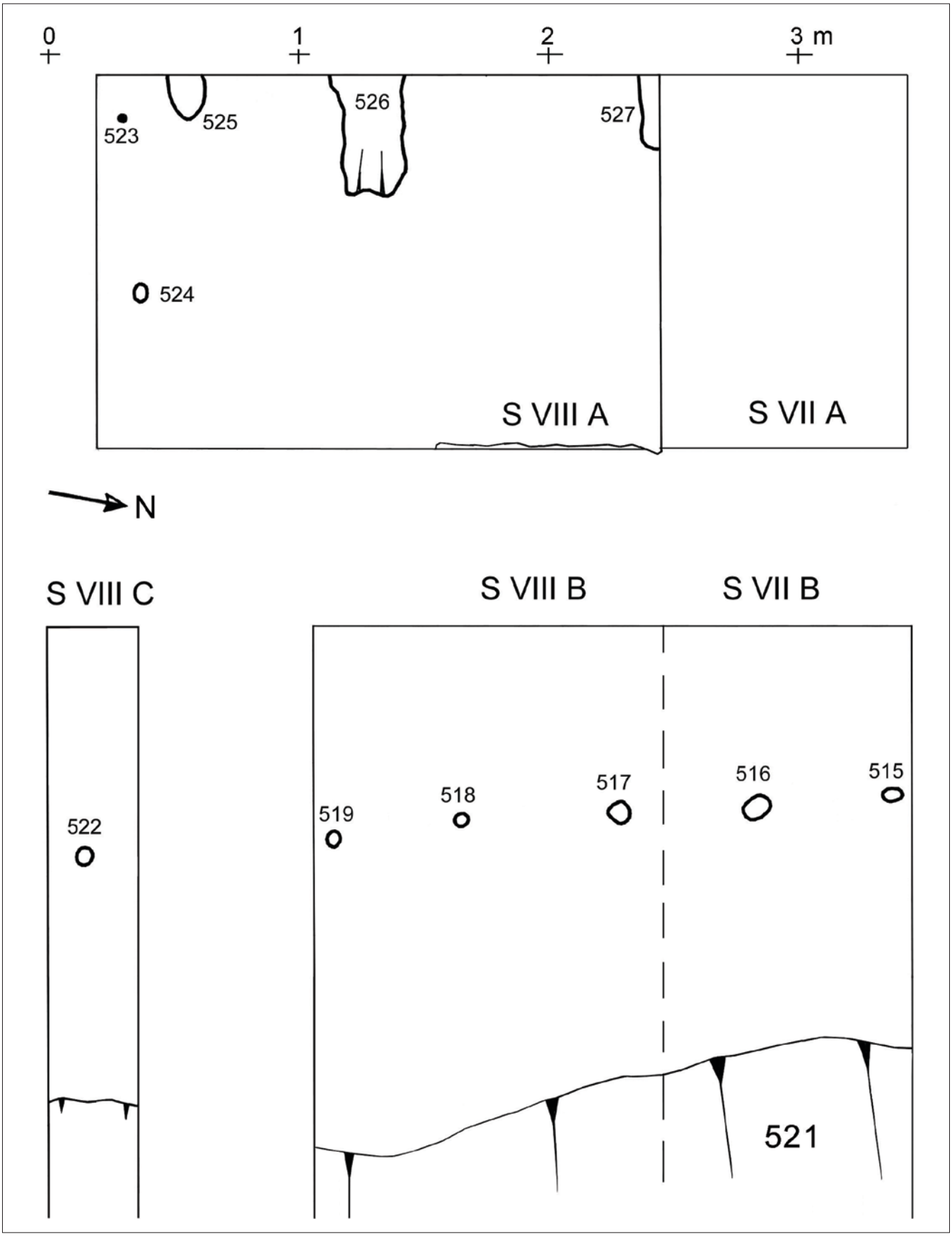

Fig. 9 Prague Castle, Post holes in trenches VII–VIII (arranged by D. Frolíková according to terrain documentation)

DISCUSSION

The earliest evidence of human activity in the monitored area are therefore small post holes arranged into the north-south direction in the S VIII B–C trench, while in the S 2 trench they appear as a group without any evident arrangement. However, no fragments were found in the layers that covered them (164 in S VIII, 225 in S 2 and 121 in S 1). Aside from animal bones, three ceramic fragments were found in the later layer 154, resp. 216 and 125. They were decorated by stripe and wave patterns etched with a comb tool, that is, by a decorative method characteristic for the Old-Hillfort period and the Middle-Hillfort period ceramics. Therefore, a prehistoric origin of the post holes and the oldest land horizon cannot be entirely disqualified; however, multiple factors speak against such interpretation. The first is their direction, which is identical with the direction of the earlier moat. Also, no items of prehistoric origins were found in it. The absence of a cultivated layer with artefacts argues against the possibility that the post holes are a remnant of a settlement and, for the other option, that they are a trace of the first traversing of the castle promontory in the form of a woven fence with load-bearing posts.

Findings in trench S VII B clearly indicate that the earlier moat 510=521 is the second developmental phase of the situation in the monitored area. This is a fortification on the neck of the promontory that corresponds with the moat discovered on the opposite end of the castle promontory (Durdík, Frolík, Chotěbor 1999: 22). The trench was gradually filled in until, at some point, it expired through intended fill in related to an extensive fire that left the burned-through layer evident in all trenches. The position of the large holes located 350 cm west of the (current) edge of the moat is unclear due to later disruption of the terrain. Should these holes be contemporary to the earlier moat, they would be the only remnant of the accompanying above-ground construction, perhaps a wood wall with boards set between posts. The burned layer would therefore be caused precisely by burning of this fencing. Perhaps also the occurrence of wood in the trench observed in the research in the Imperial Stables in the North Wing suggests this possibility.

Following an extensive fire, the earlier moat was filled in and used for a foundation of earthworks with wooden grate, while the stone frontage was set on solid terrain, supported by one layer of wood. The small fence evident in trench S 2 apparently delineated the solid surface of the undisturbed terrain, suitable for stacking a stone rampart from the soft backfill of the expired moat above, from which the wood-clay portion of the rampart was built. Such composition of a rampart was suitable from the perspective of statics because it utilized the natural settling of the earthwork body and pulled the stone portion backward through the use of long beams, thus preventing it from leaning toward the new moat.

We do not know the appearance of the frontage of this rampart. Should the large post holes in trenches S VI–VIII A belong to this phase, they may have served as its support. The moat was ditched in front of the construction of the above-ground rampart. It was filled in over time. At the time when the walls of the moat were covered by a 20–40 cm thick layer of run-off from the surrounding cultivated layer, the frontage of the rampart was widened in the area of the S VI–VII trenches. This was the time when a stone with a smooth surface and a carved pattern was set into the base, facing the moat. The thin lines depict a rectangular grid with an irregular triangular "tower with a pole" on top. The grooves of the triangle continue downward into the grid and their bases form two small triangles. This creates a deltoid set with triangles of various sizes (Fig. 10). This could be either two or more overlapping images, or should this be intended as a single image, then it most resembles a small church with a tower or a shingled roof of a church with a tower, possibly the construction of roof trussing for a church with a tower. The position of the stone under all the other stones forming the lowest row of the rampart, ultimately creates the impression that this could not be an accident. The carving could only be seen from the moat, however base stones of some constructions as churches, although important and ceremonially laid, are also not visible. Maybe, it could be a kind of the base offering. I am not aware of any other such finding. However, its discovery was a matter of an accident and therefore we cannot exclude the possibility of similar findings in the future.

CONCLUSIONS

Dating all phases of fortification former than the Romanesque rampart is a complex issue. First, we have only the oldest archaeological situations, all earlier phases were destroyed in the past. All these phases we write here, based on the findings of ceramics belong to the Middle-Hillfort period, i. e. 9th and first half of the 10th century. In 2000/2001 research, the date of 760–890 was obtained from two wood samples C14, with a 69.9% likeliness. However, dendrodata for the later phase of the perimeter rampart range from 883 to 921 in the case of samples obtained from wood kept *in situ* in the space underneath the Third Courtyard of the Prague Castle (Dvorská, Boháčová 1999: 62). Using a logical assumption that the fortification was first built in places that were the most accessible and hence most vulnerable, we could accept the dating of the formation of the above-ground fortification latest by the end of the 9th century. According to historic records concer-

Fig. 10 Prague Castle, Stone from the base of the frontal portion of the stone wall (photo by J. Frouz)

ning Prague, the earlier moat could date to the era of the reign of Duke Bořivoj from the Přemyslid dynasty (870's–880's). He received baptism from St. Methodius under the patronage of King Svatopluk I of Great Moravia. Previous symbolic transverses of the castle promontory can only be dated using stratigraphy, where the likeliness of its formation falls toward the first third of the 9th century.

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Fortifications on the Byzantine-Hungarian Danube Border in the 11th and 12th Centuries

Since the last decades of the 11th century, and especially during the 12th century, the interests of two powerful states, the Byzantine Empire and Hungary, collided in various regions of the Balkans, but it seems that the main battlefield and the very heart of the conflict resided in the border zone along the Danube. Belgrade and Braničevo, on the Byzantine, and Zemun, Kovin and Haram on the Hungarian side, became important military posts and defensive strongholds, but also starting points for forays across the river. Therefore, the border defense system was given special attention by both sides. The importance of this issue is best illustrated by the development of fortifications, of which written sources offer valuable information, corroborated and largely supplemented by the results of archaeological surveys. Restoration of existing fortifications and construction of the new ones ran more or less simultaneously on both sides of the Danube. Quite in keeping with the contemporary ideas of the Byzantine, or Hungarian, military architecture, stone fortifications were built on the Byzantine side, while the ones on the opposite, Hungarian side, were made of earth and wood.

Key words: Byzantine Empire, Hungary, Danube border, Fortifications, 11th and 12th centuries

Following great efforts made by the Byzantine emperor Basil II (976–1025) to establish power in the Balkans, the Kingdom of Hungary and Byzantine Empire became neighbours on the Danube. Hungary provided military aid to the Byzantine Empire in the war against Samuel (Илјовски 1991: 75–99), but the two countries did not preserve good relationships for a long time. There were many reasons for conflict. Strengthening of Hungary and its growing interest for Balkan countries directly threatened Byzantine interests. Both sides had pretentions towards the same region, first of all towards the region of Sirmium, which became part of the Byzantine Empire after 1018. As early as in the middle of the 11th century, Hungarians start the first attacks and occupy the region between the Danube and Sava rivers at the latest by the seventies of that century. During violent fights for Belgrade in 1071/1072, Sirmium was under the Hungarian power (Калић-Мијушковић 1967: 40–43). In the following period the Byzantine Empire occasionally managed to recover its power in this region but by the end of the 11th century it was under the constant rule of the Hungarian king. During the First Crusade in 1096, Zemun is mentioned as the last Hungarian city at the border with the Byzantine Empire (Калић 1968: 186–187).

During the rule of the Komnenos dynasty the relationships with Hungary become highly important for the Byzantine Empire. The previous defence period, starting with the rule of the emperor John II (1118–1143), is replaced by active policy attaining its peak during the rule of the emperor Manuel I Komnenos (1143–1118) by new conquests of Sirmium. At that time there was also traced the main arena of war which remained in the centre of war scene up until the end of the 12th century. On the side of the Byzantine Empire it was a border region around Belgrade and Braničevo and on the Hungarian side it was the region of Sirmium and south-west Banat. Both sides paid attention to strategically important points on the border. Generally, those were the crossings of the most important roads and passages across the Danube and Sava. Their importance also influenced the development of fortifications. Belgrade, Morava and Braničevo, on the Byzantine side, and Zemun, Kovin and Hram across from, on the Hungarian side, become important bases, defence pillars, but also starting points for the invasion of the opposite side of the river (Fig. 1). The importance of those fortifications has been confirmed

by both Byzantine and Hungarian sources, as well as by the historians of Crusades passing through those regions. Data from written sources have been largely confirmed and completed by the results of archaeological research. That is exactly the subject this paper is focusing on.

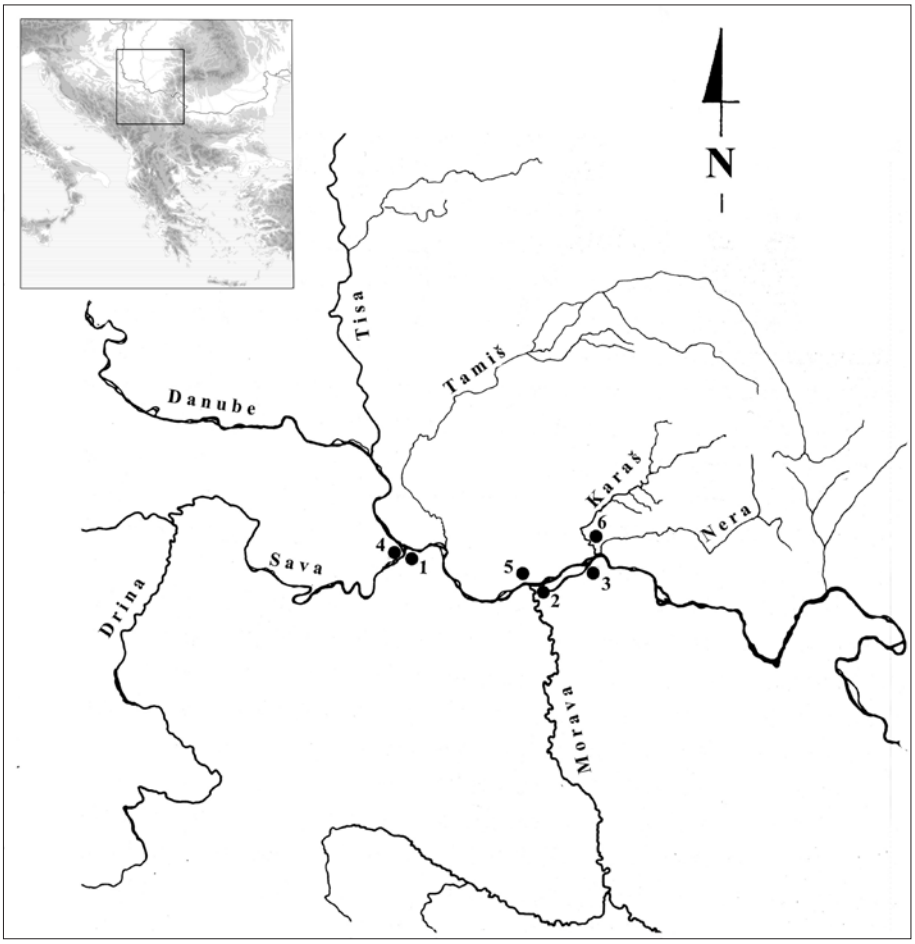

Fig. 1 Fortifications on the Byzantine-Hungarian Danube border in the 11th and 12th centuries: 1. Belgrade; 2. Morava; 3. Braničevo; 4. Zemum; 5. Kovin; 6. Dupljaja

We are starting the review of fortifications on the Byzantine bank of the Danube with Belgrade which was in the middle of war events during the period of almost two centuries and often had a key role in those conflicts (Калић-Мијушковић 1967: 35–58). Thanks to longstanding excavations, most of the archaeological data we dispose of are related to the Belgrade fortress. Regarding the time of Byzantine rule in the 11th–12th century, it consists of two main phases closely related to the situation in the Empire. The first phase corresponds to the period until the middle of the 12th century during which the Byzantine Empire was not able to pay important attention to its defence system. The second development phase, during the sixth and seventh decade of the 12th century, was affected by active Byzantine policy on the north border and wars with the Kingdom of Hungary (Поповић 2006: 55–72).

Archaeological excavations in the Upper and Lower Town of the Belgrade Fortress[1] discovered a cultural layer of the 11th century. The findings from this period, consisting mostly of pottery shards, were also sporadically discovered outside of the area of the Upper Town, on the excavated surfaces of the Kalemegdan park, which used to be a part of the Roman legion camp (Поповић 1982: 43, fig. 8; 2006: 56–57, fig. 21). The remains of a necropolis in the Upper Town were discovered outside of the ancient fortification rampart. In one of the graves there were discovered silver coins of the Hungarian king Andrew I (1046–1060), according to which the necropolis was dated to the second half of the 11th century (Бајаловић–Хаџи-Пешић 1992: 39–47).

According to the news from written sources, it can be concluded that in the 11th century Belgrade had a fortification whose role was to defend the city. Belgrade is described as a fortified city by the historians of the Crusades (Калић-

1 The terms of Upper and Lower Town, as well as Interior fortification of the Upper Town, do not completely correspond to the topography of the Belgrade Fortress in the 11th-12th century. They refer to the spatial division of the fortress after the large fortification works realized during the rule of the Despot Stefan Lazarevic between 1404 and 1427 (Поповић 2006: 117–121). They have been generally accepted in previous descriptions and they are used in this paper to simplify the orientation.

Мијушковић 1967: 59–65), and it is also mentioned as such in the text *Chronicon pictum Vindobonense,* which is a later source from the middle of the 14th century telling also about fights from 1071/2 (Динић 1951: 10–12). The terms *civitas* and *urbs* describe Belgrade as a fortified city with ramparts and towers. The Hungarians destroyed some parts of ramparts to foundations by siege engines. Suburbia is mentioned as a part of the city which was the most affected by the fire. When the Lower Town was occupied, the defenders retreated to a specially fortified part (*arx*), representing the last base of the defence. The source also notes that they came down from *arx* only after having been promised to be protected, which is considered as confirmation that it refers to a fortification situated on a hill, while the surrender probably took place in the Lower Town (Бајаловић-Хаџи-Пешић 1992: 52).

On a protruding ridge of the Upper Town there were discovered the remains of a medieval settlement dated from the end of the 9th to the middle of the 12th century (Бајаловић–Хаџи-Пешић 1992: 30–44). A necropolis was founded in its close vicinity, on a rather inconvenient narrow space along the edge of the plateau, probably due to the threat from the Hungarians (Јанковић 1997: 47). Prior to that period, at the latest by 1071, burials were performed on a slight slope closer to the river Sava (Марјановић-Вујовић 1989: 14–44).

While archaeological data regarding the development of the settlement in the 11th century are generally accepted, the opinions of different researchers of the medieval Belgrade related to the contemporary fortification are substantially diverse. According to M. Popović, the results of archaeological research indicate that no new fortifications were built from the establishment of the Byzantine rule in 1018 until the middle of the 12th century and that the Byzantine garrison used the old Roman fortification renewed in the 6th century. Data from Chronicon *pictum Vindobonense* have been explained by the possibility that the writer of the chronicle who was familiar with the topography of the fortress in the 14th century placed the events from 1071/1072 within its ramparts (Поповић 1982: 44–47).

A different opinion was supported by M. Bajalović–Hadži-Pešić, researcher of the so-called interior fortification of the Upper Town. She dated the beginning of transformation of the most protruding, north-western corner of the Roman/Early Byzantine castrum into the medieval fortification to the time of the rule of the Emperor Basil II (976–1025), after he had taken power in Belgrade (Бајаловић–Хаџи-Пешић 1992: 47–53; 1993: 13). According to her, the earliest construction phase consisted of upgrade and extension of the part of fortification offering the best possibilities of defence. The Byzantines built a new external rampart shifted for several meters beyond the line of the ancient rampart. Connection between the new rampart and the tower of the old fortification created a new fortification complex whose defence line followed the edge of the ridge and the configuration of the terrain. A gate opened in the new rampart established the necessary communication with the Lower Town settlement. The soot layer above the ancient floor of the gate was taken as the confirmation that the oldest phase of the rampart and gate had been destroyed during the events of 1071/1072. The devastating Hungarian invasion, according to M. Bajalović–Hadži-Pešić, must have been followed by a reconstruction. As an important border fortification, Belgrade had to have strong ramparts, ready to face and repulse new Hungarian attacks, which in fact incurred again after several decades of relatively peaceful period (Бајаловић–Хаџи-Пешић 1992: 48–49, 53).

In a later overview of these conclusions of M. Bajalović–Hadži-Pešić, M. Popović only states that they are not based on argumented proofs (Поповић 2006: 56). Unfortunately, there has been no wider discussion with counter arguments. Unlike their different opinions regarding the situation on the Belgrade fortress in the 11th century and the first decades of the 12th century, the authors agree on the next phase of fortification of the Byzantine Belgrade. That phase is dated to the time of rule of the emperor Manuel I Komnenos (1143–1180), and thanks to the data from the written sources as well as to longstanding archaeological research, it can be traced in a much more documented manner.

During the war which broke out in the third decade of the 12th century between Hungary and the Byzantine Empire, Belgrade found itself once again in the middle of a conflict. As recorded by the Byzantine historian John Kinnamos, the King of Hungary Stephen II (1114–1131) razed the city of Belgrade in 1127 and ordered the stones from destroyed ramparts to be transported across the river Sava to Zemun and used for the construction of a new fortification (Ioannis Cinnami 1836: 10; ВИИНЈ 1971: 7). After the conclusion of peace in 1129, the Byzantine Empire managed to keep its positions on the Danube until the end of the rule of the Emperor John II Komnenons. It was only after the accession to the throne of the Emperor Manuel I Komenons that more attention started to be paid to the northern border and Belgrade became the starting point for Byzantine operations. In such a situation, bearing in mind the insecurity of the ramparts destroyed by the previous invasions, it was indispensable to undertake vast works for the construction of new fortifications. Cultural layer of the 12th century includes approximately the same areas as the layer from the 11th century (Fig. 2). However, construction of the new fortification brought important changes. Its position in the northwest corner of the Upper Town has been reliably confirmed by archaeological research (Бајаловић–Хаџи-Пешић 1993/1994: 15-30; Поповић 2006: 61–72).

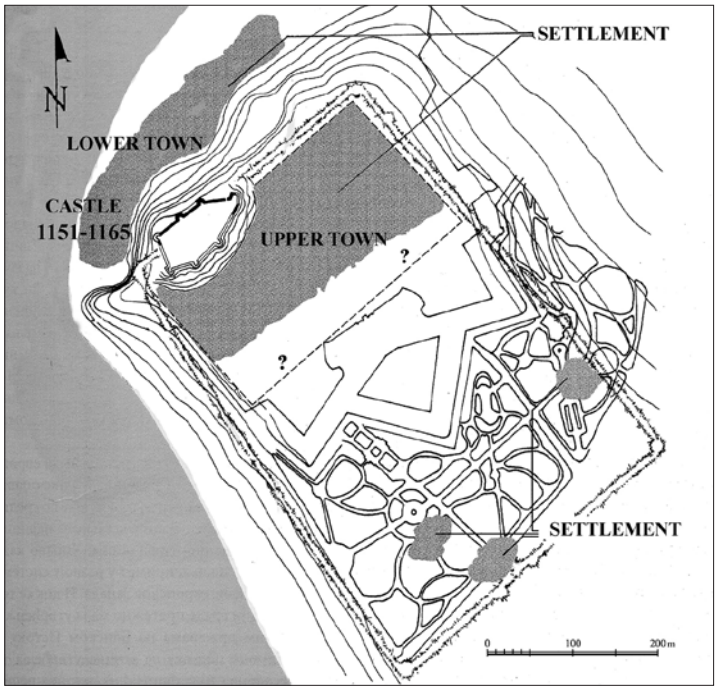

Fig. 2 Belgrade, fortress and settlement in the second half of the 12th century (Поповић 2006: 69)

This fortification had an irregular polygonal base, 120–130 m long and about 60 m wide. The northwest rampart with a gate and four towers has been completely researched and the direction of spreading of the southwest rampart which used to include another gate and a corner tower has been detected, while the aspect of the northeast and southeast side has been mostly reconstructed. There was a deep ditch on the more easily accessible side, in front of the southeast rampart of the castle. The rampart is between 2,60 and 2,80 m wide, while the walls situated next to the towers are slightly narrower and their width varies between 2,20 and 2,50 m. The foundations of the rampart were made of crushed stone, while the face of the rampart above the ground was made of semi-hewn stone and, in a smaller extent, roughly treated hewn stones (Fig. 3). On the external face of the wall thin bricks were used to flatten the rows, but without use of regular cushion courses.

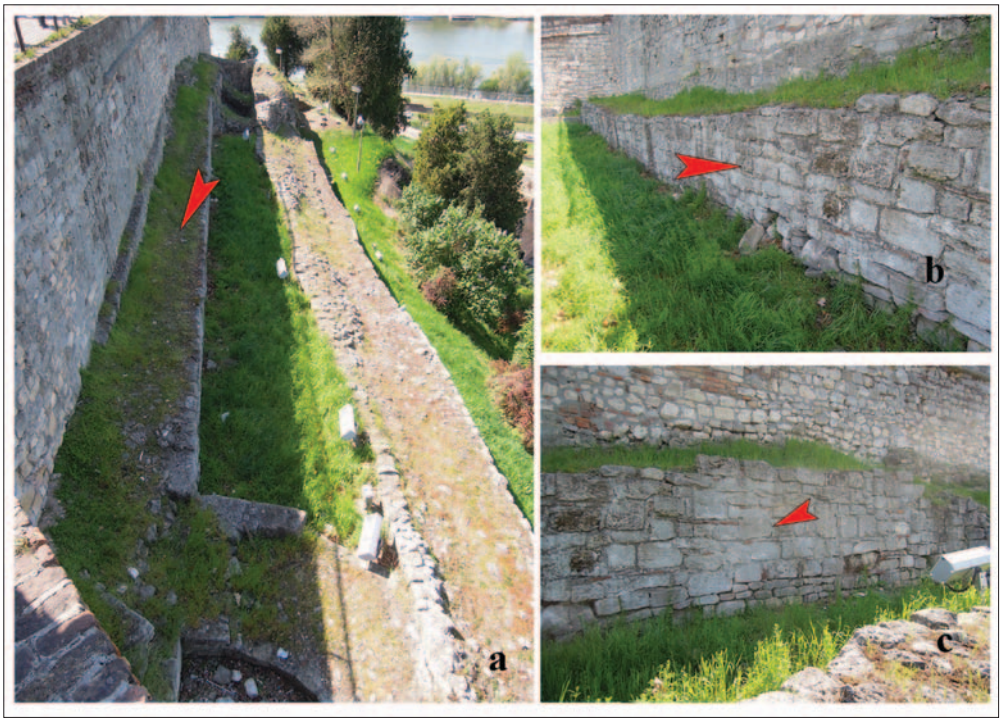

Fig. 3 Belgrade, Byzantine castle, remains of the northwestern rampart (photo by: D. Radičević)

The main entrance was situated within the northwest rampart and it was protected from one side by an angular northeast tower and by a semi-circular tower from the other side. In a previous configuration of the terrain this part included the dominant point of the whole fortification. The gate was facing the Lower Town, on the place where the rampart was turning under an angle so it remained slightly indented and therefore more protected. Its inner space was 2 m wide and 2,30–2,40 m long. It has been preserved in a height of 2 m and therefore the construction of the upper parts cannot be observed. Doorposts and a doorstep have been preserved on the outer side including a cavity for water outlet in the middle. Next to the doorposts there were deep openings for beams securing the door from the inside (Бајаловић–Хаџи-Пешић 1984: 69–71; 1993/1994: 19).

Near the southwest corner there was another entrance protected by an angular tower as well. There are no closer data on its appearance, but according to the situation found on the site the gate was 1,5 m wide, 2,2 m deep and 3 m high. This entrance represented a communication with the Lower Town on the western side (Бајаловић–Хаџи-Пешић 1993/1994: 25).[2]

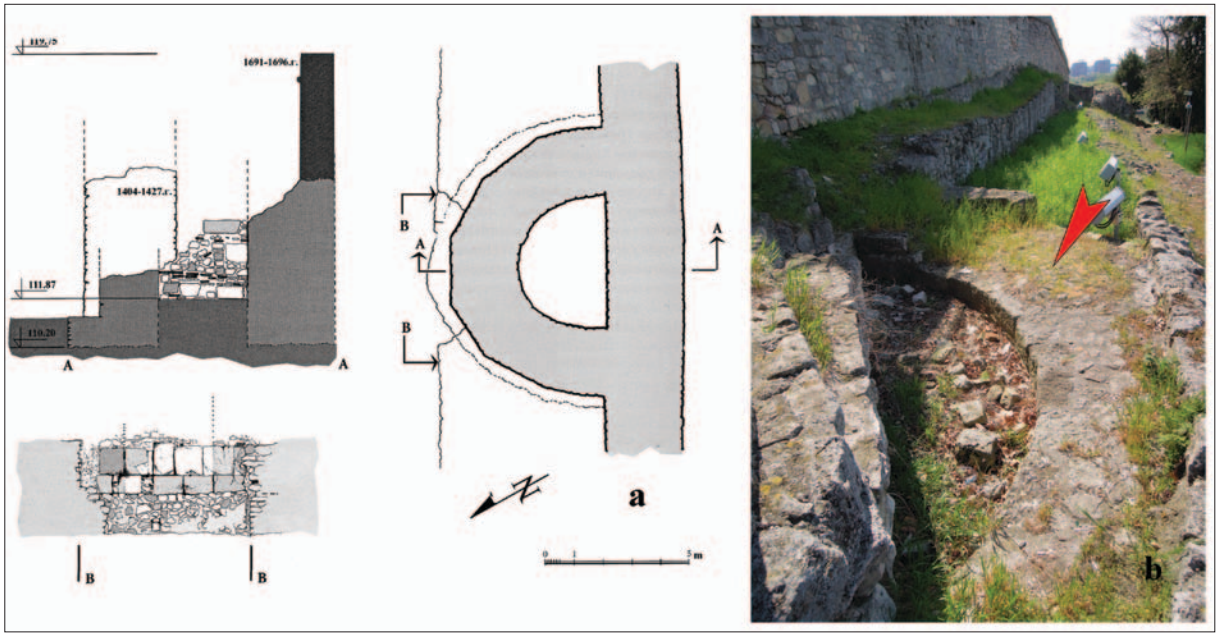

Fig. 4 Belgrade, Byzantine castle, remains of a tower on the northwestern rampart; a. plan with elevation and section (Поповић 2006: 64); b. (photo by: D. Radičević)

The shapes and disposition of towers have been only partially determined. At the junction of the northwest and northeast rampart there was a larger square tower, probably open towards the inside of the castle. The tower could have been about 10 m wide. The position of three towers has been identified within the northwest rampart. The preserved remains belong to the towers which have a semi-circular base on the inside and polygonal base on the outside (Fig. 4). They contain marks of a slightly more regular masonry. There are rows of treated stone cuboids and sometimes vertically placed bricks. The external width of the best preserved tower used to be 9 m, while its length was 5,5 m. The interior space of 4,30 x 3 m was in the lower levels closed towards the rampart (Бајаловић–Хаџи-Пешић 1993/1994: 23, fig. 15–17).

The construction of the new fortification has been reported by historical sources which have also been confirmed by the results of archeological research. During the research of the foundation zone of the rampart, a coin of the Emperor Manuel Komnenos offering a certain terminus *post quem* for the construction after 1143 was discovered in the mortar mass. Data from the historical sources offer even more precise elements for dating according to which it can be concluded that this Byzantine fortification in Belgrade was built during the period from 1151 to 1165 or at the latest in 1167 (Поповић 1982: 48-56; 2006: 66-68; Бајаловић–Хаџи-Пешић 1993/1994: 13–15).

According to data from written sources, besides Belgrade, other important Byzantine bases on the right bank of the Danube in the 11th–12th century were Morava and Braničevo (Коматина 2016: 103–107). The medieval city of Morava was situated close to the mouth of the river Morava, at the location of the ancient city of Margum (Fig. 1). The last research

2 M. Bajalović–Hadži-Pešić attributed the construction of the rampart protecting the western Lower Town from the north to the same constuction phase as the construction of the fortification (Бајаловић–Хаџи-Пешић 1993/1994: 27), but according to M. Popović, the creation of the fortified Lower Town cannot be dated before the end of the 12th century, nor after the middle of the 14th century (Поповић 1982: 61–62; 2006: 77–78).

enables the location of an ancient and medieval agglomeration on the right bank of the Morava, on a surface of about 7-8 hectares, to be identified (Иванишевић, Бугарски 2012: 242–251). According to the available data, the reconstruction of the medieval settlement, within a smaller area, started in the 9th century and became more intense during the two following centuries. The latest horizon of habitation is dated to the 12th century (Bikić et al. 2012: 101–102).

While spatial disposition of the medieval settlement is well-known, at least regarding its outline, data on the fortification are completely absent. Situated between the effluents of the Morava river, the site has been largely damaged by shifting of watercourses in the past. Today, only a plateau consisting of two units separated by a huge ditch has been preserved. An analysis of the ancient flow of the river Morava and isohypses of the terrain has shown that this ditch was not connected with the main flow of the river, nor with one of its effluents, but that it was probably a moat a medieval settlement. Since both east and west of the ditch there are remains of ancient architecture which is older that the ditch itself, and taking into account the stratigraphy of the site, it has been concluded that the moat was built in the Middle Ages (Иванишевић, Бугарски 2012: 250–251).

Although archaeological traces confirm the existence of a settlement in the 12th century as well, the city of Morava has not been mentioned in written sources after the 11th century. The predominant role was in all respects taken by Braničevo which becomes the most important Byzantine base after Belgrade (Динић 1978: 90–95; Коматина 2016: 105–107). The Braničevo fortress was built at the end of an elevated ridge, near the mouth of the river Mlava (Fig. 1). A vast lower town used to spread at the foot of the ridge (Поповић, Иванишевић 1988, 129–130, сл. 2; Milošević 1991: 187–195; Милошевић Јевтић 2016: 117–123). The fortification consisted of two units: Mali grad (Small Town) and Veliki grad (Big Town). The main part consisted of the Small Town of almost square shape and a surface of about 2 ha (Fig. 5). All the four corners were provided with circular towers. The south rampart of the Small Town was directly connected with the Big Town, a larger fortification of a surface of about 2,5 hectares, with irregular polygonal base adapted to the relief. It covered a part of the plateau which was 5 to 10 m higher than the Small Town.

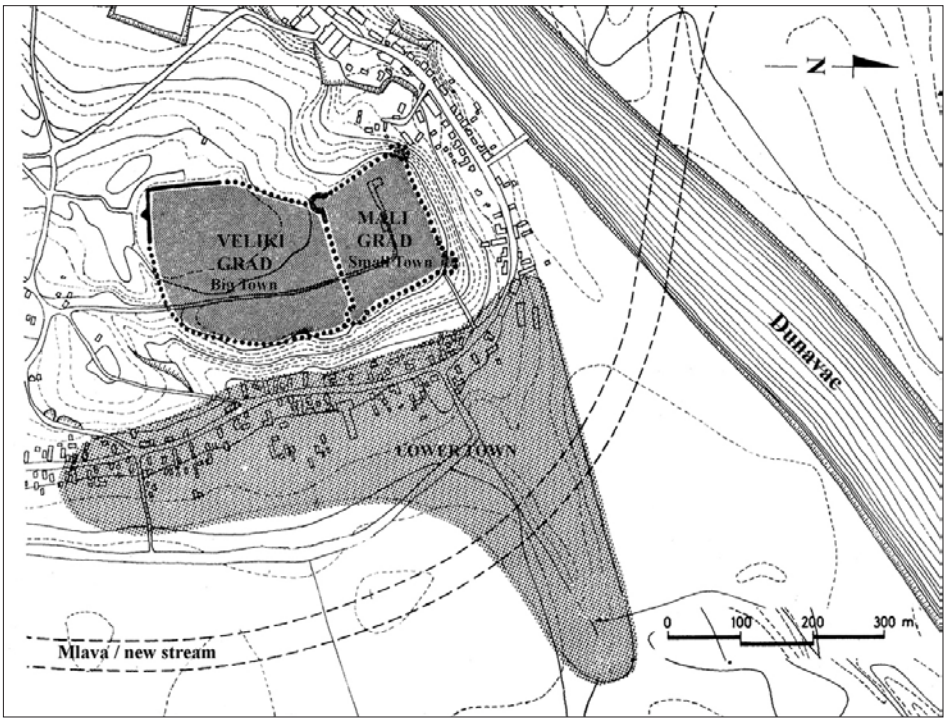

Fig. 5 Braničevo, medieval fortress, site plan (Поповић, Иванишевић 1988: 129)

Nothing more specific can be said on the manner of construction or fortification solutions of the fortress. The ramparts of the Mali grad are partially visible on the surface, but they have not been archaeologically researched, while the excavations of the Veliki grad uncovered only a trace in the foundation. Principally, only the foundation trench has been identified, without remains of the disintegrated wall. Only in one trench, along the outside edge of the about 2,50 m wide foundation trench, a 0.90 m wide reinforced masonry was preserved, constructed together with a smaller triangular tower (Fig. 6). For the moment, it is the only identified tower within the rampart of Braničevo.

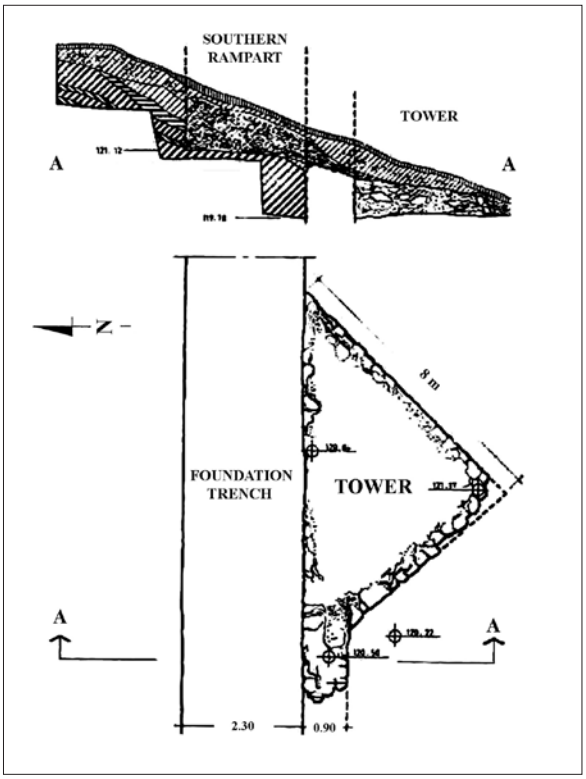

Fig. 6 Braničevo, Veliki Grad, remains of a tower on the southern rampart, plan with elevation and section (Поповић, Иванишевић 1988: 132)

Older literature attributes the construction of the Mali grad to the early Byzantine period (Поповић, Иванишевић 1988: 130). However, recent excavations demonstrated the absence of the early Byzantine cultural layer. The oldest medieval structures on the excavated surfaces of the Mali grad have been dated to the last decades of the 10th and 11th century. The most developed and prosperous phase of life has been related to the 12th century and dated by the coins of John II Komnenons and Manuel I Komnenons (Спасић-Ђурић 2011: 75–111; 2016). The process of economic growth of the city probably coincided with its growing political role during the 11th and especially 12th century. The sources from that time often mention Braničevo, but those are usually information confirming the existence of the fortification, without description of its appearance and data which could indicate the time of construction. During the 12th century, the fortification was destroyed and reconstructed on several occasions. Braničevo was conquered already during the first Hungarian attack in 1127, just after the invasion of Belgrade. During the two following years, the emperor John II Komnenos reconstructed the city and fortified it according to the possibilities (Ioannis Cinnami 1836: 12-13; ВИИНЈ 1971: 14–15). Similar information dates from the middle of the century, after successful operations of the Byzantine army in Sirmium. After the retreat of the army to Braničevo, the emperor Manuel I Komnenos started to fortify the pre-danubian cities (Ioannis Cinnami 1836: 118). Except for Belgrade, where construction of a new fortification was started exactly at that time, it is considered that this data relates also to Braničevo. The reconstruction of Braničevo was also undertaken in 1165, again after successfully completed fights in Sirmium (Поповић, Иванишевић 1988: 126–127).

At the same time when Belgrade and Braničevo are mentioned, written sources also mention fortifications on the left bank of the Danube. They are located opposite the Byzantine fortresses in order to defend the most important river crossings from the Hungarian side (Fig. 1). Most of these data concern Zemun which, the same as Belgrade on the opposite side of the Danube was often in the middle of Byzantine-Hungarian conflicts of the 12th century. At that time, its name was first noted by Byzantine writers John Kinnamos and Niketas Choniates, which does not mean that the city did not develop before that, although it was rather unknown.[3] When, at the time of Hungarian-Byzantine conflicts we come to know more on Zemun, it is obviously not a new, recently founded settlement.

Zemun was intensively constructed after the Hungarian invasion and destruction of Belgrade in 1127 (Ioannis Cinnami: 1836: 10; Калић 1971: 33). The Hungarian king probably reinforced the existing fortification by stone walls. According to Kinnamos, Zemun was preserved until the time of Manuel I Komenos and in 1151 it was destroyed to foundations (Ioannis Cinnami 1836: 10). Both Kinnamos and Choniates confirm that Zemun was then a well-fortified city. At that time Kinnamos says that Zemun fortress is "well secured by strong ramparts and other types of reinforcement "(Ioannis Cinnami 1836: 114) and Choniates notes that Sirmium also has "a very strongly built fortress named Zemun " (Nicetae Choniatae 1835: 122).

If Kinnamos' information on the destruction of Zemun in 1151 was true, that would mean that it was completely reconstructed between 1151 and 1165, when it was for the second time invaded by the Byzantine army, again after a long siege. The description of events from 1165 also brings the most data on the appearance of the fortress (Калић 1971: 50–55). Upon the news on the arrival of the Emperor, the defenders closed all access routes to the city and provided the ramparts with different shooting devices. They strongly resisted from the top of the rampart. Apparently, it contained shelters for shooters. The city ramparts included towers connected to each other by a wall. The construction method is unknown. The

3 At the end of the 11th century it was noted that on the bank of the Danube, on the border towards the Byzantine Empire, there was a fortified city - *castelum Maleville* conquered by the Crusaders in 1096 (Калић 1968: 185–186; 1971: 30–31). The question was whether Maleville was really Zemun, that is, whether that was the same city or not. Most of the scientists gave and affirmative answer to this question, but without having done detailed investigations.

ramparts also had special small protruding towers constructed in order to allow for the enemy to be attacked from a closer distance at the foot of the rampart. From that point the aggressors were pelted with arrows, stones and other material. They were made of wood and therefore the invaders used to easily destroy them by shooting devices. Zemun was also protected by a moat situated outside of the rampart, which was, according to those who saw it, rather wide and deep. The city could be reached through several well defended gates. Byzantine soldiers entered the city through destroyed ramparts and by means of ladders (Калић 1971: 54).

Unfortunately, these data on the appearance of the Zemun fortress have not been completed by archaeological data from the site. Regarding the location of the fortress, all researchers refer to the hill of Gardoš rising above the Danube river bank, but this region has not been systematically researched so far. Gardoš includes remains of a small fortification which, however, dates from a later period (Дабижић 2015: 97–100). Former research has not shown that it was erected on the foundations of an older fortress (Stančić 1973: 97–10).

The next important Hungarian fortification on the left bank of the Danube, downstream of Zemun, was Kovin (Fig. 1). In this case, the importance of the river crossing highly influenced turbulent history and development of the city. The earliest written data from the middle and end of the 12th century show that Kovin was also an important settlement in the previous centuries (Вуксан 1997: 175–177). Although it is not mentioned in relation with Byzantine-Hungarian conflicts from the 12th century, it certainly must have been significant for those events due to its strategic importance. The best confirmation of the importance of Kovin at that time is the fact that it became the centre of a county including a large part of the present southwest Banat (Györffy 1987: 308; Kristó 1988: 76–78, 460–470; Zsoldos 2011: 161).

Fig. 7 Kovin, medieval fortress, aerial view from the south (photo by: D. Radičević)

The medieval fortress is situated on the south margin of the modern city (Fig. 7). It was built on an elevated edge of the loess plateau dominating the surrounding terrain. Inaccessible swamp earth on the west side and the flow of the river Ponjavica on the south and east side offered the necessary security to the settlement, while the watercourses ensured communication with other settlements on both sides of the Danube. Today the plateau has an irregular rectangular shape with dimensions of about 150 x 130 m, with an enlargement on the west side (Fig. 8). It south end still contains visible remains of a Late Medieval tower with massive pilasters and stone rampart. On the north and northeast side it is separated from the rest of the terrace and border of the present settlement by a long deep wide moat. The other sides are bordered by vertical 8 to 11 m high profiles. The interior of the plateau is not completely flat, namely, the height difference between the middle area and elevated border area is 2 to 4 m.

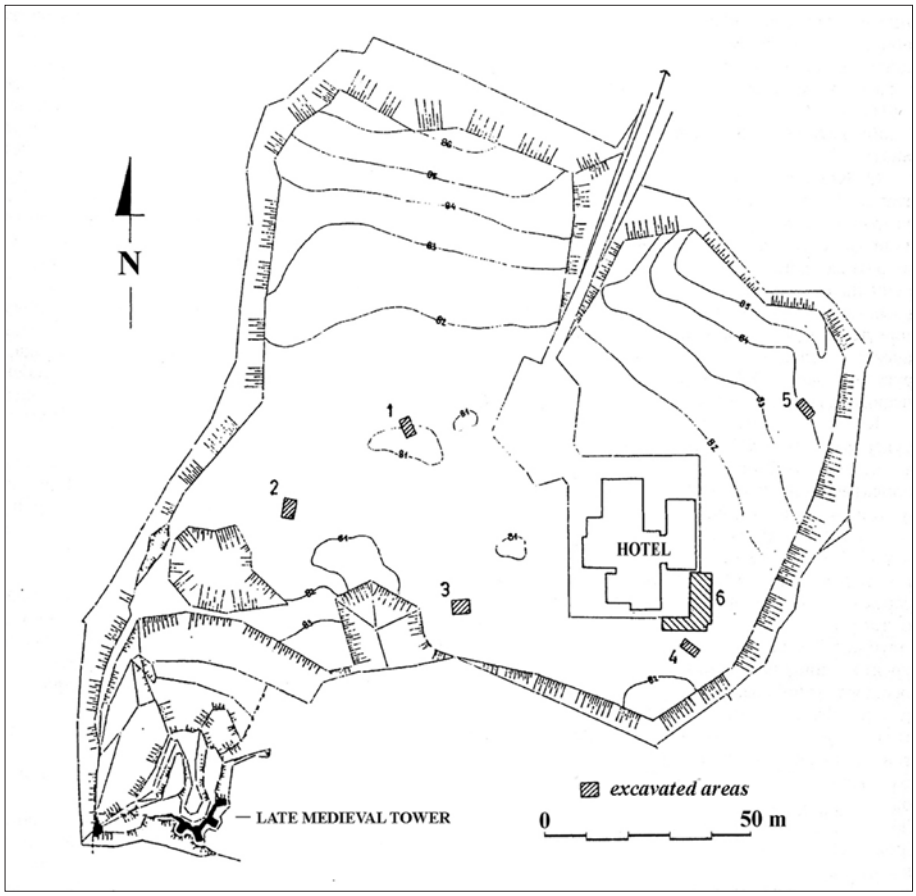

Fig. 8 Kovin, medieval fortress, site plan with excavated areas (Вуксан 1997: 178)

Available archaeological data on medieval Kovin represent only the results of trial works from 1968 and rescue excavations from1986 (Brukner, Medović 1968: 184–188; Вуксан 1989: 117–123; 1997: 178–183). The oldest level of habitation has been roughly dated to the 12th century, while the next level of habitation, which represented the most intensive segment of the medieval cultural horizon, has been dated to the second half of the 12th and 13th century. The remains of the rampart have not been excavated and therefore former research provided the least data on the appearance of the fortification. A ditch discovered on the east part of the site in 1986 was attributed to the oldest fortification. It is buried in the subsoil from the level of the deepest cultural layer and it is dated to the end of the 11th century. This moat used to spread in the direction southwest-northeast and its width was about 1,5 m. Its appearance is related to the situation on the southwest corner of the site whose profile has also shown the existence of a rather large trench (Вуксан 1997: 181).

The existence of a fortification with earth-palisade ramparts is indicated by a situation found on several locations where remains of wooden structures have been found in high profiles: uniformly laid horizontal beams and sporadically placed vertical columns. An unexpected land slide on the east side of the plateau uncovered the remains of beams horizontally placed next to each other. One row of beams was placed next to the external edge of the plateau, while the second row was placed orthogonally to them. There was thus formed a strong wooden skeleton of the rampart which was covered by earth. The height of the rampart built in this manner has been estimated to at least 3 m (Мадас 2012: 86–88).

According to these remains it has been concluded that the settlement of Kovin was probably protected by an earth rampart from the very beginning of its existence. The settlement and size of its ramparts were apparently enlarged in the first half of the 12th century, which is related to the Hungarian-Byzantine conflicts of that time. The newly constructed fortification was also of an earth-palisade type. The next reconstruction is related to the beginning of the later phase of the medieval horizon in Kovin, that is, after the destruction of settlement by a layer of burnt material, which is roughly dated to the middle of the 13th century. There are no written testimonies for this period, but, according to archaeological data, it has been concluded that the city was destroyed by the invasion of Mongols in 1241 (Вуксан 1997: 182–183). It was only after that destruction that it obtained new stone ramparts or only earth ramparts reinforced by stone. However, a reliable answer to this question can only be provided by the future excavations.

The last fortification of this overview is located in the south of the Serbian Banat, about 1 km southwest of the village Dupljaja (Fig. 1), on the dominant margin of a loess terrace, about 30 m above the old bank of the Karaš. It includes a flat plateau of an irregular nearly triangular shape and of approximate dimensions of 250 x 250 m (Fig. 9). On the north and west side the plateau steeply descends towards the old flow of the Karaš, there is a low and swamp terrain in the south and the loess terrace continues only in the east, towards the present village.

Fig. 9 Dupljaja, medieval fortress, aerial view from the west (photo by: D. Radičević)

The fortress of Dupljaja has long been attracting the attention of researchers and the earliest draft of its plan including the appropriate cross sections was already published at the beginning of the 20th century (Fig. 10, Téglás 1905: 218–221).

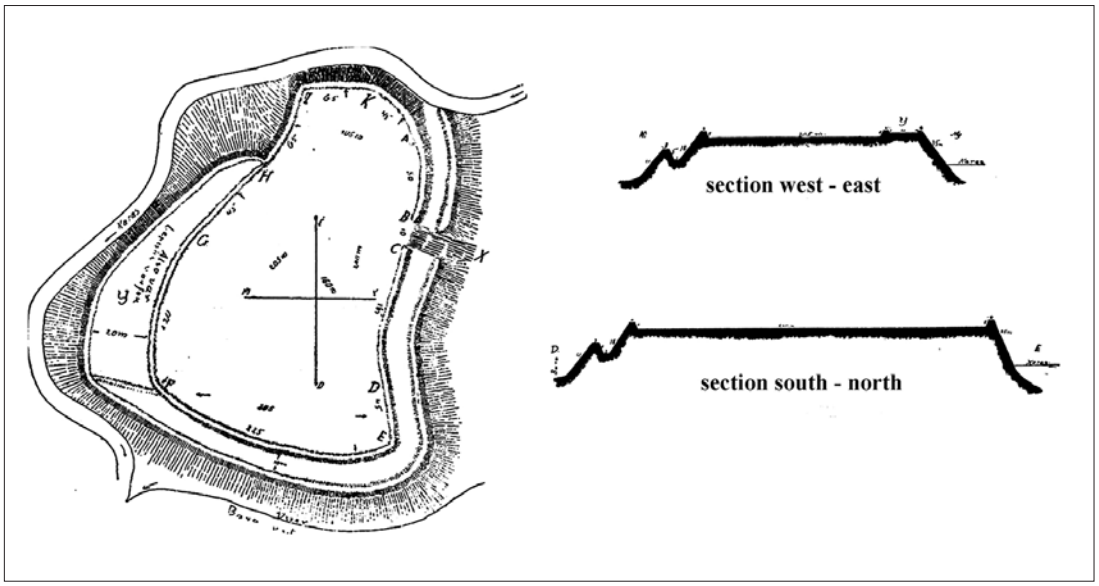

Fig. 10 Dupljaja, medieval fortress, site plan (Téglás 1905: 219)

The whole complex consists of the fortified Grad (Town) and suburbia spreading at the site of Vinogradi (Fig. 11). On the north and west side the Grad is surrounded by meanders of the Karaš surmounted by vertical cuts of a loess terrace,

while the east side used to include a rampart in front of which there was a wide and deep moat. Today, the width of the moat is up to 20 m and its bottom is about twenty meters lower comparing to the height of the preserved rampart. Modern farming has significantly changed the aspect of the plateau on its west and south borders compared to the previous situation, but thanks to a sketch from 1905, we can see that the Grad was defended on that side by double ramparts – a lower wall approximately in the middle of the slope and an upper wall situated along the border of the plateau. According to superficial findings, suburbia used to spread east of the Grad, while the lower town used to spread south of the fortification, down the old bank of the Karaš in a length of about 1 km.

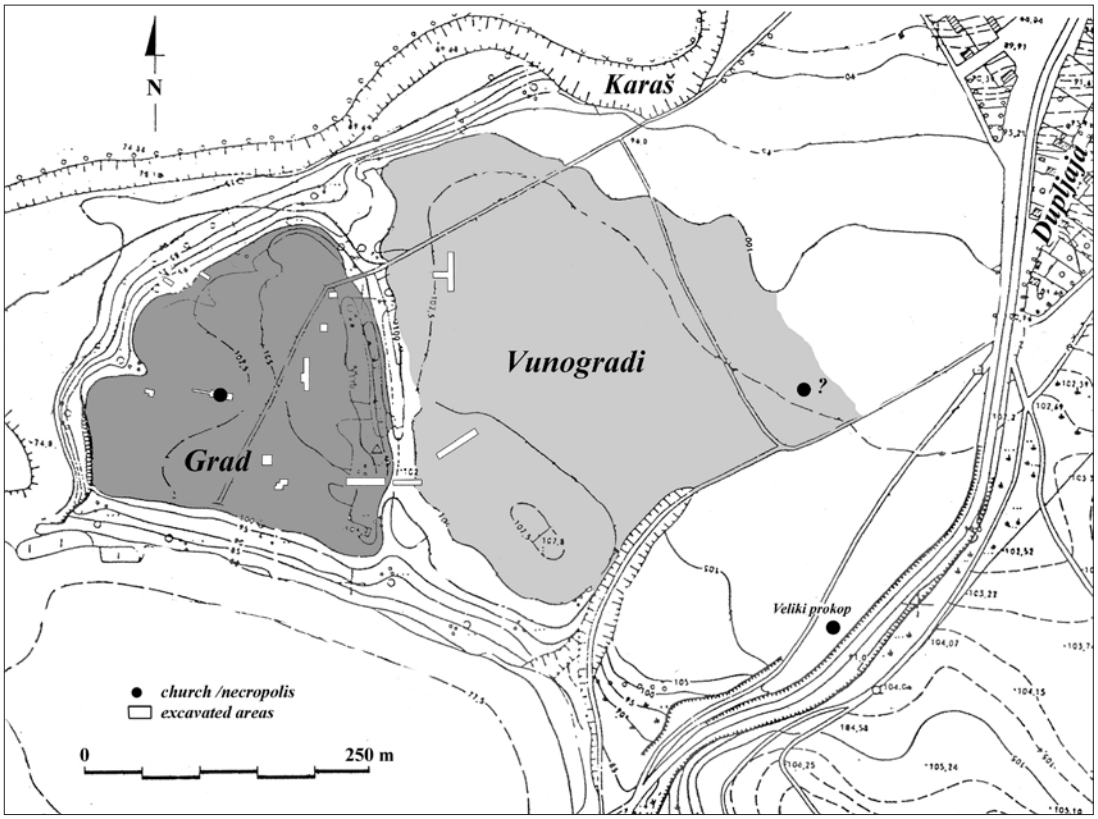

Fig. 11 Dupljaja, medieval fortress, site plan with excavated areas

A large rampart on the east side of the Town, as well as a hardly noticeable rampart on the west margin of the plateau, has been archaeologically researched, but their cross sections have not been completed (Janković, Radičević 2005: 275–278; Radičević 2012: 85–87; 2013: 85–98). Both ramparts were built by infill of loess in constructions made of horizontal wooden beams (Fig. 13). Traces noticed on their tips show that the tops were probably surmounted by stone. On the top of the east rampart, there has been identified the concentration of stone, while on the top of the west rampart there were discovered the traces of a rather small foundation trench filled in with debris and lime mortar (Fig. 12).

Two construction phases were identified during the research of the east rampart. There were discovered parts of an older rampart – construction made of rather compact surface of compacted loess, regularly bordered by horizontally laid beams (Fig. 13b). Within the researched surface there are two separated regularly bordered square surfaces covered by fired loess between which used to stand a regularly bordered surface covered by clear loess without traces of burning. The discovered situation leads to the conclusion that the older rampart was at some point flattened and that a significantly larger and higher rampart was built above it. Levelling of the terrain and construction of the new rampart closed the layer lying along the older rampart on the west side which corresponds to the time of its existence. The material from this layer has been dated to the 11th century and later to the early 12th century. On the other side, a layer on the top of the rampart, which certainly belongs to its second phase, has been dated by coins from the second half of the 12th and beginning of the 13th century (Bakić 2008: 11–25; Radičević 2013: 87, Figs. 6–9).

The end of living within this fortification is indicated by a storage pit containing coins and jewellery in the central part of the fortress. The total number of the discovered coins is more than 1000 examples and it includes Hungarian, Frisatic, English and Irish coins. A preliminary analysis of the storage pit indicates that it was buried in the time of the Mongol invasion in 1241 (Вуксан 2008: 91). According to the results of the former research, life within the fortification has not been restored after this event.

Fig. 12 Dupljaja, medieval fortress, foundation trench on the northwestern rampart (photo by: D. Radičević)

Fig. 13 Dupljaja, medieval fortress, remains of wooden structures in the northwestern rampart (a) and eastern rampart (b) (photo by: D. Radičević)

According to what has been said before, data from written sources, completed with the results of archaeological research, provide at least a general picture of fortifications from the 11th-12th century on the Byzantine-Hungarian border. During the time when this part of the Danube river basin was in the middle of war conflicts between the Byzantine Empire and Hungary, the reconstruction of the existing and construction of new fortifications were being realized at the same time on both river banks. The use of ramparts of an Early Byzantine fortification for the defence of Belgrade in the 11th century is not a unique phenomenon on the Byzantine border. In that area there was an important number of fortresses

built in the Roman and reconstructed in the Early Byzantine period (Јанковић, Јанковић, 1978: 41–55). Within the walls of most of them life was already re-established under the Bulgarian rule in the 9th –10th century and then continued under the Byzantine rule by confirming the importance of the Danube border. Older fortresses were probably rather well preserved, although serious construction interventions related to the reinforcement of towers and ramparts have been identified on some of them (Janković 1981: 21–23).

The following phase related to the improvement of defence on the northern border was determined by the active Byzantine policy in the 12th century. It was marked by construction of fortresses on important strategic locations. According to their characteristics, those fortifications fall within the framework of Byzantine military architecture in the time of Komnenos dynasty (Popović 1993: 169–185). Belgrade is usually considered as the only completely newly built fortification, while the fortification of Braničevo is considered to have been added next to an Early Byzantine fortification as a new larger fortress at the end of the 12th century or slightly later, in the time of construction of the Belgrade Fortress. However, the preliminary reports on new archaeological excavations indicated a lack of the Early Byzantine layer within the ramparts and therefore the question regarding the time of construction of the older fortification shall be left open, at least until the complete results are published.

On the other hand, the Hungarian policy focused on the invasions of the Balkans must have required a well-organized system of border fortresses capable of all types of defence and attacks within their own and neighbouring areas. Unlike the Byzantine regions, where stone fortifications were already built in ancient times, in these regions wooden structures and earth remained basic fortification elements up to the middle of the 13th century. Modest traces of stone and masonry structures have been identified only on the top of the ramparts. Earth ramparts in Kovin and Dupljaja contained wooden structures, but their fragmented remains do not allow their assembly to be completely identified. In Kovin we speak about uniformly placed horizontal beams and sporadically placed vertical columns, while in Dupljaja there have been discovered traces of a regular structure made of horizontal wooden beams. This type of construction was typical for Hungary until the time of Mongol invasion, but it was also widely used within a larger area, especially throughout the Slavic countries of that time (Bóna 1998; Ţiplic 2006: 89–115; Моргунов 2009; Mordovin 2016). Thanks to the fact that a large number of fortifications in this region have been archaeologically researched, there have been identified different constructions of ramparts made of wood in combination with layers of compacted earth. The inside wooden structure the most usually consisted of horizontal grids connected with each other by vertical columns or horizontal beams forming cassettes filled in with earth. The second type of construction was probably closer to the structure of ramparts in Kovin and Dupljaja.

In the midst of Hungarian-Byzantine border conflicts during the 12th century, which used to be occasionally transmitted to the left bank of the Danube, there were established the counties of Kovin (Keve) and Karaš (Krassó), certainly in order to stabilize and reinforce the defence of the south border (Kristó 1988: 76–78, 460–470). This is confirmed by the fact that military-administrative centres of these counties were situated on the most important crossings of the Danube. The location of the fortress of the county of Kovin has been reliably determined, which is not the case of the centre of the county of Karaš. Certain researches used to connect the centre of the county of Karaš with the fortress of Haram, which is mentioned in written sources of the 12th century (ВИИНЈ 1971: 9–13, 131–132). It is supposed that Haram could have been the centre of the county until the Mongol invasion and that its seat was in the following centuries moved to the interior of the territory (Ţeicu 2002: 182–185; Zsoldos 2011: 165). Older researchers located the fortification of Haram on the bank of the Danube and on the ancient Danube island which was situated in the vicinity of the old mouth of the Karaš (Димитријевић 1984: 48; Крстић 2006: 42–44). However, archaeological excavations in that area have not provided convincing proofs on the existence of a 12th century fortress (Kovačević, Dimitrijević 1968: 113, 115; Rašajski 1970: 95–96; Барачки 1995: 10–11). On the other hand, the results of research of the Dupljaja fortification completely correspond to the data from the written sources describing the fortress of Haram and, therefore, it seems logical that, in fact, this large and still anonymous site on the Karaš is hiding the remains of this fortress. It is the largest fortified complex of the 12th - first half of the 13th century in this part of the Carpathian basin. This could have been the centre of a larger region of that time, possibly even the centre of the county. In that case, this could have been the county of Krašovo which certainly also used to include this region.

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MÁRIA WOLF

Daten über den Burgenbau des 11.–13. Jahrhunderts in Nord-Ost Ungarn

Bis vor kurzem war es ein wissenschaftlicher Gemeinplatz, dass man in unserem Land erst nach dem Mongolensturm (1241–1242) begonnen hat Burgen zu bauen. Allerdings hat die neuere historische und archäologische Forschung gezeigt, dass diese Idee falsch ist. Die frühesten ungarischen Burgen wurden in der ersten Hälfte des 11. Jahrhunderts durch den König errichtet. Sie waren die Komitatzentren des Ungarns der Árpádenzeit. In dieser Zeit war bei uns, wie auch in anderen Gebieten Europas die Erd-Holzkonstruktion charakteristisch. Die Erforschung der Siedlungssitze aus der Zeit der Staatsgründung wurde im Nordosten Ungarns in einem den Landesdurchschnitt weitgehend übersteigenden Maße durchgeführt.

In den Zentren der historischen Komitate Abaúj, Borsod, Gömör, Heves, Zemplén, Szabolcs wurden kürzere oder längere Zeit archäologische Freilegungen durchgeführt, deren wichtigsten Ergebnisse auch veröffentlicht wurden. In meiner Studie möchte ich vor allem über diese Forschungen berichten.

Schlüsselwörter: Burgenbau des 11.–13. Jahrhunderts, ungarische Burgarchitektur, die Rolle der Erdholz-Burgen und ihre Zeit der Obsoleszenz in Ungarn, Mongolensturm (1241–1242), Nord-Ost Ungarn

Bis vor kurzem war es ein wissenschaftlicher Gemeinplatz, dass man in unserem Land erst nach dem Mongolensturm (1241–1242) begonnen hat Burgen zu bauen. Allerdings hat die neuere historische und archäologische Forschung gezeigt, dass diese Idee falsch ist.

Die systematische Forschung der frühen ungarischen Burgen begann Anfang der 1970er Jahre. Die Theorie von großer Wirkung des namhaften Historikers György Györffy bildete die Grundlagen für das Programm, wonach die Zentren der Komitate zur Zeit König Stephans die Erdburgen gewesen sein sollten. Györffy war der Meinung, dass mehrere Burgen schon im 10. Jahrhundert als Siedlungssitze je eines vornehmen Sippenoberhauptes errichtet wurden. Einen Teil dieser Burgen enteignete König Stephan, indem er die ersten Zentren seines Staates in den Burgen einrichtete – nämlich die Komitatssitze, die sowohl das kirchliche, wie auch das weltliche Leben gleicherweise leiteten. Die anderen Erdburgen wurden aber zur Zeit der ungarischen Staatsgründung, Anfang des 11. Jahrhunderts direkt als Komitatszentren errichtet (Györffy 1977: 200).

Die seit vier Jahrzehnten andauernde Forschungsarbeit untermauerte in macher Hinsicht die Hypothesen von Györffy, aber in anderer Hinsicht widerlegte sie. Über die ungarländische Burgbaukunst des 10. Jahrhunderts, die einen fundamentalen Punkt seiner Theorie bildete und lange Zeit als Axiom angenommen wurde (Györffy 1977: 30–38, 92–121, 191–264, 329–33), entspannte sich eine lang andauernde Debatte (Kristó 1988: 21–44, 73–99, 147–152, 201–207). Heutzutage wurde im Kreis der Archäologen immer mehr angenommen, dass es bezüglich der Burgbaukunst des 10. Jahrhunderts in Ungarn keinerlei sichere historische und archäologische Daten gibt. Aber im Gegensatz dazu gibt es viel mehr Angaben über die mit der Organisierung des Staates parallel entstandenen Burgen, über die Entstehung der ungarischen Burgbaukunst im 11. Jahrhundert (Németh 1985: 111; Nováki 1988: 145–150; Kristó 1988: 82–83; Bóna 1995: 46–47; 1998: 63–64; Wolf 2001a: 193).

Die Erforschung der Siedlungssitze aus der Zeit der Staatsgründung wurde im Nordosten Ungarns in einem, den Landesdurchschnitt weitgehend übersteigenden Maße durchgeführt. In den Zentren der historischen Komitate Abaúj,

Borsod, Gömör, Heves, Zemplén, Szabolcs wurden kürzere oder längere Zeit archäologische Freilegungen durchgeführt, deren wichtigsten Ergebnisse auch veröffentlicht wurden. In meiner Studie möchte ich vor allem über diese Forschungen berichten (Abb. 1).

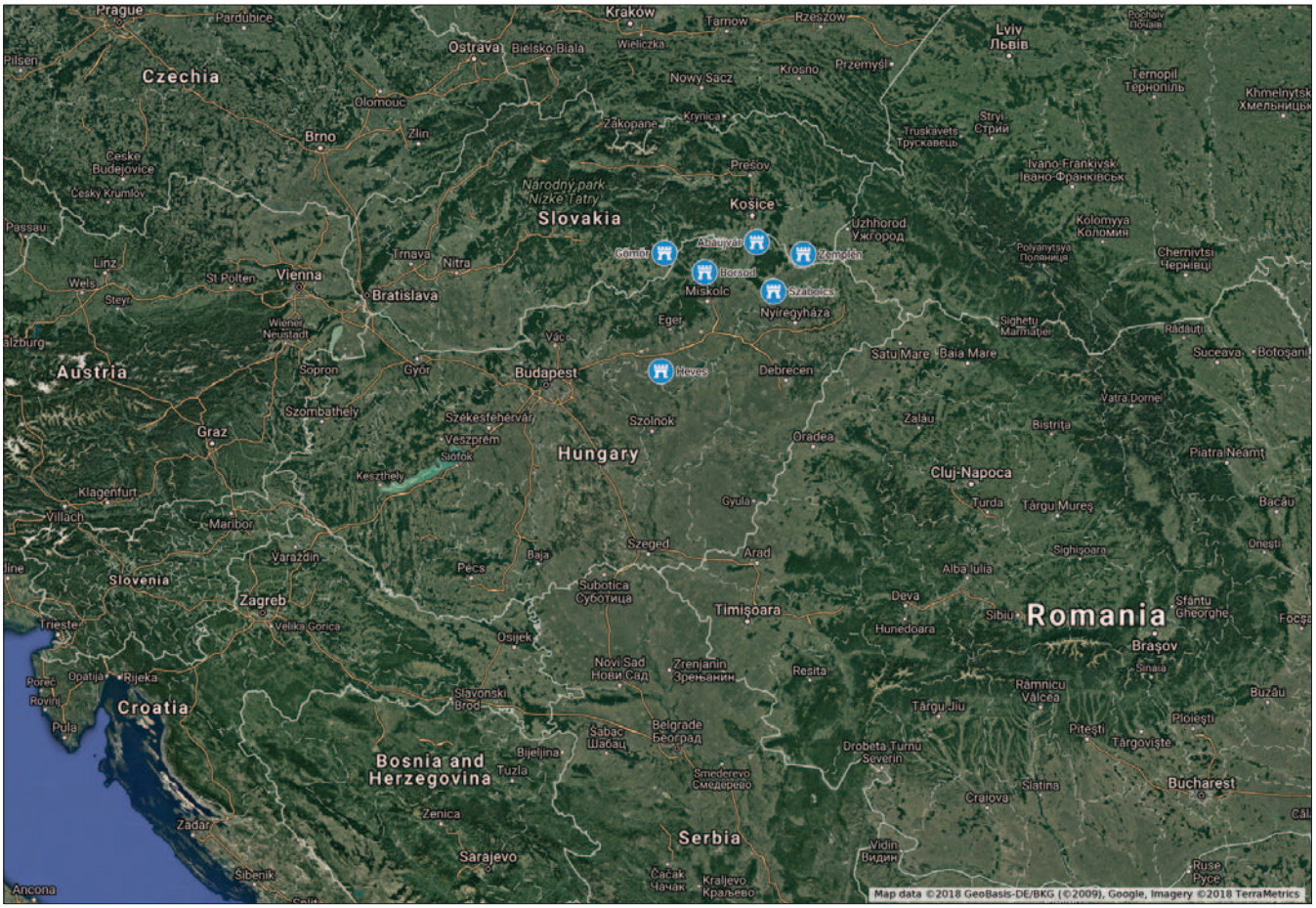

Abb. 1 Burgen im Nordosten Ungarn

Die Burg von Abaújvár liegt auf einem kleinen Hügel am Ufer des Flusses Hernád, am Fuße des Gebirges Zemplén, an der heutigen ungarisch-slowakischen Grenze. Die fast vollkommen unversehrten Wallanlagen fassen ein Gebiet von 3,9 Hektar um. Die höchste Stelle des Walls liegt 15 Meter über dem Flussspiegel des Hernád, und 5 Meter über dem Burginneren. Der einzige Eingang der Burg öffnete sich nach Osten, hier wurde er auch durch einen Graben geschützt, der heute schon ziemlich eingeschüttet ist. Die Burg wurde von 1974 bis 1981 freigelegt. Die wichtigste Aufgabe dieser Freilegung war die Bestimmung der Bauzeit der Burg, da man diesbezüglich über keine historischen Daten verfügt. Die Forschungsergebnisse zeigten eindeutig, dass die Burg weder aus der Vorzeit, noch aus der Völkerwanderungszeit vorangegangene Befestigungsanlage hatte. Die durch eine Holzkonstruktion befestigten Erdwallanlagen, die die Burgmauern bildeten, wurden über eine Siedlung aus dem 3–4. Jahrhundert nach Christi errichtet. Eine Holzkonstruktion bildete das Gerippe des Erdwalls, welches zumeist aus unbearbeiteten Baumstämmen errichtet wurde. Man konnte weder die Spuren vom Schälen der Baumrinden, noch von der Verzapfung der Konstruktion beobachten. Die Rundholzstämme wurden scheiterhaufenartig übereinander gelegt, und die dadurch entstandenen unregelmäßigen Fächer abwechselnder Größe wurden mit Erde ausgefüllt und die Erde wurde gestampft. Die ursprüngliche Breite des Erdwalls konnte 23 m, die Höhe 9 m betragen, im Gegensatz zu der heutigen Höhe von 5 Meter. Oben auf dem Wall – in dessen Mittellinie gebaut – wurde auch ein sehr beschädigter Steinmauerrest freigelegt.

Die zum Vorschein gekommenen Funde belegen, dass die Burg von Abaújvár in ihrer ersten Form in der ersten Hälfte des 11. Jahrhunderts errichtet wurde. Die Erdwallanlage wurde Ende des 12. Jahrhunderts umgebaut. Es kam kein derartiger Fund zum Vorschein, der bei der Datierung der Errichtung der Steinmauer helfen könnte, trotzdem nahm man an, dass sie um die Mitte des 13. Jahrhunderts errichtet wurde. Die Holzkonstruktion der Wallanlage vertritt einen Übergang von Rostkonstruktion zur Blockbaukonstruktion.

Die Burg von Abaújvár gehört zu jenen wenigen Gespanschaftsburgen, in denen auch im Innenbereich der Burg archäologische Freilegung durchgeführt wurde. Hier kam eine große Kirche zum Vorschein, die gewiss die erste Kirche des Komitats Abaúj, die Dechantkirche gewesen sein sollte, die das kirchliche Leben des Komitats leitete. Die Kirche könnte in ihrer ersten Form am Ende des 11. Jahrhunderts erbaut worden sein, sie wurde dann Mitte des 13. Jahrhunderts umgebaut. Im Umfeld der Kirche legte man einen Friedhofsteil mit mehreren hundert Gräbern frei. Auf Grund der aus den Gräbern zum Vorschein gekommenen Funde wurde der Friedhof vom 11. bis zum 14. Jahrhundert belegt. Die Gräber des Friedhofs schnitten in mehreren Fällen die Bauobjekte einer früheren Siedlung durch. Die Reste dieser Siedlung waren im ganzen Territorium der Burg zu beobachten. Einige davon wurden freigelegt. Außerdem zeigten die in der Burg durchgeführten geophysikalischen Messungen und die vom Burggebiet gemachten Luftaufnahmen weitere Bauobjekte aus Stein und Ziegel an. Diese letzteren wurden bis jetzt noch nicht freigelegt. Wie die freigelegten Bauobjekte belegen, entstand diese Siedlung schon Mitte des 11. Jahrhunderts, und sie existierte ganz bis zum Anfang des 15. Jahrhunderts (Gádor, Nováki 1976a: 37–47; 1976b: 425–434; 1980: 43–76; Gádor 1980: 443–450).

Die Burg von Gömör liegt außerhalb der heutigen Staatsgrenzen Ungarns. Sie befindet sich am Ufer des Flusses Sajó, auf einem relativ großen Hügel mit einer Höhe von 45 Meter. Die ältere Forschung zählte sie zu den frühesten Burgen Ungarns, und hielt sie für den Sitz eines Grenzkomitates, welches von Stephan dem Heiligen gegründet worden war. Die in der jüngsten Vergangenheit durchgeführte Erschließung der Burg brachte das folgende Ergebnis: Die Burg ist eigentlich eine Motte mit einer kleinen Grundfläche von 0,03 Hektar. Auf dem künstlich angelegten Erdhügel steht ein einziger Turm, der einem Hufeisen mit gerade gerichtetem Arm ähnelt, und dessen Bauzeit nicht genau belegt ist. Der Turm war ursprünglich wahrscheinlich mehrgeschossig, bei der Ausgrabung stieß man auch auf den runden Treppenaufgang. Seine innere Größe betrug 10 bis 15 Quadratmeter je Geschoss. Die Burg hatte keine früheren Teile, aus den Erdwallanlagen kamen keine Spuren von jener Holzkonstruktion zum Vorschein, die für unsere Burgen aus der Zeit der Staatswerdung typisch sind (Kristó 1988: 390; Kovács 1999: 488–489).

Das vermutete Zentrum des Komitates Heves, die Burg von Heves kam trotz mehrmaliger gründlicher Forschung nicht zum Vorschein. Das ist eigentlich kein Wunder. Die historischen Daten belegen ja eindeutig, dass es das Komitat Heves in der Arpadenzeit noch nicht gab, sein Gebiet gehörte zum Komitat Abaúj. Die Ausscheidung des Komitats Heves begann Mitte des 13. Jahrhunderts und dauerte fast ein Jahrhundert lang an. Und unseren bisherigen Kenntnissen nach wurden im 13. und 14. Jahrhundert keine – den frühen Komitatssitzen ähnlichen – Burgen erbaut. Über eine konkrete urkundliche Angabe, die auf die Burg hinweisen würde, verfügen wir nicht. Es ist also sehr wahrscheinlich, dass es eine Burg von Heves überhaupt nicht gab (Fodor 1991: 75–76; Bóna 1998: 52; Gömöri 2001: 31–56).

In ähnlich gutem Zustand ist auch die besonders sehenswürdige Burg von Szabolcs erhalten geblieben. Sie befindet sich im Theiß-Knie, hat eine Größe von 3,3 Hektar. Ihre dreieckförmigen Wallanlagen wurden über einer urzeitlichen Siedlung errichtet. Sie haben eine Außenhöhe von 17 bis 20, eine Innenhöhe von 6 bis 11 m. Die Wallanlagen wurden an zwei Seiten selbst durch den Fluss, an der östlichen Seite auch durch einen gegrabenen Graben verteidigt. Dieser Graben leitete das Wasser der Theiß von der nördlichen Ecke bis zum Südtor. Drei Burgtore wurden identifiziert. Vor dem Nordtor stieß man auch auf eine Strecke Kiesweg. Die Wallanlagen wurden mit einer Holzkonstruktion verstärkt, die aus miteinander verzapften 20 bis 35 cm dicken Bohlen bestand. Den archäologischen Ergebnissen nach wurde die Burg nach der ungarischen Landnahme im 10. Jahrhundert erbaut. Nach den Einfällen der Usen – Kumanen – Petschenegen in den Jahren 1085 und 1091 wurden die Schäden aufgehoben, die Burgmauern verstärkt. Im Innenbereich der Burg konnte man überall eine Kulturschicht aus der Arpadenzeit beobachten. Die Freilegungsmöglichkeiten waren leider begrenzt, man stieß daher auf keine Bauobjekte. Außerhalb der Burg befindet sich eine im 11. Jahrhundert errichtete, zu Ehren der Heiligen Jungfrau Maria eingeweihte, dreischiffige Dechantkirche mit halbkreisförmiger Apsis (Németh 1973; 1981: 52; 1983).

Eine der attraktivsten Burgen im Nordosten Ungarns in gutem Erhaltungszustand ist die Zempléner Burg. Sie liegt am Fluss Bodrog außerhalb der heutigen Staatsgrenzen Ungarns. Die Erdwallanlagen der Burg wurden auf Ruinen eines früheren keltischen Oppidum errichtet. Mit ihrem 3,6 Hektar großen Innenbereich gehört sie zu unseren Burgen von großer Grundfläche. Die Breite der aus der Staatsgründungszeit stammenden Wallanlage betrug etwa 11 Meter. Diese wurde in einer späteren Wallbauperiode erhöht und verbreitert. Der Wall liegt heute 10 Meter höher, als der Boden des Burginneren. Im Innenbereich der Burg kamen bis jetzt nur keltische Bauobjekte zum Vorschein. Bis vor kurzem hier ebenfalls im Burginneren kam das Fundament einer großen Kirche mit bogenförmiger Apsis zum Vorschein (Benadik 1966: 1–16; Čaplovič 1985: 75–77; Tajkov 2015: 211–212).

Neben der Forschung der Gespanschaftsburgen wurden in zwei weiteren Burgen archäologische Freilegungen durch-

geführt. Die Forschung zählte diese Burgen auf Grund ihrer Wallkonstruktion und Bauzeit zu den Gespanschaftsburgen, obwohl unseren heutigen Kenntnissen nach weder die Burg von (Gyöngyös)pata (Kovács 1974: 235–243), noch die Burg Örsúr in Sály (Gádor 1985) die Funktion eines Komitatssitzes gehabt hatte. Wahrscheinlich sie von Edelleuten errichtet wurden (Nováki, Sándorfi 1984: 167–179; Feld 2010: 498).

Die Burg von Borsod liegt im Nordosten Ungarns, etwa 30 km nördlich von Miskolc, am Ufer des Flusses Bódva. Am Fuß des Burghügels führte einer der urgeschichtliche, besonders wichtigen Nord-Süd verlaufenden Wege des Karpatenbekkens vorbei. Ausgrabungen, die die Freilegung der Wallanlagen und des Innenbereiches der Burg erzielten, wurden in den Jahren zwischen 1987 und 1999 durchgeführt (Wolf 1992: 393–442; 1996a: 209–240; 1996b: 179–198). In Borsod befanden sich die Häuser und andere Bauobjekte der Vorgängersiedlung der Gespanschaftsburg auf der Nordseite des heutigen Burghügels. Es gelang uns 17 Häuser, beziehungsweise Hausteile im Dorf freizulegen. Das Dorf brannte ab, die Häuser der Siedlung wurden durch eine Feuersbrunst zur gleichen Zeit zerstört. Wir stießen im Dorf von Borsod auf zwei Haustypen. Die Häuser beider Typen waren ebenerdige Bauten. Sie bestanden aus je einem Raum. Die Mehrzahl der Häuser wurde wahrscheinlich aus Holz, auf einem Steinfundament errichtet. Aber man konnte neben diesen Bauobjekten auch Blockbauhäuser beobachten. Außerdem ist auch relativ großes Steingebäude zum Vorschein gekommen. Auch die kleinen Öfen der Häuser wurden aus Stein gebaut. In zwei Fällen haben wir Funkenfänger gefunden, die zum Ofen gehörten. Sie dienten zum Rauchabzug der Holzbauten. In zwei weiteren Fällen konnte man beobachten, dass die Häuser auch Dachboden gehabt hatten (Wolf 2001b) (Abb. 2).

Abb. 2 Ein Haus von Dorf Borsod aus dem 10. Jahrhundert (Foto von: M. Wolf)

Abb. 3 Borsod – Keramikgefäße aus dem 10. Jahrhundert (Foto von: M. Wolf)

In größter Anzahl haben wir Keramikgegenstände gefunden (Abb. 3). Hier muss das im heimischen Fundmaterial einmalige, große Vorratsgefäß, das Pithos hervorgehoben werden. Die nächsten Parallelen dieses Gefäßtyps findet man in der Töpferkunst der Saltovo-Kultur. Die am Hals mit einer waagerechten Leiste gegliederten Gefäße bilden eine eigene Gruppe unter den Gefäßen aus Borsod. Auf Grund unseres heutigen Wissens kann man diesen Gefäßtyp mit der Ansiedlung der landnehmenden Ungarn in Verbindung bringen. Unter den Keramiktypen von Borsod haben wir keinen Tonkessel, beziehungsweise keine Bruchstücke von Tonkesseln gefunden (Wolf 2013). Wir haben in den Häusern zwei Pflugscharen, zwei kurze Sensen (Abb. 4a–b), einen Spatenschuh, eine Sichel, Schafschere, Mühlsteine, sowie eine Viehglocke gefunden.

Überall im Dorf kamen verkohlte Getreidekörner zum Vorschein. Es gelang uns insgesamt 9 Kilo reines Kornmaterial zu analysieren. Die Analyse sonderte 120 Pflanzenarten voneinander ab. Aus den Getreideunkräutern kann man auf große Ackerländer, auf Herbst- und Frühlingssaat schließen. Die aus der natürlichen Pflanzendecke stammenden Samen weisen auf Rodeäcker hin. Unter den Getreidesorten kamen der gemeine Weizen und der Roggen am häufigsten vor. Was die Gartenpflanzen betrifft, gelangte eine besonders große Menge von Erbsen und Linsen ans Tageslicht. Wir haben auch Zwiebel-, schwarze Senf-, sowie Petersilienkörner gefunden. Auch Hirse und welscher Fennich kamen in großer Menge zum Vorschein. Die Bewohner des Dorfes Borsod bauten also vielerlei Pflanzen an, was eine sesshafte Lebensweise voraussetzte. Das beweisen auch die ausgegrabenen Tierknochenfunde. Die Rinderknochen kommen in größter Anzahl unter den Funden vor. Es gab viel weniger Schweineknochen, noch weniger Schaf- und Pferdeknochen. Wir haben Lebensmittelreste auch in mehreren abgebrannten Häusern gefunden. Das eine Gericht kann auf Grund seiner Zutaten (wie Fleisch, Fett, Suppenkräuter, Zwiebel und Mehl) auch „Urgulaschsuppe" genannt werden (Wolf 2010).

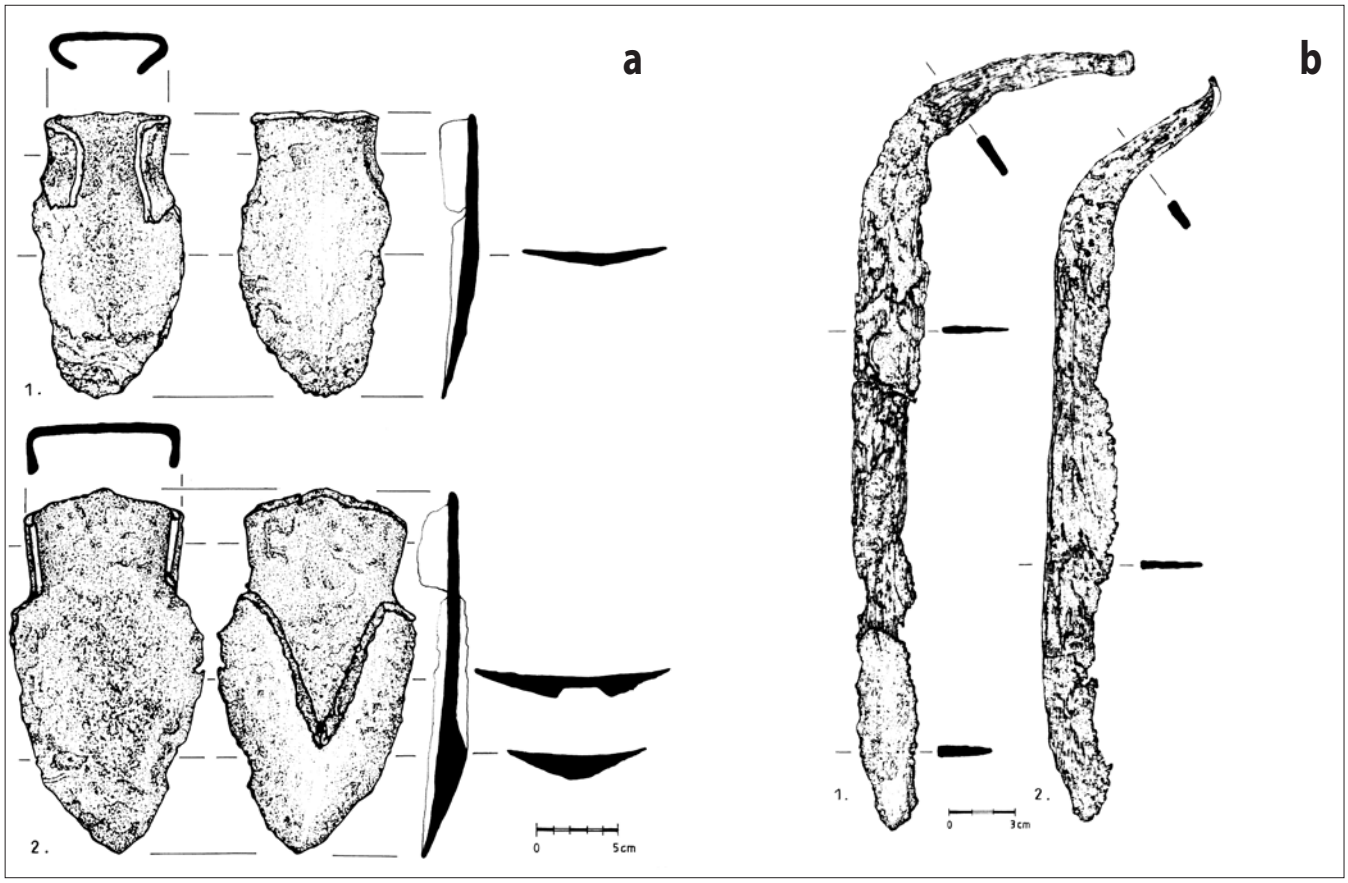

Abb. 4a–b Borsod - Phlugschar und die kurze Sensen (Zeichnung von: Adrásné Sárfrány, Museum Herman Otto, Miskolc)

Außerdem kamen in den abgebrannten Häusern, beziehungsweise im Dorfgelände einige einfache Schmuckstücke, Armreife, Fingerringe, sowie mehrere offene Haarringe mit S-förmigem Ende, und kleine birnenförmige Schläfenringe zerstreut zum Vorschein. In einem Haus gelangten auch zwei halbfertige Trensestangen ans Tageslicht (Abb. 5). Die eine Trensestange aus Geweih wurde auf der leicht gewölbten, geschliffenen Fläche mit einem – aus zwei Palmettenbündeln bestehenden – gravierten Muster verziert (Wolf 2016: 616–617, Abb. 3). Unter den Funden können wir die Schmuckstücke am genauesten datieren. Diese weisen auf die zweite Hälfte des 10. Jahrhunderts hin.

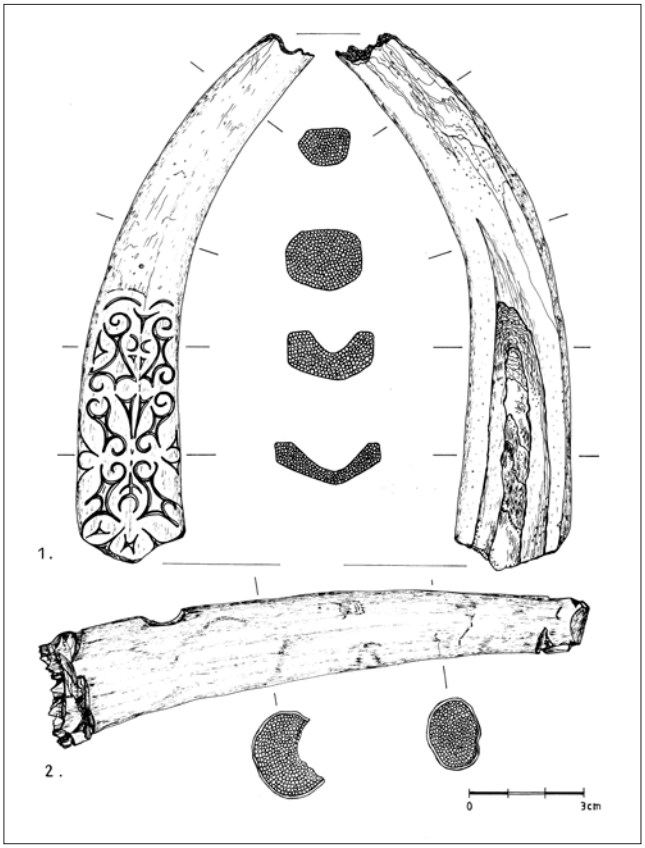

Abb. 5 Borsod – die Trensestange aus Geweih (Zeichnung von: A. Sárfrány)

Auf Grund der oben gesagten sind wir der Meinung, dass die Siedlung von Borsod im letzten Viertel des 10. Jahrhunderts, höchstwahrscheinlich in den Jahren 970 bis 980 zerstört wurde. Auch die Ergebnisse der C14-Analyse untermauern diese Datierung. Die ethnische Zugehörigkeit der Dorfbewohner unterliegt auf Grund der mit Palmettenmotiv verzierten, aus Bein geschnitzten Gebissstange aus dem Haus 7 keinem Zweifel. In Borsod kamen die zwei halbfertigen Trensestangen aus einem Haus zum Vorschein, wo auch Getreide, Pflugscharen, eine kurze Sense, Viehglocke, Dechsel, und auch Gefäße freigelegt wurden. Das heißt, dass dieses Haus von den anderen Häusern des Dorfes in keiner

Hinsicht abweicht, und daher kann sein ehemaliger Bewohner vermutlich ein einfaches, Ackerbau betreibendes Mitglied der Gemeinschaft gewesen sein.

Es steht uns keine Angabe für die Datierung der Entstehung des Dorfes zur Verfügung. Aber die vorhandene Siedlungsstruktur, und die Wirtschaftsweise machen es wahrscheinlich, dass eine Gruppe des Ungartums schon einige Jahrzehnte vor der Zerstörung des Dorfes in dieser Gegend ansässig wurde.

Zusammenfassend können wir feststellen, dass die Bewohner des ungarischen Dorfes von Borsod im 10. Jahrhundert eine sesshafte, Ackerbau betreibende Lebensweise führten. Sie verfügten über große landwirtschaftliche Erfahrungen, ihr Hauptnahrungsquelle war der rodende Ackerbau. In welchem Maße diese Lebens- und Wirtschaftsweise für das damalige Ungartum typisch gewesen sein konnte, kann man mangels Angaben einstweilen nicht entscheiden. Aber eins steht fest: Die hier zum Vorschein gekommenen landwirtschaftlichen Gerät- und Kornfunde schließen aus, das ganze landnehmende Ungartum für nomadisch halten zu dürfen (Wolf 2010: 489).

Man kann mit großer Wahrscheinlichkeit behaupten, dass die dörfliche Siedlung von Borsod der Sitz eines ungarischen Vornehmens aus dem 10. Jahrhundert war. Aber während der Forschung der Siedlung stellte sich heraus, dass die Theorie des berühmten Historikers György Györffy im Falle von Borsod nicht belegt werden kann. Wie schon erwähnt – vertrat Györffy die Meinung, dass mehrere Gespanschaftsburgen als Siedlungssitze je eines vornehmen Sippenoberhauptes schon im 10. Jahrhundert erbaut worden waren. Zweifellos war Borsod im 10. Jahrhundert besiedelt, aber es gab dort keine Burg, sondern eine ebenerdige Siedlung. Zweifellos hatte also die im 11. Jahrhundert erbaute Gespanschaftsburg von Borsod eine Vorgängersiedlung – ein Zentrum aus dem 10. Jahrhundert. Aber nur die Lage von beiden ist identisch, sonst hatten sie miteinander nichts zu tun, man hat keinen Zusammenhang gefunden. Zwischen der Zerstörung des Dorfes und der Errichtung der Gespanschaftsburg gab es kein kontinuierliches Leben, es konnte eine ziemlich lange Zeit vergangen sein.

Abb. 6 Die Burg von Borsod (Foto von: M. Wolf)

Der in Nord-Süd-Richtung gelegene ovale Burghügel liegt direkt am Ufer des Flusses Bódva, erhebt sich etwa 15 Meter über dem Flussspiegel. Alle Seiten des Hügels sind steil, der ganze Hügel fällt nach Süden leicht ab. Die Wallanlagen sind an der Ostseite am unversehrtesten erhalten geblieben. Sie ragen 3 bis 5 Meter über das heutige Bodenniveau des Burginneren (Abb. 6).

Wir untersuchten die Wallanlage an fünf Stellen. An zwei Stellen haben wir die ganze Wallanlage durchgeschnitten, einmal am Ostwall (Abb. 7), der am unversehrtesten erhalten geblieben ist, und dann ihm gegenüber am Westwall, der stark gestört war. Einmal machten wir einen mit der Wallrichtung parallelen Schnitt in der Wallanlage (Profil 49), ein andermal stellten wir die Spurlinie der Wallanlage fest (Profil 51), in einem weiteren Profil (Profil 43) kontrollierten wir die Konstruktion. Bei den beiden systematischen Walldurchschnitten stellte sich heraus, dass die Breite der Wallanlage im

Abb. 7 Profil des östlichen Schanzenabschnittes (Foto von: M. Wolf)

Durchschnitt 10,5 Meter betrug, manchmal aber auch 13 Meter erreichte. In den Wallanlagen stießen wir auf zwei Holzkonstruktionen. In den oberen Schichten stießen wir auf die in der ungarischen Burgbaukunst wohlbekannte Blockbaukonstruktion. Die einzelnen Blöcke waren im Allgemeinen 3,7 x 0,80 m groß. Die gleich gerichteten Bohlen hatten keine direkten Berührungspunkte, eine Erdschicht von 10–25 cm dicke befand sich zwischen ihnen. Die im Durchschnitt 20 cm dicken Bohlen wurden quadratisch behauen und miteinander verzapft (Abb. 8).

Bei den östlichen und westlichen Wallschnitten zeigte sich unter der Blockbaukonstruktion eine ganz andere Holzkonstruktion, die eine Abweichung von 25 bis 40 Grad im Vergleich zur obigen aufwies. Hier wurden viel kleinere Rundbohlen vom 4 bis 8, und 6 bis 12 cm Durchmesser dicht nebeneinander gelegt und dadurch eine Rostkonstruktion zustande gebracht. Diese Konstruktion wurde an der Außenseite der Wallanlage in zwei Reihen von abgeschlagenen Stäben gestützt. Die einzelnen Schichten schlossen sich einander direkt an, nur selten konnte man eine Erdschicht mit einer Dicken von 10 bis 20 cm beobachten. Die Holzreste fielen in Nord-Nordost-Richtung stark ab. Unter dem Wall stießen wir auch auf einige Bauobjekte der Siedlung aus dem 10. Jahrhundert (Nováki 1993). In den weiteren Wallschnitten stieß man unter der Blockbaukonstruktion auf keine dichte Rostkonstruktion. Aber an einer Stelle (Profil 49) kann man ganz gut beobachten, wie die Wallanlage auf zwei Häuser der Siedlung aus dem 10. Jahrhundert gebaut wurde. Zwischen den Häusern und der Wallanlage bildete sich eine 30–70 cm dicke Aufschüttung.

Bei den beiden vollkommenen Wallschnitten konnte man zwei Bauperioden beobachten. In der ersten Periode wurde eine dichte Gitterkonstruktion angefertigt. Diese Konstruktion ist bei den bisher freigelegten frühen ungarischen Burgen unbekannt. Die Freilegung des Innenbereiches der Burg, beziehungsweise die rauminformatische Analyse der Ergebnisse der bodenschichtkundlichen Bohrungen erläuterten die Funktion der Rostkonstruktion. Es stellte sich heraus, dass beide Gräben, die den Hügel durchqueren, und die wir schon bei der Freilegung der Siedlung aus dem 10. Jahrhundert beobachtet hatten, keine künstlichen, sondern natürliche Gebilde sind. Der Burghügel sieht heute ganz einheitlich aus, es waren aber früher zwei kleinere Erhöhungen da. Zwischen dem südlichen und der nördlichen Hügel befanden sich zwei Gräben und ein Plateau, so waren sie voneinander getrennt. Diese wurden zusammengebaut und dadurch wurde die Burg von Borsod errichtet. 100 m südwestlich von diesen Hügeln befindet sich ein dritter Hügel, auf dem jetzt eine Barockkirche gebaut wurde. Dieser Hügel gehörte nie zur Burg.

Abb. 8 Holzkonstruktion im Wall (Foto von: M. Wolf)

Den Burgbau musste man mit der Aufschüttung beider 3-3,5 Meter tiefer Gräben beginnen, die die Hügel voneinander getrennt hatten. Die Einsenkung der Aufschüttung konnte im Innenbereich der Burg weniger, bei den Wallanlagen viel mehr Schwierigkeiten bereitet haben.. Wahrscheinlich wurde es deshalb notwendig, über die Erdschüttung auch eine dichte, gitterartige Holzstruktur zu errichten. Ich bin also der Meinung, dass die Rostkonstruktion in Borsod die Fundamentierung

zur Blockbaukonstruktion gewesen sein konnte. Die Fundamentierung war vermutlich dort nötig, wo die zwei Hügel zusammengebaut wurden. Das Ziel war offensichtlich, die eventuelle Versenkung der Wallanlage bei den Vertiefungen zwischen den Hügeln zu verhindern (Wolf 2001a: 188).

Die Wallschnitte konnten eindeutig belegen, dass im Gegensatz zu früheren Annahmen die Burg von Borsod keinen urgeschichtlichen und slawischen Vorgänger gehabt hatte. Die Wallanlage wurde auf den Ruinen des Dorfes aus dem 10. Jahrhundert errichtet. Man kann ihre Zerstörung auf Grund der datierenden Funde und der C14-Daten in das letzte Viertel des 10. Jahrhunderts, in die 970-80er Jahre datieren. Diese Zeit heißt zugleich das *post quem* für den Burgbau, die Burg konnte erst danach erbaut worden sein. Für die Entstehung des 30 bis 70 cm dicken Bodens zwischen der Wallanlage und den Häusern war eine gewisse Zeit unbedingt nötig. Im Falle der Erdburg von Borsod kann bei der gegebenen Erde die minimale Bildungszeit 50 +/- 20 Jahre sein. Bezüglich der Bauzeit der Burg gibt es keine direkten Angaben. Indirekte Beweise zeigen aber mit großer Wahrscheinlichkeit, dass die Burg von Borsod in der ersten Hälfte des 11. Jahrhunderts, in den Jahren zwischen 1020–1050 errichtet wurde.

Im Innenbereich der Burg haben wir mehrere einfache Häuser, Öfen, Herdstellen gefunden. Außerdem kam auch ein Mörtelmauerrest zum Vorschein, das einst zu einem repräsentativen Steingebäude gehört hatte. Es war vermutlich das Haus des Gespanns. Etwa 100 Meter südlich von dieser Stelle entdeckten wir auf einer 8 x 10 Meter großen Fläche mehrere Schmiedeherde. Also hier befand sich wahrscheinlich die Schmiede.

Die Funde aus den Bauobjekten, beziehungsweise aus dem Burggelände können ins 11.–12. Jahrhundert datiert werden. Wir können feststellen, dass das Gebiet der Burg von Borsod von der zweiten Hälfte des 11. Jahrhunderts bis Mitte, beziehungsweise dem zweiten Drittel des 12. Jahrhunderts bewohnt war. Aber im Fundmaterial fehlen jene Gegenstandstypen, die für die zweite Hälfte der Arpadenzeit typisch waren. Wahrscheinlich befand sich also die Siedlung am Ende des 12. Jahrhunderts schon außerhalb der Burg.

Im Lichte der neueren Forschungen, darunter der Ausgrabung von Borsod erwies sich also die Vermutung nicht beständig, wonach die Gespanschaftsburgen Zufluchtsorte gewesen wären, und nur vorläufig, bei Kriegsereignissen bewohnt worden wären.

Ebenfalls im Burginneren kam das Fundament einer großen Kirche mit bogenförmiger Apsis zum Vorschein. Das ursprüngliche, in Mörtel gelegte unregelmäßige Fundament aus hartem Kalkstein blieb nur an wenigen Stellen erhalten. Breite und Tiefe des Fundamentgrabens waren ungleichmäßig. Die Länge der Kirche beträgt außen 18 m, innen 16 m. Die äußere Breite des Schiffes beträgt im Durchschnitt 10 Meter, während die innere Breite 8 m ausmachte. Die nahezu halbkreisförmige Apsis hat einen äußeren Radius von 2,9 m, und einen inneren von 2,2 m. Von Umbau, Erweiterung keine Spur. Wir haben keine Angaben über die Seitenwände der Kirche (Abb. 9, 10).

Abb. 9 Fundament der Dechantkirche im Burginneren (Foto von: M. Wolf)

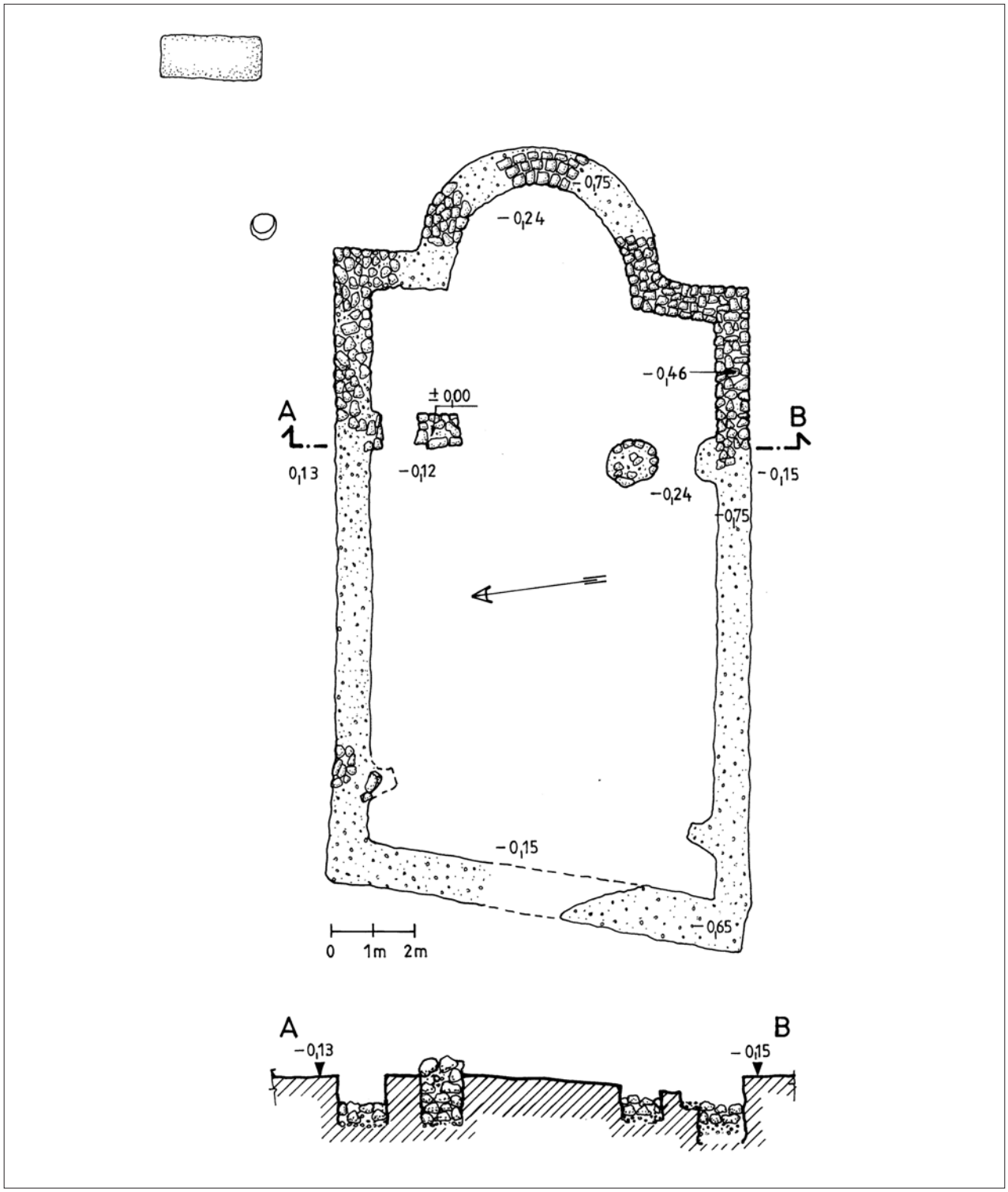

Abb. 10 Fundament der Dechantkirche im Burginneren (Zeichnung von: A. Sárfrány)

Am Fundamentgraben der nördlichen Seitenmauer der Kirche gelangten ein mit Kupferdraht tauschierter Steigbügel, sowie ein Silberdenar des Königs Salamon (1063–1074) ans Tageslicht. Die Münze, sowie der in die zweite Hälfte des 11. Jahrhunderts datierbare Steigbügel belegen, dass die Kirche schon zu dieser Zeit bestand.

Es scheint wahrscheinlich zu sein, dass die in der Burg von Borsod freigelegte Kirche der Sitz des Dekans gewesen sein konnte, der das kirchliche Leben des Komitats leitete.

Neben der Dechantkirche gelang es uns, auch eine andere Kirche freizulegen. Wir stießen auf die Reste der Kirche außerhalb des Burgwalls. Die Kirche liegt fast ganz unter einer Barockkirche, deshalb konnten wir nur einen kleinen Teil

davon freilegen. Schriftliche Quellen berichten über das Schicksal der Kirche. Ihr Schutzpatron war der Heilige Laurenz. Sie wurde vermutlich Ende des 16. Jahrhunderts zerstört, als infolge der Angriffe der Türken auch das Dorf sich entvölkerte.

Rund um die freigelegte Kirche erstreckt sich ein großes Gräberfeld, wo wir 77 Gräber ausgegraben haben. Die ganze Ausdehnung des Gräberfeldes konnten wir nicht feststellen. Nur eins kann für sicher gehalten werden: Das Gräberfeld wurde etwa sieben Jahrhunderte lang belegt. Die zum Vorschein gekommenen Funde Gräberfeldteiles können ohne Ausnahme in die Zeit zwischen dem 11. und dem 13. Jahrhundert datiert werden. Eines der ältesten Fundstücke ist eine Niello verzierte lyraförmige Bronzeschnalle aus dem Grab 67 (Abb. 11). Sie war auf Grund ihrer Parallelen in der zweiten Hälfte des 11. Jahrhunderts, Anfang des 12. Jahrhunderts im Gebrauch.

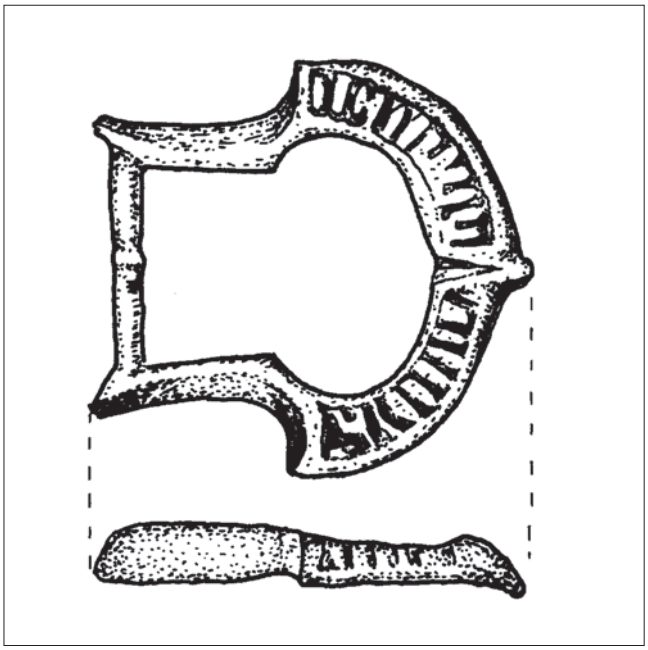

Abb. 11 Niello verzierte lyraförmige Bronzeschnalle aus dem Grab 67 (Zeichnung von: A. Sárfrány)

Im freigelegten Gräberfeldteil sammelten wir die Knochenüberreste von 101 Verstorbenen zusammen. Die Bevölkerung ist von eindeutig europidem Charakter, unterscheidet sich von den Bewohnern des Gebietes im 11.-13. Jahrhundert nicht. Eine Ausnahme bildet dabei der Mann im Grab 67, der mit der Niello verzierten lyraförmigen Bronzeschnalle zusammen bestattet worden war. Aus anthropologischem Gesichtspunkt gesehen weicht er von den anderen Männern besonders ab, wahrscheinlich war er fremden, östlichen Ursprungs. Bei der Untersuchung des Knochenmaterials beobachtete man mehrere Knochenbrüche, die am häufigsten während der Abwehr von Schlägen auf den Kopf entstehen konnten. Es ist also anzunehmen, dass die im Gräberfeld bestatteten Verstorbenen unter keinen friedlichen Umständen gelebt haben. Ihre Verletzungen weisen darauf hin, dass sie Krieger gewesen sein sollten.

Zweifellos gehörte also die Kirche außerhalb des Burgwalls von Borsod den Bewohnern der Burg, und in den bis jetzt freigelegten Gräbern um die Kirche wurden vermutlich sie und ihre Familienmitglieder bestattet. Auch diese Tatsache belegt jene Behauptung, wonach die örtliche Gemeinschaft gleichzeitig neben diesem Gräberfeld auch einen anderen Bestattungsort gehabt hat. Die hier zum Vorschein gekommenen Funde können auf Grund unserer heutigen Kenntnisse nicht früher als aufs Ende des 11. Jahrhunderts datiert werden. Und weil auch die ältesten Funde des Friedhofs rund um die Kirche aus dieser Zeit stammen, können wir nur daran denken, dass in Borsod beide Bestattungsstätten am Ende des 11. Jahrhunderts mindestens eine Zeitlang parallel belegt wurden.

Es ist sehr wahrscheinlich, dass in der Gespanschaftsburg von Borsod auch Volkselemente fremden Ursprungs, vermutlich Petschenegen gelebt haben. Neben unseren Bemerkungen zur lyrenförmigen Schnalle und zu ihrem Besitzer belegt ein weiteres Fundstück diese Behauptung. Das ist der Steigbügel, der bei der Dechantkirche aufgefunden wurde. Der Ursprung dieses Steigbügeltyps ist in Mittelasien zu suchen. Das erste Vorkommen dieses Steigbügeltyps im archäologischen Fundmaterial in Ungarn kann – die historischen Angaben in Betracht gezogen – gewiss mit der Ansiedlung der Petschenegen in Verbindung gebracht werden. Man schreibt diesen Steigbügeltyp den Petschenegen nicht nur auf Grund typologischer Überlegungen und der Datierung des Fundstückes zu, sondern auch deshalb, weil im Umfeld der Burg von Borsod unbedingt mit den Bevölkerungselementen der Petschenegen gerechnet werden muss. Ein weiterer Beweis dafür: In der Nähe der Burg, nördlich und südlich davon befinden sich auch heute noch Dörfer mit dem Namen „Besenyő" (Petschenege). Daher scheint es sehr wahrscheinlich zu sein, dass es unter den Leibeigenen der Burg von Borsod am Ende des 11. Jahrhunderts auch neu angesiedelte Petschenegenkrieger waren.

Man kann die in der Gespanschaftsburg von Borsod freigelegte Kirche, beziehungsweise die außerhalb ihrer Wallanlagen entdeckte Kirche für die zwei ältesten Kirchen des Komitats Borsod halten. Die zum Vorschein gekommenen Funde belegen eindeutig, dass am Ende des 11. Jahrhunderts schon beide standen sind und unterschiedliche Funktionen hatten (Wolf 2004: 139–159; 2005: 131–141).

Eine der wichtigsten Fragen der ungarischen Freilegungen war, wann unsere Burgen mit Holz-Erde-Konstruktion erbaut wurden, beziehungsweise ob es in Ungarn im 10. Jahrhundert eine Burgbaukunst überhaupt gab. Die letzte Frage

kann man auf Grund der bisherigen Ergebnisse eindeutig mit „nein" beantworten. Bezüglich der Burgbaukunst in Ungarn gibt es erst vom Anfang des 11. Jahrhunderts sichere Daten.

Eine wichtige Beobachtung der Wallschnitte – wonach die Wallanlagen zum Teil rot ausgebrannt waren – löste eine große Auseinandersetzung aus. Ein Teil der Forscher meinte nämlich, dass die Wallanlagen zwecks Verstärkung der Konstruktion mit Absicht in Brand gesteckt wurden. Die bisherigen Ausgrabungen belegten diese Hypothese nicht. Die Wallanlagen konnten auf „natürlichem" Wege, das heißt während einer Belagerung, oder einer zufälligen Feuersbrunst gebrannt werden. Darauf weist auch die Tatsache hin, dass keine Wallanlage vollkommen durchgebrannt ist. Die Wallanlagen konnten nur dann in Brand gesteckt werden, wenn ihre Holzkonstruktion mit Erde noch nicht bedeckt war. Wir können uns also die Gespanschaftsburgen nicht als mit Holzkonstruktion befestigte Erdwallanlagen vorstellen, sondern umgekehrt, als Burgen mit Holzkonstruktion, die bis einer bestimmten Höhe mit Erde aufgeschüttet waren (Wolf 2001a: 190–192).

Nicht nur bei der Burg von Borsod, sondern auch bei mehreren anderen Gespanschaftsburgen bewährte sich die Vermutung, dass sie bewohnt waren. In den Burgen befanden sich neben den einfachen Häusern auch repräsentative Gebäude. Die zum Vorschein gekommenen Fundstücke belegen, dass Mitglieder verschiedenen Standes und Ranges der damaligen Gesellschaft an diesen Orten lebten, beziehungsweise auch Kaufleute vorbeikamen. Auf Grund der bisher freigelegten Bauobjekte kann man schon mit großer Wahrscheinlichkeit behaupten, dass die Gespanschaftsburgen nicht einfach bewohnt, sondern auch bedeutende Zentren der Epoche waren. Es ist allbekannt, dass das ungarische Wort „város" (Stadt) aus dem Wort „vár" (Burg) stammt. Also mit Recht können wir das sagen, dass die Gespanschaftsburgen unsere älteste Städte gewesen waren (Györffy 1977: 229; Fügedi 1981: 315–322; Németh 1985: 109; Kristó 1999: 153–157; Wolf 2011: 323–326).

Die Forschung vertrat lange Zeit die Meinung, die Gespanschaftsburgen hätten nach den Tatareneinfällen (1241–1242) ihre Bedeutung verloren, und gerade der Tatarensturm habe ihren unmodernen Charakter bewiesen. Aber unsere schriftlichen Quellen belegen, dass die Hauptzentren des Widerstandes gegen die Tataren meistens gerade die Gespanschaftsburgen waren. Wahrscheinlich verloren unsere ältesten Komitatssitze ihre Bedeutung nicht deshalb, weil sie in strategischer Hinsicht unmodern waren. Burgen mit ähnlicher Konstruktion wurden nämlich auch noch im Laufe des 18. Jahrhunderts errichtet. Zu ihrem Verfall trugen die gesellschaftlichen und wirtschaftlichen Prozesse der Epoche bei (Wolf 2001a: 195; 2011: 328; Szende 2013: 134–136.)

Zusammenfassend können wir feststellen, dass die frühesten ungarischen Burgen in der ersten Hälfte des 11. Jahrhunderts durch den König errichtet wurden. Sie waren die Komitatzentren des Ungarns der Árpádenzeit. In dieser Zeit war bei uns, wie auch in anderen Gebieten Europas die Erd-Holzkonstruktion charakteristisch.

Außer solchen Burgen wurden zumindest von der zweiten Hälfte des 12. Jahrhunderts an auch Burgen mit anderer Struktur und Funktion gebaut. Unter diesen waren auch Steinburgen, die von Edelleuten errichtet wurden. So existierten zur Zeit des Mongoleneinfalls mindestens zwei Burgentypen, die seit ca. einhundert Jahren nebeneinander genutzt wurden. Daran gibt es keinen Zweifel, da die beiden nicht dieselbe Funktion hatten.

Es ist jedoch eine Tatsache, dass ab der zweiten Hälfte des 13. Jahrhunderts in Ungarn nur Steinburgen gebaut wurden.

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KREŠIMIR REGAN

The Fortifications of Knin

Due to its exceptional geostrategic position on the right bank of the river Krka in northern Dalmatia, on the crossroads between continental Croatia and the Adriatic coast, the area of present-day Knin was, through the centuries, fortified with numerous defensive complexes and structures. The first one was built in prehistory on the northern side of the hill Spas, which rises steeply above the present-day settlement, while the last one was erected by the Italian occupying forces during World War II on the archaeological site Kapitul near Knin. Although some of the fortifications of Knin were individually presented in earlier research, especially the famous Baroque fortress, in this report we want to present them chronologically, describe them and point out their different manifestations and changes in the organization of defensive structures and systems through time, with a comment on the sources of those changes, as well as point out their influence on the urban formation of Knin.

Key words: Knin, Dalmatia, Croatia, fortifications, defensive complexes

1. INTRODUCTION

Because of its political, governing, administrative and geostrategic position throughout the Middle Ages, Knin permanently occupies the interest of Croatian historians, archaeologists and art historians, while after the Croatian War of Independence it became the symbol of Croatian sovereignty and victory over Serbian aggression. Despite the fact that the reconstruction during Baroque partly undid the results of previous construction phases, almost nowhere else in Croatia is the development of defensive structures and complexes throughout history as visible as it is in Knin. Due to that lucky circumstance, a partial reconstruction of the historical development of the fortification construction of the wider area of Knin can be performed.

2. THE HISTORY OF KNIN

Knin was inhabited even during the Eneolithic and its first fortress was built during the Iron Age. It was first mentioned in the 1st century BC in the work of the Greek geographer Strabon under the name Ninia (Zaninović 1990: 34) and was destroyed during the Roman-Delmatae War from 35 BC to 33 BC. Life upon its ruins was not rebuilt until the first half of the 6th century when the Byzantine authorities built a new fortress for the protection of the crossing over the river Krka (Zaninović 1968: 119–129; Jelovina 1989: 125; Martinčić 2006: 140–141).

The Byzantine fortress did not last long because it was destroyed during the Slavic-Avar movement at the end of the 6th or the beginning of the 7th century. At the latest at the end of the 8th century or the beginning of the 9th century, Knin became permanently inhabited by Croats who, upon the ruins of the Byzantine fort, raised a new settlement and built a cemetery as well as a Medieval castle. It was first documented around the year 950 in the work of the Byzantine emperor Constantine VII Porphyrogenitus as the established centre of the Croatian county of the same name and it remained so throughout the entire Middle Ages (Porfirogenet 1994: 82, 86; Antoljak 1993: 54–56). For Dmitar Zvonimir (1075–1089) and Petar (around 1093–1097) it was the royal residence, and before falling under the Ottoman rule in 1522 it was the he-

adquarters of Croatian dukes and governors with a discontinuance from the end of the 13th century until 1344 when it was the property of magnate families of Bribir (the end of the 13th century –1322) and Nelipić (1322–1345) (Klaić 1898; Smičiklas 1913: 205–209, 249–252; Gortan et al. 2008: 120–122; Karbić 2008: 129–144; Regan 2014: 472).

During the war fought over the throne of the Croatian-Hungarian Kingdom (1382–1409), the sovereignty over Knin was often changed and it fell under the regal authority again in 1413 when it was conquered by the supporters of the Croatian-Hungarian king Sigismund of Luxemburg (Šišić 1902: 139–141, 226– 227; Lovrenović 2006: 96–97). Knin remained under the rule of Sigismund until 1426 when he pledged it and later in 1431 sold it to Nikola IV Frankopan (Klaić 1901: 213–214, 218). Knin remained in the hands of the Frankopan family until 1437 when it was taken over in the name of the king by the new Croatian-Dalmatian governor Matko Talovac (Klaić 1901: 207, 225–226).

Although the Ottoman army besieged Knin in 1513 and 1514, it did not fall under its rule until the third attempt on May 29th 1522 (Šabanović 1959: 56; Klaić 1928: 257–262; Jurin Starčević 2007: 649). During the Ottoman rule, Knin was the centre of the eponymous *nahiye* as part of the *vilayet Hrvati* and *kadiluk Skradin* and later in 1537 it was annexed to the *Sanjak of Klis*. Between 1574 and 1580 it became a part of the *sanjak of Krka and Lika* and it remained so until it fell under the Venetian rule in 1688 (Šabanović 1959: 176; Jurin Starčević 2007: 650). In addition, it was the centre of the *kadiluk Krka* (Šabanović 1959: 74–77, 209, 226) and no later than 1662 it became the centre of the military district (Kreševljaković 1953: 118–119).

Although the Ottomans, under the command of Leonardo Foscolo, the Providur General of Dalmatia and Albania, without any resistance took over Knin on February 27th 1648, in June of the same year they had to leave it. At the same time they tore down the walls of Knin and its cannons were thrown into the river Krka. After the Ottomans took over Knin once more, they started to rebuild the fortress (Paić 1998: 45). The rebuilding was successfully finished before 1654 when the new Venetian attempt to take over Knin failed miserably because the defence forces of the newly rebuilt fortress were underestimated (Fisković 1955: 198). Not until 1688 did the Venetians finally succeeded to take over Knin (Fisković 1955: 119). Due to the fact that Knin was situated next to the new Venetian-Ottoman border, the Venetians commenced a thorough reconstruction of the Medieval Ottoman fortress which resulted in its conversion into a modern Baroque fortress.

After the fall of the Venetian Republic in 1797, the fort of Knin was first taken over by the Hapsburg Monarchy, then by the French (1806–1813) and eventually once more by the Hapsburg forces which used it as an army barracks until 1889. Because of high maintenance costs, in 1894 the Hapsburg authorities decided to sell the fort at a public auction. Franciscan Lujo Marun then bought it for 8600 krone coins in the name of Knin's Antiquarian Society and thus prevented its destruction (Paić 1998: 79).

The fort remained in the possession of the Society until World War II when it was first occupied by the Italian army (1941–1943) and later by the German forces (1943–1944). Then the fort of Knin was once more converted into an army barracks with a prison and several anti-aircraft artillery batteries which is why it was heavily bombarded on several occasions. During the 1960s the fort once more went under construction and in 1969 the County Museum of Kninska Krajina (today's Museum of Knin) was opened in the fort.

The fort remained a museum until the War of Independence (1991–1995) when it was converted into the prison of the self-proclaimed parastate, the Republic of Serbian Krajina and a military training ground. It remained so until August 5th 1995 when it was taken over by members of the Croatian Army. Today it is again a museum.

3. THE FORTRESSES OF KNIN THROUGHOUT HISTORY

Present-day Knin is best known for its great Baroque fort rising on the steep rocky hill above the centre of the town and the river Krka (Fig. 1). Since the fort is situated on a location from which it was easy to oversee and protect the crossing (shallow water) over the river Krka as well as the ancient communication between northern and middle parts of Dalmatia, north-eastern Croatia and western Bosnia through Knin, it is no surprise that the favourable traffic, strategic and easily defendable position of Knin was recognized even in prehistoric times.

PREHISTORIC FORTIFIED SETTLEMENT

The remains of a prehistoric fortified settlement lie on the northern side of the hill Spas, on a triangular plateau the tip of which faces the fort of Knin, while the steep slopes on the remaining three sides separate it from the valley of the river Krka, its tributaries and Knin's adjacent hills. The plateau is 300 metres long, spreading from the northern edge to the fort of Knin in the south. From the western edge to the base of the torn down partisan monument on the eastern edge it is approximately 180 metres wide (Jelovina 1989: 121; Zaninović 1990: 33–34; Živković 1993: 96). It is estimated that the overall length of its walls was approximately 1000 metres (Živković 1993: 96). Given that the research of Lujo Marun, Werner Battler and Pavao Pauš in 1932 as well as the research of Dušan Jelovina and his associates from 1977 to 1982 did not reveal the entire defensive system of that settlement, based on the terrain configuration and existing remains, it can be assumed that

Fig. 1 Knin observing from the southwest (photo by: Z. Tanocki, 2010)

the defensive walls followed the edges of the plateau and enclosed the settlement in the shape of an irregular trapezium.

LATE ANTIQUE OR EARLY MEDIEVAL FORTRESS

During the exploration of the early Croatian necropolis on the northern half of the hill Spas from 1977 to 1982, the foundations of two late Antiqe objects partitioned off into a series of rooms joined at right angles were discovered (Jelovina 1989: 121–125). Although these archaeological finds alone do not prove the existence of a late Antique fortress, the exceptional geometric regularities of the high ground on which they are situated as well as their position along the southern and eastern edge of the high ground are reason enough to believe that a large fortification in the shape of a square with sides the length of 70 m was located here. According to Živković, this fortification was built at the place where the fortified centre of a prehistoric settlement could have been situated a few centuries ago (Živković 1993: 97).

MEDIEVAL FORTIFICATIONS OF KNIN

Medieval Knin was one of the most developed urban settlements in Croatia in which Croatian kings Zvonimir and Petar, Croatian governors and deputy governors as well as the bishop of Knin with the chapter established their administrative centres (Fig. 2). Therefore, it is not surprising that several separate fortified entities constituted the historical framework of Medieval Knin (Fig. 3).

The Castle of Knin

The castle of Knin was built at an unspecified time on the south side of the hill Spas at the place of present-day Upper Town of the fort of Knin and it was first documented during the middle of the 10th century (Porfirogenet 1994: 82) (Fig. 4). Although there are no visible structures at the location of the Upper Town which could clearly be attributed to the oldest developing phase of the castle of Knin, based on the features of the terrain, it is a typical representative of elongated

Fig. 2 The reconstruction of Knin at the end of the 15th century observing from the north (photo by: Simon Narath Bogojević, 2017)

Fig. 3 The illustration of Knin on the map of northern Dalmatia and Lika (Matteo Pagano, around 1522; Granice Hrvatske 1993: 89)

Fig. 4 The Upper Town of the fort of Knin (the castle of Knin) observing from the east (photo by: Z. Tanocki, 2010)

upland castles that were built in Romanesque style until the beginning of the 14th century (Horvat 2008: 27; Regan 2014: 489). The castle assumed its final form at the beginning of the 16th century. At that time it was one of the largest fortifications in Croatia. Conformed to the crag it sits on, the castle stretched from the north to the south 140 metres in length, while from the west to the east it was approximately 22 metres wide (Regan 2014: 477).

At first an interior wall divided the castle into a smaller and lower ward in the southern part and a bigger and higher ward in the middle and northern part of the fortress. Today in that place there is a Venetian complex as well as the castellan's or the fortress commander's residence from which the central part of the fortress can be accessed. On the western side, the walls of the castle were well protected by steep slopes, while the remaining three sides were secured by high towers.

Out of the three Medieval towers, only the eastern rectangular tower located at the junction of the middle and northern segment of the eastern wall still exists. On the eastern side, the former castle was protected by a lower outer wall that, until the building of Kalunerica, stretched in front of the northern wall of the castle. That wall was erected in the place of the Medieval palisade that was first documented in 1345 (Gortan et al. 2008: 120–122). Although it should not be excluded that this information refers to the defensive enclosure raised around the suburbium of Knin, based on the context in which it was mentioned, it is more likely that the palisade enclosed the former castle of Knin in the northern and eastern sides – the castle's only points of access. Besides the defensive facilities, the documents contain information on individual structures within the fortress itself. For instance, there is mention of a palatial building with a formal hall, a bathhouse and separate farm buildings (Regan 2014: 488).

The Castle of Lab

When the Croatian-Hungarian king Louis I the Great of Anjou had finally taken over Knin after severe struggles in 1345, he decided to build a new castle that would be the centre of the Croatian deputy governor at the opposite steep ridge, south of the castle of Knin (Fig. 5). That was the castle of Lab which was first documented in 1386 (Jakšić 1980–1981: 44; Ančić 1996: 62) and it has been often mentioned as the centre of the Croatian deputy governor since 1423 (Šišić 1924: 577). However, its origin could be traced to an even earlier time based on the mention of the castle of Knin in 1368 as being larger *(magno castro Tiniensi)* and older *(maioris castri Tinii)* (Katić 1932: 5–6). Based on that it can be concluded that at that time in Knin there was a younger and a smaller castle, possibly Lab. Assuming that the formulation 'smaller and younger

Fig. 5 The northern view of Bandjera, the former castle of Lab (photo by: Z. Tanocki, 2010)

castle' refers to Lab, it could be concluded that the building of this fortress in Knin was personally ordered by the Croatian-Hungarian king Louis I the Great between 1345 and 1368. The king left it under the command of the Croatian deputy governor who was also the prefect and the duke of Knin (Šišić 1924: 577–580; Jakšić 1990: 125).

During the Ottoman rule, there was no mention of Lab until the second half of the 17th century. After the Venetian army first occupied Knin in 1648, it had to retreat from it the same year. During the retreat, the fortress was heavily damaged. Consequently, the Ottomans were forced to commence a massive reconstruction during which an enormous artillery platform was erected at the place of the Medieval castle. The reconstruction was clearly visible in all the illustrations of the Venetian conquest of Knin from 1688. The platform retained that form only until the great Venetian reconstruction of the fort at the end of the 17th century and the beginning of the 18th century when it was given the formation seen today and it was named Korlat. More recently it is also called Bandjera, after the mast with a banner waving above the fort.

Today there are no preserved remains of Lab besides several walls dug into its ward that were explored in 1973 as part of renovating that section of the fortress under the management of Paško Paić. Although the results of that research have never been published, based on the configuration of the terrain on which the artillery platform is located as well as the photographs in research papers, it is confirmed that the walls of the castle of Lab were situated entirely within the perimeter of the artillery platform. Based on that, it can be concluded that the maximum length of the Medieval castle of Lab from the north to the south could not have been greater than 40 metres, while its width from the west to the east was 12 metres at most. As far as the appearance of Lab is concerned, it is roughly preserved in Pagano's illustration where it is portrayed as a smaller fortification consisting of towers in the north and in the south connected with walls which form a small ward in the middle of the fortress, most likely with a storage tank in it. The same as today, the main entrance to the fortress could have been located in the north-eastern corner of the fortress, next to the northern tower or on the eastern wall (Horvat 1998: 49–50).

The Castle of Gradac

The castle of Gradac is Knin's third Medieval fortress built on the western side of the southern half of the hill Spas at the top of the rocky diverging road that steeply rises above the right bank of the river Krka. It impedes the crossing to the suburbium of Knin and the bridge over the river (Fig. 6). So far no information about this fortress was found in any document. However, it has been included in all historical illustrations of Knin since the oldest illustration dating from 1522 (Smiljanić 1984–1985: 124; Živković 1993: 104). As it is the case with other forts in Knin, the name of this one changed throughout history as well. It is likely that it was originally called Gradac, while the Venetians called it Torreta, the Tower Gradac, the Tower above Krka and the Armored Tower of Water (Bezić 1980: 137–150; Živković 1993: 104; Paić 1998: 57). Giuseppe Juster's panoramic illustration of Knin from 1708 confirms the layout from Pagano's illustrations as well.

Although some researchers connect the origin of this fortress to the protection of the bridge over the river Krka and the access to the river itself in case the water tanks were emptied during long-term sieges (Smiljanić 1984–1985: 124; Živković 1993: 104), it seems the original purpose of Gradac was to obstruct the difficult, but not impossible, access to the suburbium of Knin on the right bank of the river Krka from the north. A testament to the importance of this fortress in the

Fig. 6 The southern view of the remains of the castle of Gradac (photo by: Z. Tanocki, 2010)

defence of Knin is the majority of Venetian panoramic illustrations and layouts in which this fortress was presented as a minor defensive complex above the river Krka at the base of the hill Spas, consisting of a tower and a fortified ward (Bezić 1980: 137–150; Paić 1998: 17, 42, 44, 45, 48, 49, 57, 79, 81).

Regardless of the reasons why it was built, it was a minor fortress which was 23 metres long and approximately 15 metres wide. It consisted of a quadrangular tower with a rectangular layout high on a cliff above a minor quadrangular ward of which only the foundation of the south and the north wall was preserved until today. Although it was documented that during the Venetian rule a wall connected this fortress and the main fort, such wall was never built, albeit that was planned as part of the reconstruction and expansion of Knin's fortifications. A testament to that was Alberghetti's plan for the reconstruction of the fortresses in Knin from 1688 (Bezić 1980: 137–150; Živković 1993: 104; Paić 1998: 57).[1]

The Suburbium

The following fortress of Knin was also its largest. It was the urban defensive system which enclosed the Medieval suburbium of Knin on a plain at the foot of the fortress. It was located at the intersection of several important routes, just before the bridge over the river Krka. That is where Knin's town square was formed *(forum)*. It was first mentioned in 1267 in the title of a public official in Knin *(buccarius fori tiniensis)* (Barada 1951: 42; Smiljanić 1984–1985, 125; Ančić 1996, 81).

There is no record of the exact time the suburbium was built; however, during past research it was frequently mentioned that in 1504 the common Croatian-Hungarian Parliament decided that 4000 forints would be provided for the fortification of Knin. One half of the sum was intended for the construction of defensive walls enclosing the suburbium and Kapitul in its vicinity, while the other half was to be spent on digging a large trench between rivers Krka and Butižnica (Jakšić 1996: 26; Paić 1998: 79). Nevertheless, based on the mention of the Latin Gate *(Portam Latinam)* in Knin in 1424, it seems the wall enclosing the suburbium was built even before that time, possibly during the first half of the 14th century (Smiljanić 1984–1985: 129–130; Jakšić 1990: 126; Ančić 1996: 92; Paić 1998: 78).[2]

Although it seems the information from 1424 and 1504 is contradictory, that need not be the case. Based on that, a unified interpretation can be constructed, namely that the walls enclosing the suburbium of Knin were built during the first quarter of the 15th century at the latest and then thoroughly reconstructed and additionally protected by digging a large lake functioning as a defensive trench at the beginning of the 16th century.[3]

1 Today there are only the remains of a small fragment of the defensive wall and they stretch 50 metres in length downhill from the Upper Town of the fort of Knin.

2 Smiljanić tried to place this gate at the location of the fort of Knin, between the castles of Knin and Lab, where the entrance to the fort is today; however, it could not have been there because the eastern wall of the middle and lower town was not built until the Ottomans constructed it after the first fall of Knin under the Venetian rule in 1648. Therefore, the only logical explanation is that the Latin Gate stood at the entrance to the fortified suburbium of Knin, which then confirms the theory that the suburbium of Knin was fortified before 1504 (Smiljanić 1984/85: 129–130).

3 The digging of the large lake had an important role in the defence of the town. Although it was originally supposed to stretch from the river Krka to the river Butižnica, it was only dug alongside the eastern frontline of the town. Although incomplete, the lake played an important role in strengthening the defence of the suburbium because it prevented direct enemy attacks on the eastern front of the town and it directed them exclusively towards the narrower, northern front of the town that was protected by the large castle of Knin on the west and the artificial lake on the north side.

Regardless of the fact that it is possible that the access roads to the suburbium of Knin were well-populated as well, Medieval builders fortified only the area on the bank of the river Krka and the stream Orašica just below the hill's diverging lanes where the castles of Knin and Lab were situated. The wall stretched from the castle of Knin and turned towards the south, enclosing the suburbium of Knin from the east and the south 650 metres in length. At some places the wall was 10 metres tall. At first it was probably built as a palisade which, during the 17th century, might have been replaced by the stone wall we see today. Today it stretches 100 metres in length from the castle of Knin towards the east, turning at a right angle and declining 160 metres in length towards the south.

The suburbium was entered through the Lower Gate at the river Krka (the Gate of Drniš, Molin's Gate), the Gate of Bosnia (Kornar's Gate) which was located not far from the point where the stream Orašnica flows into the river Krka and finally through the Upper Gate (the Gate of Skradin, Loredan's Gate) which is the only remaining gate today.[4] Some authors believe that the suburbium of Knin was also fortified by a palisade from the southern side (Živković 1993, 107–108; Jurin Starčević 2007: 651–653); however, based on various illustrations of Venetian sieges of the Ottoman Knin from 1688 as well as older Venetian illustrations of this settlement, there were no walls on that side during the Ottoman rule over Knin in the 17th century and the town was protected by the river Krka. Judging by Giuseppe Juster's panoramic illustration of Knin from 1708, the Venetians were first to build a palisade with triangular protrusions and openings at the bank of the river Krka in 1688 so that the inhabitants of Knin could have access to fresh water (Paić 1998: 57).

The Kapitul

In Medieval Knin there were two cathedrals – a newer and an older one (Jakšić 1987–1988: 115–133). While the location of the older cathedral has been the object of many debates in professional literature for almost a century, the location of the newer cathedral has long been known. With the episcopal palace and the rooms of the chapter of Knin it formed the episcopal complex. Its remains are situated on the archaeological site Kapitul, 1.3 km southeast of Knin's centre today, on a small hill above the river Krka and the field of Knin (Iveković 1927: 252–253) (Fig. 7).

Fig. 7 The Kapitul viewed from the south with the fort of Knin on the hill Spas in the background (photo by: Z. Tanocki, 2016)

The episcopal complex was built at the site of the Benedictine monastery of St. Bartholomew dating from the 10th century (Smiljanić 1986–1987: 216–217; Gulin 2008: 215). In 1157 the monastery was donated to the Archdiocese of Split by the Croatian-Hungarian king Geza II (Smičiklas 1904: 87–88; Smiljanić 1986–1987: 220; Ančić 1996, 73–74). After the monastery was assigned to the newly established diocese of Knin in 1185 (Smičiklas 1904: 193; Ančić 1996: 74), at the site of the old church the provost of the chapter, Dobroslav, started the construction of the new cathedral at the beginning of the 13th century. The cathedral was finished around 1274 during the time of the bishop Nikola and was dedicated to St.

4 It is very likely that the Medieval Latin Gate mentioned in 1424 was located at the site of today's Loredan's Gate.

Bartholomew, St. Mary and St. Peter (Smiljanić 1986–1987: 221–223; Ančić 1996, 74; Gulin 2008: 219–220). The palace was built at the same time as the cathedral and from the 14th century on that was where the chapter of Knin acted as the 'place of authentication' *(locus credibilis)* (Gulin 2008: 225–235).

After Knin was besieged by the Ottomans at the end of the 15th century, in 1504 the Croatian-Hungarian Parliament decided to assign a significant amount of money for the reconstruction of its fortresses. Among other things, the Parliament assigned 2000 forints for the reconstruction of the suburbium of Knin and for building a wall around the cathedral and the episcopal palace on the Kapitul (Gunjača 1960: 84; Smiljanić 1986–1987: 223; Živković 1993: 104; Ančić 1996: 77). Although during the years that followed fortifications around the cathedral complex were built, after the Ottomans had taken over Knin without any resistance whatsoever in 1522, the garrison of the cathedral fortress probably surrendered as well.

Because of the lack of sources, it is hard to tell what was happening to the cathedral fortress from that point on. On the one hand, it would be logical to assume that the Ottomans left it to deteriorate because it was too costly to maintain while it was completely unnecessary in the military sense (Smiljanić 1986–1987: 223). On the other hand, in Alberghetti's illustration of the Venetian conquest of Knin from 1688, the episcopal complex had a roof and was mostly surrounded by towers and walls, which is reason to believe that the Ottomans did not abandon it after all (Fig. 8). That was done by the Venetian authorities during the 18th century when the cathedral complex was used as a quarry by the surrounding community. Therefore, it is not surprising that it was mostly deconstructed when Father Frane Bulić explored it. However, the greatest devastation of the site was carried out by the Italian occupying forces that destroyed the existing parts of the complex and built a fortified barracks from its remains. The barracks was mostly removed in 2012 during the preparation phase for the revising archaeological research that was initialized in the summer of 2013 (Šimić 2013).

Fig. 8 The liberation of Knin in 1688 (Pianta di Knin by Orazio Alberghetti, Paić 1998: 48–49)

Although only the recently excavated foundation of the cathedral and rooms leaning on it from the northern side are visible today, due to the draft of the site from 1886 and the archaeological research that followed, it is known that it was a large complex with a polygonal layout stretching from northwest to southwest 135 metres in length and 75 metres in width from northeast to southwest.

The entire complex was enclosed by walls and at least three square towers that, judging from Pagano's illustration, ended with a crenelation. The entrance to the outer ward of the complex was located at the northern side next to the church tower. At the centre of the complex was a three-naved cathedral with polygonal apses and a sacristy. From the south side, a two-winged episcopal palace leaned on the sacristy. The cathedral and the palace enclosed a large inner ward with an almost triangular layout.

Fig. 9 The liberation of Knin in 1688 (Pianta di Knin by Orazio Alberghetti, Paić 1998: 48–49)

THE OTTOMAN KNIN

Due to many Venetian panoramic illustrations and layouts of Knin from the 17th century, it is known today that the Ottomans commenced a large reconstruction of its fortresses after the first Venetian conquest of Knin in 1648. It was finished three years later with the complete transformation of the former castle of Knin and the building of a long outer wall that stretched from the northern corner of the former castle all the way to the rocks at the base of the former castle of Lab where the eastern wall of Lower and Middle Town is today (Paić 1996: 43–47). During the same reconstruction, at the site of the castle of Lab, a large artillery platform was built. In Venetian panoramic illustrations the platform was named Topana. Besides the platform, the Ottomans built a large fortress, a 'tabija', with a semi-circular layout at the junction of the outer wall of the fortress and the wall of the suburbium (Fig. 9).

THE VENETIAN KNIN

The reconstruction of Medieval and Ottoman fortresses into a great Baroque fortification complex was finished during the Venetian rule. Today it is known as the fort of Knin. The reconstruction began immediately after the Peace Treaty was signed in Srijemski Karlovci in 1699 and was performed in accordance with the project of the military engineer Antun Jakšić (Žmegač 2009: 122, 169). Dalmatian constructors Ignacije and Josip Macanović participated in the construction of the fort (Bezić 1980: 150: Živković 1993: 111).

The Venetians first thoroughly reconstructed the former castle of Knin. They tore down its Medieval towers and raised artillery platforms instead. The largest of them was Kalunerica on the north tip of the fort and it was built from 1711 until 1713 (Regan 2014). On the site of the former Ottoman entrance to the fort, the Pisani bastion with an entrance to the fort was built from 1711 until 1713 (Fig. 10). South of it was Vedramin, i. e. the artillery platform, while the rampart in between was protected by walls called 'the low pincers'. During the Venetian reconstruction, the Ottoman Topana was thoroughly transformed into an artillery platform called Korlat (present-day Bandjera) and within its walls there was a water tank and one building. One of the final parts of reconstruction was the fortification of the steep southern rocky slope where, between 1713 and 1715, a system of walls was built and named Belvedere after the artillery station of the same name (Paić 1993: 55).

Fig. 10 The entrance bastion Pisani (Paić 1998: 52)

The fort of Knin is the largest fortification complex in Croatia. It covers the south half of the hill Spas and includes a system of stone tops and almost entire northeast side of the hill Spas. That enormous complex spreads from the north to the south approximately 470 metres in length and 110 metres in width from the west to the east. Amazingly, the circumference of its walls amounts to two kilometres and it consists of six mutually connected units (Paić 1996: 74; Ćuzela 2007: 661–663). From the south to the north, the fortified complex consists of the tower Gradac or Toreta, the Belveder station, the Lower Town, the feudal town of Lab (today's Bandjera), the Middle Town and the feudal town of Knin (today's Upper Town). The communication through the lower parts of the fort was enabled through paths, while the movement through upper parts was entirely enabled by steep stairs and through narrow trails cut into live rock.

THE HAPSBURG AND THE AUSTRO-HUNGARIAN KNIN

The memory of the Hapsburg and Austro-Hungarian Knin from the time when the fort was a military barracks was preserved in many old postcards and on military maps from the 19th century. On one of them, drawn from 1806 until 1869, besides the fort of Knin, another fortification was added (mapire.eu: 2017). It was Fort Vrbnik whose ruins are located southeast of Knin, next to the northern border of a small village called Đaković (Fig. 11). They are located in the thick Mediterranean underbrush, which is why only the remains of the polygonal rampart of the old fort are visible, pointing towards the southwest, to the road connecting Knin and Drniš in the direction of Šibenik.

From the ground-floor image of the fortress from the 19th century and the airplane images of the site from 1969, it is visible that Fort Vrbnik was an open-type fortified battery belonging to the category *Zwischenbaterrie* (an artillery inter-battery), i.e. it was the type of a fortification in the interspace with open artillery platforms (Piplović 1993: 25–61; Krizmanić 2009; Martinović 2015: 223). It comprised of a large semicircular platform 110 metres long and 77 metres wide, used for storing arms and protected by defensive ramparts as well as of a smaller building at the centre of the complex for housing

Fig. 11 Knin and its surrounding area from 1806 to 1869 (mapire.eu, 13 October 2017)

the army, arms and powder. In 1969 the remains of Fort Vrbnik were clearly visible in airplane images, while today the complex is entirely covered with dense vegetation that follows the basic outline of the complex.

KNIN DURING THE ITALIAN AND GERMAN OCCUPATION

The last defensive buildings in the area of Knin were built by the Italian during World War II for the purpose of protecting the railroad on the southern entrance to the town. In 1942 they built a small fortress from the remains of the Medieval complex which was a severely fortified barracks with an almost rectangular layout with tall walls and two semicircular towers in the northern and north-eastern corner. At the centre of the layout were two long buildings used for the housing of soldiers, keeping arms and supplies (Regan, Nadilo 2008: 651–652). Unfortunately, the Italian barracks was entirely built on the site of the former Medieval cathedral and the fortified episcopal palace, which severely devastated this important historical site. On the other hand, the Italian decided to build the fortified barracks at the site of Kapitul, thus confirming the favourable geostrategic position of the archaeological site on which the bishop of Knin had decided to build his cathedral and palace several centuries before. Apart from two corner towers, the pillbox was mostly removed in 2012 during the clearing of the terrain, while the revising archaeological research began in the summer of 2013 (Šimić 2013).

Some minor construction work on the fortification of Knin was done by the German occupying forces that occupied Knin after the capitulation of Italy in September of 1943. On the highest point of the fort of Knin, the Bandjera, they built concrete mounts for antiaircraft artillery. Those expansions remained until 1973 when they were removed during restoration and research work.

4. CONCLUSION

Due to the exceptional geostrategic position at the junction of traffic routes that connected the central parts of the eastern Adriatic coast with the hinterland of Dinara and the area between rivers Sava and Drava, the area of today's Knin was fortified even in prehistoric times when a large fortified settlement was raised on the northern half of the hill Spas. Its role was later transferred onto the late Antique, i. e. early Medieval (Byzantine) fortress and eventually onto the Medieval castle of Knin that became the core of the new settlement. Transferring the Croatian capital from Solin to Knin in the 11th century had a beneficial effect on Knin. Consequently, by the beginning of the 15th century it had become one of the most important towns in Medieval Croatia where Croatian governors and deputy governors as well as the bishops and canons of Knin ruled. Therefore, it is not surprising that a settlement as important as this one was severely fortified by three castles, a cathedral fort and eventually by walls enclosing the settlement. Despite the size and number of Knin's fortresses, the fall of Knin under the Ottoman rule in 1522 was not prevented. Knin became one of the central locations during the conflict between Christian and Islamic civilizations, withholding that role until the 20th century. A testament to that is a large Austro-Hungarian fort built during the first half of the 19th century for the protection of Knin on the south-western side of the town as well as a large Italian fortified barracks from 1942 at the southern entrance to Knin (Fig. 12–19).

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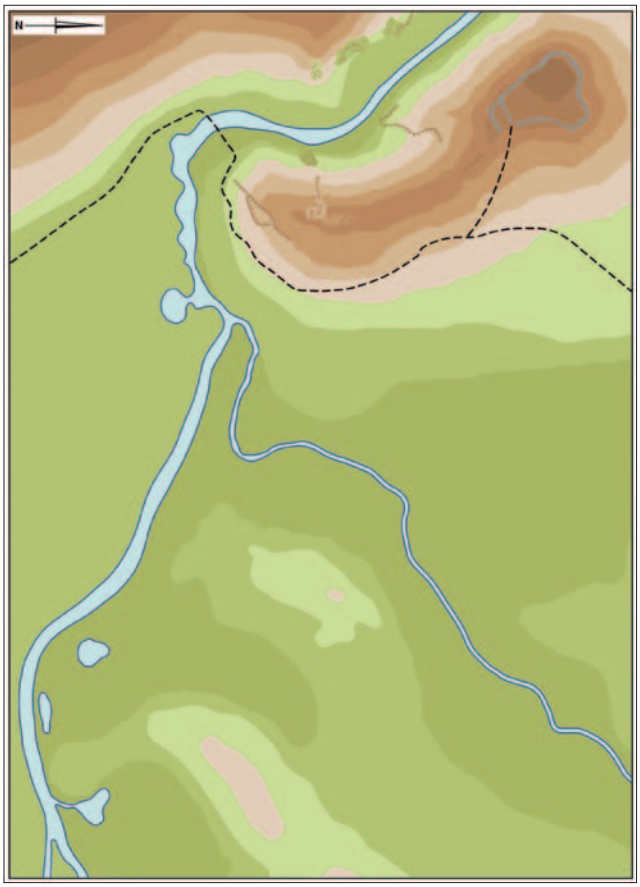

Fig. 12 The prehistoric fortified settlement (made by: K. Regan, 2017)

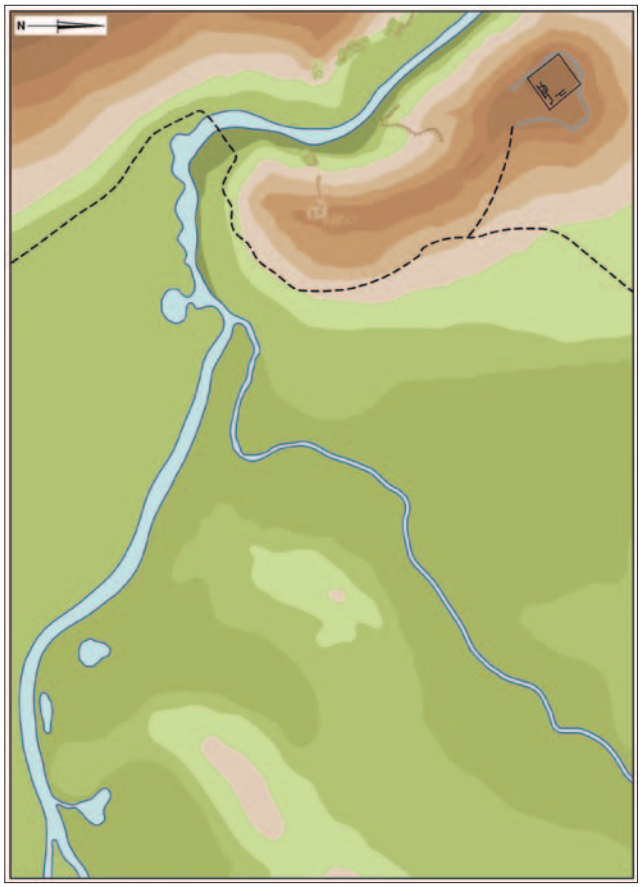

Fig. 13 Late Antique and Byzantine fort (made by: K. Regan, 2017)

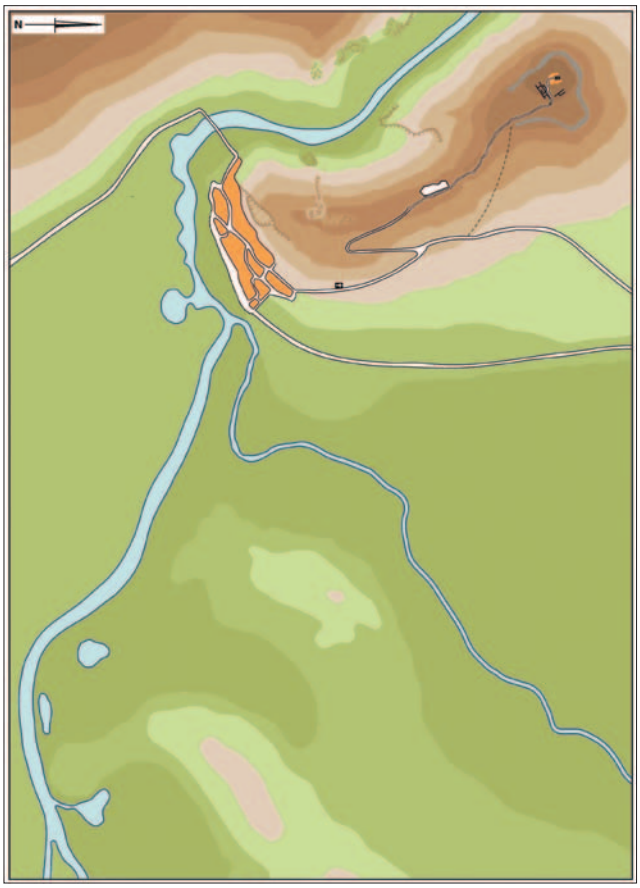

Fig. 14 The early Croatian settlement of Knin in the 9th century (made by: K. Regan, 2017)

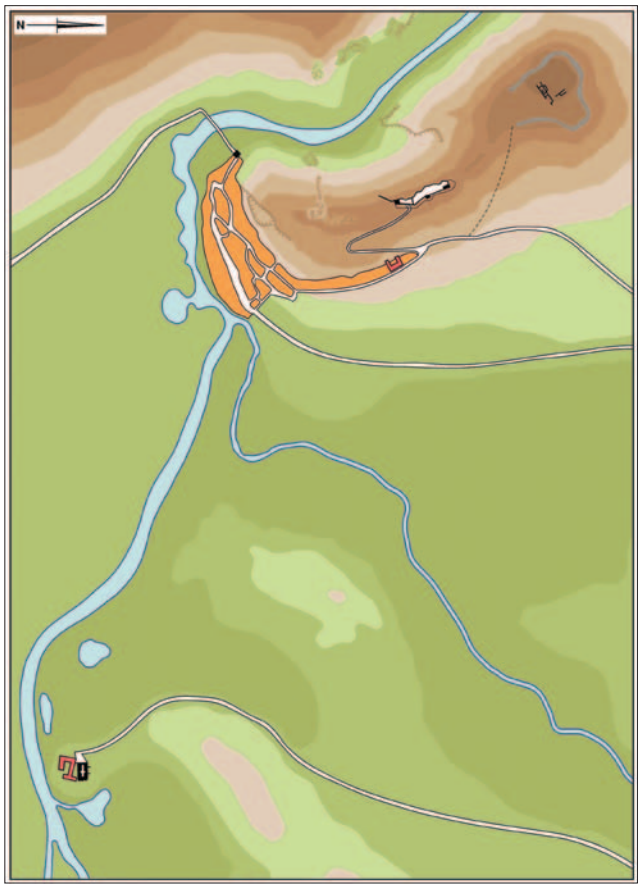

Fig. 15 Knin from the second half of the 13th century until the first half of the 14th century (made by: K. Regan, 2017)

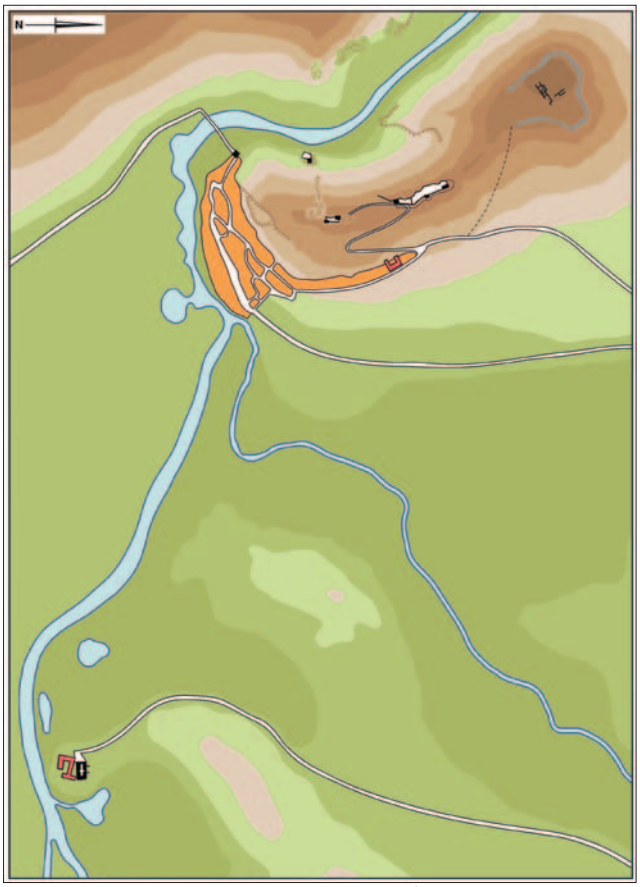

Fig. 16 Knin in the second half of the 14th century (made by: K. Regan, 2017)

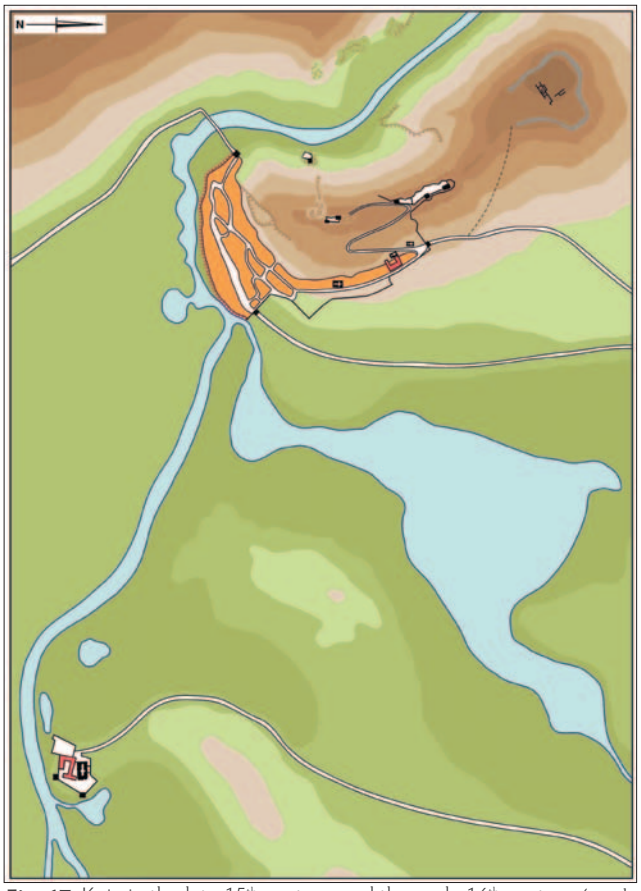

Fig. 17 Knin in the late 15th century and the early 16th century (made by: K. Regan, 2017)

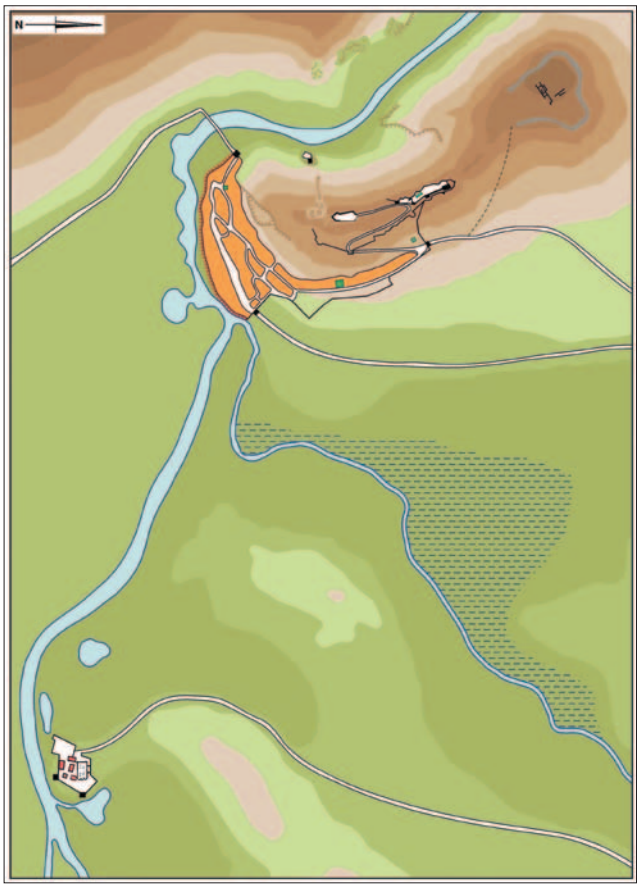

Fig. 18 Knin during the Ottoman rule from 1522 to 1688 (made by: K. Regan, 2017)

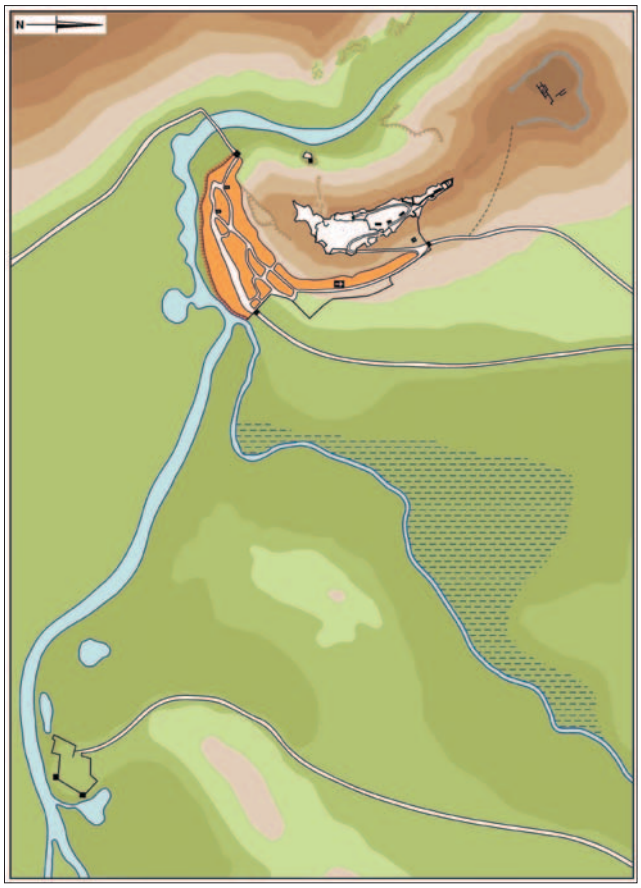

Fig. 19 Knin during the Venetian rule from 1688 to 1797 (made by: K. Regan, 2017)

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VLADIMIR PETER GOSS

Some Models of Early Post-Migration Fortifications in Pannonian Croatia. Very Preliminary Considerations

This paper proposes to ideally reconstruct types of early medieval fortresses in Croatia, following the work of linguists and cultural anthropologists. The type frequently encountered in Continental Croatia agrees with reconstructions proposed by Radoslav Katičić and based on Slavic folk poetry, i.e., a hill with palatial structures surrounded by several rings of palisade. Often described as the Heavenly Home of God Perun, it agrees with descriptions and remains of real courts such as at Kiev, Novgorod, Halich, etc. Of course, the type may occur also in prehistory and post-medieval period, so the final word remains with archaeologists.
Another source is the Antique tradition and in those terms the paper discusses the small fortress of Klokoč southeast of Zagreb which shares some features, e.g., rounded corners with Roman limes forts such as, for example, Tulln. The fortress, unique in Croatia, calls for a thorough archaeological examination.

Key words: Croatia, Early medieval fortifications, Early Slavic culture, Limes, Klokoč, Tulln

The landscape of Continental Croatia, specifically between the Drava and the Sava rivers is dotted with old forts, mud and timber constructions, believed to have come into existence between the times of the Immigration of the Slavs, and the end of the Middle Ages. Their typology and so also the nomenclature is complex and varied: Gradište, Gračišče, Gradec, Gradečak, Gračec, Gradič, Gradiš, Grad, Gradina, Gradiška… According to established opinion, the word *gradište* would apply to mediaeval, whereas terms such as *gradac* or g*radina* to prehistoric forts. However, there are prehistoric Gradištas (Remete) as well as mediaeval Gradinas (Špišić Bukovica).

How about typology? (Tkalčec 2004: 9–35). It appears as unsecure as nomenclature. Yet, one may be able to link the form of a fort to a certain period, admitting that archeologically one can date a fort with some certainty only when one reaches the lowermost cultural layer of the site. In the lines that follow we shall attempt to identify at least tentatively, but not arbitrarily, the oldest model of Slavic forts in Croatian Pannonia using methodology proper to the research of art, i.e., reading the language of visual forms. We will establish at least the general outline of the cultural content and, second and related to that, look at the research of archeology, cultural anthropology and linguistics. The context to reconstruct is the period defined by the immigration of the Slavs into the old Roman provinces of Dalmatia, Pannonia, Histria and Noricum, i.e., from ca 600, through the late 8th century and Charlemagne's wars against the Avars (Goss 2016: 32–65).

By a careful analysis of early Eastern Slavic and Baltoslavic poetry Radoslav Katičić has proposed the following reconstruction of a fortified court, of a heavenly and earthly rulers alike (Katičić 2008; 2010; 2011; 2014). On the basis of 24 folk poems from Balto-Slavic and western Russian tradition from his book *Božanski boj* (The Battle of Gods) (Katičić 2008: 85–103) he has reconstructed Perun's seat as follows (we paraphrase): the court/castle is on a hill (this implies a rounded plan), surrounded by a fence (doubtless circular) made of wooden poles with painted or decorated tips. There is a gate of finely carved wood with painted decoration. Of course in poetic diction, we encounter also uprights of steel, silver, and décor of gold, silver and walrus tusk. Inside the ring there are three ornate palaces. This triple structure tradition seems

to have been upheld by some country manors in Siberia until fairly recently (e.g. Palinki near Sverdlovsk, 19th ct.) (Lisenko 1989: 116) (Fig. 1). A path leads up the hill from a lower court surrounded by its own gated ring wall. A well may stand in the upper court, and definitely in the lower. There may be yet another walled area**,** orchards, gardens, pasture, and, of course, utilitarian structures and premises, and servants' quarters.

Fig. 1 Palinki near Sverdlovsk, 19th ct. (drawing by: Karina Sladović after Lisenko 1989: 116)

Translated into the language of architecture there is a fortified settlement on a hill surrounded by a circular palisade, containing the residential quarters consisting of three distinguished homes ("palaces") and a well. The circle, or a serious of monumentally repeated concentric circles, which adapts itself well to the natural surroundings of the hill is a centralized element emphasizing the power of the unique being, the Lord, and his company. It is an image of the Sacred Mountain the vertical axis of which is also the axis of the world. So the form is not only functional and visually well adapted to the environment, but it also carries an important content and message. These local images of the sacred Mountain and the Axis Mundi mediate a sense of balance and completion between the eternal space, and its eternal and temporary denizens (Goss 2017, forthcoming). For that reason those local Universes, even today, dug up and away by evil intentions of men, eaten into by water courses and engulfed by thickness of greenery, appear so impressive and powerful. Just try to visualize endless chains of such fortified homes on hillocks or within puddles and ponds, be it in wood or rock, such as once stretched throughout the high plateau of Lika from Otočac to Gračac, or along the ridges of the Bilogora. In most cases what we still have is just the hill or a water surface, and yet even those mere traces in nature eloquently testify of the independent and self-reliant nature of their builders and owners, each on a hill or within a meander of their own (Gvozdanović 1970: 51–52).

Katičić goes on to show that such an image is no abstraction and that it is verified in terms of ducal residences of Kiev, Novgorod, Halič and Jaroslavlj, as described in old chronicles and retrieved through archeological investigations. Old Russian ruler's quarters were very much alike those of the supreme God, Perun, always on a hill and above a water course. The ruler's court was close to a Perun sanctuary as demonstrable for Kijev and Novgorod (Katičić 2008: 105–125), making a typical form of territorial organization we call "osmica" – the eight, i.e, , two adjacent or even contiguous hills or water areas, one containing the seat of the secular, the other of religious power; a not infrequent arrangement in southern Pannonia (on a monumental scale, e.g., the city of Zagreb, Fig. 2; Goss 2006; 2007; 2012: 168).

Fig. 2 Zagreb, view of Gradec and Kaptol (photo by: V. P. Goss and V. Jukić)

The ruler's seat in Kijev was called the "Tremni dvor" what Katičić interprets as "court(yard) with a palace," thus supporting our own conclusion that the sites such as Dvori and Dvorišče on the Trema plateu near Križevci were a site of one such early Slavic noble residence.

Finally, in the *Zeleni lug* Katičić returns to some features of the court, in particular its gate, and in this context, primarily on the basis of southern Slavic folk poetry deals with the image of B(ij)eli dvor (White Castle or Court), a designation which, like those of Beograd, Belgrad, Biograd (White City), or B(ij)ela Crkva (White Church), are interpreted by researchers in visual arts as architectural units built from permanent material (stone, plastered brick) as opposed to Crngrad ets., referring to a building made of wood (Katičić 2010: 232–242).

Anybody familiar with the architecture of the mud-and-timber forts of Southern Pannonia, in particular the land between the Drava and the Sava rivers, would recognize in Katičić's descriptions many of the fortified mud-and-timber forts (colloquially *gradišta*, hillforts) of the area. Forts as described occur quite often in northwestern Croatia, in paticular on the Bilogora. There are numerous examples in the fine MA thesis by Tatjana Tkalčec: Međurača–Vojvodske livade (Fig. 3, 4), Međurača–Svečeva gradina, Pavlovac–Kolo (Fig. 5), Grabrovnica–Hat (Fig. 6), Stari Gradac (Fig. 7), Farkaševac Samoborski, Rakovec, etc. They are all tentatively datable to the 13th–15th century (Tkalčec 2004: 89–94, 129–131, 161–163, 229–231). They may feature a hill as a centre (Međurača–Vojvodske Livade, Fig. 3, 4; Grabrovnica–Hat, Fig. 6) or occur in flatlands surrounded by water (Pavlovac–Kolo, Fig. 5). In some cases the accompanying areas, residential, agricultural, artisanal may be fairly extensive as at Orlovac–Orlov grad (Fig. 8), and large deserted settlements near Veliki Pašijan and Mala Trnovitica shown to me by Goran Jakovljević from the City museum of Bjelovar (Tkalčec 2004: 153–156).

Fig. 3 Međurača–Vojvodske livade, fort (photo by: V. P. Goss and V. Jukić)

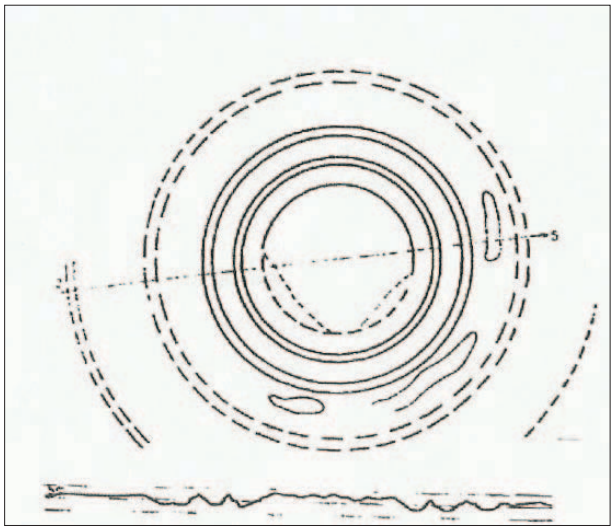

Fig. 4 Međurača–Vojvodske livade, ground plan (after Lovrenčević 1990: 156)

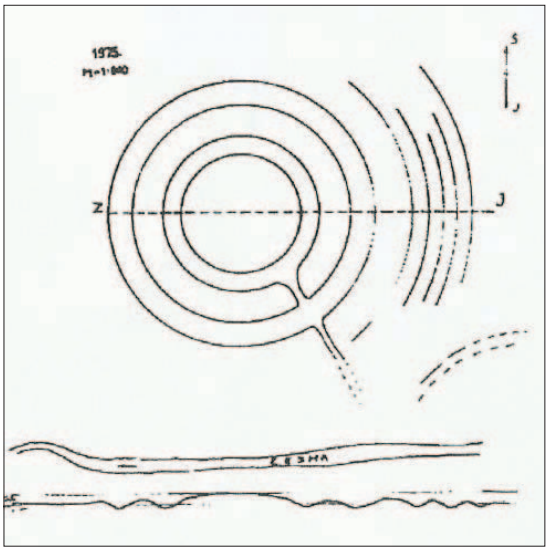

Fig. 5 Pavlovac–Kolo, ground plan (after Lovrenčević 1990: 161)

Fig. 6 Grabrovnica–Hat, fort (photo by: V. P. Goss and V. Jukić)

They are functionally very logical and formally attractive, and they may date to any period from Prehistory to the late Middle Ages. The research by Professor Katičić clearly shows that the form had a powerful meaning and that it could ignite poetic imagination. Thus we have one form that with a high degree of certainty could be associated with the early post-migration period. This in itself is a step in the right direction narrowing the field of where to dig bearing in mind that some such sites may have pre-Slavic origins. Of course, one had built circular forts also in Prehistory and in post-medieval times. The form is simply logical, it follows function and location.

And this is the second issue to be discussed, be it very provisionally. Our predecessors in these parts had left a rich treasury of fortification architecture. Genetics teaches us that the Croats have about 25%-35% Slavic blood and around 50% of those preceding them on Croatia's territory (Jurić 2003; Goss 2013). Both components need to be considered in discussing the culture that emerged after the Croatian immigration, i.e., that the local models were grafted upon those brought along by the immigrants (Goss 2016: 67–68). Taking over the sites and forms of prehistoric circular forts was certainly easy. What about the other key factor – the Roman presence in Dalmatia and Pannonia?

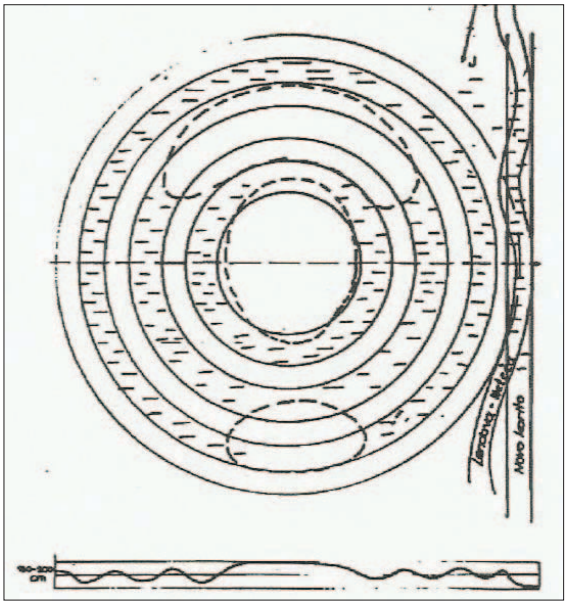

Fig. 7 Stari Gradac, ground plan (after Lovrenčević 1985: 199)

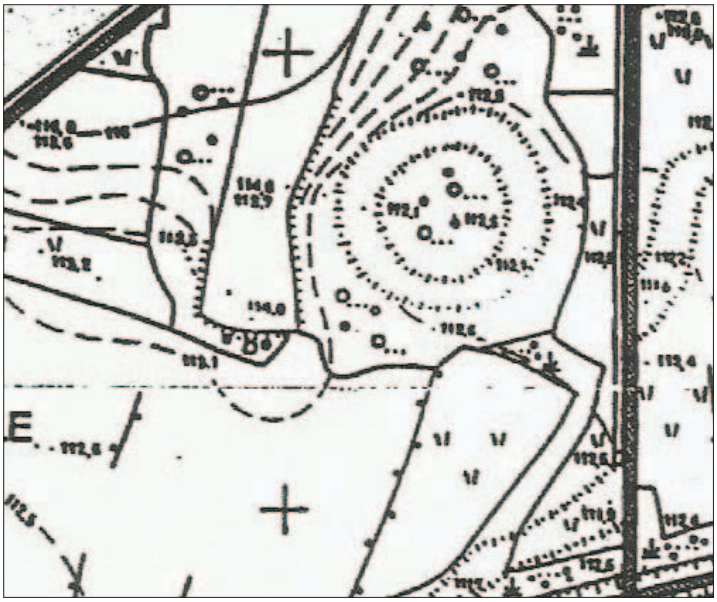

Fig. 8 Orlovac–Orlov grad, ground plan (detail of topograpgical map 1: 5000 published in: Tkalčec 2004: 319, sl. 70)

Here I would like to say a few words about just one, in my opinion unique example – the Castle of Klokoč to the south of Vojnić on the Kordun, which I visited with my mother's investigative team in 1966. The little fortification in a form of a big

bath tub with rounded corners (Fig. 9, 10), and with a rounded tower obviously added at northwestern corner during the Turkish wars (Fig. 11) was still fairly well preserved (Goss 1970: 66–70; Szabo 1920: 161–162). I revisited it on March 6th 2017 thanks to the courtesy of my younger colleague, Mr. Dušan Čikara. It has not changed much in this half a century (Fig. 12) and one can still see the original layer, added to and modified possibly more than once (Fig. 13).

Fig. 9 Klokoč, southeasterm corner (photo by: Višnja Bedenko)

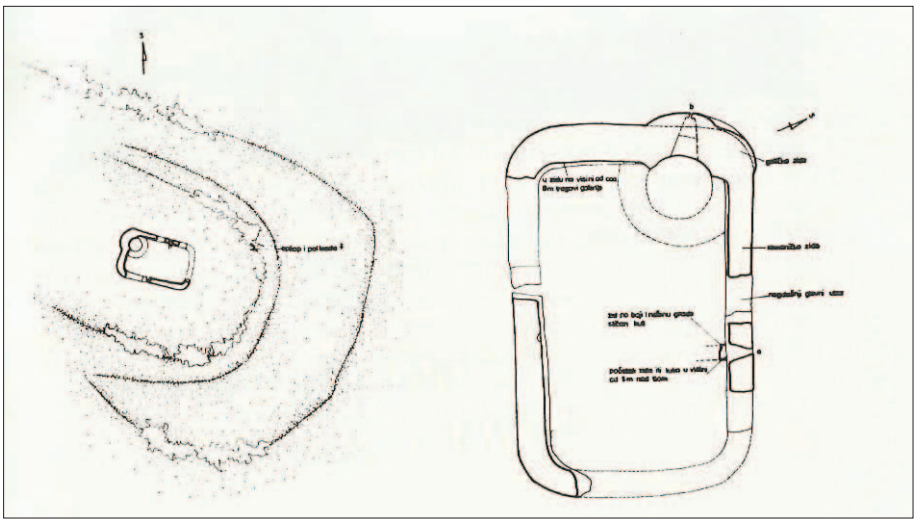

Fig. 10 Klokoč, ground plan, Sena Sekulić Gvozdanović, Vladimir Gvozdanović et al., architectural drawing, 1966 (author's archives)

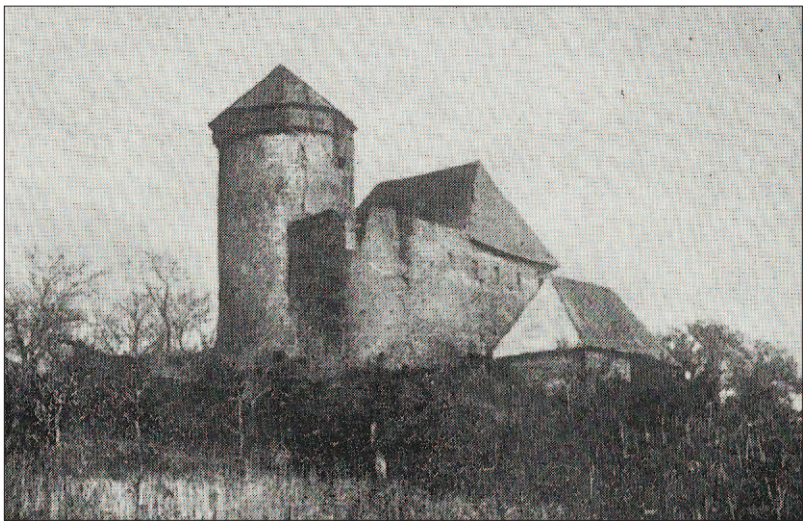

Fig. 11 Klokoč, around 1900 (after Szabo 1920)

Fig. 12 Klokoč, southern wall, interior (photo by: V. Bedenko)

Fig. 13 Klokoč, southern wall (photo by: V. Bedenko)

Klokoč´s form is that of a late Antique and/or Carolingian border fort or watch tower such as identified some sixty years ago by Armin Tuulse in his important survey of the fortifications of the West (Tuulse 1958: 22; Goss 1970: 66–67), and comparable to Roman castra towers, e.g., on the Danube limes, the Saltz Turm at Tulln (Sedlmayer 2015: 229–233) (Fig. 14), or the Roman Tower at Traismauer/Augustianis (Steigberger 2015: 219–223); the difference being that the two rear corners of the Roman structures, logically, are not rounded being behind the perimeter walls, whereas at Klokoč, a self standing fortress, they are all rounded as they are all equally exposed to an attack. This in itself would have been a modification of the Roman model. The Krottenturm at Zwentendorf/Astura (Fig. 15), also on the Danube limes eloquently testifies how such a modification could occur in earlier middle ages (Groh 2015: 224–229); here a fan-shaped corner tower of a Roman *castrum* was remodeled and reused as a keep standing within a typical early medieval concept and structure of a fortified house, a moat and bailey or a *motta* type fortification (Tuulse 1958: 161). Briefly, a typical Roman form was thoroughly remodelled, almost beyond recognition, to produce a structure compatible with building needs of either Prehistoric or Mediaeval times.

Not far from the Una River and the Bosnian wilderness, nearby important roads linking Pannonia to the Adriatic, Klokoč could have been a part of a Late Antique or a Carolingian limes, and incorporate the elements its early mediaeval builders found useful. There is a rather high likelihood that Klokoč is a remnant or an image of Roman or Late Antique structure, something that should be explored by experts in archaeology and restoration. During my career I have offered Klokoč several times for a discussion but there have been no takers. Hereby I offer it again as a true and positive challenge to Croatian archaeology and art history.

But in spite of all this Klokoč is just another example of a fortified home on a steep hill surrounded by at least one ring of palisade. Thus we are back to our initial "post-migration" or "prehistoric" – eternal – model. The new inhabitants of Europe were able to assimilate many a trait of the earlier tradition, exactly because a large segment of that tradition was *rural* and in many ways compatible with the tradition of the invaders (Goss 2014: 26–35; 2016: 64– 5). A rocky road of change through confrontation transformed itself into one of change through assimilation. It would take more than half a millennium

Fig. 14 Tulln, Saltz Turm (photo by: V. Bedenko)

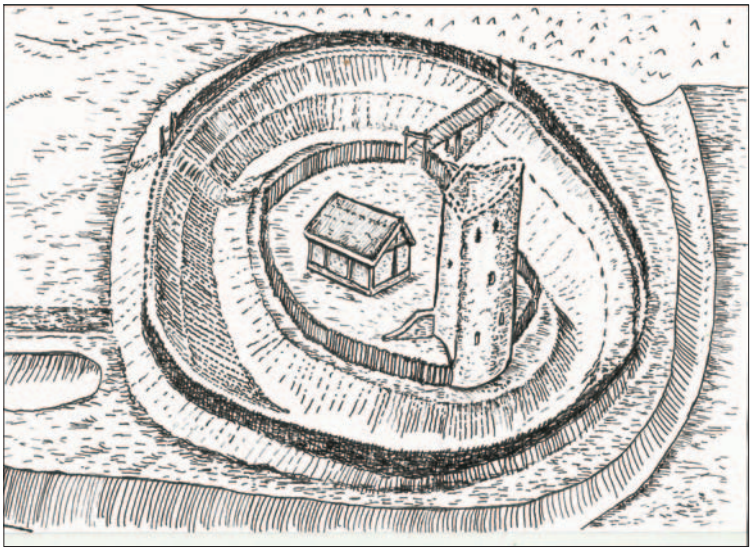

Fig. 15 Zwentendorf/Astura, Krottenturm (drawing by Karina Sladović after a reconstruction in the Römermuseum Tulln)

and a protracted visit to the Near East to more systematically incorporate the tradition of the urban Rome; the complex mediaeval castle and a fully developed mediaeval city were among important elements of that progress. But the period of some seven centuries before that change would fully occur, from the 5th through the 12th century, was ruled by the models of Međurača–Vojvodske Livade and of Zwentendorf/Klokoč alike.

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JOSIP VIŠNJIĆ

TURNINA (*TORRE DI BORASO*) - CAROLINGIAN PERIOD FORTRESS AND HIGH MEDIEVAL KEEP

About 4 km eastern of Rovinj's Old Town lay ruins of one of the oldest partially preserved medieval fortified building in Istria. Medieval tower Turnina is built on top of the eponymous hill (107 meters), in the extraordinary strategic position from which all access roads to the city could be monitored and controlled.

The earliest historical data about Turnina date from the 14th century, but the results of archaeological researches, that has been conducted in recent years, confirm the earlier dating of its initial construction phase. The small archaeological findings and conducted radiocarbon analysis suggest that the site was used from 9th, until about the end of the 15th century. In the meantime, the tower has experienced significant and somewhat smaller reconstructions which resulted with classical high medieval period keep appearance.

The results of recent archaeological researches and analysis of the preserved building structures and provide proposals dating of individual segments of the building are presented in the paper.

Key words: Turnina, medieval tower (keep), archaeological researches, architectural development, 9th–15th century

INTRODUCTION

The medieval residential Turnina Tower (*Torre di Boraso*) is located on the western shore of the Istrian peninsula, four kilometres to the east of the old town core of Rovinj (Fig. 1). The medieval tower was built on the top of the eponymous hill, at an exceptional strategic position from which it was possible to oversee all roads leading to the town. The site is situated between the two main roads leading to Rovinj from the northeast and southeast such that it is possible to monitor all land communication and all maritime navigation routes along the western shore of the Istrian peninsula between the Lim ria and the Brijuni islands. The very favourable strategic position was recognised as far back as during the prehistoric Bronze Age period, when the site was home to a hillfort settlement (Marchesetti 1903: 102; Benussi 1927: 253; Škiljan 1980: 15–16, 58, 63; Matijašić 1988: 59; Bekić 1996: 40–42).

Only sparse remains of the lower sections of the medieval tower on Turnina hill are still preserved. They are covered in part by the collapsed building material, although a part of the structure has been cleaned up thanks to a project of archaeological investigation and structural repair of preserved architectural remains launched in 2012 (Fig. 2). This allows for an at least partial interpretation of the preser-

Fig. 1 A Map of Istria indicating the position of Turnina (modified by: J. Višnjić)

Fig. 2 Aerial view of Turnina from the east (photo by: J. Višnjić)

ved ruins and opens a window to a possible conceptual reconstruction of its former appearance. Contributing to this is a nineteenth century description of the tower (Kandler 1849: 148–150; 1855: 296), at a time when its architectural structure was much better preserved.

DESCRIPTION OF THE CURRENT CONDITION

The tower consists of a core structure with an 18.4 by 17.2 metre rectangular floor plan, and a section projecting out to the west side covering 5.6 by 12.2 metres (Fig. 3). On the ground floor the core structure is divided into four rooms running

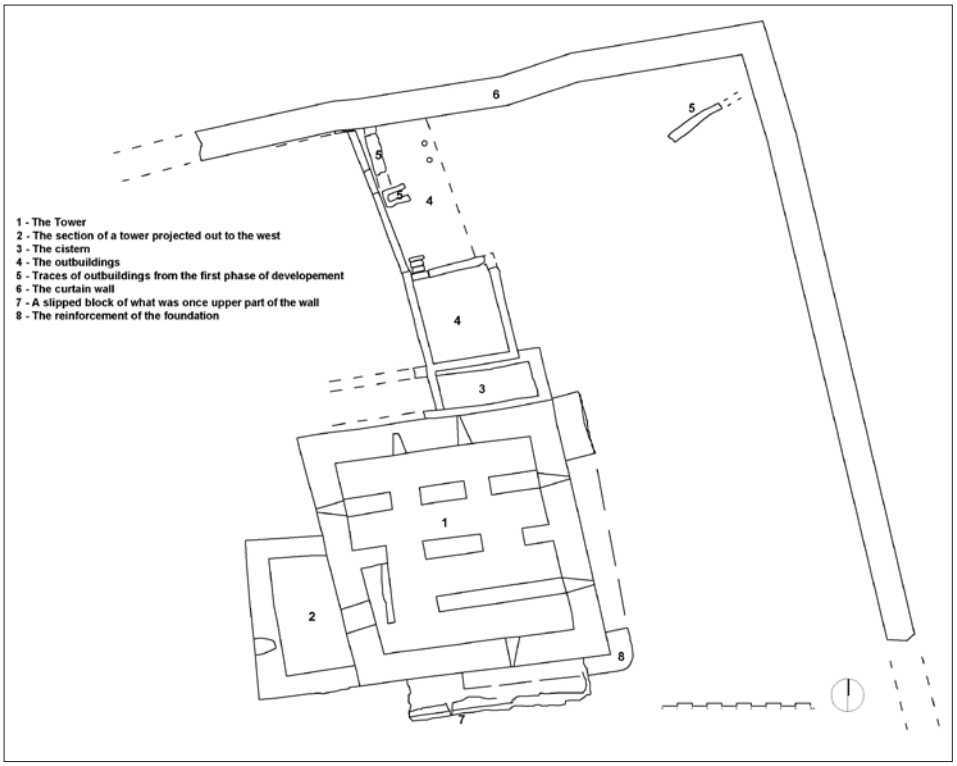

Fig. 3 Ground plan of the fortification (drawing by: J. Višnjić)

lengthwise from east to west. These rooms are barrel-vaulted. Their presumed original ceiling height is about five metres, while the width varies from 2.4 to 3 metres. The width of the perimeter walls is approximately two metres, while partition walls range from one to 1.3 metres. Three of the partition walls have doors, which in spite of varying sizes show a very similar typology. These are mushroom-shaped passages (Fig. 4).

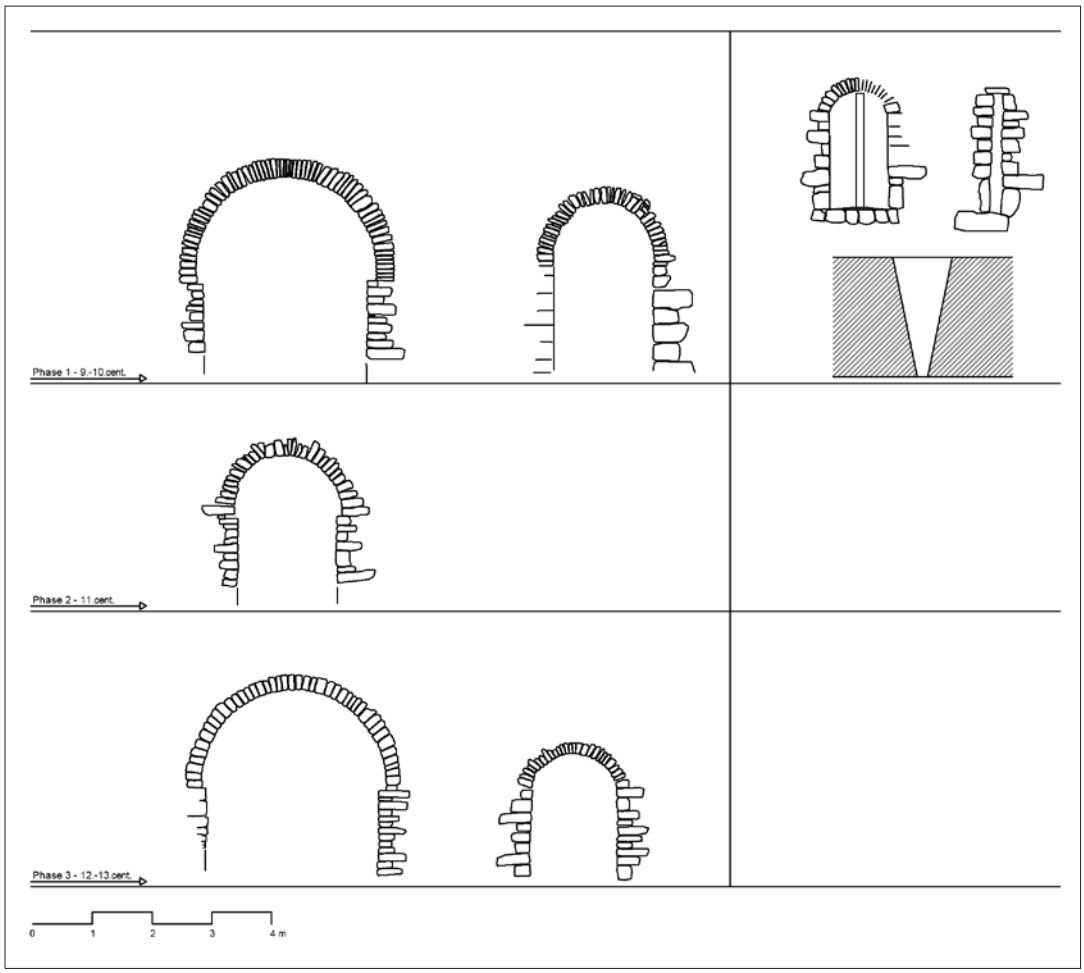

Fig. 4 Typology of preserved wall openings of Turnina (drawing by: J. Višnjić)

Based on the preserved remains it appears that the ground floor rooms did not have openings in the perimeter walls in the final development phase. A more careful inspection, however, does reveal the original, subsequently walled up, openings. These are narrow and tall cuts, i.e. arrow slits on the outer faces of the walls, 1.85 metres high and 19 centimetres wide, that broaden towards the inside forming a niche that terminates in an arched lintel (height 2 m, width 1 m). There were two symmetrically positioned arrow slits on the south, east and north sides, with a single arrow slit on the west side. The position of a second arrow slit on this west wall was occupied by the entrance door, also terminating in an arched lintel. In the later phases of the functioning of the tower this entrance door was negated and walled-up.

Of the higher sections of the structure we now have only the partial remnants of two central rooms on the first floor. It is evident that the spatial layout of the first floor repeated that of the ground floor. The rooms were also barrel-vaulted, but with a height of 3.1 metres. One doorway terminating in an arched lintel is preserved, while in the room more to the south we see the preserved remains of a partition wall with a passage that divided it into two equal parts.

Given that the upper sections of the structure are no longer extant we look to a description provided by historian Pietro Kandler from the mid-nineteenth century, at a time when Turnina was in a much better state of preservation (Kandler 1849: 148–150; 1855: 296). Describing the first floor, Kandler writes that it is … *partitioned in the same manner as is the ground floor. There are two windows on the north wall terminating in semi-circular arches. There are a further two windows on the north wall formed in a manner similar to that of arrow slits. From this floor one can access the annex to the west where there is a cistern and what appears to be the kitchen. There is an opening in the annex, very much like a door, but accessible only by climbing a ladder.*

The tower had at least two more floors. Describing them, Kandler writes that one … *climbs to the second floor by way of stairs built to the width of the wall, and likewise to the third floor. The second floor is not partitioned into rooms, such that it may*

be presumed that the walls were demolished. The ceilings of this floor are built of wood, as they are on the floor above. The second floor has five openings to the north side, two of which are doors that lead to their respective balconies, while three are windows with semi-circular terminations. The tops of the doorways are not at the same level as the windows, and they alternate. The third floor has no openings on this side. In relation to the surrounding terrain the edifice attains a height of fourteen Viennese fathoms, which comes out to approximately three per floor. The floor that likely served as the residential space has 42 square slabs on the floors (Kandler 1849: 150).

Outbuildings were built in the immediate vicinity of the tower, the remnants of which have been identified in the course of recent archaeological excavations (Višnjić 2014; 2015; Višnjić, Pamić 2016).

The broader area around the tower is encircled by the collapsed ramparts of a prehistoric hillfort, the remnants of which were likely used in places for defensive purposes in the medieval period. Closer to the tower are the remains of a curtain wall that closed off an area of polygonal configuration. It appears that this wall had no inside face, but that it rather partially assumed the role of supporting the plateau in the area immediately around the tower. It very likely also assumed part of the defensive function. The other cited outbuildings were located within this area.

HISTORICAL DATA

The oldest historical data on Turnina is from a relatively late period, the mid-thirteenth century. At the time the tower was in the possession of the Venetian Albertino Morosini, who was in the service of the Aquileian patriarch Gregorio di Montelongo. The patriarch was in conflict with the Count of Gorizia and, besides Turnina, he also entrusted the cited Albertino, likely for services rendered, with the castle at Kaštel and also promised him Kožljak castle (De Franceschi 1903b: 297; Bianchi 1847: 377). The next historical document concerning Turnina is from the first half of the fourteenth century, from the time of the final confrontation between the Venetian authorities and the aristocratic Castropola family of Pula. Judging from these documents, the Castropola family had administered the Turnina landholding in the previous period – they had been infeudated into the landholding by the Aquileian patriarchs who had supported them in the late thirteenth and early fourteenth century with the objective of retaining power in Pula and southern Istria (De Franceschi 1903a; 1903b; 1904; 1905a; 1905b; Benussi, 2002). After the defeat and expulsion of the Castropola family from Venetian-controlled territory, the tower passed into the full ownership of the commune of Rovinj, with the council of citizens electing and hiring the services of one captain and several guards for its protection (Minotto 1887: 216–217, 220–221, 227; Benussi 1888: 64; Caprin 1968: 147).

The interest of travel writers and historians for the Turnina ruins appeared early on. We find the first description of the tower in geographer and cartographer Pietro Coppo's *Del sito del istria*, penned in 1529 and printed in 1540. Coppo notes that the tower was once called Arupino and was the first to propose the idea that this was an original Antiquity period structure destroyed by the Romans, a hypothesis that has been until recently frequently repeated. He also provides us with the important datum that the tower had already partially collapsed at that time (Caprin 1968: 147; Radossi 2008: 403).[1]

Almost identical data is provided by E. F. Olmo in his *Descrittione dell'Istria*, written in the first quarter of the seventeenth century.[2] Also providing a description of Turnina is Bishop G. F. Tommasini in his *De' commentarii storici–geografici della provincia dell'Istria libri otto con appendice*, and later P. Petronio in his *Memorie sacre e profane dell'Istria,*[3] largely reiterating the data presented by Tommasini.[4] Both once again put forward the hypothesis of the antique origins of the edifice.

As has already been noted the tower was partially demolished and abandoned at the latest by the start of the sixteenth century. This of course contributed to the further degradation of the walled structures and their gradual collapse. Right up to the first half of the twentieth century, however, the perimeter walls of the tower on three of its sides were still partial-

1 *Anticamente fu nominati Arupino* [...] *èdi forma quadrata, le mura molto alte, di forte muraglia, con entro e di sotto, gran volti. Da una parte e a bella posta anticamente rovinata, e dimostra essere un forte e bell'edifizio antico, così ruinato dai Romani, come abbiam dicto. E' circondato da un rivellino, e dentro ha un ricettacolo o cisterna da tener aqua*. (Caprin 1968: 147).
The well-known map of Istria by this author shows Turnina under the name *Rouigno u(echio)*.

2 *Quattro miglia più dentro Terra vi era anticamente un Castello detto Arupino che fu distrutto da Romani nel Consolato di Caio Claudio Pulchro con altre molte terre. Quivi per esservi gran penuria di aqua in tutto quel territorio vi fu escavata una gran Cisterna per raccoglier le piove che scendono dal Cielo, et vogliono alcuni che Rovigno sia denominato così, perchè sia stato fabbricato delle rovine di Arupino*. (Olomo 1885: 159).

3 The original title of the work is *Delle memorie dell'Istria sacre e profane con la più essata topografia, ò sia descritione de' luoghi, che sino hora s' habbia veduto: il tutto tratto dall'opere de migliori scritti, et in spetie dalli scritti dell'eruditissimo Monsignor Giacomo Filippo Tomasini fù Vescovo di Città Nova col parte seconda* (1681), and was published in 1968 by G. Borri in collaboration with Monsignor L. Parentino as *Memorie sacre e profane dell'Istria*.

4 [...] *.Anzi nella sommità del Monte della Torre, lungi circa due miglia da Rovigno, si vede un'altra fabrica alla rustica con balconi // e scale con appartamenti soterranei, ed ivi n' anco una Cisterna, il tutto dirupato e guasto dall'ingordigia del tempo, mostrando solamente essere reliquie dell'opere Romane*. (Tommasini 1837: 426; Petronio 1968: 373).

Fig. 5 Photographs of Turnina from the beginning of the 20th century (Caprin 1968: 147)

ly preserved up to the level of the fourth floor (Fig. 5), while the south wall had almost entirely collapsed (Kandler 1849: 148–150; 1855; Caprin 1968: 148; Bader 2016: 138–139). At the close of the Second World War, in 1944, major damage was done to the tower when the Partisans drew an enormous five-pointed star on the walls of the tower, which German soldiers covered up with a large swastika. When the Partisans drew a star a second time the tower was partially demolished by the Germans with a dynamite charge (Benussi 1986: 221; Radossi 2008: 403). This collapsed almost all of the outer walls of the tower and buried the remains under the building material.

ARCHAEOLOGICAL EXCAVATION

As of 2013 the Croatian Conservation Institute has conducted systematic archaeological excavations and conservation-restoration interventions to rehabilitate the preserved architectural remains of the tower. The excavations to date covered the area to the north of the remains of the tower and the area alongside its south wall. Collapse debris was removed from the ground floor rooms of the core of the tower and from the area alongside the outer walls to the east, south and a part of the west side. The archaeological campaigns to date have seen the excavation of only a small part of the site and the results, therefore, may serve only as a preliminary orientation in its interpretation (Višnjić 2014; 2015; Višnjić, Pamić 2016).

We will not here go into a comprehensive analysis of the collected small archaeological finds, but in order to understand the development processes that took place at the site we do need to cite, in the broadest terms, their characteristics.

It certainly is worth noting that small archaeological finds were recovered from all of the excavated trenches that suggest the use of the site in the Bronze Age. These are solely potsherds that are, as a rule, very highly fragmented, such that there are almost no diagnostic sherds on the basis of which we might offer a more precise date. Indicative of the hillfort nature of the prehistoric site are the remains of drystone wall ramparts that encircled the plateau at the peak of the hill.

Excavations to the south side of the tower revealed the remains of the almost two metre wide south perimeter wall of the medieval edifice. What was once the upper section of this wall has slipped as an intact block and now leans on its base in front of the wall. A subsequent walled reinforcement of the foundation was identified alongside the south and east wall, which can best be interpreted as an attempt to stabilise parts of the building's structure that had, at some point in history,

begun to show signs of static instability.

The remains of two linked structures were discovered to the north of the tower. The remains of lime flooring were documented inside these structures that, in combination with the carved bedrock, formed the walking surface of the rooms. The round imprints of posts were found at several places, the fragments of which were recovered in the immediate vicinity. The entrance door to the structure to the north was identified on the west wall, while communication between the structures was by way of three stone steps on account of the change in the level of the terrain. Between these structures and the tower there has been a partial excavation of the remains of the cistern – the perimeter walls and flooring of which were covered in hydraulic plaster.

The remains of an earlier structure were identified beneath the lime flooring of the structure to the north. The remnants of the foundation of a wall running from north to south were documented, as were the remnants of a masonry oven, which had been negated and filled in during the construction of later structures and floorings (Fig. 6). Given the context of the cited finds and the accompanying small archaeological finds we propose that these are the remains of a structure from the earliest medieval phase of the use of this site.

Fig. 6 Traces of the outbuildings from the first phase of development under the floors of later buildings (photo by: J. Višnjić)

Another trench was excavated a little to the east of the described structures in which a wall, preserved only as the remnants of the foundation, was identified running east to west. A thin layer of soil was excavated alongside it yielding a large quantity of archaeological finds on the basis of which we can conclude that these are again the remains of a structure from the earliest phase of medieval use of this site.

Predominant among the small archaeological finds that can be dated to the period from the ninth to eleventh century are sherds from pots characterised by decorations consisting of single wavy lines, sometimes interwoven (T. 1: 1-4), and simple or only slightly triangularly thickened rims (T. 1: 5-7) for which we find comparative specimens at numerous sites in the broader surrounding area. Pottery possessing similar decorative motifs is dated, as a rule, to the ninth and tenth century period (Bekić 2006: 219, T. 13: 1–5; Jarnej 2001: 465, T. 1: 1–3; Predovnik 2003: 58, cat. 1–22; Stadler 1995: cat. A77–A84; Tica 2008: 163–169). Simple (unemphasised) or only slightly thickened rims, the cross-section of which acquires a triangular form, have a broad use period, but we do find the closest parallels among material dated from the tenth to twelfth century (Višnjić 2012: 142–143, T. 1, 2; Negri 2007: T. 2: 15; Piuzzi et al. 2003: 104; Villa 2004: Fig. 1, 2, 4; Rigoni 1992: T. 2: 12; Guštin

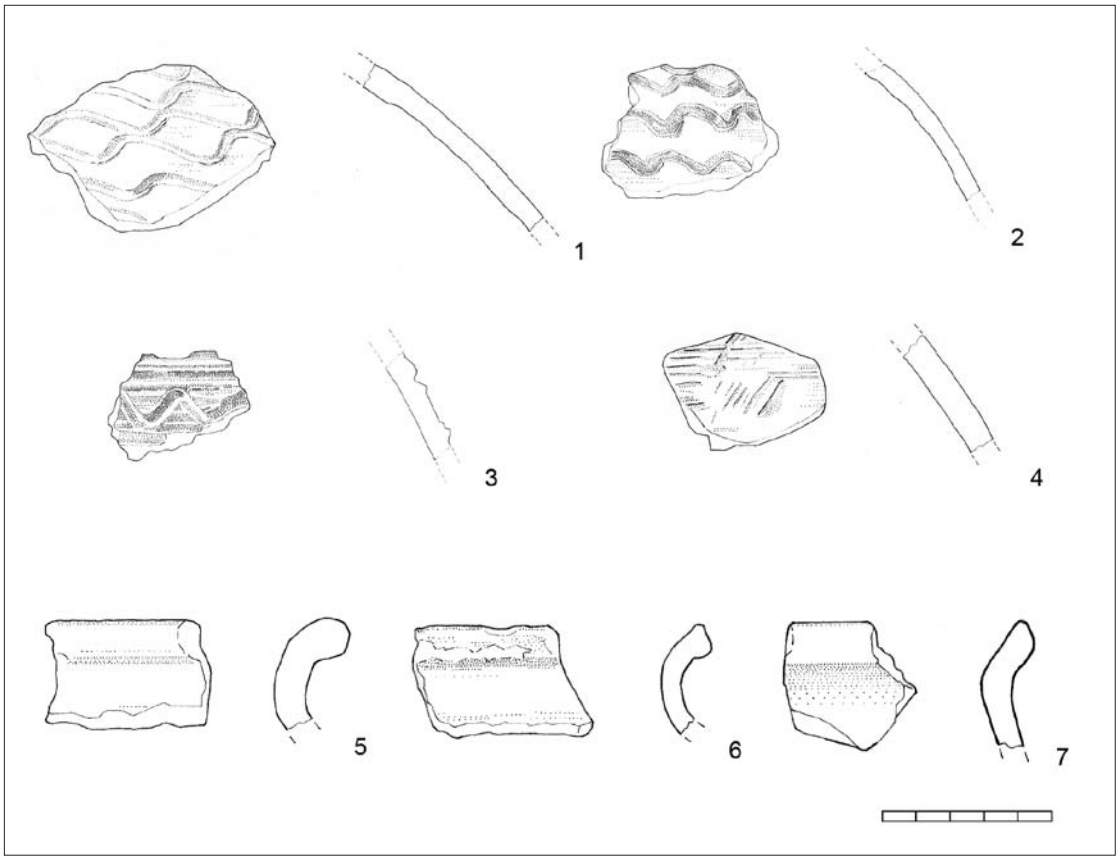

Table 1 Examples of ceramic finds from the earlier developing phase of the site (9th–11th c.) (drawing by: G. Čvrljak)

2008: 55–56, Fig. 4: 3; Cipot 2008: 62, cat. 14; Plestenjak 2008: 72–73, cat. 3; Kerman 2008: 80–84).[5]

Finds of pottery from subsequent centuries are characterised by numerous sherds of coarse cooking ware, i.e. pots decorated with single wavy lines and moulded bands decorated with the impressions of a sharp object (T. 2: 1-6). Given the forms of the recovered vessels and some comparative finds from other sites we can propose a date for most in the twelfth and thirteenth centuries (Višnjić 2012: 142–143, T. 1, 2; Negri 2007: T. 2: 15; Piuzzi et al. 2003: 104; Villa 2004: fig. 1, 2, 4; Rigoni 1992: T. 2: 12; Štular 2009: 134–135, cat. 11). Also found were sherds of glazed tableware used for serving food (T. 2: 7-10). These are sherds of vessels from the group of early Venetian *invetriate* (Bradara 2006: 21; Cozza 1988: cat. 57; Gusar 2010: 40–41, 48–49; Gelichi 1986: 133; Bradara, Saccardo 2007: 26; Zglav-Martinac 2004: 41) and archaic maiolica (Gusar 2010: 114–123; Zglav-Martinac 2004: cat. 101–112). This ware was imported into Istria from the workshops of northern Italy in the thirteenth and fourteenth centuries. A small number of potsherds point to some of the pottery having some to Turnina from distant, at the time developed workshops hubs in Spain (Gusar 2010: 194; Bradara 2005).

Also noteworthy is the fact that a large number of horseshoes and one spur were recovered in the course of the excavation of the structure more to the north, which may point to the former use of this structure. Also found was a large quantity of arrowheads that are, by their typology, for the most part from the second phase of development.

Among the recovered fragments of stonework are several sections of doorsills, two fragments of round columns with a diameter of 50 cm, a fragment of a window jamb from an arched window carved from two stone sections, a polygonal fragment of a column that most likely once formed a, now destroyed, mullion, and a marble capital that, by its dimensions, also likely came from one of the windows. For most of the cited fragments the high level of fragmentation and lack of representative details means that a dating frame is difficult to establish – the cited window jamb, however, is of the window type found on Romanesque sacral structures, dated to the twelfth and thirteenth centuries (e.g. St Vincent's church in Svetvinčenat). We see a typologically similar window on a photograph published by G. Caprin on the western, projecting section of the tower.

Judging from the conducted analysis of the preserved architectural structures and applying the "archaeology of archi-

5 These early dates are corroborated by the extracted samples of charcoal. One of the samples yielded an absolute date of 826±30, the second analysed sample yielded an absolute date of 1030±30, while the third analysed sample yielded an absolute date of 935±30. The sample analyses were conducted at the laboratory of Beta Analytic Inc. of Miami under laboratory numbers TUR15SJ62U2, TUR15SJ76U3 and TURNSJ112U5.

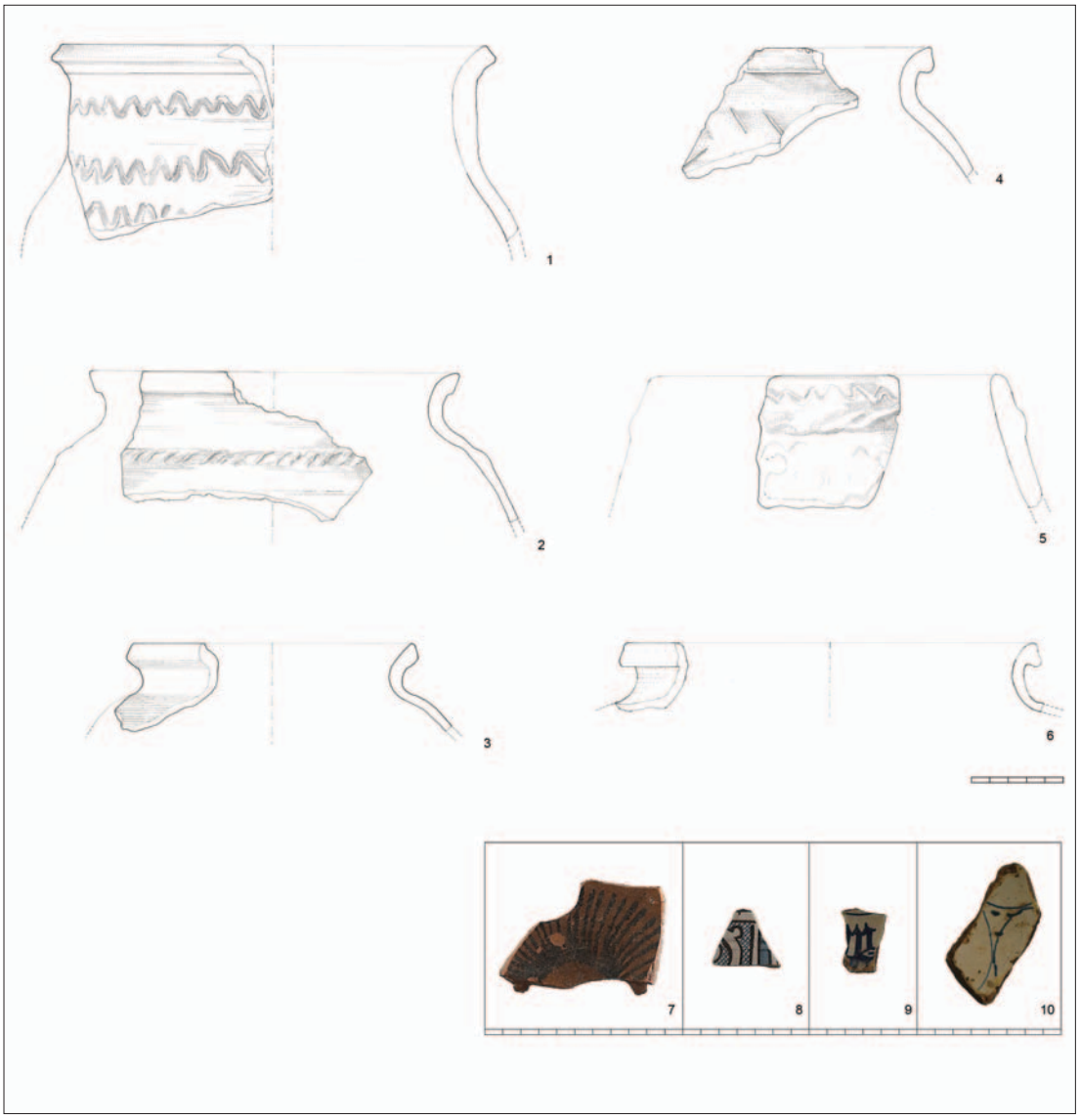

Table 2 Examples of ceramic finds from the later developing phase of the site (12th–15th c.) (drawing by: G. Čvrljak)

tecture" method (Fig. 7) we see that the first phase of the development of Turnina saw the erection of a structure of rectangular layout that constituted the base of the subsequent tower. Its floor plan was 18.4 by 17.2 metres, with the perimeter walls reaching a thickness of two metres. The entrance, an arched passage, was located in the west wall. This wall had one high and narrow arrow slit and the other three walls had two each. In the interior there were the attendant arched niches. In the partition wall that ran along the middle of the structure, from east to west, there were two mushroom-shaped passages.

The tower's original height cannot be concluded with certainty on the basis of the preserved structures. One detail on a photograph published in the work of G. Caprin (Caprin 1968: 148), shot from the south does, however, give us an inkling of the answer to this question. The photograph, namely, shows that the walls of the projecting section of the tower up to the level of the first floor only lean onto the western wall of the core section of the structure, while at upper sections they are organically connected. We can, therefore, hypothesise that the initial building had a ground floor and one storey. Two outbuildings and a cistern have been partially identified in the area around the structure.

Along with some minor partitioning as identified by the analysis, we can define the second major construction phase as that in which this structure took on the attributes of a residential tower. At the time extensions were built onto already evidently damaged architectural structures that significantly increased the height of the structure which, judging from Kandler's descriptions (Kandler 1849: 148–150; 1855) and old photographs (Caprin 1968: 148; Bader 2016: 138–139), grew into a tower with a ground floor and three storeys above which there was either a roof structure or an open terrace. It was also likely at this time that a projecting section was built on the west side that was as tall as the core tower section. Judging

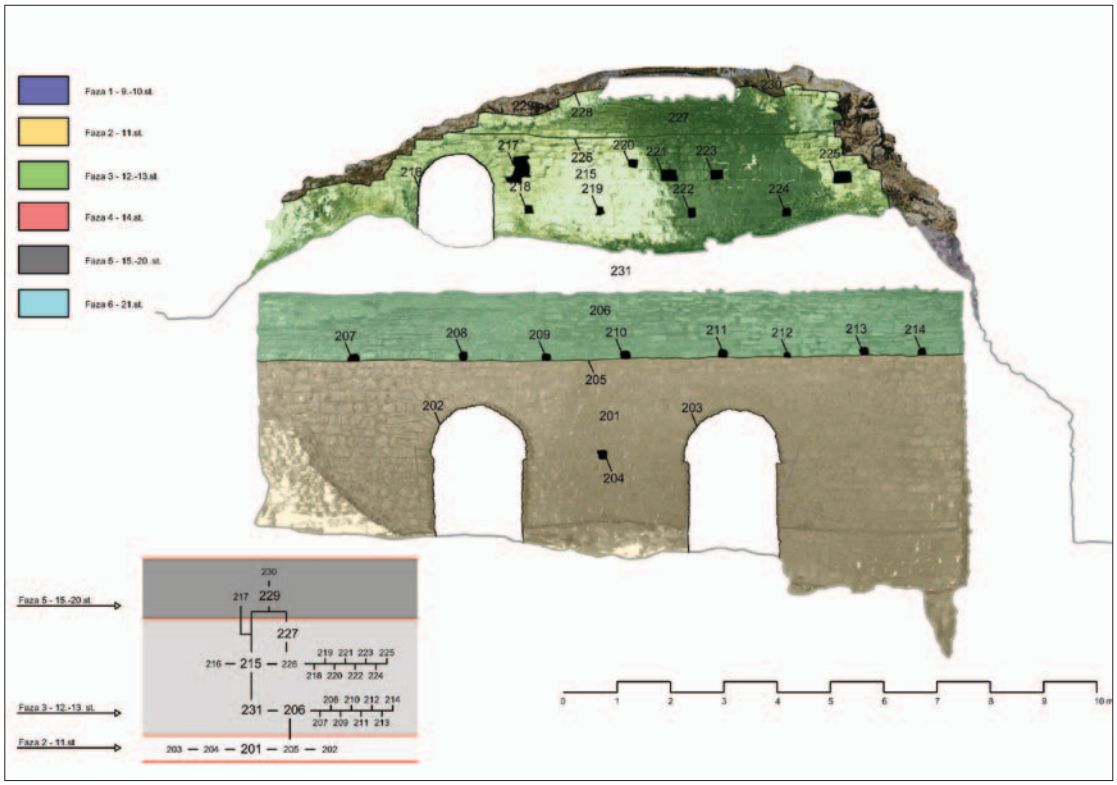

Fig. 7 The stratigraphy of the northern wall of the interior of the tower with the accompanying Harris matrix (author: J. Višnjić)

from Kandler's description the second storey likely assumed the role of showcase/reception rooms, given that he mentions *…five openings, of which two are doors that have balconies and three are windows terminating in a semi-circular arch.* During this period there are also auxiliary outbuildings to the north of the tower that have been partially investigated in the archaeological excavations to date (Fig. 8).

Fig. 8 Aerial view of Turnina from the northeast (photo by: J. Višnjić)

TIME FRAME OF THE INDIVIDUAL PHASES OF DEVELOPMENT

The sparse available historical data reveals nothing of the earliest period of the use of the structure. We must, therefore, rely on the data drawn from the archaeological excavations and the stylistic analyses of the few architectural elements that provide at least an approximate dating frame (Fig. 9).

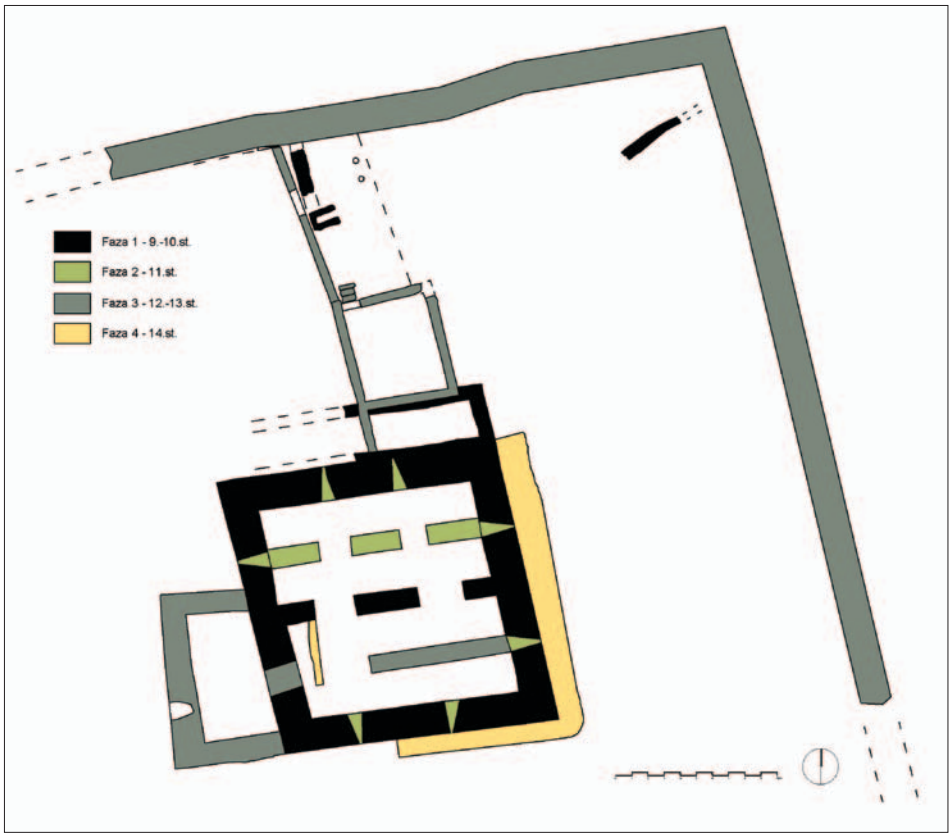

Fig. 9 Ground plan of the fortification with indicated developing phases (drawing by: J. Višnjić)

The earliest small finds recovered in the course of the archaeological excavations to date were not collected near the tower itself, but rather near the structures that occupy the area to its north. This is not overly surprising given that excavations to date have been targeted primarily to the northern end of the site and that the excavated sections of the tower had seen construction adaptations in later centuries, which disturbed the original medieval archaeological contexts. Based on the collected archaeological finds the use of the structures in question can be placed in the period from the ninth to eleventh century, with this early date corroborated by the analysed charcoal samples.

The structures erected around the tower, around which all the described finds were recovered, were certainly only the buildings attendant to the main edifice positioned at the centre of this medieval site. The cited dates are therefore to be taken as indicators of the time of the erection and use of the first phase of the development of the tower.

Several other facts point to the same conclusions. The walls of the first and even of the second phase of the development of Turnina are built of rubble masonry, with no subsequent dressing. The builders most likely made use of the available construction material collected from the collapsed ramparts of the prehistoric hillfort, as indicated by the very large blocks built into the lowest parts of the walls. If we take nearby Italy as an example we see that this method of building is in fact characteristic of structures erected in the period from the seventh to ninth or tenth centuries, whereafter there is increased re-introduction of building with dressed or semi-dressed stone (Brogiolo, Cagnana 2012: 155–159). In Istria there has been a partially archaeological excavation of only one habitation site with a clearly demarcated ninth to eleventh century construction phase. This is the Guran settlement, where the construction of the ramparts has been dated to the turn of the eighth to ninth century. In them we see a construction technique very similar to that at Turnina, as here too the walls are about two metres thick, their faces built of large irregular stone blocks, with the core filled with smaller rubble (Jurković 2013: 28–29). We can draw similar conclusions if we take as examples some of the churches erected in the Rovinj municipal area in the early and high medieval periods. Thus, for example, in the churches of St Thomas and of

St Mary of Bale (*Sveta Marija Velika / Madonna Alta*) at Bale, the erection of which is dated to the eighth or ninth century (Matejčić 1997: 14–15; Jurković, Marić 2005: 240–242; Jurković, Milošević, Marić 2006: 223–225), we see the same method of construction, while at some early Romanesque churches that can be dated to the eleventh century, such as St Christopher, St Cecilia or St Elijah in Bale, we see a tendency towards building with dressed stone, although this is still a far cry from the application of the large ashlar blocks that will characterise the coming period of the mature Romanesque or Gothic periods.[6]

As one of the rare architectural details preserved on the walls built during the first development phase we can point to the mushroom-shaped passages. Although openings of this type are characteristic of the early Byzantine, Justinian period – which we find in Istria, for example, at the Euphrasian basilica and the attendant episcopal building in Poreč, on the northern wall of the St Mary Formosa and St Nicholas churches in Pula, in the ramparts of the "castrum" on the Brijuni islands (Matejčić 2012: 24–25), and in the tower in Stari Tar (Benčić 2006: 331) – we do also see similar forms in structures erected at a later date. As very close analogies we can single out St Mary of Bale, dated to the eighth and ninth centuries (Jurković, Marić 2005: 240–242; Jurković, Milošević, Marić 2006: 223–225), and the somewhat later examples of the churches of the Nativity of the Virgin Mary (*Sveta Marija Mala / Madonna Piccola*) in Bale, St Agatha's in Kanfanar or the third phase of St Sophia's in Dvigrad (Marušić 1971: 7–55; Brogiolo, Malaguti, Riavez 2003: 135–136).

One other detail of the architectural remains of Turnina is noteworthy. These are the tall and narrow arrow slits and the attendant niches in the interior of the structure. The invention of arrow slits is attributed to the ancient Greeks, with the oldest description provided by Archimedes from the Siege of Syracuse (214–212 BCE). They are described as "… apertures at the height of a man, about a palm's breadth on the outside, through which defenders could launch arrows and scorpions" (Jones, Renn 1982: 445). The Roman period was also familiar with this element of fortification architecture – we can cite the best-known example of the Theodosian Walls at Constantinople. In European medieval fortification architecture, however, they only saw broad utilisation from the twelfth century (Großmann 2013: 67–68). These perforations of the walls, therefore, are not at all consistent with the proposed dating of the first phase of the construction of Turnina, although we should not rule out the possibility that these are, like the previously mentioned doors, a relict of early Byzantine fortification construction. It should certainly be emphasised that the arrow slits of this phase of Turnina deviate significantly in terms of their size from other known examples in Istria, which further opens the possibility of an earlier date.

The late eighth or mid-ninth century, which likely saw the first phase of the development of Turnina, is also the period of the stabilisation of the newly introduced administrative system on the peninsula. This was a period in which the establishment of Frankish legal norms deprived the Istrian towns of the rights and privileges they had enjoyed in previous centuries, as was made evident in the course of the Diet that assembled at the Rižana River (the *Placitum* of *Risanum*), most likely in the year 804 (Klaić 1972: 9–13; Levak 2007: 16–18). From the preserved records of this diet we clearly see that there was a dispute between the representatives of the newly established administration and the representatives of the towns dominated by landholders whose rights were gradually being diminished, the diet being an attempt to halt the process. The resistance to the new regime was certainly strongest in the developed urban hubs. Also worth noting is a period of intense construction activity characterised by the inflow of new influences in the late eighth and early ninth century, largely outside of the towns. Based on the locations of these structures we can conclude that the Frankish regime endeavoured to exercise a measure of control of the area by making inroads initially into the strategically critical castles, including Dvigrad, Bale, Motovun and Sveti Juraj[7] and by establishing new fortified points like Guran and Ružar (Levak 2007: 110). The same period also saw the establishment of a number of monasteries, also located alongside key roadways, while at the symbolic level the presence of the new regime was also manifested through the erection of a large number of sacral edifices of representative scale in the immediate vicinity of the towns, i.e. on territories long and entirely Christianised, such that this construction activity can only be interpreted as a demonstration of power aimed at the indigenous populations of the towns (Levak 2007: 107–109). It is in this sense that one should appreciate the erection of Turnina, which served as an excellent point of control over all movement across this part of the peninsula, while its presence on an elevation overlooking the town must have left a strong psychological impression on its inhabitants.

We can only associate the northern partition wall of the ground floor with the second phase of development. Perhaps best attesting to the time of its construction is the date acquired from a sample of charcoal from the burnt soil layer on

6 As examples we can take the churches of the Immaculate Conception in Rovinj (14th century), St Bartholomew's in Rovinj (14th century), Sveta Nedjelje (Holy Sunday) in Bale (12th century), St Catherine's in Bale (13th century), St Vitus' in Bale (12th century)...

7 Archaeological test excavations in 2016 confirmed the continuity of the use of this site from the late Antiquity to the late Middle Ages. Given the strategic position of this settlement/castle at the mouth of the Mirna River, the fact that it was also in use in the early medieval is not unexpected (Višnjić 2016).

which the foundations of this wall were laid. The charcoal was dated to 935±30,[8] and the construction of the wall, hence, should fall in the same period. In it we again find mushroom-shaped passages of somewhat smaller size than those of the first development phase. We can hypothesise that the builders either imitated the existing openings, or entertain the possibility that openings of this kind remained the customary method of shaping wall perforations at the time of its construction.

Judging from the condition as found and the older photography, the third phase of development constituted a major turning point in the construction and functioning of this structure. It appears that this was in fact the point in time at which it acquired a form that can be identified as a tower (Fig. 10). By then the structure had certainly long passed from the hands of the central authorities into those of the feudal owners which, judging from the available documents, we should seek among the bishops of Pula, the patriarchs of Aquileia and the members of the gens Sergia, i.e. Castropola family. There are no preserved significant details of the architecture that could be of help in trying to attribute a date to this phase of the structure's construction, but the attendant archaeological material and some details of the architectural stonework recovered in the course of the archaeological excavations do point to a possible twelfth century dating. The excavation of the south ground floor room, namely, yielded the recovery of fragments of pottery that, based on analogous finds from Petrapilosa, can be attributed to the eleventh or twelfth century (Višnjić 2012: 142–143, T.2). The discovered fragment of the arched window jamb of a small window, the likes of which are known to us from several Istrian Romanesque churches, can be attributed to the same time frame. We find an example of windows of this kind at St Vincent's church in Svetvinčenat, dated to the twelfth century. We see a window of this shape in a photograph published by Caprin (Caprin 1968: 148) showing the west wall of the addition to the tower. The mushroom-shaped passage in the ground floor partition wall with dimensions consistent with those of the first development phase likely only imitate the openings already present and cannot served as a dating indicator.

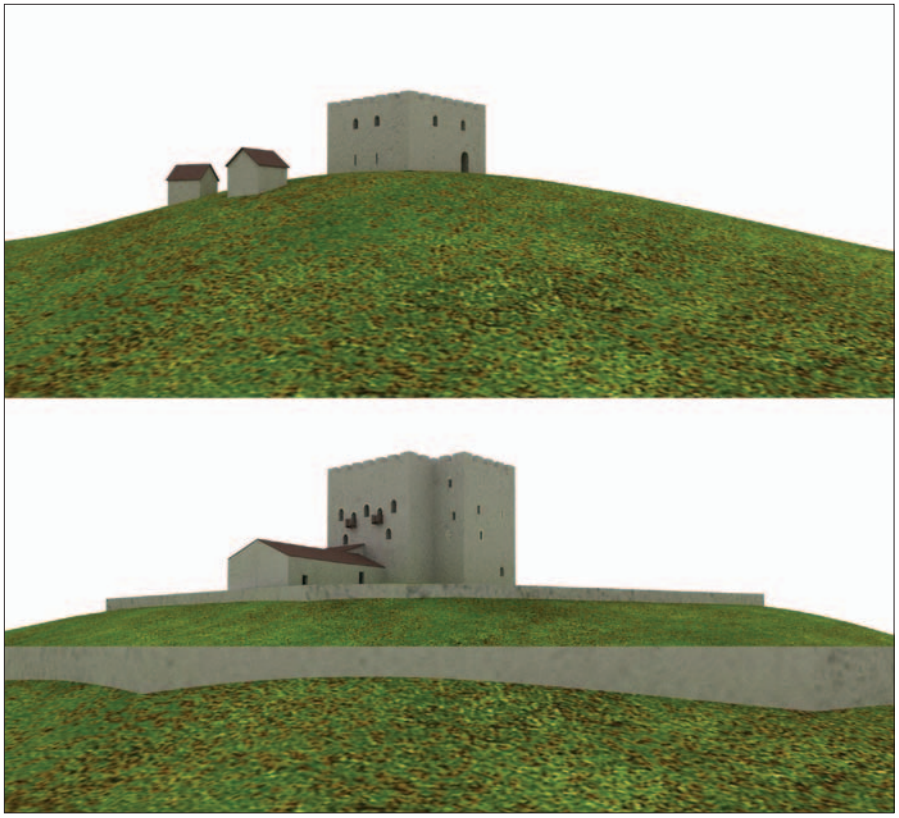

Fig. 10 A conceptual reconstruction of the tower in its first and third phase of development (made by: V. Gašparović)

Also pointing to the hypothesised date is the method of building applied in the architectural remains of the third development phase. We find the closest parallels to the use of small-dimension dressed stone blocks laid in regular courses among the sacral and profane structures associated with the Romanesque style like the churches of Sveta Nedjelja, St Catherine and St Vitus in Bale or among the examples of Romanesque residential structures in Poreč (Prelog 2007: 105–107, 215–218, 264, Fig. 68, 69, 187, 188, 234) and so forth. Barrel vaulting also suggests the erection of this part of Turnina in the Romanesque period, when we also see vaulted spaces in the small number of sacral structures. St Nicholas' church (Sveti

8 The sample analysis was conducted at the laboratory of Beta Analytic Inc. of Miami under laboratory number TURNSJ112U5.

Mikula) in Labin can serve as an example (Demonja 2007: 81–82; Fučić 1953: 102; Mohorovičić 1957: 510–511; Marušić 1974: 20–21). The quoins of the protruding section of the structure are built of stone blocks dressed in the *bugnato* rustication technique. Although this technology of dressing stone blocks was known of much earlier it is indicative that, in Genoa for example, we see several structures built using similar building materials, dated to the twelfth century (Brogiolo, Cagnana 2012: 150, 132–133), which is also the time of the emergence of this building technique in Central Europe (Großmann 2013: 126; Losse 2015: 71).

We find the best comparative examples, in terms of form and function, among the tall fortified houses of Slovenia and Austria. Their construction is dated to the period from the eleventh to thirteenth century (Stopar 1977: 74–84; Sapač 2003: 16–17). In Austria the erection of these types of structures is associated for the most part with the twelfth century (Fries 2014: 445–454; Kühtreiber et al. 2007: 139–141, 151–154, 249–255). All of these structures differ to some extent in terms of their form, that is to say they are less reminiscent of towers, but one should bear in mind that the older structure, which in part determined the shape of the building, served as the foundation for this phase of Turnina. In terms of its function, however, Turnina is very much analogous to the cited examples. In terms of its appearance (i.e. visually) we find examples somewhat more similar to Turnina in western Czechia, at Přimda, where the tower is also dated to the twelfth century. The author, however, finds models for this construction in the keeps (*donjons*) of for us quite distant parts of England (Razím 2013: 217).

With regard to its history we can propose that Turnina saw these major construction episodes at a time when it was under the control of the Aquileian patriarchs, while later smaller adaptations are to be associated with the passing of this landholding into the administration of the Castropola family, which ruled over it in the second half of the thirteenth and during the first three decades of the fourteenth century. Besides what has already been noted, it is not likely that the commune of Rovinj, after having assumed control of the structure, entertained ambitions of building a residential palace for the accommodation of … *one captain and several guards for its protection* … (Benussi 1888: 64).

Some alterations that can be associated with the fourth phase of development are in fact most likely attributable to the fourteenth and fifteenth centuries, when there was evidently a change in the communication between the ground and first floors.

Given the historical data that indicates that the tower had already been partially destroyed by the early sixteenth century, and the complete lack of archaeological finds that could be attributed to a later period, we can point to the late fifteenth century as the beginning of its period of collapse. From that time on there was a gradual decay of the structure, significantly accelerated by human activity in 1944 (Benussi 1986: 221; Radossi 2008: 403; Višnjić 2015).

We can, therefore, conclude that Turnina most likely in its first phase of development functioned as a control point for this part of the peninsula associated with the establishment of the Frankish regime in the ninth century and later. Given the extant architectural remains it is quite clear that the structure at that time had already been given some defensive tasks, as is vividly evidenced by the thickness of the outer walls and the arrow slits. In the following few centuries it saw only minor alterations and, given that we can see that the outer face of the north wall had been damaged prior to the erection of structures we attribute to the third phase of development, we can propose that the structure had either been abandoned for a time or that there was a violent demolition of a part of the structure in the course of the twelfth century. It appears that the initial structure was partitioned and built up to the form of a defensive control tower that also satisfied a residential function in either the late twelfth or the early thirteenth century. This part of the development of the structure is associated with the period of its ownership by the patriarchs of Aquileia, with possible minor adaptations associated with the period under Castropola family ownership. Following the shift of ownership to the commune of Rovinj in the 1330s the tower saw only minor adaptations and by the start of the sixteenth century it was most likely abandoned and left to gradually fall into disrepair.

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ANDREJ JANEŠ

A Phantom Menace
Did the Mongol Invasion Really Influence Stone Castle Building in Medieval Slavonia?

The Mongol invasion of the Hungarian kingdom in 1241/1242 was one of the great events that occurred in the Hungarian history and became a landmark, especially in connection with castle building. In historical research on castles and also in popular culture, there is a deeply rooted idea that stone castles were built as a result of the Mongol invasion. Many research papers, on the topic of castles in the territory of medieval Slavonia, begin with the notion that they were mostly built in the middle of the 13th century in fear of a repeated Mongol invasion. In the case of medieval Slavonia, for most of the known castles, the exact date of their construction is unknown. This paper will try to show that the reasons for building stone castles were many, such as the spread of feudalism, partition of estates, the Arpad policies towards the West, the use of castles as symbols of might and rule etc. The threat of a repeated Mongol invasion in later centuries was more a myth than reality.

Key words: castles, medieval Hungary, medieval Slavonia, Mongol invasion

INTRODUCTION

The Mongol invasion of eastern Europe, that started in 1236, and culminated with the conquest of Kiev in 1240 and the invasion of the Hungarian Kingdom in 1241/1242, is one of the greatest events that took place during the Middle Ages. Hungarian historiography records that the defeat suffered by Hungarian royal forces on the Sajó River is the greatest catastrophe faced by a Hungarian king before the Mohács debacle (Engel 2001: 100). Even though the contemporaries saw the invasion as a hurricane conducted by a bloodthirsty, plundering, unorganized mob (Soldo 1969: 371), recent historical research indicates that it was a planned invasion of European territory. After conquering the Russian principalities, the Mongol army focused on the Hungarian Kingdom. As an excuse to attack, Batu-Khan, the leading commander of the Mongol army, used Hungarian king Béla IV's hospitality towards the Cumans.[1] The invasion was conducted from several directions, and the four parts of the Mongol army united in the Pannonian plain after successfully crossing the Carpathian passes. The troops commanded by Orda and Baidar had, after defeating Duke Bolesław V and the Silesian Duke Henryk II, pillaged Moravia (Sophoulis 2015: 253), and continued through Trénčin and Nitra towards Esztergom (Tatar 2012: 340). Batu and the majority of the troops crossed the Verecke pass (*Porta Rusciae*) and went from Eger and Vác towards Pest (Tatar 2012: 335–336), while two armies, commanded by Béjek and Kadan, operated in northern and southern Transylvania. On the battlefield near the Mohi village on the Sajó River, the Mongols destroyed the Hungarian royal army on April 11, 1241 (Engel 2001: 100), and all Mongol forces united in the quest to conquer Pest. Béla IV managed to survive the catastrophe on the Sajó River, and escaped to the west (Fig. 1).

1 The real reasons behind the Mongol invasion are still an open debate; for bibliography, see Sophoulis 2015: 253, footnote 4.

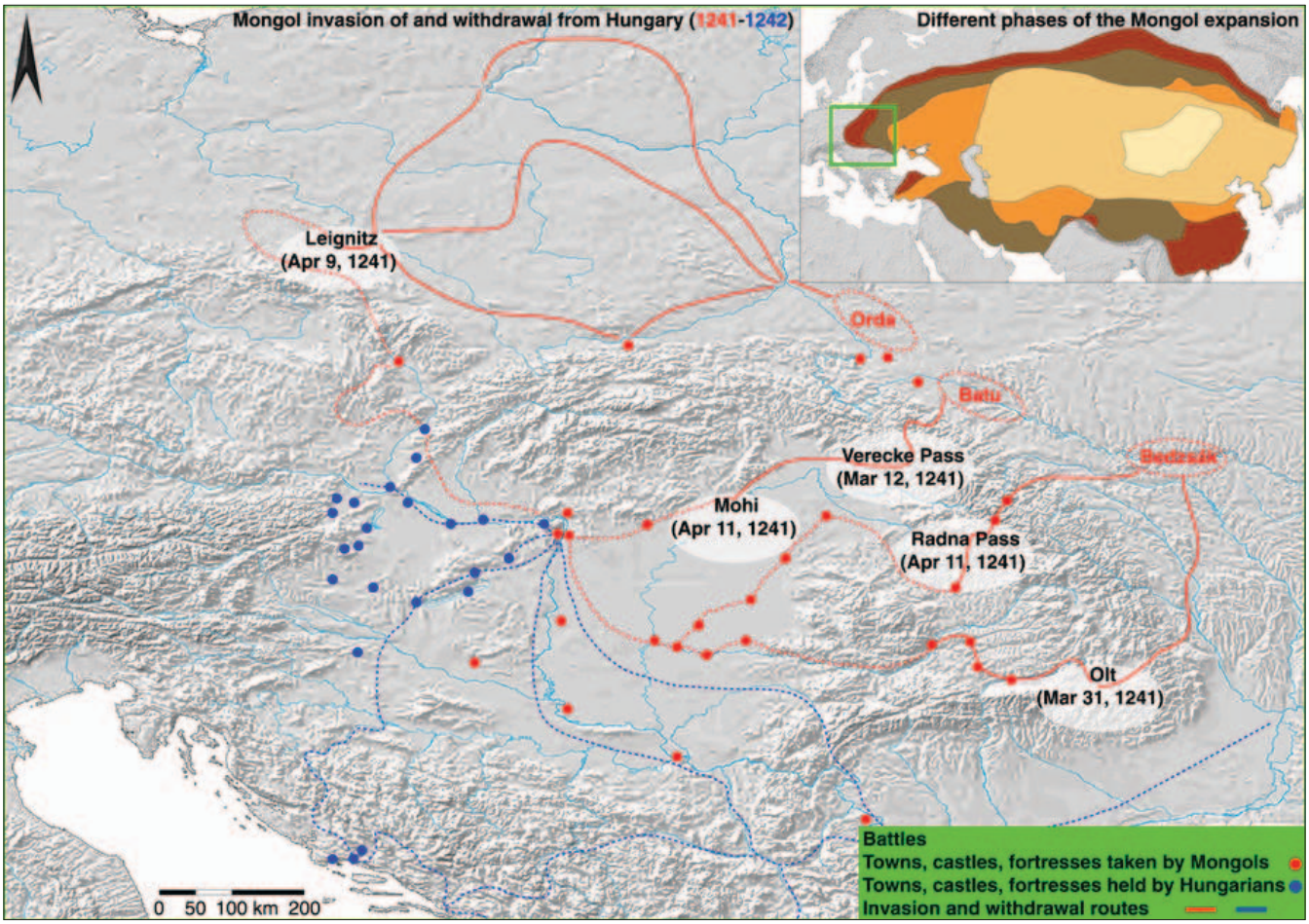

Fig. 1 Map of the Mongol invasion (Büntgen, Di Cosmo 2016: Figure 1)

KADAN'S PASSAGE THROUGH CROATIA

The hunt for the Hungarian king Béla IV was conducted by Kadan. According to Thomas the Archdeacon, he set fire to Buda and Esztergom, and laid siege to Székesfehérvár (*Thomas archidiaconi Spalatensis* 2006: 289). He avoided larger sieges with the aim of capturing the king, but is connected to the attacks on Veszprém and Kalnik (Tatar 2012: 338). His presence in Szeged is also referred to, and was followed by the crossing of the frozen Danube River and laying siege to Klis and Trogir in Dalmatia (Rady 1991: 46). The movements of the Mongol army across Croatia and Dalmatia remain unidentified to this day. Although a large number of Croatian historians studied the event (I. Kukuljević, T. Smičiklas, V. Klaić), F. Šišić was the first to reject the descriptions of numerous battles and Croatian victories over the more numerous attackers, seeing them as make-believe based on forgeries conceived by the Frankopans and notaries of the town of Pag (Šišić 1962: 138–139, note 41; Soldo 1969: 374). On the other hand, Šišić brings news of how Kadan crossed the Danube and plundered the lands south of it, including Zagreb and its cathedral (Šišić 1962: 139).

It should be mentioned that the discussions on the Mongol invasion of Hungary do not agree on the movements of the armies in Slavonia and Croatia. Some authors feel that Kadan crossed the Danube near Esztergom and continued south, while others state that he conquered Belgrade and crossed to the western bank of the Danube near Kovin (Sophoulis 2015: 259).[2] The legend of the siege of the Veliki Kalnik castle (Fig. 2) and Béla's 1243 indenture about the merits of castellan Filip Bebek (from the line of Ákos) (Regan 2004: 85; Sophoulis 2015: 263) place the Mongol army into northern Croatia, i.e. in medieval Slavonia, and it can be assumed that the Mongols crossed the Danube near Esztergom and took the main road towards the south. It is thought that the contingent used the main road connecting Pest to Székesfehérvár, Veszprem, Zalavár, Kalnik and Zagreb (Tatar 2012: 338). Based on the sources, Kadan's army passed through Slavonia and Croatia in several weeks during February and March of 1242 (Sophoulis 2015: 263). Accordingly, it can be concluded that they took

2 The news of the conquest of the Hungarian town "Belegrave" was recorded by the Flemish William of Rubruck. A. Uzelac's opinion that this is Alba Iulia in Transylvania should also be mentioned (Uzelac 2015: 46).

the main road, documented in historical sources as *via Colomani regis*, that went from Zagreb towards Petrinja and passed through the Una River valley towards Knin and Dalmatia (Sekelj Ivančan 2008: 108, 114, Fig.1). On the way south, Kadan had prisoners executed along the *Sirbium* River in today's Lika. This was followed by suspended sieges and blockades of the Dalmatian cities of Split and Trogir, and the Klis castle (Sophoulis 2015: 265–267). At the end of March and the beginning of April 1242, the Mongols crossed into Bosnian and Serbian territories, only to go seawards again, passing next to Dubrovnik, but setting fire to Kotor, Svač and Drisht. In this campaign, they plundered the Principality of Serbia and Bulgaria, united with the majority of Batu-Khan's army in Wallachia and continued towards the lands north of the Danube.[3]

Fig. 2 Arial view of the castle of Veliki Kalnik (photo: Kalnik Municipality, 2008)

THE MONGOL INVASION AND CASTLES

The Croatian castle studies are dominated by the idea that the Mongol invasion had an exceptional influence on the creation of castles, primarily those made of stone. An idea has been suggested that the Mongol invasion, and even more so the rumors of their return, was the reason for the construction of many castles (Horvat 2014: 18). This generalized claim is added to by the fact that well-fortified castles were impenetrable to the Mongol army (Horvat 2014: 39). Such a claim is additionally supported by the nomadic nature of the conquerors that is seen as the main obstacle for successful besiegement. This hypothesis is challenged by the list of Mongolian successes under Genghis Khan who had, until Hungary was attacked, already assimilated northern China, central Asia and the Russian principalities into his Empire.

The hypothesis of the Mongol invasion as a turning point in the construction of castles is corroborated by written sources. Namely, most data on castles comes from documents dated to the mid-13th century – the time of the invasion, and most sources do not record the construction of castles as such. The date of the construction of medieval castles in Slavonia cannot be directly inferred.

The combination of these hypotheses provides a clear picture of the cataclysmic event that influenced complex social and political events.

However, sources contemporary to the invasion and the writings of western missionaries from the vast Mongol Empire bring interesting data on the organization of the military, including engineer troops that operated siege engines

3 The main reason for the departure of the Mongols is thought to be the death of the great Ögedei Khan, but the debate about the real reasons behind the Mongolian retreat remains open. On all the theories about the reasons for the retreat, and criticism, see: Pow 2012: 9–45. On ecological causes and criticism, see: Büntgen, Di Cosmo 2016: 3–7; Pinke et al. 2017: 2–4.

(Fig 3). Data on the Mongolian tactic of conquering castles is recorded by the Franciscan missionary Giovanni di Pian del Carpine in chapter 6 of his *Ystoria Mongalorum*. Along with siege engines, the, so called, Greek fire and many other tricks are mentioned that were used with the aim of forcing the defenders to yield (Oreb 1975: 81-82). A contemporary of the invasion, Roger of Torre Maggiore, a clergyman from Oradea (Hun. Nagyvárad), records successful sieges of cities, castles and convents.

Fig. 3 Siege engine in the illustration of a Mongol siege of a city from the Jami' al tawarikh by Rashid-al-din (Edinburgh University Library, source: www.wikipedia.org)

He mentions the siege of the Vác castle (*Rogerije iz Apulije* 2010: 22), and the seven siege engines raised in Oradea that were used to endlessly bombard the walls until they were destroyed (*Rogerije iz Apulije* 2010: 34). Describing the conquest of the Cistercian monastery of Egres, he mentions "many war machines" (*Rogerije iz Apulije* 2010: 37). The skill of besiegement was highlighted at Esztergom, where the defensive ditch was filled with bags of soil fired from siege engines (*Rogerije iz Apulije* 2010: 39).

The news of the military operations conducted between the Mongols and the Seljuqs in Asia Minor in 1243 also provides data on siege engines. After two months, the Mongol troops used this tactic to conquer the city of Kayseri (May 2016: 25). During the conquest of the Zarid castle, the army included Georgian and Armenian troops skilled at operating siege engines (May 2016: 24) (Fig. 4). In the following decade, the Mongol troops conquered the territories of the Ishmaelites and the Abbasid Caliphate through a campaign of sieges (May 2016: 32).

Fig. 4 The siege machine is operated by a person in middle eastern robes (detail of Fig. 3)

The Mongol army that conducted the attack on Hungary had practiced its siege technique in Russian principalities. At the end of 1237 and the beginning of 1238, they had successfully conquered Ryazan, Kolomna, Moscow, Suzdal and Vladimir (Lind 2011).

Although they managed to conquer a large number of cities and castles in the siege of Hungary, the letter sent by Hungarian prelates to the future pope brings a list of unconquered castles, all of them situated in the western parts of the country (Fügedi 1986: 45). This is seen as evidence supporting the successful protection of stone castles from the Mongol conquerors.

The inability to conquer castles is listed as one of the reasons for the Mongol retreat, seeing as they were insurmountable obstacles in their conquest of Hungary. If M.

Rady's hypothesis that about the invasion not being conducted in order to conquer Europe, but as a penal expedition against Béla IV, is accepted (Rady 1991: 46), the view of castles, their role and reasons for construction and distribution changes. The movement speed of the Mongol troops and the hunt for the Hungarian king did not open up possibilities for longer sieges, and Mongol failures can be seen as a way of avoiding castles, i.e. obstacles, in their pursuit of the king.

Some examples of unsuccessful sieges of castles include the attack on Székesfehérvár, Trogir and Klis. In the first two cases, a large factor that disabled Mongol attacks is the fact that both cities were additionally protected by marshy terrain. In the case of Trogir, this fact is made more prominent by its island position (Curta 2006: 412). This in itself prevented a sudden attack, and there was no time for a long siege. In the case of Trogir, the natural environment is listed as an additional factor. Thomas the Archdeacon lists the problem of providing the Mongol cavalry with fodder due to the karst-like terrain (*Thomas archidiaconi Spalatensis* 2006: 299).

The failed siege of Klis also supports the superiority of stone castles over the conquerors, but it is often disregarded that the attackers almost took the castle and that fighting was held on its walls, with the siege ending only when the Mongols realized Béla was not in the castle.

Siege length is demonstrated by the Kayseri castle in Asia Minor that was under attack for two months (May 2016: 25), the same amount of time the Mongol troops spent chasing king Béla across Slavonia and Croatia.

Based on Hungarian historian E. Fügedi's studies, the written sources helped establish that most medieval Hungarian stone castles were in the western part of the Kingdom prior to the Mongol invasion. The study of sources dated to the second half of the 13th and the 14th century revealed information on the drastic increase in the number of stone castles. Back then, Fügedi pointed to a divergence from the theory of fearing recurring Mongol attacks, seeing as the majority of new castles were built in the west of the country (Fügedi 1986: 47–48, 57–59).

CAUSES OF STONE CASTLE CONSTRUCTION

The causes of stone castle construction should be studied through wider social and political events that took place during the High Medieval Period, primarily through the development and the strengthening of nobility. In the eastern part of central Europe, the construction of stone castles began in the second quarter of the 13th, but its origins can be traced back to the end of the 12th century (Tkalčec 2008: 97). In the Hungarian Kingdom, until the 1241/1242 invasion, only the king built stone castles or issued permits for their construction. After the invasion, the construction of castles increased, but it was mostly financed by noblemen and prelates (Fügedi 1986: 52, 56; Rady 2000: 50; Tkalčec 2008: 98).

Additionally, stone castle analysis is dominated by a functionalist approach, whereby their military and defensive function comes first. They are generally of defensive character, giving them a defensive, but also the role of a place that needs to be protected. In this dualism, their military role must be considered, as must the culture of habitation (Tkalčec 2008: 99). Some examples show that castles did not have a strategic function in the wider context of the Hungarian Kingdom, and that they must be seen as displays of the owner's power and his right to rule (Rady 2000: 50). Castle construction can also be seen as an expression of status and wealth (Liddiard 2005: 38), as a mode of embodying knightly customs, the lifestyle of the great, and the portrayal of legends from the past (Liddiard 2005: 7). In such a context, castles did not have a military and strategic position, but were constructed within estates where they could be easily reached and had good communication that placed them in a wider settlement network. Thereby, their visibility within the landscape was a very important factor in position selection (Liddiard 2005: 123). Through a combination of placement and appearance, castles acquired visual significance that impacted incoming visitors, and can therefore be discussed as symbols of power (Liddiard 2005: 127; Štular 2009: 165).[4] Examples from Slovenia (Bled, Ptuj, Kamnik), where castles were erected on Early Medieval cemeteries during the 11th/12th centuries, point to attempts at connecting the newly-arrived German feudal lords with the older traditions, thereby strengthening their right to rule by representing them as legitimate successors of older power structures (Predovnik 2012: 101).

Castles were centers of noble estates, and depended on both them and the number of villages and villagers who served castellans and castle owners. The feudal nobility built castles for additional defense, but primarily to control their estates (Rady 2000: 50–54). The choice of position helped control most of the surrounding estate, including farmland and villages (Štular 2009: 165, Fig. 9. 5). One estate could have several castles, as exemplified by three casltes from Moslavina: Moslavina, Košutgrad and Jelengrad (Pleše, Sekulić 2013: 70–71, Map 1) (Fig. 5). Subsequently, additional castles were constructed

4 For Croatia, the nearest examples of viewshed analysis with a more phenomenological approach is Mali grad in Kamnik, where an explanation of the modes of constructing individual parts of the castle is provided with the aim of representing the owner (for more on the topic, see: Štular 2009: 161–165).

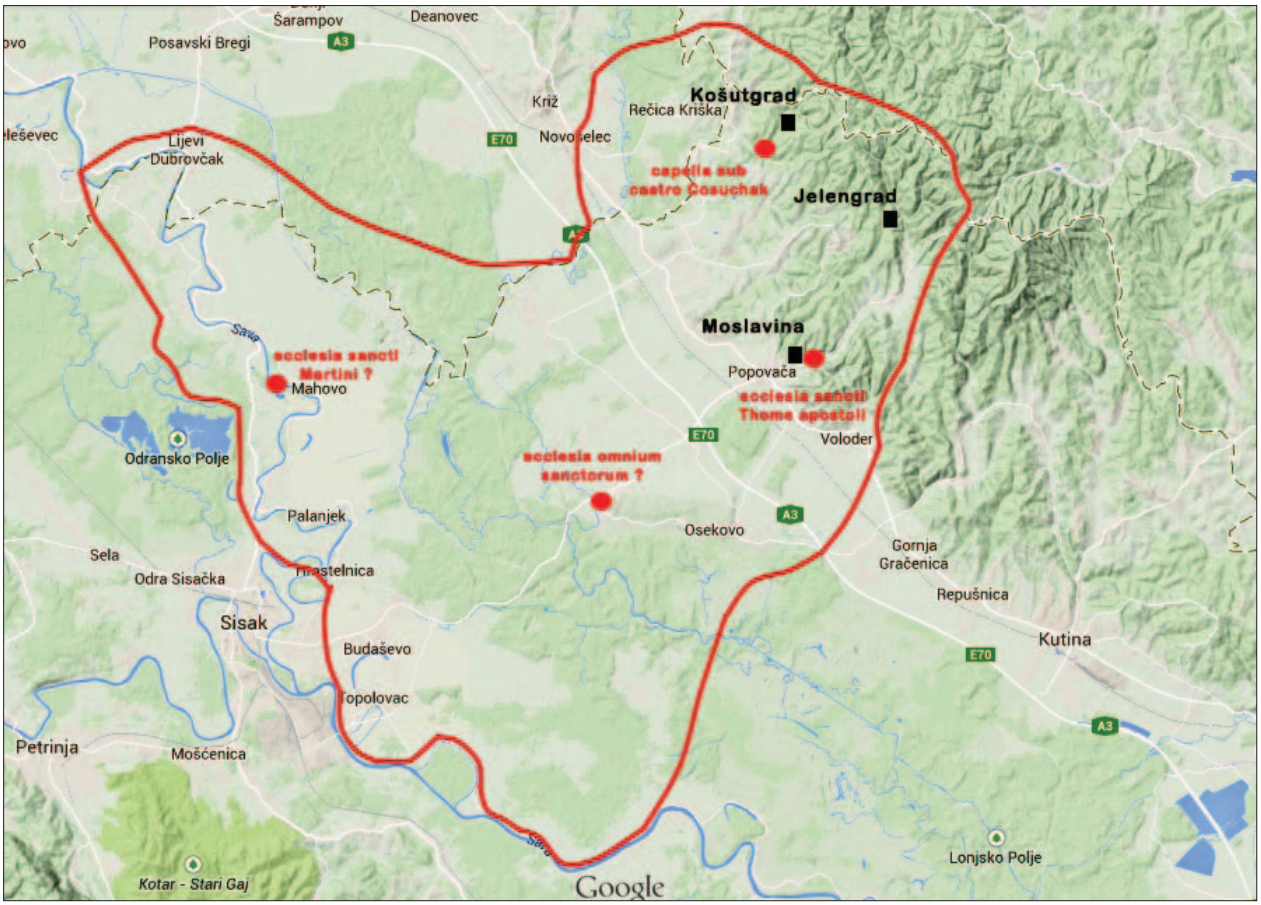

Fig. 5 Castles and parishes at the medieval Moslavina estate (map by: P. Sekulić)

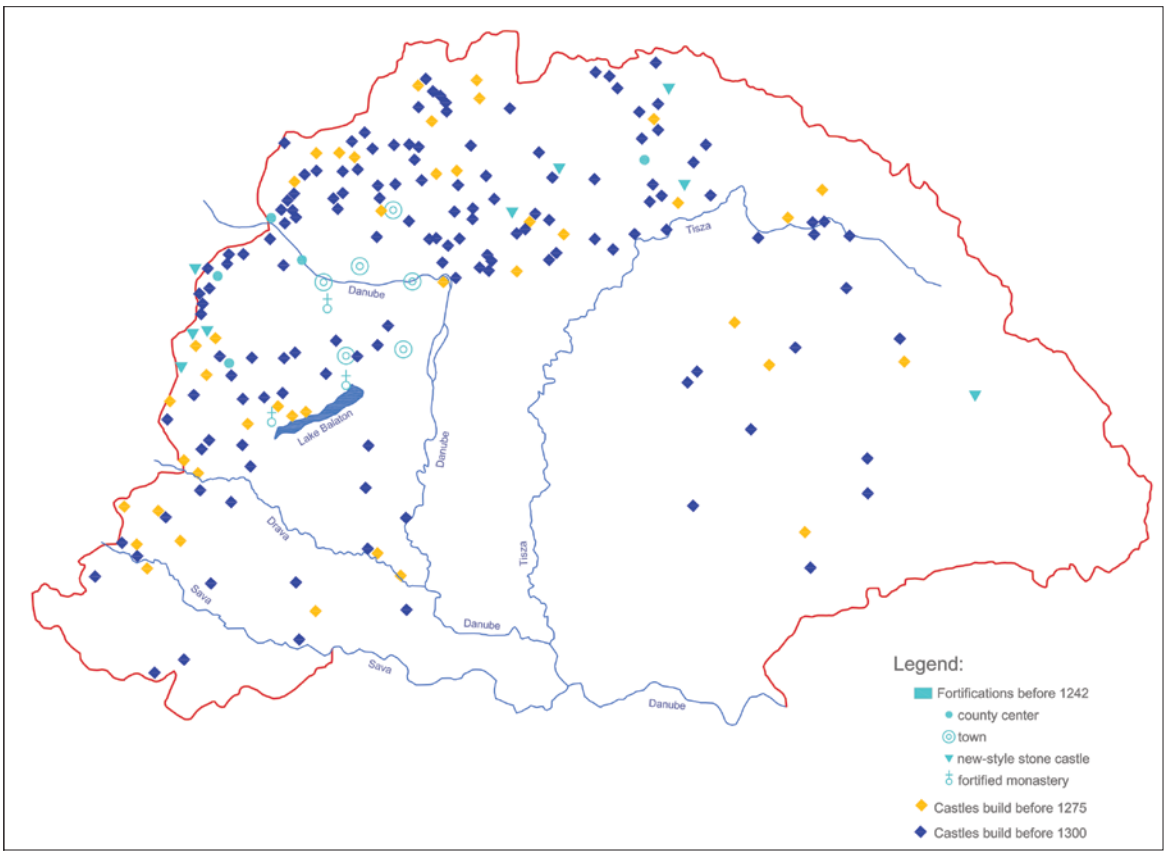

Fig. 6. Distribution of stone castles in the Hungarian kingdom till the beginning of the 14th cent. (after Fügedi 1986: Maps 3, 4, 6; map by: V. Gligora)

around the estate center, and the reason could be further estate divisions or the abandonment of the older castle in accordance with the new owner's needs, as indicated by Košutgrad and Jelengrad (Pleše, Sekulić 2015: 12)[5]. The construction of vast numbers of castles in the western and northern parts of the Hungarian Kingdom can be explained by royal estate donations. Namely, in the first phase of Hungarian settlement, most good and easily available land in the plain was distributed to church prelates and institutions. Until the mid-13th century, the king could not give the land to noblemen, but gave them lands on elevated positions above the forest border in the west and north of the country (Fügedi 1986: 69).

So far, the strongest argument for renouncing the hypothesis of the Mongol invasion being the cause of stone castle construction is presented by the results of E. Fügedi's castle mapping (Fig. 6). Fügedi indicates an interesting fact that, despite the threat of a new Mongol invasion from the northeast, the majority of new castles were constructed on the western and northern borders of the Kingdom (Fügedi 1986: 4–48). During, or right after the invasion, Hungary was caught up in frequent wars with its western neighbors, Bohemia and the vassals of the Holy Roman Empire in Austria, Styria and Carniola. This becomes especially clear from events caused by the mighty Austrian duke Frederik II of Bebenberg, who had captured king Béla during the Mongol invasion (Jackson 2005: 65). After the Mongol retreat and consolidation of power in 1246, Béla started a campaign to retrieve three counties (Moson, Sopron and Vas), that resulted in long-term warfare on the western border (Klaić, V. 1899: 263). After Frederik's death on the Leitha River, the Bohemian king Ottokar II joined the war that ended with the Hungarian defeat near Kressenbrunn. The estates were divided and Béla gave up his pretensions to take over Styria (Klaić, V. 1899: 266–271). After Béla's death, Ottokar got involved in the dynastic fights within Hungary. The Samobor castle was constructed during that war (Szabo 1920: 49–52), and was obtained by Hungary along with all the estates conquered by Ottokar after the Peace of Pressburg in 1272. Peace occurred only when Ottokar was defeated by Rudolf II of Habsburg in 1273 (Klaić, V. 1899: 277). This short description of events that took place during the second half of the 13th century reflects the situation that led to the great need for castles in the western part of the Kingdom, in this case, the western part of medieval Slavonia. Pressure on the western border of Slavonia was present from the middle of the 12th century, when Carniolan nobility used colonization and estate expansion to move towards the southeast by constructing castles and founding monasteries. The central zone of the Krka River flow attests to the fortification of the left riverbank by castles constructed by the Spanheim and Višnjegorski families, with the aim of colonizing the southern bank. The founding of the Cistercian abbey in Kostanjevica ob Krki fits well into this policy (Kekez 2012: 31–32). The noblemen, who were given rule over large territories, became the key factors in castle construction and space organization. The Okić family governed the vast territory between the Sava River and Bregana, as well as the territory of the Samobor Mountains (Kekez 2012: 403), while the lands in Zagorje were obtained by the Güssinger family in the 13th century (Karbić, M. 1999: 21).[6] This zone can be seen as the defensive line towards *Teutonia* (Klaić, N. 1976: 262; Tkalčec 2010: 108). Unfortunately, written sources differ on both sides of the border, i.e. there is a lack of documented sources on the Hungarian side. A good example is the position of the Kunšperk castle on the Imperial, and the Cesargrad castle on the Hungarian side. The preserved sources reveal the decision of bishop Henrik from Krško to construct the Kunšperk castle between 1174 and 1178, after an older castle that stood on the same spot was destroyed (Stopar 1977: 34). Cesargrad is on the other side of the Sutla River, but there are no documents indicating the date of its construction. It is first mentioned in sources dated to 1399 (Janeš 2014: 314). It should be emphasized that, despite the possibility that the castles were not built simultaneously, it is difficult to believe that they were constructed over 200 years apart. The construction of stone castles in Carniola started in the 12th century (Stopar 1977: 9), contemporaneous with the south- and eastward expansion of German colonization. The military interest in the western Hungarian border can be seen through the allocation of estates to knightly orders that took part in the fights between Hungarian kings and German emperors. The Hungarian kings gave the Hospitallers estates near the border and west of Varaždin, and the German Teutonic knights had estates on the other side (Belaj 2007: 478) (Fig. 7).

Siege engine development should be studied when searching for the reasons behind the construction of stone castles that had stronger walls or were on naturally protected positions. The effects of attack weaponry had on defensive complexes should also not be excluded. At the beginning of the 13th century, a new siege engine spread across Europe. It was

5 Research into the divisions of noble estates in Hungary has revealed two basic divisions. The estates were divided in such a way that one branch of the noble family acquired one, and another acquired the other. If one estate was being divided, the border between the parts was clearly defined. In the second mode, individual estates were separated into smaller portions that were then divided between the parties so that each branch of the noble family got a part of each estate (Karbić, M. 2010: 78). The division of estates in the Hungarian Kingdom must have occurred on a large scale considering the large percentage of noble families in the entire population, amounting to between 1–5 and 10% (Karbić, D. 1999: 73)

6 A very similar situation that resulted in the construction of at least four castles, if not more, can be traced in the Vinodol area. The entire estate was given to the dukes of Krk. The Vinodol estate bordered the imperial estates in the north and northwest, and Venetian estates on the Kvarner islands in the west. M. Barada also saw Vinodol as part of the bordering estates towards the Holy Roman Empire (Barada 1952: 15).

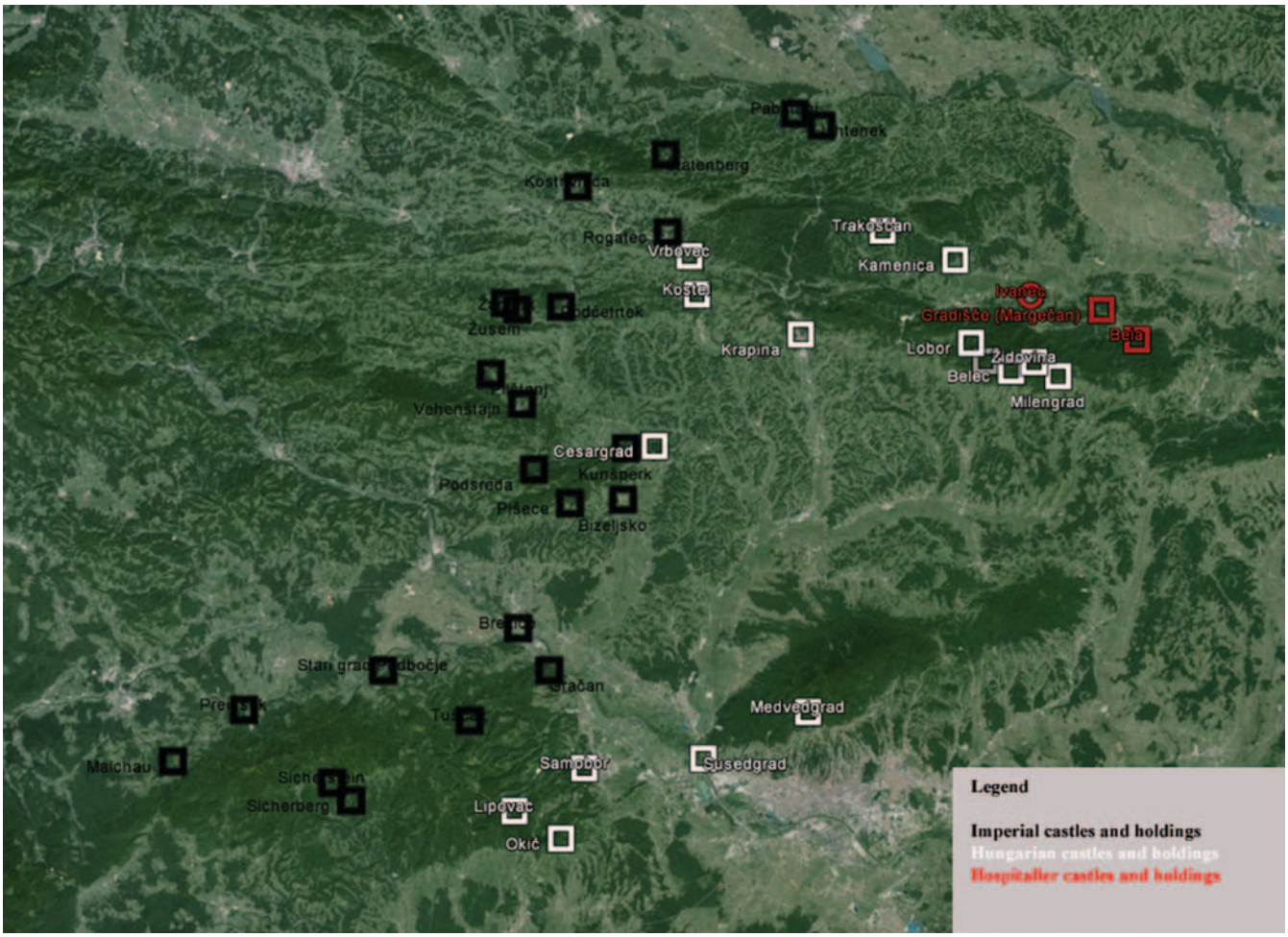

Fig. 7 Imperial and Hungarian castles in the border region (source: Google Earth, edited by: A. Janeš)

presumably developed during the First Crusade, when it started to appear in illustrated manuscripts. This was a stone throwing device based on the principle of counterbalance, known as a *trebuchet* (Ita. *trabucco*, Spa. *trabuquetes*, Slov. *tribok*) (Fig. 8). Due to increased range and the ability to eject larger projectiles, it must have impacted defensive structure building in western and central Europe and the Levant. These changes included an increase in the number of towers, strength of the keep and the construction of arrow slits (Hindley 2009: 41–46; Nicolle 2005: 14–15). These new forms and techniques of construction remained unchanged until firearms were introduced in the 15th century.

ARCHAEOLOGICAL CONTRIBUTION

Archeological excavations in today's Hungary revealed a series of sites, mostly rural, that were suddenly abandoned in the mid-13th century and are connected to the Mongol invasion (Laszlovsky 2012: 1–3; Szilagyi 2012: 155–179). Research has revealed large numbers of coin and jewelry hoards dated to the mid-13th century that are interpreted as valuables abandoned by people running from the Mongols (Vargha 2015). The finds largely confirm events described in written sources. The situation south of the Drava is somewhat different – very few sites can be connected to the Mongol invasion,[7] finds are rare and can only indirectly be linked to the invasion. The interruptions and continuation of burial at medieval cemeteries was seen as evidence supporting the Mongol invasion, exemplified by the Đelekovec-Šćapovo and Đakovo-Župna crkva medieval cemeteries (Šmalcelj 1986: 132; Filipec 1996: 193). The strongest evidence supporting Mongol presence south of the Drava is a dog skull found in a pot at the Torčec-Cirkvišče site (Sekelj Ivančan et al. 1999: 6–79). The wooden-earthen castle of Gradić near Torčec is dated to the same period (Sekelj Ivančan, Tkalčec 2007: 49). Rare indirect evidence from

7 It should be mentioned that this is partially the result of the state of research of said topic within Croatian medieval archaeology.

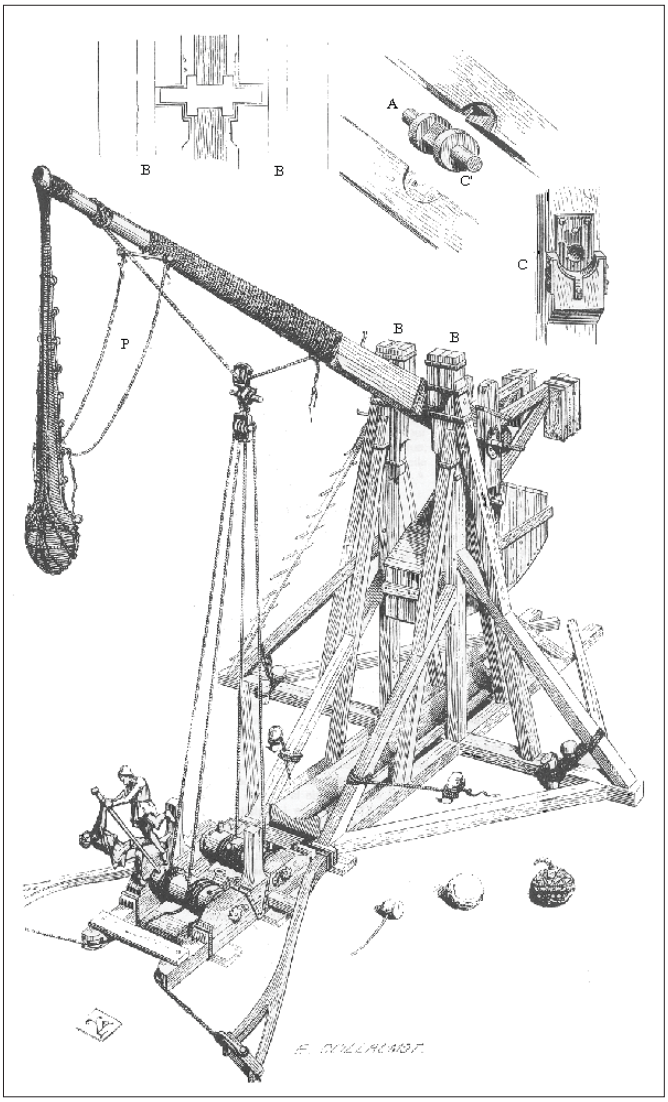

Fig. 8 A 19th century illustration of a trebuchet (from: Dictionnaire raisonné de l'architecture française du XIe au XVe siècle (1854–1868))

south of the Drava can be interpreted as traces of Kadan's quick passage through the area during his hunt for king Béla[8] (Fig. 9).

Considering the few sources referring to medieval Slavonia, primarily the 12th and the first decades of the 13th century, archaeological excavations provide an opportunity to collect new data, and to study material culture and sources in a new light. In the last decades, the number of archaeological excavations conducted at Croatian medieval castles has grown significantly. Unfortunately, these numbers are not accompanied by an adequate number of publications, but existing ones offer possibilities to increase knowledge on castles and their formation. The excavations of the Vrbovec castle near Hum na Sutli revealed traces of construction earlier than the one mentioned in documented sources, 1267 (Tkalčec 2010: 112). The preliminary results of test excavations of the Koloďvar castle (first mentioned in 1290) and pottery finds indicate that the oldest layers were created during the first half of the 13th century, and can, cautiously, also be dated to the end of the 12th century (Višnjić, Percan 2015: 80; Višnjić, pers. comm.). It should be mentioned that, despite the number of excavations, Croatian archaeology is still prone to the, so called, "historical" dating, thereby placing the finds within the timeframe indicated by written sources, making it difficult to acquire a more realistic picture of the construction of certain castles. Only further excavations and publications can shed more light on this segment of construction at certain castles.

CONCLUSION

The Mongol invasion of central Europe that occurred between 1241 and 1242 was one of the biggest events of the Middle Ages, and left a deep trace in the collective memory, especially in directly affected areas. Most data on the invasion was recorded by western chroniclers, making the dramatic impact of the event even stronger. When gathering information from witness testimonials, one gets the impression of a force that was almost impossible to stop, and that retreated only due to the sudden upheavals caused by the Great Khan's death. One of the reasons for the Mongol retreat was possibly their inability to conquer stone castles, and the subsequent spread of such structures across Hungary. The aim of this

8 The abovementioned pattern should be considered with caution for several reasons: the positions of the listed medieval cemeteries, that display discontinuity, are 160 km apart (air distance line). Šćapovo, along with the find of a dog's head in a pot in the nearby Torčec, can be connected to the crossing of the Drava River by the Mongol army that was moving along the main road from Pest towards the south. Đakovo is situated completely out of the reach of this campaign. According to the sources, the settlements and convents in Frankavila (Manđelos) and Sv. Martin (Szentmarton/Martinci) in Syrmia (Jackson 2005: 69) were destroyed by the rebelling Cumans. Also, the return of the Mongol army is, based on available data, assumed to have occurred across Bosnia and Serbia, to the south and east of Đakovo. The anthropological analysis of the skeletons from the Đakovo cemetery did not reveal any traces of large and sudden violence, and there is no direct material evidence of a discontinuity caused by the destruction (Šlaus, Filipec 1998: 135). When it comes to the Šćapovo cemetery, there are, unfortunately, still no detailed scientific studies of finds that would allow for a more detailed understanding of the site, or the indicated discontinuity. Additionally, the find of a dog skull in a pot is analogous to the Hungarian site of Franciska near Debrecen, in the context of Hungarian pagan beliefs (more on both finds: Sekelj Ivančan 2010: 181), and does also not represent the most certain material evidence of Mongol presence south of the Drava River.

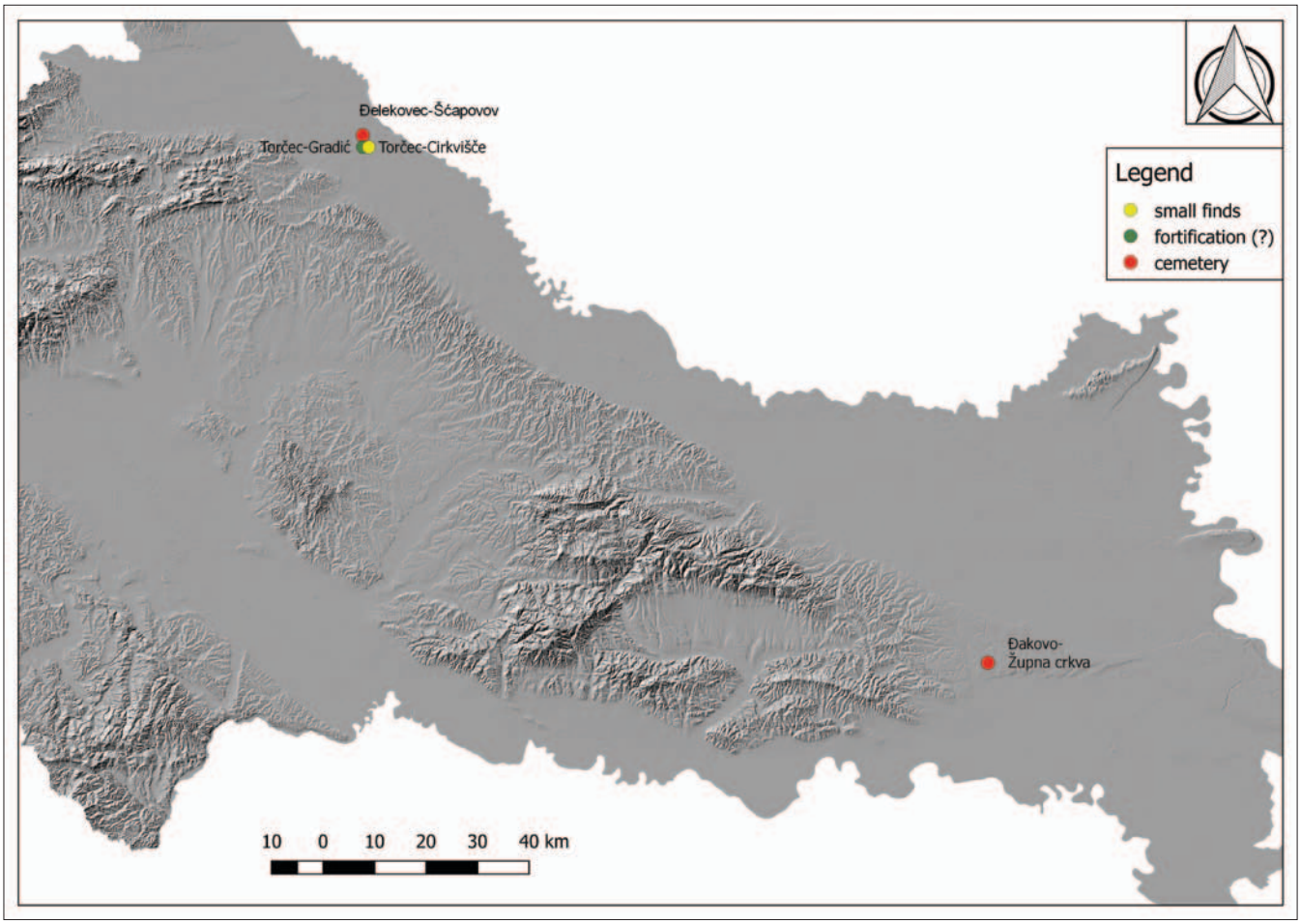

Fig. 9 Archaeological sites with a presumed Mongol presence (map by: A. Janeš)

paper is to show that the cause, but also the increasing construction of stone castles, based on the previously established claims, is far more complex than a one-sided "catastrophic" event. Although the hypothesis is supported by historical sources, they prove extremely unreliable when it comes to this specific topic, seeing as significantly few of them focus on the period preceding the invasion. Previous interpretations of some sources expressed doubt about the Mongol invasion influencing castle construction. N. Klaić claims that Medvedgrad was built before the mid-13th century, and rejects the hypothesis that all medieval art, and especially castles, were being created from the second half of the 13th century onwards (Klaić, N. 1990: 358). It should also be highlighted that the Mongol invasion often "serves as an inexhaustible reservoir of arguments for the alleged destruction, reconstruction and other forms of discontinuity in the history of sacral building, even though there are often no local indications pointing to destruction, which is understandable if the search for such indications is replaced by flat connections to the more easily available general fact" (Andrić 2007: 418).

The repercussions of the invasion on castles was not of topographic or technological, but of a social and economic nature (Fügedi 1986: 61), i.e. the transfer of castles and their construction from royal to private and noble family hands. On the other hand, research in Hungary indicates the possible existence of many private castles before the mid-13th century. Additionally, Béla's program of protective castle construction for the population comes into question. The program, if accepted as such, failed, as seen from the castles' small surface area (Feld 2014: 385). Using stone was definitely a significant technological advancement in castle construction, but it is currently impossible to prove that it was preceded by wooden constructions, both in today's Hungary (Feld 2014: 385) and medieval Slavonia (Tkalčec 2004). If an organized defensive system existed in the Hungarian Kingdom, it depended on the will of mighty oligarchs who acquired large numerous estates due to the Mongol invasion. This system was as effective as any in feudal times, as indicated by events taking place in the Hungarian Kingdom during the second half of the 13th century, when it was ruled by anarchy and the nobility fighting for their own gain, finally leading to the demise of the Arpàd dynasty.

The nature of the Mongol invasion as a penal action against king Béla IV could not have affected the technological development of castles, seeing as the Mongols did not want to conquer one by one during their hunt for the king, but kept away. Several examples showed that they were no strangers to laying siege to stone keeps and could do it efficiently. All of the above shows that the reasons for the creation and spread of stone castles in the Hungarian Kingdom should be looked for in the development of medieval society, the rise of nobility, territorial organization and estate development, but also in the consistent policy that the Hungarian kings had towards the west while pressured by their mighty neighbors.

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STEPHEN POW

Hungary's Castle Defense Strategy in the Aftermath of the Mongol Invasion (1241–1242)

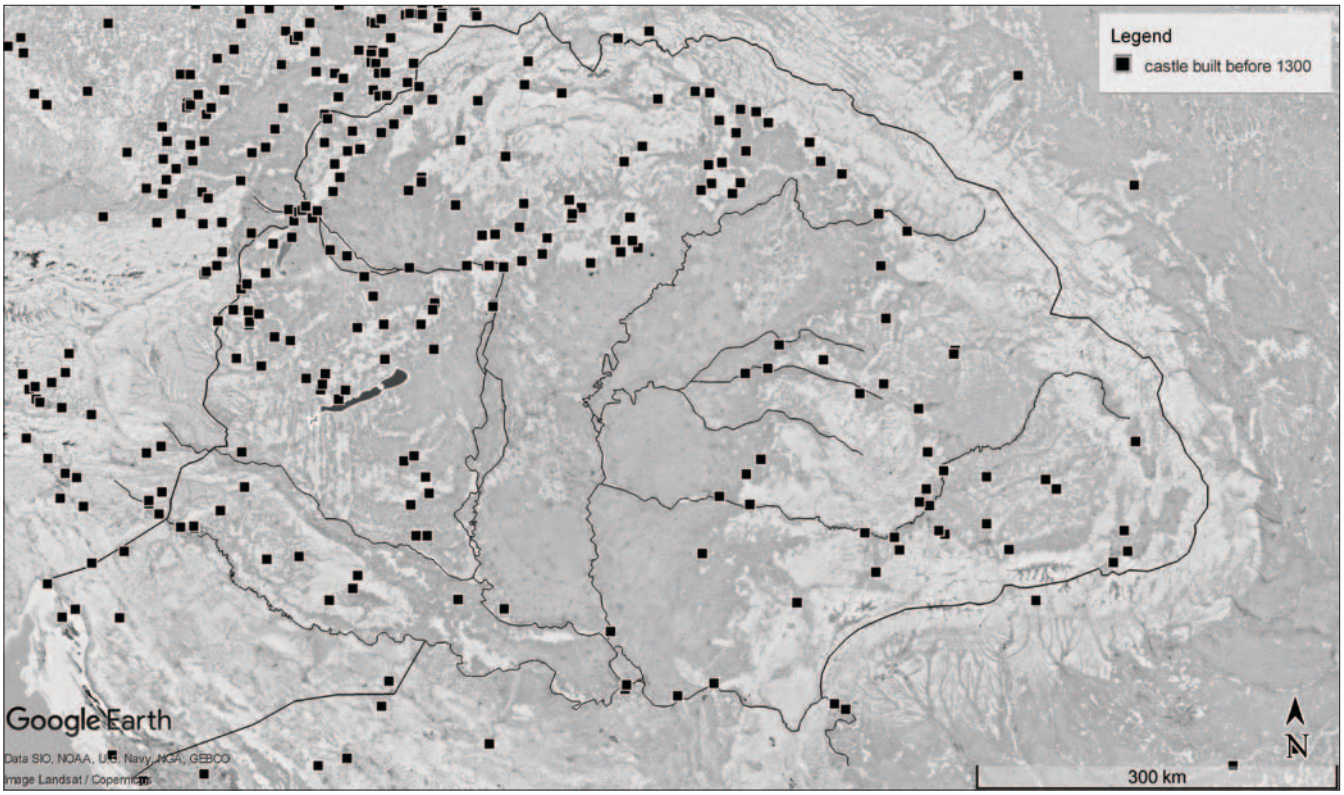
Following the Mongol withdrawal from Europe in 1242, there was a flurry of castle-building in the Kingdom of Hungary. During a year-long Mongol occupation, there had been much slaughter and destruction. Judging from surviving documents, the main reason for Hungary's fortification reforms was to defend against the Mongols, yet the new castles were built mostly in the western part of the kingdom. This has led some historians to argue that the castles were really built to defend against Hungary's European rivals, or that the Mongol threat was merely used by its monarchs to gain papal concessions. Here it is argued that the primary reason for this castle-building in the thirteenth century was in fact the Mongol threat. Building trends support the view that Hungary's ruler strongly emphasized securing the Danube with fortifications in order to bolster the defense of the Medium Regni where a sizeable population remained, while the defense of eastern areas, already heavily depopulated, relied on various measures. Castle-building depended on the local availability of labor, suitable sites, and building materials. Thus, the locations of new castles reveal an overarching Hungarian strategy, but one that was shaped by the kingdom's material and manpower limitations.

Key words: Mongol invasion of Europe, archaeology of the Kingdom of Hungary, Béla IV, medieval castles, Mongol Empire

INTRODUCTION

There was a dramatic shift in the Kingdom of Hungary toward building stone castles located on highly defensible sites in the immediate aftermath of the first Mongol invasion of Hungary (1241–1242). Erik Fügedi's important study revealed the weakness of Hungary's fortresses and walled towns in the face of repetitive but effective Mongol siege tactics before these reforms. Fortified sites constructed on level ground and defended by wooden and earthen parapets proved extremely vulnerable to Mongol tactics – intense arrow fire, use of incendiary materials, and heavy bombardment by catapults operating in conjunction with waves of prisoners who filled the moats to enable attackers to overrun the fortifications – as we see with the rapid fall of Pest in 1241 (Fügedi 1986: 45).

While the wave of castle-building was well known in Hungarian scholarship for at least a century, Fügedi systematically identified between 147 and 172 new castles built between 1242 and 1300; his work and that of scholars such as Jenő Szűcs confirm that twenty-two towns with privileges were established in the first thirty years of this flurry of activity (Berend 2001: 37). Especially when manifested visually in the form of maps (Map 1), the distribution of new castles reveals a rather unexpected and paradoxical trend. It is conspicuous that the vast majority of castles built in the second half of the thirteenth century were not situated in the center and east of the country, which had borne the brunt of the Mongol occupation in 1241–1242, but rather close to the western and northern borders of European rivals such as Austria and Bohemia (Fügedi 1986: 57–59). This is puzzling since renewed Mongol invasions would come from the east; the Mongols had based themselves on the *Dasht-i-Qipchaq* from which they continued to issue ultimatums and threats of attack. Fügedi simply noted the curious phenomenon at first, but subsequently he drew firmer conclusions that indeed these castles show that Béla's defensive strategy surprisingly appears to have had a westward emphasis, an opinion that has since been shared by some scholars (Szűcs 2002: 44–50).



Map 1 Castles in the Kingdom of Hungary before 1300 (image courtesy of Beatrix Romhányi and designed by her using Google Earth)

Before it was challenged, the prevailing view had been that castle-building activity in the aftermath of the invasion represented a deliberate defensive reaction to the threat of renewed Mongol inroads. The notion that Hungary and its neighbors had been placed in the role of Christendom's defensive bulwarks against pagan eastern invaders was emerging in sources from the time of the events. In the report on his papal embassy to the Great Khan in 1246, John of Plano Carpini already envisioned Poland and Hungary as the first line of defenders of Christendom against an inevitable and imminent renewed invasion that would proceed through those two countries (Dawson 1955: 44–45). Despite its potentially anachronistic ring to scholars, Béla IV of Hungary referred specifically to "Europe" as a unified whole facing the Mongol threat in a letter (c. 1247–1250) to the pope (Rosenwein 2013: 419–421; Theiner 1859: 230–232). He described Hungary and the Danube as crucial to Europe's defense. Thus, it has naturally been assumed that Hungary was constructing castles against a return of steppic invaders. But how much of this is simply rhetoric and ideology in the service of pragmatic, self-advancing goals? Like Nora Berend, we can suspect something ulterior in Béla IV's letters to the papal curia promoting a "frontier ideology" – a notion which later had great currency and appeal in being applied to Hungary and Poland during centuries of Ottoman conquests (Berend 2001: 170). Nonetheless, I would like to argue that the castle-building trend following the Mongols leaving the kingdom really did emerge from a documented strategy developed by Béla in collaboration with his advisors and magnates and primarily shaped by two sets of factors. The first was the lessons that had been garnered from the first invasion regarding defenses which had proven effective against the Mongols. The second set of factors was the geographical and demographic realities, material-financial limitations, and socio-political structure of the kingdom which constrained and molded the strategy's implementation.

THE LESSON OF THE FIRST INVASION: WHICH TOWNS AND FORTRESSES SURVIVED?

A glaring lesson from the first invasion was that Hungarian fortifications had proven inadequate – at least those located in the Carpathian Basin, mostly the area of modern Hungary. According to our two best narrative sources, very few fortresses or towns survived the year-long Mongol occupation. Though the fortified sites in Croatia either deterred or resisted the Mongols more effectively, Thomas of Split mentions Esztergom's citadel and the city of Székesfehérvár holding out in Hungary (Karbić et al. 2006: 288–301). Rogerius repeats these examples but also mentions the successful resistance of

the monastery of Pannohalma, adding that only these three places remained unconquered in the whole region (Bak, Rady 2010: 218–219). Other evidence suggests that even if Pannonhalma survived, it suffered enormous damage (Bartha 2014).

Fügedi demonstrated that places still effectively resisting in early February 1242, as is revealed by an extant letter from Hungarian defenders, were very often located on citadels or reflected the rare advancement of being constructed from stone (Fügedi 1986: 45–47). In fact, Pannonhalma and Esztergom which were able to survive sieges are situated on hilltops that in photographs appear at least somewhat similar. It is no accident that Székesfehérvár resisted Mongol attacks – it was surrounded by marshes that aided in its defense as both Thomas of Split and Rogerius noted – but so too did Komárom at the confluence of two rivers and the monastery of Tihany on a fortified island (Fügedi 1986: 47–48). Székesfehérvár's name suggests that the town had stone walls which likely helped as well. By laying this information out in visual form (Map 2), it is evident that there is a spatial pattern to survival with the vast majority of sites that survived into 1242 located in the west of the country or in the rugged north, and almost nothing surviving in the Great Hungarian Plain where destruction and population loss was heaviest judging by a variety of data (Laszlovszky et al. 2018: 425–429).

Map 2 Fortifications documented holding out against Mongols, February 2, 1242: 1 – county center; 2 – town; 3 – new-style stone castle; 4 – fortified monastery (after Fügedi 1986: 46, Map 3)

Though Fügedi's analysis did not extend to the castles and cities located in Croatia or on the Dalmatian coast, we encounter the same basic patterns for which sites could deter or resist the Mongols. Qadan, the Mongol prince in pursuit of Béla IV, was at a loss to take fortresses such as Klis, where an attack caused limited damage. Coastal cities located partly on islands or outcroppings, such as Split, Trogir, and Dubrovnik, saw Mongol efforts meet with similar frustration (Karbić et al. 2006: 299–301). Combining that information with Fügedi's analysis is quite useful for establishing that the two most important topographical features for effectively resisting the Mongols seemed to have been rugged citadels and protective bodies of water. Indeed, he was able to point out that in the decades after the first invasion, castles or *Fluchtburgen* had been constructed on sites such as hilltops that already had been proven through experience to be effective refuges for the population during the occupation. The brevity of the Mongol onslaught is not necessarily the only reason for the survival of some strongholds though that could have been a factor. The reliable and contemporary *Speculum historiale* mentions a Cistercian monastery which repelled Mongol attacks for over six months – a report that seems to have originated from

Simon of Saint Quentin (Richard 1965: 77).[1]

Contemporary sources did not provide comprehensive lists of sites that survived and while Fügedi and others have improved our understanding, we still do not have the full picture. For instance, Rogerius described his own experience in 1242 of passing with the withdrawing Mongol column through Transylvania "where many people had survived and where several castles" had been earlier prepared (Bak, Rady 2010: 221). Nonetheless, the broad patterns both in terms of geographical location and defensibility have been established by modern researchers and these patterns must have been noticed in the wake of the Mongol withdrawal in spring 1242 by survivors who did not understand why the Mongols left and certainly expected their return.

A SPECIFIC STRATEGY: FORTIFYING THE DANUBE AS A DEFENSIVE LINE

I contend that Béla IV and his magnates really did devise an overarching strategy to deal with the ongoing threat of an imminent Mongol return. The elements of the strategy which often raise questions for modern researchers were shaped by Hungary's social, political, and physical landscape. For instance, the geographical distribution of castles constructed in the aftermath of 1242 is curious, but when we see this within the larger context of the kingdom's situational realities, it becomes clear why the strategy ultimately manifested itself in such a way.

The main evidence for a strategy centers on a crucial letter from Béla IV to Pope Innocent IV, the date of which has been heavily debated. Many scholars favor 1250 (Göckenjan, Sweeney 1985: 300), but Toru Senga's thorough analysis concluded 1247 is more probable (Berend 2001: 166).[2] Here, the king outlined the reasoning behind the defensive steppes he was taking in the aftermath of the Mongol withdrawal. Nora Berend has argued that Béla IV's ulterior motive in the aftermath of the Mongol invasion was to gain concessions and special privileges from the papacy; the threat of renewed invasion was used for political leverage. Béla IV carefully cultivated a Christian frontier ideology while hinting to various popes that their neglect of his needs was forcing him to reach a deal with their Mongol enemies (Berend 2001: 167–170). While this letter is "traditionally understood as the desperate cry of a Christian king for help, even the physical form of the letter, surviving in the Vatican archives, contradicts that analysis. Sealed with a golden bull, the letter was carefully crafted in both form and content" (Berend 2001: 166).

Despite such valid observations, it appears that much of what the king was asserting represented his genuine fears and intentions more than an exercise in rhetoric to gain papal concessions. Julian's earlier warning to the papacy in 1238 that the Mongols were going to invade Hungary proved prophetically accurate (Göckenjan, Sweeney 1985: 107). The numerous warnings Béla received from "leading men" of a pending invasion in 1241 turned out to be correct as well (Karbić et al. 2006: 257). Crucially, the first Mongol onslaught had a very personal element, aimed at the nobles and Béla, making the Mongols an existential threat to the elite. This makes me doubt that Béla's major strategic concern was regional politics in the aftermath of a war that killed his brother and many leading magnates of the kingdom. As Friar Julian noted, the Mongols regularly eradicated the high nobility of a state to make its people unable to offer resistance (Göckenjan, Sweeny 1985: 106). The king's own experience in 1241–1242 would have confirmed this. Therefore, it is unlikely the king was unworried about a Mongol return, seeing his neighbors in Europe as a more substantial threat after 1242. His new foreign policy of making marriage alliances with Rus' and Polish rulers was expressly so he could gain intelligence on the Mongols and their secret plans (Rosenwein 2013: 420; Wenzel 1869: 167). It is impossible to believe that the king did not dread the people whom, as he expressed early in his letter, "the experience of war has taught us to fear in the same way as all the other nations they have passed through" (Rosenwein 2013: 420).

If we allow, then, that the entire letter is not primarily a bluff aimed at the pope, it becomes an outline of Béla IV's stra-

1 The monastery was probably not located in the *Medium Regni* west of the Danube based on the brevity of the Mongol presence there and the purported length of the siege. For a map of the distribution of pre-invasion Cistercian monasteries in Hungary and a discussion of their emergence (Laszlovszky 2016: 84–86). The Mongols bypassed Igris before a sudden siege resulted in its quick surrender in 1241 (Bak, Rady 2010: 213), and Kerc in remote Transylvania was recorded to have been destroyed too (Romhányi 1993–1994: 189). Pásztó, east of the Danube, was a fortified Cistercian monastery at which Ilona Valter's excavation has found arrow heads and a burn layer, indicating destruction by the Mongols (Valter 2018: 71). Since Belafons (Pétervárad) was near Mendicant houses and Latin settlements like Manđelos, and was wealthy, it could have been the monastery in question since it would have justified a more serious Mongol investment. Still, the six-month timeframe is a problem unless Mongol efforts to cross the Danube were considered part of the siege. It is remotely possible the Cumans who defected from Hungary's forces in early 1241 were confused with Mongols. The Cistercian community was sponsored by Béla to relocate to a more defensible site in 1246, as the Mongols had directed their attacks heavily on the wealthy monasteries of Syrmia during the invasion (Hardi 2016: 92–94, 100). This topic invites further exploration. Many thanks to Beatrix Romhányi, László Ferenczi, and József Laszlovszky for their suggestions.

2 I am inclined to an earlier dating like 1247–1248. Firstly, points in the text agree with the larger context of those years as this section of the essay will help establish. Secondly, the Hungarian king's shock at the pope permitting Louis IX of France to depart from Europe on crusade seems unlikely in 1250.

tegic rationale based on numerous discussions with his counsellors. Lessons had been learned and the earlier invasion had convinced him that the most effective line of defence was the Danube. He did not want a repeat of Muhi by gambling the royal army to fight the Mongols in the open on a marshy plain of their choosing. He opted to center his defenses along a natural barrier that had proven strategically important through recorded history in order to protect the ancient capitals and population base of the *Medium Regni*. In short, the line in the sand was the Danube and the *sine qua non* was preserving control over it in a renewed invasion. It was in Béla's own words, the "water of resistance" where the advancing Mongols were held back by unprepared and outmatched defenders for ten months after Muhi (Rosenwein 2013: 421).

The Knights Hospitaller played a key role in Béla IV's described defense reforms, being placed in key strategic positions and engaging in castle-building because his own people were not skilled or experienced in it. One position was to block the Turnu Roşu Pass along the Olt River which had been used as a point of access by the Mongols in the first invasion; another letter shows the king granted this arrangement in June 1247 which obligated the Knights to fortify and repopulate Transylvania, while providing sixty knights against the Mongols and fifty knights to garrison castles in the kingdom's west against Christian foes (Göckenjan, Sweeney 1985: 313, n. 17; Theiner 1859: 209–211).[3] Furthermore, the Order formed an important part of Béla IV's Danube defensive line. As Zsolt Hunyadi notes, scholarship has identified a castle belonging to the Hospitallers in the Kingdom of Hungary and granted by Béla IV as being one on the southern end of Margaret Island (*Margitsziget*), a strategically important site in the Danube, separating modern Buda and Pest. It may have been built immediately after the invasion. Apparently, there were more such castles constructed along the Danube line, but this one is known to have belonged to the Order (Hunyadi 2004: 111). Judging by the king's subsequent devotion to the island, the placement of elite knights there, and the fact that his daughter Margaret resided in a convent on the island, we might consider that it held both strategic and symbolic significance after 1242. The Hospitaller presence at a square, four-corner-tower castle on Margaret Island seems to have been temporary; their presence can only be confirmed there from 1278 with a last mention in 1290. An abandonment could reflect a declining sense of the Mongol threat which many scholars believe first impelled the castle's construction (Hunyadi 2004: 156–157). There was also another castle on the island which belonged to the archbishop of Esztergom, and though its dating is in question, it was certainly part of the same defensive system.

Much more lasting was the direct consequence the Danube defensive strategy had for the development of Hungary's capital. Óbuda already existed within the walls of Roman military camp turned into an ecclesiastical center in the 1000s with a market outside the walls. By the late twelfth century it was one of three chief royal centers of the itinerant monarchy. The first record of Pest was a ferry crossing in the twelfth century probably situated where the town first arose on the Roman ruins at Március 15. square (Spekner 2015: 185–188). Óbuda saw the construction of an important royal castle (c. 1220) shortly before invasion, showing that the site was practically replacing Esztergom's functions, and Pest too was developing rapidly as an urban center populated by German migrants. It might have been the first city in Hungary to receive city walls, perhaps begun very shortly before the city was destroyed in 1241. Sources document the destruction of both, but while excavations have shown signs of Pest's famous destruction, Óbuda lacks these overt signs and it is thought that the castle, among the most modern in the kingdom, survived, since it retained its important function before and after the invasion (Feld 1999: 75–80). In any case, the Mongol invasion gave impetus to a complete transformation of the urban landscape and hierarchy with Béla IV establishing a "new Buda" on the castle hill west of the Danube at some point in the mid-1240s even as the re-established town of Pest received a new royal charter of rights in 1244 (Spekner 2015: 189–190). Béla IV was in Buda in 1243 and clearly wanted to create the new hilltop settlement as a new stronghold. Based on two charters in 1255 and 1259, fortifications certainly existed there by that point, first in the form of walls with towers subsequently added. In 1276, another charter demonstrates that levies were being exacted on townspeople's goods to maintain the fortifications (Végh 2006: 27). There has been a long debate about when a royal residence appeared and where it was first located. Spekner argues that there was already one on the north of the hilltop (the *Kammerhof*) from the time of the town's founding in the 1240s, something supported by the presence of royal minters in the town already in 1255. However, this does not exclude the possibility that another defensive property simultaneously emerged at the southern site near Stephen's Tower, where the present castle emerged (Spekner 2015: 190-191). Solid evidence for the southern castle only exists from the 1300s, but it is clear that Buda became the primary residence of the kings sooner. Esztergom, the former capital, was donated to the archbishop in 1256, and Buda was called the kingdom's *civitas principalis* in a foreign source by

3 I believe this was also the pass through which the main Mongol army withdrew based on Rogerius's description as a participant in that withdrawal. He hid in a creek bed alongside a *via publica* and walked to Alba Iulia in eight days after escaping the forest of Cumania. The army took several days to pass as he hid, suggesting the main force (Bak, Rady 2010: 220–225).

1308 (Magyar 2016: 144–146). The decision to resettle the area's surviving burghers on a defensive site west of the Danube as a defensive measure in the 1240s birthed a new capital.

The other linchpin of this defensive system was Visegrád situated on an imposing hilltop at the Danube Bend. There had already been a small stone castle erected there by the 1100s on the base of a Roman ruin, and Árpád-era kings would stay there, but both the settlement and fortress were destroyed during the Mongol invasion (Bozóki 2012: 17). Buzás convincingly argues that Visegrád was already becoming important before the invasion – Béla used the site in the lifetime of his father – but it was with Béla's reforms that it became a major stronghold, motivated by Queen Mary's desire in 1248 to erect a new castle in expectation of an imminent Mongol invasion. The exact stages of the rebuilding process are unclear, but a charter of 1251 indicates a functioning royal residence was there and in 1259 the king gave the castle and the whole of Pilis to his wife. The new fortress had an upper castle surrounded by stone walls with towers, a draw bridge, etc., while the lower castle had the Solomon Tower, the top of which appears designed for placing large artillery pieces. The site had German *hospes* residents and was defended successfully during a civil war in 1284 (Buzás 2018: 14–18). The transformation of Visegrád into one of Hungary's strongest castles was rapid, carried out at the queen's own expense with the upper castle serving as a refuge for the Dominican nuns normally based on Margaret Island in case of emergency. Judging by a charter, it was a fully functional castle by 1265 at the latest (Bozóki 2012: 17). It is interesting to note the parallels with Zagreb, formed from two walled settlements of Kaptol and Gradec whose growth was fostered by Béla's 1242 edict establishing it as a free royal city immediately after the Mongols left. We likewise note the emergence of tower sites there around which larger fortifications could develop, and the rapid construction (1249–1254) of a massive, highly defensible fortress, Medvedgrad, on a rugged mountain not far from Zagreb in response to the Mongol threat.[4]

While the stretch of river near the Danube Bend and valuable royal-ecclesiastical centers were secured by large fortifications, farther south down the river we do not encounter the same situation. Szabolcs Rosta has published on several sites in the Kiskunság that were previously thought to be cemeteries, but recent archaeological excavations show them to have been improvised circles of ditch-work fortifications centered around stone churches during the 1241–1242 Mongol invasion. In the cases of Tázlár, Csengele and Szank, they all have evidence such as corpses of victims, weapons, and coins dated to the invasion, as well as being close to other sites of already discovered invasion-related massacres and destruction. In the case, of Csengele, Ferenc Horváth interpreted the site in this way and József Laszlovszky long suspected the "cemetery" showed defensive features, a view vindicated by this latest research. Rosta postulates that these earthworks seem to have been rapidly constructed during the invasion in the Great Hungarian Plain where the landscape, materials, urgency, and lack of knowledge did not allow for better defenses; they show signs of being overrun in these three investigated cases (Rosta 2018: 186–192). Concerning the interpretation of these sites, it was quite normal that churches were surrounded by cemeteries, and a ditch with no defensive function enclosed the cemetery. These sites, however, show much bigger, multiple ditches and earthworks between them, which were clearly for defense. The other features (bodies, arrow heads, etc.) prove that they were besieged (Fig. 1). This seems to confirm Rogerius' account of villagers gathering at such earthwork fortresses in the Plain and making a last stand against the invaders (Bak, Rady 2010: 210–213). Rosta believes that these fortresses were connected to the Danube defense line – another triple-ditched circular system was investigated at Perkáta located not far from the west bank of the Danube. Unlike those in the Kiskunság, this site did not have the features of a siege and destruction. This research is just beginning and Rosta predicts further investigations in Békés and Transdanubia will reveal much more about the extensiveness of this defensive system and its role in the Danube defense. We can see a case of such earthwork systems being only a few kilometers apart (Rosta 2018: 190).[5]

It is no coincidence that the sites of last stands (Tázlár, Csengele and Szank) all have names of Cuman origin today and this relates to another aspect of the defense strategy. The stretch of plains east of the Danube, the Kiskunság, was resettled by Cumans in 1246–1247 with Béla IV abruptly marrying off his son to a Cuman princess and receiving from several chieftains a pagan oath of loyalty made by cutting a dog in half; this marriage was so hasty that Béla did not even wait for their conversion. The chronicle specifically states that this decision was motivated by the king's expectation of a Mongol return (Gyárfás 1873: 31). What accounts for this drastic urgency of defensive reforms from 1246 to 1248? Though Carpini's warnings of Mongol intentions on his return from his mission to the khan were part of it, there is evidence the threat was more tangible. In an overlooked passage, Matthew Paris recorded that in 1246 the Mongols again invaded Hungarian territory to subdue it, and the king withdrew the inhabitants to fortified defenses to await the battle while sending word to the pope to help him (Giles 1889: 165). This seems strongly related to the extant letter of Béla IV which asks for help and lays out his strategy. It also seems related to the inhabitants of Pest being evacuated to Buda at the time, and the pope's 1247 letter to

4 Many thanks to Tatjana Tkalčec and the other organizers of the 4th International Conference of Medieval Archaeology in Zagreb (June 2017) who organized an informative field trip to these sites for participants.

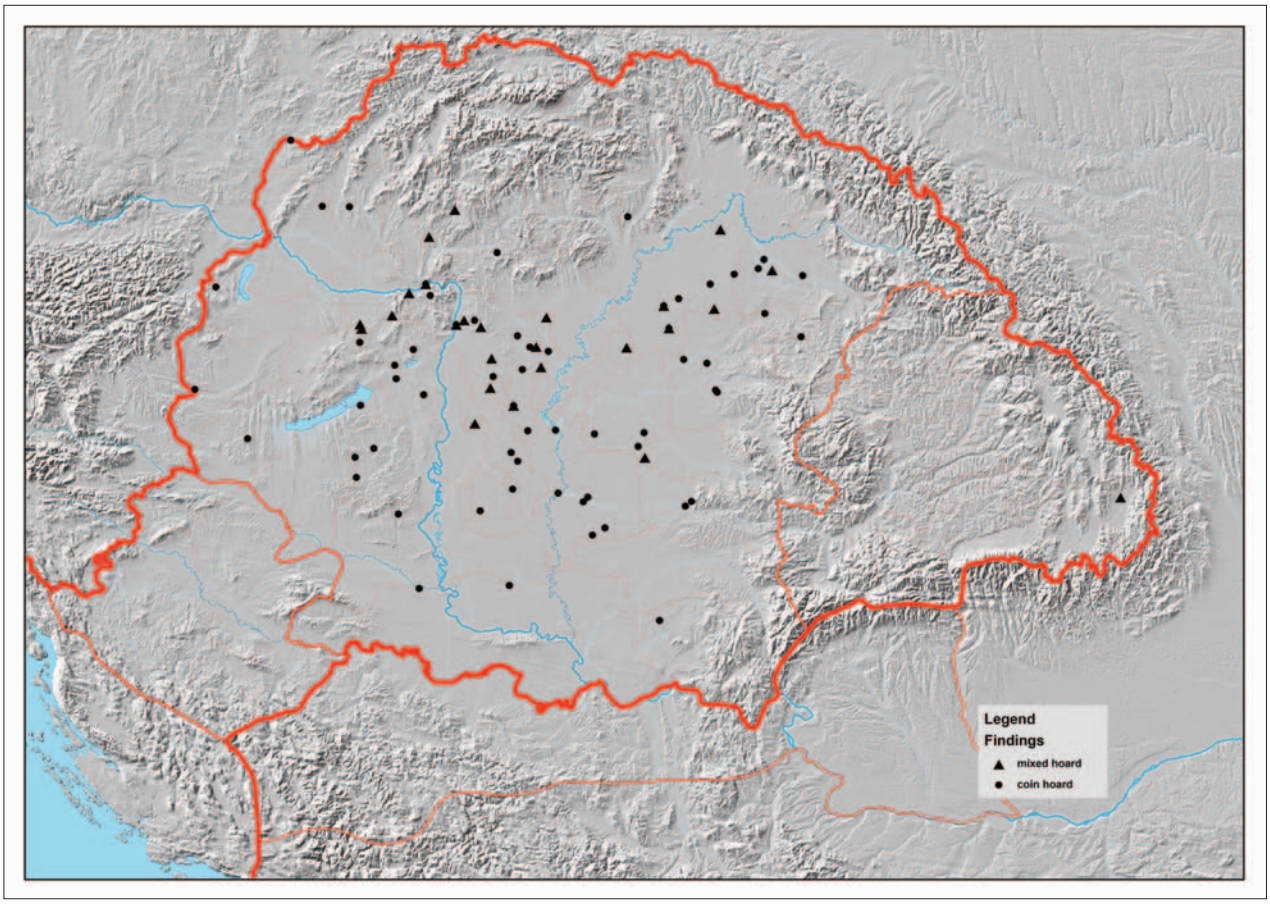
5 My thanks to Szabolcs Rosta for directly sharing these findings, materials, and conclusions with me.

Fig. 1 Earthwork at Szank. Brown = corpses, blue = weapons, yellow = coins (after Rosta 2018: 189, Fig. 4)

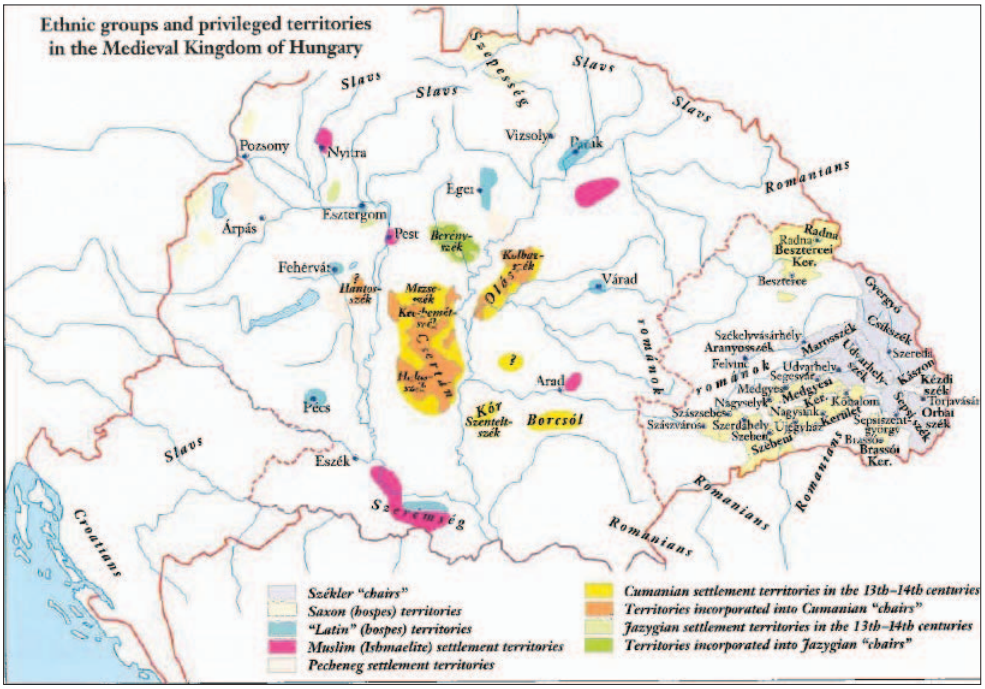
the bishops of Esztergom and Kalocsa, commanding them to erect fortifications at defensible sites to receive the populace (Theiner 1859: 204). A Mongol-Chinese source reports that Uriangqadai, the son of Subutai, took part in Batu's punitive campaign to subdue the Poles and Germans in 1246 and that he was still in the western regions when Güyük Khan died in 1248 (Song Lian 1976: 2979).[6] The Russian Nikonian Chronicle provides a garbled account of a second Mongol invasion of Hungary and northern lands in 1247–1248 (Zenkovsky 1984: 24–25). More convincingly, in a letter of 1247, the archbishop of Canterbury stated that he heard the Mongols returned to Hungary (Luard 1882: 133), and the king of France received a Mongol embassy in early 1247 demanding his submission and using stock phrases we would recognize in many Mongol ultimatums (Giles 1889: 214).

Whether the crisis of 1246–1248 represent feints, real attacks, or pervasive rumors, the psychological effect of what happened was enormous, hastening the decades-long development of a defensive system to cope with a Mongol return to Hungary. Any such system had to cope with long-term realities and some new limitations imposed in the aftermath of the 1241 invasion. The distribution of buried coin-hoards (Map 3), corpses, and settlement damage connected to those events supports the conclusion that devastation and population loss were most heavy in the Great Hungarian Plain east of the Danube (Laszlovszky et al. 2018: 425–427). Interestingly, the same areas that show heavy concentrations of hoard-finds, the plain between the Danube and Tisza and the plain in the northeast between the Tisza and Körös, also happen to be the main regions that Béla designated for the Cumans to settle (Map 4). These are the Kiskunság (Cumania Minor) and Nagykunság (Cumania Major). That is no accident since Béla IV would have wanted to avoid conflict between the sedentary population and the herding newcomers. He settled the Cumans in areas that had been heavily depopulated, nicely separated from the still densely populated *Medium Regni* by the Danube. The Cumans, it seems, were placed as the protective force for the plains regions which did not allow for the construction of castles, while their forces also formed a formidable mobile barrier, as it were, on the eastern side of the river.

6 The name of the first nation, *beilie'r* (孛烈兒), is thought to mean Poles, though I believe the (Lesser) Bulgarians might actually be intended here. As for *niemisi* (捏迷思), this is clearly the Slavic and Hungarian exonym for Germans appearing rather remarkably in Chinese. In this case, it could refer to the German settlers of Transylvania, communities of whom had been attacked earlier in 1241.

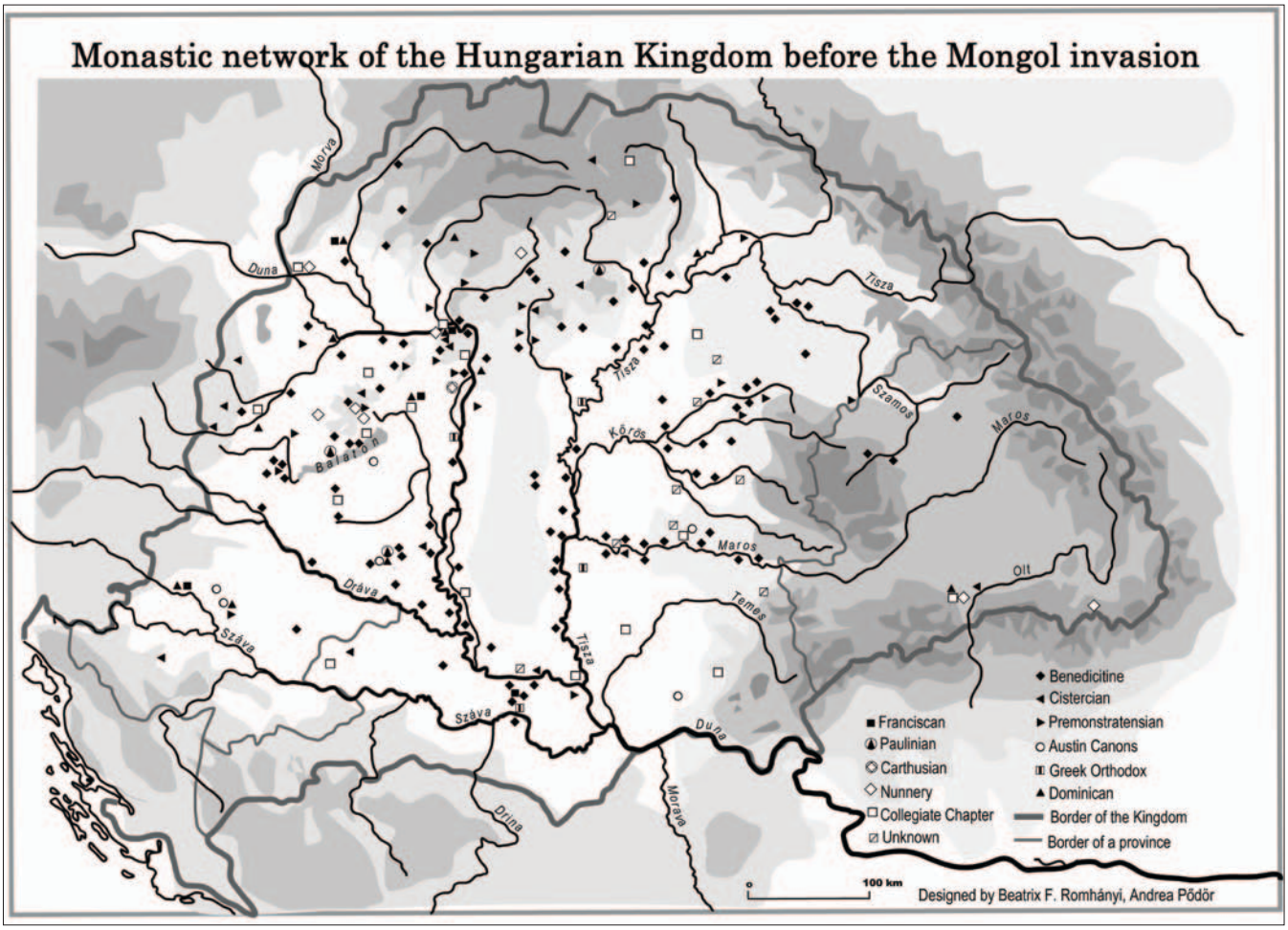


Map 3 Distribution of hoards found in Hungary connected to the invasion (image courtesy of the Hungarian National Museum and designed by Csaba Tóth)



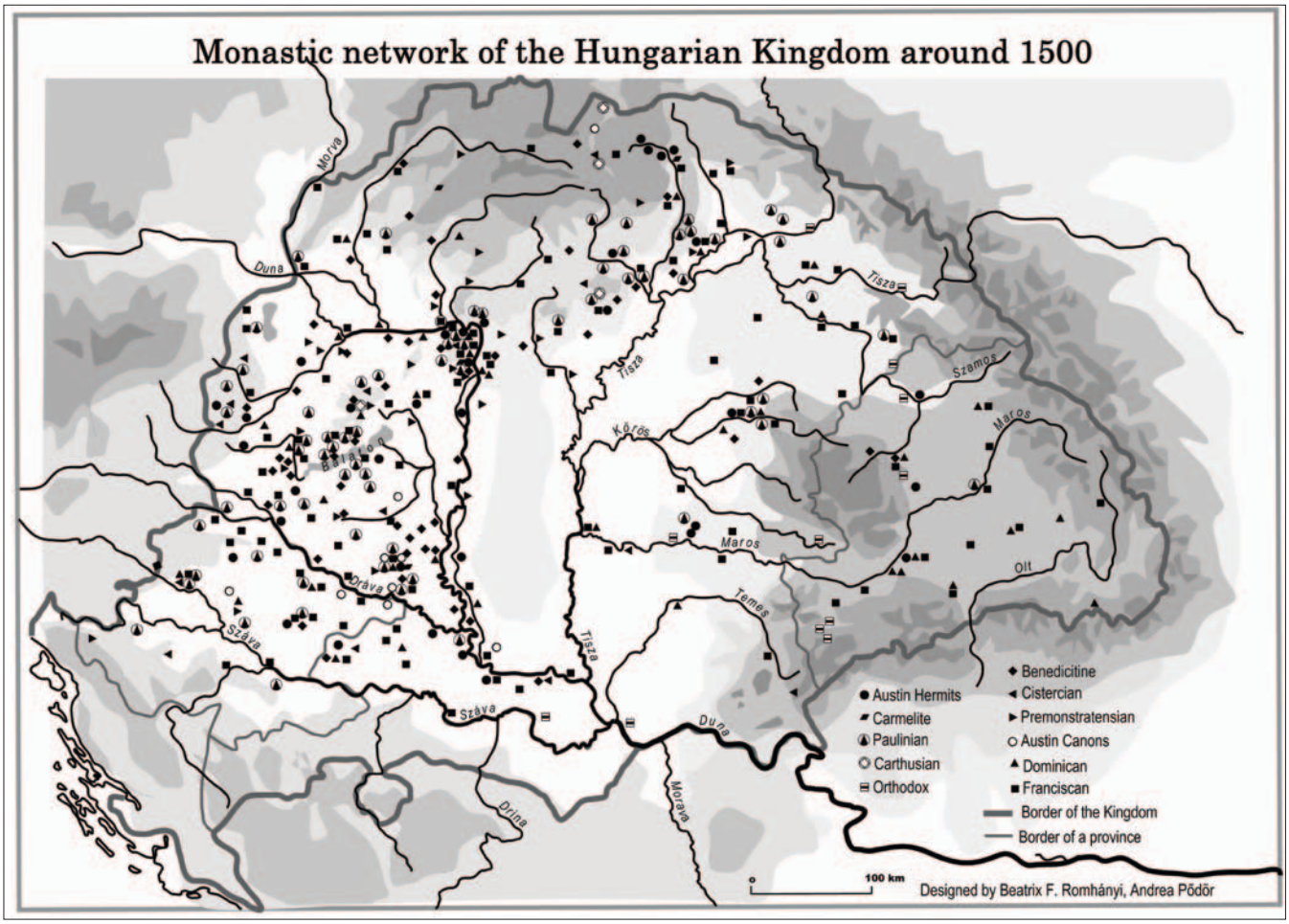
Map 4 Ethnic groups and privileged territories in the Medieval Kingdom of Hungary (after Laszlovszky 2003: 346)

Beatrix Romhányi's excellent research and particularly her visualizations of the monastic network throughout the centuries in the medieval Kingdom of Hungary confirm this picture of population loss, shifts in land use, and lessons learned following 1241–1242. We see that in the lead-up to the Mongol invasion, monastic settlements with their concomitant expensive buildings were somewhat evenly distributed throughout the kingdom including in the Plain region (Map 5). However, even by 1500 we can see that monastic communities along the Tisza, Körös, and Maros and throughout the central plains not only disappeared after the invasion but those areas remained basically abandoned. Meanwhile the western part of the country, as well as the mountains of today's Slovakia, showed huge increases in such monastic sites (Map 6). Since monastic communities were not choosing sites based on military priorities, what we see here probably reflects population presence, a response to perceived threats and the selection of secure or protected sites, along with regional wealth, donations, and financial opportunities for monks.



Map 5 Monastic network of the Hungarian Kingdom before the Mongol Invasion (after Romhányi 2015: 17, Map 4, translation by: B. Romhányi)

This relates to Béla's strategy. Regardless of how it ideally would be carried out, it was difficult to build castles in the east-central parts of the country simply because there were not many people to provide the pre-requisite taxes and labour required for such projects; the distribution of castles in thirteenth- and fourteenth-century Hungary could, to some extent, represent which areas had a healthy population and economy after the war and subsequent famine. Fügedi noted the distinction between the "enthusiasm" of nobles who were granted incentives to build castles, increasing their own power vis-à-vis the monarch, and the ordinary populace whose frustration at bearing the labor and tax burden sometimes comes through in the extant records (Fügedi 1986: 52–53). That relates to another issue: how much central control did the king have over the results of a policy that relied so heavily on the cooperation of his nobles? Surviving charters indicate he controlled it to some extent by rewarding lands to nobles who had demonstrated loyalty to him in the invasion (Nagy 2003: 200; Wenzel 1869: 223–225), but ultimately castles could only be built depending on suitable sites, available population, and the noble's ability to build at his own expense (Nagy 2003: 194). In such circumstances, Béla's program ended up with a distribution that matches the monastic network (Map 7).



Map 6 Monastic network of the Hungarian Kingdom around 1500 (after Romhányi 2015: 27, Map 10, translation by: B. Romhányi)

Map 7 Castle-building reforms up to 1270 (after Fügedi 1986: 58, Map 4)

CONCLUSIONS

Already in 1243, the immediate aftermath of the Mongol withdrawal, opportunistic invaders were attacking Hungary according to a papal letter (MGH 1887: 4). Béla IV and his loyal nobles had to immediately fight the Austrians while also rushing into Transylvania to destroy brigands and gather the surviving population (Nagy 2003: 192–193). The Cumans, mistaken as "mercenaries from many countries" by a medieval commentator, were crucial to driving off predatory neighbors in this phase (Fischer 2010: 180). In the struggle to regain control over their former territory, Béla decided to concentrate his defensive efforts at the Danube. In the event of a worst-case scenario in a renewed Mongol invasion, communities in the Great Plain and Transylvania might have had to fend for themselves. In areas where they could be built, castles played a large part in this strategy and similar fortress reforms in Halych and the larger region show that Hungary did not act alone.

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ERDAL ESER

A 13TH Century Anatolian Defense Structure Divriği Castle

Divriği Castle, in the southeast of Sivas, is one of the most important construction sites in 13th century. Divriği is located in Upper Euphrates area, close to the Central Anatolian border, 1250 meters above sea level, in the valley of the slopes of the creek which meets Çaltı river, one of Euphrates branches. The city was founded within the castle area, situated on a hill with very steep slopes to the Çaltı valley and its surroundings. Divriği Castle is one of the best remained examples of Middle Age Anatolian-Turkish Military Architecture with old settlement texture within walls. Limited number of studies, mostly related to the Castle Mosque, explored this structure whose foundations are suitable for the topographic condition of area. The castle was built in two phases according to existing marks and remains. Regarding date, the only known activity in that period was of Paulicians, who were banished from Divriği in mid-9th century. Small number of inner wall remains points to Byzantium period, while the outer 1000-meter-long wall was built in 1230–1252, made of large stone blocks with facing technique. Divriği Castle is impressive with its form suitable for the topography of the region and for unique materials and construction technics which were used. Restoration, following the original state, began in 2015.

Key words: Divrigi, Tephrike, Menguceks, Anatolia, medieval, castle

INTRODUCTION

Divriği is located southeast of Sivas, at a close point to the Inner Anatolian border of Upper Euphrates in East Anatolian Region; it is at a height of 1250 meters and situated at the valley bed and slopes of the creek which joins with Çaltı River, which is one of the tributaries of the Euphrates River. The first foundation location of the city is the castle area and its outskirts which are located on a hill with very steep slopes to the Çaltı valley at the northeastern area (Bagalmış 1994: 452) (Fig. 1). Since the settlement area is surrounded with high mountains, there are difficulties in terms of transportation. The external connection of the province is provided with the Sivas-Erzincan railroad, and Sivas-Divriği land route, there is a distance of 179 km with the Sivas railroad, and 184 km with the land route. It is surrounded with Erzincan in the East, Kangal in the West, Zara and İmranlı in the North, and Malatya in the South (Denizli 1995: 225)[1] (Fig. 2).

The external wall length, which is located in the North-South direction and on a high hill, is about 1000 meters and reaches 1500 meters with the collapsed walls of the internal castle. Its North-South gap is 400 meters and East-West width is about 200 meters. The bastions located along the walls which surround the external and inner castle are square, polygonal and circular in shape. The external castle walls open to the city with two doors which are located in the Southwest and West, however the first door has been covered afterwards and the second door has collapsed. The height of the eastern area walls range between 5-8 meters and the walls have a layout plan which is suitable for topographical conditions (Denizli 1995: 227).

1 "Divriği is the district center of the city of Sivas. It is beside the Çaltı Stream which is one of the tributaries of the Euphrates River and its name in fact reflects this topography. The historical name of the town during the Byzantium period has in particular been Tephrike. Since we have come across variations of this Anatolian word which means "Abundant water, strong water" such as Abra, Abphra, Ebra, İbra, we can see that the –ephr(a) part of the name Tephrike reflects one of those variations. The name of the same settlement has been used in Arabic sources as Aprike; therefore, the name has a variation in Armenian dialect as Aprig or Apr(a)-ig, with the letter D at the beginning omitted." (Umar 1993: 218).

Fig. 1 Photograph of Divriği area (photo taken from Google Earth in 2010)

Fig. 2 Map of Turkey (taken from http://www.nationsonline.org/oneworld/map/turkey-map.htm)

GENERAL HISTORY

Historical information about Divriği begins at a time in which the area witnesses the Sassanian and Byzantium conflict.[2] After the Sassanians left the area, Arab-Byzantium conflicts have begun in the area. As a result of the Anatolian expedi-

2 Some of the studies which contain information on Divriği are as follows: Strabon 1969: XII, 8; Ainsworth 1842: 8; Ritter 1859, 795–799, bil. p. 795–797; Cuinet 1892: 687–688; Grenard 1891: 549–553, bil. p. 554–555; Yorke 1896: 453; van Berchem 1910: lev. 5; Mordtmann 1925: 442; Gabriel 1934; Ramsay 1961; Sakaoğlu 2005: 189–238.

tion of Mikhail III in mid-9th century, Divriği is claimed by the Byzantium forces (Işıltan 1981: 212–220). Although there was Byzantium dominance in the area, Divriği was the center of the Paulicians. It is not known how long the power of Paulicians, who at times sided with different powers, lasted in Divriği (Turan 1981: 55).

It is not known when the Turkish dominance began in the area and in Divriği. However, in the years following the Malazgirt War in 1071, it is assumed that it was occupied by Mengücek Gazi or his sons (Sakaoğlu 1971: 597; Turan 1981: 55; Eken 1993: 1).

In 1142, after the collapse of the Mengücek State, Divriği, which fell to Süleyman Shah's jurisdiction, became the capital of the Divriği branch of Mengüceks. Divriği, which was within the dominant areas of the Anatolian Seljuk State, during the second quarter of 13th century has not been able to cope with the Mongolian pressure in the days following the Kösedağ War in 1243 (Turan 1981: 60). In 1277, the Mongolian ruler Abaka Khan has come to the area due to the Anatolian expedition of the Memlûk Sultan Baybars, and he has ordered the walls to be demolished (Turan 1981: 62; Sakaoğlu 2005: 191).[3]

Throughout the whole 14th century, there is no detailed information about the history of Divriği. In this century, although Sivas has been claimed initially by the İlhanlıs and by Eratnaoğuls, Divriği has remained a part of Memlûks. Meanwhile, Divriği, which has become a part of the Ottoman Empire during the expeditions of Yıldırım Bâyezid in that area at the end of 14th century, has been left once again to the Memlûks through an alliance made with them, due to the approaching danger of Timur. Divriği has come under the dominion of the Ottoman Empire for certain only after the Mercidabık victory (1516) (Eken 1993: 2).

THE CASTLE

Divriği Castle has been built on a difficult area in terms of transportation, where the richest iron mines are located. The castle, which has been built on rock soil of about 250 x 450 meters, is surrounded with the river on the North and East, and consists of walls exceeding 1000 meters placed around the rock soil (Sakaoğlu 2005: 192). Although it is dated to the Middle Ages in its current state, the first data concerning the settlement date goes back to the Iron Age [4] (Fig. 3).

Fig. 3 Aerial view of Divriği castle from the Northwest (photo by: O. Tecer, 2017)

The area consists of three platforms from the top to the bottom. The uppermost part is about 100 meters higher than the modern Divriği settlement and has been transformed into a more special and protected place with the thick walls, built during the Middle Ages. Most likely, there is a mosque in this part which was open only to the use of the palace.[5] The activities carried out in the South of the mosque point out to at least a 3-phase settlement. The rectangular shaped large

3 Although it is not known whether this order was executed or not, it is possible that the door located at the southwest corner has been demolished during this period.

4 Researcher Sakaoğlu does not date the remains referred to in (2005: 199), however accurately states the strategic importance and sacredness of the area.

5 About the Mosque, see, Boran 2001: 60–65; 2002: 123–124.

ward built in the past phase has caused the deterioration of the ground in this area. The rock soil of this area is at times quite close to the surface (Fig.4).

Fig. 4 View from the Northwest showing the platform stages (photo by: E. Eser, 2015)

The second platform which extends from the North to the South is the largest part of the castle area. A majority of the residences which are indicated to be close to 300 in number in an Ottoman document dated 1649 are considered to be in this area as well (Sakaoğlu 2005: 209). With a few spaces opened during the excavations (Büyüksaraç et al. 2012), it is possible to see cisterns, storages and blood pits carved on the stone.

The third platform located below is again on the north-south direction and although it is not very wide, it is dated to 13th-14th century and afterwards, due to the structures found on the surface which have been uncovered with the excavations. In this part, burial chambers rooms, cisterns, storages, pools and hearths carved on stone and wall remains have been found. One of the structure remains which could have been identified as the Mosque, and the other two are private residences, which are thought to have floor heating.

HISTORICAL PHASES

The activities carried out since 2010 in the area have allowed some general evaluations to be made in terms of the character of the settlement.

The first is about the ceremonial characteristic of the area. Most likely, the settlement area of Divriği prior to the Iron Age is not this rock on which the castle has been built. However, it must have been the center of interest for the ancient communities with the castle on top of the hill and its location which is dominant over the surrounding area. In this period, it is quite possible that the real settlement area was located nearby and perhaps at an area which has remained underneath the modern Divriği residences. The rocky area in its entire splendor was where worshipping and ceremonial rituals were held (Fig. 5).

In the second phase, cisterns of different sizes, wells and storage units are seen. In this phase, the area began to be used for different purposes, other than ceremonial activities (Fig. 6)

Although the interest Assyrians have shown to the areas has not exactly been proven, the cisterns, wells and storage units located in the upper platforms make us think that the castle area might have been used as an arsenal and grain silo and an advanced military station.[6] The mortar carved on the stone must belong to the days in which the castle had turned into a settlement area.

6 Although the Assyrian interest in the area is known, there is still no sufficient data about it. About the issue, see Maxwell-Hyslop (1974: 150).

Fig. 5 Blood pits and cistern in the north area of the castle (photo by: E. Eser, 2016)

Fig. 6 Aerial view of the Castle mosque area, showing the blood pits, storage pits and cisterns (photo by: E. Eser, 2016)

Çaltı River which runs from the North of the castle (Fig. 7) and continues along its East joins the Euphrates River which is one of the largest rivers of Anatolia. The rich mineral deposits of the area indicate that Divriği might have been important in terms of river trade which is not quite known today. Çaltı River from the north and Murdar Stream from the southwest show that the valleys on which Divriği is located had a dense amount of water in the old days. Due to the amount of water the mentioned rivers contained, it is quite possible that the castle area might have looked like a peninsula. The water level

Fig. 7 Photograph from the other side of the Çaltı river, showing Divriği castle (photo by: E. Eser, 2010)

has decreased by time and the area gradually began to assume its present appearance.

The third phase related to the rock structures consists of the sepulcher and building constructions (Fig. 8). In this phase, it is understood that the tombs and rock buildings have been built in particular in the uppermost level and on the western surface of the area. This phase means the transition from the temple phase to the necropolis stage. Besides the burial chambers which can be seen out in the open today, there are those which have been found during the excavations as well. The existence of certain building attempts which have been opened at some places but have been left unfinished can also

Fig. 8 Tombs and rock buildings on the northern part of the third platform, necropolis? (photos by: E. Eser, 2016)

be observed.[7] The blood pits opened on the ground in front of the burial chambers have been turned into hearths later on.

After the area was in the hands of the Byzantium Empire, it can be considered that the rock tomb areas have been transformed into residences. However, there is no definite information as to whether the area had a wall back then. In the area which has witnessed the Sassanian-Byzantium conflicts, Divriği has continuously changed hands. After the Sassanians, the Arabs have become the rival of the Byzantium. Although Divriği is mentioned in Arabic sources, there is no information about the settlement.

THE WALLS

The wall which has been built on a rocky area and extends in the north-south direction consists of two phases with the existing remains and traces (Fig. 9).

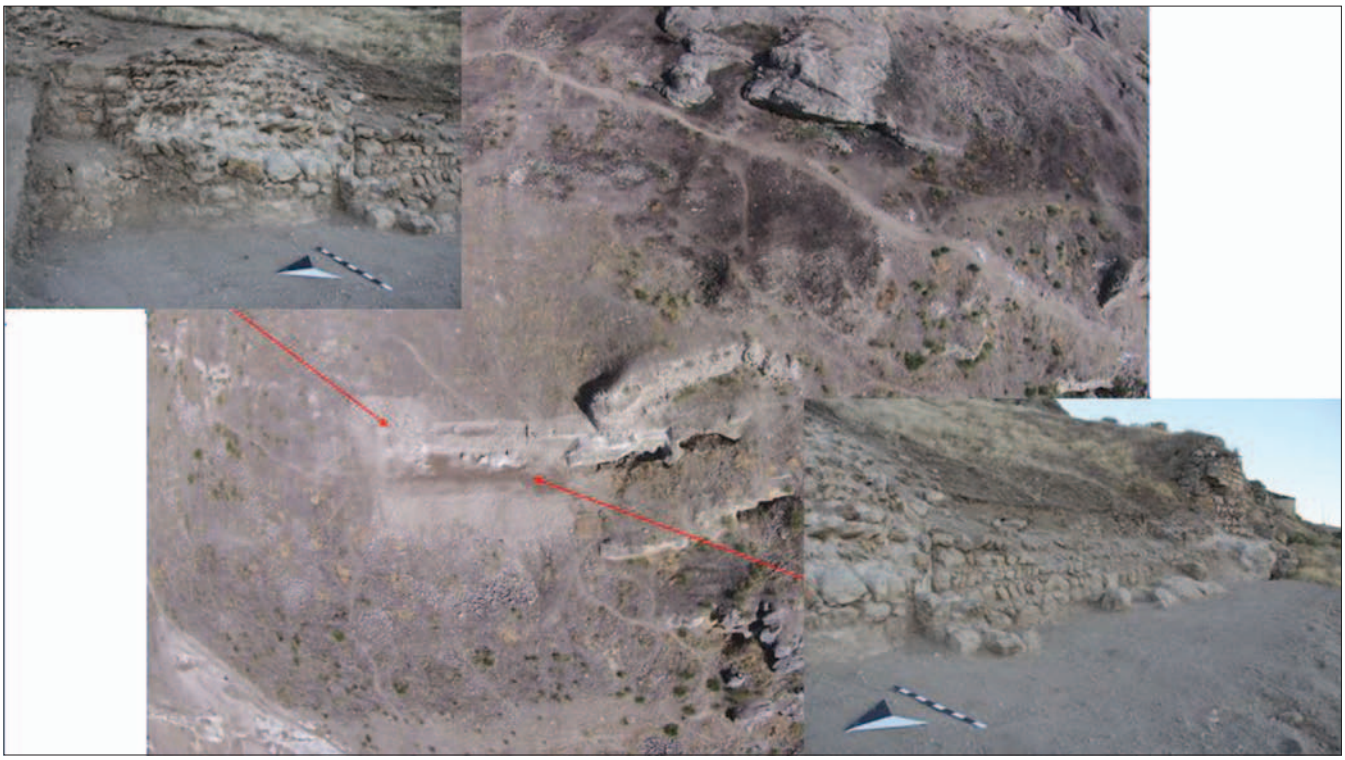

Fig. 9 Remains of the inner wall, probably door place and building remains (photo by: E. Eser, 2015)

Although the first phase is dated to the Byzantium period, its definite construction date is unknown. The only data about its date is the actions of the group known as the Paulicians in Divriği. As a result of the Anatolian expedition of Mikhail III in mid-9th century, Divriği was claimed by the Byzantium forces. Although there was Byzantium dominance in the area, Divriği was still the center of the Paulicians. It is not known for sure how much the dominance of the Paulicians, who stood by various powers from time to time, lasted in Divriği. However, it is at least indicated in sources that they have demolished the churches. The Paulicians, who revolted against the Byzantium Empire and became active in the area starting from 6th century, were banished from the area through an expedition which took place in mid-9th century. Today, the inner-city wall, of which very little can be seen on the surface of the ground and dated to the Byzantium period, must have been built with the purpose of emphasizing the dominance of the Byzantium Empire in Divriği and to protect the administrative buildings.[8]

It is understood that the Byzantium wall was a thick wall with a single door which was placed on the rocky surface. This wall, which has largely been damaged, was most likely repaired in 12th century.[9] In terms of material-technique, it is seen that the wall has been built with more simple stones of different sizes which were collected from the area, comparing to

7 The rock structure of the area displays differences. The rock ground, which at some places is soft, has a very rigid structure at some other places. It is also possible that the sepulcher rooms which are being opened had not been processed due to the rigidity of the rock surface. The effects of the burial traditions whose details we still do know are being researched as well.

8 Researcher Guy Le Strange states that the town of Divriği was founded by a Paulician administrator named Carbeas and that the castle walls had been built upon his orders (Le Strange 1896: 733), however there is no information at hand which can prove this.

9 During the excavations which are carried out, in particular the effort is done on finding the exact place of the door.

the walls built in 13th century. It is difficult to think that there were wall structures on the surface located in the lower parts of the wall which has a 75-degree angle at certain places. However, it is noteworthy that there are some wall remains which belong to certain buildings right next to it which were most likely used as residences.[10]

The Byzantium settlement located on the Iron Age rock ground is not rich as it is understood from the data at hand, and the buildings have been built directly on the rocky ground. It might be assumed that the building walls which were at least within the first inner wall area belong to the Byzantium period. There is very limited information about the state of Byzantium Divriği during the 9th-12th century period. During the excavations, the data known that belongs to this period and to earlier times is seen as well.[11]

It is not known when Turkish dominance began in the area and in Divriği. However, in the years following the 1071 Malazgirt War, it is considered that Mengücek Ghazi or his sons took over the area. Although it is not known how the Mengüceks came and conquered the city, the only definite information about them is that they controlled the area between the years 1142–1277. The Mengüceks have separated into three branches in 1142 as Erzincan, Kemah and Divriği. In 1277, they were probably erased from the historical scene after the arrival of Abaka Khan to Divriği.

When we take a look at the actions of the Mengüceks in Divriği, it can be seen that there are the Castle Mosque, a few fountains, 5 mausoleums and the Mosque-Hospital complex, which has been officially certified as a World Heritage Site besides the Castle. Without doubt, the most important work which survived until the present time is the Castle (Fig. 10)

Fig. 10 Photographs of the buildings from Mengücek period in Divriği (photos by: E. Eser, 2014)

From the historical events and the epitaphs partly intact on the walls, it can be seen that the external wall was built between the years 1230–1252. The wall, which is about 1000 meters in length and reaches at certain points to 10 meters, has been built with the coating technique with a material consisting of large dimension cut stone blocks. The wall with its two intact doors, one of which is situated at the southwest corner and the other in the middle of the in the west, has mostly not survived until today [12] (Fig. 11).

It can be seen from the existing signs that the rock soil has been cut and flattened for the construction of the defense walls. Large sized cut stones have been used in the exterior facade, whereas smaller sized stones have been used in the coating of the interior facade.[13] There are no remains of battlements on the walls like the ones seen in other Middle Age

10 There is no information which would help us point out when the buildings next to the wall have been built.

11 For the excavation and the findings, see Eser 2008; 2009; Eser, Akay 2012; 2013.

12 Besides these two doors, a third door in the northern direction of the area is in question.

13 It is interesting that thick coating stones have been used in the inner facade. However, when the height of the wall is taken into consideration, an extra support had not been found necessary in the inner part.

Fig. 11 Two main gates which are still preserved today (photo by: E. Eser, 2015)

castles. The figured ornamentation style seen only on the Konya and Diyarbakır walls in Anatolia are valid for Divriği Castle as well. Today, there are lion reliefs on the southwestern corner of the wall and on the bastion known as the Lion Bastion (Fig. 12).

Fig. 12 The bastion and the relief of lion (photos by: E. Eser, 2014)

The walls of the Divriği Castle are noteworthy due to its construction technique as well besides its long construction period and figured ornamentations. When the intact parts of the walls in south and west are analyzed, it can be seen that

the walls consist of numerous parts attached to each other, and that it is not one piece (Fig. 13). As for the construction of the walls, besides the uneven ground, the fact that the area being located within the limits of an earthquake zone should also be considered.

Fig. 13 Photograph of the walls showing the building style (photo by: E. Eser, 2016)

Although the epitaphs found on the castle walls and the Lion Bastion indicate the names of the people who got the walls constructed and the construction dates, there is no information about the artists and the workmen. The artists who have built the Divriği Great Mosque and the Hospital in the same years are also noteworthy. The artists and the workmen of the Great Mosque and the Hospital built between the years 1228–1242 are very likely the same people who have constructed the external wall as well. In this respect, some of the information obtained during the excavations at the castle site is important. Especially the ornaments seen on one column base resemble the same style as the Great Mosque ornaments.

Divriği Castle which is among the castles constructed before the Mongolian invasion, had significant consequences in terms of the 13th century Anatolian Seljuk History, and is a striking work with its form suitable for the topographic condition of the area in which it is located, together with its materials-technical characteristics which are unique to its own. Its restoration has been started in 2015 in accordance with its original structure (Fig. 14, 15).

The materials used in the restoration have been obtained from a quarry close to the castle. After the measurements of the fallen coating stones which were taken at the site, coating material in line with the original dimensions has been prepared. Since some parts of the wall are heavily damaged, an intense completion activity is taking place. In better parts of the wall, only the damaged material is taken away and replaced with the new material.

When the inner and external wall restoration is completed, the castle area will be much safer. In order to provide the visitors safe during visits within the wall area, a landscape project has been prepared and it will be implemented soon (Fig. 16).

Fig. 14 South wall before and after the restoration (photos by: E. Eser, 2017)

Fig. 15 Photographs of the area, showing the material taken from the hill, processed and used for the restoration (photos by: E. Eser, 2016)

Fig. 16 Aerial view of the Divriği castle after the finished first phase of the restoration (photo by: O. Tecer, 2017)

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STEFANO CECAMORE

Fortified Villages in the Central Apennines Origin and Development of Defensive Structures along the Boundary Line with the Papal States

The morphological characteristics of the Apennine ridges in central Italy define a territory that is difficult to penetrate, hence affecting, since the earliest times, the possibility to set up resident and delimited villages delaying the establishment of real fortified structures until the fourth century BC.
The oppida and castella*, mentioned in the sources of the Roman Era identifying villages with people originally from central Italy, were often placed in a strategic position and in visual contact with each other, defining a first control of the territory network that finds its complete form and evolves in a structured and easily recognizable system around the tenth-eleventh century.*
After the fall of the Roman Empire there was found a solution for the difficult identification of the political and spatial layout and the lack of a central power defined topographically during the Norman dominion determining the areas of central Italy as the boundary between the southern kingdoms and the Papal States.
The numerous castra *and fortified structures consequently destroyed and reinforced along the border with the* Patrimonium Sancti Petri *outline an enormous heritage of proof of the historical–architectural evolution of these border territories.*
The study of the structures on elevation defines a constructive view which collects the traces of the main transformations of the fortified systems: from the castral enclosures in ruins, passing through the survived ones, although in a state of neglect and embedded in the complex urban systems, to the redefined structures re-examined with the Renaissance perspective and residence castles of the great Roman families

Key words: fortifications, castles, Marsica, construction techniques, heritage

Frederik II's intent to establish a hegemonic imprint on feudality, clergy and the community of Southern Italy, pursued by the Assizes of Capua in 1220, (Fonseca 1998: 14; Clementi 1999: 231), clearly underlines for the first time the politic border between the Church and the Kingdom of Sicily.

The 13th century marked the end of the natural passages between the barriers of the Carseolani Mountains, Simbruini-Ernici Mountains and the Velino Massif, considered gateways and routes for transit amongst the properties of Rome, the Adriatic Coast and the feuds in Southern Italy.

The properties were burdened with complex crossing due to an articulated orographic layout of the territory, but not yet subject to the direct control of the homogenous and structured central power.

With the expected *sanctiones* based on the constitution of *de resignandis privilegiis* (Tramontana 1986: 232) the Emperor pledged the process of reviewing all the possessions of the property and privileges of the local feudality imposing the dismantle of the castles and forts built abusively and the reannexation to the Regio State Property of the remaining properties which were authorized in the past by the Norman legislation.

The new Swabian network to control the territory, structured in upland fortalices positioned to oversee the main transit routes, defines a system of centralized management and government that was already known in the area of the Central Apennines range many centuries before by means of the Roman dominion.

The submission of the *gens aequa* and the inhabitants of Marsi and their subsequent Latinization between the 4th and 1st century BC indeed finds the definite resolution of the foundation of the three principle *municipia* of the territory, *Carsioli*,

Alba Fucens and *Marruvium,* and the outlining and development of Claudia Valeria arranged in the two main sections: from Rome to *Tibur* (Tivoli) and from *Tibur* to *Ostia Aterni* (Pescara) and its branches in *Ager Albensis* and towards the current *Piani Palentini* and *Val Roveto*.

The remains of the Pre-Roman structures are not always recovered and reused for the foundation of the new outposts of control and management of the territory. The surviving structures testify the frequent use of polygonal works in local limestone used in the enclosing of fortified sites and detectable in archaeological excavations (Somma 2000: 26–27).

The Archaic age (6th century BC) is witness of the definite diffusion of the upland *ocres* in all the Marsican area developing since the second half of the Iron Age (8th–7th century BC); small town-states related to a bellicose society with a diversified economy (farming, fishing, hunting, metallurgy, breeding) are identifiable in the fortified centres on rocky foundations, surrounded by defensive wall systems in medium and large-sized limestone blocks.

However, a true militarization of the territory is attributable to the period between the 5th and 4th century BC. The period is witness to the development and fortification of the big district centres of marsa ed equa: *Antinum* in Val Roveto, *Milionia* in Valle del Giovenco, *Alba* in Piani Palentini, and *Carseoli* in Piana del Cavaliere (Grossi 2011: 188)

Recent studies (De Leo et al. 2011: 53–60) carried out with reference to the border of Lazio territory build up the cultural awareness related to the centres of aggregation of the Italic period identifiable on the western Marsican front. The site is *Santo Stefano*, hamlet near *Sante Marie* (AQ), 1,149 m a.s.l. at the valley slope of the Carseolani Mountains and Faito and San Nicola Mountains, which yet has traces of the surrounding masonry wall whose features are conceivable according to the study of the walls which are situated near the north access and preserved for a maxim height of 2 metres.

The structure is similar to the same defined in literature as the "apical" walled wall (Conta Haller 1978: table LII) defining a perimeter of about 400 m and a relative intramural area of 5,300 square meters. It has a peculiar local unit in limestone, arranged in dimensionally uneven homogeneous elements (0.40-1.5 m in length), slightly worked and dry-mounted, forming a wall apparently with no planar laying and structurally supported by the insertion of wedges in the interstices of the wall curtain.

In general, this enclosure is a small-medium sized protected area with similar typologies of the upland fortifications found in the Italian setting.

Pre-Roman plants with defensive and stationary connotations distributed in the Equi territory, a frontier of significant concern that between the eastern and western Apennines, define a panorama of sites – identified by the studies carried out in the territories adjacent to the rivers of Turano, Salto, Imele de Aniene (D'Ercole, Martellone 2004: 32, fig.1) – designed by approximately fifty upland constructions, some of which have multiple fortified structures – can be found in the 5th century BC, like those legible on Monte San Felice and Monte San Nicola located at the current town of Scurcola with the clear intent of controlling and defending the territory at the entrance of the Valle dell'Imele.

The increasing conflicts between the Romans and Gens Aequa between the 5th and 4th century BC determine, instead, the rise of oppida at the Upper Valle dell'Aniene, the extreme western piece of land at the border with Latium vetus (Bianchini 2011: 21–27).

The definitive submission of the indigenous population, identified by the Romans as *Aniensis*, is sanctioned by the establishment of the two Latin colonies of *Alba Fucens* (303 BC) and *Carsioli* (302–298 BC) (Somma 2000: 27).

[…] *Post per exploratores compertis hostium consiliis, ad singulas urbes circumferendo bello unum et triginta oppida intra dies quinquaginta, omnia oppugnando, ceperunt; quorum pleraque diruta atque incensa nomenque Aequorum prope ad internecionem deletum. De Aequis triumphatum; exemploque eorum clades fuit, ut Marrucini Marsi Paeligni Frentani mitterent Romam oratores pacis petendae amicitiaeque. His populis foedus petentibus datum* […] (Tito Livio, *Ab Urbe Condita*, IX, 45).

According to Tito Livio the clashes between the Romans and the Aequians, following the second Samnite war, involved the capture and destruction of 31 *oppida* Aequians; the original fortified units made by the native populations are completely destroyed and abandoned and only to a small extent involved in the process of adaptation to the Roman urban settlement model.

Throughout the Aequian (D'Ottavi 2010: 41–43) and Marsican territories the process of Romanization implicates the crisis of the settlement area of the *oppida* and the diffusion of the *vici* and consequently of the *municipia* that seldom impose an urban reconversion of the original upland outposts as in the case of the *Antinum* (current Civita d'Antino) in Val Roveto or *Lucus Angitie* north of the current Luco dei Marsi (Somma 2000: 29)

In the case of *Carsioli* the choice of the site is indisputably oriented considering the well-fitted orographic location of the half-coast plateau (600–636 m a.s.l.) crossed by Tiburtina Valeria (Maialetti 2002: 10; Maialetti 2012: 14; Lapenna 2003: 55) on the southwestern border of the current Piana del Cavaliere at Civita, urban fraction of the municipality of Oricola.

The excavations and studies undertaken in the last century and the ones prior to these conducted in the area of the alleged urban sanctuary (Lapenna 2003: 71; Riccitelli 2009: 238–242; Lapenna et al. 2012: 241–243) restore an image of the Roman construction such as to consider the site as the main aggregation centre of the vast territory surrounded by *vici* and *villae* along the main road layouts.

Imposing walls made of squared blocks of tufa, whose remains emerge near the porta urbica along via Civita, enclosed a large urban aggregate served by an aqueduct structured in blocks made of tufa and whose remains, named in recent period *Muru Purtusu*, appear near the woods of Sesera (Amici 2009: 20; Maialetti, Sciò 2006: 8–12; Maialetti 2008: 18).

Via Valeria is the main road running rectilinearly north-south throughout the Roman town, which according to the sources, was equipped with a forensic area with a curia and basilica, not yet identified, and two sanctuaries: one is on San Pietro hill and the other one, suburban, is near the town of Carsoli.

The chronological time period of the sacred urban area might be included between the foundation of the colony of Carsioli (298 BC) and the subsequent intervention of the stenographic reorganization of the site, shaped in a terraced sanctuary, extended to the Augustan period.

The progressive loss of this precious cultural site, defined as one of the most important and monumental sanctuaries of the colony of Carsioli, is particularly associated to the constant raids of the area identified as "scarico votivo" and to the constant removal of building materials which have lasted for centuries and confirmed by the presence of at least three "calcare" that identify the working and processing area of the stones situated exactly among the ancient ruins.

However, the sepulchral monuments specified by Ashby (Pfeiffer, Ashby 1905: 108–140) along Via Valeria are reported as missing; most likely the Doric friars preserved at the Municipality of Carsioli and those in the basilica of Santa Maria in *Cellis* (Fig. 1) are from the monuments.

Fig. 1 Carsoli, reuse elements at the base of the bell tower of the church of Santa Maria in Cellis (drawing and graphic elaboration by: S. Cecamore, 2011)

Little evidence of the materials of the Roman Carsioli, one of the five major *municipia* in the Marsican area referable to the first period of the 1st century BC (*Carsioli - Aniensis* tribe; *Alba Fucens - Fabia* tribe; *Anxa*, *Marruvium* and *Antinum - Sergia* tribe) might not render justice to the importance of the ancient construction.

However, it is extremely clear the strategic role that the Roman Carsioli had between the main axis that connects the west with the east of central Italy. This role is inherited, in the following centuries, by the fortified centers located on the main mountain ranges that dominate the Piana del Cavaliere.

Oricola, in particular, (Lapenna 2003: 17; Amici 2009: 11) undeniably evokes in the etymology of the toponym handed

down by the local tradition (*auricola*) and in the configuration of the communal coat of arms – two auriculars surmounted by a blue star and suspended above three green hills – the clear function of listening, attention and having control over the border territory.

The historical centre located at 809 m a.s.l. is the "porta d'Abruzzo' (the gate to Abruzzo), gate to the complex system of control of the Italic and pre-Roman outposts positioned in order to have visual connections in the Apennine valleys.

Among the nearby fortified centres are the castles of Celle/Carsoli and Pereto clearly linked to Oricola, that have been involved, since the 10th century, by the phenomenon known as "incastellamento" (Sciò 2004: 2–8), that involving in different timings and dynamics the entire Italian construction (Fig. 2, 3, 4).

Fig. 2 Castles of Celle/Carsoli, south-east panoramic view (photo by: S. Cecamore, 2009)

Fig. 3 Castle of Pereto, south-west panoramic view (photo by: S. Cecamore, 2010)

Fig. 4 Oricola, panoramic photo of the apical castle (photo by: S. Cecamore, 2012)

The three historical centres are the major focal points of the Carseolano territory. They are closely connected by historical-identity components from the common belonging to the noble family of the Counts of Marsi, main promoter of the "incastellamento" phenomenon in that area and also by the fundamental role of the local cultural awareness deriving from the "civiltà della pietra" (stone civilization) and by the exploitation of the local resources.

The use of limestone as the main building material is, indeed, a constant in the military, civil and sacred buildings throughout the territory; excavation campaigns at the oldest sites, survey procedures on medieval and Renaissance buildings, and constructions of the most recent urban fabric of small centres demonstrate a constant use of limestone in processed elements, partially processed or erratic elements, and recovered components.

The many fortified sites in this area of the central Apennine, dated between the 11th and 12th century, have a recurring element which appears to be the primeval watchtowers (Somma 2000: 88). The ones in *Celle*/Carsoli, Pereto and Oricola are examples of successive developments expanding and modifying the typology commonly referred to in literature as "castello-recinto" (Perogalli 1975) (castle-enclosure). These are, in fact, structures that associate the castle-residence to the walled hamlet or the *castral* enclosure in a circle of "wall-houses" up to the integral replacement of pre-existence ones with new buildings no different from the Renaissance fortress commonly known.

The castle of Oricola does not preserve any evident proof referable to the evolving phases of the period between the *Signoria* of the Counts *dei Marsi* and the Angevin period.

The castle, arranged according to a triangular system layout with cylindrical towers at vertices, is attributable to a complete reconstruction of the 15th century; the possible time collocation of the intervention is unknown, however, the wall of the towers, with the numerous interventions of consolidation recurred during the years, can be assimilated to a typology -that recurs in circular factory bodies- shaped arranged in courses composed of homogenous elements of calcareous without fragments of clay - dated not before the 13th century (Somma 2000: 92).

The devastations stated in literature, related to the siege and the destruction of the nearby *Carsioli* mid-13th century (Amici 2009: 35) and *Oricola* at the beginning of the 16th century (Mancini 2003: 84), presumably have contributed to the substantial alteration of the historical centre and the castle undergoing recent revisions of the interiors adapted for civic and residential use. On the contrary, the works carried out on the main buildings of the castle of Pereto during the last century did not significantly compromise the constructions, allowing the possibility for important analysis surveys and the cataloguing of the walls of the historical centre and the restoration works (Branciani 2008). The structure, which is planimetrically complex, preserves the evidence that it had undergone many construction phases and it stores the various pas-

sages that determine, between the 12th and 14th century, the transformation of the primordial phase (tower and enclosure) into a stationary residence with a basic unit construction.

Unlike the castle of Pereto, many constructions in the Marsican area have variously reinforced perimeters – with internal or juxtaposed towers - and structurally layered, that are, for contingencies, associated to disastrous events or deficiency of obsidianal or formal developments and do not preserve evident traces of the building phases prior to the 13th century and the related passages from the purely specialized military architecture to that of diversified uses.

Tremonti is today one of the most significant examples of an apical tower (1120 m a.s.l.) among the ones listed in the *Catalogus Baronum, Entremontes*, which is supported by a reinforced enclosure whose irregular perimeter follows the morphology of the site and at its summit has additional geometrically diversified towers (Fig. 5). The central tower wall set on a square plan with a side of about 5.5 m and preserved for a maximum height of 6 m, reveals two distinct construction phases: one characterized by regularized calcareous blocks placed in horizontal rows – 12th to 13th century – and an earlier phase identified by limestone pieces of irregular dimensions and rare fragments that date back to the 10th–11th century related to the Pre-Norman period (Somma 2000: 84–85) (Fig. 6). The circular tower with an unperceivable scarp wall, which is detached from the main enclosure on the north side, likely related to the Angevin period; finds instead match with the towers of the upper enclosure of the castle of San Donato. The latter, located on the south-eastern spur of Mount Faito, is a complex fortified system, creating visual connection with the *castra* of Castelvecchio, Tremonti, Civita di Tagliacozzo and Girifalco. The numerous reinforced components that define the towers outline the subsequent construction phases dating back to the 11th and 12th century and the conformation of the top of the building might have been used for residence use.

Fig. 5 Tremonti, panoramic photo of the castrum (photo by: S. Cecamore, 2017)

Fig. 6 Tremonti, detail of the tower of the castrum (photo by: S. Cecamore, 2017)

However, the present condition of the ruin does not allow to trace elements useful to support the theory of existence of residential volumes in the complex of San Donato that can be traced back to Pereto in the five overlapped compartments inside the imposing *mastio* in the *castrum* (Fig. 7) whose main construction phases are related to a period between the Norman and Swabian domination (Branciani 2008: 117).

Fig. 7 Pereto, panoramic photo of the apical castle (photo by: S. Cecamore, 2015)

Between the 12th and 13th century there is a substantial reconstruction of the obsidional systems belonging to the Norman period, which can be found in the Aquilean territory as well as along the Marsican mountain passes , usually developed on a small defensive perimeter with quadrangular plan and equipped with a single vertical emerging structure.

The main interventions for the adaptation and modernization of the Marsican *castra* fall within the scope of the territory and border control project, imposed by Frederick II to over the possessions of the Kingdom through the statements expressed in the *Statutum de Reparatione Castrorum* (Sthamer 1995: 118).

Pereto and the current renovated fortified building complex of S. Angelo in Carsoli are among the sites mentioned in the *Reparatione castelli Aprucium: "Castrum Cellarum reparari potest per homines ipsius terre et eciam cum auditorio Podii, PetreSicce, Colli cunLuppa, Tufi, Rocce de cerris, que sunti ibi convicine"* (Sthamer 1995: 118).

The imprint of the Swabian construction, presumably adapted through the use of mastery and local resources, is traceable in the fortified building complex of Carsoli in the upper enclosure regularized in accordance to the orographic shape of the site and equipped with quadrangular towers in the vertices of the building.

The study of the walls of the building looking south shows the attention dedicated to the layout and a more refined workmanship: the limestone arranged in rectangular blocks of variable length and height (approx. 20 cm x 11 cm) and set in horizontal rows might suggest a probable Swabian origin and at the same time indicate the area of the residential complex. The external facing of the portion situated north-east of the fortified building is more complex to date. The remains, consisting of two wall sections of a probable quadrilateral perimeter of approximately 20 x 15 m, juxtaposed and not connected to the main tower, have a special masonry in regular ashlars conforming to the scarp wall (Fig. 8).

This peculiar composition is found in conjunction with the *mastio* masonry walls of Pereto (12th –13th century) (Branciani 2008: 128), the scarp wall in squared ashlars and framed by the tower in the western part of the castle of Popoli (13th century) (Romalli 2008: 21) and with further structures built later in the nearby Mount Civita di Tagliacozzo (13th–14th century) (La Valle 2013: 399).

The diffusion of the scarp wall, referable to the 13th century, might ascribe this to the Swabian intervention or to an

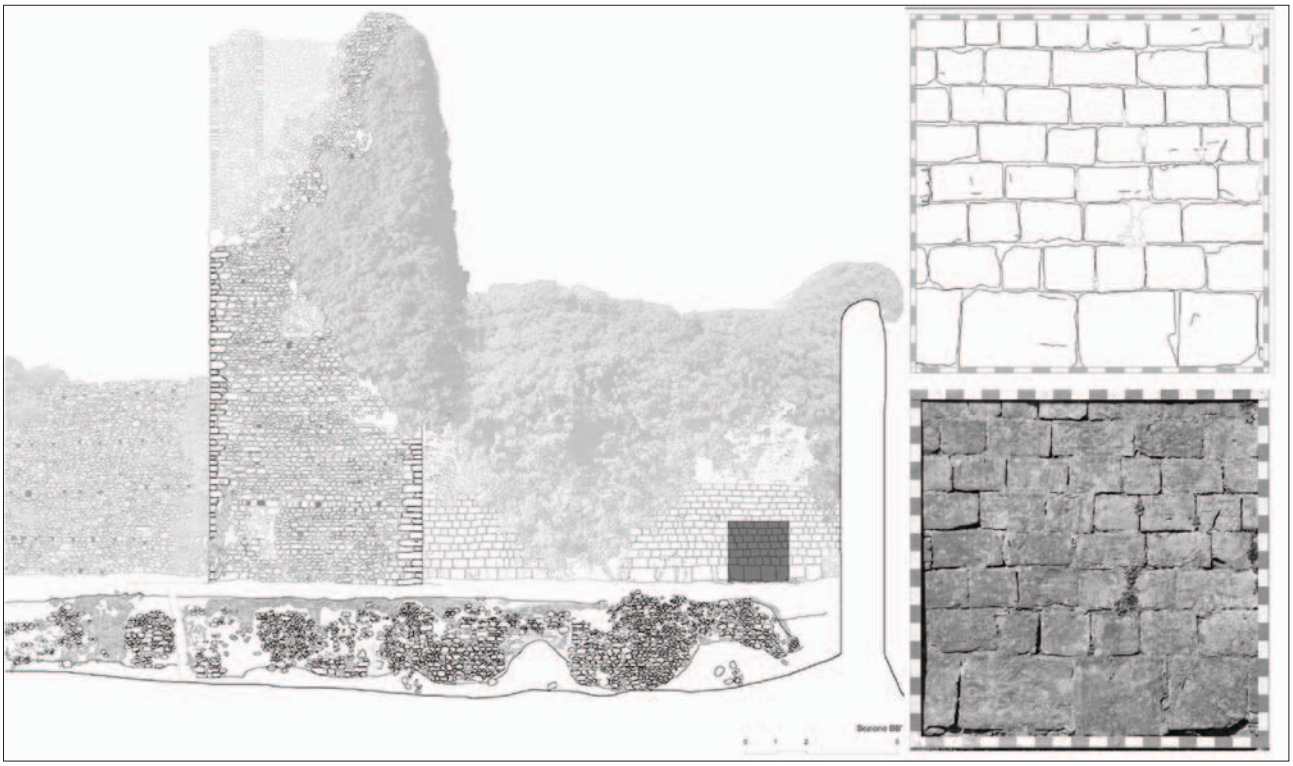

Fig. 8 Celle / Carsoli, architectural drawing and detail of the masonry of the castral nucleus located in the north-east corner of the fortified system (drawing and graphic elaboration by: S. Cecamore, 2011)

Angevine intervention to modernize and develop the building through reinforcement of the masonry of the previous Norman outpost. This is confirmed by the presence of a rudimental 'simple archer' slit in the upper rectilinear portion of the wall.

More reliable is the possible dating of the main tower wall (Fig. 9), characterized by blocks and limestone elements, set in rows with horizontal regular intervals, clamped at the angles with powerful limestone blocks and consolidated and

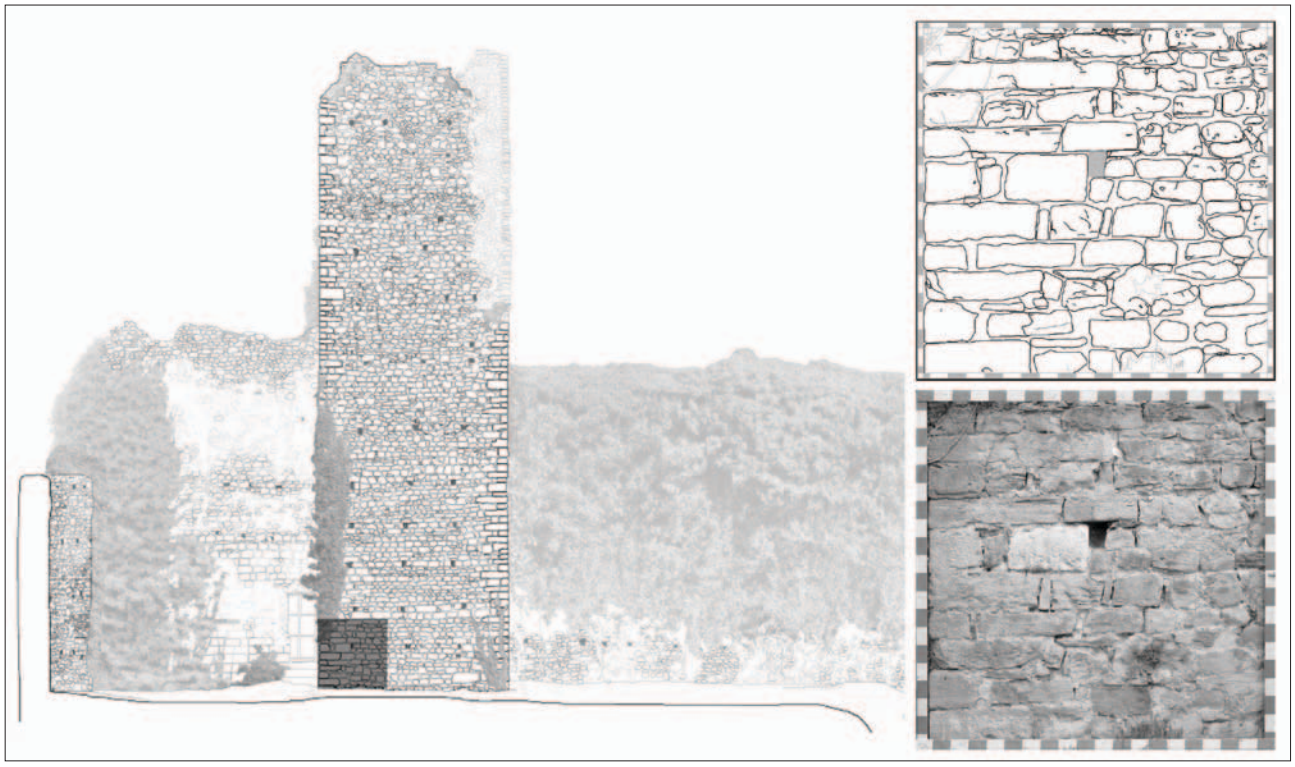

Fig. 9 Celle / Carsoli, main tower; architectural drawing and detail of the masonry of the basement (drawing and graphic elaboration by: S. Cecamore, 2011)

enhanced during the Angevin period, as well as testifies the plaque with the emblem of Charles II included on the eastern façade and quoted by Febonio in his *Historiae Marsorum*. Similarly, in the work of Febonio, there is reference of modernisation works promoted by the Orsini family referring to the surrounding walls. The ruins of the circular towers (13th–14th c., after Somma 2000: 145) emerge from the lower perimeter wall where the "case-mura" (wall-houses) are set including; some of these are interrupted by urban voids caused by bombings of the Second World War (Fig. 10).

Fig. 10 Celle / Carsoli, panoramic photo of the curtain of houses-walls with the remains of circular towers (photo by: S. Cecamore, 2009)

Recent studies carried out in the area of the upper site (Branciani 2006: 3–6) identify pre-existing features that relate to a chronological context between the 12th and 13th century affected by subsequent interventions dating back to the 16th century.

Basically, the overall structure of the complex of Celle/Carsoli recalls that of Vicina Civita of Tagliacozzo and Alto la Terra (Colasante 2006: 100–101), but there is no mention of them in the first development of the Renaissance period related to the defensive structures found in Tagliacozzo which acquire the role of headquarters of local feudalism (Colasante 2006: 71–132) after the defeat of the Piani Palentini and the foundation of the Abbey of Santa Maria della Vittoria (Redi 2006: 384–388).

The Colonna family, which took the place of the Orsini family in 1497, were the responsible of most important interventions of transformation and re-establishment of the Marsican castles.

The distinctive features of adaptation of works on the castra are visible in the primitive bastions of the Rocca di Tagliacozzo (La Valle 2013: 392) (Fig. 11, 12) due to military adjustments in the 15th century and in the anthropomorphic system of Scurcola (Salciccia 2000: 44–50) in the late 15th century. The new, sophisticated siege device envelops the pre-exiting one in a system that binds form and functions of the building according to the orders imposed by Francesco di Giorgo Martini who probably was a usual frequenter of the Marsican hamlets around 1490 (Ghisetti Giavarina 1987: 99–101).

The Piccolomini family, who acquired the Morrea feudal estate in 1489, is responsible of the transformation of the primitive castle located in the north-western part of the historical centre into a palace-fortress (Fig. 13).

The scarp walls of the façade on the eastern side and the circular towers are the only constructions persevered from the original *castrum* and from its subsequent pre-Renaissance phases – one of the five whose sources related to the Marsican area place at the pre-Roman period (Somma 2000: 72).

The approximate dating of the surviving masonry fascia of the towers (no earlier than the 13th century) and the absence of "redondone" in the whole complex buildings confirm identity of the base volumes to a time period prior to the 15th century. Undeniable scenic effect is the main façade of the internal courtyard organized in an overlapping of buildings open in round-arches at the loggia of the noble floor (Fig. 14).

All the constructions mentioned in these short notes are currently in abandoned conditions.

The study of these ruins, located in marginal and suburban areas, or of buildings no longer in use present in historical

Fig. 11 Civita di Tagliacozzo, south-west panoramic photo of the fortress (photo by S. Cecamore, 2016)

Fig. 12 Civita di Tagliacozzo, panoramic photo of the apical castle (photo by S. Cecamore, 2016)

centres, assumes that the methodological path of analysis and intervention should understand their state of transition between the conditions of disuse, ruin and collapse (Doglioni 2011).

Any intervention on the fortifications in the central Apennine must consider the relation between building and territory, which sometimes reaches the total symbiosis of the "total landscape" (Serafini 2016: 130). It is important not to neglect their condition of "fragile architectures" (Varagnoli 2016: 135) born as specialized structures which at present have lost the defensive and military functions that have generated them.

Fig. 13 Morrea, Piccolomini castle, main front of the palace-fortress (photo by: S. Cecamore, 2010)

Fig. 14 Morrea, Piccolomini castle, detail of the internal court (photo by: S. Cecamore, 2010)

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CLAUDIO MAZZANTI

The Rediscover of a Italian Fortification: the Cantelmos Castle in Bussi sul Tirino

In Bussi sul Tirino, a small historical town of the Abruzzo Region in the central Italy, there is a building commonly known as the Cantelmos "Castle": this noble residence is the bigger than all other neighboring buildings; it probably coincides with the native nucleus of the urban center, near the Piazza Tirino, still surrounded by the ancient city wall: the building has serious structural damage due to the earthquake of 2009; however, the analyzes conducted for its repair, allow us to acquire new information on the history of its transformation over the centuries.

Founded in the Middle Ages, it was originally a watch-tower; then the building was transformed and extended, between the fifteenth and seventeenth centuries, by drastic formal amendments; currently it shows architectural feature of the eighteenth and nineteenth centuries. In the first half of the twentieth century, the mansion has been further fragmented into several residences, altering the original distribution inside, even through structural changes, such as the elevation of the main floor or the re-construction of the tower, without historical references and using unsuitable materials.

Today, with an accurate metric survey of the building and a depth investigation of its masonry walls, we can identify the transformation process and the structural characteristics.

Key words: Abruzzo Region, castle, watch-towers, town wall, Cantelmo family, Medici family, transformation, masonry wall

INTRODUCTION

The subject of this study is a building about which there is very little information. It is located in Bussi sul Tirino, a small historical town on the top of a hill, that is at the boundaries between the provinces of L'Aquila and Pescara, in the Abruzzi Region, on the western side of the Central Italy (Map. 1).

This building is usually referred to as a castle. As a castle, generally it is attributed to the Cantelmo family, but also to the Medici family; however in the archives we can find only few documents about this fortification. Today it looks like a noble residence; this palace is bigger than all other neighboring buildings of this urban centre; it probably coincides with the native nucleus of the town, at the highest part of the village near to the Tirino Square (Map 2).

The Cantelmos Castle in Bussi was widely damaged by the 2009 earthquake; precisely this event has allowed us to deepen the knowledge of this monument, which is the result of a heterogeneous building process with a series of reconstructions or extension work effected by different historical circumstances (Cacciavillani, Mazzanti 2013a; 2015: 297–298).

The urban form of Bussi is compact, so the landscape is strongly characterized by the urban profile (Cardinale, Cavuta 1995: 38). The oldest part of the town develops at the sides of the main street, straight and very slope, along the hill ridge on which the village rises; this road ends to the small Tirino Square, with the presence of some eighteenth century palaces, while nearby there is the church of San Biagio, the most important sacral building of the town, characterized by its high bell tower. The square is the only open space within the ancient urban perimeter (Chiarizia 1990: 82). This part of town is still surrounded by well-preserved ancient town wall (Fig. 1).

Map 1 Location of the town of Bussi in the Abruzzo Region (drawing by: C. Mazzanti 2015)

Map 2 Map of the town of Bussi and location of the Cantelmos Castle, near to the Tirino Square (drawing by: C. Mazzanti 2015)

Fig. 1 A tower of the ancient town wall of Bussi (photo by: C. Mazzanti 2015)

THE ORIGINS OF THE CANTELMO CASTLE

The origins of the so-called Castle date back to the eleventh century. In its current configuration, it is the largest palace of the historic center, but it can be linked to the past defensive needs of this place: it was originally a watch-tower, located in the oldest part of the settlement of Bussi, whose urban nucleus developed during the medieval times, starting from one of the many fortifications in the Aquila countryside (Chiarizia, Properzi 1988: 31). The geography of the Abruzzo Region is one of the main factors characterizing the individual nature and history of the area by facilitating the preservation of a predominantly rural character (Ortolani 1964: 46), both in economic and social ways. We can identify multifaceted and changing aspects: these buildings are the result of a long established building process (Cacciavillani, Mazzanti 2013b: 148).

The mountains of L'Aquila zone are strongly marked by the watch-towers: their purpose was to check the mountain passes, so the efficiency of this defence system depended on the location of each tower. Each of them had to be visible by the other, positioned at a suitable distance. Another function of these medieval buildings was also the control of the river valleys, anciently used as infrastructures and still characterized by the presence of buildings, roads and bridges (Zenodocchio 2008: 13–14). This architecture has often been presented as a paradigm of pure architecture, shaped directly from the material, climate and the structure of the agricultural economy; its evolution is often presented as a consequence of the changes in one or more of these determining factors, whose variations take place very slowly over time (Cacciavillani, Mazzanti 2014: 75). The close relationship between the built and the social-economic structures shows the influences among urban environment and rural landscape (Zevi 1996: 33).

The construction features of the towers are closely correlated with the ancient events of these areas, the materials available here and also with the nature of the land. The landscape is strongly characterized by these structures due to their location at strategic and particularly inaccessible points, chosen for defensive purposes, with the consequent difficulties for building: stone is the only material used, so that these towers are the same colour as the surrounding landscape, usually with little vegetation. We have classified the type of masonry according to its shape, size and position of individual pieces, bringing the construction features with respect to the position of the towers and to date them, defined by the study of historical documents (Cacciavillani, Mazzanti 2013b: 147).

The castles and fortresses still existing in the Abruzzi Region were connected to the city and the territory. Significant elements of the Abruzzi Region are mainly the river valleys, places that preserve the roots of the culture linked to the land and the processing of products grown by man (Cardinale, Cavuta 1995: 69). The river areas were used as infrastructures (Turri 2000: 64); communication channels, irrigation systems and water supply, and the presence of water has profoundly affected settlement, cultural and manufacturing history of the areas that were crossed (Staffa 2004: 165–166).

In the period between the 9th and 11th centuries, the vast counties of this area began to be divided into territorial domains less extensive, with a large number of fortified centers, like Bussi (Chiarizia, Properzi 1988: 39).

THE TOWN OF BUSSI AND THE CASTLE

The name "Bussi" probably comes from an evergreen plant *Buxus sempervirens*, in the past a tree very common in this area. The origins of the urban centre date back to ancient Rome; only in 1880 its name was completed in the current Bussi sul Tirino, with the addition of the name of the river running near to the town (Chiarizia 1990: 82).

Bussi is at the confluence between the Tirino and Aterno rivers; these valleys historically had a crucial importance in the center of Italy, for the presence of some roads of Roman times, still used during the Middle Ages: the Valerio-Claudia and the Claudia-Nova (Zenodocchio 2008: 33), as well as the crossing of the major sheep track, the so-called "Tratturo Magno": the main route along which formerly huge amounts of livestock were moved between mountainous areas in Abruzzi and

the plains in Apulia Region.

At the time of the Lombards Kingdom, approximately in the Year One thousand, some Benedictine settlements were founded in these places and they had a strategic function: located in the border zone between the Spoleto and Benevento Dukes, between the Navelli highlands and the Peligna valley; next to the Tremonti crossing that controlled the access to the valley of the Pescara River (Chiarizia 1990: 183).

Even though the territory belonged to the Diocese of Valva, the Benedictine settlements were not subject to bishopric authority, maintaining close ties with the principal religious centers of the time, from which they were united for a long time, as important outposts for the control of the farthest possessions (Celidonio 1911: 125). One of the oldest monastic complexes of this part of Abruzzi was San Pietro ad Oratorium, along the course of the Tirino river, near the town of Capestrano, not far from Bussi. Tthis monastery was related to the important San Vincenzo al Volturno abbey, such as the monastery of San Benedetto in Perillis, founded at the end of the eleventh century (D'Antonio 2003: 33). At the same time, also other monasteries were built: Santa Maria Assunta in Bominaco, possession of the monks of Farfa, and another monastery, very close to Bussi, the Santa Maria di Cartignano, dependence of the Montecassino Abbey (Gavini 1927: 269; Moretti 1972: 226).

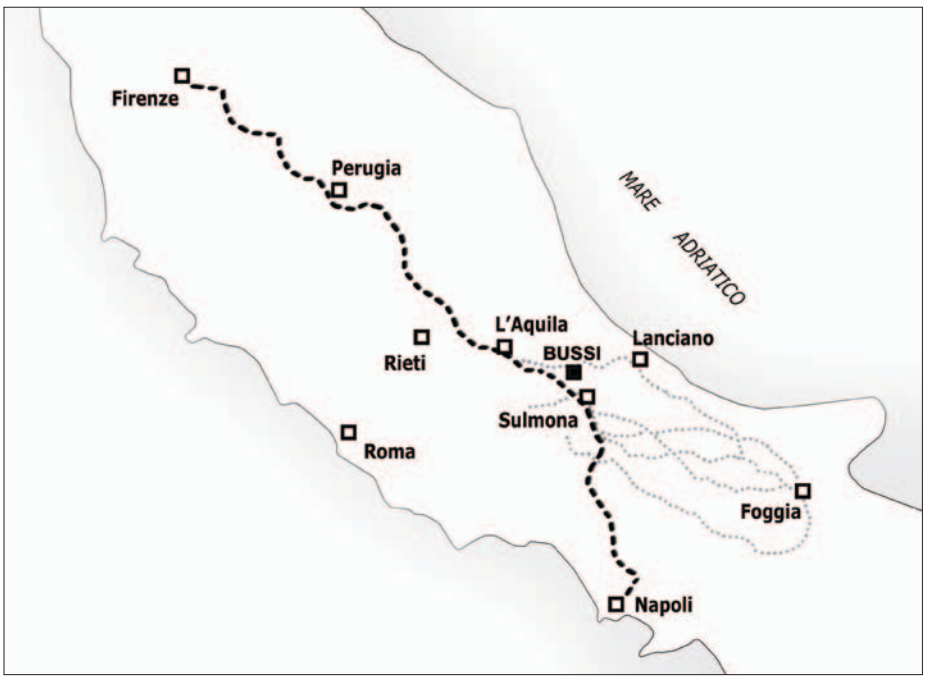
Bussi, therefore, was in a strategic position, also because of its proximity to the Pescara River: along this valley there was intense economic, cultural and artistic exchanges, is a key element of linkage between coastal and mountainous areas (Ghisetti 2017: 60).

The strategic Tremonti pass was controlled by the castle of Popoli, built approximately in the Year One thousand by Tidolfo, Bishop of Valva (Celidonio 1910: 57). Substantial changes were carried out towards the end of the fifteenth century by the Cantelmo family: coming to Italy in Twelve sixty five, to following King Carlo d'Anjou, his feudatories until the seventeenth century (Moretti 1972: 879).

They modified the Popoli fortress for the use of the artillery and for their housing needs, becoming their residence until 1480 when they moved to the Doge's Palace of Popoli; in the castle of this village it is appreciable Renaissance addition, with the modernization by the Count Restaino IV Cantelmo (Perogalli 1975: 68). Something similar also featured the Bussi fortress.

In the course of history many noble families dominated Bussi: it was a fief of the descendants of Berardo da Rajano, the Pignatelli, the Cantelmo - from 1377 until 1578 - and the Pietropaoli families; later it was dominated by the Medici family. Finally the town was united to the Kingdom of the Bourbons (Faraglia 1900: 5–6).

The earliest testimony about the existence of Bussi is the *Chronicon Casauriense*: it is a collection of medieval chronicles concerning the Abbey of San Clemente in Casauria, at the end of the twelfth century. A series of castles are mentioned in this document, with their ancient denomination; among these, one of the farthest is called *Buxius* (Pansa 1996: 78).



Map 3 The via degli Abruzzi, through the Apennine valleys (drawing by: C. Mazzanti 2015)

Another document affirms the value of Bussi from a remote times, in a political and economic context; this document shows the religious, economic and cultural influence exerted over this place by already mentioned monastery of San Benedetto in Perillis (D'Antonio 2003: 160). So we can know that in 1188 this religious settlement possessed "the fourth part of the Bussi Castle" (Varrasso 1990: 184). The ecclesiastical power over this place evolved during the Middle Ages, so that in 1316 "the half of Bussi" belongs to another Abbey, that of Santa Maria Casanova (D'Antonio 2003: 172). This influence persists until 1377, when Bussi was finally sold to Restaino, a member of the Cantelmo family. The historical development of the urban centre of Bussi, at that time is strongly related to the Cantelmo family, who resided in the nearby town of Popoli and during the following centuries exercises its power also on the neighbouring places (Antinori 1971: 50).

In 1579 the Cantelmo family sold Bussi to the Baron of Navelli: Pietro Pietropaoli (Varrasso 1990: 185). In 1593 the town was almost completely destroyed by a strong earthquake; later the feud was sold to the Grand Duke of Tuscany, Cosimo dei Medici, already Prince of the nearby Capestrano. The Medici family, at the end of the sixteenth century, aimed to extend its possessions to the south of Italy, along the so-called *via degli Abruzzi*, through the Apennine valleys, which for many centuries has represented the main connecting axis between Florence and Naples countryside (Chiarizia, Properzi 1988: 64) (Map 3).

THE ACTUALLY SHAPE OF THE CASTLE

Scientific literature asserts that the current shape of the Bussi palace is related to the sixteenth century, this only through an analysis of the stylistic elements (Chiarizia, Properzi 1988: 286) (Pl. 1).

We do not have enough information about the building in the Renaissance era, nor about the damage caused by the earthquake at the end of the century. However, we can assume that at the beginning of the seventeenth century it was still a fortified building, perhaps not particularly large; at this time, it was still devoid of peculiar architectural connotations.

The Medici family already had many other residences of remarkable consistency and architectural quality, even in neighbouring Abruzzi towns, so it is unlikely that this period there was important building works to change and expand the original structure of the Bussi Castle. The fortress of Bussi, under the domination of the Medici family, was probably already integrated into the complex of the town walls: these still preserves there primitive architectural and functional peculiarities at the Castle.

A tower of the town walls is clearly identifiable on the north side of the castle; above all the horizontal semi-circular molding is perfectly preserved (Figs. 2, 3).

Fig. 2 The tower of the town walls on the north side of the castle: view from below (photo by: C. Mazzanti 2015)

Fig. 3 The tower of the town walls on the north side of the castle: view from the stands (photo by: C. Mazzanti 2015)

We can make an interesting comparison between the city walls of Bussi and the medieval Sutrium watch-tower located not far from the old town center. The Sutrium tower is singular for its triangular plant, unusual in the Abruzzi Region, as we can observe, comparing it with others. The masonry of this tower is very similar to that of the town walls, as well as to a portion of the oldest part of the Castle that corresponds to the ancient watch-tower. Indeed, the remains of the initially fortified structure of Bussi are still distinguishable in a part of the Castle, between the northwest and north-east fronts (Fig. 4).

Fig. 4 The Cantelmos Castle of Bussi: detail of the west front and highlight of the remains of the initially fortified structure (picture by: C. Mazzanti 2015)

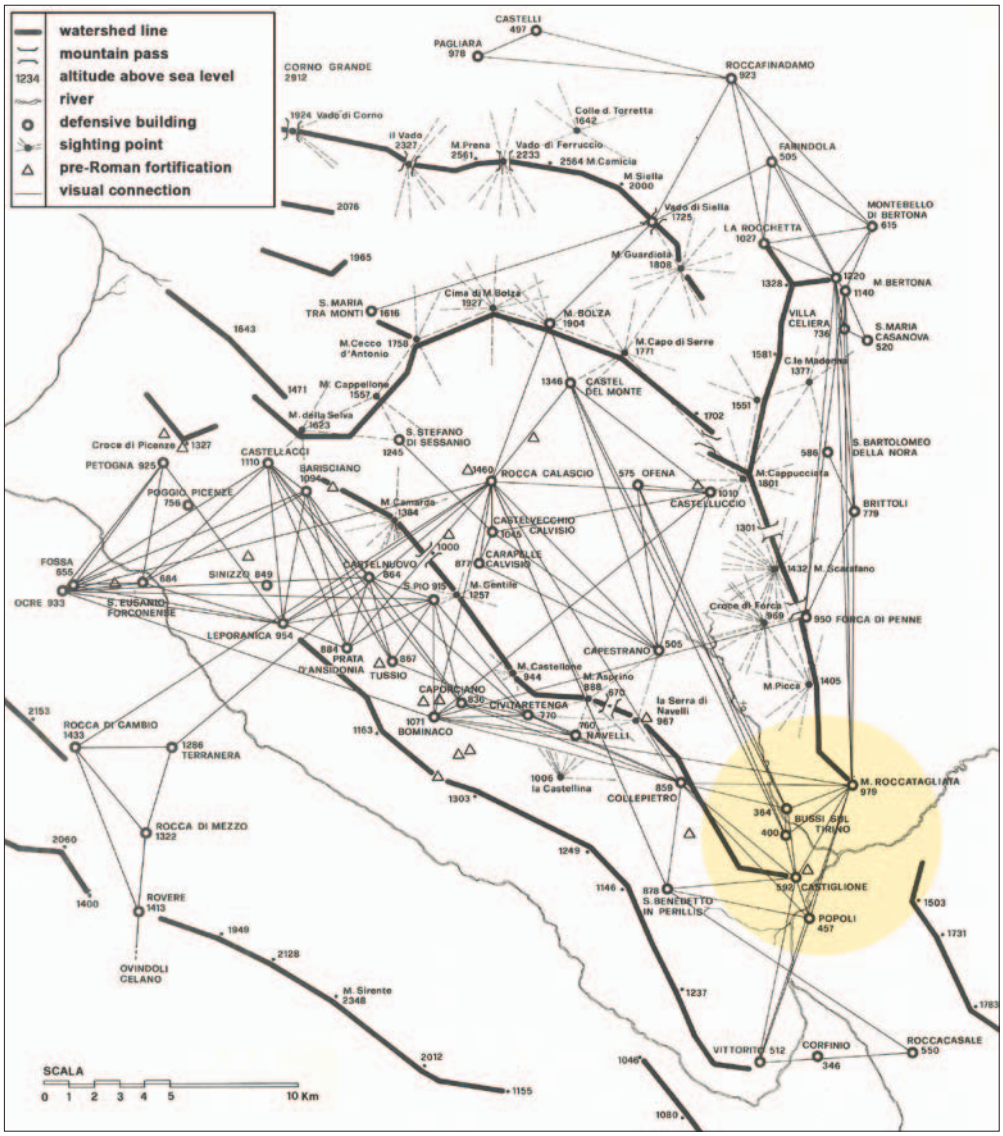
The two ancient towers of Bussi constituted a fundamental element of the territorial system of watch towers: the strategic castle of Popoli was connected with Castel del Monte, an important high mountain city, in direct visual relationship with the fortress of Rocca Calascio: this is the hub, the cornerstone of the defensive structure of the whole area (Map 4).

The Bussi tower was also connected to the Roccatagliata tower, from which the view could reach the already mentioned Santa Maria Casanova abbey. Nowadays the abbey is almost completely destroyed. The only part still in place is the tower, recently restored.

Finally, we are interested in understanding the development of the urban site of Bussi (Mazzanti 2015: 301). The Tirino Square is characterized by several historic phases, easily recognizable. We can see the phases of the origin and expansion of the oldest nucleus of Bussi: the first period was that of the fortification, with the creation of a isolated watch tower, for the valley control, surrounded by the primitive castle wall (Lattanzio 1979: 27).

It is followed by the phase of the expansion of the fortified building, with the construction of other neighbouring buildings. The mansions were built on the square and, at the same time, the defensive structure was adapted for residential purposes, further modifying the plant and the architectural elements (Figs. 5, 6).

Fig. 5 The Cantelmos Castle of Bussi: view of the mid-20th century (Municipal Historical Archive of Bussi) and current view (photo by: C. Mazzanti 2015)



Map 4 The system of watch towers in the central part of the Abruzzi region: the strategic role of the Bussi towers (Chiarizia, Properzi 1988: 194)

Fig. 6 The Cantelmos Castle of Bussi: view of the internal courtyard (photo by: C. Mazzanti 2015)

The domain of the Medici family on this territory lasts until 1743, then it was definitively annexed to the Kingdom of the Two Sicilies. Probably, at this time the Bussi's defensive structure was severely damaged, following the violent earthquake of 1706. In the mid-nineteenth century, with the annexation of the Abruzzi Region to the Kingdom of Italy, all the urban fortifications definitively lost importance and were dismantled, or fall into disuse (Chiarizia, Properzi 1988: 69).

We can identify a substantive transformation of the building with respect to its presumed original characteristics (Brusaporci 2007: 78), through the analysis of the current architectural conformation of the Castle of Bussi, with the radical variation of its stylistic elements: this is evident especially if we analyse the loggia of the staircase in the court. The most recent and important constructive activity should be, roughly, at the mid-nineteenth century (Mazzanti 2015: 300). The transformations of the building are clearly recognizable even by detecting some wall disconnections, for example those visible in the upper part of the south-east façade: here, at the main salon, the wall has been enlarged without connecting the new masonry with the existent (Fig. 7).

Fig. 7 The Cantelmos Castle of Bussi: detail of the south façade (photo by: C. Mazzanti 2015)

Likewise, we can imagine a prolongation corresponding to the wing of building on the southwest side of the palace, at the entrance to the inner courtyard: this variation is indicated by the lack of continuity between the wall of the courtyard, of great thickness, and the cross wall; these peculiarities also imply structural problems, evidently accentuated by the last L'Aquila earthquake.

However, the available documentary sources do not allow us to specify whether the transformation phase of the building was before or after the Unification of Italy (Mazzanti 2015: 301).

The palace at the first decades of the following century was subject to new major building interventions, which still significantly modify its shape: for example, with reconstruction of the ancient medieval tower, that has ruined for a long time: these was almost surely hypothetical and utterly with improper materials, whit reinforced concrete framework. Even through structural changes, such as the elevation of the main floor or the re-construction of the tower, without historical references and using unsuitable materials (Pl. 2).

This is confirmed by some photographs from the first half of the 20th century, which show the preservation of the remains of the ancient structure; the present bumps on the top of the tower are a fanciful reproduction made during the rebuild, at the beginning of the twentieth century (Figs. 8, 9, 10).

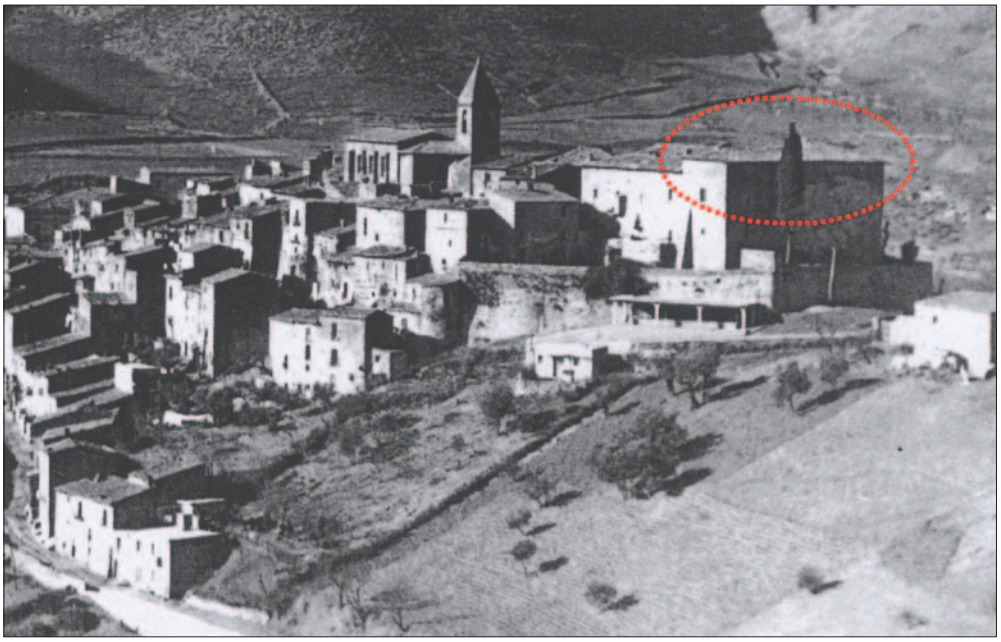


Fig. 8 Bussi, a photo from the beginning of the 20th century (Municipal Historical Archive of Bussi)

Fig. 9 The internal courtyard of the Cantelmos Castle of Bussi a photo from the beginning of the 20th century (Private Archive De Sanctis family, Bussi)

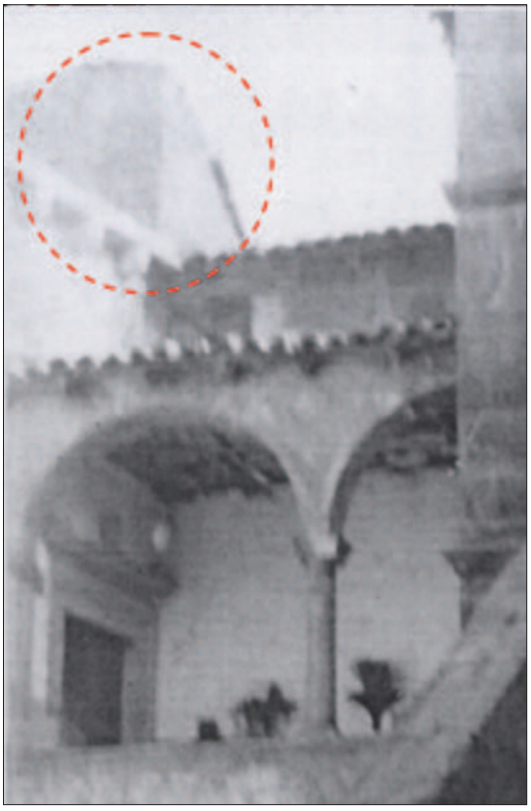


Fig. 10 The internal courtyard of the Cantelmos Castle of Bussi – detail of the remaining part of the ancient tower, a photo from the beginning of the 20th century (Private Archive De Sanctis family, Bussi)

When the tower was reconstructed, further structural alterations were made, such as the overlay of the roof, and the removal of the wooden roof over the main hall. All the same, in the first half of the twentieth century, the mansion has been further divided into several residences, altering the original distribution inside (Pl. 3).

CONCLUSIONS

Today through an accurate metric survey of the building and a depth investigation of its masonry walls, we can identify the transformation process and the structural characteristics, starting from the analysis of the kind of material used, especially its dimensions. In addition, due to recent developments in knowledge about the fortifications of this area, we can place this castle in the early defence systems of towers and fortified buildings (Cacciavillani, Mazzanti 2014: 82).

The purpose of this investigation is to rediscover a fortification: while retaining the name "castle", until now we had lost all trace of it. Because of the destruction and reconstruction, transformations and adjustments, the fortifications of Abruzzi Region during the Early Middle Ages no longer exist, or are largely reshaped, with a volume altered and devoid of its original character. This for us has caused considerable difficulty in the analysis of the Bussi Castle.

Without sufficient data and reliable documents, the scientific method necessary to investigate the building heritage should study in detail also the apparently secondary and less important aspects that nevertheless represent the key for their knowledge, because they are the expression of the historical events and of the ancientness of the buildings (Cacciavillani et al. 2005: 1386).

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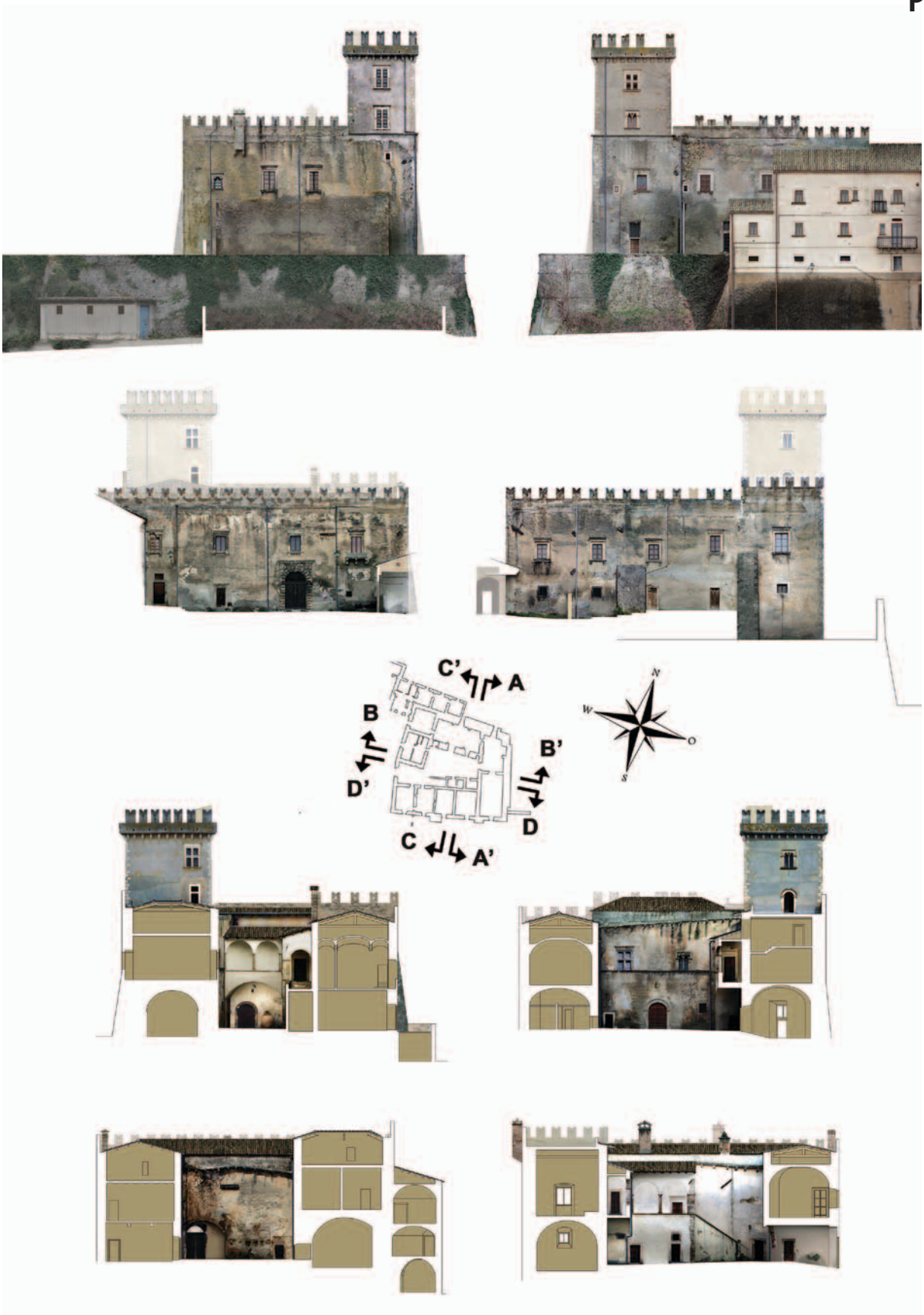
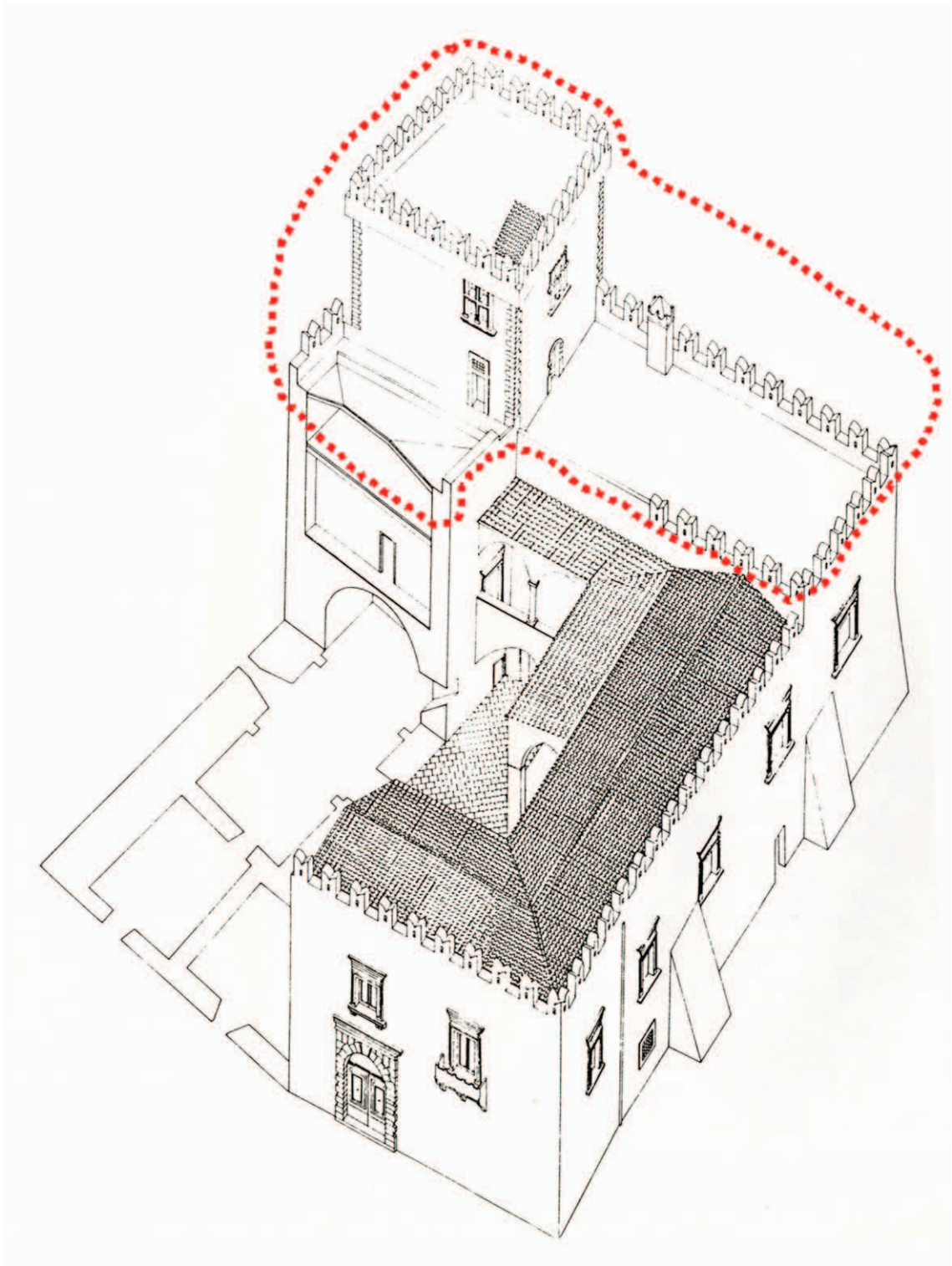
Pl. 1



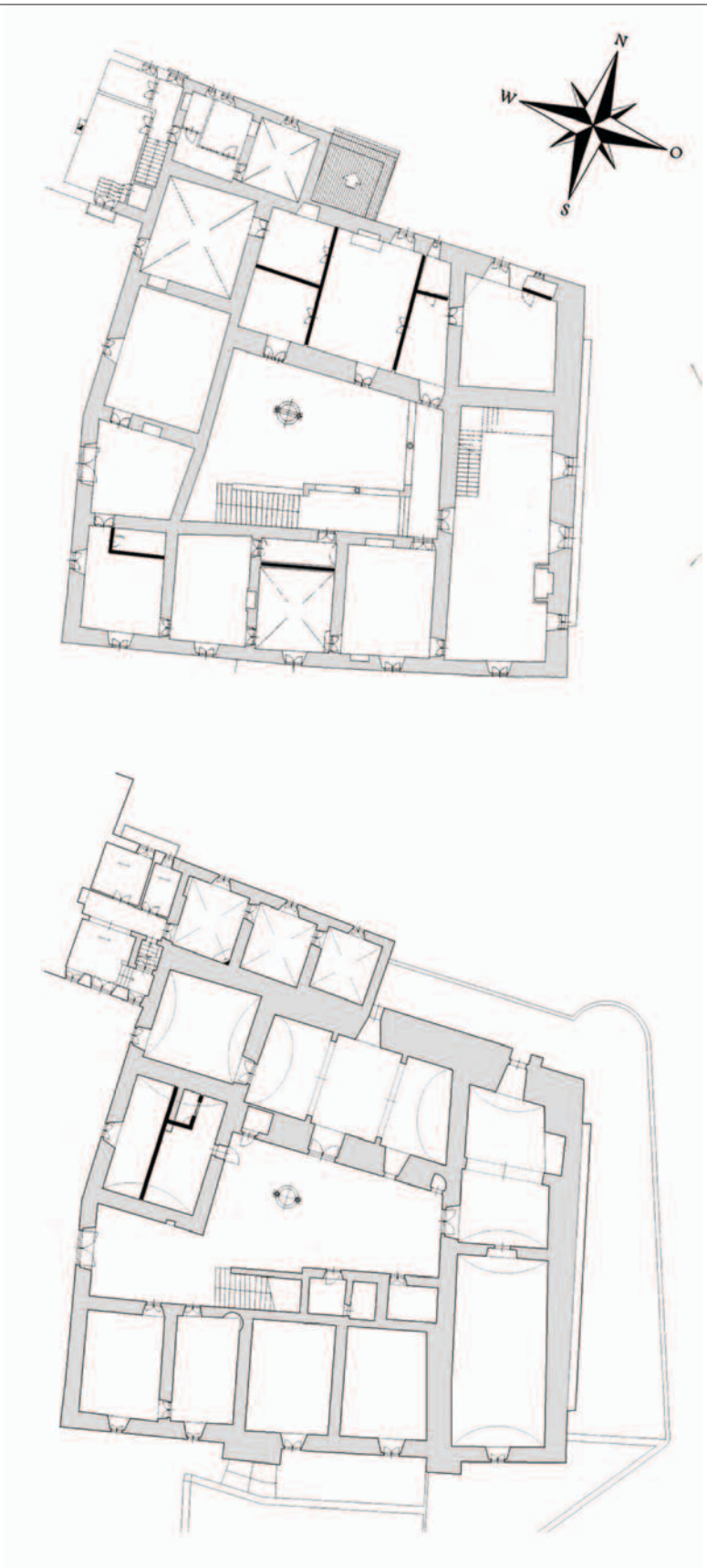
Pl. 1 Drawings of the Cantelmos Castle: elevations and sections (drawing by: C. Mazzanti 2015)

Pl. 2



Pl. 2 The Cantelmos Castle of Bussi: axonometry with the identification of the changed parts in the 20th century (drawing by: C. Mazzanti 2015)

Pl. 3



Pl. 3 The Cantelmos Castle of Bussi – maps of the ground floor and first floor: partition of the mansion into several residences (drawing by: C. Mazzanti 2015)

LAURA BIASIN

Fortified Settlements in Friuli
The Self-Defence in Rural Settings

*The contribution is dedicated to a type of rural settlement, characterized by defensive functions. The phenomenon seems to be more evident from the 13th century in Friuli and in neighbouring territories. The written sources are a useful tool to identify the attestations of fortified structures remembered as cente or cortine that appear in recurrent association with churches and warehouses for the shelter of basic necessities (*canipe*). The reasons that led to their construction, or the way they were used, are not jet entirely clear, because a purely defensive function could have been contextual to a residential destination. These complexes consist mainly of simple housing units, often subjected to profound urban transformations and only rarely investigated by archaeological interventions. Together with the census of any structural residues stored in situ, the attempt to overcome these knowledge gaps can find a valid support in the use of diversified tools. These are represented by data coming from historical cartography (*cadastre*), excavations and structural surveys and from archival sources.*

Key words: fortified settlements, rural enclosures, medieval archaeology, cente, cortine

INTRODUCTION

This paper aims to describe the main features of a type of medieval settlement with refuge and defence functions; topics and problems usually associated with the study of this kind of evidence are also considered. We intentionally chose not to deal with a critical discussion of the argument, focusing instead on the general background that influences these studies. In fact, the available data indicate the existence of numerous nuances that differentiate each rural fortress from another: the territorial structures associated with them are not always the same and it will be necessary to achieve the creation of a typological framework in which to place building episodes that in common have only the fortified aspect.

Even though there are few stratigraphic data available due to the lack of excavations and the lack of attention given to this type of evidence little known and often lacking from the material point of view, the topic can be treated with the tools of medieval archaeology.

TERMINOLOGICAL ISSUES AND DEVELOPMENT OF RESEARCH

Among the main settlement structures linked to the management of territorial resources and characterized by gathering people, it is important to include those that are considered as stable defence systems of rural areas which in Friuli are known as "cente" or "cortine". These nouns can be both translated as "fortified rural enclosures", i.e. protected areas, which border and define the importance of places, functions or assets to be defended. The interests of village communities or of various lordships that emerged on the territory of Friuli in medieval times are focused on them.

Various types of sources have already imposed on 19th century researchers to devote a special reflection to the phenomenon: written documents, material residues and toponyms abundantly testified the existence of these structures and require clarifying their origin, evolution, functions and characteristics.

A purely literary description brought to the attention in a recent contribution (Baccichet 2012) dedicated to the *cortina* of Arba, in the district of Pordenone, allows to capture, through the eyes of a 19th century witness, the persistence of the medieval heritage in the defences gathered around the church of an any Friulian rural settlement (Fig. 1):

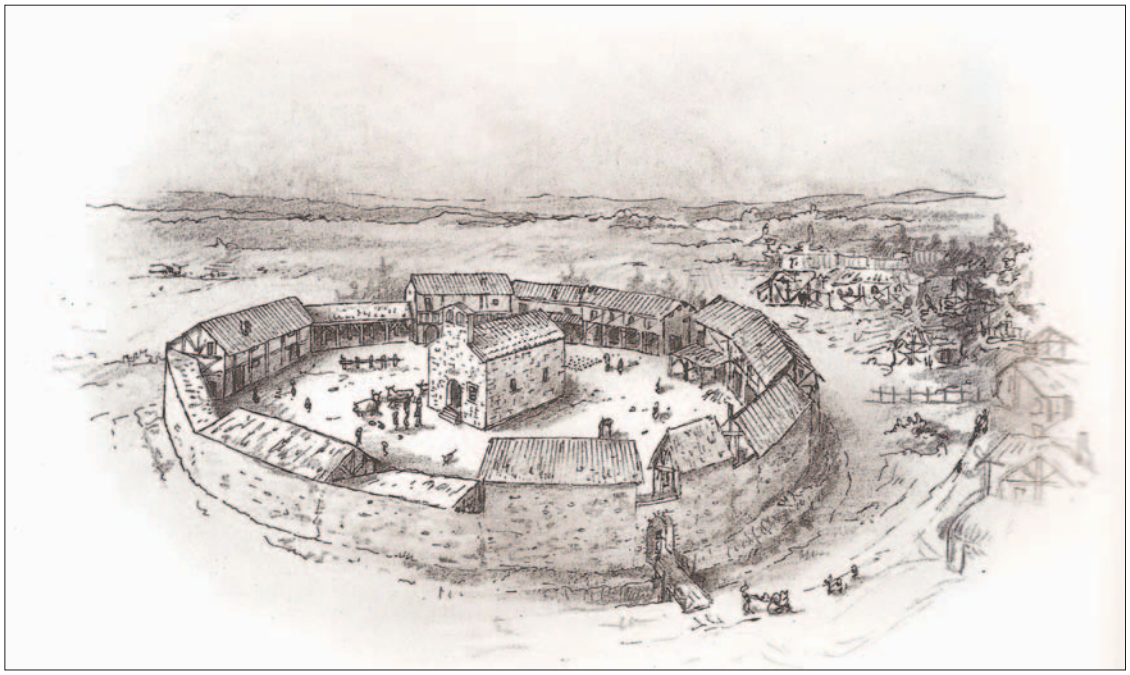


Fig. 1 Hypothetical reconstruction of a *centa* (drawing by: G. Almerigogna, from Degrassi 2011: 234)

"This place, which we will try to best describe, consists of an embankment that rises few meters above the ground level, and has a circular shape: a large ditch for two thirds surrounds it; a handy road occupies the other third. To the east, a tower […] preserves the passage arch, which was the only entrance to the fort. It shows […] the longitudinal slots for which the drawbridge chains probably slided […]. In the middle of the embankment, whose surface does not exceed two hundred meters in circumference, there is a church […]. On the right of this church, the bells and the village clock are located on another tower. Some poor houses occupy a part of that side of the embankment, which also serves as a cemetery" (Flumiani 1851: 4).

Later, the definition provided by Pietro Bertolla anticipates some considerations that will be elaborated in the following century. He defines the *cortina* as:

"The area on which the church is built with some houses around [...]. A space used as a square and as churchyard, in whose centre is the church and that on the edge it is circumscribed and almost designed like forts, by low houses with small windows, including the dark abode of the officiating priest, the loggia of the city hall, the warehouse, etc." (Bertolla 1894: 123).

The researcher also mentions the tower, which represents an "observatory adapted to the use of the bells". He defines the *centa* as a fortified place such as the *cortina* but in his opinion, the term derives from the territorial subdivisions of Lombard origin.

The first systematic survey of these objects is the one edited by Tito Miotti (Miotti 1977; 1978a; 1978b; 1980) who included them in the catalogue dedicated to the castles. This work highlighted the typological variety of the buildings and identified a large number of them distributed indifferently in all the geographical areas of the region. However, the help of historical maps or the result of surveys and the use of documents from different origins were not sufficient to solve some recurring questions.

In the meantime, Silvia Collodo has also faced the problem focusing only on the noun "cortina" (Collodo 1980): its diffusion has been found in a vast area of the Eastern Alps, including the Austrian and the Italian Alpine and Subalpine part. In the province of Treviso and in the Dolomite area, the term is recorded as enclosure, church parvis, cemetery or toponym and it is not possible to establish a correspondence in the nature and in the functions with the *cortine* of Friuli. However, an analysis restricted to the eastern Veneto has highlighted common and recurrent characteristics: the association between the *cortina* and the church, the military value accentuated in critical situations, the function of storage of agricultural

products. The author hoped for a deepening of these themes and those related to the identification of the morphological characteristics of the structures and the interpretation of the relationship with the external settlements, to verify a possible role of civil organization of the territory.

A further contribution is that from Fabio Piuzzi who analyzed numerous sites located in a wide area of central Friuli (Piuzzi 1981–1982). That survey aimed to provide some data on the material consistency of these complexes through their identification and interpretation in relation to the urban planning to which they belong, evaluating their morphological persistence. Using historical cartography for fidelity in the graphic rendering of post-medieval urban planning, the identification was based on particular architectural elements such as the church, the tower or the bell tower, the buildings leaning on the curtain wall or the particular conformation of the surrounding terrain. The study was partly based on interpretation of aerial photographs taken by the Military Geographic Institute of Florence and by a limited use of archival documents. The morphological variety has led to a typological classification of the evidences. The study reveals the relationship between fortifications and the surrounding settlements. It has been observed that the first ones, developed without a pre-established scheme, have been arranged in such a way as to be reached promptly in case of sudden danger. It was also noted that with the progressive decline of the original functions, in the transition to the modern era, the interest in this type of artefact decreased, starting the inevitable transformation and saving sometimes only the nucleus circumscribed to the church and tower, however subject often to radical interventions. Although the vocation of this study was not historical, it had the merit of proposing an investigation procedure aimed at the interpretation of the aggregation systems considered in their material manifestation, subject to irreversible transformations.

Aldo Settia also dealt with the subject (Settia 1984), proposing some considerations regarding the relationship between the *cortine*, the churches and the castles in the Patriarchate of Aquileia. He highlighted the problems concerning the origins and the development of refuge fortifications and has reinterpreted the role of the Hungarian invasions and the particular settlement dynamics of Friuli.

STUDIES AND EXCAVATIONS

The lack of synthesis studies dedicated to the theme of collective rural fortifications is sometimes compensated by the existence of various reports that focus on limited portions of the territory or on individual cases.

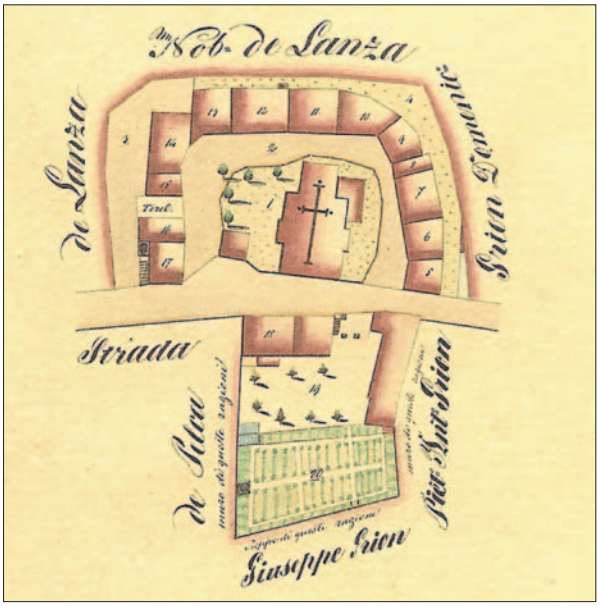


Fig. 2 Capriva del Friuli (Gorizia). Planimetry of the centa drawn by the surveyor Natale Falzari in 1843. The layout of the residential units remained substantially unchanged compared to an inventory of 1612 (Castellan, Marocutti 1993: 34)

For example, monographic studies, such one dedicated to Santa Maria in Capriva have been published (Gorizia, Fig. 2), where historical and architectural evolution of the complex reflects the changes in society (Castellan 1993; Castellan, Morocutti 1994). The proximity with the regional limit highlights similarities and differences with respect to the eastern Friuli or other types of fortified structures of Slavic and Carinthian areas, like those of *Wehrkirchen* and *tabor* (fortified churches).

A detailed study has been also dedicated to the site of San Quirino (Pordenone). It shows how the structure achieved in the late middle Ages had undergone a substantial reorganization during the 18th century, through the progressive modification of the use of entire sectors, linked, in turn, to the change in perception and the role attributed to the old settlement at that time (Baccichet 1997; 2004).[1]

The most recent study is dedicated to Arba (Pordenone, Fig. 3), where the transformations of the structure are identified and the role of the different needs in the reconfiguration of the spaces is detected (Baccichet 2012).

The archaeological investigations carried out up till now are

1 San Quirino represents an exceptional context: thanks to a series of documents (drawings and notarial deeds compiled during the 18th century) some significant details were identified for the understanding of the dynamics that determined the transformation from a collective defence system to an inhabited area in which the community symbol (the church) coexist with the public representation of the status conquered by a bourgeois family (the villa Cattaneo). The defensive enclosure, certainly existing in the 15th century, included the cemetery and the church, which currently appears in its reformed and enlarged version of the late eighteenth century, with the 1697 bell tower next to it.

Fig. 3 Arba (Pordenone). Drawing of the *centa* made in 1606. The group of buildings in the center is surrounded by a wall *cortina* with towers, distinguishable along the northern side of the *cortina* (Guaitoli 1983: 28, fig. 6)

rare and are limited to some cases, like those of Casarsa, Giais in Aviano (Pordenone), Rivolto, Aiello and Codroipo (Udine).

The area of Santa Croce represents the original medieval nucleus of Casarsa connoted by the presence of a religious building. This is currently configured in the 15th century version that had replaced the "oratory" mentioned in the documents of the 12th and 13th centuries. The morphology of the planimetry as deduced from the combination of documents and historical maps, is only partially reflected in the preserved remains and the results of archaeological investigations (Mungiguerra 1995; Piuzzi 1995). Furthermore, an origin linked to the need for defence is not explicitly referred to by the sources. At present, the presumed original layout of the *cortina* seems rather disorganized and not very recognizable, due to the uneven development of the surrounding building fabric. However, the existence of the *cortina* seems to have been confirmed: its memory was maintained until recently, in the traces of the northern perimeter of the moat visible in an aerial photograph of 1945, as also confirmed by some testimonies related to a ditch, as well as by the results of the archaeological investigations conducted just in correspondence of the ditch (Fig. 4, 5).

In the case of Giais, the local toponym assigns the name of "cortina" to an entire aggregate, centred on the church of Santa Maria Maggiore. The articulation of the inhabited area is developed to the north of the building, with a clear structural gap to the south/south-east. At present, the *cortina* presents an anomalous organization, since the area surrounding the church does not retain elements that attest the alleged defensive functions (Viel, Campolin 2001). The sector located north of the church seems to be more protected. It is characterized by the semicircle of the buildings, partly arranged in rows along the road.

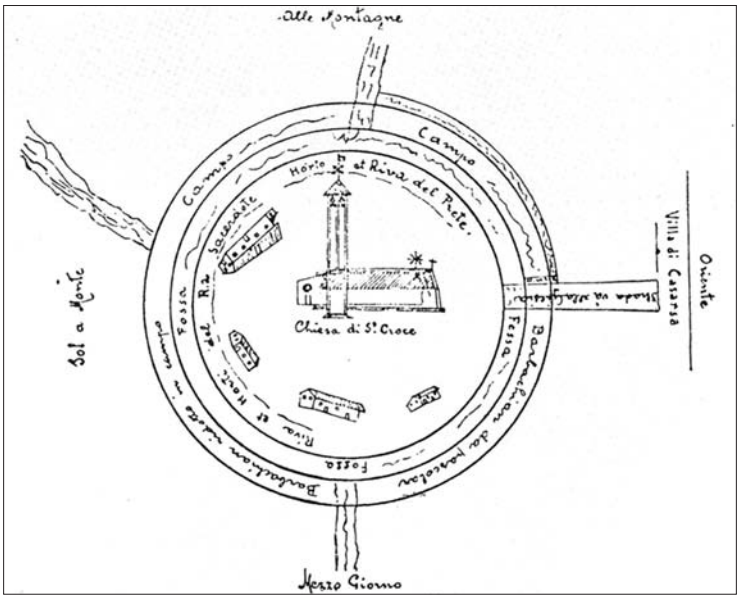


Fig. 4 Casarsa (Pordenone). Map of the *cortina* of 1751. Copy on parchment of a previous drawing (Miotti 1980: 62)

Centa (Fig. 6), in the hamlet of Joannis in the municipality of Aiello del Friuli, is located not far from the roman settlement of Massilis (Strazzulla Rusconi 1979). The site was to house a late-medieval settlement, originally surrounded by walls, consisting of a group of houses gathered around a church and the annexed cemetery (Geat 1975: 59–71; Comar, Tramontini 2008: 58–59).

In conjunction with the renovation work undertaken by the current owners of the buildings, since 2006 the Superintendence for Archaeological Heritage of Friuli Venezia Giulia has conducted and financed an investigation that has affected the interior of the "canipa" and the adjacent building (Borzacconi 2011). In this way a burial necropolis has been found of which the extension is not currently known and which, until the excavation campaign of 2008, has returned more than thirty graves. The accompanying objects (consisting of earrings, digital rings, *lunula* earrings and the so-called "temporal circles") can be traced back to the Slavic-Carinthian culture of Köttlach, datable between the 9th and 10th centuries, whose testimonies are widespread throughout the territory of the bishopric of Aquileia (Borzacconi, Tiussi, 2006; 2007). The discovery is interesting because it offers the opportunity to verify the historiographic tradition that associates the Centa site with

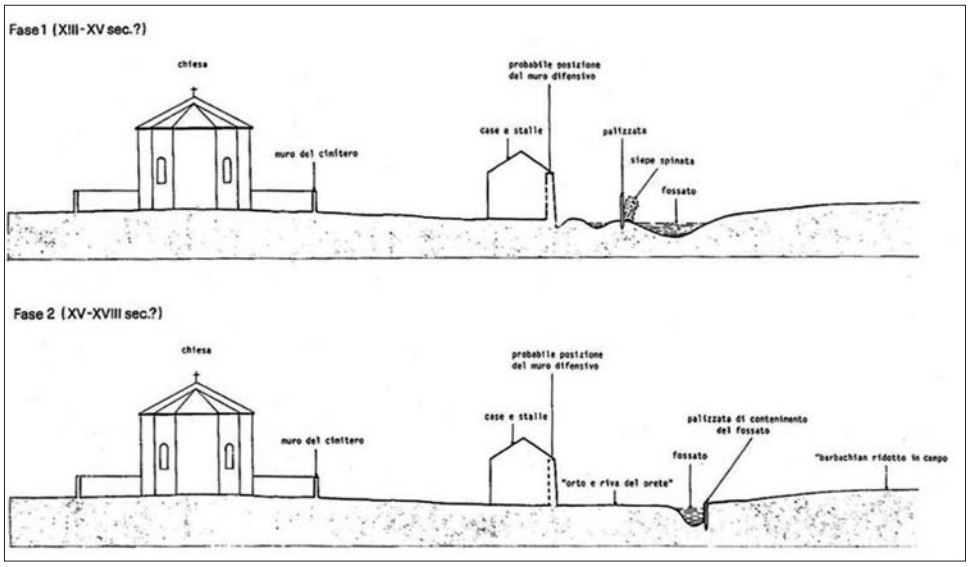


Fig. 5 Casarsa (Pordenone). Schematic reconstruction of the main phases identified during the archaeological investigations of the *cortina* (Mungiguerra 1995: 34)

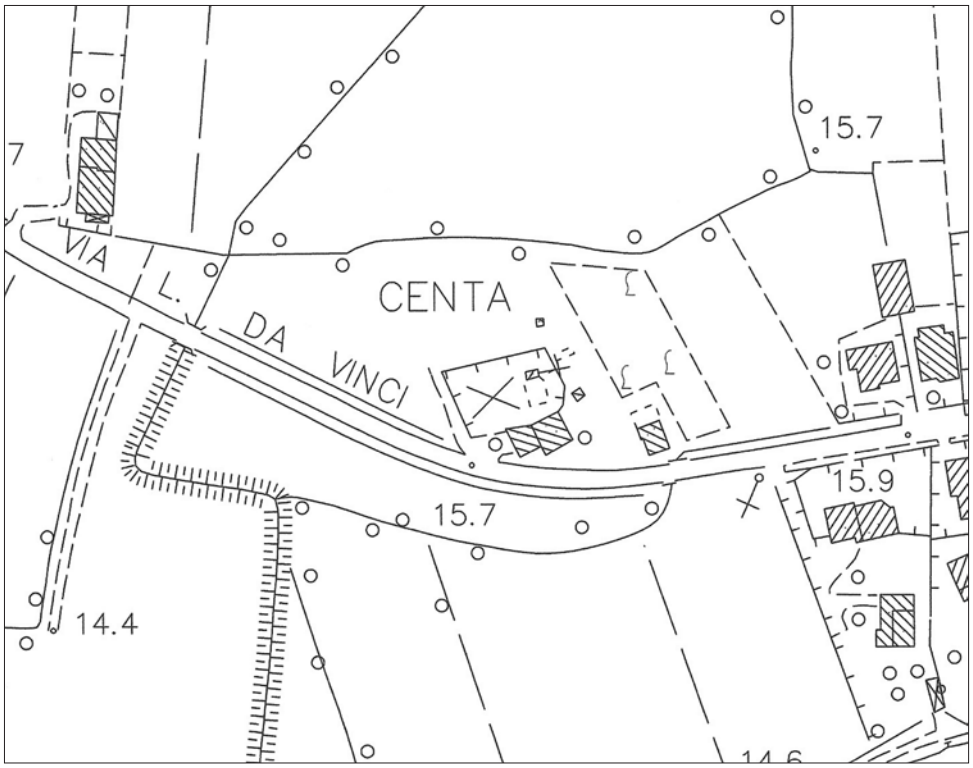


Fig. 6 Aiello (Udine). The toponym *centa* appears on the current Regional Technical Paper

the 10th century Hungarian invasions in a new perspective. It rather suggests to evaluate the role assumed by the Slavic populations circulating in the patriarchal lands within the more general transformations of roads, settlements and rural landscape in the Middle Ages.

ORIGINS AND GEOGRAPHICAL DISTRIBUTION

The most trusted attestations about this kind of settlements appear from the 13th century and they are all later than the third decade of the same century. For example, the first mention of the *cortina* "circa ecclesiam S. Mauri de Tercano" goes back to 1238 (Bianchi 1861: 212–213); about on 1250 the one of Sedegliano (Miotti n.d.: 351); to 1289 the one of Tricesimo (Miotti n.d.: 351) and to 1294 that of Reana (Miotti n.d.: 327).

The phenomenon is not limited to the borders of the present Friuli region. Comparisons can be found, for example, in the Venetian, Piedmont, Slovene and Romanian areas, although each domain has peculiar typological characters. Here, however, we only introduce the Friulian situation, which itself is rather varied, as well as in the internal organization of the fortified enclosures and in the use of the elements that were part of them.

All over Friuli there are currently documented at least 150 such sites (the number must be updated), spread in geographically heterogeneous areas: there is a little presence in mountainous and foothills areas, and a rather large presence between high and low Plain, on the west and east sides of the river Tagliamento.

A large number of fortified enclosures were located along the main transit routes that could therefore have been crossed by possible invaders. This circumstance has sometimes led to link their origins at the 10th and 11th century Ungaric incursions (Altan 1981: 173–176) or at the subsequent Slavic contribution, that the Patriarchs have requested for the repopulation of the devastated areas (Settia 1984: 222–223). At the moment, there is no documentary or material evidence to confirm similar hypotheses and, while the oldest written sources date back to the third decade of the 13th century, the results of archaeological research have not returned any evidence dating back to before the fifteenth century.

Rather, the refuge function to face up to external incursions can be confirmed about Turkish raids that have repeatedly affected Friulian territory, especially between the 15th and the late 16th centuries (Menis 1964: 258–259). During this period, the archival sources sometimes remember the modifications made on walls and towers so that they would facilitate the use of firearms.

Their origin may also be related to some general phenomena that occurred since the 13th century and which concerned the political, economic and social features of the region, differentiating its dynamics from most of central–northern Italy (Cammarosano 1981). These include the gradual consolidation of permanent insecurity, due not by external incursions but by increasing endogenous disorders. This situation did not have to hinder the initiatives of autonomous organization of rural communities that were being defined at the same time, while the new forms of encastellation were attended by representative structures that did not involve the admission of the population of neighbouring centers.

In the territory of Veneto and Friuli, in the last decades of the 12th century, began to appear a new type of fortress, the *castello di abitanza* (castle of dwelling, Mor 1974), chronologically overlapping with the *cente*'s affirmation. Upstream of this phenomenon, there were the development of temporal domination by the Patriarchs of Aquileia, with the consequent attempt to build an autonomous lordship. With its duty to build and live a house inside the castle, however, the *fief of dwelling* meant that the actual *castrum* was left to the patriarch, while the inhabitants placed in modest houses thickened near the fortification. Since the castle was reserved only to ministries, people who were not tied to the castle had to provide their own safety. There was, in other words, an evolution of the primitive castle in an exclusive stately residence, not equipped to serve as a shelter for outsiders to feudal investment, according to particular features of Friuli (Settia 1984: 240–241).

FEATURES, IDENTIFICATION AND TRANSFORMATION

Since settlement continuity has largely determined the transformation of the original urban layout and the loss of spatial relationships between buildings, it is often not easy to identify the structural attributes and the functionality of rural spaces. Thanks to a rational geometric representation of contexts consolidated over time and not yet subject to the most recent alterations, historical cadaster is often a suitable documentary source from which to begin the survey of the medieval heritage of those building units gathered around the churches and frequently associated with a significant toponym (Fig. 7).

In 1322, it was mentioned "unam canipam postam in cortina de Nimis"[2]. Here, the building complex, well recognizable on the 19th century cadastral register (Fig. 8), is currently only remembered by a toponym. A local study asserts that here there was the loggia (*lobie*) built in the 15th century, so that the community meetings could take place indoors. There were also a hospice (*hospitale S. Mariae*) located near the cemetery that surrounded the church, a warehouse (*cjanive*) and the public slaughterhouse (Bertolla, Comelli 1990: 53, 57).

The main elements that define the enclosure of a space are identifiable in a church with cemetery and bell tower. There are also buildings for residential use and sometimes for storage of food (*canipe*). Furthermore, there are also structures fully referable to the defensive functions: embankments, which raise the complex from the surrounding level; one or more ditches, usually subsequently filled, and towers placed along the perimeter of the fence.

The function of refuge assumed by the village buildings is sometimes revealed by the chronicles, like that concerning the assault on the *cortina* of Sedegliano, where "multe ville ibi fugerant" (Bianchi 1864, doc. no. 205).

Around the 13th–14th centuries it is evident how the villages equipped with fortification, alongside autonomous initiati-

2 State Archive of Udine, Archivio Savorgnano, case 4, Regesti XIII-XIV century, sheet 1recto.

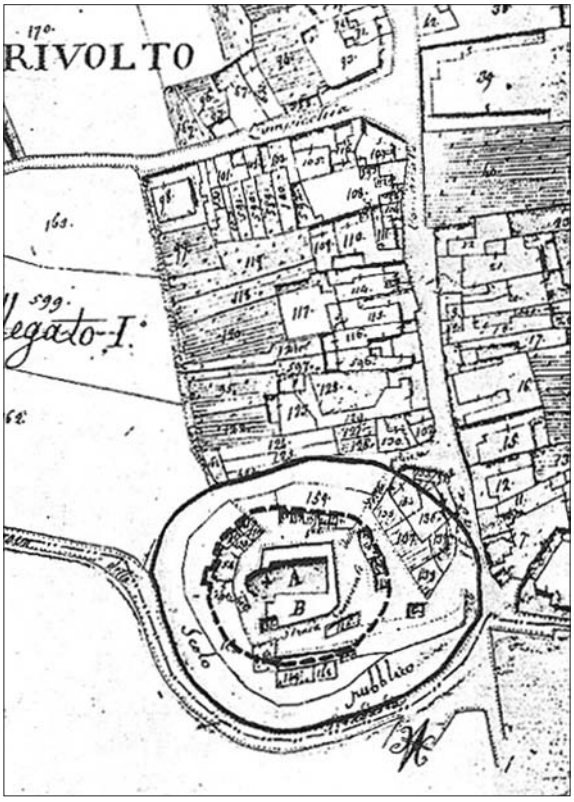


Fig. 7 Rivolto (Udine). The *cortina* on the 19th century cadastre. The complex is characterized by a ring of buildings and a moat around the church (Miotti n.d.: 330)

Fig. 8 Nimis (Udine). The *centa* on the 19th century cadastre (Bariviera *et alii* 2012)

ves of development and civil organization, were involved in the process of capitalization and fragmentation of powers that opposed the ecclesiastical representatives of the patriarchate and the numerous *enclaves* of aristocratic power.

As regards the function of storage of goods, there are elements that suggest, in some cases, the existence of obligations related to the tax interests enjoyed by local lords. Before 1238, Bertoldo d'Arcano had dominated the *cortina* of San Mauro (De Vitt 1990: 271), that is, until he granted tax exemptions to those who had assets inside the enclosure. A patriarchal privilege renewed in 1296, alluded to the existence of rights in favour of the inhabitants of Reana (Bianchi 1861, doc. no. 745), towards which towards which was ratified the tax exemption of the *cortina*.

In the distribution of settlements, we can recognize the results of processes that have crossed alternate phases, with edifications and abandonments, and on which the medieval period played a decisive role. The patriarchal age seems to have contributed to defining the regional landscape on two main aspects: the agricultural fragmentation and the organization and stabilization of the rural population in villages, often fortified. Their identity with settlement tissue has led them to be absorbed in urban transformations. This has often caused the loss of topographical references that materially testify their existence. Identification and documentation of *cente* can be a tool of knowledge on which organize protection and enhancement interventions to avoid further losses.

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ŽELJKO PEKOVIĆ, KRISTINA BABIĆ

Defensive systems of the Pile Gates in Dubrovnik

Archive footage and recent archeological exploration – undertaken in 2008 as the basis of a project to rebuild the Pile Bridge and the serpentine between the Pile Gates – the authors used it as the basis to out layer the different phases of city fortifications in the west end of Placa/Stradun. They noticed six successive phases from the 13th to the 16th century.

Key words: Pile, Pile gates, Tower of Pile, Michelozzo di Bartolomeo Michelozzi, Paskoje Miličević, Little brothers monastery, western, rampart

1. INTRODUCTION – PILE IN THE CONTEXT OF THE URBAN DEVELOPMENT OF DUBROVNIK[1]

Pile is the main medieval western city entrance. The chronology of the entrance situated on the western end of Placa/Stradun can be traced back to the 13th century. A Byzantine *castrum* was built upon a rocky peninsula in the 6th century. The Gates changed their position according to the expansion of the city within the walls (Peković 1998: 41–90).

Dubrovnik was a twin city in the 10th century – when the city's first monument was documented in *De Administrando imperio* (Porfirogenet 2003: 71).

The Byzantine *castrum* was expanded several times and ultimately occupied the entire surface of the peninsula.

The build of the city's monasteries in the first half of the 13th century (1230s) defined nearly the entire perimeter of the old town core. On the western edge of a former swamp which divided the peninsula from the opposed land beneath Srđ, two monasteries were built. Poor Clare's south of today's Placa and a Little brothers north of today's Placa The latter in particular is important for understanding the city's fortifications. The east end is defined by a Dominican monastery. The Dominican and Franciscan monastery lean on the east and west walls of burgus Prijeko. It nearly closes the entire *campus* – field towards the hill. It was the prerequisite for the filling and urbanization which was in the middle of the 13th century.

During that time the area was defined by walls *civitas* – in Strossmayer Street. In the midst of demographic overgrowth it became crowded so the city began expanding towards the Slavic settlements beneath Srđ (parts of the latter *sexteria* of Prijeko). The swamp had to be filled, it was a gradual process which was most likely finished in 1255 (Peković, Babić 2017: 7–23). It went along the north edge of today's streets: Za Rokom, Gučetić and Kaznačić Street (Fig. 1).

When the *Statute of the City of Dubrovnik* was written in 1272, the suburb between Strossmayer and Za Rokom, Gučetić and Koznačić Streets became part of the city (*Statut grada Dubrovnika* 2002: V./XLI./321; Peković, Babić 2017: 30–44). Amidst a great fire, which damaged the town heavily, Prijeko became part of the town in 1296 via the *Statute* (*Statut grada Dubrovnika* 2002: VIII./LVIL/233–235; Peković, Babić 2017: 45–61).

1 Because of editing limitations of this edited volume, the original text was greatly shortened, and the pictorial enclosures reduced. For Croatian readers, a broader text entitled *The Development of the western entrance into Dubrovnik from the 13th to the middle of the 16th century* was published in *Starohrvatska prosvjeta* III/44–45, 2017–2018: 207–236.

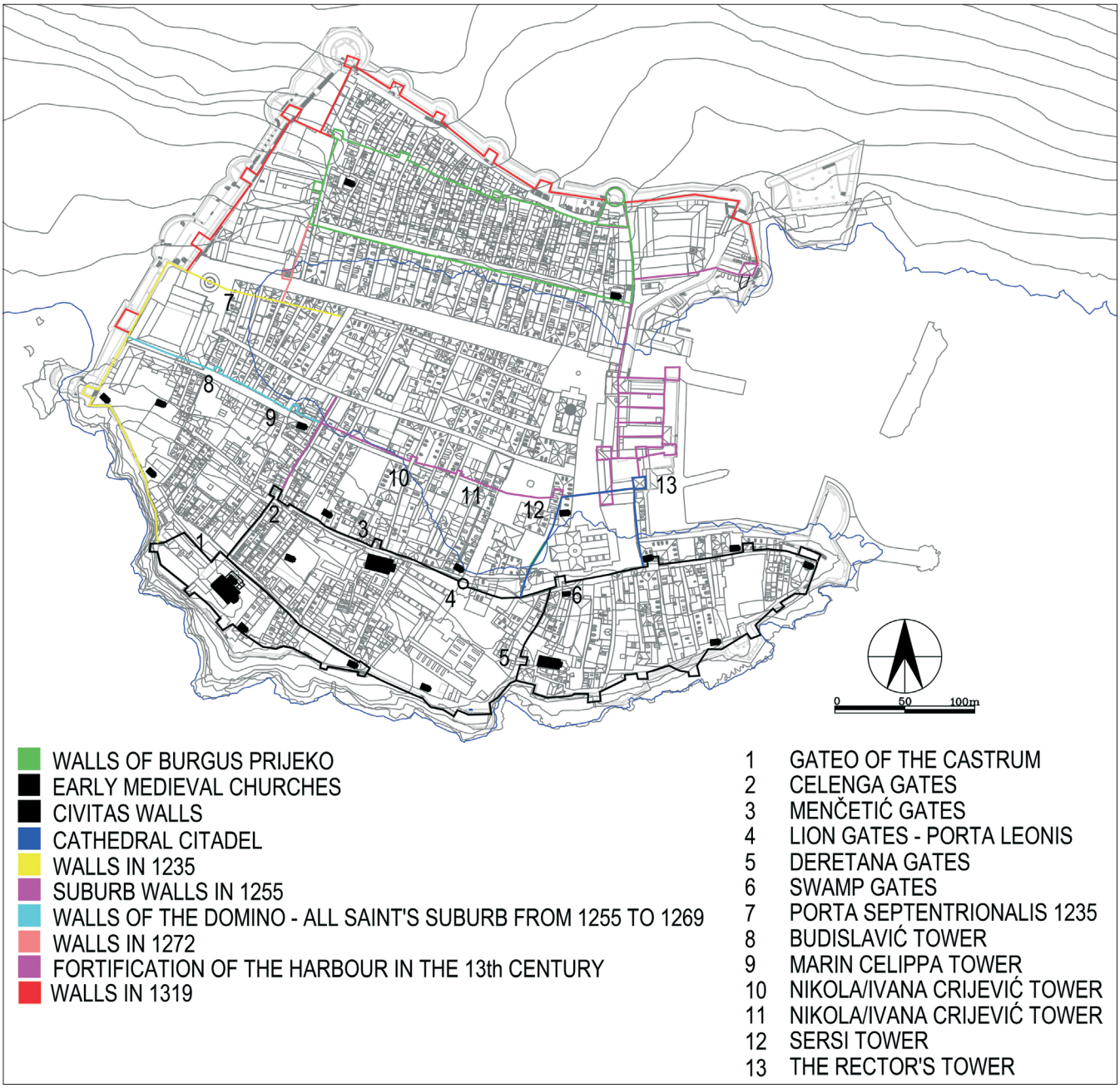

Fig. 1 Development of the city (Peković, Babić 2017: 9)

With the swamp's cove filled and Prijeko attached to the town, the prerequisites for building the Pile Gates (the west city entrance) were fulfilled.

In 2008 a project began to restore the Pile Bridge and the serpentine between the Gates which allows access to the old town.[2] On this occasion archeological research took place and the site was cut in layers which clearly defined the medieval defensive systems of the Pile Gates, what is known from archives. In this micro whole of Dubrovnik an exceptional layer of different fortifying systems was noticed (they were successively removed from the 13th to the middle of the 16th century).

2. CHRONOLOGY OF THE CITY GATES ON THE WEST PART OF PLACA

On the west part of Placa, between the 13th to the middle of the 16th century, we evidenced six development phases which we'll elaborate upon in full detail. The first two phases which date back to the 13th century are known solely from archive footage, unlike the latter phases, which are attested in archives and archeologically.

2 The leader of the project, exploration and conservation was Željko Peković, archaeological supervision of the digging itself (for laying the new infrastructure) was conducted several times by archaeologists Ivica Žile, Branka Milošević and Maro Leoni.

2.1. *PORTA SEPTENTRIONALI* (FIRST HALF OF THE 13TH CENTURY)

The existence of the first gates on the west end of Placa can be dated and pinpointed on the basis of a document from 1235. It states that the first Little brothers monastery *aedificaverunt, piorum elemosynis, Divo Thomae sacrum, in suburbia civitatis* ***non procul a porta septentrionali*** *in loco vulgo Jamine (sic) dicto.*[3] The first Franciscan monastery, dedicated to St. Thomas was in the suburb *civitas* – near the north gates, in a place called Jamine.

During the 30s of the 13th century *civitas* was a territory south of the present Strossmayer Street. Of course, by then the city had expanded beyond the walls of civitas (Peković, Babić 2016: 268–269), but the suburb became a legitimate part of the town only in 1272 (*Statut grada Dubrovnika* 2002: V./XLL/321), although it was protected two decades earlier by "a new city wall towards the hill". The name Jamine faded from the memory of the locals with time. It was identified with the site of hotel Imperijal (300 meters west of today's Pile Gate). It was believed to be the site of the first Little brothers monastery and that the new one was built within the town (Velnić 1985: 98). In the early 90s of the 20th century Željko Peković (on the basis of archives as well as architectonic indications noticed during the rebuild of the monastery) suspected the interpretation of the relocation of the monastery from today's Imperijal site, within the city walls. According to the author, the monastery kept its position since it was founded and was incorporated into the town in the second decade of the 14th century by having a new city wall built by the monastery's west wall (so, on today's site) (Peković 1991: 91–128). While noting the cliff's remains, the natural terrain on which the monastery was built and based on geotechnical research, Ž. Peković determined that it's an extremely sharp and rocky terrain to which the toponym Jasmine most likely referred to (Peković 1991: 91–93, fig. 1–3).

We still have to clarify the phrase *non procul a porta septentrionali* (near the north gate) – to assume where the north city gate may have been, as mentioned in the 1235 document. In accordance with the coauthor's theory-which states that in 1235 the monastery was in today's location, but wasn't included in the walls of the Slavic settlements[4] of Prijeko, the area that will become part of the city in 1296 (*Statut grada Dubrovnika* 2002: VIII/LVII/233–234) – we assume that the *porta septentrionalis* was somewhere across the Little brothers monastery, on the north city wall which was a bit further south of today's Placa edge, somewhere along the wall of St. Clara's monastery which cut the Great Onofrio's fountain in half. The existence of this city rampart in 1235 proves the need to protect the outskirts of the Church of All Saints (Peković, Babić 2016: 268–269). The illogical "jump" of the west city walls, as well as the direction of the wall, represents a division between the county's and archdioceses (private) property.[5] We should add the archeological remains of a 20 cm thick wall, discovered by probe research in the 80s of the 20th century.

Sadly, for now, *porta septentrionali* wasn't confirmed archeologically, so we have to assume its mentioned position. The position of the city's gates – *civitas* as well as suburbs – is inherited by the streets, according to the *Statute of the City of Dubrovnik* of 1272 and 1296 (Peković, Babić 2017: *passim*). So when locating the north city gate, which is mentioned in the 1235 document, we'll reach for the *Statute*. The source of the fire was a single street in the area of today's Dubrovnik Archdiocese which was regulated in 1272.[6] At its south end was probably Tower Budislavić (Peković, Babić 2017: 34–35), what enables the assumption that in the north end was the *porta septentrionali* (Fig. 2).

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3 *Ordo de dotibus et nuptiis,* in: *Monumenta juris Ragusini, statutis anni 1272 vetustiora,* in: *Liber Statutorum civitatis Ragusii…,* in: *Liber Statutorum civitatis Ragusii, compositus anno 1272. cum legibus aetate posteriore insertis atque cum summariis, adnotationibus et scholariis a vetribus juris consultis ragusinis additis*, Bogišić, V., Jiriček, C. (eds.), Zagreb, 1904, no. III, p. LXV, noted 2; Marinović 1985: 39, not. 6.

4 That the area of Prijeko was protected by walls before the annexation of 1296, we know from a 1228 document in which it is stated that the church of St. James Pipunar was *ad moenia civitatis*. This church, which was within the city walls, was given to the Dominicans. That same year, Palmonić gifted the church of the Marian Ascension to the same monastery. The church was *extra muros* – near St. James – house and garden, where the monastery was built (*Diplomatički zbornik III*: 298–299, doc. 265).

5 North of the (imagined) direction of the wall to the east was municipal land, what matches with the south edge of Između polača Street. South of the alleged line, west of Široka Street, there was a property belonging to the Dubrovnik Archdiocese (*Statut grada Dubrovnika* 2002: VIII/LVII./233, 234, *passim*). East of Široka Street was private land of distinct members of Dubrovnik's gentry. The mentioned lands were subject of the distribution of Dubrovnik's land in the middle of the 13th century (Peković, Babić 2016: 269–280).

6 "The street which goes to the door which is below the house of Bogdan de Pissino goes straight to Poljana..." (*Statut grada Dubrovnika* 2002: V./XLI./321). The rest of the land within the Dubrovnik Archdiocese was regulated by these words: "Beside the street mentioned earlier, covering the archdiocese's entire property, in the length of 38 reaches, 10 houses with gutters must be built, each gutter 3 spans wide. Between the houses there have to be 4 streets, each 10 reaches wide and should cross the Archdiocese's land until the Church of All Saints" (*Statut grada Dubrovnika* 2002: VIII./LVII./464). Those are today's (from east to west): Đordić, Ćubranović, Getaldić and Zlatarić Street.

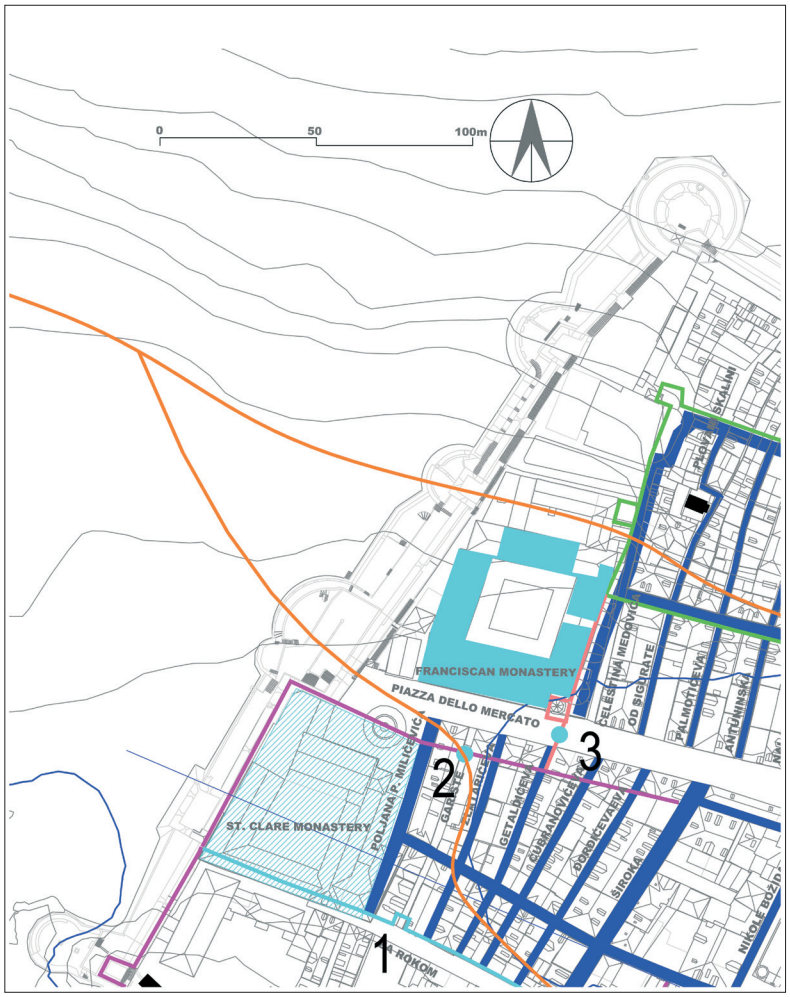

Fig. 2 *Porta septentrionali* in 1235 and the Pile Gates of 1296: 1. Tower Budislavić; 2. *Porta septentironali*; 3. Pile Gates in 1296 (drawing by: Ž. Peković)

2.2. FIRST PILE GATES IN THE SECOND HALF OF THE 13TH AND FIRST DECADE OF THE 14TH CENTURY

The Gates were first mentioned in a document in 1296.[7] This is written in the *Statute*: *Et tali modo et ordine continuari debeant domus cum suis gotalibus et viis usque* ***ad murum civitatis porte de Pilis***.[8] The quoted directive is the last one by which Prijeko was annexed to the city (Peković, Babić 2017: not. 125).

The mentioned Pile Gates give us enough information to locate them. The narrowest transversal is today's Celestin Medović Street.[9] The wall of Prijeko was along its west end, before the Little brothers monastery "entered" the city. This is where we should assume were the first Pile Gates. The precise location is given by the remains of the medieval tower of Prijeko, which were found in the bottom floor of Little brothers bell tower. The bell tower came to be when the mentioned tower was upgraded. Ž. Peković, who first noticed the remains of Prijeko tower, stated several convincing arguments to support this thesis: The ground floor is rectangular – which is very unusual and points out that it was built over an earlier building – a fugue is visible in the juncture of the bell tower and church. This favors the thesis that the church and bell tower weren't built simultaneously, meaning the ground floor of the bell tower predates the church (Peković 1991: 119–121, 127, fig. 12, 22).

7 Dubrovnik analists Ranjina and Restić mention it earlier, in 1277 (*Annales Ragusini Anonymi item Nicoali de Ragnina* 1883: 222; *Chronica Ragusina Junii Restii*...1893: 98).

8 The quoted directive can be translated like this: "In such a way and means the houses with their gutters and streets have to continue to the city walls and the Pile Gates" (*Statut grada Dubrovnika* 2002: VIII./LVII./462, 463).

9 We assume it is one of the city streets which were "left ... around the city wall in the inner side". The lengths of the boundaries were little more than 10 meters. The width of the street and the area which was awarded to the Franciscans along the east wall matches the mentioned width of the boundaries.

Next to the medieval tower (Little brothers bell tower) and south of it can the Pile Gates be located. They were on Placa, in the direction of today's Getaldić Street.

There are several more pieces of archival evidence that strengthen the location of the Pile Gates, as well as the first Little brothers monastery. On October 19th 1301, the Little Council banned trading outside the city under threat of repossession and 1 perper (a form of currency). The only allowed trade location was in fact the site between the Gates and Little brothers. Because of the importance of the document, regarding this debate, we present it in full:

> *It was decided on the Little Council meeting, "barker" Mato published in the usual places, that not a single citizen of Dubrovnik, male or female, should dare set foot on St. Steven on Rijeka, not by sea or land, or the other side of Rijeka for trading, under the penalty of 1 perper and loss of merchandise, that they can't use the Rijeka trade roads, whoever wishes to go* ***outside the Gates****, can trade* ***between the Gates and Little brothers*** *and no place else.*[10]

The document entails some precious information: Little brothers monastery was outside the city wall and near the Gates. So, trade was allowed in a site which was bound from the north by the monastery and from the east by a wall on which were the Pile Gates – in the site of today's Placa, between the Little brothers bell tower and Getaldić Street.

In the context of urban interventions, as well as locating the first Little brothers monastery and first Pile Gates, a record by Nikša Ranjina is particularly interesting. In 1309, according to his record, the following happened:

> *….edificato furano le case dallo commune mezzo alla piazza di Ragusa, lo sextiero di santo Blasio di piazza et lo sextiero si santo Nicolo di Campo, et furono divise le vie et spartite le case; et lo resto delli terreni locorono alli cittadini, a. g. to 1 ½ lo brazzo quadrato. Quale loco fu posto et nominato, ordinate tre odrini di strade:* ***fatta la prima strada allo convent di santo Francesco****, la via larga la ordinarono chiamare, come la piu soprana: in scitola (chiamorono?) la seconda,* ***ordinata la parte della dovana fino alle parte della Pille (e) piazza dello mercato:*** *et la terza, dallo castello di conte fino alla monasterio di santa Chiara, di Caligari chiamata. Le altre strade (erano) per diverse vie della citta sparse.*[11]

Ranjina notes the build of municipal houses as well as the expansion of the city, the founding of two new *sexteria* – St. Blaise *di piazza* and St. Nicholas *di Campo*. Although it mentions the regulation of multiple streets, only three were spatially defined. The first is from Little brothers monastery *(convent di santo Francesco*) which is stated to be via *larga* (wide) and *la piu soprana* (the tallest). The description corresponds to today's Prijeko Street. This means that the monastery was already in its present location, that it had not changed location since the founding. It was annexed to the city as the result of the new Prijeko rampart being built. The monastery most likely communicated with the Slavic settlements of Prijeko even before it became part of the city in 1296. Proof of this is a hallway in the east wing of the monastery – located between the vestry in the south and the chapter to the north – lines of communication between the monastery and the area to the east.[12]

Both entrances to the hallway are emphasized by massive Romanic portals. The passage stretches east to west. On the basis of monumentality and shape of both portals, it can be concluded that it allowed entrance to the monastic complex and that the thick side walls and vault hint the fortification function.[13] On the west facade, somewhere between the church and west wing, where the main entrance is to be expected, the latter was not discovered. There was no archeological research in the area of the current entrance.

The second street mentioned by Ranjina stretches from Dogana/Sponza to the Pile Gates and *piazza dello mercato*, which is west of the Gates – Placa. Within the mentioned spatial repertoire, it is important to point out that the *piazza dello mercato* can be identified with the only location where trade was allowed, which, as stated by the Little Council in 1301, was *intra Fratret minors et portam de Pillis*. The Council's decision and Ranjina's record enable the localization of *piazza dello mercato*. It was bound by the west rampart of Prijeko to the east with the first Pile Gates. To the south was the rampart of the suburb of 1235 with the city gates, mentioned in the document as *porta septentrionali*.[14] From the north, the square was meant for trading (at the time outside the city), was bound by the monastic complex of the Little brothers. The western boundaries aren't defined.

Two doors were pierced in the south wall in 1342 (*Libri reformationum* I: 139; Fisković 1955: 110–111; Velnić 1985: 105–

10 *Libri reformationum* V: 11. Milorad Medini first published this document. According to him, the area *intra Fratret minores et portam de Pillis* was a *sufficiently protected* area which he also calles **square** (Medini 1935: 155–156). The document was translated by Inga Belamarić, whom we thank.

11 *Annales Ragusini Anonymi item Nicoali de Ragnina* 1883: 224.

12 The connection between the Franciscan and Dominican monasteries with the Slaves who visited frequently, rustic mentions in context of the events of 1310 (*Chronica Ragusina Junii Restii* 1893: 105).

13 The hallway is several meters south of Prijeko Street. The *Statute* planned for the street to be 3 stretches wide, which is 6, 06 meters. For the old measurements of Dubrovnik see Herkov 1977: 171.

14 During this phase – from 1296, when Prijeko was annexed to the city until 1319 when a new city western rampart was built and the monastery entered the city – *porta septentrionali* and the first Gate functioned in parallel, located somewhere in the extension of today's Little brothers bell tower, originally the tower of Prijeko.

106). The late piercing is connected to the position of the west rampart. While the monastery and *piazza dello mercato* were outside the city, it was risky to open a new church door. Despite the large number of pilgrims and believers who visited the church and monastery, safety came first. When the monastery and church were annexed o the city, the prerequisites for a uninterrupted piercing of two new gates in the churches south wall were fulfilled.

2.3. THE PILE GATES FROM THE 1320´S TO THE MIDDLE OF THE 14TH CENTURY

In the late 20s of the 14th century Dubrovnik (part of the town girded by walls), was expanded to the west. This was first mentioned in the decision by the Great Council on May 3rd 1319 – which allowed the Little brothers to build a new church and monastery within the city walls. They were forced, during the rule of prince Paul of Moroni, to tear down the church and monastery outside the Pile Gates. In order to build the new ones within the city, the Great Council gave the brothers land which previously belonged to Marin, son of Miho of *Sclavia*.[15] The previous decision, of March 3rd 1319, mentions the Little brothers church *que fuerit destructa et totaliter discipata* during Paul of Moroni. This directive also carries the information of giving the land of Marin *of Sclavia* to the Franciscans (*Libri reformationum* V: 135–136; Velnić 1985: 100; Peković 1991: 106).

It's important to point out that the Great Council made the decision to "move" the Little brothers after they were already protected by the new city wall. During the reign of Prince Paul of Moroni (1316–1318), the Republic was at war with Uroš 2nd Milutin, a Serbian king, from 1316– 1318 (Foretić 1980: 91; Velnić 1985: 100; Badurina 1990: 50; Peković 1991: 101). Because of this, there was a need to protect the monastery within the walls. Pope Bonifacio the 8th issued a Papal Bull according to which the work of building the monastery within the wall required permission from The Holy Chair. The Little brothers were given permission by Pope John 22nd on October 15th 1318, in Avignon (*Diplomatički zbornik* VIII: 512–513, doc. 416; Medini 1935: 155–156; Fisković 1955: 108; Velnić 1985: 101, 176, enclosure 3; Badurina 1990: 50; Peković 1991: 101). It would be more correct to say that the pope "made an existing condition legal" (Velnić 1985: 102).

After a series of decisions (1318–1320), the Great and Little Council gave the Little brothers several locations to expand the monastery.[16] The later legislation is visible in the written chronicles of the councils. Although the dates follow the "legal" chronology – to be more precise, after the pope's decision (October 15th 1318), a decision to build the monastery within the walls follows (March 3rd 1319). Even after a series of decisions about giving the land to the Franciscans (June, August and November 1319 and April 1320). The order of writing the upper decisions doesn't concur with the listed chronology (*Libri reformationum V:* 117, 117–118, 126; 135–136, 136; 142, 167).

There is also a document which questions the thesis of the monasteries demolition. In January 1320 nobleman Marin Šima Binčulić orders from stonecutters Grgur Grbenica and Lone Njegoslavov cogs which will be as clear cut as those on the wall crown of the Little brothers church *qui sint intaliati sicut sunt illi de lista fratrum minorum ecclesia veteris* (*Diversa Notariae* 3: 228'). Cvito Fisković hinted, on the basis of the pope's approval to move the church and this document, "that the church wasn't entirely demolished". He also concludes that the church could have been destroyed only after a government order in 1463, when a decision was made to destroy five churches outside the city walls in order to protect themselves from the Turks. Among them was St. Thomas's church (Fisković 1955: 108). J. Velnić interprets the document the same way (Velnić 1985: 100). Ž. Peković uses this as the key document in arguing the thesis of the incomplete habitat of the Little brothers in Dubrovnik, which was, after a new western wall was built, annexed to the city in 1319 (Peković 1991: 101–102).

The "entry" of the Franciscan monastery within the city had to be justified by later decisions made by the Great and Little Council. When something identical occurred in the east during the expansion of the city, the inclusion of the Dominican monastery,[17] such bureaucratic expertise was not needed.

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15 *Item in eodem consilio captum fuit et deliberatum, quod cum tempore quod accepta fuerent territoria hominibus de Ragusio, causa attribuenda ea Fratribus Minoribus fro reedificatione ecclesia beati Francischi, que fuerit destructa et totaliter discipata in servitium comunis, acceptum esset quodam territorium Marini filli Michelis de Sclavi, et quia dictus Marinus erat absens Ragusii, factum et scriptum fuit instrumentum de precio dicti territorii dicto Micheli de Slavi…*(*Libri reformationum* V). Document is previously brought by: Fisković 1955: 108; Velnić 1985: 100; Badurina 1990: 63; Peković 1991: 106.

16 *Libri reformationum* V: 117, 117–118, 126, 135–136, 136, 142, 167. The quoted documents were previously analysed by: Velnić 1985: 102–104; Peković 1991: 106.

17 On April 16th 1332, in a conclusion by the Great Council, along guard posts*, duos supra portam de foris fratrum Predicatorum* (*Libri reformationum* V: 347; Beritić 1989: 22, not. 24) is mentioned. This points out that the Dominican monastery was already within the town walls. Contrary to that, some authors believe that the current east wall was built in 1381, when on July 8th the Great Council decided to make a wall above the fish market-where the rampart had previously been. For details see: *Reformationes* 24: f. 178; Beritić 1989: 30, not. 78; Veramenta–Paviša 2004: 58. Beside the above quoted document of 1332, the Great Council mentions the Gate of St. Luke (the Inner gate of Ploča) on March 3rd 1358 (*Libri reformationum* V: 125). The existence of a city gate east of the Dominican monastery points to the existence of a city wall in the same place.
Ranjina dates the expansion of the city to the east and the Dominican "entry" to 1379, while Restić the same year the Franciscans "entered" the town – 1310 (compare *Annales Ragusini Anonymi item Nicoali de Ragnina* 1883: 237; *Chronica Ragusina Junii Restii…* 1893: 105).

Unlike the previous two phases, of which we can only speak of on the basis of archives, the city wall and Pile Gates were built at the end of the 2nd decade of the 14th century. They are visible to this day, of course, were later brushed up (Fig. 3).

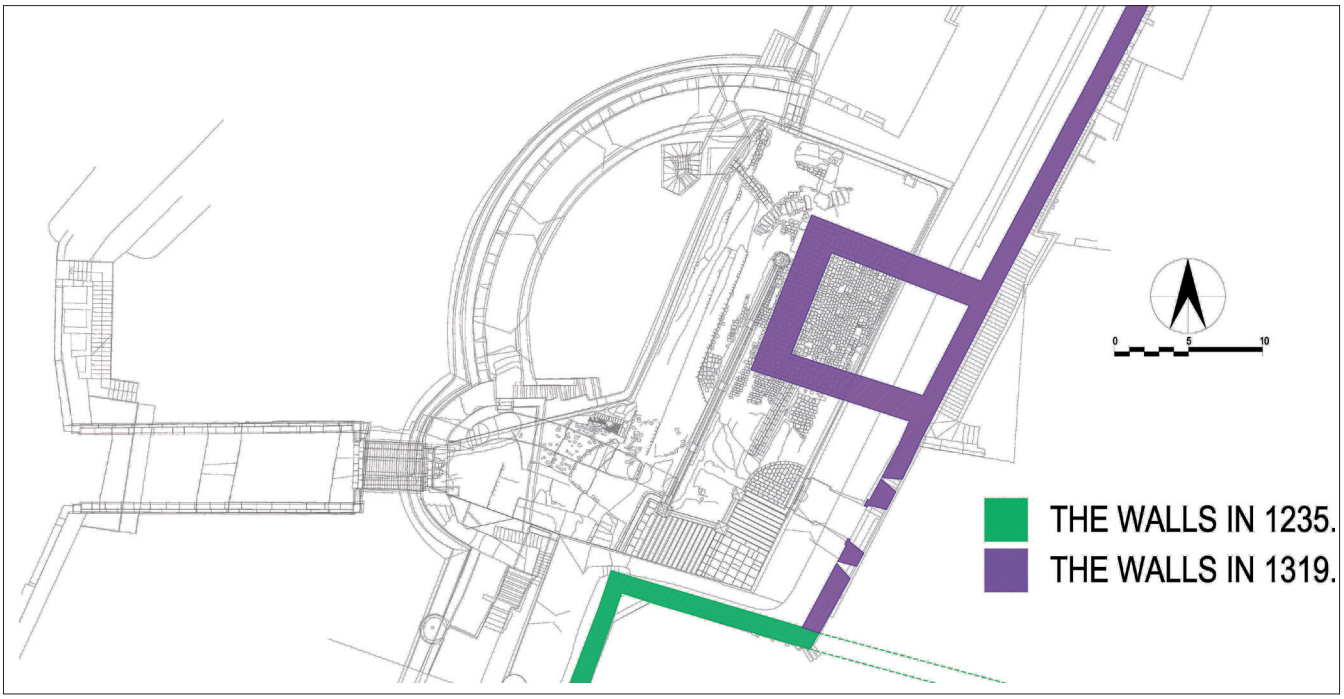

Fig. 3 Pile in 1319 (drawing by: Ž. Peković)

The inner part of the wall, built in 1319, is still visible when looked at from Placa. It entails the Pile Gates which staggers into the wall mass – from a semicircular arch, over a slightly curved latch to the Gothic pointed arch.

The Gates are protected from both sides by loopholes. They were also guarded by the Pile Tower, located north of the Gates.

Next to the west city wall, first mentioned in 1319, simultaneously were towers built: Pile Tower (*Libri reformationum* I: 85, 96; *Libri Reformationum* V: 347), Tower of St. Francis, Gornji ugao and Minčeta. They were all of a rectangular layout. Only for the last tower the order of construction was preserved, dated July 3rd 1319. The name of the builder is known – Nikifor Ranjina (*Libri reformationum* V: 143; Beritić 1989: 22, not. 19). The remaining towers should also date to that year. The Great Council's decision of September 21st 1343 proves that the work on the city's fortification had concluded by then (*Libri reformationum* I: 141; Beritić 1989: 22, not. 26). Today the west city wall with the Pile Gates is somewhat wider than the one of 1319. They were additionally fortified in the middle of the 15th century.

2.4. THE PILE GATES IN THE SECOND HALF OF THE 14TH CENTURY

Firearms were used extensively in the middle of the 14th century. This left a mark on fortresses throughout Europe. To make use of the new weapons, which means new defensive strategies and fortifications, the citizens of Dubrovnik dug a moat around the city – the existence of which means a new bridge. Thus the west rampart was created (Fig. 4, 5). The intense fortification measures were influenced, aside from the new arms, by political agendas. Dubrovnik, with the help of the Hungarian king Louis the Great, freed itself of the Venetian power in 1358. Since then, Dubrovnik was an autonomous commune under Hungarian supreme rule. As the king's vassal, Dubrovnik took part in the war of Venice and Geneva which made an alliance with the mentioned Croatian – Hungarian king.[18]

The Great Council made several decisions regarding the fortification on November 18th 1350. One of them was to dig a moat (*fossatum*) in front of the Pile Gates (*Libri reformationum* II: 112–113; Medini 1935: 292; Beritić 1989: 24, not. 32). This is, for now, the first known record of the moat which had regular new procedures during the second half of the 14th and in the 15th and 16th century.

18 For more detailed historic information on Dubrovnik in the second half of the 14th century see: Foretić 1980: 80, 131–151; Harris 2006: 55–65.

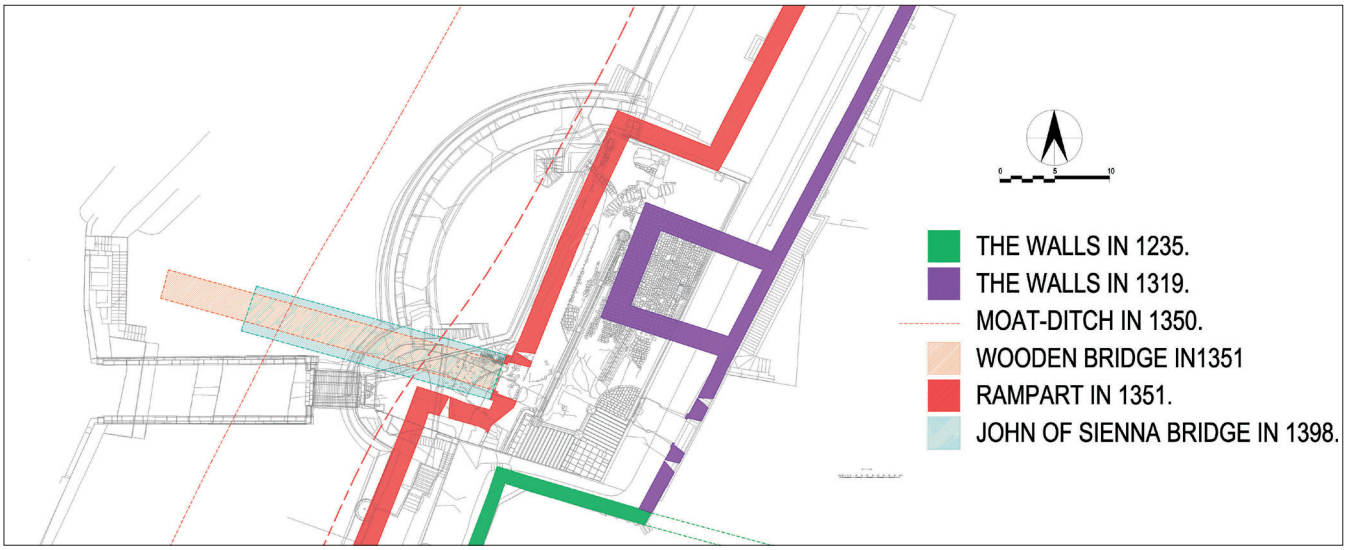

Fig. 4 Pile in the second half of the 14th century (layout by: Ž. Peković)

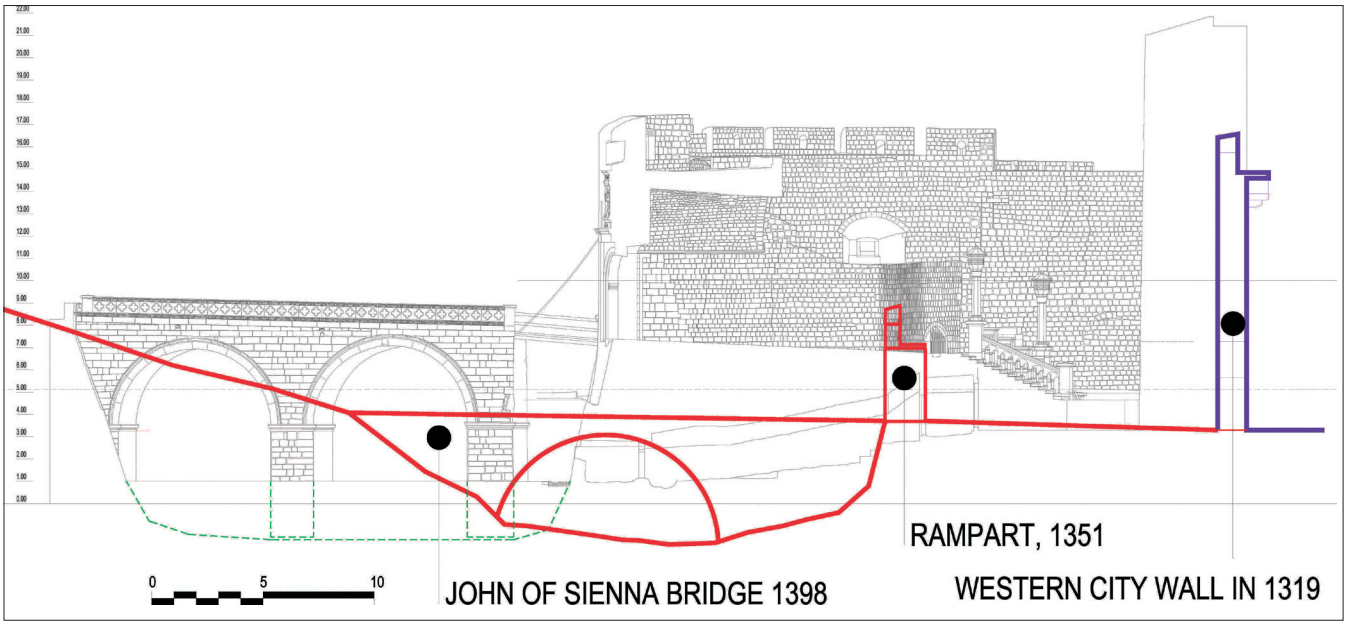

Fig. 5 Pile in the second half of the 14th century (intersection by: Ž. Peković)

First western rampart

Intensive work on the western fortification system continued in 1351. The Little Council decided on June 20th that *de faciendo unum murum extra portam de Pille de petra, tantum altum, quantum videbitur, cum quadam porta (Libri reformationum* II: 129; Medini 1935: 292, not. 334; Beritić 1989: 25, not. 35). So, the first western rampart was built in 1351, with the first Outer Pile Gates. It was built parallel with the existing west walls, as with those of 1235 (Kalarinja and Puncijela Tower) as well those placed a bit more east in 1319. The rampart follows the "leap" of the wall in the site where in second half of the 14th century the Canton of Pile will be built. Another "leap" was recorded north of the Pile Tower.

Considerably thicker (1,8 m) than the one of 1319 (1,3 m) which allows communication on the wall behind the battlement (0,62 m wide) in the width of a treading surface of 1,2 m. Archeological research in 2008 revealed traces of the door – mentioned in the quoted document – the rampart, 1 – 2 m north of today's serpentine. The first Outer Pile Gates were located somewhere in the axis of the inner ones (on the wall of 1319) with a slight deflection. The north part of the gate was discovered, it had a stone doorpost.

John of Sienna Bridge

The presence of the moat, which was deepened and widened several times in the second half of the 14th century (*Libri Reformationum* IV; Medini 1935: 292, note 334; Beritić 1989: 29, 33, note 64, 104; *Reformationes* 30: f. 34) of course, means the existence of a bridge to access the Outer Gates, on the 1351 rampart wall. The first archives of a single arch stone bridge being built date back to a period between 1396 and 1398. The builder is stated as John of Sienna, the master builder of the church of St. Blaise (*Reformationes* 30: f. 34v, f. 53v, f. 69; 31: f. 5, f. 28v, 30v; Beritić 1989: 33–34, notes 105–107, 110–112). However, even before the moat along the western walls there was a ravine over which with an earlier, perhaps wooden bridge it was able to access the city.

The data was confirmed when the remains of the John of Sienna Bridge were discovered. Along the doorpost of the Outer Pile Gates (on the 1351 rampart) a paved surface was discovered, with perpendicularly placed bricks "like a fish bone" (*opus spicatum*), bordered by stone edges (Fig. 6).

Fig. 6 Remains of the treading surface of John of Sienna Bridge (photo by: Ž. Peković)

The direction of the earlier bridges – the presumed wooden and later stone one on which John of Sienna worked, deflect from the direction of the present one built by Paskoje Miličević in 1471 by 16 degrees. It's parallel with the jump in the walls of the Pile Canton. John's bridge is 4,04 meters lower than Paskoje's. The 14th century Bridge is also shorter than the latter, which is the result of constant widening and deepening of the moat. The moat was considerably wider in the 15th century, so Paskoje had to design a longer, three arched bridge.

The rampart was destroyed in 1461 because of later preconstruction, so the area in front of the Gates didn't preserve its original height. It was destroyed at the level of the serpentine of 6,5 to 7, 0 mm. The end of the wall with cogs was preserved in the rampart south of the Canton, towards Bokar.

2.5. THE PILE GATES IN THE 15TH CENTURY

The Ottoman Empire conquered Constantinople in 1453 and fear spread across Europe. The Turks advanced swiftly and successfully and in 1466 Bosnia was conquered as well (Foretić 1980: 196–236; Harris 2006: 86–94).

Unlike the first half of the 15th century when no bigger construction projects were recorded in the western fortification systems – except for the moat (*Reformationes* 33: f. 105, f. 151, f. 181v; Beritić 1989: 35–36, note 121, 127, 131) – in the second half of the same century radical projects were undertaken on the entire western city walls, Pile in particular.

The great construction projects of the western walls began with additional labor on the city moat and went on throughout the entire second half of the 15th century (*Acta Minoris Consilii* 12: f. 137v; 24, f. 52v; Beritić 1989: 67, 109, note 369, 744). The labors on the moat were a prerequisite for even greater interventions on the western fortification system. The widening and deepening of the moat further disabled access to the enemy and, at the same time, in a very elegant way which doesn't include transport from a distant location, enables access to building material – stone (Fig. 7, 8).

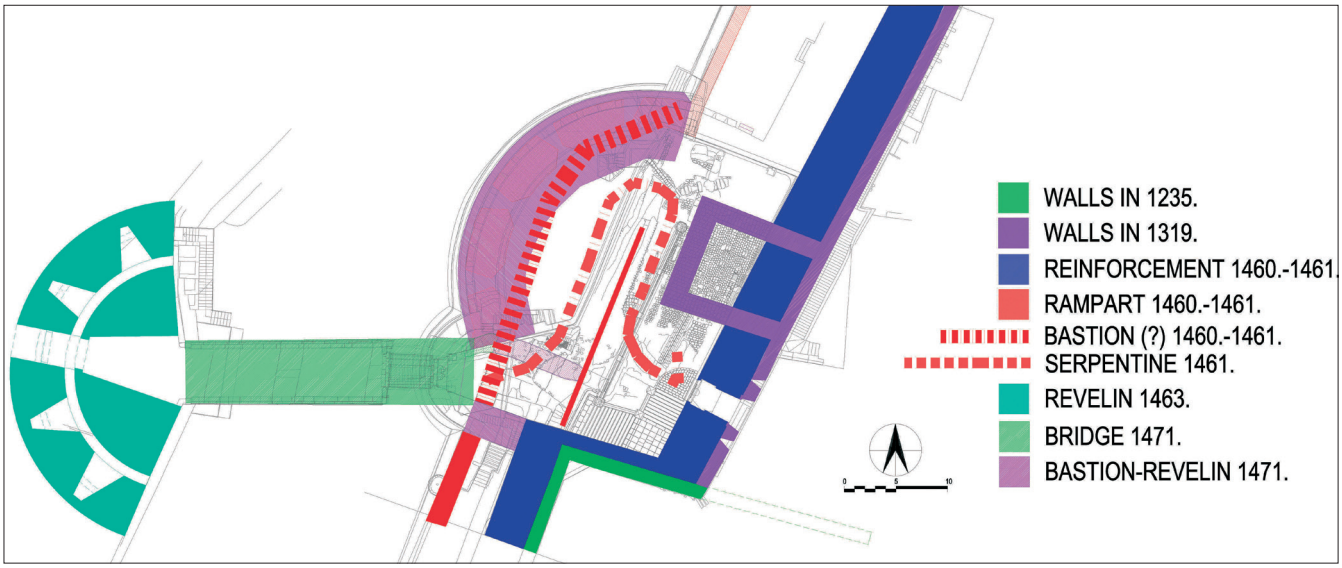

Fig. 7 Pile in the 15th century (layout by: Ž. Peković)

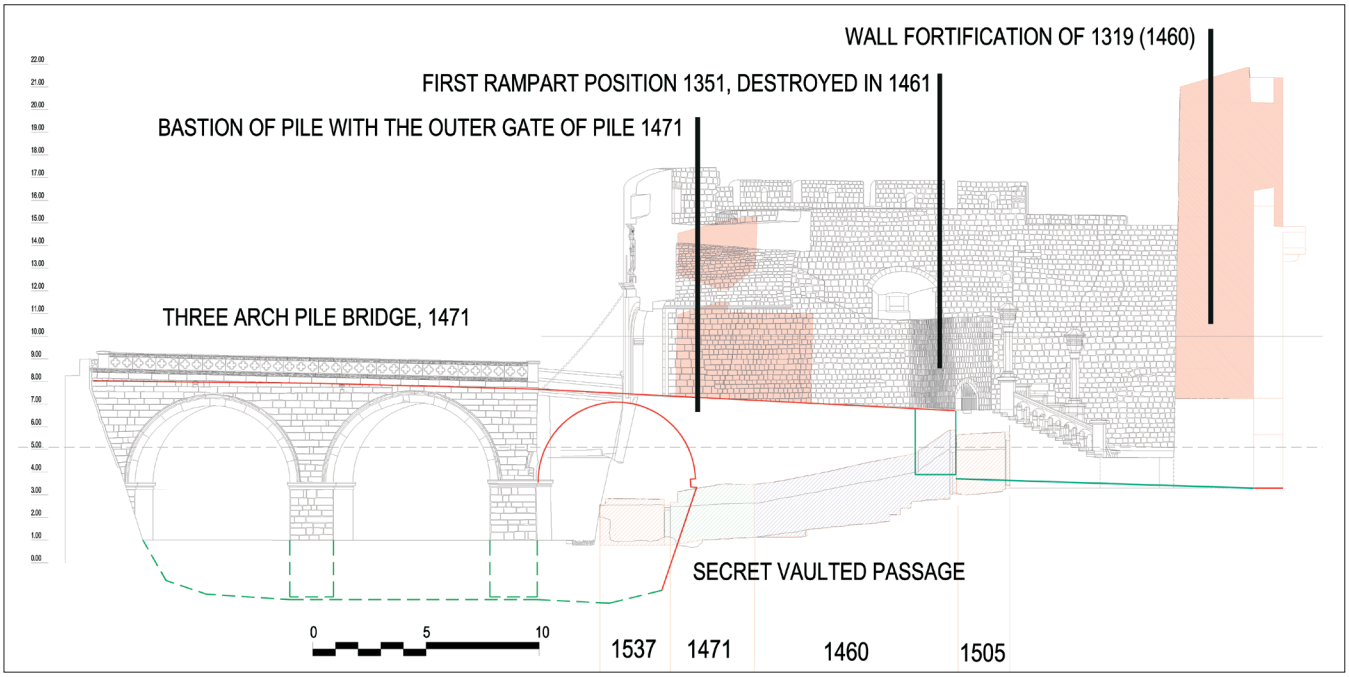

Fig. 8 Pile in the 15th century (intersection by: Ž. Peković)

Strengthening the western wall in 1460 as s prerequisite for building Michelozzo's rampart

Extensive work on the western walls themselves began in 1460 by strengthening the existing wall of 1319, starting with the Pile Tower to the corner of St. Clara and the Pile Canton (*Acta Consilii Rogatorum* 16: f. 121 v; Beritić 1989: 83, note 480).

In March of 1460, the construction of the Outer Pile Gates was commissioned with the console modeled after the Ploča Gates and an arch like the one on the fish market Gates. This was entrusted to master builders Grubačević and Bogosalić. At the same time, the Inner Gates had to be modeled after the Outer, commissioned with Petar Martinović and Radić Ostojić.[19]

The Gates were finished on October 10th (*Acta Minoris Consilii* 15: f. 128v; Beritić 1989: 83, note 484). According to Beritić, the quoted directives refer to the "the dual city gates on the main square which were built (doubled) in 1460" (Beritić 1989: 83). The Inner Gates, mentioned in the quoted directives, should be placed on the site where in 1460 the wall from 1319 was thickened. Since there was a partial demolition of the rampart between the Gates in 1461, we may assume that there

19 Fisković 1947: 23 and the mentioned documents Beritić 1989: 83.

was an intermediate stage in the rampart – between the one of 1351 and Michelozzo's of 1461. The assumed rampart may have been built in the direction of the old one, which means that it could stretch in a straight line from Puncijela, nullifying the "break" of the Pile rampart. Because of this, the Canton was within a protected area.

The existence of the predecessor of Michelozzo's rampart is indicated by a vaulted passage, documented during archeological research in 2008.[20] The passage stretches from the first rampart (1351) to the west, all the way south to the rampart of the Pile Canton. There it suddenly changes direction southwest and again later to the west. The sudden "breaks" of the secret escape passage indicates the detection of the development of the over ground defensive wall of Pile. If the assumption of a rampart predating Michelozzo's (but made after the one of 1351), is correct, it was short lived. A new semicircular bastion with new Outer Pile Gates was built in 1471.[21]

The western walls were amped with upgrades directed outwards, to the west. The walls were also heightened (*Acta Consilli Rogatorum* 16, f. 230v; Beritić 1989: 84, note 494). This process also reduced the distance between the rampart of 1351 and the wall of 1319. It was only 3,6 meters towards the south.

This led to partial deconstruction and the alignment of the latter to the Canton and again further north. This wall of the first rampart may refer to the ruling of the Council of Worsted on November 17th 1461 (*Acta Consilii Rogatorum* 17: f. 25v, Beritić 1989: 86, note 516).

The rampart wall replaced the wall of the first serpentine between the two Pile Gates – Inner and Outer. Because of the different levels of terrain, the Inner Gates were 4,7 m lower than the Outer, and 2 ramps were built. One was used to go slightly downhill form the Outer ones north, and then there was a sharp curve which functioned as a transition to the next ramp (set opposite the first one). The ramps form a serpentine and were separated by the rampart wall (1351), which was at the edge of the west serpentine, until the latter was removed.

"The obsolescence" of the rampart should be connected to a decision made several months earlier. Although the Council of Worsted debated the construction of the new rampart on April 15th 1461, the final decision was delayed until Michelozzo di Bartolomeo Michelozzi arrived in Dubrovnik (*Acta Consilli Rogatorum* 16, f. 247; Beritić 1989: 84, note 499).

The decision was finally made on July 20th 1461, when it was decreed that the new wall has to go straight from Pile to the sea and not follow the rampart. Following the recommendation of the military engineer, architect and sculptor of Florence, the canvas should be 6,05 m wide. The same day, they decided that the wall of Pile Tower should be broadened by 1,03 m. Michelozzo objected, saying it was an unnecessary financial burden (*Acta Consili Rogatorum* 6, f 277v; Beritić 1989: 86, note 514). The remains of Pile Tower speak in favor of the decision not being realized.

All the ramparts were rebuilt according to new war techniques in the 60s of the 15th century, for developing stronger fire arms. Instead of loopholes, canon openings were made in vertical strings. The rampart got a support wall and a wreath in the level of the new, somewhat higher floor. The level of the ground floor, beyond the rampart (south of the Canton) was +4, 56 mm in the middle of the 15th century. Beyond the top hole openings and rifle storage rooms (in a wall 180 cm thick) were niches for the gunmen. A similar intersection is found in fortress Minčeta (Beritić 1989: *passim*; Deanović 1979–1982: 101–107; Deanović, Tenšek, 1980: 302–312; Grujić 2004: 241; Veramenta–Paviša 2004: 22) and Bokar (Beritić 1989: *passim*; Grujić 2004: 240–241; Veramenta–Paviša 2004: 34–35). The plans were designed by the famous builder Michelozzo di Bartolomeo Michelozzi.

We should stress that the Republic of Dobrovnik considered the idea of inviting the master builder in January of 1461. In June the Council of Worsted empowered the Rector and Little Council to commission Michelozzi for a year, with a montly fee of 20 ducats. This was a hefty sum at the time. The Little Council singed Michelozzi next month with the following terms (Beritić 1989. 84, 85, note 490, 504, 506).

The construction of a semicircular ravelin on the west side of Pile Bridge (1463)

Work on fortifying the city's avenue of approach was done continually. The fortification of the moat, the west side of the bridge, began in 1463. The Great Council decided to have ravelins built in front of the Pile and Ploča Gates (*Acta Consilli Rogatorum* 17, f. 224; Beritić 1989: 90–91, note 550). There was great panic in June because of the Ottomans, so The Council decided, on the 16th, on a series of preventive measures in case of a Turkish overrun. The work on the Pile ravelin was suspended and the Pile and Ploča bridges torn down, what in the end, wasn't realized (*Acta Consilli Rogatorum* 17, f. 224; Beritić 1989: 92, note 563).

20 It was known before but wasn't filmed or paid enough attention to.

21 It was most likely built by Paskoje Miličević within the construction of the new access bridge. It was probably part of the design by the great Michelozzo, who came up with the entire defensive area from Minčeta to Bokara.

It seems that Michelozzo made a notion to modernize the western walls from Minčeta to Bokara. This included a redesign of the defense approach to the Pile Gates. The idea to place the ravelin west of the future bridge, a new, taller, three arch bridges and a new ravelin – bastion in front of the Pile Gates is a grandiose and revolutionary project conceived most likely during Michelozzi's stay in Dubrovnik. The realization began after his departure, took 3 decades, had 3 phases and was finished under the leadership of Paskoje Miličević. A ravelin was built to guard the new bridge's access point in 1463.[22] The semicircular bastion of Pile and the bridge were done in 1471. Minčeta was subsequently realized with Gregory of Dalmatia as master builder.

Old paintings of the city, prior to 1667, as well as the remains discovered in archaeological research (2009–2010), show that the ravelin project under the Pile bridge was in fact carried out. They built a *mezzaluna* – a ravelin which was in accordance with the location of the new, bigger and taller bridge. It was built in 1471, south of the then still existing John of Sienna Bridge. Such a position during construction enabled the old bridge to continue functioning.

The construction of a semicircular bastion with new Outer Pile Gates and Paskoje's bridge in the year of 1471

The complete refurbishment of the Pile defenses began in 1463 with a bastion to the west side of the future bridge that allows access to the city. The construction of this new bastion (with the new Outer Gates and Paskoje's three arch bridge), was preceded by the widening of the moat. Eight years after construction began, on January 9th 1471, the Council of Worsted decided to build a *ravelin* on the Pile Gates, according to a blueprint shown to the Council (*Acta Consilii Rogatorum* 21: f. 33v; Beritić 1989: 100, note 634). Beritić thinks that it's about the *mezzaluna* by the present Pile Gates (Beritić 1989: 100). We don't know who the builder was. The blueprints were shown to the Council. Since Paskoje was working on that site, it's possible that he's the author of the bastion. A new semicircular Canton bastion was also built, around Pile Tower, which guarded the Inner Gates well. The Outer ones weren't preserved. They were destroyed when a smaller Pile Gates bastion was made in 1537.

Mezzaluna, the semicircular bastion, was built as a circular wreath, 7 m wide. Over the base wall they built a massive parapet 3, 6 m thick. It has 4 deep niches with top holes. They were derived from the ground plan in the form of a swallow's tail.

Fig. 9 Boardwalk of Paskoje's bridge (photo by: Ž. Peković)

Few months later, on May 5th 1471, the Little Council ordered the suppressers to build the Pile Gates and Bridge according to the blueprint of Paskoje Miličević.[23] The build of a new three arch bridge had begun. The bridge and new gates lifted the level of defense significantly. The bridge was built in decline. To the west the height of the boardwalk was +8, 27 mm and to the east the height was +7,40 mm. The distance to the inner Gates was taken care of with a serpentine consisting of 2 mild ramps. The entry gate, when compared with the one of 1319, was 4, 3 meters higher (Fig. 9).

The construction of the bridge lengthened. The Little Council ordered on April 14th 1474 that then bridge over the moat of Pile must be finished (*Acta Minoris Consilii* 19: f. 114v; Beritić 1989: 101, note 658). The kept records of the Council also say that in October and November of 1474, the bridge was still under construction (*Acta Minoris Consilii* 19: f. 172v, 174v; Beritić 1989: 102, note 663, 664).

It's unknown why the Republic was unsatisfied with Paskoje's work. We do know that the Council decided, on December 19th

22 The new ravelin wasn't in the direction of John of Sienna Bridge and was significantly taller, oriented differently. It was without any doubt, the start of a long term project to fortify the citys across points.

23 *Acta Minoris Consilii* 18: f. 99; Beritić 1989: 100, note 642. Of the life and death of Paskoje Miličević see: Beritić 1948. It's interesting that in an earlier study the author didn't list the Pile Bridge among his opus.

1489, not to pay him the wages for working on the bridges of Pile and Ploča because he hadn't made anything of significance (*Acta Minoris Consilii* 23: f. 247v; Beritić 1989: 109, note 740).

2.6. PILE GATES IN THE FIRST HALF OF THE 16TH CENTURY

There were no radical architectural undertakings in the first half of the 16th century (unlike those of the previous phase) (Fig. 10, 12). In this period the main procedure was the demolition of the east arch of Paskoje's bridge – built in the 70s of the 15th century – what was followed by several other interventions, the most important of which was the build of a new Outer Pile Gates.

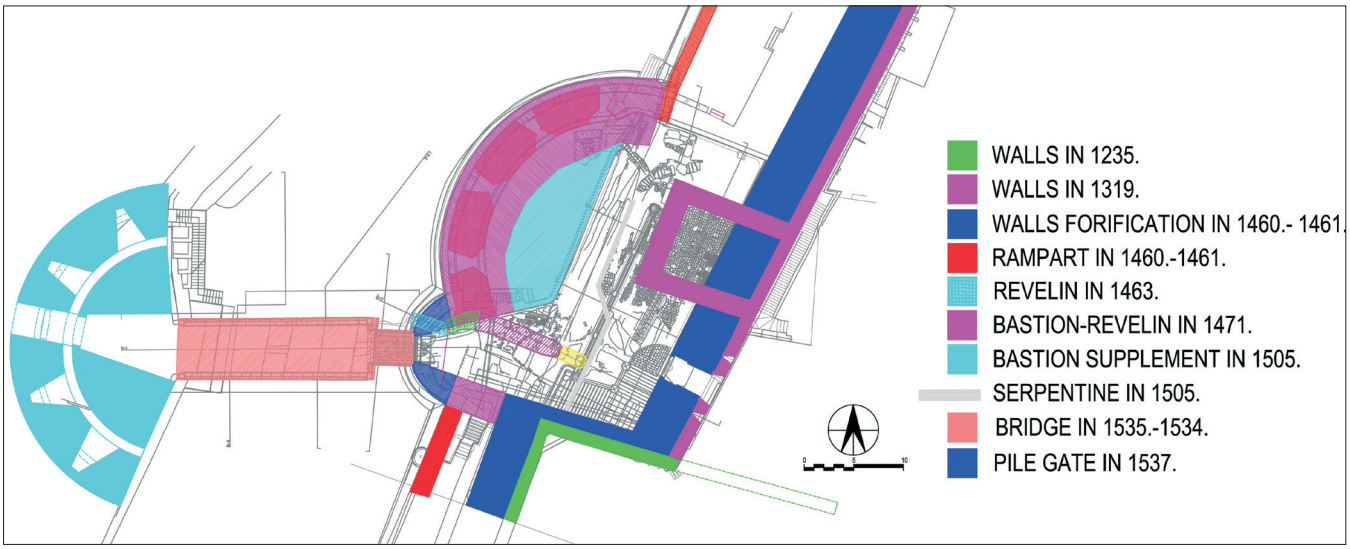

Fig. 10 Pile in the first half of the 16th century (layout by: Ž. Peković)

Fig. 11 Traces of the third arch on Paskoje's bridge (photo by: Ž. Peković)

On April 1st 1505 the Great Council had the newly built rampart filled with land and material from the town moat (*Acta Minoris Consilii* 28: f. 144v; Beritić 1989: 118, note 826). What arises from the Council's decision of April 22nd 1505 is that the work was entrusted to Paskoje Miličević (*Acta Minoris Consilii* 28: 155v; Beritić 1989: 118, note 829).

Lukša Beritić, who first published the quoted documents, supposes that it may have been the rampart "between the great round bastion by the Gate and the turret, which was beneath the first Pile Tower towards the hill" (Beritić 1989: 118–119). We would like to offer a new interpretation of the decision. In our opinion, it refers to the fact that the bastion by the Pile Gates was supplemented. The bastion, built in the 70s of the 15th century according to Michelozzo's design, had been, under Paskoje's watchful eye, expanded to the east. It was expanded from a circular wreath into a circular section. It received a new spacious terrace (at the level of the four cannon top holes), it was paved in stone, as ordered by the Little Council. Because the bastion was "supplemented", the serpentine was also redone. Namely, the western ramp was narrowed in order to make room for the expanded bastion. As a consequence, the south half of the serpentine was also offset. It was connected to the north one by a cross bridge (Fig. 11).

The Council of the Worsted decreed on June 26th 1533 that the bridge of Pile should be destroyed as soon as possible, as well as

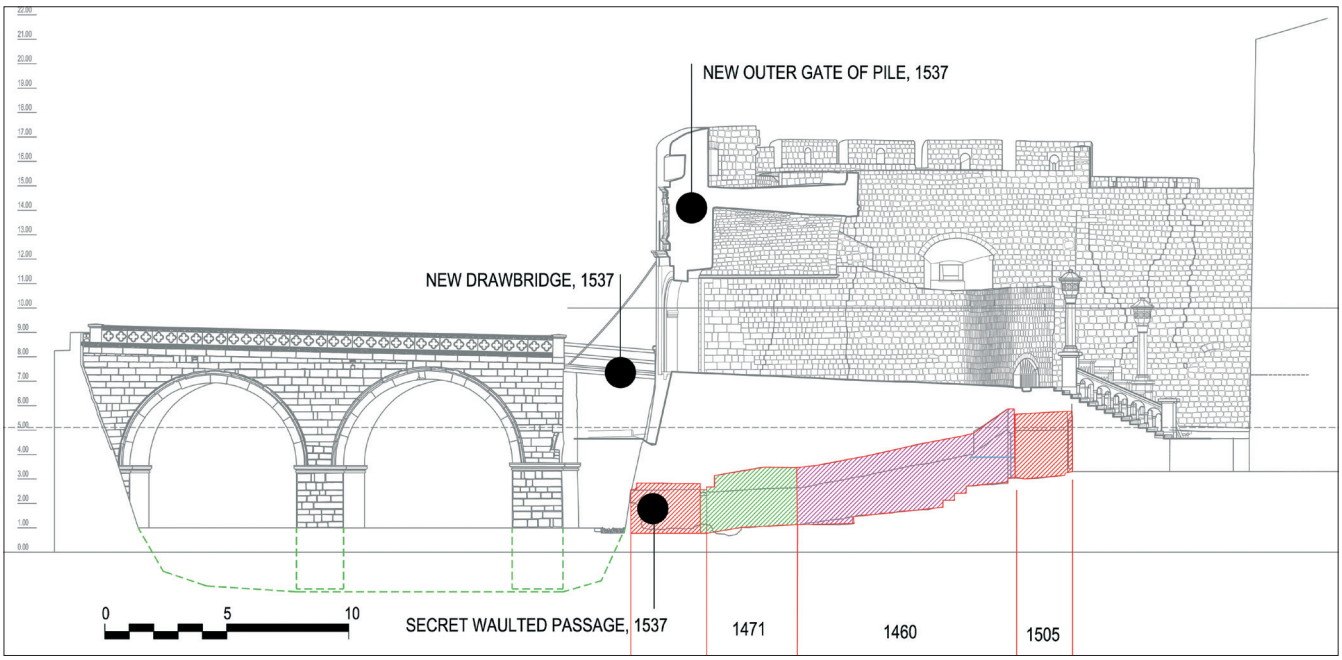

Fig.12 Pile in the first half of the 16th century (intersection by: Ž. Peković)

the east arch by the city's gates (*Acta Consilii Rogatorum* 41: f. 221–222v; Beritić 1989: 133, note 981). The reasons behind the demolitions were safety precautions.

The east arch of the bridge should have replaced the wooden draw bridge. Traces of the third arch are visible even today. However, the construction of the new draw bridge dragged out and lasted from 1534 to 1538. During 1534 and 1535, the Council of Worsted actively debated the model of the wooden draw bridge (*Acta Cinsilii Rogatorum* 42: f. 83, 84, 124–124v; 43, f. 64, 67; Beritić 1989: 133–134, note 985, 986, 988, 993, 994). The construction was set in motion in 1537 (*Acta Consilii Rogatorum* 43: f. 103v, f. 187v, f. 151v; Beritić 1989: 134, note 996–998). The conclusion, dated January 28th 1538, mentions Petar Cibranović as the master builder of the Pile site (*Acta Minoris Consilii* 38: 124v; Beritić 1989: 137, note 1014).

We can only speculate if the master builder also worked on the new Outer Pile Gates, on which the deliberation began in the at the end of 1537 (*Acta Consilii Rogatorum* 43: f. 214 v; Beritić 1989: 134, note 1000). The *model factum cum triangulo* was accepted on November 6th (*Acta Consilii Rogatorum* 43: f. 217 v; Beritić 1989: 134, note 1001). The quoted Latin phrase can easily be compared with the Outer Pile Gates, the shape of which was preserved until today.

The bridge was still unfinished in October 1538, so the Council of Worsted orders the overseers to finish the work in a month and a half, under the threat of being fined a 100 ducats each (*Acta Consilii Rogatorum* 44: f. 93v; Beritić 1989: 138, note 1016).

The construction of the new Outer Pile Gates, which were built several meters west of the old ones, brought forth the need to expand the previously mentioned vaulted secret passage. The expanse turns suddenly south west in 1471. Somewhere around 1537 it changes direction again and continues west in a straight line. A door was discovered in the moat during the reconstruction of the bridge.

3. CONCLUSION

Beritić's merit for studying the fortification architecture of Dubrovnik is immeasurable. They refer to the extraction of all archive records that refer to the construction of the city's fortresses. Although *Utvrđenja grada Dubrovnika* was first published in 1955, it remains an unavoidable piece of literature for the study of Dubrovnik's fortification system. The research is lacking in terms of the document mentioned, best visible if we look at his layout reconstruction of the city's development phases and the fortifications at the end of his capital work, mentioned above. The reasons behind this lay in the fact that Beritić didn't have access to archeological findings in the 1960s.

The innovation of this piece lies in the fact that the development of the fortification system of Pile was studied in synergy with archives and concrete archeological remains and with the still existing, until today preserved, fortification architecture.

The western defensive system is a reflection of great fear as well as the great financial power of the Republic of Dubrovnik. This allowed the city to summon Michelozzo Michelozzi, the great builder and sculptor of Florence. What can't be neglected is the contribution of local builders, such as Paskoje Miličević. Dubrovnik was known throughout history for the exceptional diplomacy which enabled the city freedom. Alongside diplomacy, the grand fortification system should also be pointed out: it was constantly strengthened, elaborated etc., all in the purpose of keeping freedom and being autonomous.

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ZORISLAV HORVAT

Defensive Building (Architectural) Elements of Medieval Castles in Continental Croatia: Arrow Slits, Gun Loops, Crenellations and Battlements

Medieval builders always took defence into account: there was a balance between attack and defence. Close combat – from the top of a wall – had been of importance in prior periods, while significant changes ensued with the advent of firearms in the mid-15th century. Defence became more deliberate and dependent on design, while the defenders enjoyed more protection. Firearms brought about long range warfare, which was less and less „knightly".

The article describes and analyses defensive architectural and building elements of continental Croatian forts in the period from the 13th to the 16th century, whose outward appearance on forts (12th – 15th century) and quadrangular castles (the second half of the 15th century – 16th century) changed depending on the methods of attack and defence.

Key words: castles, crenellations, arrow slits, crossbow slits, gun loops, cannon loops, machicolations, battlements, bay windows, Continental Croatia, 12th – 16th century

INTRODUCTION

During the Late Medieval Period – from the 13th century to the beginning (middle) of the 16th century – numerous objects of different purposes were erected (Fig. 1) and defence was always taken into account when doing so. Of course, there was a certain balance between offensive strategy and method of defence. Prior periods were marked by close combat with cold weapons, meaning that the enemy had to move as close as possible to the castle and breach the wall with a battering ram or somehow climb over it (Fig. 2). Defensive activities took place on the top of the walls by using bows, swords, spears and later crossbows, as well as by throwing rocks and similar. A revolution was brought about by the advent of firearms which were effective in a longer range (Fig. 3), but defenders used these types of arms as well from the safety of walls and towers, that is from gun loops. To conquer any fort, the attacker once again had to breach the wall or climb over it. The defender, on the other hand, was kept safe by the battlement on top of the wall, protected by sophisticatedly envisaged constructions which enabled a more successful long range defence, as well as along the walls (Fig. 4). Bay windows (bow windows, oriel windows, machicolations) were constructed for such purposes, together with loopholes for shooting at an angle and/or pouring hot oil, resin et cetera.

As time passed, the quality of construction of the defensive constructions deteriorated towards the end of the observed period, especially due to the stepping up of warfare activities caused by Ottoman attacks. In addition to that, there was a stylistic and conceptual revolution due to the design and construction of some new constructions and forms.

According to what was set forth, defensive elements on buildings can be divided into two groups:

1. Cold weapon era – mostly 13th – 14th century
    1.1. Crenellations on walls
    1.2. Tops (battlements) of defence towers in the 13th – 14th century period (possibly even in the beginning of the 15th century)
    1.3. Arrow slits
    1.4. Crossbow slits

Fig. 1 Mid-17th century Senj: upgrading parts of the forts over time (after Valvasor 1689)

Fig. 2 Conquering of a fort (around 1460): bows and crossbows (Brochard 1991: Arsenal Library, Paris)

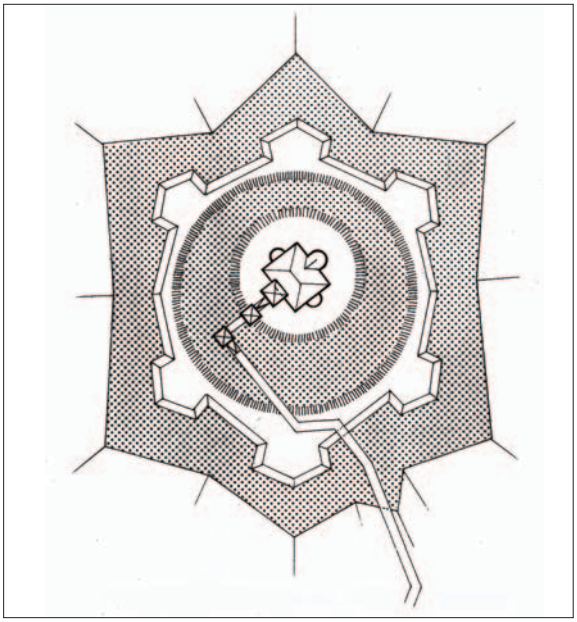


Fig. 3 Konjščina castle, situation at the beginning of the 16th century (after archaeological excavations and conservation efforts, Horvat, Filipec 2001: 180, T. IV, 2; drawing and reconstruction by: Z. Horvat)

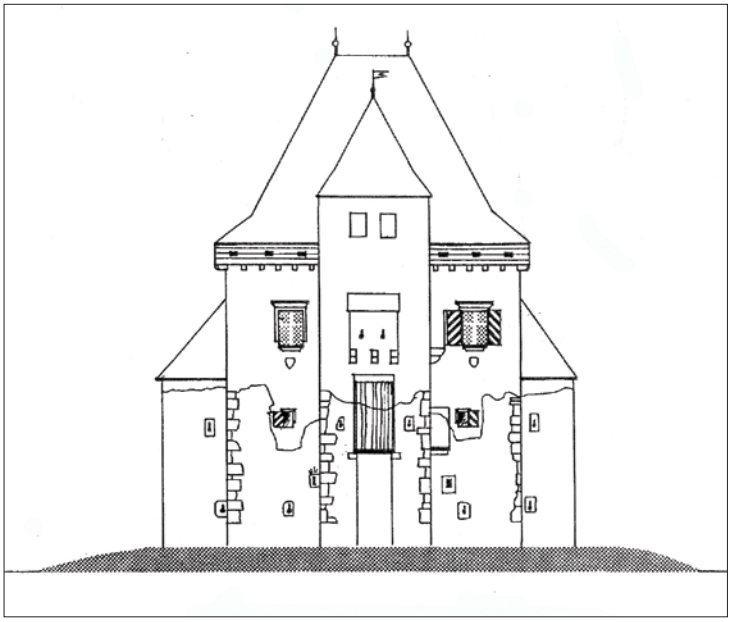


Fig. 4 Konjščina castle, west facade reconstruction (situation at the beginning of the 16th century): notice numerous pears-shaped gun loops (drawing by: Z. Horvat)

2. Firearms era – from approximately mid-15th century to and throughout the 16th century
   - 2.1. Gun loops
     - 2.1.1. Pear-shaped gun loops
     - 2.1.2. Rectangular gun loops
   - 2.2. Artillery loops (cannon loops)
   - 2.3. Masonry battlements on walls and towers – *maschicolations*
     - 2.3.1. Late 15th century masonry battlements
     - 2.3.2. Masonry battlements from the first half of the 16th century
     - 2.3.3. Footbridge
   - 2.4. Wooden battlements planted on walls
   - 2.5. Battlements of castles from the end of the 15th century to the first half of the 16th century
     - 2.5.1. Battlements on the tops of defence towers
     - 2.5.2. Battlements on the tops of other buildings of a castle in the 16th century
   - 2.6. Bay windows

1.1 CRENELLATIONS

Walls were definitely one of the most important parts of all forts, constructed according to the building period, expected strength of the attacker, wealth of the investor, situation on the field and general approach to the concept of fortification. It is especially interesting that walls with crenellations represented a symbol of medieval forts and were being drawn in geographical maps even in the 16th century (Fig. 5). The thickness of walls varied from 70 – 80 cm to as much as 200 – 280 cm and even thicker, while there were several types of the construction of wall tops according to their thickness (Fig. 6). However, a surprisingly low number of crenellations survived the passage of time, which is understandable: due to their position on top of the wall they were most affected by weather conditions and enemy attacks. Later they also served as "stone-pits" for the surrounding populace when forts became unnecessary or when the concept of defence changed. Only a couple crenellations survived by accident due to being walled in during the later development of the castle: Velika near Požega (Fig. 7), Hreljin (Fig. 8) and Ilok. Traces of the breastwork and crenellations were found in several places, which

Fig. 5 Detail from Mateo Pagan's map of Lika and Dalmatia, around 1530 (Petricioli 1969: 528)

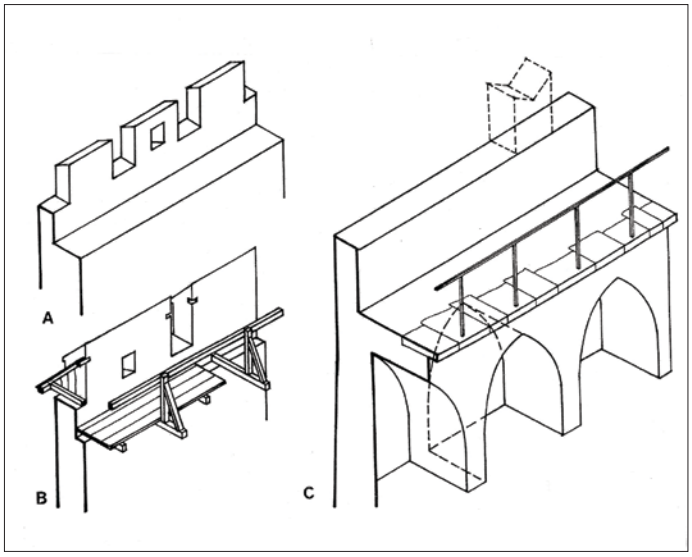


Fig. 6 Types of crenellations according to the thickness of walls: A – walkway for guards behind the crenellation running the top of the thick walls; B – walkway carried by a wooden gallery due to thinner walls; C – walkway carried by the arcades (drawing by: Z. Horvat)

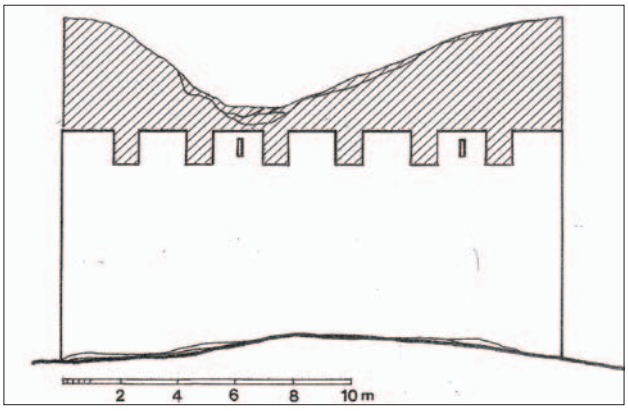


Fig. 7 Velika castle, the second half of the 13th century, the appearance of the crenellation was preserved due to it being upgraded (drawing by: Z. Horvat)

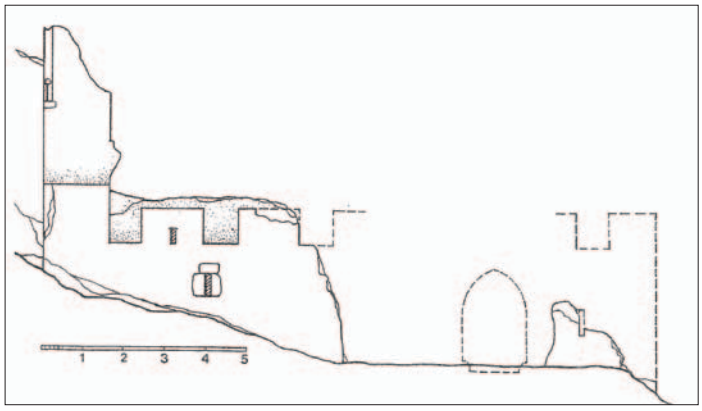


Fig. 8 Hreljin castle, the 13th century: the appearance of the crenellation was preserved due to it being upgraded (drawing by: Z. Horvat)

allowed us to ascertain that their thickness almost always amounted to 65 cm, that is 2' (2 ft.) (Fig. 9). The profile of the crenellation and breastwork next to a bigger object of the so-called renaissance *palas* of the Ružica castle – the residence of the dukes of Ilok – is still visible by accident, despite the fact that the wall does not exist anymore (Fig. 10).

The case of castle Velika near Požega is interesting because the crenellation was soon upgraded and was thus left somewhat preserved until today (Horvat 2014: 95–96) (Fig. 7). The ratio of merlons to embrasures is 1 : 2 (80 : 162 cm) and,

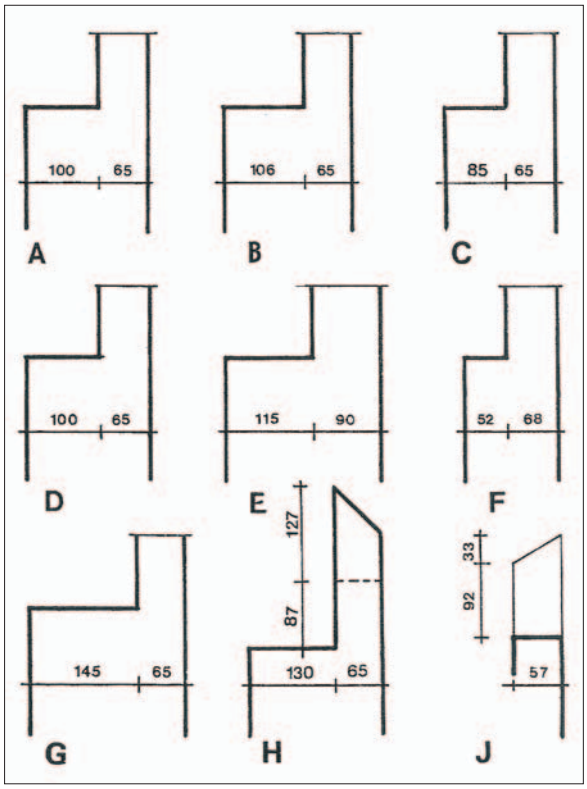


Fig. 9 Cross-sections of different crenellations from the 13th and 14th century, 65 cm wall thickness, except Velika where the walls were 90 cm thick: A – Viškovci, B – Stari grad Orahovica, C – Ilok, northern wall, D – Jelengrad, E – Velika, F – Velika Kladuša, G – Medvedgrad, H – Ilok, southern wall, J – Hreljin (drawing by: Z. Horvat)

Fig. 10 Ružica castle, the second half of the 15th century: 'negative' of a crenellation's cross-section visible on the so-called Renaissance *palas* (hall) (photo by: Z. Horvat)

in addition, only two out of seven merlons had smaller openings – crenels. The openings were so small that they were obviously not used for shooting arrows, but only safe observation.

Most crenellations on the walls of Ilok, the residence of the dukes of Ilok (Nikola Iločki was even the king of Bosnia from 1471 to 1477), from the middle of the 15th century (Horvat 2002: 109–115) were preserved, there being more types (Fig. 6, 11) according to the level of completion and thickness of the wall. The ratio of merlons to embrasures is 1 : 2 (77 : 158 cm) on the northern wall, while it is 2 : 7 (62 : 225) and 1 : 5 (54 : 270) on the southern side. In addition, on the southern side every merlon has a crenel.

Fig. 11 Ilok, part of the northern wall (photo by: Z. Horvat)

1.2 TOPS (BATTLEMENTS) OF DEFENSE TOWERS

Defense towers were first and foremost designed and constructed for defensive purposes due to their position and the fact that the top was equipped with an attic used for defence (Horvat 2014: 117). The highest stories of defense towers had more openings, which were variants of crenellations. Since their layout was mostly quadrangular or rectangular, bigger openings (one to three, rarely four) were situated on all four sides and were used to attack the enemy from above (Horvat 2014: 132–134) (Fig. 12). Due to our weather conditions, defense towers were covered with a roof, thereby being protected from the enemy.

The recently renovated Romanesque defense tower of the Ozalj castle had only one opening per side (Fig. 13). A well preserved example of a defense tower's top can be found within the Stupčanca castle, having three openings per side (size – 65/100 cm): these openings were walled

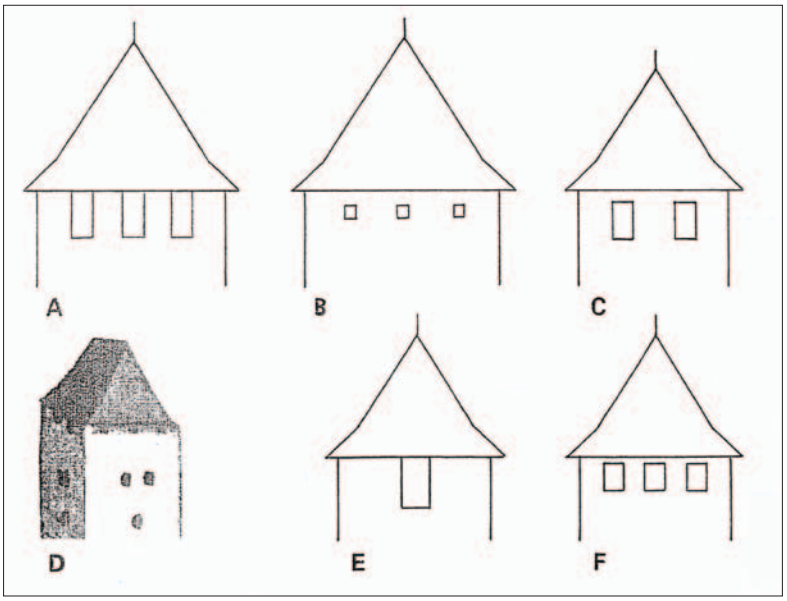


Fig. 12 An account of the tops of defense towers: A – Bosiljevo, B – Brinje, C – Dvigrad, D – Cirkvena, E – Ozalj, F – Stupčanica (drawing by: Z. Horvat)

Fig. 13 Ozalj castle, Romanesque defense tower, recently renovated (photo by: A. Vekić)

in and thus conserved due to adapting the defense tower's top to the usage firearms in the beginning of the 16th century (Horvat 2014: 133–134) (Fig. 12: F).

1.3 ARROW SLITS

Arrow slits, as their name tells us, were used for defence by bow and arrow. They are rarely found, seemingly due to the simple reason that not many were made. The dimensions of arrow slits were determined by the dimensions of the bows: their size was significant – up to 160 cm or more, thus the slit in the wall or tower had to be of the appropriate height (Fig. 14). Thus, it is evident that bows were mainly used from the top of the walls, between the merlons of a crenellation or from the top of a defense tower. The gatehouse of Bedemgrad next to Našice represents an exception, where the arrow slits were constructed on all three sides along the whole gatehouse. That means that there was lateral shooting, that is tangential shooting towards the walls (Fig. 15). The arrow slits on the Bedemgrad gatehouse have a wedge-shaped outlay

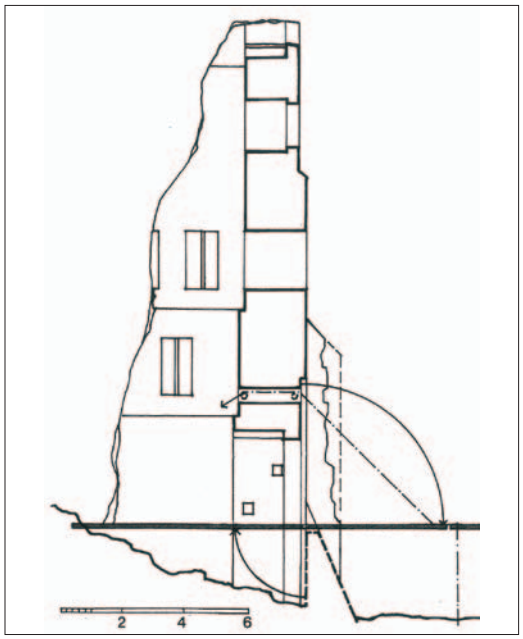


Fig. 14 Bedemgrad, gatehouse, probably of a Templar castle from the end of the 13th century: notice the gun loops with niches, whose height was 180 cm (drawing by: Z. Horvat)

Fig. 15 Bedemgrad castle, arrow slits, the view from the outside (photo by: R. Ivanušec)

with a height of 180 cm. The slits are only 8 cm wide on the outside façade, while on the inside their width reaches 100 cm (Horvat 2014: 76–79). Such openings – vertical slits on façades – can also be found at the entrance to the Velika defense tower, whose slits are 12 cm wide on the outside and 70 cm on the inside. Next to the entrance of the fort Tržan in Modruš the slits are 14 cm wide on the outside and 117 cm on the inside, but the question arises whether those opening were really arrow slits or openings for control. Their height on the inside unfortunately does not correspond to the size of a bow, which means that is questionable whether these openings were used as arrow slits.

1.4 CROSSBOW SLITS

The use of crossbows in Europe became universal in the 12th century (Petrović 1957: 125; Bošković 2000: 38–42) and on the territory of Croatia in the 13th century (Škrivanić 1975: 72–78), while they are more frequently found in archaeological contexts of the 15th century (Sekelj Ivančan, Tkalčec 2004: 85). It is interesting that the crossbow was initially thought of as a dishonourable weapon due to its ability to pierce armour at a distance: its range was up to 500 m and it could pierce armour at a distance of 125 – 300 m. In contrast with a bow, the crossbow has a steel bowstave whose power is significantly higher and which is placed horizontally on the arrow track: because of these facts the slit in the wall could have been lower (65 – 80 cm), but had to be somewhat wider (Fig. 16).

Crossbow slits were constructed in walls and towers. They are comprised of a niche on the inner side of the wall, as well as having a pear or rectangular-shaped opening on the outer side (Fig. 16, 17).

The outer walls of the water-defended-castle (*wasserburg*) Ribnik near Karlovac, which was erected in the second half of the 15th century and was never finished (Miletić 2002: 22), boast crossbow slits of very high quality construction (Fig. 17). They can also be found in castles from the approximately same period in Gvozdansko (Fig. 16) and Kaptol near Požega (Horvat 1991: 95) (Fig. 18), but it is possible that those crossbow slits were used also as gun loops in later periods.

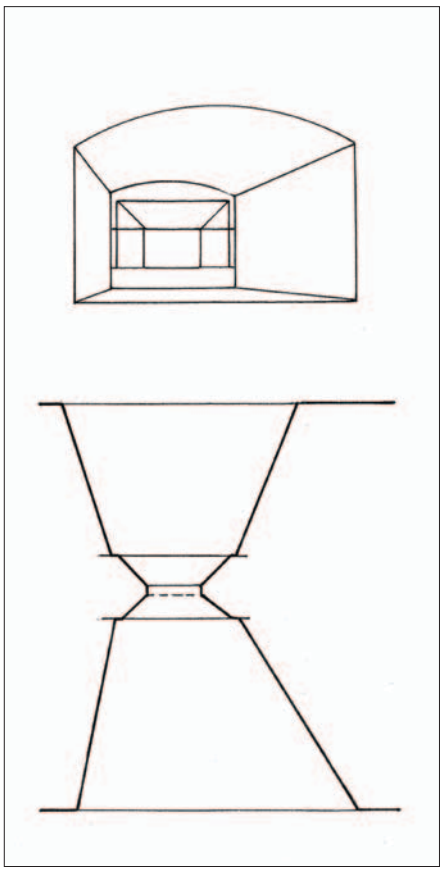


Fig. 16 Gvozdansko, Renaissance castle from the end of the 15th century: cross-bow slit in the gatehouse, the view from the inside and the layout (drawing by: Z. Horvat)

Fig. 17 Ribnik castle near Karlovac from the second half of the 15th century: cross-bow slit next to a pentagonal tower, view from the outside (photo by: Z. Horvat)

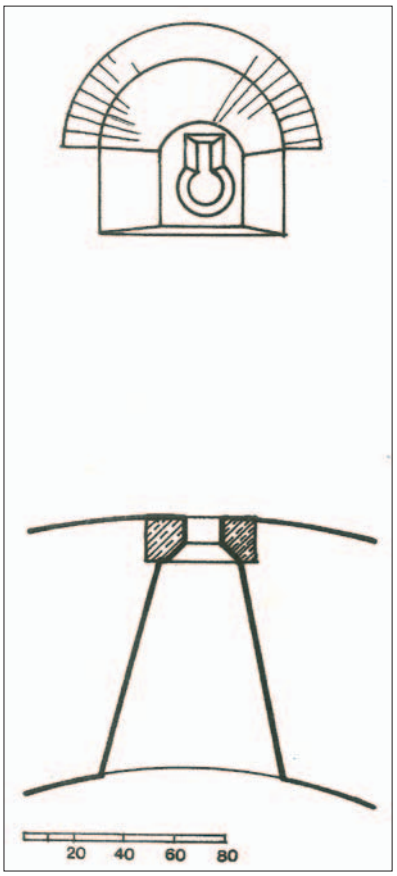


Fig. 18 Renaissance castle in Kaptol near Požega: cross-bow slits in the north-eastern tower (drawing by: Z. Horvat)

2.1. GUN LOOPS

Firearms had a very strong influence on medieval warfare methods and subsequently on the defence and construction of strongholds and forts (Miletić 2012: 92–93). Combat was no longer knightly and fought on an open plain, but behind a crenellation with gun loops "hidden" in thick walls and towers with little openings on the façade and a niche for the defender with a long gun on the inner side[1] (Fig. 19, 20). Gun loops – which vary in form, quality of construction and position within a fort or castle – can be found throughout the continental part of Croatia. It is important to mention that the position of gun loops was always rationally considered and envisaged according to the anticipated position of the attacker (Fister 1975: 147). The shape of the gun loop and the direction it faces (Fig. 21) were also adapted to that. With gun loops there is also a need to degas the space due to heavy gunpowder smoke resulting from weapon fire. It is interesting that Michelozzi envisaged degassing channels in the arch of the Minčeta Tower in Dubrovnik as early as 1461–1463 (Deanović 2001: 60, 63).

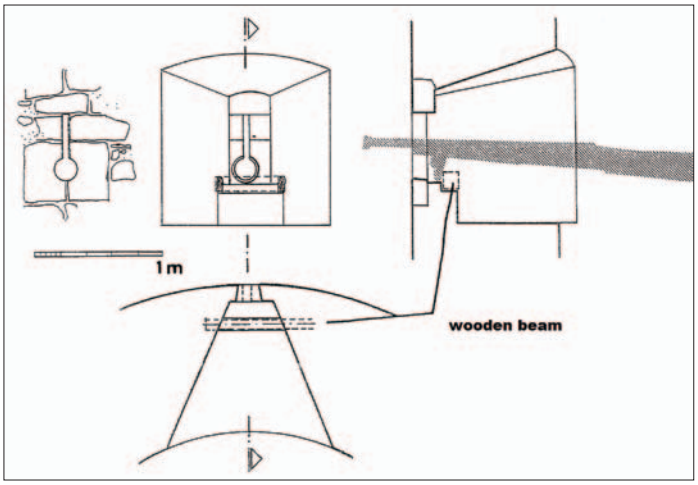


Fig. 19 Drivenik castle, architectural representation of a gun loop with a wooden beam used to fasten the hook of long guns (drawing by: Z. Horvat)

Fig. 20 Konjščina castle, partially preserved gun loop on the 1st floor of the gatehouse: notice the wooden beam along the outer opening of the gun loop (photo by: Z. Horvat)

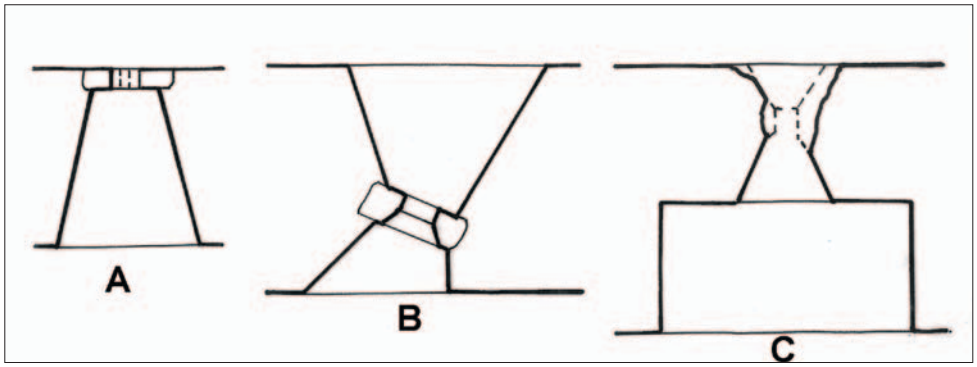


Fig. 21 Different variants of gun loops according to the thickness of the walls: A – Furjan, the defense tower; B – Susedgrad, western outer walls; C – Stupčanica, walls underneath the defense tower (drawing by: Z. Horvat)

Gun loops were comprised of niches for shooters on the inner side of the wall and a small opening in the façade for inserting weapons, observing the area and shooting. There are a lot of variants of these openings in facades, but we can divide them into two groups: pear-shaped loops and rectangular loops in façades (Fig. 22). Sometimes one can find additional special rectangular openings for observation close to the base of the wall and/or tower above or below pear-shaped gun loops (Varaždin, Konjščina, Fig. 23).

A perforated stone plate was in different stages used for the construction of the gun loop itself, but later loops were constructed in an improvised manner by using half-finished stone.

1 The oldest know example in Croatia might be in Dubrovnik, within a roundel called Bokar, built by Michelozzo Michelozzi 1461 – 1463 (Deanović 2001: 53–58).

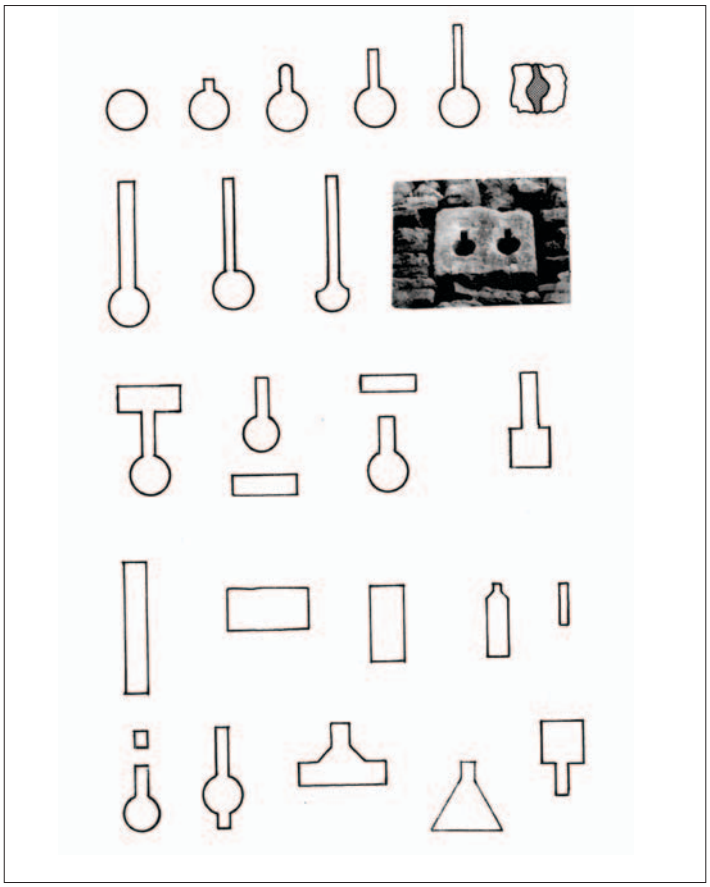


Fig. 22 Shapes of the outer openings of gun loops (drawing by: Z. Horvat)

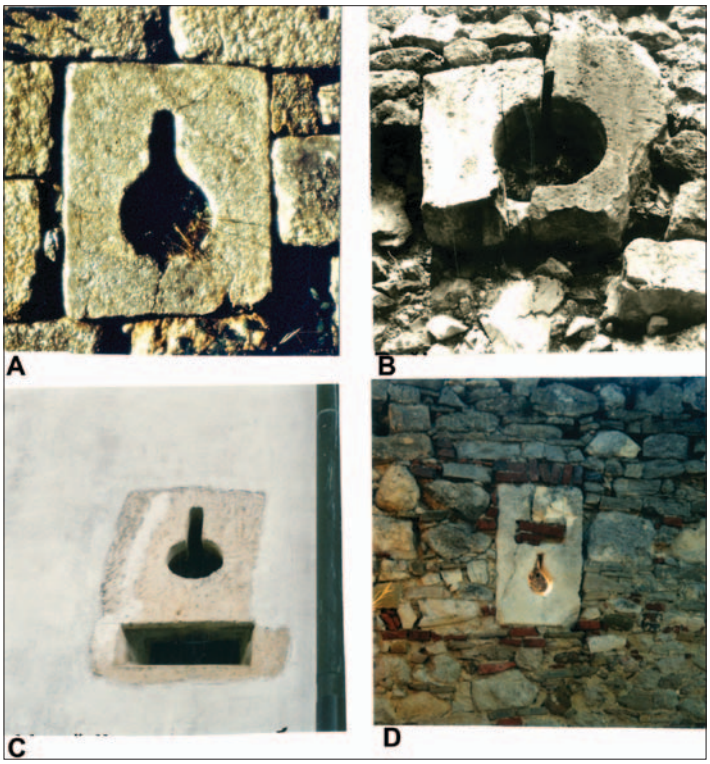


Fig. 23 Gun loop openings: A – Brinje, B - Ružica, western wall, C – Stari grad Varaždin, D – Konjščina (photo by: Z. Horvat)

Wooden beams with a 10/10 –12/12 cm cross-section (Fig. 19) were installed on the inner side of the perforated plate/opening that were used to fasten the hook of an arquebus, a type of long gun that was used for the defence of walls. That was necessary due to the recoil of the long gun when shooting, as well as due to its weight, which was significant.

As for thicker walls of towers, the gun loop was accompanied with a bigger niche for the defender or a smaller niche on the outer side (Fig. 21) so it can be said that the outlay of the gun loop was shaped in the form of the letter X.

2.1.1. Pear-shaped gun loops

The shapes of the outer openings of gun loops vary a lot, the most frequent one being pear-shaped (Fig. 23). The lower part of the pear-shaped opening had a 13 – 33 cm (1/3' – 1' ft.) diameter, into which the weapon was inserted (Fig. 19). The crenels above the circular opening were similar in height, that is 11 – 32 cm, notwithstanding the diameter of the circular opening. It is not known to the author on what the diameter of the opening and the height of the crenel depended on, but they were probably based on the strength of the long gun and the distance of the target that had to be covered.

2.1.2. Rectagular gun loops

Rectangular gun loops were most frequent during the 16th century, when the stepping up of armed conflicts and the need to lower the price of construction resulted in the simplification of the structure of gun loops and the reduction of the quality of construction. The openings of gun loops were constructed in rectangular shapes, for which slightly dressed stone and wooden lintel was also used (Fig. 24). During the 16th century a lot of defensive buildings of different sizes and significance were built with corresponding quality of construction (Fig. 25).

On a side note, the difference between arrow slits and gun loops does not seem to be significant, but it is first and foremost reflected in the individual sizes of the niches on the inner side of the wall and/or tower. However, the installation of a wooden beam next to the opening of the gun loop was important due to the before mentioned reason – the recoil of the long gun when shooting.

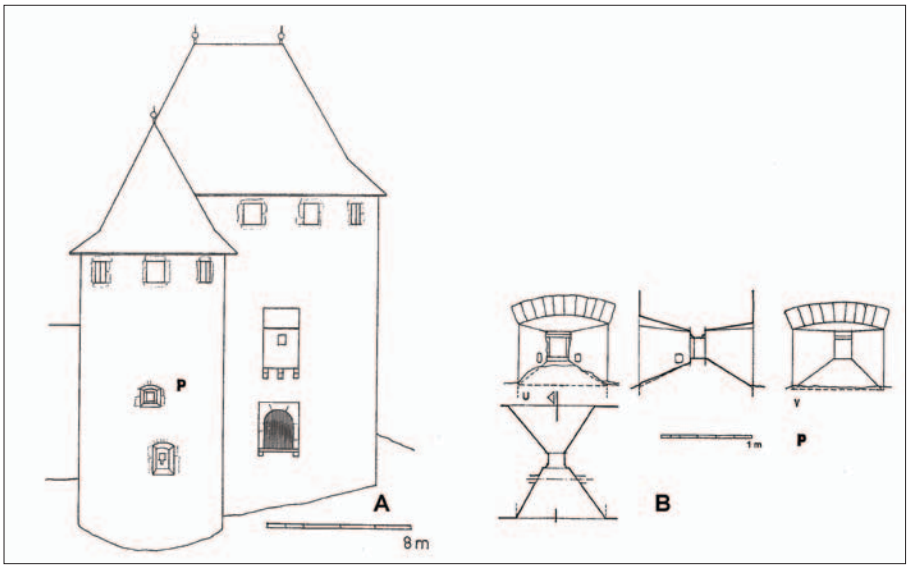


Fig. 24 Zelingrad castle: A – twin gatehouses (around 1535); B – gun loop with a rectangular opening (drawing by: Z. Horvat)

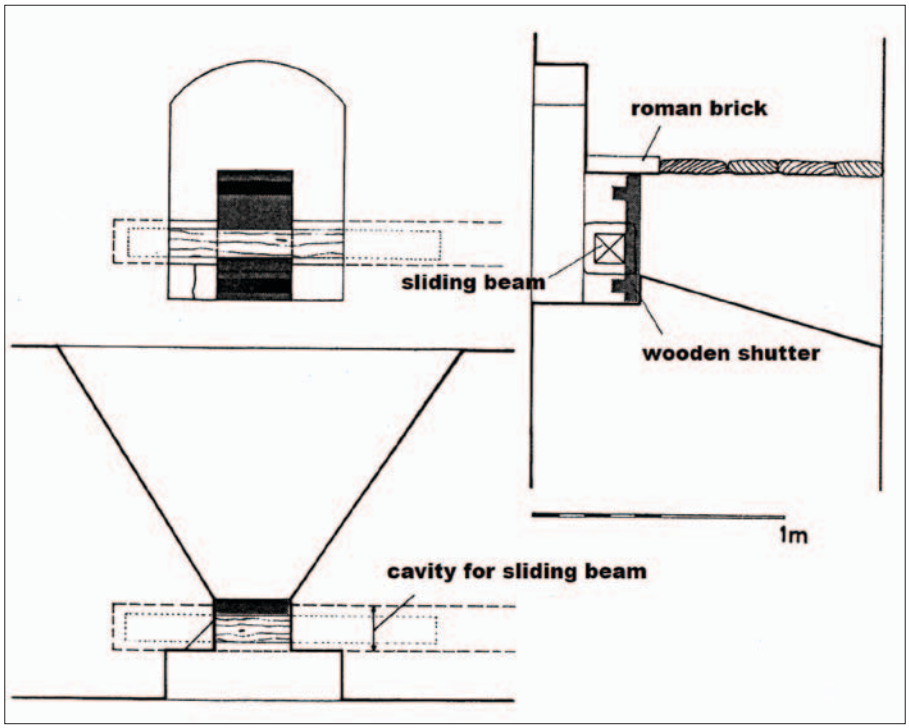


Fig. 25 Renaissance castle Sisak, mid-16th century: present state of a gun loop in the eastern wall (drawing by: Z. Horvat)

2.2. ARTILLERY LOOPS (CANNON LOOPS)

Artillery – cannons of different types and calibre – was predominantly an attacking weapon successfully used as early as the 15th century (Beritić 1955: 16). It was more often in the hands of the attackers than the defenders in forts. However, cannons were found in our bigger castles: Kaptol[2] in Zagreb, Nehaj castle in Senj (Viličić 1971: 55–61), Kostajnica, Kostel, etc.

Cannons were also drawn by military engineers in their fort renovation projects – Pieroni drew cannons on all three stories in the cross section snapshot (Fig. 26: B) – as well as by military spies: Fig. 26: A shows the arrangement of cannons in the castle in Rijeka in one such report (Matejčić 1988). Even though artillery loops bear semblance to gun loops, they have some distinctive features: they are larger because of the size of the cannons, as well as the greater thickness of the walls of artillery – "battery" – towers and their method of use was more complicated than the one of long guns. Outer openings

2 For example, the canons of Kaptol in Zagreb were given firearms on 17 August 1473 after the completion of the Kaptol fort: 34 long guns and bombards (Tkalčić 1894: CI).

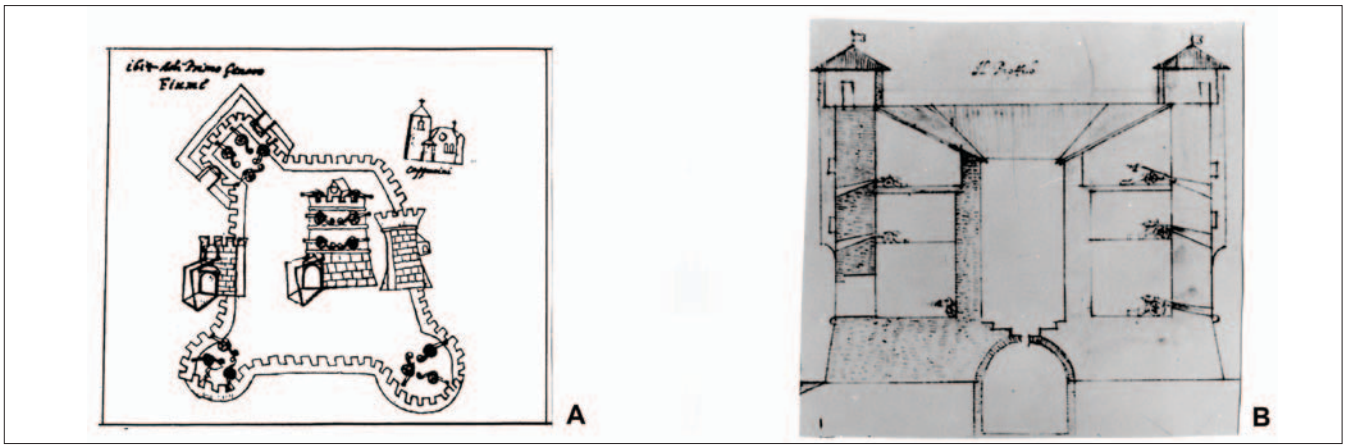


Fig. 26 Representation of the arrangement of cannons: A – an espionage account of the equipage of the castle in Rijeka, the 16th century (Matejčić 1988); B – Pieroni's layout of castle Nehaj in Senj, mid-17th century (castle Nehaj was erected in mid-16th century) (Krmpotić 1997: 185, fig. 122)

were wider and placed quite low, even lower than the floor level of the tower (Fig. 27, 28). In addition to that, more space had to be secured on the inside in front of the niches because of the operation and recoil of cannons when shooting, which would result in a backward motion. It was also necessary to secure the degassing of the inside of the tower from smoke and gasses that resulted from firing, as was the case with gun loops. The Bužim castle in present-day Bosnia and Herzegovina has such openings, where pear-shaped openings on the outside were used to disguise degassing openings, probably to deceive the enemy (mimicry!).[3]

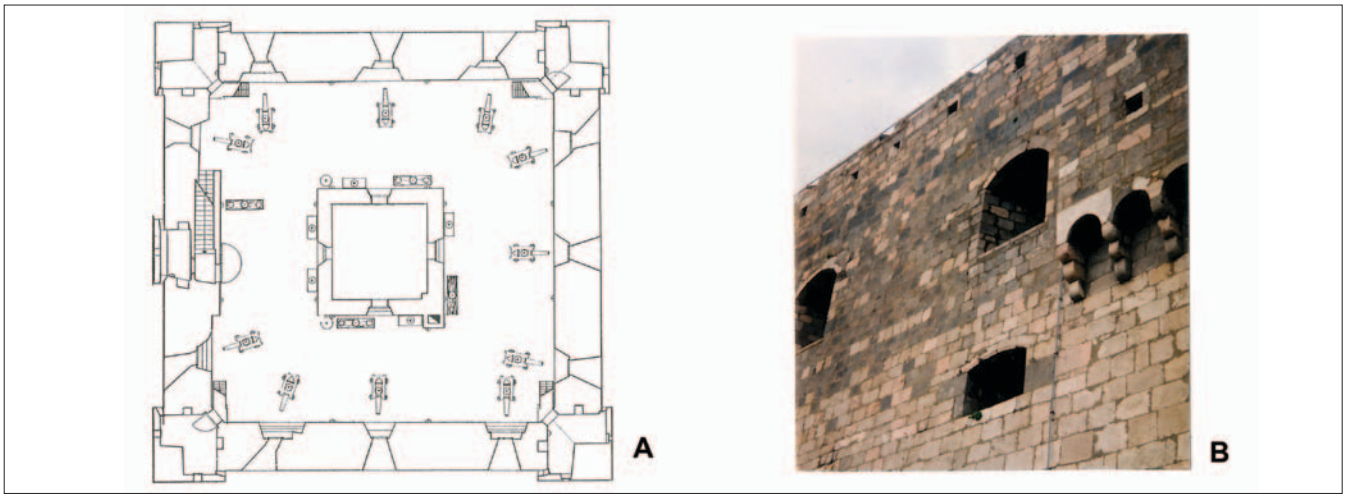


Fig. 27 Nehaj castle above Senj: A – layout of the 2nd floor (attic), with an assumed arrangement of cannons and openings for their usage (Viličić 1971: Fig. 61); B – part of the facade with cannon openings on 1st and 2nd floor (photo by: Z. Horvat)

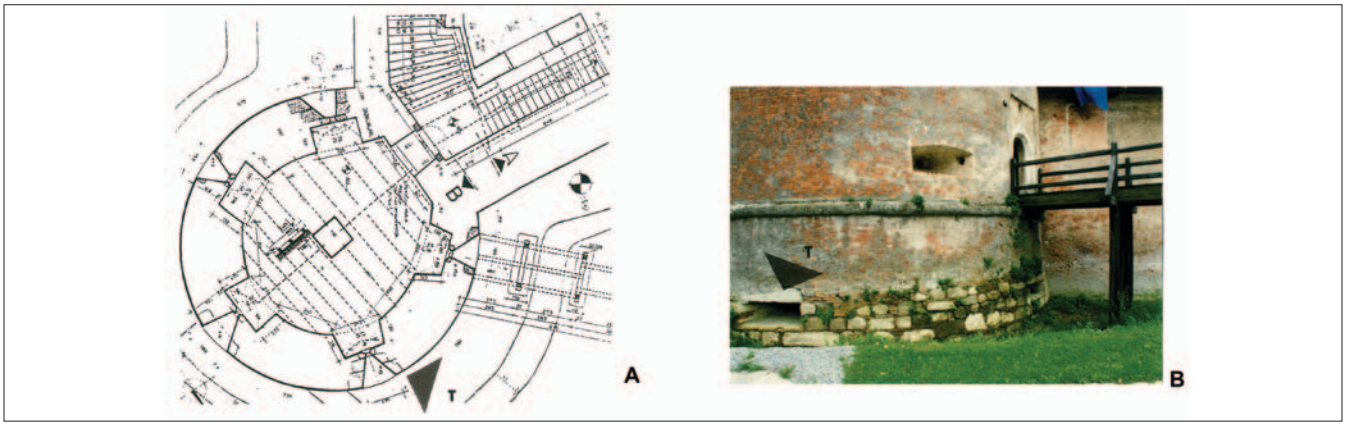


Fig. 28 Kaštel Sisak: A – layout of the battery gatehouse (ground-floor) with five openings for cannons (drawing by: V. Bartoniček, Croatian Conservation Institute); B – detail of a tower next to the entrance (photo by: Z. Horvat)

3 They were directed at an angle and upwards, and you couldn't actually see or hit anything through them.

2.3. MASONRY BATTLEMENTS ON WALLS AND TOWERS

2.3.1. Late 15th century masonry battlements

Walls in Europe and the Holy Land were from early times equipped with more complex constructions, that is crenellations, which provided the defenders with superior protection from arrows and other projectiles of the attackers. These constructions appeared somewhat later in Continental Croatia (towards the end of the 15th century), but even then the number of walls that were constructed in such a way was quite low and even a smaller number was preserved until today. Their traces are present in Đakovo around the cathedral, in Erdut, Ilok and Valpovo, as well as in the forts in Vinica from a somewhat later period, while the Veliki Tabor fort should be considered a specific variant.

Along the Adriatic coast, in Istria, Croatian Littoral and in Dalmatia the solutions with machicolations are not that rare: in Pazin, Krk, Veli Lošinj, Cres, Senj, Zadar, Trogir, Split, and especially Dubrovnik.

A 37 m stretch of such walls was preserved in the courtyard of the bishop's palace in Đakovo (Karač 2014: 404–411) (Fig. 29). That is in fact an improved crenellation with a wooden gallery on the inner side of the wall and protruding angled openings supported by corbels for the defence of the base (Fig. 30).

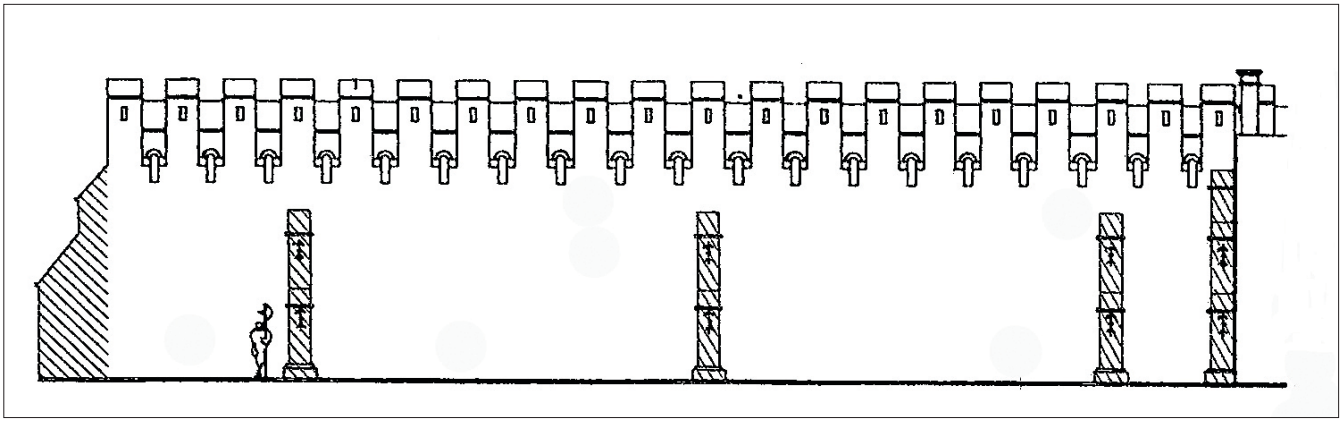


Fig. 29 Đakovo, remnants of the walls around the medieval cathedral: crenellation for the defence of the base (Karač 2014: 409, fig. 8)

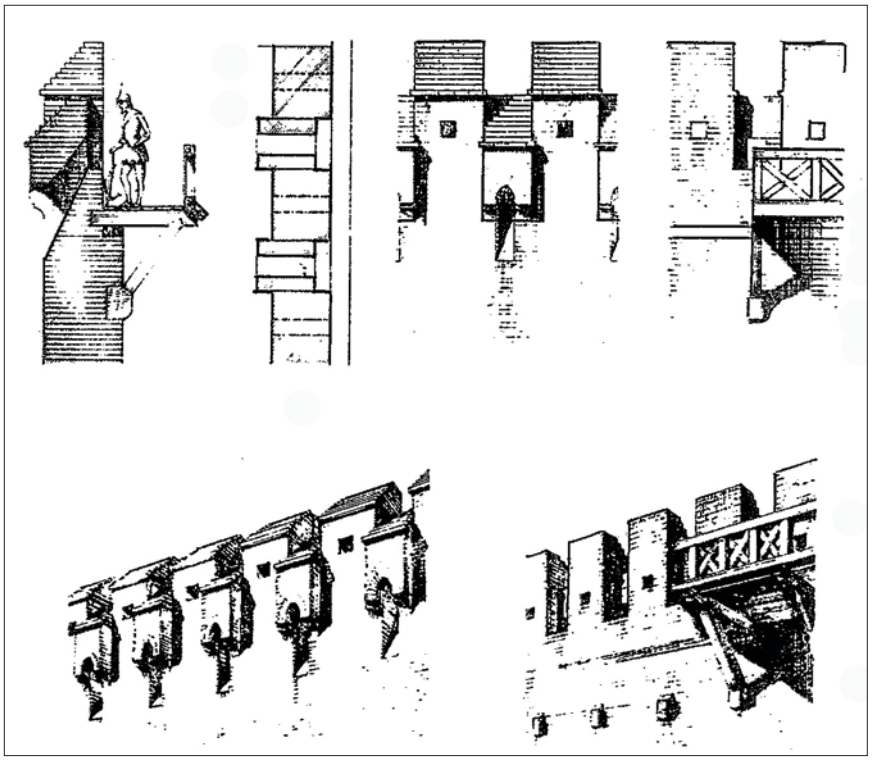


Fig. 30 Reconstruction of the top of the walls in Đakovo based on Wiener Bauhute, 1876 (Karač 2014: 409, fig. 9)

2.3.2. Masonry battlements from the first half of the 16th century

Walls from the first half of the 16th century have a somewhat higher breastwork with gun loops, while the patrol path was on the top of the walls (Fig. 31) or, if the walls were not strong enough and the path was too narrow, a wooden gallery was added which carried the path (Fig. 32: Zagreb Kaptol, west walls).

Sometimes a series of arches ("bridge" – viaduct!) was built along the thinner wall that carried the patrol path – a well preserved example of such arches can be found around old Motovun in Istria.

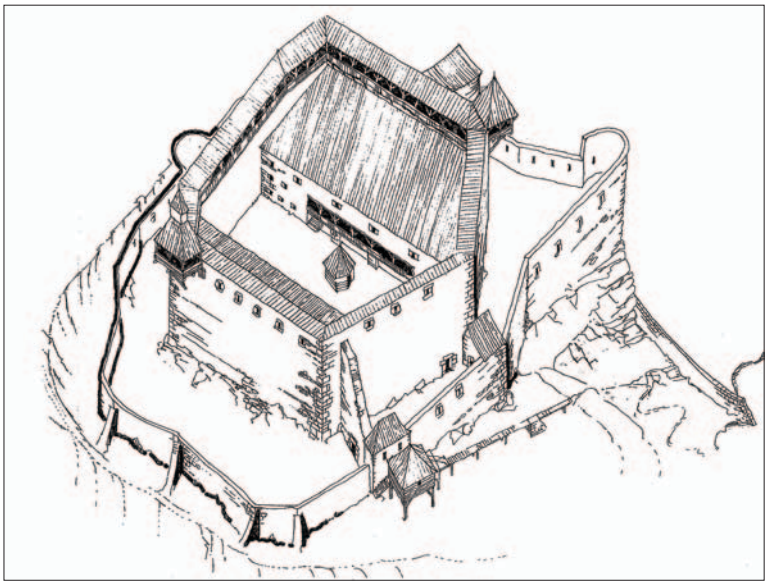


Fig. 31 Slunj castle (end of the 14th century) refitted to serve the needs of the Military Frontier during the 16th century; notice the covered wall (drawing by: Z. Jeras-Pohl, Croatian Conservation Institute)

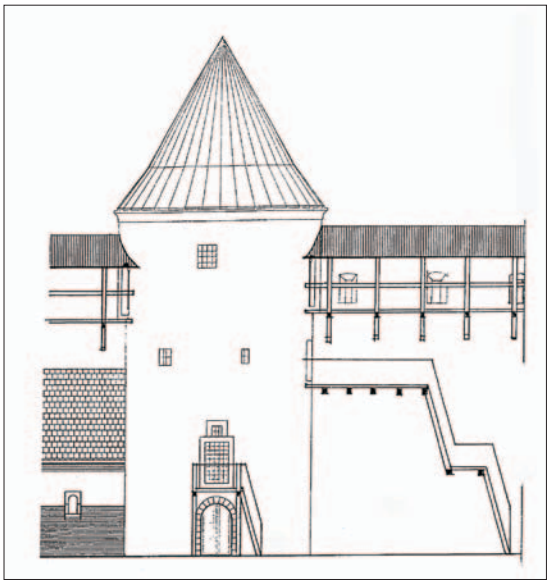
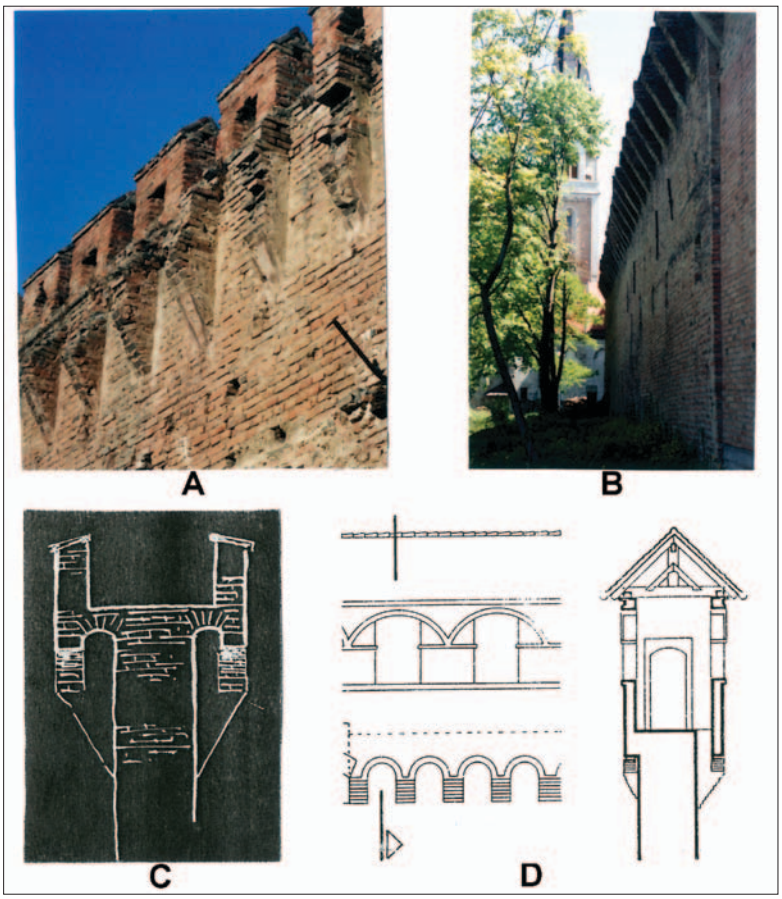


Fig. 32 Zagreb, forts around the cathedral: reconstruction of the battlement along the northern tower (drawing by: D. Foretić, modified by: Z. Horvat)



2.3.3. Footbridge

A part of the northern walls in Ilok had brick corbels on both sides of its top (Fig. 33): the defensive purpose was probably not as important as carrying the footbridge, which should have connected the older castle on the eastern side of Ilok with the new residence of the dukes of Ilok on the western part of their fortified residence (Horvat 2002: 114). The construction of the footbridge was probably never completed and the crenellation that can be found in its place todays is a later improvisation. However, the defensive purpose is visible even there.

Fig. 33 Ilok: footbridge on the northern wall along the Brnjaković residence: A – present state of inner walls with traces of brick corbels (photo by: Z. Horvat); B – outer walls with traces of corbels (photo: Z. Horvat); C - footbridge reconstruction on the top of the wall (I. Kneževi, Archives of the Ministry of Culture of the Republic of Croatia, Conservation Department in Osijek); D – covered footbridge at the Vufflens castle in Switzerland, the first half of the 15th century (Grandjean 1995: 102)

2.4. WOODEN BATTLEMENTS PLANTED ON WALLS

The end of the 15th century and the first half of the 16th century were specifically marked by battlements constructed exclusively from wood which were planted on top of a relatively thin wall. Wooden battlements were quite widespread across Central Europe, in Slovenia, Austria, Hungary and Romania. The point of making such constructions was the efficacy of defence coupled with avoiding hiring highly qualified stonemasons since the top of the wall had a flat finish (Fig. 34). In addition, building with wood was quite developed in Continental Croatia, which means that there were always carpenters around that were able and knew how to make such constructions: let us just mention the wooden architecture of Turopolje (Čačić, Salopek 1971).

A wooden outward projecting construction supported by corbels on the inside and the outside was constructed. On the inside it was a gallery supported by corbels – a patrol path, while on the outside it was a battlement that enabled the usage of firearms covering long range targets, as well as those next to the base of the walls. The path is covered with a porch, mono-pitched roof and multi-pitched small roof which protected the defenders not only from weather conditions, but also – which was more important – from enemy projectiles.

The author tried to reconstruct the wooden battlement of the castle – the anti-ottoman camp Lehowacz, today known as Gračanica near Nova Gradiška, for which the reconstruction of some Slovenian forts by P. Fister was used (Fister 1975: 110 and beyond, 147; Horvat, Ivanušec, Mihaljević 2011). A preserved example of such a wooden battlement can be found on the walls around the parish church in Diex, Austria. The wooden battlement of the anti-ottoman camp in Cerovo near Grosuplje (Fig. 35) was recently renovated, while the renovation was led by professor Alenka Železnik from the Institute for the Protection of Cultural Heritage (slov. *Zavod za zaščitu kulturne dediščine*). A battlement was "fitted" on the almost totally preserved walls around the former parish church as a montage wooden construction (Železnik 1999: 25–31). Such wooden battlements were probably widespread in Continental Croatia during the 16th century, especially in Banal Croatia, but none have been preserved.

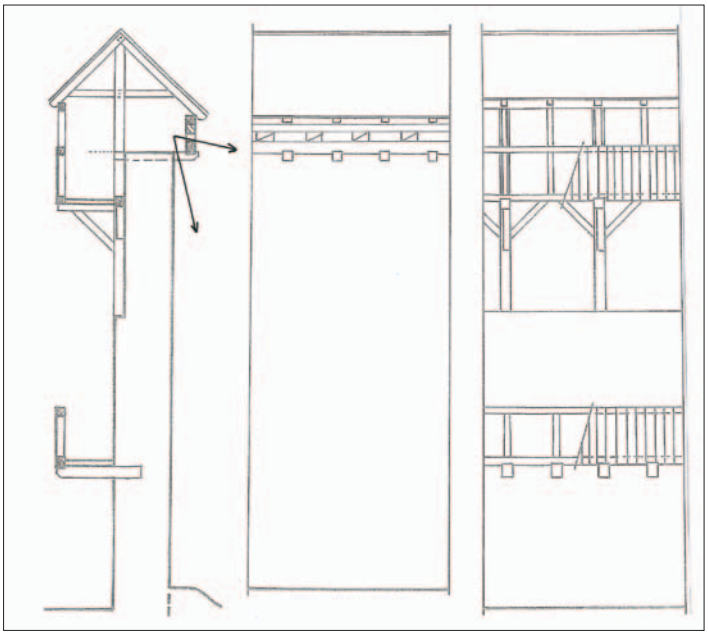


Fig. 34 Gračanica castle near Nova Gradiška – a refugee's camp for the surrounding population (around 1500), attempted reconstruction based on the preserved examples from Slovenia (P. Fister) and Austria (drawing by: Z. Horvat)

Fig. 35 Cerovo - Tabor, Slovenia: reconstruction of the wooden battlements on the walls around the parish church from 1999 (photo by: Z. Fumić)

2.5. BATTLEMENTS OF CASTLES FROM THE END OF THE 15TH CENTURY TO THE FIRST HALF OF THE 16TH CENUTRY

2.5.1. Battlements on the tops of defense towers

Interestingly, it seems that the erection of earlier period defense towers stopped during the 15th century and only larger, more sophisticated halls (in Croatian *palases*) were built. However, the stepping up of Ottoman aggression and usage of firearms towards the end of the 15th century seems to have brought about a return of the old way of construction, but with adapted defensive novelties.

The layout of defense towers from the end of the 15th century to the beginning of the 16th century was exclusively circular[4], they had three stories with an entrance on the 1st floor and a 2nd residential floor, while the outward projecting loft was made out of wood and supported by corbels, as well as being adapted to observation, long range combat and siege (Fig. 36). This almost always wooden storey was supported by corbels and constructed in two ways: with wooden corbels built into the masonry wall of the defense tower's top or with the joists over the 2nd floor projecting outwards on corbels. The reconstruction of the Gvozdansko defense tower (Fig. 37) can be used for the first example, while the Klokoč defense

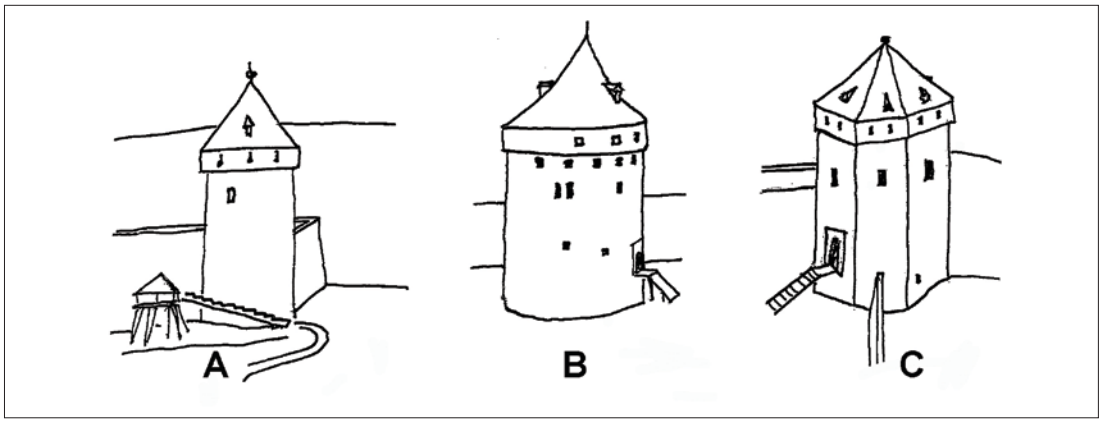


Fig. 36 Defense towers from the 16th century according to old panoramas: A – Klokoč; B – Tržac; C – Veliki Gradac (A – after drawing from 18th century in Kriegsarchiv Wien; B, C – after drawings of N. Angielini from 1566, published in Krmpotić 1997: 216, 218, fig. 155, 159)

tower, which was in usage for a very long time and was even photographed towards the end of the 19th century (Fig. 38), can be used for the second. Of course, the question whether the tower top was completely renovated in times of danger in view of the limited useful life of the wooden constructions can be asked, as well as how much of it was built using the original method of construction.

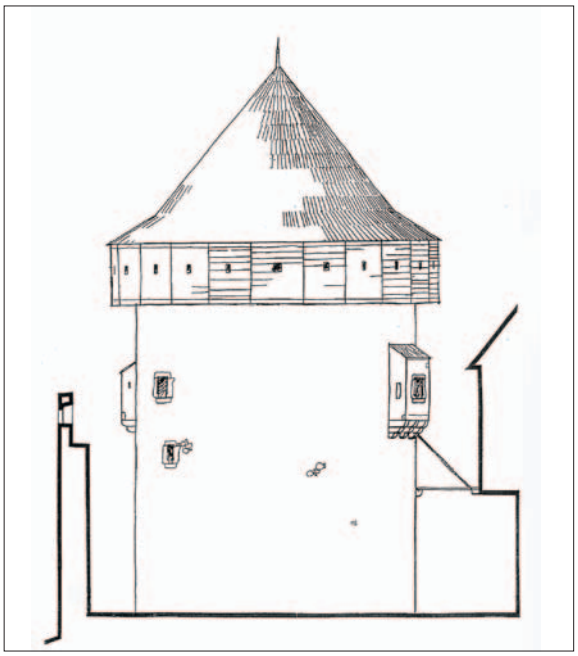


Fig. 37 Gvozdansko castle, defense tower with a circular layout and an outward projecting battlement supported by corbels (drawing by: Z. Horvat)

Fig. 38 Klokoč castle in 1875, photograph of an unknown author (Photograph library of the Ministry of Culture of the Republic of Croatia)

4 The circular layout is more resistant to cannon ball fire due to its arched form.

2.5.2. Battlements on the tops of other buildings of castles from the 16th century

Other buildings of the castle, even halls, were sometimes fitted in the same way as a defense tower.[5] It is possible that the highest storey of the Konjščina castle centre was constructed in this defensive minded way (Fig. 4). What is more interesting is that variants of such construction were preserved until today in the Sisak castle (Fig. 39), where the enlarged wooden construction projecting outwards on both sides of the wall supported by corbels was used for defence and accommodation of the garrison (sleeping quarters, lounge and similar).

Fig. 39 Sisak castle, top of the walls with a wooden construction, current state (photo by: J. Škudar, Croatian Conservation Institute)

2.6. BAY WINDOWS (BOW WINDOWS, ORIEL WINDOWS)

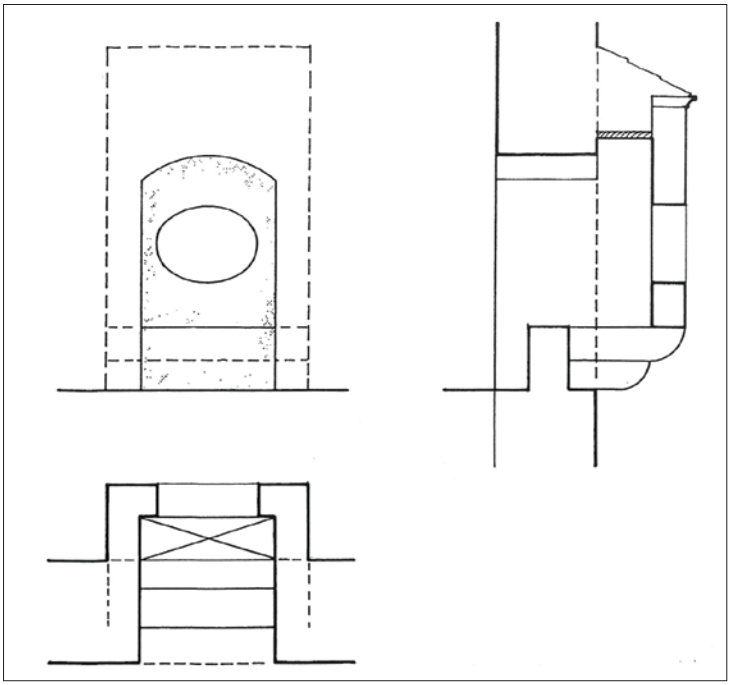


Fig. 40 Brod na Kupi, Renaissance castle of the Zrinski family (mid-17th century): bay window above the entrance level with the loft (drawing by: Z. Horvat)

A specific construction form is the projecting element supported by corbels that could have been used for different purposes: as part of the living quarters for doing work with more sunlight, for the sanctuary of the city chapel, for toilets, access control and the defence of some special parts of the fort, primarily the gate (which is important for us). The interspace between the stone corbels was 40 – 100 cm, with openings for control and action between them (Fig. 40, 41). And, of course, on the inner side there is an opening through which one could access the bay window and use it.[6]

The bay windows of the Nehaj castle close to Senj were enlarged into towers supported by consoles on all four corners of the castle: the defence could use them to fight off attackers from above and laterally, that is in parallel with the wall (Fig. 42).

The Veliki Tabor fort is especially interesting: there the machicolations are a continuous series of bay windows on all towers and short stretches of walls, which leads to the conclusion that defence was of the

5 In Austria such a construction can be found, for example, in the loft of the Frauenstein castle (Carinthia) from 1514 – 1521.

6 A number of preserved bay windows can be found along the Adriatic coast: in the Nehaj fort in Senj, in the entrance to Motovun in Istria, in Trsat, etc., and military engineers drew them in their panoramas in the 16th and 17th century.

Fig. 41 Senj, town: notice the bay window – tower above the entrance (detail based on Valvasor 1689)

Fig. 42 Senj, Nehaj castle (mid-16th century): bay window above the entrance (photo by: T. Petrinec)

utmost importance (Fig. 43). This continuous stretch of stone corbels supported the walls of the higher stories of the towers, which were used for different purposes, even for housing. Later on, during the Baroque period the openings between the corbels were walled in and the rooms of the towers adapted to everyday life.

Fig. 43 Veliki Tabor castle: superstructure supported by corbels around the whole fort (photo by: Z. Horvat)

CONCLUSION

The walls and buildings in medieval forts created areas according to the necessities of life, among which defence as a guarantee of a peaceful life had some importance. But walls and towers had to be equipped for possible conflicts because passive resistance by itself was not a deterrent for the enemy. The choice of the position itself, which was one of the weapons of the defenders, was the starting point of defence. The second important fact were the weapons, be it cold weapons or firearms, which had to enable efficient covering: they had to be directed towards the enemy in the most successful way. There were numerous variants because the design and structure varied according to the period and material wealth of the investor in the Middle Ages. The lack of this *material wealth* was especially obvious towards the end of the Middle Ages, when the Ottoman aggression changed our world and the constructed forts and defensive details had a wide gamut of construction quality and application: it was important to survive.

Translated by Ivan Markota

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TATJANA TKALČEC

Earthwork Elements of Defensive Systems of Small Strongholds in the Kingdom of Slavonia

Medieval hill forts and lowland moated fortifications are densely distributed throughout the entire area of the interfluve of the rivers Mura, Drava, Sava and Danube. The focus of the paper is put on the area of mediaeval Kingdom of Slavonia where nearly hundred sites of that type was documented, out of which 20% was archeologically excavated. These small castles consist of a central elevation protected by a ditch and a rampart or a system of ditches and ramparts. Unlike stone-castles, they were built mostly using earth and timber. This type of fortifications, dating from the 12th/13th to the beginning of the 16th century, is closely linked to the Slavonian and Hungarian nobility, corresponding to the type of late mediaeval fortifications and strongholds that were characteristic for the nobility in the wider European area.

Key words: small stronghold, nobles, fortification, castle, earthen rampart, mound, ditch, the Kingdom of Slavonia, 12th–beginning of 16th century

Small hill forts and lowland moated and mounded sites are found throughout the entire area bordered by the Drava and Sava rivers, in the northern Pannonian part of Croatia, which in the Middle Ages was called the Kingdom of Slavonia (*Regnum Sclavoniae*). These motte-type sites are called *gradišta* in Croatian.

Their prominent layouts in the landscape attracted attention of different professionals (Pribaković 1956; Horvat 1954; and especially Lovrenčević 1985; 1990), including archaeologists (Bobovec 1991; 1994; 1997; 2003; Bobovec, Sekelj Ivančan 2003; Tkalčec, Sekelj Ivančan 2004; Tkalčec 2007a; 2012a; 2013: 143–152; Tkalčec, Kostešić 2014). More detailed archaeological research was conducted on nearly 100 sites on the area of the core of the so called *Regnum Sclavoniae*, more precisely on the territory of mediaeval Križevci and Varaždin (and/with Zagorje) counties (Tkalčec 2004; 2019a) (Fig. 1).

Common characteristic of these sites are earthwork defensive systems such as earthen ramparts, mounds and moats/ditches. There is evident concentration of such fortifications near settlements, main road communications and water courses. They are located on naturally prominent positions on hilltops (Fig. 2) and slopes or in the plains where they often exploit local water courses and groundwater as an additional element of defence (Fig. 3).

According to layout, we can distinguish circular, rectangular, triangular or elongated fortifications, and according to structure and articulation of their central elevations they can consist of one, two or more parts, where the main elevation is used for the residence of the landlord himself, while others (if any) are used for economic outbuildings and defensive purposes (guardhouse/observation posts) (Fig. 4). The span of the central plateau ranges from 20 to 100 meters. Most hill forts´ central elevations have a span of about 40 to 50 m. Further size of a hill fort depends on the number of defence layers (defensive moats and ramparts). Seventy nine percent of all sites consist of one elevation (so called one-part fortifications), while there are 11% of the two-part ones, and 1% of other types (three or more parts). Two-part fortifications make up 30% of lowland, and 70% of highland ones. The layout of the fortifications mostly derives from the natural configuration of the terrain; therefore the most common are those with circular and oval shaped central/main elevation (61%).

Lowland fortifications are usually circular or slightly irregularly oval, almost circular. They can be surrounded by a ditch

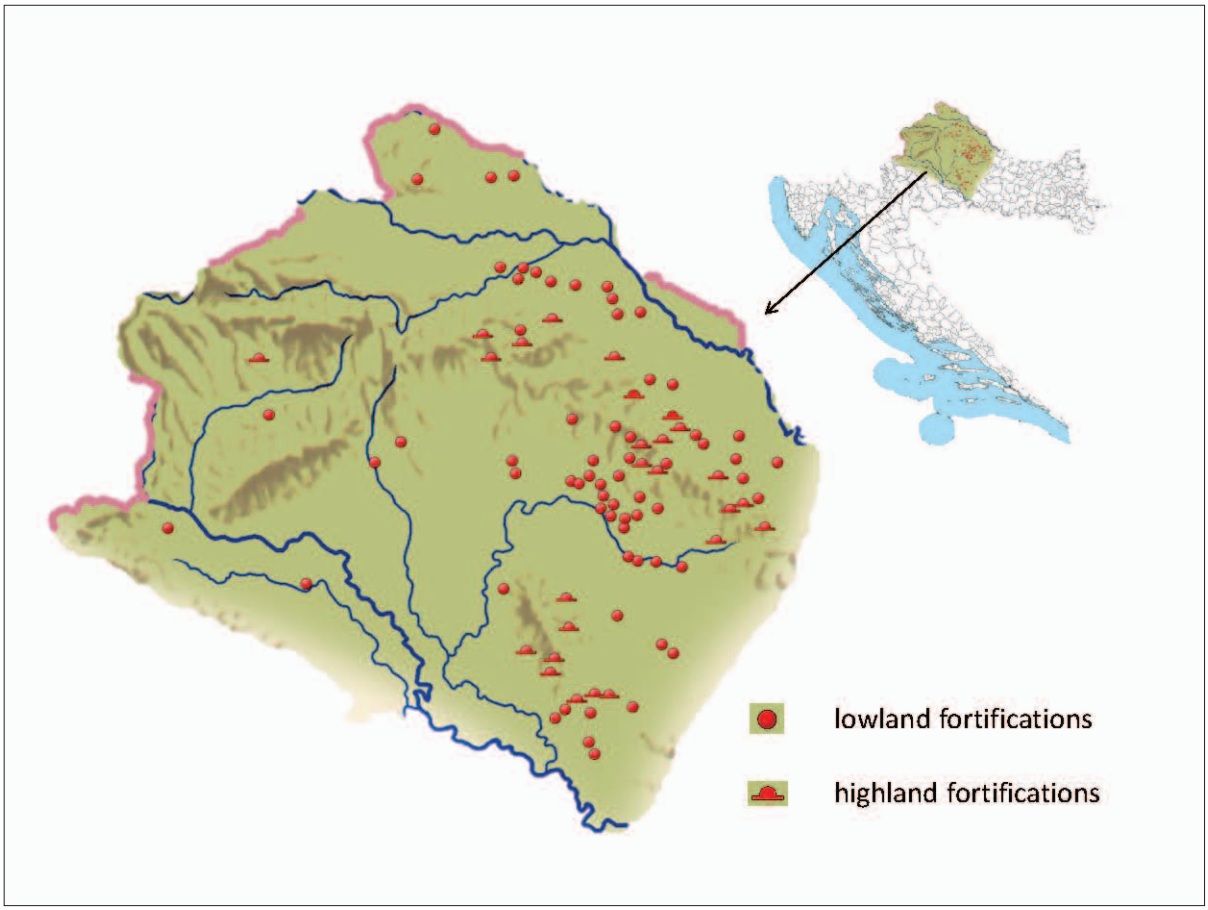

Fig. 1 Distribution of sites in the North-Western Croatia (map made by: T. Tkalčec)

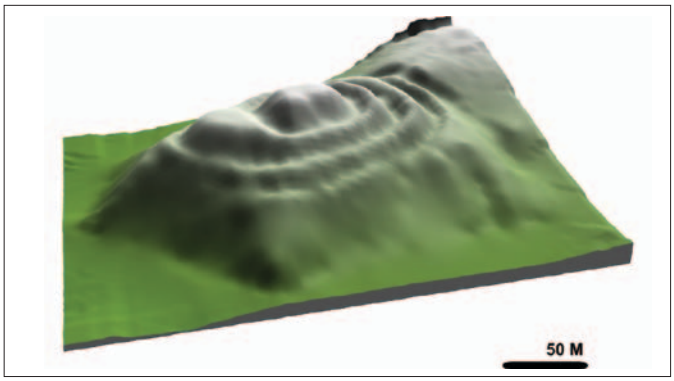

Fig. 2 Špišić Bukovica – Gradina hillfort, 3D digital relief model (Tkalčec, Kostešić 2014 : 93, fig. 14)

Fig. 3 Pobjenik – Gradići, lowland fortification, a view of the central elevation surrounded by the defensive dich (photo by: T. Tkalčec, 2011)

and a rampart or by a system of concentric rings of moats and ramparts. Additional bulwarks and embankments are also present on some sites in order to organize the defended access to the main fort, or to form and protect a bailey (Fig. 5). Sometimes the ramparts are extended suggesting that additional towers might have been placed on those spots (Fig. 6).

Square-shaped fortifications represent a remarkable example of adaptation to the terrain with special needs (18%), and it appears that they belong to the very end of the Late Middle Ages. Their common feature is that their only defence is a single moat and a rampart (Fig. 7).

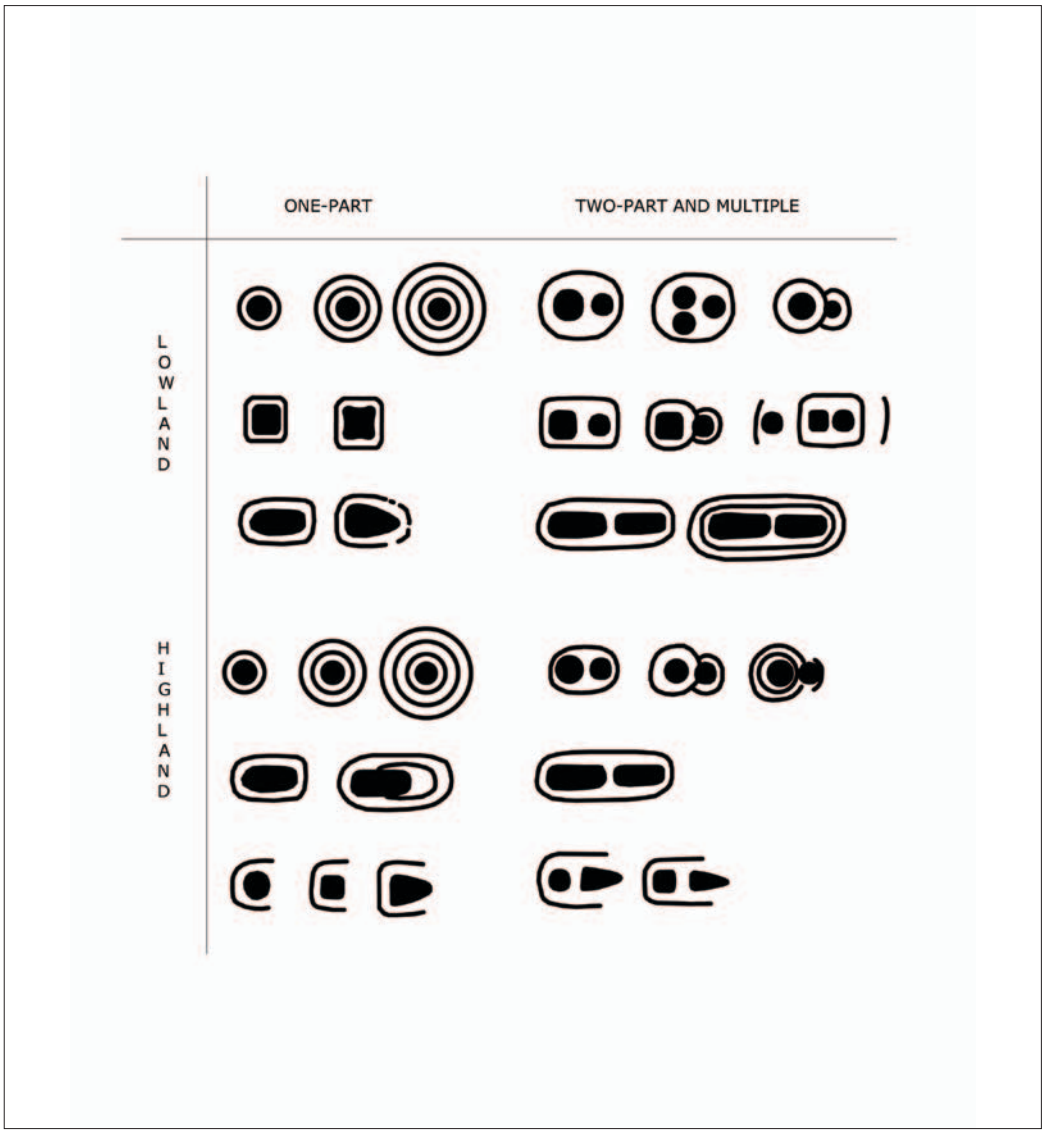

Fig. 4 Types of fortifications according to the position and shape (Tkalčec 2004: 243, tab. 6)

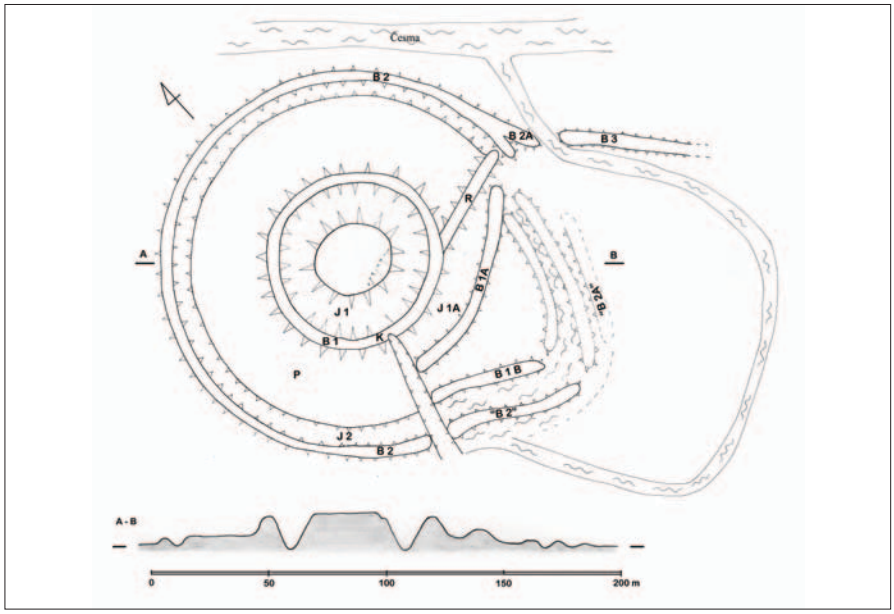

Fig. 5 Stara Ploščica – Grčina, lowland fortification (drawing by: T. Tkalčec)

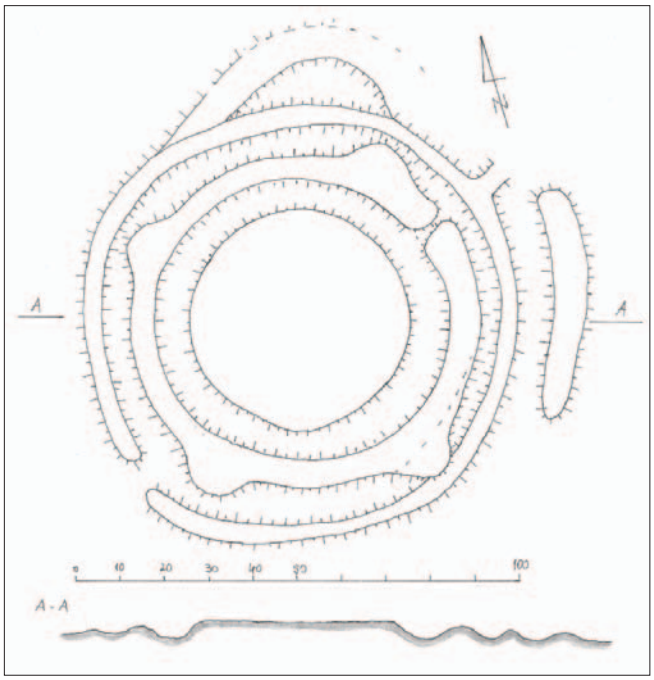

Fig. 6 Orlovac – Orlov grad, lowland fortification (drawing by: T. Tkalčec)

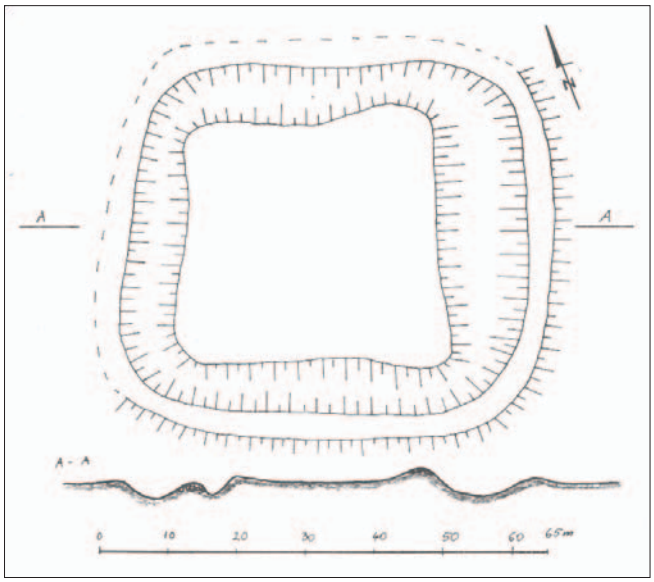

Fig. 7 Veliki Poganac – Gradina, lowland fortification (drawing by: T. Tkalčec)

Elongated oval-rectangular central elevation is present at 9% of fortifications, while other forms are extremely rare. Hill forts of an extremely elongated oval shape exploit natural head crests taking advantage of them by digging moats and erecting ramparts.

Particularly noteworthy is a group of fortifications with a so-called "horseshoe-shaped" rampart which can only be found in the highland type of fortifications. They are located on the slope of a hill, one side being cut into it and defended by a moat and a rampart, while on the other side a steep slope served as natural protection. Their central elevation could have been either in a circular, square or triangular layout (Fig. 8).

Most of these fortifications in the woodlands are in good condition while those in the lowland plains are badly preserved due to modern intensive agricultural works.

Archaeological excavations – mostly probe excavations and very limited in scope – have been carried out on around 20 % of them (Tkalčec 2004: 251–252), while systematic excavations were carried out on only two fortifications in entire Croatia. The first one – Gradište in Mrsunjski Lug near Slavonski Brod – was conducted more than 65 years ago by Zdenko Vinski, and it was published as the catalogue of the exhibition (Vinski, Vinski Gasparini 1950), whereas the second one was carried out ca. 20 years ago and published only partialy (Kušer 2004).

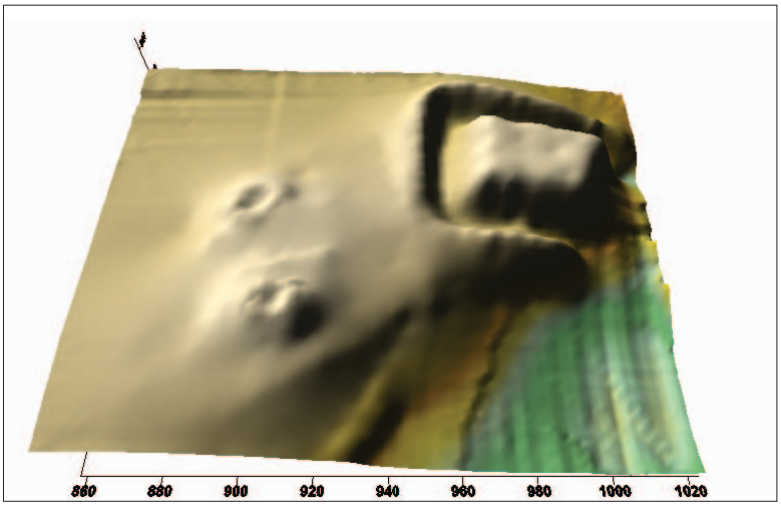

Fig. 8 Osijek Vojakovački – Mihalj hillfort, 3D digital relief model (made by: T. Tkalčec)

It was the very research of doyen of Croatian early medieval archaeology Zdenko Vinski which in fact raised the interest of Croatian archaeologists in this type of archaeological sites. Besides Mrsunjski Lug, Zdenko Vinski has also excavated a fortification in Sveti Peter Ludbreški. He has dated both sites from the 10th to the 13th century, most probably from the 11th century onward (Vinski, Vinski Gasparini 1959; Vinski 1949: 238).

According to our present knowledge, this dating is too early for the material found in these excavations. None of the found fragments of ceramic vessels from these researches can be dated before the 14th century. It seems that Z. Vinski himself also hinted that this type of archaeological sites in Croatia was to be attributed to later periods, because his interest in the continuation of the excavation of numerous moated and mounded sites in Croatia soon ceased.

However, his original thinking has made deep roots in the scientific literature and to date some experts leave open the possibility that in these locations traces of the earlier Slavic fortifications should be sought (eg. Karač 1991; 1992; 2006; Goss 2012; cf. also the article by V. P. Goss in this edition). Further archaeological research is necessary, but as it stands now no findings from the Early Middle Ages were found at any of the sites.

Dating to the Late Middle Ages was further confirmed in the probe archaeological excavations in Moslavina region in 1960s at several lowland fortifications of that type (Kutina–Plovdin Grad in 1963, Sokolovac–Turski Grad in 1964 and Tomašica – Gradina in 1966) and at the highland fortifications (Mikleuška–Šanac Gradina in 1963, Selište–Kutinec Grad in 1966 and Kutina–Turski Stol in 1966) (Iveković 1968).

All findings from these excavations indicate that these sites were used as strongholds of the local medieval nobility from the 13th century (eventually 12th century) until the 16th century.

Such dating was further confirmed by all the archaeological researches carried out in the subsequent years: Virgrad near Županja in 1970 (Minichreiter 1970), Budrovac–Gradina in 1976 (Marković 1980: 35–39), Staro Čiče-Gradišće in early 1980s (Težak–Gregl, Vojvoda 1987), Javorovac–Poljan Grad in 1982 (Marković 1985: 148–150), Gradišće near Nedelišće in 1984 (Tomičić 1985a; 1990: 123–127; Tomičić, Vidović 1985: 14) and the revisional excavations at the same site in 2000s (Kovačić 2008; Marciuš 2009), then fortification Močvare 2 or Popov Dol in Dvorišće near Turčišće in 1984 (Tomičić 1985b; Tomičić, Vidović 1985, 15) with more extensive excavations of the same site in 2014 named later as Gradišće in Turčišće (Krmpotić et. al 2017) and Sigetec Ludbreški–Marof 1 in 1987 (Registar 1997: 128, no. 394). At the end of the 1990, a trial excavation was carried out at the hill fort Špišić Bukovica–Gradina (Salajić 2001) and at the fortification around the Gothic church of the Assumption of the Blessed Virgin Mary in Donja Glogovnica (Homen 1998; 2000a; 2000b). Beginning with 2000s even more intensive research of these type of fortifications followed up: Farkaševac Samoborski in 2001–2003 (Kalafatić 2001; Kušer 2004), probe excavations at the hill fort in Mala Črešnjevica near Pitomača around the present day Orthodox Church of 318 Godly Fathers (which in the Middle Ages was the Church of St. Martin) in 2001 (Tkalčec 2002), Gradić or Turski Brijeg in Torčec near Koprivnica in 2002 and 2003 (Tkalčec 2003; Sekelj Ivančan, Tkalčec 2003; 2004; 2007), hill fort next to the church in Novi Pavljani in 2002 (Jakovljević 2012: 23), Gudovac–Gradina near Bjelovar in 2003-2005 and in 2018 (Tkalčec, Jakovljević 2003; 2005; Jakovljević, Tkalčec 2004; Tkalčec 2005; Jakovljević 2006; 2009: 113–117). Furthermore, during long-term excavations at the fortified church at Crkvari–Sveti Lovro site a segment of a palisade was unearthed in 2006 (Tkalčec 2007a: 22–23, fig. 2; 2012b: 26, fig. 3), rescue excavations at Gradina in Stare Plavnice was conducted in 2008 (Drašković 2009), the older phase of Dubovac renaissance castle was excavated in 2009–2010 (Tkalčec et al. 2011), Gradina in Sveta Ana near Đurđevac in 2010 (Tkalčec 2011), lowland fortification in Kloštar Podravski in 2014 (Čimin 2014: 12–14; 2017), Turčišće-Gradišće near Domašinec in 2014, as already mentioned (Krmpotić et al. 2017), Grubišno Polje–Šuma Obrovi 1 in 2015 (Tkalčec 2016), Mala Peratovica–Šuma Obrovi in 2015 (Tkalčec 2016: 110–112), Lovčić– Slatinsko Brdo – Gradina Turski grad in 2016 (not yet published), Gornji Bogićevci – Sv. Ivan Trnava in 2014–2018 (Ivanušec, Mihaljević 2015: 87–90), Osijek Vojakovački–Mihalj in 2018 (Tkalčec 2019b) and Veliki Zdenci–Crni Lug in 2018 (Tkalčec 2019c).

All these excavated sites provided data on the habitation from the 12th century at the earliest. Large number of them also originated from later periods, from the 14th or 15th centuries. On some sites the continuity from the 13th to the 15th centuries, i.e. the beginning of the 16th century, has been established. Although several older dates have been obtained from radiocarbon analyses, e.g. 11th century at Gradišće in Turčišće near Domašinec, such a situation is interpreted by the so called "old wood effect", and the beginning of the existence of the site was also determined to be the 12th century (Krmpotić et al. 2011: 10–11, Tab. 1).

On all these sites, archaeological excavations took place on their central plateau, except for the Torčec–Gradić, Veliki Zdenci–Crni Lug and Kloštar Podravski, where archaeological excavations were carried out on the remparts as well. However, in the excavations in 1975 at the site Gamula in park Ribnjak near Cathedral in Zagreb, remains of a palisade have

Fig. 9 Veliki Zdenci – Crni Lug, lowland fortification, remains of the palisade in the rampart of the 13th century and the renewal of the palisade (large post-hole to the right) in the 15th century (photo by: S. Krznar)

been unearthed. According to the author and research manager, the palisade structure at Gamula consisted of two rows of wooden palisades and a central stone-wall, which were joined by the wooden supports of vertically placed logs and made an additional fortification system around the cathedral, probably at the beginning of the 16th century (Vinski Gasparini 1958: 43-46, Figures 3 and 4 and Photos 3 and 4). Another explanation for these remains of a wooden palisade was later proposed by Ž. Demo who suggests that it belongs to the Early Middle Ages (Demo 2007: 30, fuss. 77). Remains of the palisades were also discovered in the excavations of more recent castles of Dubovac and Lukavac, and the ramparts with palisades belong to their older phases, at Dubovac from the 14th century (Tkalčec et al. 2011: 76, fig. 2) and at Lukavec from the 15th century, with remains of a lot of preserved wooden elements (Lolić 2003; Knezović 2006). Plenty of woodwork was preserved at Kloštar Podravski, e.g. mediaeval stronghold *Gorbonok* (Čimin 2017). At Veliki Zdenci–Crni Lug remains of a 13th century rampart and palisade with its renewal in the 15th century were also recognized (Fig. 9).

At Torčec–Gradić remains of a rampart of the older phase of the lowland fortification from the 13th century were found (Sekelj Ivančan, Tkalčec 2004: 95, 96, fig. 10–11) (Fig. 10) as well as those of another one with the palisade from the younger phase of the fortification – the 15th century (Sekelj Ivančan, Tkalčec 2004: 94, fig. 6). Torčec–Gradić also provided the data about the ways of protecting the central plateau from erosion. Furthermore, the remains of a wooden bridge and a series of sharpened collars trusted into the defensive ditch made additional protection of the access to the fort (Fig. 11). Similar defensive wooden structures were found in the ditch around the central elevation of the Gudovac–Gradina lowland fortification (Fig. 12).

More data on the defensible structures of the fortifications was yielded by the excavations of the very central elevations of the fortifications. At Virgrad, the remains of wooden palisades were found at the edges of its circular central plateau. Pit-holes were properly arranged in two rows surrounding the central elevation at its edge, consisting of the inner and outer row of a wooden structure of the palisade (Minichreiter 1970: T. LIV). Wooden palisade at the edge of the central mound was also discovered at Grubišno Polje–Šuma Obrovi 1 fortification dated to the late 15th century, where two large post-holes of a bridge structure were also found (Fig. 13).

The present-day archaeological understanding of the function of all of these types of archaeological sites and the time when they were raised, i.e. in the period between the 12th/13th and 16th century, indicates that these fortifications have served as fortified seats of feudal lords and landlords originating mostly from the middle nobility and, as it seems, in the latest periods of the Middle Ages, even from the minor nobility.

Construction of earthen fortifications was a relatively small effort in comparison to expensive masonry work, especially

Fig. 10 Torčec – Gradić, view on wooden construction of inner rampart of the lowland fortification from the 13th century (Sekelj Ivančan, Tkalčec 2004: 95, fig. 9)

Fig. 11 Torčec – Gradić, view on the wooden bridge remains and wooden constructions in the ditch (photo by: T. Tkalčec)

Fig. 12 Gudovac – Gradina, view of wooden structures in the ditch of the lowland fortifications from the late 15th century (photo by: T. Tkalčec)

Fig. 13 Grubišno Polje – Šuma Obrovi 1, view of a palisade surrounding the main elevation of the fortification from the late 15th century with a large post-hole (down left) of the bridge construction (photo by: T. Tkalčec)

in the regions with lack of natural obstacles or lack of nearby stone resources for masonry work. Their existence may be expected at territories where the surrounding areas were changed by subsequent reconstructions (inner colonisation) and expansions (13th century) and also in the times when danger from outer enemy is actual (15th century, Ottoman incursions). Although many are made of wood, we can still find buildings of solid structure (brick, stone) as well. Yet, their common feature are their elevated mounds with the central fortress, faced with earthen ramparts (possibly with wooden palisades) and a deep defensive moats and ditches.

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SILVIJA PISK

THE GARIĆ CASTLE AND *HONOR BANATUS*

Honor banatus is a common term used for rights, possessions and revenues related to the title of Ban. By coming into power, every Ban, the highest state official in medieval Croatia, received, apart from a certain social status and various rights, several castles and related properties. Since the 14th century and the reign of Ban Mikac, honor banatus of Slavonian Bans include Garić castles (along with Veliki Kalnik, Mali Kalnik, Velika and Koprivnica). Honor banatus existed until early 15th century when it was annuled by King Sigismund of Luxembourg. Unfortunately, the institution of Honor banatus was never thoroughly researched in Croatian historiography and its impact on mentioned castles remains quite a mystery.

Garić is one of older medieval castles in Croatia. It is located on the northerns lopes of theMoslovačka gora range above the village of Podgarić. The first mention of the toponym "Garić" that can be found in the sources is from 1163, in a royal decree by Stephen II, the King of Hungary and Croatia. The exact year of its construction and the builder remain unknown, but there are some hints that the castle of Garić, located by the big medieval road existed at the beginning of the 13th century. During its 300 years of active service Garić changed owners many times, but they were mostly kings and queens of Hungary and Croatia, bans of Slavonia and bishops of Zagreb. It was destroyed in an Ottoman attack in mid-16th century and was never rebuilt.

Key words: Castle Garić, honor banatus, Slavonian Ban, castles, the middle age, Croatia, medieval Slavonia

INTRODUCTION

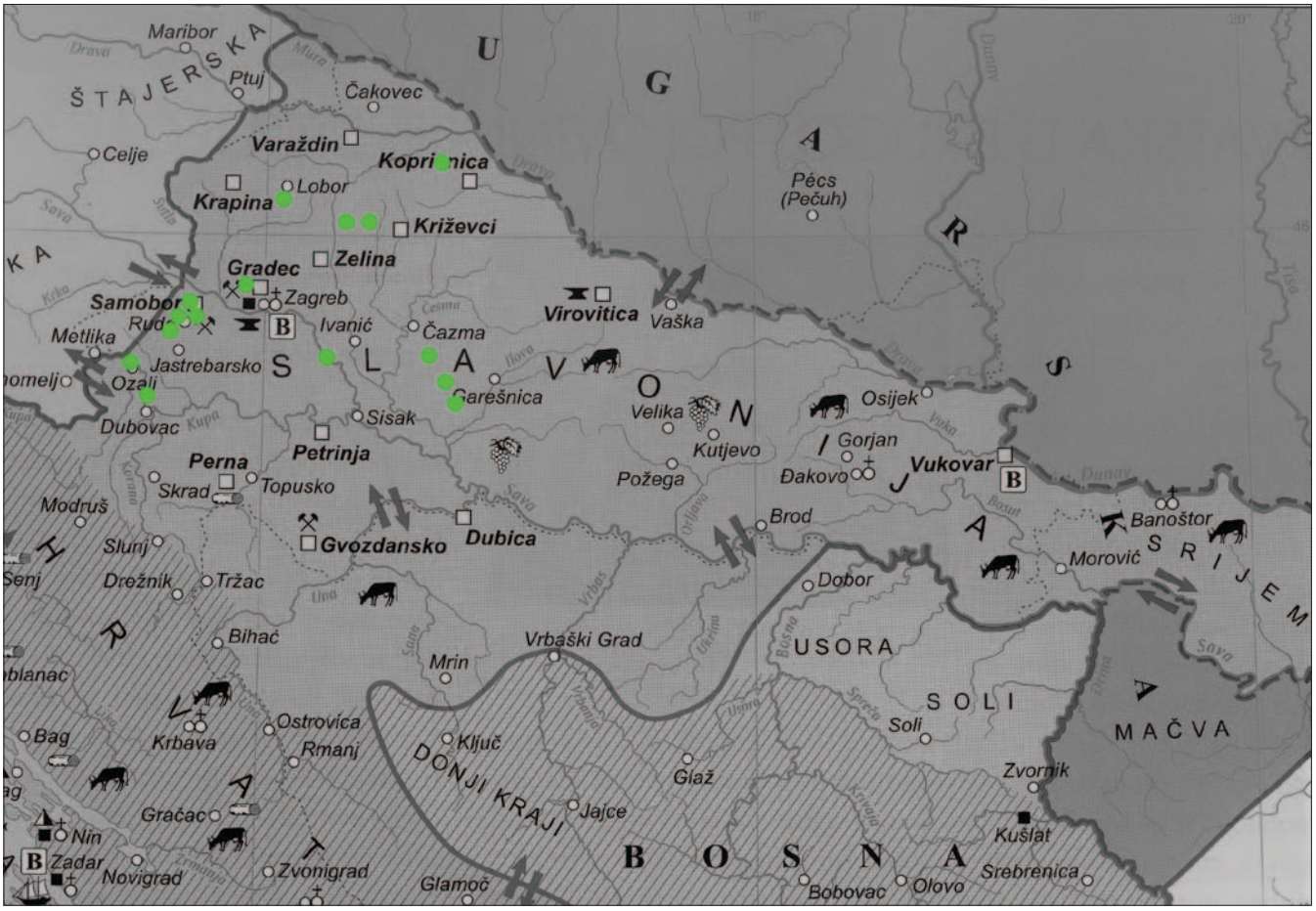
Honor banatus is a group term for the rights, properties and incomes related to the title of "ban" (particularly during the period of Anjou rule) (Engel 1996: 91–100; Rady 2000: 132–143). In medieval Croatia, the highest state official bore the title of *ban* and he could be elected only by the king. Up until the second half of the 15th century, there would be two people bearing the title, one ruling over Slavonia (the *ban* of entire Slavonia, *banus tocius Sclavonie*) and one ruling over Croatia and Dalmatia (the littoral *ban*, *banus maritimus, banus Croatorum*) (http://www.enciklopedija.hr/Natuknica.aspx?ID=5627). After Bosnia fell under Ottoman rule in 1463, the two *ban* titles were united under the title of *Ban* of Croatia, Dalmatia and Slavonia, even though that duty was carried out from time to time by two people at the same time (Grgin 2015: 211). There were also cases before of one person bearing both *ban* titles.[1]

The *ban* represented and replaced the king at some of his duties (i.e. army command) while exercising royal power along with his ordinary duties as *ban* at the same time. He held assemblies, solved problems, gave privileges and judged. The *ban*'s chancellery published and copied documents, while he also had the right to mint his own coinage (*ius cudendae monetae*). He was also tasked with gathering various profits belonging to the king (ie. *marturina*, the royal tax paid by the peasantry as fee for using lands owned by nobility). There were also special revenues and taxes that explicitly belonged to the *ban,* such as the *ban*'s tax, *jus descensus* (the right to be hosted), honorary New Year's gifts et al. (Beuc 1985: 44–45, 106–112; Weisz 2015). Apart from the rights, duties and honors, certain properties, and incomes derived from them, came with the title of *ban*. There by, by attaining the title of *ban*, each *ban* would gain control of several castles and the properties belonging to them, to govern them for as long as he bore the title (Engel 1996: 91–100; Engel 2001; Pálosfalvi 2014; Pisk 2016).

1 For instance ban Matko Talovac. As master of Srebrenik, *župan* of Kovin and captain of Belgrade, he gained prominence during anti-Ottoman fighting. He was the warden of the Diocese of Zagreb and the free county of Gradec along with being the managing governor of the Priory of Vrana. For his merits, he attained numerous properties and the favor of king Sigismund of Luxemburg, who appointed him as the *ban* of entire Slavonia. In later documents he is mentioned as the *ban* of Dalmatia and Croatia along with entire Slavonia. For more details regarding the ban Matko Talovac see: Malyusz 1982; Pálosfalvi 2000; 2010.

HONOR BANATUS AND CASTLES IN MEDIEVAL SLAVONIA

The *honor banatus* system was most likely introduced and most effective during the rule of the Anjou dynasty (14th century). Namely, up until mid-14th century *ban* Mikac conquered the most important castles in Slavonia in the name of King Charles Robert (Charles I) of Hungary and they formed the *honor banatus* (Engel 1996).[2] With the death of Charles Robert in 1342, his son Louis I came to the throne and mostly continued his father's politics.[3] After 1345, Louis gifted several castles, exchanged some (Susedgrad – 1345; Greben – 1355/1357; Krupa – 1361; Bršljanovac – 1363; Lipovac – 1373; Steničnjak – 1380), and kept the others, which along with the estates that belong to them, made up the *honor banatus* (Engel 1996: 91–100; 2001; Rady 2000: 132–143).



Map 1 *Banus honores* castles in medieval Slavonia (map taken from: Hrvatski povijesni zemljovidi 1999: 36, modified by: S. Pisk)

According to contemporary insights, the *honor banatus* in the Kingdom of Slavonia consisted usually of 8 to 10 castles. The castles of Medvedgrad, Veliki Kalnik, Mali Kalnik, Garić, Susedgrad, Topolovac, Kamengrad (Koprivnica), Grebengrad, Steničnjak, Ozalj, Bršljanica, Okić, Samobor, Želin, Lipovec and Kraljeva Velika were at some point (for a longer or shorter period) a part of the *honor* banatus (Engel 2001: Map 1, Tab. 1) (Map 1, Tab. 1). It is supposed that *honor banatus* ceased to

2 Mikac Mihaljević (Michaz, Mykch, Mykecz), *ban* of Slavonia 1325–43 (?, – ?, 1343). Most likely a scion of the Ákosclan from sub-Carpathian Ukraine. As king Charles I's supporter, he already held numerous important posts at his court during the 1320s. In 1325, he beat the Güssing family and seized their lands in the Podravina region. His war campaign in 1326 attempted to restore royal power in Croatia, but he was beaten by the Croatian magnate Nelipčić so he returned to Slavonia, leaving the lands south of Lika and Krbava outside of royal rule. In 1326/1327 he made war against the Babonić, a family that gave several *bans*, and pushed the m out of the Pokuplje region, taking the Steničnjak castle for them. After Charles Robert's death he continued to serve his son Louis I, retaining the title of *ban* until his death. The largest parts of his lands were in contemporary Podravina and Pokuplje regions, and his successors took the surname "Prodavić" after their property. *Ban* Mikac came to Slavonia with Charles' directive to annul all privileges belonging to the nobility and return all the populace and nobility in the area Mikac controlled under the *ban's* rule He was made the sole judge by the king and his jurisdiction could not have been diminished by other judges, not even the palatine or the state judge (Smičiklas 1911: 253, 254). For ban Mikac see: Klaić 1976: 514–543; 1987a: 60–64; Pisk 2016; Zsoldos 2015: 184–192. For conquered castles from Baboneg family see: Kekez 2016: 260–369.

3 Namely, it is considered that the *honor banatus* system was a continuation of the 13th century county system. Around 1300, there were around 200 castles in Hungary, and only around 30 were royal. During Charles Robert the number of royal castles rise (royal construction, confiscation, extinction of noble families), so during his son Louis I's rule, as much as half of those 300 (or so) castles belonged to the king (Rady 2000: 132–143).

Castles	Banus honores castles
Medvedgrad	before 1327–1399
Veliki and Mali Kalnik	before 1327–1409; 1419–1429?
Garić	before 1327–1409/1410; 1419–1445?
Sudedgrad	before 1327–1345
Topolovac	before 1327–1398
Koprivnica	1327–1409
Grebengrad	1327–1355/1357
Steničnjak	1327/1328–1380
Ozalj	1327/1328–1399
Bršljanica	1327/1328–1363
Okić	1327/1328–1396
Samobor	1327/1328–1385
Želin	1327/1328–1399
Lipovec	1338–1373
Kraljeva Velika	1338–1409

Table 1 *Banus honores* castles in medieval Slavonia (according Engel 2001)

exist during the reign of king Sigismund of Luxemburg who gifted castles belonging to the *honor banatus* to his supporters.[4] The breaking point was the donation of castles belonging to the *honor banatus* to queen Barbara of Cilli in 1409. That year, Sigismund handed the control over important *honor banatus* forts of Garić, Kraljeva Velika, Koprivnica, Veliki Kalnik and Mali Kalnik over to Barbara, his wife, which practically meant the rescission of this "institution" (Engel 2001; Halász 2014: 27; Pálosfalvi 2014: 90).

CASTLE GARIĆ

Fig. 1 Castle Garić, (photo by: Jovan Kliska, Croatian Conservation Institute)

The Garić castle can serve as case study on the subject of *honor banatus*. Garić is one of older medieval castles in Croatia (Fig. 1). It is located on the northern slopes of the Moslavačka gora range above the village of Podgarić. The first mention of the toponym "Garić" that can be found within sources dates to 1163, and it's found in a royal decree by Stephen II, the King

4 King Sigismund pawned numerous Slavonian royal castles during the dynastic fights to get the money he needed, and he gave some of those castles to his supporters for various merits (during the war or just for their support). He controlled around 100 castles when he came to power in 1387, and the number fell to 50 in just 10 years (Rady 2000: 134–136). In other words, to consolidate his rule, Sigismund gifted some castles; in 1387 for example, Mary and Sigismund sold/pawned Samobor in 1385, Okić in 1395, Topolovac in 1398, Ozalj and Medvedgrad in 1396 and Želin in 1399 (Engel 2001; Miljan 2015).

of Hungary and Croatia (Smičiklas 1904: 98; Pisk 2011). The exact year of its construction and the builder remain unknown, but there are some hints that the castle of Garić, located by a big medieval road, existed already at the beginning of the 13th century. During its 300 years of active service Garić changed owners many times, and they were mostly kings and queens of Hungary and Croatia, bans of Slavonia and bishops of Zagreb. It was destroyed by an Ottoman attack in mid-16th century and was never rebuilt (Pisk 2014; 2016).

It most likely became a part of the *honor banatus* between 1317 and 1334, since documents dating from 1334 confirm the presence of *ban* Mikac on castle Garić (Smičiklas 1912: 173–176). After Mikac, the sources mention *ban* Nicholas of Alsólendva at Garić, while documents from 1365 and 1380 bear witness to Garić being a royal castle.[5] (Kostrenčić, Laszowski 1915: 446; MOL DL 35234; DL 100173).

A document by Nicholas dated August 24th 1345 bears witness to the castle and the entire county of Garić being under the *ban*'s control. He ordered, from Zagreb, that his castellans, *villici*, judges and officials in the Garić tithing to gather tithe for Jacob, the Bishop of Zagreb (Smičiklas 1913: 227). He addresses them as "our" (*nostris*) which backs the theory of Garić being a part of the *honor banatus*.

Events at the castle during dynastic wars after the death of king Louis are unknown, but documents dating from the start of the 15th century confirm *bans'* jurisdiction over Garić. Namely, in 1402, *bans* Emeric Bubek and Eberhard (HDA, Fond – pavlinski samostan Garić, fasc. 3., nr. 4.; Malyusz 1932: 313, 314),[6] and *ban* Pavao of Pecz in 1406 (MOL DF 218641) (Fig. 2).[7] In the beginning of September 1409, castle Garić came under the jurisdiction of Eberhard, the Bishop of Zagreb (Mályusz 1932: 103; Lukinović 1992: 336), while a certain Sigismund, the governor of the Garić and Gračenica appears in the sources in late September (HDA, Fond – pavlinski samostan Garić, fasc. 3., nr. 42., Mályusz 1932: 103, 104); Lukinović 1992: 337). He was most likely a confidant of queen Barbara.[8] The queen held Garić until 1417 at the latest, because then she fell into her husband's bad graces, while only sources from 1412 mention her presence at the castle (HDA, Fond – pavlinski samostan Garić, fasc. 4., nr. 5.; Mályusz 1932: 108, 109).[9] However, documents place her, without doubt, as early as in 1410 in the wider Garić area (Garignica) (Malyusz 1932: 106; HDA, Fond – pavlinski samostan Garić, fasc. 3., nr. 51).

Fig. 2 Bela crkva monastery (photo by: Stela Kos)

5 On June 2nd 1365, while describing borders, the royal *iobagiones* of Garić are mentioned (*metam cum iobagionibus regalibus de Garyg*) (Kostrenčić, Laszowski 1915: 446).

6 Eberhardt was in 1402 ban and Bishof of Zagreb.

7 Ban Pavao of Pecz was buried in the nearby Pauline Monastery of the Blessed Virgin Mary at Garić, while his effects were given to the royal court (Lukinović 1992: 331, 332; Pisk 2017: 191, 192).

8 Most likely Sigismund Neuhausen, Barbara's castellan at Veliki Kalnik and Mali Kalnik (Miljan 2013: 20, 21).

9 Her jurisdiction over Garić is witnessed by her document dating November 25th 1412 written at Garić by which she exempted the Pauline monastery *mons Garigh*, along with their *iobagiones* from paying any kind of state taxes, and forbade *marturina* (marten skin tax) collectors to bother the Pauline monks (HDA, Pavlinski samostan Garić, fasc. 4. nr. 5.; Mályusz 1932: 103; Pisk 2017). The same day she issued an identical privilege to the Pauline monastery of Streza (Lukinović 1992: 404; HDA, Fond – pavlinski samostan Streza, fasc. 2. nr. 3; Pisk 2017: 79).

According to the opinion of Nada Klaić, it is obvious that such castles were furnished thus "so that it is worthy to receive the Queen (*dei gracia Romanorum ac Hungarie etc. regina*)" (Klaić 1987a: 85).[10] However, it is hard to figure out if the castle was furnished during the queen's governing over it, or earlier, when it was owned by the *bans*.

While the *bans* governed the castle that they held *pro honore* they were could have remodelled and upgraded them in whatever manner they liked to improve or beautify them (Engel 1996: 91–100; Rady 2000: 132–143).[11] Unfortunately, it is hard to say with any degree of certainty when particular actions were undertaken on the castle, especially taking into consideration how long it took to finish certain types of construction work during the Middle Ages, the lack of historic sources and inadequate archaeological research of most castles belonging to the *honor banatus*. It's almost impossible to know if any of the *bans* made changes to the castle interior apart from external modifications. Namely, changes that would indicate their prominent social status within the kingdom.

The first exavacation projects on castle Garić were set into motion by the Museum of Moslavina in 1964 (Iveković 1968). At the beginning of the 1970s there were plans to completely rebuild it, but they were never finalized (Iveković 1970; Maroević 1971; Kruhek 1972; 1973; Miletić 2009). They were continued, however, in 2009 under the aegis of the Croatian Conservation Institute (Pleše 2014; Karlo 2011; Pezelj 2011; Uroda Kutlić 2011).

Even though archaeological research was undertaken for several decades, the complex is not explored in its entirety. Only the main tower was archaeologically fully explored at Garić, in the 1970s (Fig. 3), while research is currently being undertaken at the small corner tower (Fig. 4).

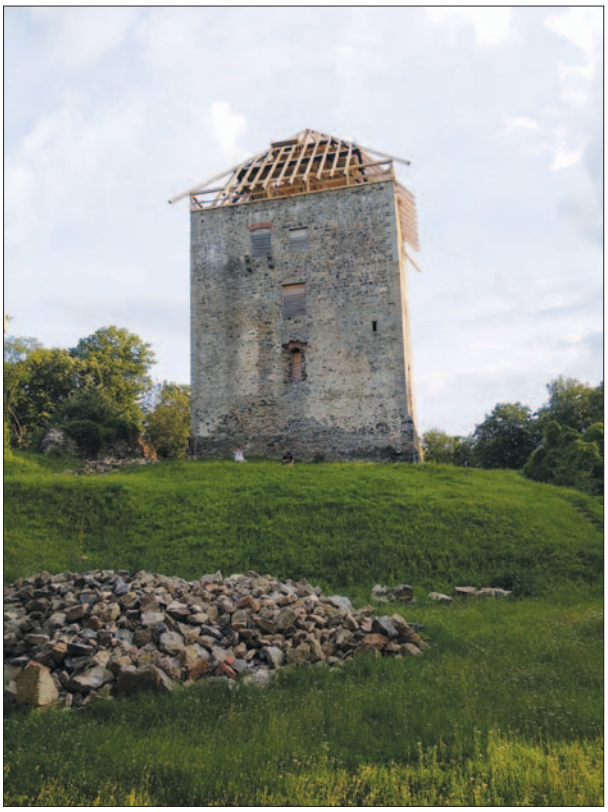


Fig. 3 Castle Garić, main tower (photo by: Silvija Pisk)

Fig. 4 Castle Garić, small corner tower (photo by: Silvija Pisk)

In spite of the archaeological research that was undertaken, it is currently hard to say when certain construction work took place at the castle and if a certain part was built while the castle was occupied by a *ban*, the queen or later on by the bishops. Good examples of that issue are the stove tiles that were excavated at Garić that could not have been dated with certainty by experts (Škiljan 2011; 2015: 125–141).

Namely, the most representative Croatian stove tiles were found at Garić (in the main tower), around 70 of them (Bobovec 1994; 2003; Pleše 2014; Škiljan 2011; 2015: 125-141; Uroda Kutlić 2011) (Fig. 5, 6). These stove tiles point to the social status and the worldview of the owner. They depict characters from the medieval bestiary (griffins, phoenixes, heraldic lions, dragons, fish and bears). By comparing the symbols and the craftsmanship, a certain similarity was found with stove tiles from Buda, but also with Czech and German stove tiles. They are mostly dated to Sigismund's times, but some were

10 N. Klaić refers to Koprivnica castle.

11 The *ban* of course did not have to live (and often couldn't because of his various duties) in those castles, but he could improve them and was obliged to defend them. That's why he would usually appoint his faithful assistants as castellans. It was not unusual for a single individual to be the castellan of several castles. In that case, according to feudal hierarchy, the castle was run by a vice-castellan who would take over military and administrative duties (Engel 1996: 91–100; 2001; Rady 2000: 132–143). Sources mention, for example, a certain Nikola, son of Ladislaus as castellan at Garić in 1402 (HDA, Fond – pavlinski samostan Garić, fasc. 3., nr. 4.; Malyusz 1931: 313, 314; MOL, DF 218641.). For castellans at Garić see Pisk 2014.

dated to the Anjou period (Škiljan 2011; 2015: 125–141). It is therefore hard to assert that the stove tiles were ordered by *ban* Pavao, Queen Barbara of Cilli, the Bishop of Zagreb Ivan Alben, ban Matko Talovac (who was also the governor of the Diocese of Zagreb), or by Bishops of Zagreb from the second half of the 15th century.

Fig. 5 Stove tile from Garić (photo by: Ana Bobovec)

Fig. 6 Stove tile from Garić (photo by: Ana Bobovec)

The archaeological material that was also found (a key, a knife, horseshoes, spurs, stone needles, a metal needle, ceramic bowls) is mostly dated between the second half of the 14th century and the 16th century (Bobovec 2013: 73–80), so it remains unknown if it was used and purchased during the time of any particular *ban*. Research of the *bans'* castles in the Kingdom of Slavonia is made harder by mid-16th century Ottoman conquests. To elaborate, Garić was conquered, burnt down and no longer in function after 1545, left to the elements.[12] We can only find it on early modern period maps, and then on late 19th century pictures and painting (Pisk 2014) (Fig. 6). However, we have no preserved sources that talk about how it was furnished and looked (especially from the inside).

Some modern Hungarian historians believe that the *honor banatus* system survived in part during the reign of Matthias Corvinus, functioning to a point for as long as the end of the 15th century, when the position of *ban* because they started to be paid in money. The castle Garić is also good example of this theory. Namely, after Barbara of Cilli, sources note the presence of Bishop of Zagreb Ivan Alben as well as *ban* Matko Talovac at Garić (MOL, DL 44351).[13]

CONCLUSION

This paper pointed out, in short, the main findings regarding the castles belonging to the *honor banatus* within the Kingdom of Slavonia and the Garić castle as case study. Research about the topic is still in its infancy, and faced with numerous restraints. Unfortunately, the Croatian historiography contains no works on the topic of the *honor banatus* "institution" even though it is a very significant segment of the Croatian medieval history.[14] And especially so for the link between the *honor banatus* and the castles. Insight into that can primarily be gleaned from the works of Hungarian historians.

A great number of Croatian medieval castles remain unexplored properly – both archeologically and historically. Whi-

12 Only two documents from the 17th century, that mention Garićgrad, remain. While old lands of the nobility of Križevci were established at the royal court in Pozsony (Bratislava) in 1628, ownership of Garić by the Zagreb bishopric was confirmed. The fact that the bishops' ownership was not put into question is witnessed by the appeal of the Ivanić frontiersmen at the end of the 17th century to settle around Garićgrad on the old bishops' lands (Lopašić 1885: 151; 1889: 459).

13 Ban M. Talovac was the governor of the Diocese of Zagreb (1433–1438) and (1435–1444) (Batelja et al. 1995, 189, 190).

14 Apart from Beuc (Beuc 1985), who researched the *bans* as part of research on the history of Croatian state authorities, there is just one recent biger publication dedicated to that position (Fodor, Šokčević 2015; Pálosfalvi 2015; Karbić 2015).

Fig. 7 Oton Iveković, Garićgrad (Croatian History Museum)

le archaeological research usually craves a lot of time and finances, historical data should be somewhat easier to find. Sources, however, are not always benevolent towards the researcher. A great deal of documentation was not preserved and surviving documentation often requires work in Croatian, Hungarian and Austrian archives, as there are still lots of medieval records that were never published. There are only a few historians who study medieval castles in Croatia, so Croatian historiography somewhat lacks relevant modern historical castle studies.

Croatian medievalist and castle researchers have yet to start researching the history and the ownership of castles – as much as that is possible.[15] Historical studies of Croatian and Slavonian *bans* have yet to be undertaken as well. Only through comparison of those lines of research could we more accurately answer the question if the *honor banatus* was indeed cancelled during the time of Sigismund of Luxemburg or if the remains of that institution were visible during the times of later medieval rulers of the Kingdom of Slavonia.[16]

Apart from these, there are numerous other unanswered questions. For example – in which manner were the castles of the *honor banatus* chosen? Did the *bans* have the right of choice? Did they spend an equal amount of time in each of their castles? More precisely, how long did they really stay for instance at Garić? Were castles they owned similarly furnished? How much income did the Garić property bring? Did they ever refurbish Garić? Were the inner rooms furnished in accordance with the owner's position?

A certain part of the blame for many unanswered questions certainly lies with the archaeologists as well, because of such a small numbered of (fully) explored castles. For that reason I will use this opportunity to stress the need for an interdisciplinary approach, the cooperation and the bigger engagement of historians, archaeologists, art historians and architects in order to further raise our knowledge about the *honor banatus* castles.

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15 Publication about the castle Medvedgrad is good example (Klaić 1987b).

16 Similar research should also be undertaken for the areas of medieval Croatia and Dalmatia.

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BORIS YANISHEVSKIY

The Road from Moscow to Smolensk through the Protva River and the Ugra River: Origin and Development

The author explores the route from Moscow to Smolensk along the Moscow river, the rivers Protva and Ugra, which was used from the 14th to the 16th century. Commencement of the using route is associated with the beginning of the Moscow Duchy and ending with the beginning of the more direct path through the town Vyazma in the late 15th – early 16th century, when Vyazma was annexed to Moscow Duchy. The route was guarded by wooden fortresses that were built every 30 to 50 km.

Keywords: medieval communications, medieval Russia, medieval Lithuania, 14th – 16th centuries castles, wooden walls, hillfort

The roads always had high priority for the mankind. Trade, cultural and other contacts among tribes occurred, using them. Roads became very important with the appearance of the states. For example, there were transportations of army, collected taxes, merchants and goods, mail and etc. Developed states made roads intentionally for the more convenient communication. The outstanding example of that are the Romans and the Incas roads, which are preserved until the present day. In the forest area the function of them was fulfilled by rivers which were sailed by big and small ships. Between the river basins of great rivers the roads were organized. It was convenient to carry ships and goods. The carry is usually marked by settlements, which are located at the end of each trail. The settlements, which include fortified ones and related barrows, showed the roads in ancient times. Until the Late Middle Ages all of the settlements on Russian plain were situated near rivers, which presented the communication opportunity, in addition to being water sources. It can define the exact route with the help of treasures, which are used for dating the roads (Леонтьев, Носов 2012: 394, 395).

Besides the Kiev and Novgorod, Old Russian state had other centers, among centers by the time of formation of the state. However, the exceptional need in communication between these and newly-formed cities arose only with the creation of the state that made such communication a vital need. Expansion of Old Russian state territory and land development required the creation of new land roads system. Of course, the bigger part of the roads was along rivers; however, they played the role of "compass", or in other words – showed the direction of travel. It is necessary to say, that the most ancient centers such as Izborsk, Rostov, and Suzdal' are situated near to very small rivers, which are hardly suitable for boat traffic. The existence of the road from Kiev to Bulgar-upon-Volga is recognized by a lot of researchers (Леонтьев, Носов 2012: 397).

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One of the few rivers of Russian Plain, which flows in latitude direction, is Oka river. Its direction and being Volga's tributary determined the possibility of the trade trail from Volga region westbound. We do not know the earliest date of this trail's origin, but it can be quite strongly suggested, that in the Bronze Age the Oka river was used as the way for tribes and goods transportation. In the Early Iron Age the appearing of things from the Kama region on the Oka and Volga interfluve occurred through the Oka's trail as well. In the 4th-7th centuries A.D the settlements of Ryazan'-Oka's barrows culture ap-

peared. A lot of artifacts of this culture were found in the burials, which show similarities to the antiquities of the Crimea, the west Caucasus and even in Europe. In other words, Oka played a great role during the Migration period; moreover, the goods remained on its banks. Upon the Desna river, the oldest Russian towns such as Chernigov, Novgorod-Severskiy are situated. Also there is Shestovici, which is one of the largest Scandinavian centers of the 9th – 10th cent. That means that the route from Dnieper (Kiev) to Volga (where the famous trade center – Bulgar was situated) via rivers Desna and Oka was known at least from the 10th century. Many treasures of coins of the 9th and 10th centuries were found on Oka banks, most of them from the 10th century (Монгайт 1961: 308). However, in the 11th century the number of coin treasures strongly decreases, more exactly, only two are known, and both of them were in the middle course of Oka (Леонтьев, Носов 2012: 390).

In my opinion, the reason is in hostile relations of the people who lived along the river, which were called "Viatichi" in chronicle. Under strengthened state power the "Viatichi's" tribes from the Don upper river moved to the forest area near the Oka. By the end of the 11th century they reached the Moskva river (Culture of Medieval Moscow 2004: Fig. in colour 4).

In the 11th and until middle of the 12th centuries the way along the Oka river wasn't used, probably because of hostility of Vyatichi tribes. For example, duke Gleb Vladimirovich went to Kiev from Murom in 1015 not up along the Oka, what would have been more reasonable, because the route along the Oka lead immediately into the Desna river basin then to Dnieper river where is situated Kiev, but through Rostov, upper Volga and Smolensk. This was not possible due to problems with Vyatichi (Полное собрание русских летописей. Том 1. Лаврентьевская летопись 1926 – 1928: 136).

Duke Yuri Vladimirovich Dolgorukiy having moved the boarders of Vladimiro-Suzdal's dukedom to the west, found the Moscow fortress in the very heart of Vyatichi tribes, which was mentioned in chronicles in 1147 (Полное собрание русских летописей. Том 2. Ипатьевская летопись 1908: 339). In its turn, by the middle of the 12th century the upper Ugra was already owned by Smolensk dukedom. Therefore, the boundaries of Moscow dukedom and Smolensk dukedom got closer.

The first mention of using the way from the Oka to the Moscow river through the Protva river is the campaign of duke Svetoslav Olegovich Chernigovskiy to the upper course of the Protva river and next to Moscow to the meeting with duke Yuriy Dolgorukiy in 1147 (Полное собрание русских летописей. Том 2. Ипатьевская летопись 1908: 339). This campaign opened the way from Moscow river basin specifically through the upper Protva. Incomprehensible from the political point of view purpose, becomes clear if we look at the map. The upper course of the Protva connects Moscow river basin and Ugra river basin by Bolshaja Vorya river (Map 1:1). The route to the west went along the Protva river to Ugra river, which in the upper course is near to the Desna river basin (Elnya town, Smolensk region). The Desna river is the part of the Dnepr river basin and it is its left tributary. Thus the efforts of Chernigov, Suzdal and Smolensk dukes helped to pacify the "Vyatichi", and to pave the way through a troubled region in the mid–12th century. But the intensive use of road associated still with the strengthening of the Moscow Duchy when it became the strongest in Rus – in the 14th cent. At the same time, the Duchy of Smolensk became part of another strong state – Lithuanian Duchy. Relations between the two rival States had called for a relatively short road.

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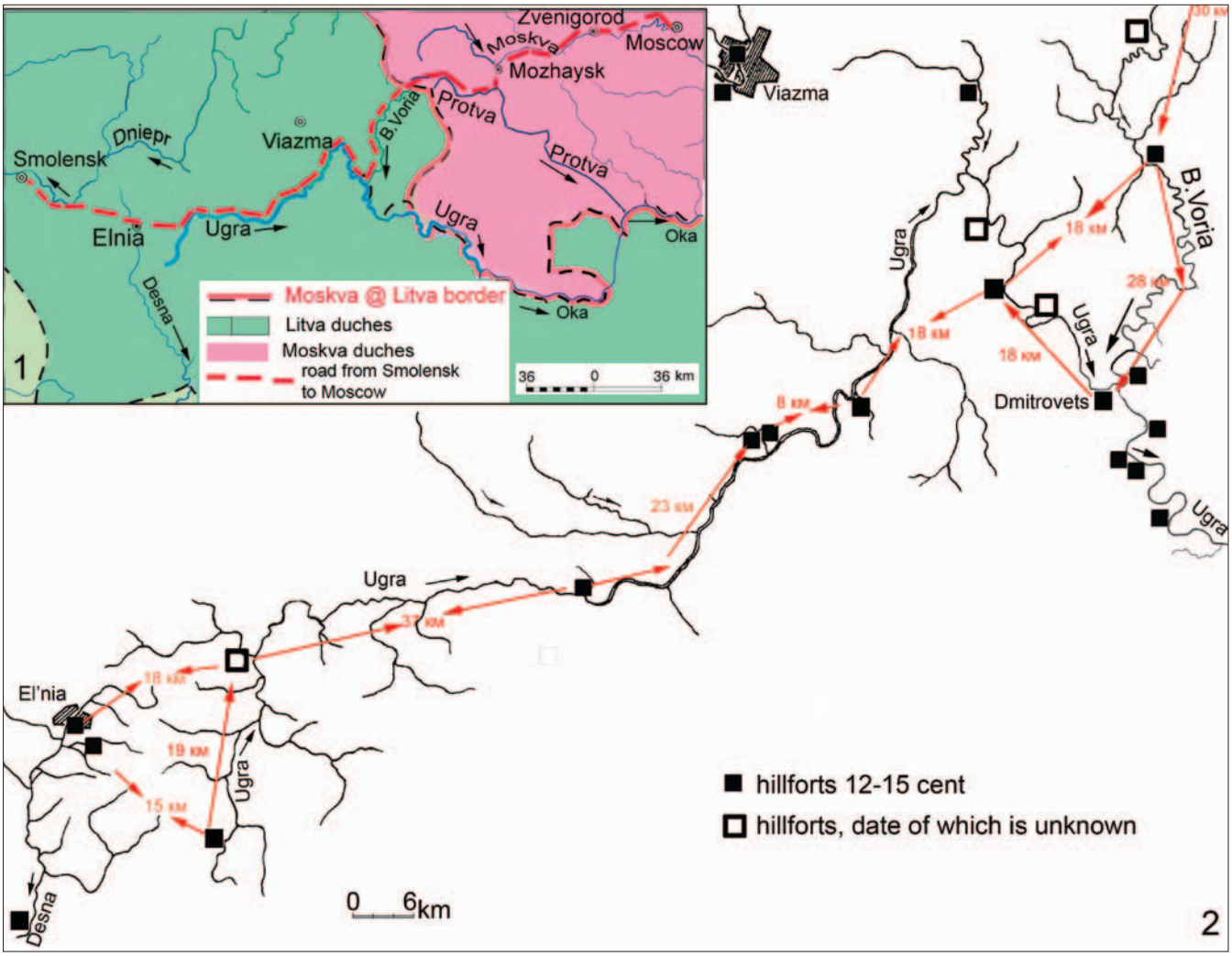
In the Middle Ages castles and fortresses were used to control territory and roads. The road we are interested in was also protected by hillforts. Some of them became cities, but the others were abandoned. There are five towns along the researched road: Moscow, Zvenigorod (Археологическая карта России. Московская область. Часть 1, 1994: №345), Mozjaysk (Археологическая карта России. Московская область. Часть 2, 1995; №975), Elnya (Археологическая карта России. Смоленская область. Часть 2, 1997: 43–44) and Smolensk (Археологическая карта России. Смоленская область. Часть 1, 1997: 55–69) (Map 1: 1). There are also about 11–13 abandonned hillforts that we know on this way, but only three of them – Borisov gorodok (Янишевский 2010: 83, 84), Galchino (Янишевский 2010: 84, 85), and Zhary (Dmitrovec) (Темушев 2009: 48–56) – are well researched.

All of the towns have the layers of the 12th century and exist until now. Hillforts were abandoned in the 16th century[1]. In other words, people could begin use this route only from the 12th century and stopped using the road in the 16th century, according to the dating of cultural layers of the sites. That is confirmed by the notes of foreign travellers, who started using the more direct way from Smolensk to Moscow through the Vyazma with the 3rd quarter of the 15th century (Контарини 2010: 168).

It appears that all the distances between the towns on this way in Moscow duchy do not exceed 50 km (it is the daily journey of a horseman). And between the hillforts on the whole way never reach this number, sometimes there are a bit less than 30 km (it is close to the daily journey of a man on foot) (Map 1: 2). Later on some stretches of this route could have

1 Only one hillfort was burned in the 14th century – Borisov gorodok – and was abandoned. This hillfort is situated 8 km from Mozhaysk.



Map 1 1 - Region of Ugra river at the end of the 14th century (according: V. Temushev http://www.hist-geo.net/index.php?p=3&more=1&c=1&tb=1&pb=1 map 2, modified by Boris Yanishevskiy); 2 - Part of the road along the river Bolshaja Vorya and Ugra: hillforts on the road with the distances between them (prepared by: Boris Yanishevskiy)

been straightened up. The hillforts situated along this route were the guarantors of a safe rest. Their location is not random as well as the sizes of the sites. Rarely, the sites of these hillforts were less than 2500 sq.m. Archaeologists have found artefacts such as pieces of chain armours, spurs and weapons in hillforts. This let us consider them as bearing resemblance to feudal castles. However, it is known that there were no castles in medieval Russia in European sense, such as fortified dwellings of an independent or half-independent feudal lord. But if we look at these hillforts as fortified strongpoints on the important road, then everything falls into place. Another confirmation is that there are rarely areas in Russia one can find similar system of fortresses, other then along this road, as usual hillforts are scattered (Археологическая карта России. Смоленская область. Часть 2, 1997: 144–172).

The confirmation of existence of this road is the evidences of its use. As previously stated, it can be either archaeological or written sources. Archaeological excavations at the two of three studied hillforts provided evidence of very intense activities in 14th – 16th c. The third castle (Borisov gorodok) is situated at a distance of 8 km from the town Mozhaysk and it was not used. But in written sources, there is information about the existence of this road, though this information is indirect. These are the chronicle evidences about different war campaigns. About the war campaigns of Vladimir Monomakh and Svetoslav Olegovich was said before. In the 13th century there is one indirect mention about the campaign to the Protva. It was the unsuccessful campaign of Moscow's duke Mikael Yaroslavovich (Horobrit – "brave") in 1248 (Янишевский 2010: 14, 85). This mention is short but it takes us in researched district near the border between Moscow and Lithuania. The campaign of Lithuanian duke Oldgerd in 1341 is the new mention of researched subject: the siege of Mozjaisk could occur only if the Lithuanian army used the road to Moscow through the Ugra, the Vorya and the Protva through Mozjaysk (Янишевский 2010: 14).

Eleven years later, the Protva became the scene of some important events. In 1352 Moscow great duke Semen Ivanovich with two brothers, Andrew and Ivan, and some troops went to Smolensk. Near the Vishgorod (upon the Protva river) he met the duke Olgerd's envoys and made the peace. But he did not leave the idea of going to Smolensk, that is why he went with his army to the Ugra river (Янишевский 2010: 86). There he was met by Smolensk's envoys. For a week they were there upon Ugra. During that time Moscow envoys went to Smolensk and made the peace. After that duke Semen Ivanovich came back to Moscow. In this story we are interested in two things – the first one: duke Semen Ivanovich met the envoys upon the Protva river, the second: his itinerary from the Protva river to the Ugra river. These two points prove that the way from the Protva river to Smolensk was the only one, there were no other options, so the envoys and Moscowites could not miss it. They were waiting for the Moscow army on that route. The indirect confirmation of it is the waiting for answer for eight days by duke Semen. Exactly this time it took the envoys to get to Smolensk and then return from the confluence of the rivers Vorya and Ugra. It could not take less time, because the distance is about 200 km.

In 1407 Moscow's army burned down hillfort Dmitrovec situated on the right bank of the Ugra river a bit upstream from the Vorya's mouth, during the war against Lithuanian duke Vitovt. The burning of this fortified place by Moscow army shows the Lithuanian possession on this town. After this event Moscow army with duke Vasily Dmitrievich the First as a commander went to town Vyazma, where Moscow duke met Lithuanian duke Vitiovt (Темушев 2009: 67). More likely than not, the road along the Ugra river was used, because there is only 30 km approx. between the Ugra river and Vyazma (Map 1: 2). The peace was made there. After that duke Vitovt left his army and returned back home. The description of the return journey is very picturesque and presented in chronicles by Jan Długosz. The interesting point is the quality of the road, washed out by rains. Knights had to build the bridges upon their horses, going across the forest and swamps (Jana Długosza...1868: 537).

In conclusion, it needs to be said that the researched part of the road between Moscow and Smolensk had a strategical sense for Moscow state. There was a reason why armies constantly used that road. And in the 14th – 15th centuries this road became the war field between two power states – the Great Lithuanian dukedom and the Great Moscow dukedom.

Exactly in this case we can confirm with the written sources the reason of location of archaeological monuments – hillforts every 30–50 km along this route. The fortune of every road which is made along a river is to be straightened up. The first mention the route from Moscow to Smolensk directly through Vyazma is the travelling of Contarini in 1477 (Контарини 2010: 168).

Exactly at that time the "Old" Smolensk road which existed until the 19th century was created. And after the capture of Vyazma (1493) and Dorogobuzh (1503) the road began to pass into the territory of Moscow region. The only one thing left was to conquer city Smolensk, which occurred in 1514.

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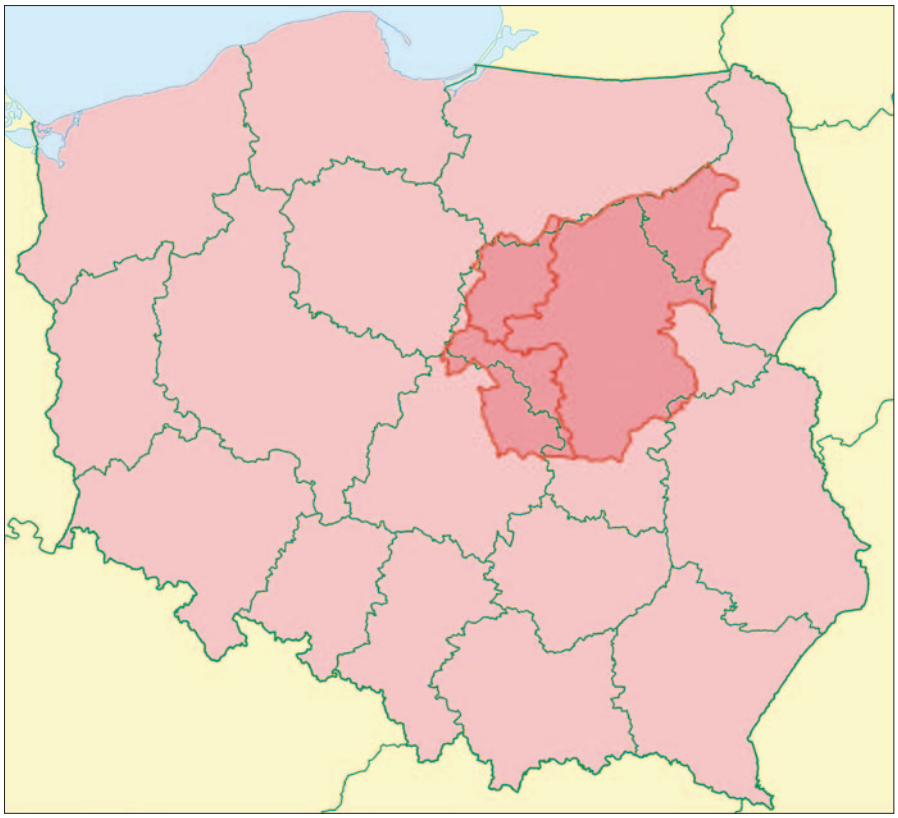
PIOTR LASEK

Castles in Central, Southern, and Eastern Mazovia in the Fifteenth and the Sixteenth century
The Features of Defence

In the Late Middle Ages several defensive-residential structures (such as castles in Ciechanów, Czersk and Liw) were built in the domain of Mazovian duke Janusz I, vassal of the Polish Kingdom. The aim of the text is to analyze their defensive system, both in the primary, medieval phase and in early modern times, when the fire weapons dominate the battlefields. The author also wonders whether the modernizations of the Mazovian castles defensive features were caused by their adaptation to new kinds of firearms, or by symbolic values. These considerations are based on the background of defensive architecture of the adjacent countries, such as Polish Kingdom, the Grand Duchy of Lithuania or the domain of the Teutonic Order.

Key words: defensive-residential architecture, castles, Mazovia, Middle Ages, defensive features, fire arms, medieval warfare

Mazovia (Polish: *Mazowsze,* Latin: *Mazovia*) is a historical region (*dzielnica*) located in mid-north-eastern Poland (Map 1). During the 9th century Mazovia was perhaps inhabited by the tribe of Mazovians, and it was incorporated into the Polish state in the 2nd half of the 10th century under the Piast ruler Mieszko I (Gieysztor 2006: 109–123). During the reign of the first monarchs in Piast State, Płock was one of their seats, and the Diocese of Płock was established, probably in 1075 (Żebrowski 2006: 162–163). Further, as the testament specifies, after the death of Duke Bolesław III Wrymouth in 1138 the Mazovian province was governed by his second son Bolesław IV the Curly (Szczur 2002: 132). Once he had expelled his elder half-brother Władysław II in 1146, he became the Grand Prince (High Duke) of Poland. At that point his Mazovian realm also comprised the adjacent lands of Kuyavia in the west. Meanwhile Konrad I, Bolesław's IV nephew, summoned the Teutonic Knights to apprehend the pagan Prussian threats on the northern borders of Mazovia (Gieysztor 2006: 152). In turn for the Teutonic favour Konrad I ceded the Prussian Kulmerland in 1230. Soon it became the heart of the Order State. In respect of Konrad's I grandson, Duke Konrad II (1264–1294) moved his residence to Czersk, while his brother Boleslaus II remained in Płock (Teterycz-Puzio 2015: 43). When the Polish Kingdom was finally restored in 1320 by the coronation of Władysław Łokietek, the Duchy of Mazovia remained independent. Nevertheless, during the 13th and the 14th centuries it endured many Prussian, Yotvingian, and Lithuanian attacks and it underwent interchangeable partitions and unifications. For instance, Mazovia was divided between the sons after the death of Duke Boleslaus II in 1313. By way of contrast, it was Duke Siemowit III (1341–1381) who was able to re-unite most of the Mazovian lands under his rule (Supruniuk 2010: 24). In 1351 he and his brother Casimir became vassals of the Polish king Casimir III The Great (Suchodolska 2006: 253). Upon Siemowit's III death in 1381 however, Mazovia was again partitioned between his sons Janusz I the Old and Siemowit IV (Map 2). Janusz I was the Duke in Czersk until 1413 when he moved his residence to Warsaw, whereas Siemowit IV was the Duke in Rawa and Płock until 1426 (Supruniuk 2010: 40). Since the Polish-Lithuanian Union of 1385, Mazovia had been located between the merged Jagiellonian states.



Map 1 The Duchy of Mazovia on the background of today's Polish borders (after: https://pl.wikipedia.org/wiki/Mazowsze)

Map 2 The Duchy of Mazovia divided beetwen Janusz I The Older and Siemowit IV, Janusz's part: brown. Trianglels – duke's castles; circles – main manors (after: https://pl.wikipedia.org/wiki/Mazowsze, map modified by P. L.)

Siemowit IV Duke of Mazovia noticeably advanced in the new duchy. For instance, he proved to be very active in the politics of the region and attempted to gain the crown of the Polish Kingdom (Supruniuk 2010: 41–48). After that, he planned to conduct independently all international affairs regardless of the raison d'état. Meanwhile, Janusz I strived to enforce the vassal bond between Mazovia and the Crown (Wilska 1986: 17). Consequently, he took part in the battle of Grunwald and defended Poland during the Great War with Teutonic Order (Wilska 1986: 19). For the simple reason that the estates the brothers received from their father were quite different, Janusz I had to simultaneously struggle to govern his lands most efficiently and spread his properties. He got a less developed and less attractive part, whereas Siemowit's lands were famous for their fertility and dense settlement locations. Therefore, Janusz decided to create several new administrative and defense points.

One of the oldest examples of Janusz's settlements of that time is Czersk (according to archaeologists the oldest settlement established there dates back to 7th century; see Urbańczyk 2016: 77). Located at the mouth of Czarna river which enters the main stream of Vistula, the gord (*gród*) of Czersk dates back to the half of the 11th c. (Trzeciecki 2016: 144; Ościłowski 2016: 82, 84). Its new stone church devoted to St. Peter was built on the gord's courtyard in the beginning of the 12th c. Later the gord was replaced by the brick castle raised by Janusz I the Old (Fig. 1). One might imagine its picturesque location on the protruding peninsula which was towering over the left bank of the Vistula's fluvial terrace. It was secluded from the back by an earth embankment. Unfortunately, the chronology of its construction is unknown. It is worth noticing though, that according to Izabella Galicka's doctoral thesis Czersk has visible stylistic and workshop features in common with Janusz's castles in Ciechanów and Liw (Galicka 1968, vol. I: 81). On these grounds the researcher concluded that Czersk *castrum* was the work of *murator* Niklos. According to certain sources he was also the author of some works in Ciechanów and Liw (*Metryka Księstwa Mazowieckiego*: 3). On account of this information, Galicka estimated 1422–1429 as the beginning for the construction of Czersk. With reference to the researcher's assumptions Niklos's workshop managed to raise the cylindrical towers up to 2,5m and the four-sided gate tower up to 12–13m. It remains unknown why the construction was temporarily ceased afterwards (Galicka 1968, vol. I: 81–82). Apparently, the work was resumed by a different and poorer craftsmanship. The new crew accomplished the ramparts, the cylindrical towers, and perhaps the southern and the northern houses. It is

Fig. 1 Czersk, castle, beginning of the 20th c., Institute of Art, inv. no. BR567 (photo by: J. Wojciechowski)

also likely that they reconstructed or rebuilt St Peter's stone church. In 1429 Janusz I the Old died in this castle. Throughout "the 15th c. and in the first half of the 16th c. the towers and the walls of the castle were gradually heightened" (Galicka 1968, vol. II: 61). According to Galicka, those attempts, analogous to Ciechanów and Liw, were commanded by Konrad III whose intention was to meet the new artillery challenges. Further modernization of the castle's defensive machinery took place in the first half of the 16th c. when the towers were heightened and equipped with embrasures. After 1545 more serious construction works mainly concerned the residential parts. With the usage of the demolition material and other common components, at least three residential buildings were then erected. Among those one was certainly located in the place of the former duke's residence at the northern wall.

It turns out that Galicka's assumptions were partly contradicted by Tadeusz Zagrodzki (Zagrodzki 1996: 38–45). In 1976 he based his knowledge on the analysis of the brick measurement used for the castle's construction. He claimed that the southern part from the tower gate to the first set-off behind the western tower were built in the earliest days. Both towers and the walls were erected to 8–9 m above the ground level. Furthermore, the upper western tower walls with the crown of the initial merlons and the whole northern wall were built during the second stage of the castle's construction. Then the defensive peripheral of the castle was complemented with the northern wall whose linkage with the tower gate proves it was built later. When the western tower and the western part of the wall were finished, they were of equal height. After that, the western tower was heightened and the level of merlons corresponded to the height of the northern wall. At all events, both stages consistently fulfilled the construction plans. Only the earth embankment in the place of the eastern curtain coexisted temporarily with the brick structure. It was separated by a short technological break necessary for the production of bricks. Finally, the castle was fully erected according to the concept and during the life of Janusz I the Old at the turn of the 14th and the 15th c. (Fig. 2). Zagrodzki presumed that Czersk was built in 1398–1406 and it followed the same workshop as collegiate of St. John in Warsaw (Zagrodzki 1996: 42). Further works on the castle were conducted after 1545. The walls of that time were described by the researcher as negligent and composed of demolition material. Similarly, the third and the fourth storeys of the gate tower as well as the hoardings (brattice) were built during that time. The same phase comprised also the southern prison tower which was elevated with four additional storeys and the western tower which protruded beyond the line of the ramparts. It was Sigismund II August whose reign included the construction of south-western ramparts, a new house along the northern wall (in the place of the former duke's residence) as well as a new building along the southern wall. According to Zagrodzki "(…) the whole reconstruction of the medieval castle was conducted due to one possible reason i.e. to create the magnificence worth the reign of Sigismund II August" (Zagrodzki 1996: 36).

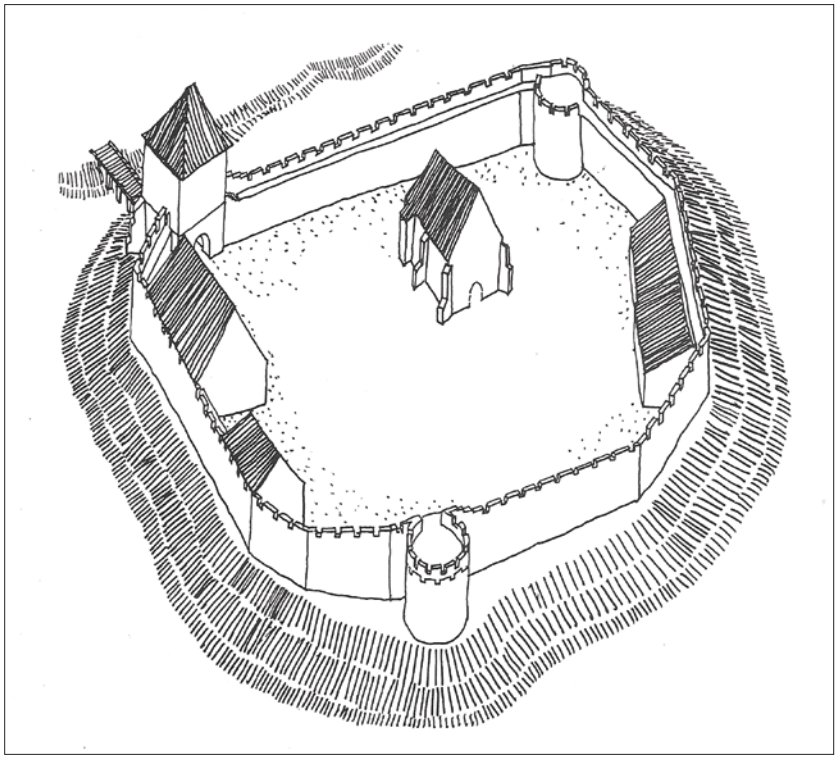


Fig. 2 Czersk, castle as it might look in the first decade of the 15th c. After Tadeusz Zagrodzki (Kajzer, Kołodziejski, Salm 2001: 140)

Certain grounds exist to claim that one should balance Tadeusz Zagrodzki's observations. After all, the researcher relied solely on the measurement results of the brick material and the analysis of the walls lines. He almost completely ignored the broad knowledge of documented sources concerning the castle. In contrast with Galicka, he did not take into account for instance the Crown Treasury Archives with the illustration of Mazovian castles from 1549 written by priest canon Maciej Wargawski on the commission of Sigismund II August (*Consignatio aedificiorum*: 476–586). It seems safe to claim that the issue requires further research, especially source inquiries. It is hard to conclude ultimately when the gate tower with the hoardings (brattice) or the southern and western towers were raised up. Those works might be attributed to Konrad III the Red- Czersk's duke in 1471–1503. However, they might be likewise pertained to the reign of Sigismund I or his wife, Bona Sforza. In the light of the review from 1549 it seems that all works conducted in the castle prior to that date mainly concerned the residential-representative buildings. That time initiated the replacement of the house partly built on the old foundations standing next to the gate tower. Curiously enough, the documents also contain some reference concerning the old edifice (*aedificia antiqua*), stables, two rooms in the ramparts and a dilapidated church (*Consignatio aedificiorum*: 483).

Remarkably enough, Ciechanów castle renders similar uncertainties (Fig. 3). The older sources reveal that its initiation was again attributed to Janusz I the Old (see Kłoczko 2002: 3–21). Supposedly, it was built from scratch on a swampy terrain in the bend of Łydynia river. At that time the construction comprised peripheral walls with two cylindrical southern towers flanking the gateway located in the middle of the southern curtain. Their height amounted to 7,70 meters. Due to reasons which still stay unknown, further works had been ceased until the death of Janusz I the Old. Afterwards, the courtyard level was heightened by 1,5 meters, the walls were elevated and the merlons were finished. There was also a representative residential house at the northern curtain. It remains uncertain whether the entrance of the initial phase was located in the southern curtain gate or at the western tower gate which was interpreted as the support for the construction period (Galicka 1968, vol. II: 21; Małowiecki 2006: 139–146; Piotrowski 2006: 77, 82; 2012: 8). Furthermore, the southern and perhaps the eastern curtains were accompanied by additional buildings. The abovementioned works were conducted within the 1430s–1440s. Once those works had been accomplished and the residential and supportive buildings had been introduced, the peripheral walls were successfully elevated to 10 meters. By the same token, the third storey of the castle house was erected together with the bay window (the so called Chicken Leg) in the northern distance of the western curtain. Izabella Galicka dates these works for the second half of the 15th c., more specifically, the Thirteen Years' War period or the time immediately following its end. She considered those actions to be reasoned by the necessity of the castle's defensive

Fig. 3 Ciechanów, castle (photo by: P. Lasek 2008)

improvement against artillery fire (Galicka 1968, vol. II: 22). Other researchers place the upgrading in 1470s (see Kunkel 2006: 215). Anyhow, the building works of the 15th c. were not the last ones. At the turn of the 15th c. Konrad III the Red initiated the elevation of the towers which luckily maintained their height until today. The western tower is remarkable for its frieze which resembles merlons. With all probability, the towers were also equipped with keyhole embrasures at that time too. Henceforth the castle was maintained by queen Bona.

The above research result based mainly on the analysis of the walls rather than on the archaeological examination and source inquiries was critically addressed by numerous researchers (Małowiecki 1992: 29–53; Kociszewski 2006a: 19; Kociszewski 2006b: 92; Piotrowski 2012: 8). Marek Piotrowski, who has recently conducted archaeological exploration, claims that the castle was preceded by a gord which had been built in the last decade of the 13th c. "The brick castle was most likely founded by Siemowit III, Duke of Mazovia (from 1341 to 1381) and it was later extended until 1370. According to the researcher it was a rectangular fortification (48 x 57 m) surrounded by brick walls set firmly upon the stone underpinning and with the entrance flanked on both sides by two strong towers. The height of the walls and the towers approximated 5 meters. Around 1370 the foot of the walls was encircled by a ground-clay embankment of 6 meters in width and crowned with a double stockade. Additionally, the castle was protected by an eighteen-meter wide moat. A wooden and easy to disassemble bridge lead towards the town from the southern gate" (Piotrowski 2012: 8), while the western gate functioned as the support. The vast courtyard of such fortification was also the place of refuge. What's more, there was a stone-wooden main tower standing next to the castle troops' gate house and opposite the southern gate. Niklos reconstructed this form of the building for Janusz I the Old after 1420. He managed to build the so-called Big House and cobble the courtyard. The same holds true for the main tower which he took apart and turned its stone foundation into a water reservoir. Unfortunately, the results of Piotrowski's research haven't been published so far and it's been difficult to reflect on his vision of the castle's transformation (Kunkel 2006: 130). Consequently, one is compelled to critically evaluate the thesis supporting the existence of an earlier fourteen-century origin of the castle.

It just so happens that the shape and the condition of Ciechanów castle in the first half of the 16th c. was portrayed in the examination of Mazovian castles written by priest canon Maciej Wargawski in 1549 (*Consignatio aedificiorum*: 501–503). As a matter of fact a long decayed old wooden bridge rested on wooden piles and led to the wooden defensive construction, namely a gatehouse. The gatehouse in turn contained drawbridge machinery and the room for the gate keeper. Additionally, the gatehouse was separated from the main square brick gate by the second drawbridge. Beyond the castle gate there were some wooden houses meant for the servants. Further references mention a smaller wooden house and the so-called Big House with an avant corps on the axis. It's worth mentioning that the tower-like shape of the avant corps contained a staircase, and St. Stanislaw chapel. What's more, its ground floor functioned as the social premises, whereas the first floor included a vestibule, a room and a chamber, all of which were heated with furnaces. Directly above, the second floor was reserved for the royal chamber and it was ornamented with paintings. There was also a royal bedroom with a private treasure vault. Besides, the centre was occupied by a vestibule which leads to the chapel. Interestingly enough, the king's bedroom also provided access to the bay window (the so-called Chicken Leg), which Galicka referred to as a "kind of a prospectus cabinet" (Galicka 1968, vol. II: 25). The attic was accessible from there too, and it contained a room with a furnace and a chamber. Though in poor technical condition, the towers contained the solitary confinements (*Consignatio aedificiorum*: 503).

Fortunately, fewer architectural doubts arise when it comes to the transformations of the castle in Liw (Fig. 4). The construction underwent archaeological and architectural investigations within 1954–1955 (Tomaszewski 1956: 205). Built in the end of the 14th c. on a hillock among swamps and marshlands tucked in between the Czerwionka and Liwiec rivers, the castle of Liw was again owned by Janusz I the Old. It is true that some works of unknown character were managed by Niklos in 1417–1429. The first thing to consider though is the arrangement on the square-like ground plan with a gatehouse in the form of a tower opened towards the interiors of the castle (Fig. 5). The tower was protruding beyond the line of the north-western wall and their height was equal. Then, there were two parallel buildings inside. The bigger one was placed along the whole distance of the north-eastern wall while the smaller one ran along the south-western wall. They were separated by a small courtyard. Curiously, the construction works were ceased due to unknown reasons, perhaps because of the fire. Further construction was resumed in the second quarter of the 15th c. when the peripheral walls and the gate tower protected by a drawbridge were accomplished. It seems plausible that its tower form had been planned beforehand. Similarly, the two castle houses were accomplished and their height slightly exceeded the peripheral walls. The highest storey of the bigger house contained embrasures and served as the defensive structure. The following stage of the castle's development 1512–1522 was initiated by duchess Anna, a widow after Konrad III the Red. At that time the

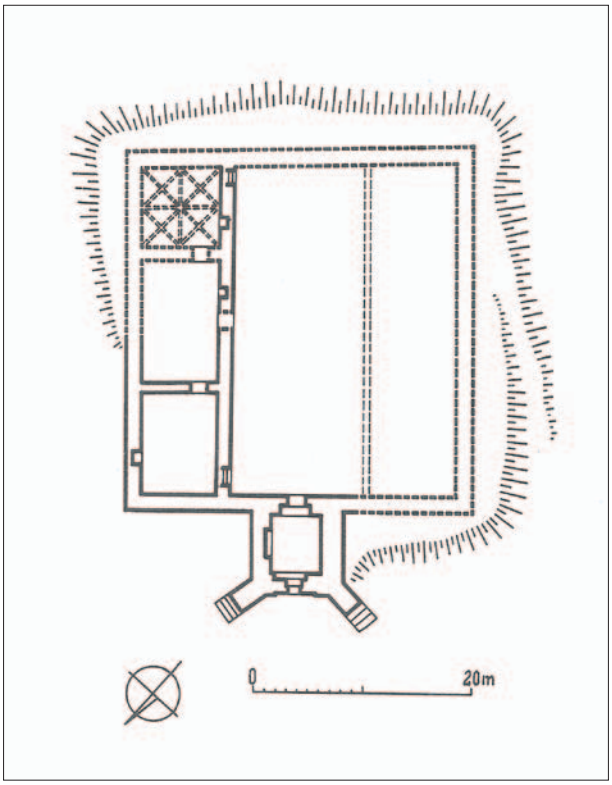


Fig. 4 Liw, groundplan of the castle (Galicka 1995: 448)

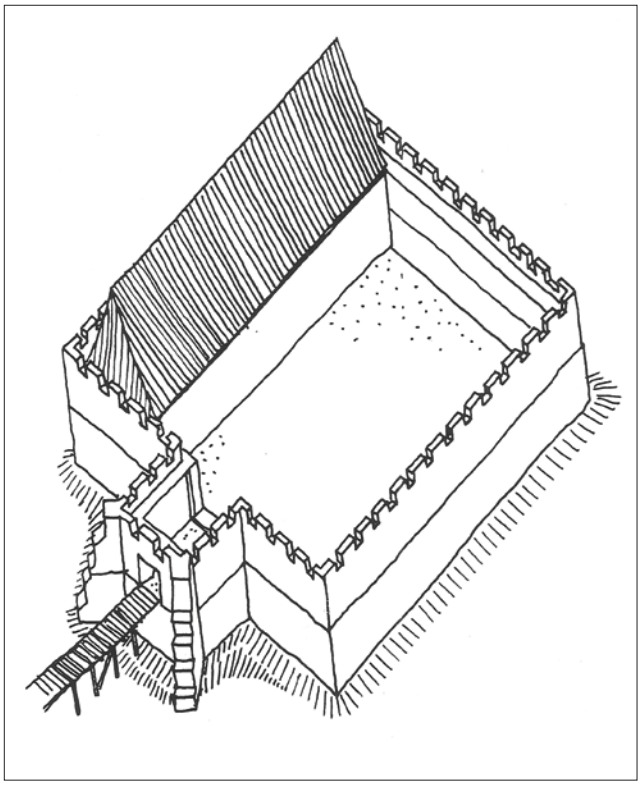


Fig. 5 Liw, castle as it might look in the first quarter of the 15th c. (Kajzer, Kołodziejski, Salm 2001: 275)

gate building was enclosed by a wall from the courtyard side and it was heightened together with the peripheral walls. In the light of the investigation from 1549 the tower gate contained an armoury with 28 arquebuses (hakownice) and a reserve of gun powder (*Consignatio aedificiorum*: 524–526). Additionally, within the ramparts there were a "big house or an edifice", a small house, and a wooden granary towards its southern side. What's more, the castle was communicated with the town by a causeway occupied by an outer ward partly supported by wooden piles on the swamp. It was most likely of 15th c. origin. Moreover, it was protected by *propugnaculum supra porta* and the interior area contained administrative and residential buildings (i.e. office), social and farm buildings (kitchen, stables, a mill, a gun powder store), as well as a bath. All of those buildings were made of wood.

Sadly, the remaining castles of Janusz I the Old domain have not maintained their cubature forms. Therefore, it is difficult to examine their architecture. In most cases, they haven't been investigated archaeologically either. Their form may be only reconstructed on the basis of the written sources.

Out of all the constructions reviewed in this paper the Royal Castle in Warsaw was undoubtedly reconstructed and investigated most thoroughly (Fig. 6). Historically speaking, a tower with a four-sided extension from the north arranged on a square-like ground plan was built in the 2nd or the 3rd quarter of the 14th c. in the south-eastern part of the courtyard of the Warsaw gord on the Vistula bank (Sekuła 2007: 106). Initially, this structure must have been located along other wooden-earth enforcements of the ducal residence, which had already been equipped with a brick gate house and drawbridge machinery (Sekuła 2007: 108). In the courtyard, there might have also been a housing estate with supportive buildings all made of contemporary materials. It seems likely that the wooden fortification was meant to be reconstructed into brick one, since the tower was equipped with bricks intended for further extension. The plan to transform wooden fortifications into a defensive brick peripheral was launched after 1379. However, due to the scarp slide the process had never been finished. Thanks to Janusz's I initiative the complex of buildings was surely incorporated into the existing municipal peripheral of the fortifications in the end of the 14th century. As a consequence, the need to fortify the construction weakened. Taking into account the new political and economic circumstances of Mazovia, Janusz I decided to build a different model of residence *intra muros*. Comfort of the dwellers and its representative features were the highest priority at that time. As a result, a residential building called the edifice was built west from the scarp slide and the construction failure of the defensive

Fig. 6 Warsaw, castle as it might look before 1355 (Bocheńska 2016: 217)

peripheral. Later, another building called "the Bigger Manor" was built on the elongated four-sided ground plan east from the edifice. This way the ducal residence moved deeper inland of the castle peninsula and the courtyard was significantly reduced (Fig. 7). In all probability, that's when the defensive walls were levelled. Within this form of the building complex the old defensive-residential tower lost its initial meaning and it adopted penitentiary functions. In the 2nd half of the 15th c. the compound of ducal estate became in fact the court-like premises open towards the city and protected from the outside by the municipal fortification (Galicka 1988: 137–139).

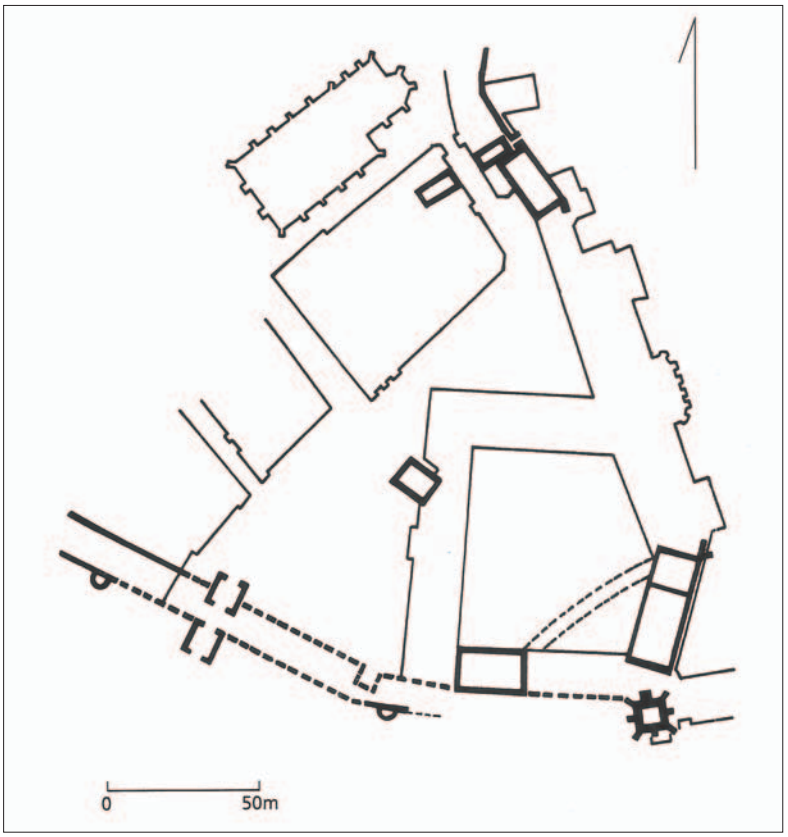


Fig. 7 Warsaw, ducal residence during the reign of Janusz I, reconstruction after J. Salm (Kajzer, Kołodziejski, Salm 2001: 526)

In the light of the inspection from 1549, the construction in Wizna was also referred to as the castle (*Consignatio aedificiorum*: 513–519). The gate tower and the house were made of brick and they were raised in the beginning of the 15th c. on the initiative of Janusz I the Old (Galicka, Sygietyńska 2006: 537). The castle in Wizna had never had a complete brick defensive wall. The inspection of 1549 mentions *antemurale seu propugnaculum* (…) *quod cognominatur* of the gatehouse which contained two rooms (*Consignatio aedificiorum*: 513–514). Further, it quotes the "good gate" (a brick gate tower) which also contained the gate keeper's accommodation and a room on the first floor. It might also be mentioned that the housing estate consisted of three buildings, namely small, medium, and a large one, whereas the supportive buildings consisted of the stables for 60 horses and a kitchen. Furthermore, the defensive walls were made of wooden sterlings filled up with earth and jointed with clay. In 1549 they were enforced by 4 towers (*propugnacula*) equipped with missle-throwing machinery (*machini bellice seu tormentaria*) and 32 arquebuses (*Consignatio aedificiorum*: 514).

The last castle in the domain of Janusz I was located in Wyszogród. This construction was wiped out from the surface of the Earth and the following transformations of the castle hill did not facilitate the character of the initial buildings or their initiator. Therefore, it seems impossible to determine whether the construction appeared in the 2nd half of the 14th c. on the initiative of Siemowit III, Duke of Mazovia (Galicka, Sygietyńska 2006: 537; Supruniuk 2010: 24). It also remains unknown how much Janusz I interfered with the existing fortress. In 1549 the castle consisted of a three-storey gate tower (*Consignatio aedificiorum*: 490–491). Next to it there was the defensive wall and an edifice (*lapidea*) connected with the tower by a wooden passage running along the wall. Behind the housing estate there were stables, granary, and another tower with a damaged roof. Furthermore, there was a bakery, a house (most likely a wooden one), and an edifice referred to as "large". For what it is worth, the edifice was decrepit and it required technical mending. Recently Tomasz Olszacki and Artur Różański made an attempt to reconstruct the castle layout in corelation with written sources and the results of archaeological excavations (Olszacki, Różański 2018: 204–220).

In order to summarise the undoubtedly significant research issue of late mediaeval and early modern transformations of the Mazovia castles fortifications, one is compelled to note that most of the aforementioned objects require further research both terrain-wise and above all, source-wise. With the situation being as it is, one might still make a few conclusions and observations concerning the development of Mazovia *architecturae militaris* of that time. First of all, the substantial managerial and financial effort of Janusz I was evident. It is a pity it was not repeated by his successors. It goes without saying that the duke consistently strived for enforcement of the key strategic locations of his realm. In order to do that, he took into account two main sources of threat, namely the Teutonic knights and conflicts on the border with Lithuania. The dispute essentially concerned Podlachia region which he conquered in 1382. Another asset of Janusz I was the unique character of the craft introduced in his investments (Ciechanów, Czersk, Liw). It compelled some researchers to suggest a hypothesis of a common workshop managed by the enigmatic Niklos. This assumption does not deserve credibility though, since it is based merely on one source reference which mentions that Niklos owed the duke 3420 grosz for unidentified (probably unfinished) works, performed within 1417–1429 in Ciechanów and Liw castles. The analysis of the relics indeed reveals a few building stages. The oldest dates back to the times of Janusz I and it seems to be distinctive in many respects. The walls of Czersk, Ciechanów, and Liw were raised up to the level of a few meters in the first stage. After that, one can observe evident construction break which was resumed in a different quality of the brick and a less diligent manner. For one thing it is easy to notice the tendency towards hasty accomplishment and the introduction of defensive features. So far researchers have attributed this matter to the conflict between Niklos and the duke, which was followed by the workshop change and a hurried accomplishment of the construction. In the light of some vague grounds concerning Niklos's workshop, his provenance, and the scope of his works, one needs to note that the construction break in Czersk, Ciechanów, and Liw may have had a different cause. Perhaps it was just a technical break necessary for the production of another batch of bricks. This reason however, does not explain the decline in the quality of the walls. Therefore, one should carefully consent to the idea that it was actually the change of workshop. It is hard to clarify the reasons for this phenomenon now. In the same vein, one cannot be sure whether the abovementioned objects were concluded before Janusz's I death. Conceivably, they could have been finished by his successors, though the political split of his region and the lack of financial resources for further funding recorded in the ledgers of Mazovia dukes make this theory even less believable. One cannot exclude the possibility though, that the construction works of the three Mazovia castles were accelerated due to the increasing threat of the Teutonic Knights.

The peril is indirectly confirmed by the architecture of the objects. Czersk and Ciechanów have no match in other castles of 14th and 15th c. in Central Europe. Technical similarities common with Teutonic castles are poorly documented. The way Janusz I built his investments (gothic brick line on a high stone underpinning) is typical for the majority of such constructions in the North European Plain. Except for Bytów castle (see Kajzer, Kołodziejski, Salm 2001: 120–122), which presents different kinds of architecture and defensive solutions (flanking corner towers), there are no analogous examples

among Teutonic defensive constructions (Fig. 8). Ciechanów and Czersk castles represent the concept of low towers, which additionally failed to protect the flanks fully in the first stage of their existence. Should one assume that such was their initial solution for defence, it must have been based nonetheless on dissimilar principles. Perhaps lowering the towers' form and the whole outline of the castles was a response to the first usage of artillery on Polish land (the first documented usage dates back to 1383, see Szymczak 2004: 230). The peril of an oncoming war seems to be more viable though. It is tempting to suggest that the hasty change of an earlier model and the choice of a simpler version were meant to facilitate quick and active defence of the merlons.

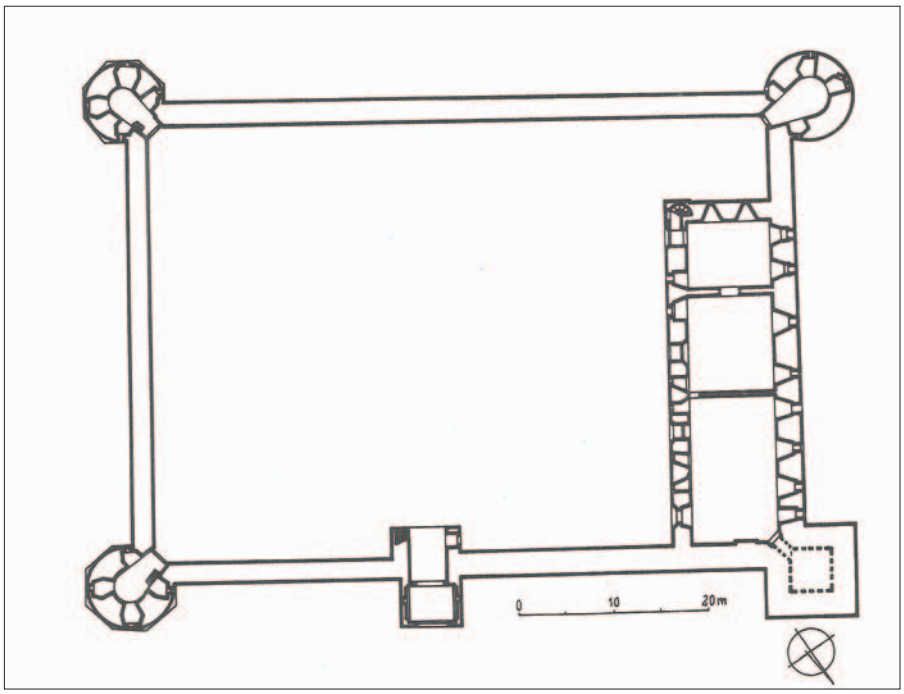


Fig. 8 Bytów, groundplan of the castle in the 15th c. (Arszyński 1995: 362)

In the light of the above assumptions, Liw castle architecture originates from a different policy. Unexpectedly, located on the outskirts of the realm of Janusz I, the castle was planned for noteworthy residential and representative features. One should review this object in the light of Central European two-house castles. Their special form is considered to have evolved from the residential-defensive objects in order to provide a comfortable residential space (Skuratowicz 2006: 154–155). Troki brick castle (Fig. 9), built by duke Witold on Galve lake island, may be considered as a close analogy to Liw castle (see Kušniarewič 2011: 102–105). Other analogies in the North European Plain include the two-house objects such as

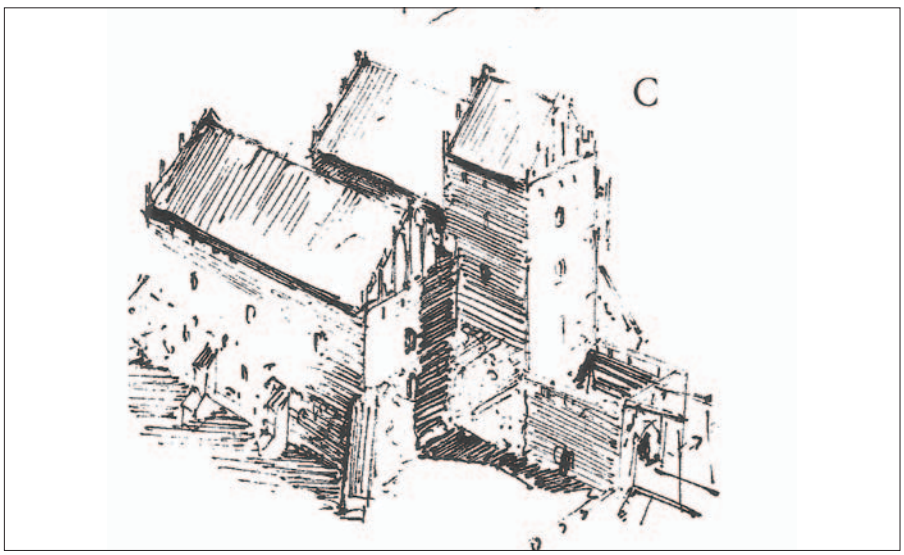


Fig. 9 Troki, upper castle, reconstruction after W. Wółkowski (Kunkel 2007: 219)

archbishopric Łowicz raised in the 3rd quarter of the 14th c. by Jarosław of Bogoria and Skotnik (Fig. 10), or the later example of Borysławice Zamkowe built by archbishop Wojciech Jastrzębiec before 1426 (see Pietrzak 2005: 208, 211).

After the death of Janusz I his successors' contribution to the castles improvement went unnoticeably. That said, however, a remarkable managerial and financial effort invested in the reconstruction and the development of the Mazovia castles can be certainly observed during the Jagiellonian period. It was chiefly the initiative of Sigismund I and his wife Bona Sforza. Their activities concerned both the extension of the castles' residential area (Czersk) and the modernization of towers, or ramparts. Historically speaking, it seems crucial to answer the question whether elevating the towers and walls in Czersk, Ciechanów, and Liw was supposed to meet the needs of changing war craft (the new meaning of artillery), or was it just a manifestation of certain symbols and power. The scarcity of embrasures in Czersk and Ciechanów towers and walls compels one to opt for the latter reason. It is also worth noticing, that at this point and in the light of the information, one can clearly observe the traditional gothic character of the Mazovia castles in the early modern age. There are no grounds to claim that the activity of Bona, who came from Bari, caused any noteworthy architectural breakthrough.

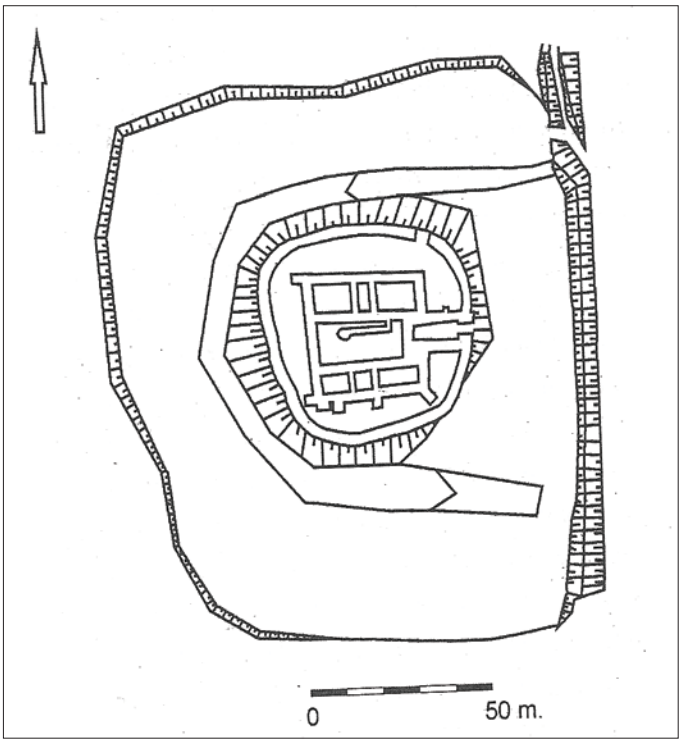


Fig. 10 Łowicz, groundplan of the castle in 14th c. (Nierychlewska 2013: 235)

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MILAN PROCHÁZKA

An Outline of Transformation of Late Medieval Fortified Complexes on the Border of Western Bosnia and Croatia

The presented paper introduces transformation of medieval castles and other fortified features built from the 13th to the 16th century. Moreover, it depicts necessary adaptation based on both a different conception of the Ottoman Empire military and other needs resulting from certain differences in culture, and especially faith. Original, representative and small-sized castles designed to support small garrisons were suddenly occupied by a much larger number of troops. After the retreat from Lika and Dalmatia following the Treaty of Karlowitz in 1699, capacities of settlement and fortified complexes were increased all the way along the newly established borderline separating the Austrian and Ottoman Empire. This level of adaptation, however, contributed to the preservation of original features of medieval castles, and it is possible to observe their Central European typology. The research aims to evaluate transformations of sites in the region classified as one of the most crucial in Europe due to its significance for castellology. The main goal is not to publish and present all sites which belong to cultural wealth of local nations, but to point out their value and level of preservation for future generations.

Key words: Bosnia, fortified complex, castle, castle transformation, castle adaptation, the Ottoman Empire

During the continuous development of European castle architecture from the 15th century, there was a radical change when Ottoman armies had expanded through Europe and permanently settled certain territories. After successful campaigns in the 16th century, there was stabilization in certain regions followed by territorial losses based on the Treaty of Karlowitz.

Great attention has always been paid to fortified complexes by many civilizations and generations. It has been focused on either newly build or older, adapted complexes. In South-eastern Europe, which was the most reshaped region of Medieval and Early Modern periods due to Ottoman armies, the results of permanent presence of another ethnicity, or at least its temporary influence and reaction towards it, are clearly visible. One of possible polygons with observable changes in features and structures is western Bosnia where fortified complexes had been built from antiquity, but especially from the beginning of the High Middle Ages together with the formation of medieval feudal society. Western Bosnia was the original territory bound to the Kingdom of Croatia. Among the eldest castle founders were the Babonić – Blagajski, a cadet branch of the Babonić family, who had ruled over extensive lands between the Korana and Una River basins. The second most important noble family was the Frankopan house including all cadet branches. Due to the additional presence of royal castles and other property, it is possible to observe the application of the most contemporary trends in Central European architecture in several cases (Velika Kladuša, Cazin Ostrožac, Sokolac, Bjelaj). Within this area, the influence of both Mediterranean and Continental architecture can be found. Geographically, the polygon is to be set out by the Korana and Una rivers and by the most crucial urban settlement – the royal free city of Bihać. All the sites are located in the mountainous landscape of the northern extension of the Dinaric Alps, in Bosanska Krajina.

In general theoretical level, castle complexes had to carry several functions beyond being primary fortifications. Except of standard politically-administrative status, they also fulfilled socially-cultural, economic and refugial functions. Rende-

ring some of these functions is closely linked with the cultural identity of agents. Due to the advance of Ottoman armies, it is possible to surmise two transformational processes; adaptation and destructive transformation of original castles as a consequence of proceeding changes in region organization. Within the following theoretical examples, the process of adaptation is seen as an ability of assimilating both natural and older economic structures using new ones rather than human assimilation in natural environment as seen by processual archaeology (Neustupný 2010: 54). A general summary of all factors contributing to either preservation or demise of a castle is a greatly individual and complicated matter (e.g. Gabriel 2006: 26–27).

ADAPTATION (CAPACITIVE)

During the expansion into the Balkan Peninsula, the lack of space for military purposes turned out to be the most serious problem for the Ottoman army as their large garrisons required much bigger premises. New lands gained by the expansion had been adapted according to local conventions with developed fortified and power strongholds holding traditional garrison background capable of defending them. These strongholds were conceived according to Central European customs. Moreover, it is necessary to take into account that selected areas also fulfilled the function of wintering grounds.

The second aspect of castle complexes' shape was their residential and representative function which was apparently not the main priority at that time. The common element of construction and cultural traditions, both European and Ottoman, was the knowledge of firearms according to which the traditional High Middle Age structures were adapted with the acceptance of original patterns. Generally, it is recognized that the increase of garrison capacity was always connected to the arrival and use of Ottoman forces. However, in certain cases, the denial of building phases prior to Ottoman presence would clearly deny the primary function of these castles themselves. The increase of capacity can be connected to the time of crisis after the Treaty of Karlowitz when new fortresses were built along the western borderline of Austria, later Austria Empire (contrary to the situation on the Republic of Venice borderline), and older medieval castles were repaired in order to protect people being resettled from the lost territories (Ćeman 2011).

Based on new capacity requirements, older castles were reshaped if they had not met the newly-required needs. In some cases, a fortress was the first feature to be built, followed by its urban/village hinterland (e.g. Bosanski Petrovac – Ćeman 2011: 169). The easiest way, if the local terrain allowed it, was to build a new part of older castles, or to modify existing ones. Generally speaking, the geomorphology of local terrain was the key factor. Except of capacity reasons, it was necessary to take into account the preservation of original defensive capabilities (usually simple fortifications enclosing the newly-built parts) and general functionality.

Supporting this fact are entries coming from selected historical records. Besides capacity, which could be used according to military needs, there was also a significant increase of refugial function for the local population. Refugial functions are attributed to certain larger medieval (or early modern) enclosures in neighbouring Croatia (e.g. Korunek 2012).

In terms of principal, the basic settlement pattern is as following: the easiest way was to found a bailey duplicating the area around the original castle and thus mostly gaining somewhat irregular trapezoid shape (Bjelaj, Sokolac, etc.). Both castles were originally of royal foundation and considerable importance.

Bjelaj castle, first mentioned by written sources in 1461, fell into the hands of the Ottoman army in the second half of

Fig. 1 Bjelaj – front side of central part (photo by: M. Procházka)

the 16th century (Redžić 2009: 52). The castle's original medieval extent was supposedly extended by an outer bailey by the Ottoman army (Fig. 1). Within the terrain, there is a remnant of a gate which served as the entrance to the bailey and an access road to the inner bailey. In 1677, a garrison of 370 men was evidenced at the castle (Kreševljaković 1953: 40). In 1833, the castle was supposed to be equipped with four cannons and it was later deserted in 1838 (Redžić 2009: 52). The inner bailey of triangular shape had a round tower with an entrance in the first floor in the northwest corner, an oblong three story palace by the eastern side with a gate between the tower and the palace. The original inner bailey located on the edge of the rocky ridge was enclosed by a moat situated in front of the outer wall. It is now 10 metres wide and 2 metres deep. The overall length of the inner bailey is 50 metres and its width following a terrain edge is 25 – 30 metres (Fig. 2). There is a remnant of original entrance in the northern wall and the second building, which foundation is still observable in the form of an oblong feature 10 metres wide and 15 metres long, located on a spur at the outer edge of the moat in front of the inner bailey, which can be interpreted as a forward fortification (Fig. 3). The whole bailey is, due to its original slope, heavily modified to a single longitudinal lynchet; while the rest of the area keeps the original slope. There is a remnant of the original path leading to the inner bailey along the western wall. The main wall is 1.20 meter thick (Fig. 4), and is locally preserved up to 3 metres.

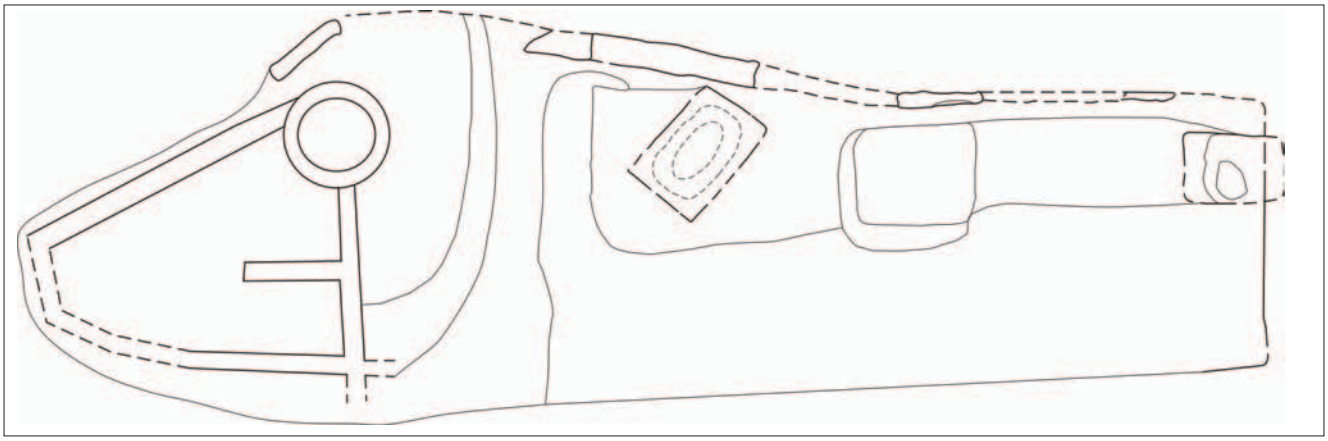

Fig. 2 Bjelaj – sketch of bailey (drawing by: M. Procházka)

Fig. 3 Bjelaj – remains before front wall of central part (photo by: M. Procházka)

Fig. 4 Bjelaj – remains of wall in bailey (photo by: M. Procházka)

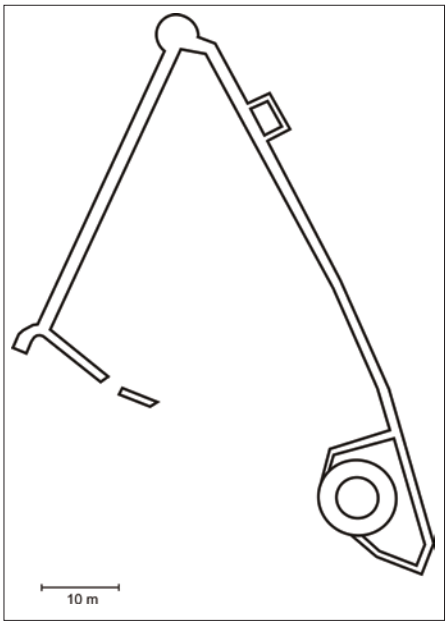

Fig. 5 Sokolac – sketch of castle ground (drawing by: M. Procházka)

Sokolac castle near Bihać (Fig. 5) is first mentioned to have existed in 1380, respectively 1399 according some sources (Kreševljaković 1953: 34) and was later either in royal possession or noble pledge. In 1537, it held the garrison of 10 men and a year later, Ferdinand I. had the castle rebuilt (Redžić 2009: 178–179). It cannot be clearly stated whether the castle's courtyard expansion was of medieval origin, or was later built by Ottoman owners. It is, however, safe to say that the Ottoman army rebuilt and renovated certain spaces. The castle was later deserted in 1878. The small courtyard had formed, together with the round tower, the original part of the castle with the tower holding a key role of the old castle. The tower had been built as a high-level building where the stone staircase had been carved in the thickness of the masonry; two overground floors had been fitted with two gothic windows (Czech windows) with seats, and there had been fireplaces and a privy in the second floor (Truhelka 1904: 31, Horvat 1993: 174–178).

In the case of Orašac castle, some data are questionable, especially the question of its size. We can state that the original inner bailey included a round tower, originally 16 metres high, which floors were made of wooden elements. The tower itself was integrated into the wall surrounding the trapezoidal courtyard, which followed the edge of the promontory. It is possible to compare the castle appearance with nearby Vrnograč castle. The Ottoman history of the castle began in 1703–1730, when a garrison of 60 men was reported (Kreševljaković 1953: 30). In 1833, the presence of three cannons was also mentioned. The Ottoman phase is also represented by a large trapezoidal courtyard enclosed by a gate, which included a small mosque for the castle garrison (Redžić 2009: 152–153).

The system described above also served as prevention against reaching the highest plateau of the castle. It is therefore possible to assume that in many cases, taking advantage of the terrain was a priority rather than accurate dimensioning accordingly to garrison capacity. Simultaneously, this system adds the possibility of applying new fortification elements to eliminate direct approach to the inner bailey.

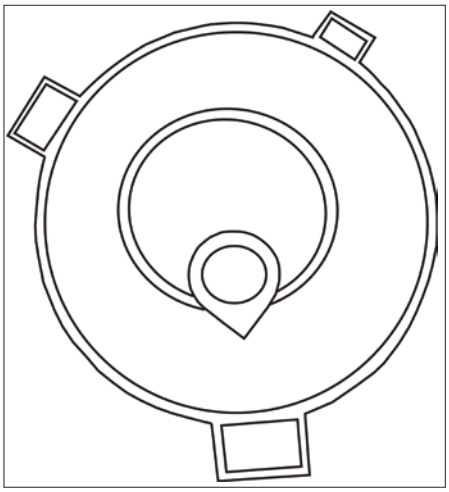

Fig. 6 Velika Kladuša – sketch of castle ground (drawing by: M. Procházka)

The second recorded form was to build an outer circular ring around the original medieval structure (Velika Kladuša). This represents an uncommon phenomenon often determined by terrain geomorphology; it is therefore connected to sites originally built on solitary rocky peaks. Although their overall size or capacity is generally smaller than the first outer bailey type, its defence capability was less personally demanding. In the case of Velika Kladuša castle (Fig. 6), with its only known use of prismatic tower founded in the 13th century, there was a garrison of 10 men in 1570. In 1633, the site was repaired and enlarged by Ottomans and was later garrisoned by 120 men in 1790, and by 200 men some time after. The castle was again repaired in 1800 and equipped by three functional and one defective cannon. Thereafter, the castle was handed over to the Austro-Hungarian army in 1878 (Redžić 2009: 209–211). The original medieval development (prismatic tower, palace and courtyard) was encircled by a ring of wall together with a new gate feature and bastions. The final form of the castle was affected by socialist reconstruction into a recreational centre, which led to disappearance of many original elements.

A sole, though formidable element can be found in adding a medieval castle to newly-built garrison fortification and fortified economic centres such as in the case of Kulen Vakuf – Ostrovica – Prkos (e.g. Ćeman 2011). This case represents a modern fortress which incorporated the original castles into its system. It can be assumed that it is an expression of necessity to create a border fortress in terrain which was not fit for a standardized modern field fortification. Simultaneously, it can be seen as a necessary reaction to the Treaty of Karlowitz as the border got stabilized in 1699 at the cost of losing Ottoman lands in Lika and Dalmatia (Ćeman 2011: 165–166). Such territorial losses were connected to Ottoman population displacement as links had to be made between urban hinterlands, fortresses, garrison buildings, and forward fortifications. In the case of Kulen Vakuf, the main communication formed self-sufficient and impermeable check-in line (Fig.

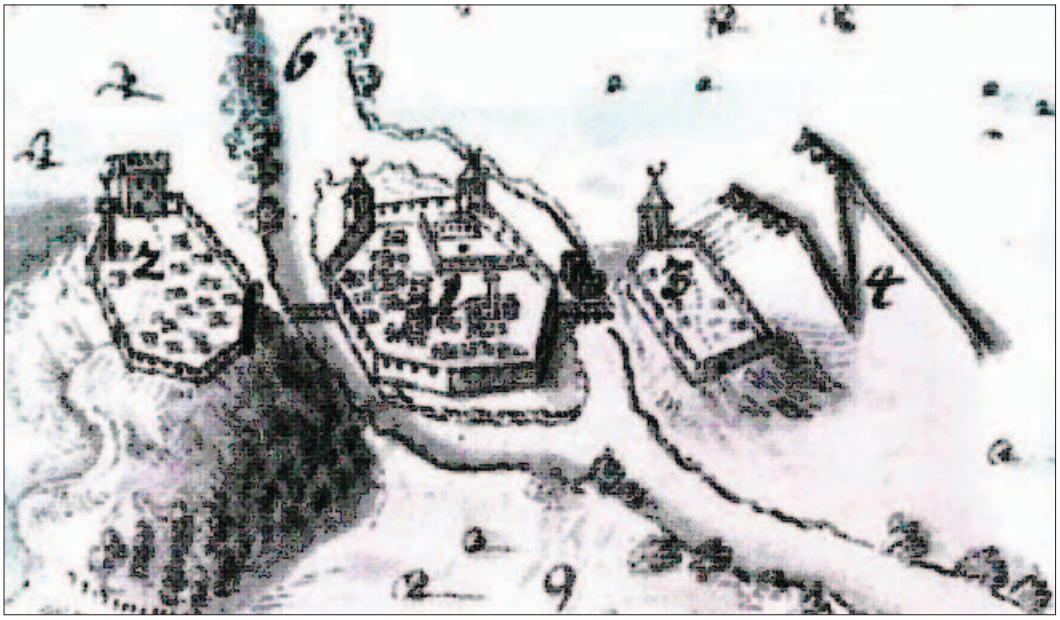

Fig. 7 Kulen Vakuf – Ostrovica – Havale – sketch of fortificated system (Mujadžić, Maslak 2009: 150)

7). The oldest part of the system, Ostrovica castle, was built on the place of former ancient watchtower. It had been first mentioned in the 15th century as a Kurjaković property before it came to the possession of the eminent Frankopan family (Redžić 2009: 153). The castle later fell into Ottoman hands in 1523 and was held by them until 1878. The fortification was improved several times; by sultan Ahmed I in the 17th century (Kreševljaković 1953: 29), and again in the 18th century, when it received its current shape (length of 117 and width of 88 metres). The original medieval castle was then enlarged and included four towers and two bastions. An oval tower incorporated into the fortification is probably a remnant of medieval structure (Fig. 8). In 1566, a garrison of 60 riders and 150 infantrymen is evidenced (Redžić 2009: 153) contrary to only 20

Fig. 8 Ostrovica – overall view (photo by: M. Procházka)

men-strong garrison in 1834 (Kreševljaković 1953: 30).

The later urban complex of Kulen-Vakuf was a fortified town, newly founded on the artificial river island in the Una. Although it was supposed to be founded in the 17th century, and there is no uniform view on more accurate dating, the most plausible time of origin seem so be the reign of Ahmed I in 1603-1617 (Ćemin 2011: 166). In 1700, an order came to extend and fortify the city, followed by another order for the vizier to bring 10 cannons from Belgrade to Kulen-Vakuf in 1713. Besides ordinary town development containing a mosque, there were two gatehouses and bastions within the town walls. The building and wall foundations were still visible in 1934 (Kreševljaković 1953: 29) despite a devastating fire in 1903. The town was connected with the right bank by a remarkably long bridge.

The last part of the described system is Havala, where the fortified rectangular area guarding the right bank was founded during the reign of Ahmed III (1703–1730). In addition to other buildings, there was a *mesdžid* situated on the first floor of the gatehouse (http://nationalpark-una.ba/bs/podkategorija.php?id=34). The fortification contained one (or two according to some references) bastion and a gate in the front of the shorter side of the wall (Fig. 9). In 1833, the site had 7 cannons to its disposal, one of which was non-functional and was soon deserted around 1850. Nevertheless in 1934, the fortress was still in quite good condition. The last parts of the border fortress system were the towers, where administrators or commanders resided, especially after the border arrangement such in the case of Čovka, later Prkosi (Čemin 2011: 168), where the walls have been almost preserved until today since the abandonment occurred in 1876 (Kreševljaković 1953: 30).

Within all the above mentioned examples, the qualitative aspect is seen as a key distinguishing element like the dimension and wall masonry, which was usually not of such high quality as the original inner bailey, or another part of the fortified area. The example of a castle which has never been rebuilt, or it was impossible to increase the capacity due to its position, is Vrnograč (Fig. 10). Although we do not know much about its history, there is a circular tower 15 metres high, dominating the castle and a wall up to 5–7 metres high, surrounding the castle's trapezoidal courtyard. Moreover, the castle kept its original medieval appearance and spatial conception.

Fig. 9 Havala – main entrance gate with mosque (photo by: M. Procházka)

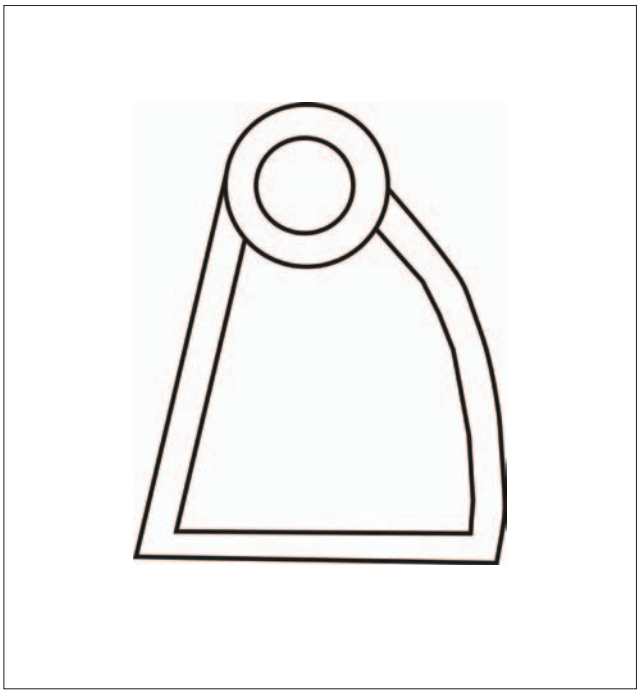

Fig. 10 Vrnograč – sketch of castle ground by air view (drawing by: M. Procházka)

CULTURAL ADAPTATION

Cultural adaptation is not seen as an event of adapting nature environment using artefacts, but adapting existing artefacts and structures which it forms. In addition to new demand for capacity progress of fortified complexes, it is necessary

to mention certain changes in the building structure for cultural reasons brought by a new ethnical group. Certain sacral buildings such as *džamije* or *mesdžid* were incorporated into the original disposition, and were apparently positioned at the place of older buildings. Changes in the garrison capacity are clearly reflected in the related issue of barracks and sanitary facilities. The original features associated with Catholic faith such as churches or chapels (see below) were either reshaped for Muslim faith or used as armoires and warehouses. However, some of them were completely destroyed.

The majority of the most preserved building foundations in such reshaped or newly-founded outer bailies are sometimes automatically interpreted as remnants of a mosque. The question is whether it is possible to search for similarities between Christian churches located at obsolete castle complexes and Muslim mosques located at fading castles in the region. Unfortunately, it is unclear if older foundations were used or entirely new ones were built. Such is the case of the outer bailey of Bjelaj castle, where there is a rectangular feature (10 x 15 metres) to be found beneath the masonry foundation with a slant orientation towards the latter building. It is located at the highest point of the outer bailey in front of the outer bailey (Fig. 11). Under certain circumstances, this would have been a perfect place for a forward fortification according to European custom. In the case of the fortified town of Bihać, which is, due to its extend, bound to the castle complex itself, we can observe partial conversion of an older church (belonging to a Dominican monastery) into the victory mosque "*Fethija Džamija*", which has kept its High Gothic architectural features (Fig. 12). The difference in structure of a medieval and modern town with a castle is evidenced thanks to two vedutas dated to 1590 (Fig. 13) and 1686 respectively (Fig. 14). Unfortunately, no one has ever researched the disposition of original castles' outer baileys in detail. Many architectural features and their elements were maintained in order to fulfil various practical functions (e.g. preserved gothic windows in Sokolac caste).

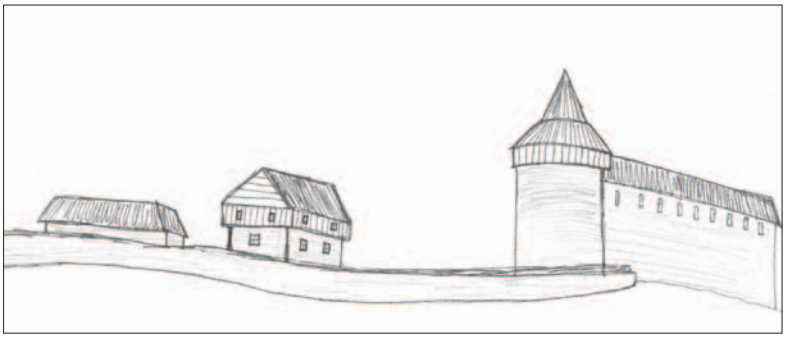

Fig. 11 Bjelaj – possible interpretation of "archeologized" object (drawing by: M. Procházka)

Fig. 12 Bihać – Fethija mosque (photo by: M. Procházka)

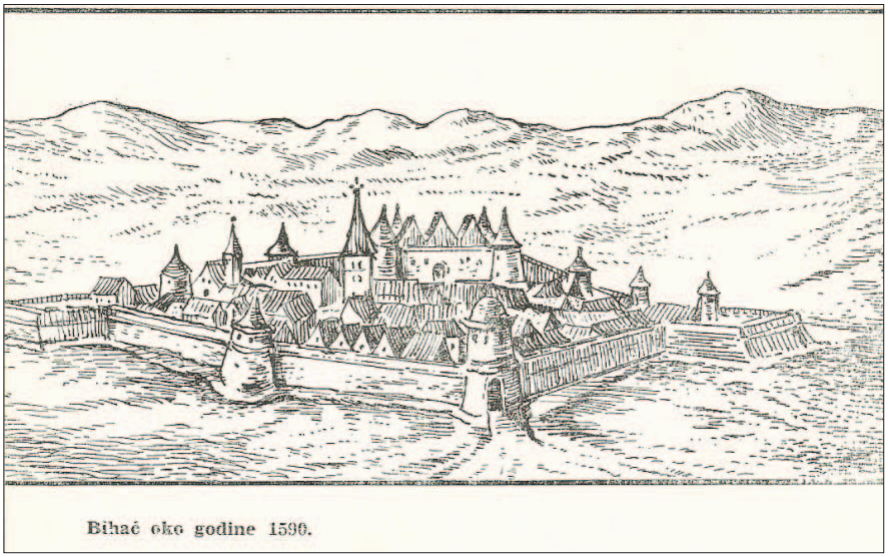

Fig. 13 Bihać – historical depiction, year 1590 (https://www.biscani.net/bihac-kroz-povijest-1-dio-bihacko-srednjovjekovlje/) (J. W. Valvasor, 1689, Ljubljana)

However, the role and level of mutual influence between the old and new culture remains a question. Apart from cultural changes, no parts of fortified areas were connected to representation and upkeep. There can be more aspects related to the question which are impossible to generally specify without a detailed historical building survey. Undoubtedly, the area pattern

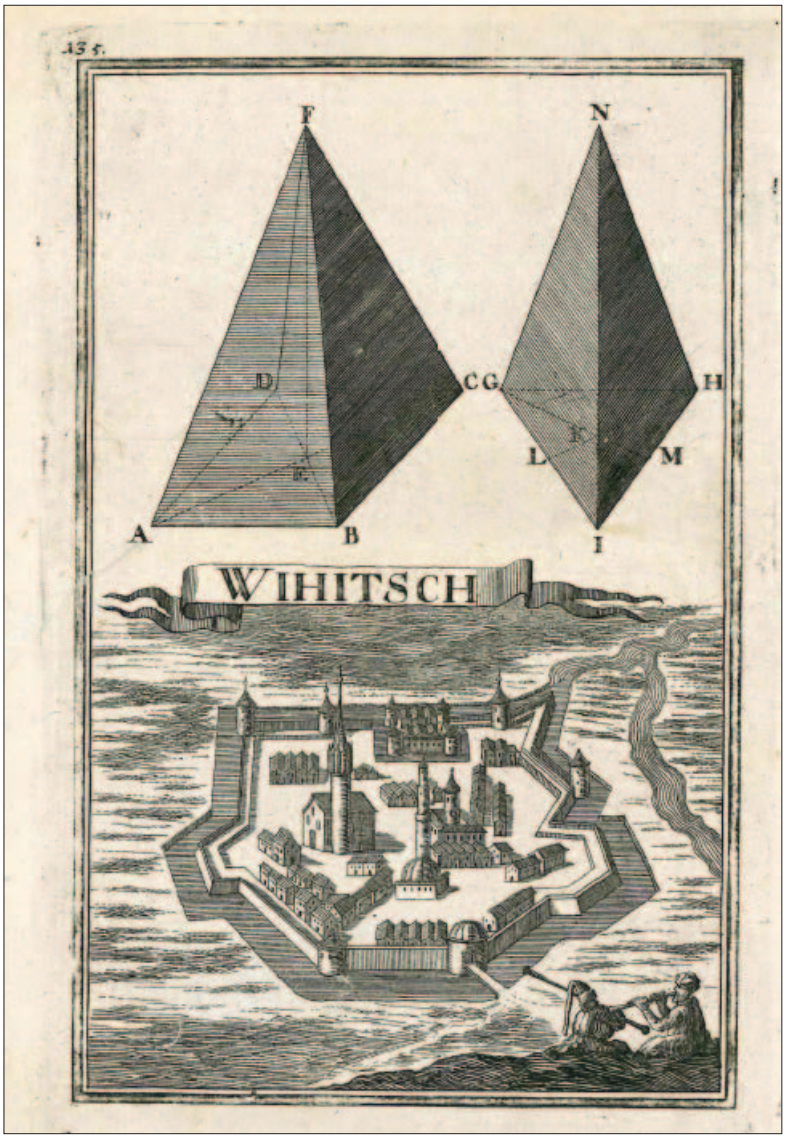

Fig. 14 Bihać – historical depiction, year 1686 (A. E. Burkhard von Birckenstein, 1697)

and communication between each section were designed according to Islamic customs, but are hardly visible from an archaeological point of view so the presence of sacral places remains the only evidence. There did not have to be a single pattern in the beginning as the newly conquered territories were settled by people of different ethnicity, but at the same time a part of original population remained, carrying its own customs. For these reasons, it is possible to assume that there are many examples of adaptation of High and Late Middle Age fortified complexes into Ottoman pattern.

LEVEL OF DESTRUCTIVE TRANSFORMATION

There is a phenomenon to be seen, when, especially in the territory left in the Ottoman hands after the Treaty of Karlowitz in 1699, chosen castles are further retained as strongholds, or new ones are built until the 19th century when we can recognize them as functional, or at least partially functional complexes with a garrison and at least one firearm. In contrast, on the other side of the border in today's Croatia, the original structure of medieval castles is (except of a few examples) forgotten, and the old castle complexes succumb to the development of modern fortification patterns. Simultaneously, new social trends are introduced with chateaux/palaces being built as new residences of administrative and social centres. The treaty of Karlowitz had a huge impact on the border of then Bosnia and Austria when the importance of chosen strongholds rose; however, other unsuitable complexes were abandoned. Therefore, the level of destruction of original medieval castles is connected to the development of modern field fortifications. There is, however, an exception of castles serving as garrison strongholds for the Austrian army. The level of reconstruction of original complexes on the Ottoman side was moderate or dramatic, and always according to necessary aspects of social functions for all inhabitants. Moreover, many repairs and other necessary maintenance work were conducted in order to keep the features operational so their destructive transformation was slowed down. Thanks to that, it is possible to observe original patterns of medieval features which expanded to this area, or were applied by local nobility. After the Austria–Hungarian annexation of Bosnia and Herzegovina in 1878, a drastic intervention was made against the preservation of these castles as many of them were destroyed (Ćeman 2011) (Fig. 15). It can be assumed that the different level of "archaeologization" of castle complexes (Durdík 2002: 10–11) is similar to the Czech environment.

Fig. 15 Bihać – view on tower near city wall (photo by M. Procházka)

CONCLUSION

In conclusion it can be said that within fortified features, especially in the region of Western Bosnia and neighbouring Croatia, we can see many patterns of High and Late Middle Age architecture, which was usually reconstructed, maintained and further developed for the needs of the new ethnic group. In the beginning, the main reasons were purely military (capacitive). After the Treaty of Karlowitz in 1699, the features played a key role defending the newly-established settlement agglomerations following the expulsion of people from Lika and Dalmatia, and at the same time, strongholds are strengthened near the new border (especially Kulen Vakuf – Ostrovica – Havala). In addition to modifying the older complexes, new ones were founded. This need was evoked by capacity adaptation, and primarily for the requirement of resettled population. The extension was usually formed by adding a trapezoidal bailey with the most significant building usually being a *džamija* or *mesdžid*, holding the sign of cultural transformation (Havala, Orašac). Unfortunately, in-depth survey is missing to specify the disposition or its transformation in detail. Within the original castle sections, certain representative medieval features were mostly preserved, or gently modified (e.g. Sokolac). Local castles were further deeply affected by the military presence of Austria-Hungary in the second half of the 19th century, when castle and city walls were deliberately destroyed (Bihać, Bosanski Petrovac). Contrary to that, old castles in the territory ruled by Austria had been left in ruins a long time before, and their destructive transformation was not slowed down.

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DUŠKO ČIKARA

Single-Space Manor Houses in the Context of Defense and Possible Genesis of the Post-Medieval Nobility Countryside Architecture in NW Croatia

Earlier conservation research together with the analysis of more complex multi-layered structures, confirmed by independent research, has corroborated existence of single-space curiae *in Continental Croatia consisting of a single approximately square room and a narrow corridor. It cannot be excluded that the use of the term* fortalitium *to describe structures embodying a so far unrecognized pattern of spatial organization, and featuring elements of defense – such as elevated entrances, loopholes and machicolations – applies to such buildings. Traces of smaller spatial nuclei at the extreme parts of the 16th c. complex defense structures indicate the possibility that those systems came into being by including two or more conveniently located structures that initially might have been connected by palisades, thus creating refuges for local inhabitants during Ottoman raids. Bearing in mind that defense elements were often partially or even completely removed, as well as that existing edges were certainly rebuilt during alterations and additions, a confirmation of the hypothesis that the development of Renaissance* castella *also incorporated single medieval rectangular* curiae *would be sought through specific geophysical and archaeological research.*

Key words: Continental Croatia, Middle Ages, Modern Age, feudal architecture, single-room manor, refuge, Renaissance castellum, Baroque mansion

INTRODUCTION

The hypothesis that manors of characteristic single-space layout were incorporated into more complex countryside mansions in Northwestern Croatia (Čikara 2017) have been corroborated by an independent research of three Kaptol canonical *curiae* in Zagreb. The original core layout of the Praepositus' Baroque mansion situated on Kaptol No 7 has been published (Vučetić 2006: 420; Čikara 2017: 180). On the façade of Kaptol No 26 characteristic medieval openings can be observed, and a photo of an earlier gothic entrance has been published (Čikara 2017: 182). A photograph of the Notary's *curia*, which is incorporated within the Lector's Baroque *curia* at Kaptol 27, had been published even before the recent researches (Dobronić 1988: 81). Subsequently, the original outlines of the *curia*'s façades have been restored.[1] The above suffices to establish a so far unique spatial organization of a nobleman's house in medieval Slavonia, whilst remains of late Antique dwellings of the similar, basically megaron type, found in the Slovenian part of Styria (Ciglenečki et al. 2011: 275), provide a basis for speculation about its long continuing presence in a wider geographical area. This paper intends to present the hypothesis of existence of detached fortified *curiae* featuring a similar layout, and a hypothesis that larger fortified *curiae* as well as large *castella*, came into being by including one or several single spatial cores that initially might or might not have been fortified as separate dwellings. At the times when the nobility dwelled within compact *burgs* and towns of medieval Slavonia the main purpose of these *castella* was to provide refuge to local villagers during Ottoman raids – going back to the seventies' of the 15th c., the time of transition from the Middle Ages to the modern era – since the Ottoman method of conquering territories involved devastation of territory and enslaving local dwellers (Kruhek 1995: 54–60). Bearing this in mind, the supposition that the majority of dwellers found refuge on naturally inapproachable points (mountains,

1 The two Kaptol *curiae* have been elaborated in an article following the author's lecture on the scientific gathering dedicated to the art historian Lelja Dobronić (Zagreb, May 2017).

caves, deep woods and marshes) is not plausible (Horvat 1975: 217), since serfs were the base of the feudal economic pyramid and had to be protected as much as possible. Therefore it is certain that refuges must have been an intrinsic element within the defense system of the period in Slavonia (Klaić 1909: 31).

HYPOTHETIC SINGLE-SPACE FORTIFIED *CURIAE* OF THE KEGLEVIĆ NOBLE FAMILY

A short description of one of the two *curiae* in Sutinsko saying that it was "*in modo fortalitii erecta*" (Laszowski 1943: 12; Regan 2013: 85; Čikara 2017: 181) and the description of the Keglević's subsequently fortified *curia* erected across from the Krapina *castrum* in the second half of 16th c.: "*…curiam meam sub castro Krapyna, in modo fortalitii erectam…*", and respectively "*…fortalitium erectum…*" (Klaić 1909: 21–27) makes it clear that at the time, even regardless of the Ottoman peril, uncertainty was a general and everyday condition. What these fortified *curiae* or *fortalitia* were like? Given the level of research it is difficult to determine whether they were more complex structures with towers and enclosed courtyards, or just habitual single-space *curiae* – featuring only some of the defense elements such as embrasures, elevated entrances, machicolations, brattices and trenches. If the claim about the existence of two *curiae* erected close to each other in Sutinsko can be accepted as trustworthy, it leads to the conclusion that both structures were of modest size (if the foundations discovered outline one of them) since a single-space *curia* situated next to a more complex fortification, or presence of two fortifications on such a small span, would be absurd from the point of view of defense. Since in this part of Croatia no *fortalitia* have been preserved, or found within more complex structures, as analogies one could use old illustration and the fortified Baroque mansion in Čara on the island Korčula (Fig. 1). Although these examples are geographically and chrono-

Fig. 1 Fortalitium: left – illustration from Fortalitium Fidei by Alphonsius de Spina, Basel, 1475, Basel University Library, FP I 5, fol. 29; right – Čara on island Korčula, a 17th c. fortified house (photo by: D. Čikara, 2017)

logically wide apart, they can indicate the possible appearance of fortified nobility *curiae* in medieval Slavonia. Oral history claims that the demolished granary in Lobor was originally a manor of the Keglević family (Szabo 1914: 127–128; Čikara

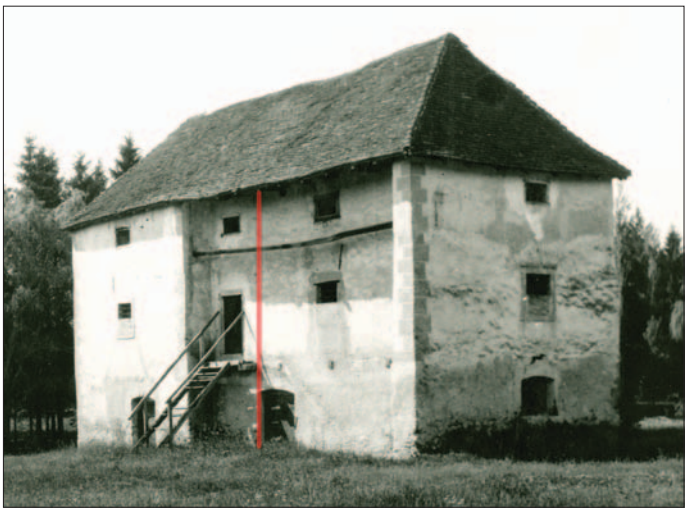


Fig. 2 Lobor, demolished granary (photo by Gjuro Szabo in 1912, Ministry of Culture, Directorate for the Protection of Cultural Heritage, Cultural heritage Documentation department, inv. no. 33440, neg. V-924; modified by: Miranda Herceg)

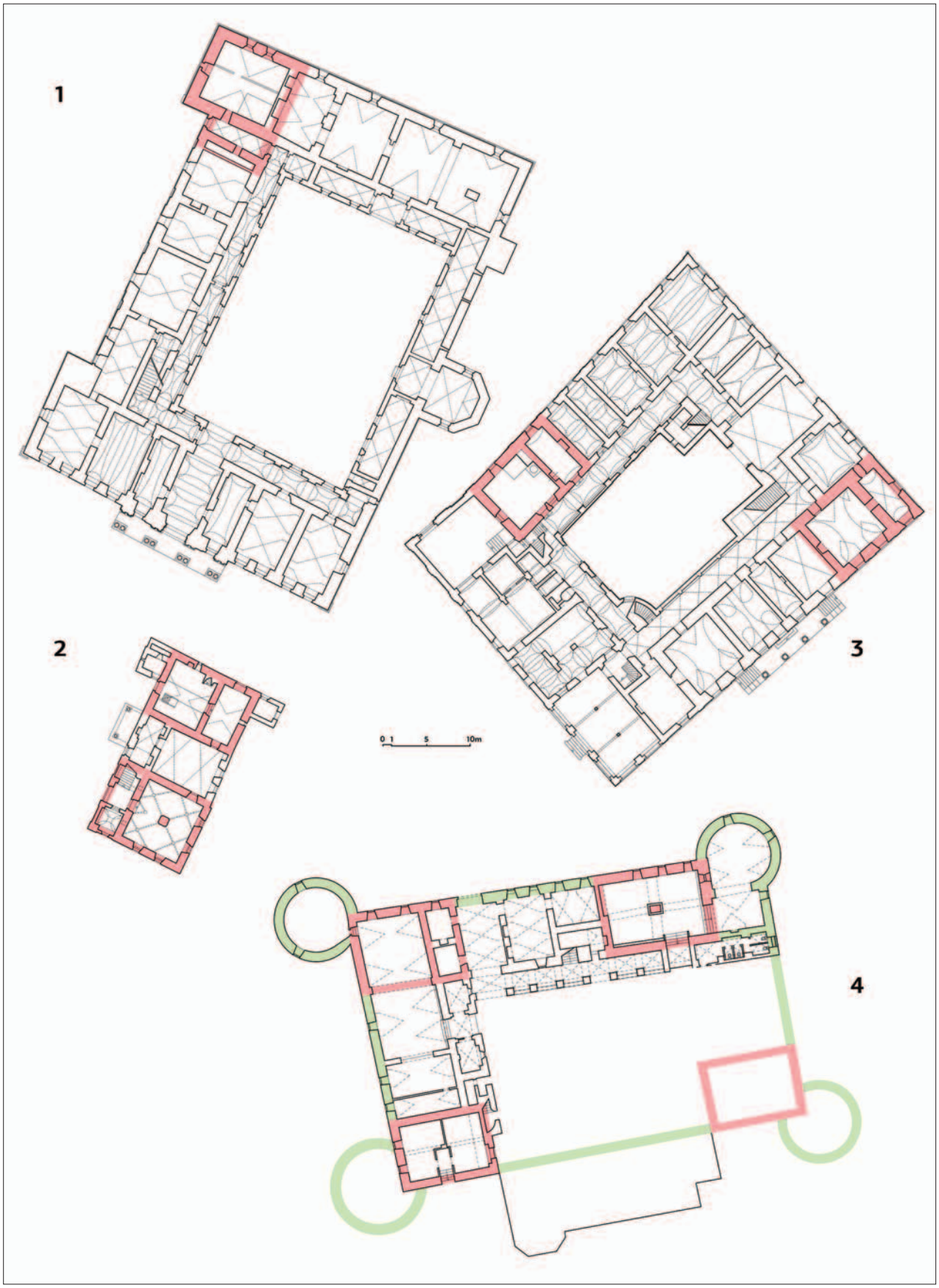
2017: 183). This claim may be corroborated by the manner in which the square part of the structure protects the indented elevated entrance. The part to the right of the entrance, with a wooden corridor (*ganjak*) and a walled-in second entrance (Fig. 2) would have been added later. Smaller window openings of the assumed older section of the granary should also be considered. It is interesting to note that the identical relation between two adjoining rooms, the square room and the narrow elongated room, can be perceived exactly in the western part of the northern wing of Lobor Baroque four-winged mansion (Pl. 1: 1), which is, judging by the vaults in the portico, considered to be the earliest (Reberski 2008: 412–413).[2] However, different type of the vaults in the extreme west rooms visible on plans in both the ground floor and the floor above it, differing from those in the other rooms in the oldest northern wing – and their exceptionally thick walls,[3] as well as the thickness of the southern wall of the funnel-like corridor, which could have, according to recent drawings, housed

Fig. 3 Strmol mansion from the south (unknown web source)

a staircase within the wall, might indicate that this too was originally a single-room core of a specific layout, analogous to the structures flanking the southern perimeter of the Strmol mansion in the vicinity of Cerklje in Slovenia (Čikara 2017: 183) (Fig. 3). One might conclude that the layout of the *nucleus* is the starting point in the design of the western, Baroque façade of the mansion. The *curia* in Lobor was first mentioned in 1586 (Reberski 2008: 412).

2 The mansion was erected some 100 m away from the granary, on the other bank of the Reka creek. Well preserved, the mansion houses a mental institution, and no further inspection or research is possible at the time.

3 Reduced thickness of the wall in the adjacent room is at the presumed starting point equal to the wall thickness of the presumed original square room, which indicates that the massive eastern wall of the original structure was demolished on the occasion of extension.



Pl. 1 1 – Lobor mansion, groundfloor (Marija Stepinac/Institute of Art History 2001, Plans Library, IPU-P-06679); 2 – Ščrbinec *curia*, groundfloor (Marija Stepinac/Institute of Art History 2002, Plans Library, IPU-P-06701); 3 – Bežanec mansion, groundfloor (Marija Stepinac/Institute of Art History 2001, Plans Library, IPU-P-06675); 4 – Kerestinec mansion, groundfloor (AD PLUS d.o.o. 2011) (modified by: Ramona Mavar)

ŠČRBINEC *CURIA* – PRESUMED UNIFICATION OF TWO SINGLE-SPACE CORES

After inspecting the *curia* of Ščrbinec, situated on a mild elevation in the midst of the valley below Belec crisscrossed by several creeks, and bearing in mind the existence of two *curiae* close to each other in Sutinsko, it can be assumed that here, too, two previously detached structures of a characteristic single-space layout and situated close to each other have been united (Pl. 1: 2). As plaster was knocked off the façades, one can see joints resulting from filling the space between two high quality built masonry structures (Fig. 4 upper right and lower left). The irregular outline of the central part of the present-day *curia* indicates that this part was erected at a later date, since it seems to be adjusting to varying widths of earlier cores, which were sufficiently stable not to require dismantling of the edges, and new masonry was literally fitted within the interspace (Čikara 2017: 181).[4] Arches were opened within the western part of the southern core in more peaceful times. They were executed in brick after stone masonry was partially demolished, but the original southwestern corner was maintained (Fig. 4 lower right). Judging by the northern façade, where no earlier openings can be observed (Fig. 4 upper left), the entrance to the northern core must have been from the southern side of the corridor. Likewise, entrance to the southern core must have been on the northern side, protected by the structure opposite to it.[5] Ščrbinec is considered to be the oldest *curia* in Zagorje (Kiš 1969: 15–16). Judging by the shape of embrasures in the western façade of the *curia*'s central section, which first appeared in the 15th c. and lasted for some 100 years, the cores can be considered at least slightly older (Reberski 2008: 741). We also wish to mention a possible existence of two cores within the Mirkovec mansion (Čikara 2017: 181), within its older wing (Reberski 2008: 603–605).

Fig. 4 Ščrbinec *curia* (photo by: Jasenko Rasol, 2016; modified by: Ramona Mavar)

4 A short joint at the peak of the façade between the central and the southern parts of the *curia* indicates a possibility of a different genesis of the complex. However it might have come into being when opening the arcades on the western façade of the southern part of the *curia*. Determining the genesis of the *curia* would require careful field research.

5 Late Gothic/Rennaisance entrance frame, now incorporated into the western façade of the original northern core might be the former entrance into one of the cores. Its width is 110 cm while the arch vertex amounts to 168 cm. Field exploration and photographing have been made possible thanks to the kindness of the Kiš Šaulovečki family, to whom I express my deepest gratitude.

BEŽANEC MANSION: A COMPLEX STRUCTURE WITH SEVERAL PRESUMED CORES

Characteristics detected in the layout of Bežanec four-winged mansion near Pregrada (Čikara 2017: 184) imply that even complex Baroque structures might have originated by connecting several cores to an earlier defense structure, or, that presumed single-space *curiae* might have been even further apart. Bežanec lies on a mild elevation above the place where the Plemenščina meets the Kosteljina creek, where a *curia* was mentioned in 1658 (Reberski 2008: 551). Two identical structures situated diagonally across define one phase of the four-wing mansion Pl. 1: 3). The irregular layout of the mansion seems to be due to their mutual inter-twisting. The eastern one consists of a 6,5 by 6,5 m room plus a narrow, presumably corridor room, at the very corner of the mansion, not corresponding to the sequence of rooms within the oldest wing. The disposition is repeated at the upper floor where, towards its end after a sequence of openings irregularly positioned in relation to the axes of the southeastern façade – which all indicates a complex genesis – there appears a single French window (Fig. 5). Conservation research might detect whether it is situated in the place of a previous elevated entrance into the original core, or maybe at the position of a passage into a possible tower. Furthermore, in the cellar situated under the oldest wing of the mansion (Reberski 2008: 549-550), protrusions occur only under the walls of the presumed eastern single-space *curia*.[6] The assumption that Baroque mansions were built along or within the defense perimeter that connected previously detached dwellings of a smaller size is further supported by the depiction of the Freudenau mansion downstream from Maribor on the Mura River (Fig. 6). Houses, and not towers, are visible on the corners of the defensive perimeter surrounded by trenches, within which a detached residential structure was erected in the 17th c. (Čikara 2017: 184). If this historical depiction can be accepted as trustworthy, a similar genesis can also be proposed for Orehovica mansion in the vicinity of Mihovljan (Fig. 7).

Fig. 5 Bežanec mansion, segment of southeastern façade (photo by: Jasenko Rasol, 2016)

Fig. 6 Črnci pri Apačah, Freudenau mansion (illustration from Topographia Ducatus Stiriae by G. M. Vischer, Graz, 1681)

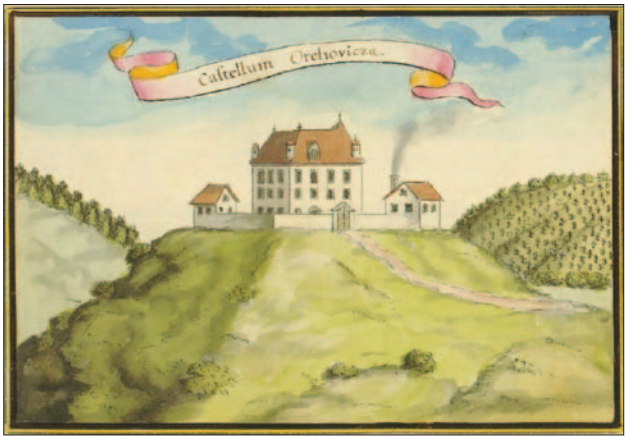


Fig. 7 Orehovica *castellum* (illustration from manuscript book Status familiae Patacich…by Aleksandar Patačić, 1740, Zagreb National and University Library, Manuscripts and Old Books Collection, R 4086, fol. 15.)

6 Lateral vaults plans have been broken in the process of enlarging openings, which did not occur in the niches on the opposite end of the same wing, further indicating successive erection of the oldest wing. According to Mr. Siniša Križanec, to whom I express my gratitude for his hospitality and for rendering possible inspection of the mansion's building structure, during the removal of infill in the eastern end of the cellar a fountain was found and subsequently regulated.

THE *BURG* AND *CASTELLUM* OF MOSLAVINA – A PROPOSAL ON THE WHEREABOUTS AND THE GENESIS OF THE POPOVAČA MANSION

The process and the chronology of creating complex defense structures from presumed original cores of a characteristic layout can be reconstructed by studying fortifications of the noble Bakács-Erdödy family, erected during the 16th c. The decisive factor in their design must have been the fact that the four-wing structure with cylindrical towers at each corner, built around 1485 at Jastrebarsko, in the style of Italian fortifications of the transitional period as a royal investment (Laszowski 1935: 100–101; Klaić 1981: 176; Čikara 2016: 128–129), was owned since 1519 by Corvin's secretary and later Chancellor and Bishop of Zagreb Toma Bakács (1442–1521) and his nephews.[7] Even earlier than this, in 1493, Bakács was in possession of the Moslavina estate together with Viceroy Csupor's *burg* bearing the same name (Bedić 1996: 34–35). The medieval *burg*, respectively the Rennaisance *castellum* that was supposedly situated on the same location, was taken by the Ottoman forces in 1545, after the surrounding area was completely ravaged. It was re-conquered in 1591 by Viceroy Toma II. Erdödy. The prevailing opinion is that it was not renovated, and that the late Baroque four-winged mansion Popovača was subsequently erected at a short distance east of its original location by using the rubble of the demolished *castellum* (Szabo 1920: 107–108; Bedić 2001: 73-74). However, on a cadastral map from 1861, structures reminding of bastion fortifications are depicted around the mansion, indicating the possibility that mansion was actually erected on the position of the Renaissance structure that was modernized at a certain point, and that the medieval *burg* Moslavina was actually positioned west of it, on an irregular, elongated pentagonal plot (Obad Šćitaroci, Bojanić Obad Šćitaroci 1998: 252). Drawings of the mansion from 1742 depict a four-wing structure with cylindrical towers at each corner, three of them being separate volumes (Fig. 8).[8] Here, too, structures of a characteristic single-space pattern can be recognized at two of the four corners, where spatial collision indicates that the towers were undoubtedly added at some later point.[9] In this case, conclusion can be reached that this is an unfinished project of introducing Baroque into an existing *castellum* that originally came into being by incorporating older single-space *curiae*, i.e., of surrounding it with residential wings. Erection of cylindrical Renaissance towers probably defined the regular perimeter of the *castellum* that, due to its exposure to intensive attacks in

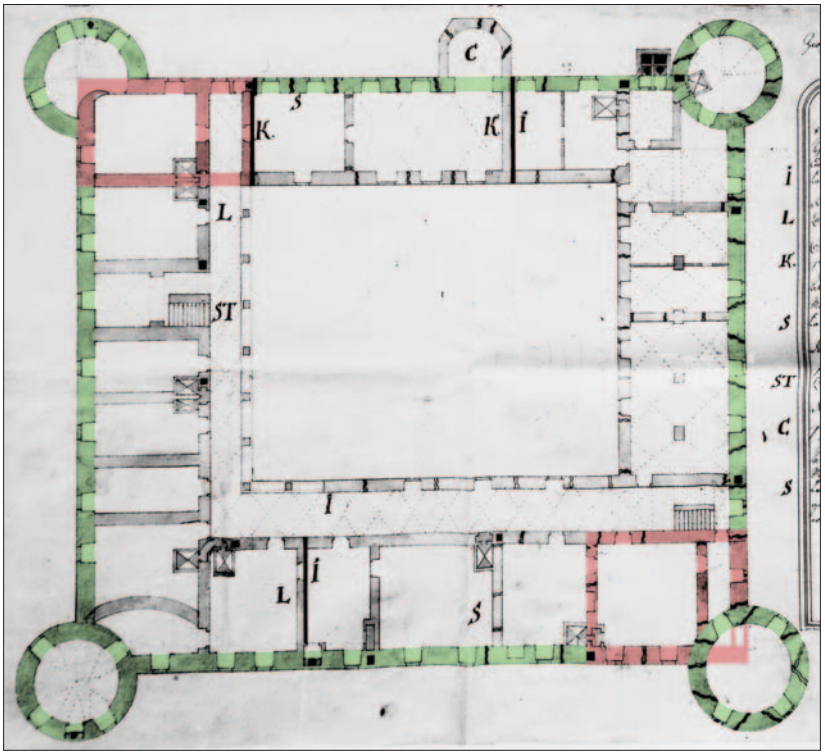


Fig. 8 Popovača mansion, groundfloor (Obad Šćitaroci, Bojanić Obad Šćitaroci: 1998: 255; modified by: Ramona Mavar)

7 After the death of Mathias Corvin's his illegitimate son John (Ivaniš) inherited the Jastrebarsko estate. He subsequently donated it to brothers Pethö de Gerse, who in turn swaped it with T. Bakács for some of his Hungarian properties. Being a highest-rank court servant he must have known more about the Renaissance fortifications than John's adventurers.

8 Courtesy Mladen Obad Šćitaroci F.C.A.

9 Parts of the corridor perimeter might have been removed from the eastern core, while a three-quarter tower was added to the western core, without significantly intervening into the existing wall structure.

the first half of the 16th c., probably never had residential wings prior to Ottoman occupation. The hypothesis of existence of older structures that represented the core of the *castellum,* erected using rubble of Moslavina *burg* in the first half of the 16th c., is supported by the presumed existence of a medieval *suburbium* (Pleše, Sekulić 2013: 85)

KERESTINEC, HORVATSKA AND GORNJE OROSLAVJE – FROM POSSIBLE *REFUGIA* TO BAROQUE FOUR-WINGED MANSIONS

After Petar I Erdödy (†1547) lost estate and *castellum* in Moslavina, his son Petar II (†1567) acquired in 1560 the estate of Kerestinec southwest of Zagreb, situated on a rim of a plateau, from which is separated by a trench, next to the Bernica creek, (Macan 1998: 68). Based upon outline drawings, archive photographs and field inspection of two historical wings of the mansion it is possible to hypothetically reconstruct incorporation of several *nuclei* into the late Renaissance *castellum* of Petar III Erdödy, as the structure was known in 1592 (Macan 1998: 55), and later into a Baroque mansion. A battery tower added upon the presumed southwestern core, judging from its recessed embrasures – resembling those on the Jastrebarsko *castellum* (Čikara 2016: 116, 129) undoubtedly belongs to the 16th c. (Fig. 9).[10] On the eastern side of the presumed northeastern core a room was added through which the tower was accessible. The reason for this addition might be to

Fig. 9 Kerestinec mansion, western façade (unknown author 1880, Ministry of Culture, Directorate for the Protection of Cultural Heritage, Cultural heritage Documentation department, inv. no. 8490, neg. II-15424)

Fig. 10 Kerestinec mansion, eastern part of the courtyard (unknown author 1880, Ministry of Culture, Directorate for the Protection of Cultural Heritage, Cultural heritage Documentation department, inv. no. 57287)

create a proper rectangular perimeter defined by the demolished southeastern core (Fig. 10).[11] The floor plan of the third presumed core at the mansion's northwestern corner is slightly slanted (Pl. 1: 4). This might indicate that its construction occurred at the time when they became interconnected, albeit only by a palisade. Later on, between the two presupposed western cores of the *castellum*, the oldest residential wing was erected, featuring a staircase that partially penetrated into the wall of the southwestern core. The span of this wing was dictated by the size of the northwestern core's longer wall. Due to Ottoman raids this intervention is not likely to have happened prior to the beginning of the 17th c., but it seems to have been completed by 1619, when the mansion in Kerestinec was mentioned in context of funeral ceremonies following the death of Petar III Erdödy's spouse. The northern wing, featuring a Baroque portal and an inner portico, reaching to the end of the room that was added to the east of the original northeastern core, was added later. Existence of earlier *nuclei* is further indicated by a smaller size of ground floor openings at the ends of the northern façade (Fig. 11).

The Rattkay family mansion in Velika Horvatska is first mentioned in the second half of the 16th c. (Samaržija 1972: 121; Reberski 2008: 151–152).[12] According to an illustration on a Josephinian map the mansion consisted of four wings

10 Preliminary conclusion is that the tower was accessed through enlarged window apertures into the square room, identical to access into the western tower of the Moslavina fort. The tower was demolished after the earthquake in 1880.

11 The window opening in the eastern wall of the assumed northeastern core confirms that this part of the mansion's northern wing is older than the farthest room with tower. The cadastral plan dating from the second half of the 19th c. features within a loose structure of now demolished southern wing, beside the polygonal ending of the chapel, a fourth, round tower, possibly added to the originally single-space core.

12 It remains unclear why the name of the then owners Palffy-Erdödy is engraved in the year 1611 on the keystone of the late Renaissance portal, which is very similar to the portal of Novi Dvori Klanječki. Later, the mansion, which is situated on a mild elevation above the rivulet of the same name, was once again owned by the Rattkays.

Fig. 11 Kerestinec mansion, northern façade (unknown author, end of 19th c., Ministry of Culture, Directorate for the Protection of Cultural Heritage, Cultural heritage Documentation department, inv. no. 8487, neg. VII-232)

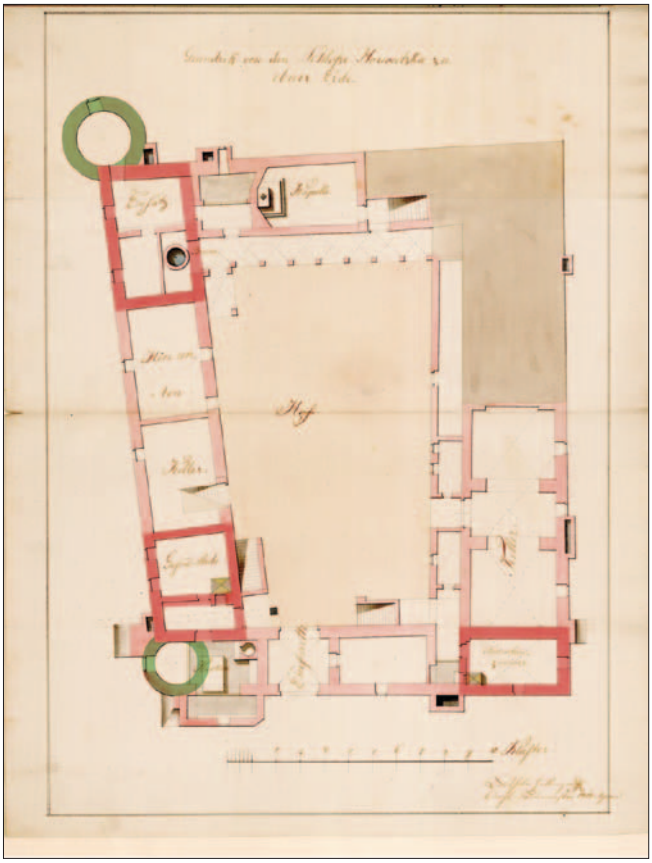


Fig. 12 Velika Horvatska mansion, groundfloor (Bartol Felbinger 1818, Croatian State Archives, HR-HDA-27-001; modified by: Ramona Mavar)

with towers on all of the corners with the exception of the southwestern corner. Floor plans of the towers correspond in size to those in Novi Dvori Klanječki (Reberski 2008: 284–286). Judging by the ground floor plan from 1818 (Fig. 12) only the southeastern still stood at that time. A careful inspection, though, reveals the remains of the northeastern tower, partially obliterated by the erection of the northern entrance wing, which stood next to a small funnel like room linking up to the square one.[13] It is remarkable that the cellar in the eastern wing extends only as far as its central part, between two presumed *nuclei*.[14] The third presupposed core might be found at the northwestern corner of the mansion, where there is no cellar either. Protrusion of this part from the building line of the presumed northeastern core negated the defense function of the northeastern tower already when the northern, entrance wing of the mansion was built around 1610. This testifies to the existence of earlier structures, previously linked together without eliminating the mutually unfavourable position that does not form a proper rectangle.

According to historical documents the Rattkay family also owned a *curia* in Oroslavje, which they sold in 1614 to Julije Čikulin (Žmegač, Vojtić 2013: 247). Plans of the ground floor of the spatially loose Gornje Oroslavje mansion (featuring Bohemian, i.e. 18th c. vaults), demonstrate that the three towers at the corners (corresponding in size to those in Velika Horvatska) are not logically related to the corners of the mansion (Žmegač, Vojtić 2013: 248).[15] Field research directed at remaining junctions might confirm, in the case of this almost completely demolished mansion, whether it developed from existing single-space *nuclei*.

CONCLUSION

The presumed existence of fortified single-space medieval *curiae* as well as the presumed alterations of the Renaissance rectangular defense structures (*refugia*) – originating from one or more *nuclei* of a simple floor plan, but also without them – into Baroque manors and mansions should be confirmed by investigating other complex countryside structures in the area of medieval Slavonia. Comparing Lendentu's drawing (Krmpotić 1997: 244) with the floor plan of the existing Klenovnik mansion (Horvat–Levaj 2015: 419), makes it obvious that Baroque mansions were built step by step, and often literally one room at a time.[16] When speaking about understanding the origins and evolution of Baroque

13 The curved parts of the existing wall in the farthest northern room of the remaining mansion wing belong to that tower, which was, together with most of the mansion, completely demolished in the meantime.

14 A well, just like at the Bežanec mansion, indicates possible existence of a *nucleus* in the southeastern corner of the mansion.

15 Like the western tower of the Popovača mansion.

16 Already in the course of first intensive conservation-restoration research of a winged Baroque mansion of Popovec in Velika Ves to the south of Krapina, where the author has been taking part in his capacity of Croatian Conservation Institute staff member since summer 2017, the "axiom" of the national art history on the genesis of complex mansion structures by mechanical means, i.e. by connecting successively erected wings with porticos, starting from medieval *curiae* consisting of a sequence of rooms, was brought into question when several vertical joints were discovered on the inner façades. They imply the existence of separate one-room structures that, according to present knowledge, could have only been connected by a perimeter wall, to be only later unified into compact wings featuring porticos.

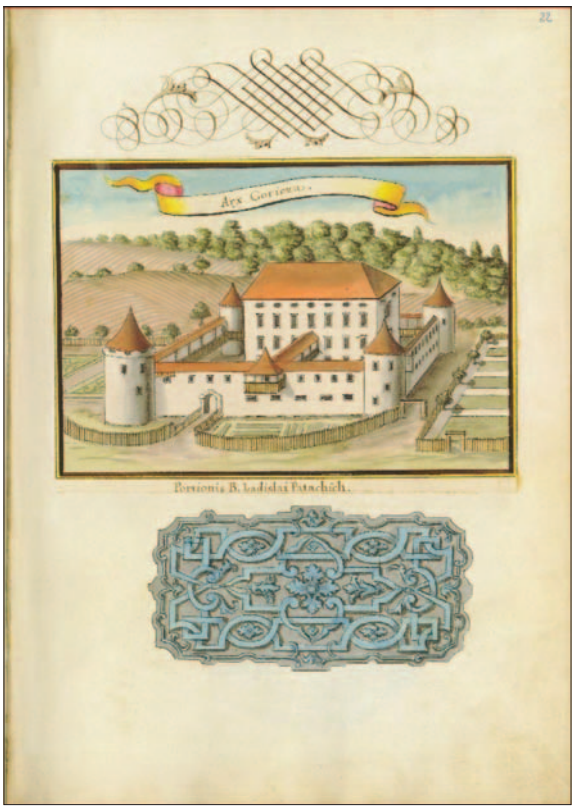


Fig. 13 Gorica *arx* near Pregrada (illustration from manuscript book *Status familiae Patacich*, by Aleksandar Patačić, 1740)

mansions in this area, the only published results are those on conservation–restoration research of the Miljana mansion façades (Novak, Mirković 1992), and results of partial research of Gornja Reka mansion façade (Srša 1995),[17] which have been interpreted taking into account until present-day valid theories on construction of countryside architecture just since the beginning of the 17th c. (Horvat 1975; Marković 1975). Since possible existence of older structures has been mentioned only rarely (Reberski 2008: 238), a conclusion might be reached that Baroque mansions, some adorned with emblematic towers, arose *ex nihilo*, as opposed to proposals of early researchers (Szabo 1912: 221).[18] On the other hand, the process of formation of representative residences within or along the existing defense perimeter (in contrary to the prevailing opinion, after Ottoman assaults ceased there was no real justification for construction of new defense structures) can be observed in historical presentations such as those of the *arx* of Gorica near Pregrada (Fig. 13), of Bisag (Fig. 14)[19] and Lapšina (Horvat 1975:

Fig. 14 Bisag mansion (illustration from manuscript book *Status familiae Patacich*, by Aleksandar Patačić, 1740)

Fig. 15 Tribein/Drvanja mansion (illustration from *Topographia Ducatus Stiriae* by. G. M. Vischer, Graz, 1681)

78), as well as of some Styrian mansions such as Tribein/Drvanja on the southern slopes of Pohorje (Fig. 15). Insight into almost completely (Horvat–Levaj 2015: 441) or partially legible (Bela II) presumed Renaissance defense perimeters proves

17 Field exploration of the Gornja Reka mansion under Kalnik has indicated that partition walls were not structurally connected to the perimeter walls (like in Jastrebarsko), except within the northeastern corner. This suggests the existence of a defense perimeter with at least one core before the residential wings were added. An interesting fact is that in the eastern part of the northern wing, within the portico, foundations of a small (narrower than the porch) square room were unearthed on a position that might at one point corresponded to a core within the fortification corner. This room can be viewed as portico of a single-space *curia*, like the one at the Poklek *curia* nearby Zagorska Sela.

18 Field exploration at Mali Tabor also discovered that partition walls, at least in the southern wing, were separate from the perimeter walls. Embrasures are shaped like reverted keyholes, which is habitual in the 15th c.

19 A walled-in late Gothic window, subsequently covered by a Baroque chapel, can be observed near the northern end of the only remaining perimeter wall of Bisag. On the inner side of the wall, besides the niche of the mentioned window, another walled-in recess can be observed. Both niches are situated towards the end of the façade, next to the cylindrical corner tower, the western one obviously walled-in with bricks when the Baroque chapel was erected. Different materials used imply that the Gothic window on the front façade might have been closed before the Baroque period, maybe even during the Ottoman peril. A floor plan from the 19th c. shows on this spot a flaw in the perimeter wall of the mansion, possibly a result of irregular disposition of the original *nuclei*. Since spacing of the remnants of the longitudinal walls within hypothetic core amounts to only 4m, this might easily be a single-space medieval *curia* of a modest size.

that Baroque countryside structures indeed came into being in such a manner.[20] Future research regarding the genesis and development of this poorly known category of building heritage will demonstrate correctness of the afore mentioned hypotheses, whereby, due to numerous subsequent interventions during which some older structures were destroyed, geophysical and archaeological research will play a major role.[21] It is regrettable that numerous *castella*, converted into Baroque mansions have been completely razed (like Guščerovec and Vrbanovec near Donji Martijanec), while some of them, like the remains of Bisag and Novi Dvori Klanječki, face the same fate.[22]

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20 Photographs in posession of Croatian Conservation Institute of the defense perimeter towers surrounding the Bela I mansion reveal openings prior to Baroque windows while the layout of the farthest parts of the ground floor of Bela II single-wing mansion, as well as smaller window openings on lateral façades (in the very room that features larger Baroque windows on the only outward-facing façade) indicate the existence of two characteristic single-space *nuclei*, that were subsequently connected. After concluding that the complex Baroque residential structure was not going to be built, the three sides of the Renaissance defense perimeter were removed.

21 One may assume that a possible sequence of construction will be best visible in the foundations. Also, a possible removal of partition walls in certain single-space cores must be taken into account.

22 The floor plan does not clearly indicate whether Novi Dvori Klanječki owned by Viceroy Toma II Erdödy did or did not feature characteristic *nuclei* to which cylindrical towers were subsequently added, smaller than in areas more threatened by Ottoman raids. However, it must be noted that an asymmetrically placed portal from 1603 was placed on the western part of the north façade, just like in Kerestinec, and that walled-in narrow and unproportionally elongated segment windows reaching down to the floor of the mansion's upper floor can be observed. Consequently, the cross vaulting in this segment of ground floor was subsequently made lean on the walls, indicating the existence of a church nave, incorporated into the obviously heterogenous structure of the *castellum* (joints on the eastern perimeter wall imply gradual construction of the structure). Parts formed a defensive rectangle, judging by embrasures in the now demolished southern wall.

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IVANA ŠKILJAN

Veliki Tabor – from Late Medieval Fortress to Renaissance Castle

Veliki Tabor fortress, preserved in its full height, is one of the best-preserved fortifications built with elements typical of the Transitional period in Croatia. Recently finished conservation research and archaeological excavations revealed new information's about the foundation of the fortress and changes its fortification structures underwent through centuries. The oldest part of the city is the central late Gothic pentagonal tower originally surrounded by archaeologically documented wooden palisade replaced by masonry ring with four semi-circular towers with the formal elements typical for defensive architecture of the second half of the fifteenth century. Recently discovered artillery loopholes and drains for stones, hot water and tar in curtain wall and walls of all four semi-circular towers bring new conclusions about Veliki Tabor's defence system. Pentagonal turret with four towers interconnected by a curtain wall and present day entrance wing make the inner core of the fortress enclosed by another outer wall, which encircled the entire hill's plateau. Archaeological research of the outer wall revealed north semi-circular and round south tower, and their several functional and constructional phases. According to some researchers, the Counts of Cilli were the first founders of the fortress known then by another name. Veliki Tabor's advanced fortification structures by some authors can be connected with antagonism between Habsburg and Korvin dynasties in the second half of the 15th century, according to its location in the north-western part of Hrvatsko Zagorje province on the historical border of Holy Roman Empire of German Nationality and Hungarian – Croatian Kingdom.

Key words: Veliki Tabor, outer wall defence system, bastion, Hrvatsko Zagorje, Transitional period

Veliki Tabor Castle (Fig. 1) is a representative example of a secular architectonic complex from the transition between the Mediaeval and Early Modern period in today's continental Croatia (Fig. 2), as well as one of the best preserved ones. It is one of the fortresses made in Croatian lands in the style of the Transition period that were, based on a combination of architectonic elements[1] characteristic of the period when mass use of firearms was becoming standard in warfare, identified as a separate group covered by the chronologically and stylistically broader term of Renaissance fortifications (Čikara 2016a: 76–77). In the extent of building it is unique also in that wider area that was open to Italian Renaissance influences (Čikara 2016b: 124). Veliki Tabor fortress is, except for towers at Trogir and on Korčula, the only one outside the Apennine peninsula with a completely preserved elevation with all the typical elements of Transitional period fortification (Čikara 2016b: 129). The document from 1502, by which the Croatian ban John Corvinus donates large estate in Croatia to Pavao I Rattkay and his brothers (Gulin 1995: 11), was until recently used in scholarly literature to mistakenly date the start of the building of the Veliki Tabor complex to the beginning of the 16th century. The late Gothic pentagonal building (Fig. 3) in the inner courtyard, initially free-standing, is the central and largest building in the Veliki Tabor complex, its salient angle turned toward the west, from where access to the inner area is easiest. This originally two-storey building was primarily residential in function, so its typological designation is residential building[2] (Žmegač 1991: 67), but the added third storey had defensive and utilitarian purposes, visible in the large grain and gun holes on the east facade of the *palas*, i.e. the pentagonal late Gothic tower (Majer, Šurina 2007: 11–22). Until recently it was mostly agreed in literature that it was only in the

1 More about these elements in: Čikara 2016a: 73–94; 2016b: 115–132.

2 The building has painted and plastered facades with valuable preserved architectonic elements – Late Gothic windows on the first and second floor of the southern and eastern façade (Majer, Mavar 2008, 147–159), a Renaissance two-light window, a two-storey bay window with two Late Gothic three-light windows, and the former entrance to the *palas*, connected to the arcade corridors of the inner centre first by a wooden, and later by a masonry bridge. After it was opened by windows, the *palas* became a comfortable residential area, which was according to some authors only possible after the Renaissance defence zone was built, during the time of John Corvinus (Čikara, Ćurić 2011a: 70). The ground floor, used for utilitarian purposes, had a separate entrance from the east side.

Fig. 1 Veliki Tabor castle (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Fig. 2 Map of Croatia with the location of Veliki Tabor castle (map by: F. Škiljan)

Fig. 3 Veliki Tabor castle – central late Gothic pentagonal tower (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

16th century that the rest of the complex was built, mostly for fortification purposes – four Renaissance semi-circular towers (torrione)[3] (Fig. 4–6), around the central pentagonal tower (Fig. 3), and shortly afterwards the bastion at the entrance to the complex and a lower, outer rampart, which moves the line of defence further away from the centre of the castle (Fig. 7). During the 17th and 18th centuries, the towers were also adapted for residential purposes, by enlarging the windows and doors to enable exterior burning of masonry heaters,[4] adding a second storey, and building a stone arcade with Tuscan columns (Žmegač 1991: 73; 1992: 67–75). However, during the last decade, numerous interdisciplinary explorations of the castle itself and of sites in its immediate vicinity, such as the St. John´s Church in Ivanić Miljanski (Srša 2009: 125–139) have enriched our knowledge of the past of this important complex and cast doubt upon these assumptions.

There is no doubt that the oldest preserved building on the Veliki Tabor plateau is the central pentagonal tower of the inner castle keep, but there are two main views on the beginning of its construction. It is dated to the middle or second half of the 15th century (Szabo 1912: 221; 1920: 74; Premrl 1978: 15–16; Obad–

Fig. 4 Veliki Tabor castle – west Renaissance semi-circular tower (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

3 D. Čikara defines them that way, because they are towers of the same height as the curtain walls (Čikara 2016b: 121).

4 Based on the analysis of the fragments of stove tiles from Veliki Tabor, the three reconstructed tile-stoves from the castle can be dated to the period around 1600, and the large number of discovered stove tiles which were not part of these heaters can also be dated to the 17th century, which is in accordance with the situation after the Peace of Zsitvatorok in 1606 when the danger of Turkish invasions stopped. It is obvious that this is the period when the towers could be adopted into residetnal space. More in: Škiljan 2018: 1–12; Škiljan, Antony Čekalová 2018: 40–57.

Fig. 5 Veliki Tabor castle – southwest Renaissance semi-circular tower (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Fig. 6 Veliki Tabor castle – east Renaissance semi-circular tower (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Fig. 7 Veliki Tabor complex before renovation (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Šćitaroci 1991: 176, 280; Petković 1993: 54–55), or at the beginning of 16th century (Majer, Šurina 2007: 11–22; Žmegač 1991: 73; 1992: 67–75, Horvat 1992: 183). Recent papers about the beginning of the construction of Veliki Tabor have been placing more emphasis on work carried out by the Counts of Cilli (Srša 2012: 5–32), and it is becoming clearer that certain activities at the site predated their time.[5] To be specific, it is now believed that the *palas* (the pentagonal late Gothic tower) was, at the time when it was a free-standing structure, mentioned in historic sources by the hungarized name of Vingrad or Gorica: as castellum Borovec[6] (Srša 2012: 23), and that it was built during Count Frederick II of Cilli between 1445 and

5 Archaeological excavations of the southern semi-circular tower of the inner castle centre are especially interesting because they also indicated that the Veliki Tabor plateau was in use before 1502. The explored semi-circular towers have a characteristic in common; they were levelled using discarded building material with which the interior was covered, along with layers of sterile clay (Hirschler, Madiraca 2011). Underneath the deep and firm layers of rubble and marl made during construction, structures were discovered predating the stonemasonry semi-circular tower, which is confirmed by the dating of the baked earth from the second half of the 13th century to the end of the 14th century using radiocarbon analysis. In processing the mobile archaeological finds from the southern tower of the castle, some "archaeological finds typical of the time between the end of the 14th and beginning of the 16th century" stood out, such as a published rare fragment of Spanish *lustro* majolica made in the 15th century in workshops around Valencia and imported into these parts (Hirschler, Madiraca 2011: 223–237).

6 The name Veliki Tabor originates from the term tabor i.e. war camp. There are various interpretations of this term in literature – including the one that it refers to a military camp, i.e. one of the fortifications made for protection from the Turkish invasion (Petković 1993: 42). The change of name (from castellum Vingrad /Borovec/ into Thabor by the end of the 15th century) and its primary function maybe could have accompanied the building of Veliki Tabor's advanced renaissance fortification structures. According to certain authors, these building activities can be connected with antagonism between the Habsburg and Corvin dynasties in the second half of the 15th century, due to Veliki Tabor's location in the north-western part of Hrvatsko Zagorje province on the historical border of the Holy Roman Empire of German Nationality and the Hungarian – Croatian Kingdom (Čikara, Ćurić 2011a: 70, Čikara 2016a: 84). On the other hand, the name Thabor also brings to mind the Old Testament name Tabor, after the Hussite (Taborite) soldiers. It would seem that it was precisely with the Hussite/Taborite soldiers that the term Tabor spread through the areas in which they were hired (Srša 2012: 30), which would support the thesis that it was professional soldier and warrior Jan Vitovec, a Czech hireling and former condottier to the Counts of Cilli, and later ban of Slavonia and high-positioned official to king Matthias Corvinus, who initiated the building of the Renaissance half-towers around the Late Gothic *palas* (Srša 2012: 24), approximately between 1466 and 1469, an endeavour which would be continued by his sons (Srša 2012: 31).

1453 (Srša 2012: 22). It is suggested that the west (Fig. 4) and southwest (Fig. 5) semi-circular towers (towers A and B) were built as early as the time of Jan Vitovec (before his death in 1469), or his son Vilim who died in 1504, (Srša 2012: 28), and that the fortification around the *palas* was partially (without the northern wing) built by the order of Beatrice Frankopan after the death of John Corvinus, before 1510 (Srša 2012: 28). Some argue that the building of the Veliki Tabor fortress cannot be attributed to Jan Vitovec, because he died before the architectural forms used in the fortress were developed in Italy (the monoliths of the openings, the height proportions of the wall) (Čikara 2016a: 84). The east semi-circular tower is the largest one (Fig. 6), the west ones are almost identical in size (Fig. 4, 5), and the south tower is the smallest. The bases of the outer ramparts and towers are sloped, and a cordon cornice separates them from the vertical part of the ramparts. The ramparts end in projecting stonemasonry defence galleries, carried by a row of triple carved corbels. Originally the battlements of the ramparts and the semi-circular towers were perforated by two rows of gun holes placed inside semi-circular niches. The pear-shaped openings of the bottom row of gun holes were at knee height, while the narrow, semi-circular openings of the upper row of gun holes were at breast height. Regarding the construction of the Renaissance half-towers surrounding the central late Gothic tower, the results of the conservation field research[7] have established that at two points in time (both done by the end of the 16th century, disregarding the earlier openings) the defence openings were systematically reshaped to maximise efficiency and modernise the defences, and the "rhythmical sequence of openings of the first layer augments the exterior of the fortress with forms typical of defence architecture of the second half of the 15th century. (Čikara, Ćurić 2011a: 63). The continuous array of machicolation openings along the predominant stretch of walls assumes that the attackers could access their foot of the wall.[8] Therefore, the hypothesis that Pavao Rattkay and his brothers built the late Gothic pentagonal *palas* after 1502 and the Renaissance fortress of Veliki Tabor with its four semi-circular towers around the middle of the sixteenth century[9] (Žmegač 1991: 55) was replaced by a new one, according to which the Veliki Tabor fortress was founding during the second war between Matthias Corvinus and Friedrich III (1484–1490), and that it was one of the series of border fortresses which housed the regular paid army, the so-called "black" army of Matthias Corvinus (Čikara, Ćurić 2011a: 63–72), which would place the construction of the original pentagonal tower much earlier, definitely not later than the middle of the 15th century.[10] This is based on the fact that fortifications in the style of the Transitional period were, in the social stratification of that time, the privilege of rulers and of their confidants, who were often their blood relations (Čikara 2016a: 77), and within the Hungarian–Croatian Kingdom under the rule of king Matthias Corvinus (reign 1458 to 1490) were raised in the border areas south of the river Drava and under the King`s direct control, and they could not be found elsewhere, even when the strongholds belonged to the most powerful noblemen (Čikara 2016b: 118). According to this thesis, Trakoščan Castle, Vinica burg and Veliki Tabor should be included in the series of fortresses of "Zagorje County limes" (Čikara 2016b: 125).

Of course, the year 1537, written on the façade of the *palas* is, without any doubt, defined as the year when the third storey of the central tower was built (Majer, Šurina 2007: 11–22). According to I. Srša, not only were the Rattkay family not the ones who built Veliki Tabor, but they only came to own it in 1513, and the building of the third storey of the *palas* is one of the first construction tasks that can be attributed to them with certainty (Srša 2012: 28). Numerous published historical sources give us detailed insight into the history of the ownership of the castle, governed by the Rattkay family until 1793. Without doubt it was during that period that the structures on the outer defence wall were finished and some Baroque

7 The research was carried out by the Croatian Conservation Institute from 2008 to 2011, encompassing the northern wing and eastern tower (tower D), the interior of the connecting wing, the southern, south-western and north-western tower, (towers C, B and A) with curtain walls (Čikara, Ćurić 2011a: 63).

8 Therefore, a uniform coverage with gun ports was of vital importance, as well as uniform distribution of daylight and fresh air in the interior of the top floors in the towers, through window openings that also served for active defence when necessary. The degree of perforation of the perimeter walls through window openings also suggests that builders took account of fire superiority the defenders. The absence of gun ports in the upper floors of the curtains was harmonized with the contemporary method of defence, according to which the walls were defended by side fire from towers. (Čikara 2016b: 124–125).

9 Žmegač connects the carved stone-masonry coat of arms on the cordon cornice of tower "A" and the workshop that built the inner ring to Hungary, and believes that the Rattkay brothers, or "their heirs or relatives if the renaissance ring was built mid-century, wouldn't find it difficult to send a group of stonemasons to Croatia (Slavonia) to do building work on Veliki Tabor". In that case a part of the ring, the two towers on the west side and the curtain wall between them, would be their work, and the rest would belong to a later phase (Žmegač 1991: 55). The carved stone-masonry coat of arms can also be connected with the Counts of Cilli, maybe a workshop sponsored by this familiy (Gudak Šnajdar 2012: 49–71). Following this theory, Srša concludes that this only confirms the very beginning of building of renaissance towers in the time of Jan Vitovec, who engaged the same workshop sponsored by the Counts of Cilli. Following the disappearance of the Cilli faimily, the workshop continued to work during the second half of the 15th century under the new patron - Vitovec (Srša 2012: 24). More about stone-masonry markings on Veliki Tabor in: Šurina 2011: 25–33; Gudak Šnajdar 2012: 49–71.

10 The experts agree that the relationship between the defence zone and the older centre doesn't point to a single architectonic concept (Čikara, Ćurić 2011a: 70). The two projecting front walls of the *palas*, reinforced because of the possibility of gunshot artillery attacks, with a loop hole in the ground floor of the south-western wall, and the wide window openings on the facade point to this (Srša 2012: 21).

adaptations were made to the castle, while some smaller construction undertakings on the bastion were made later, in the period when Veliki Tabor was owned by Baron Tughuth, up until 1818 (Petković 1993: 46). After that the castle was owned by the Imperial Chamber, and then, from 1903 by the merchant Grünewald brothers. During the First World War the castle was used as a prison, and from 1919 to 1938 it was bought and used by renowned Croatian painter Oton Iveković. From 1938 to 1950 it was used by nuns of the Daughters of Mercy Third Order of St Francis of Assisi from Blato on the island of Korčula (Petković 1993: 47). After the Second World War the castle was nationalised.

ARCHAEOLOGICAL EXCAVATIONS OF THE VELIKI TABOR DEFENCE STRUCTURES (FIG. 8)[11]

Fig. 8 Aerial photograph of Veliki Tabor castle (1:1300) with the marked locations of architectural ensembles: 1. central pentagonal tower; 2. north-western semi-circular tower; 3. western semi-circular tower; 4. southern semi-circular tower; 5. eastern semi-circular tower; 6. north wing; 7. southern semi-circular tower of the outer defence wall; 8. northern semi-circular tower of the outer defence wall; 9. bastion; 10. utilitary buildings; 11. entrance tower (its ground plan isn't shown in the image because it was already covered with soil when the general plan was being made); 12. the explored northern section of the outer defence wall at the entrance to the complex (created by: M. Mađerić and I. Škiljan)

The discovery of the wooden palisade "from a period predating the construction of pentagonal tower (15th century), interpreted as a "defensive wooden fence providing the only defence during the construction of the tower" (Vekić 2007: 26, 27, fig. 5, 32), was of great importance for the interpretation of the defence architecture of Veliki Tabor. Remains of a palisade were also discovered inside the southern Renaissance horseshoe-shaped tower; they are dated to a period earlier to the building of the tower itself, and contemporary with a structure interpreted as the remains of a stove or hearth from between the second half of the 13th and end of the 14th century (Hirschler, Madiraca 2011: 226, fig. 3). The largest number of portable archaeological finds was discovered in the largest, eastern semi-circular tower of the castle (Škiljan 2012: 117). In this tower, the remains of a cupola stove and a contemporary wooden floor were discovered (Škiljan, Pavlaković 2011:

11 Archaeological excavations of Veliki Tabor were not systematically planned. The most comprehensive excavations were carried out in 1995 and 1998, and they encompassed the "pentagonal tower, northern horseshoe tower, all areas of the courtyard except the eastern part, and the whole entrance tract with a room it leads to, and finally several control probes around the castle, which confirmed the foundations of the horseshoe-shaped towers". More about the results of these excavations in: Vekić 2007 and about other archaeological work in: Škiljan 2007; 2012; 2013; Pavlaković 2009; Špoljar 2010; Hirschler, Madiraca 2011.

20), with a stack of remains of stove tiles and pottery that can be approximately dated to the end of the 15th century (Škiljan, Pavlaković 2011: 20), while the floor was dated by radiocarbon analysis to a more bradly defined period, from the middle of the 15th to the first half of the 17th century (Hirschler, Madiraca 2011: 225). Of further importance for the interpretation of the Veliki Tabor defence system were the archaeological excavations of the structures on the outer defence wall, which have revealed a southern round tower (Fig. 9) and a northern horseshoe-shaped tower (Fig. 10) (Škiljan 2013: 39–59). The outer defence wall with an entrance, southern and northern tower and a bastion[12] as the main point of the outer defence

Fig. 9 Veliki Tabor castle – round south circular tower of outer defence wall, latest defined phase with brick floor (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Fig. 10 Veliki Tabor castle – north semi-circular tower of outer defence wall (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

12 Bastion can be defined as pentagonal defence structure with artillery positiones aligned in two lines (Šterk 1990: 5).

line surrounded the whole surface of the plateau of the hill on which the castle was built (Fig. 7). In addition to defence and residential buildings, the complex contained utility buildings (horse stables, a dungeon, a smithy) outside the central part of the castle; these buildings are mentioned in written sources, and are yet to be explored. It is mostly agreed that it was only in the final quarter of the 16th century that the whole central part and the plateau were surrounded by ramparts (Žmegač 2000: 32, 48). Archaeological excavations have confirmed that the outer fortress was additionally fortified with two smaller towers on the north and south side (Fig. 8). Examples of towers similar to the northern and southern tower of the Veliki Tabor outer defence wall are numerous, mostly belonging to enclosed refuges made to protect people and livestock during Ottoman marauding attacks. This wartime reality of the end of the 15th and beginning of the 16th century provided the impetus for the building of numerous castella and smaller, subsidiary fortresses, the fortification of settlements and refuges, while existing forts were strengthened and adapted for new defence and attack weapons by the addition of castellum features and planning for the organisation of defence (Horvat 2009: 278). We know from historical sources that two corner bastions were built, certainly before 1597, on the access route on the west side (Žmegač 2000: 164–165). One bastion is identified as a main entrance tower which has also been archaeologically explored.[13] The foundations of the north-western entrance tower were discovered then, while the southwest bastion, a pentagonal building with a pentagonal roof, is completely preserved. A cordon cornice separated the sloped part of the bastion from its upper, vertical part, which was divided into two levels. The southern and western facade of the bastion each had two artillery embrasures in the lower level and four gun holes in the upper level. The artillery embrasures and gun holes are constructed inside segmentally-headed niches, narrowing like funnels from the outer to the inner face of the bastion wall. The sloped foot of the bastion and its highest level are built in brick, while the central level is stone (Regan 2017: 353). Probe archaeological excavations of the Veliki Tabor bastion have determined a later phase of the building, connected to the uncovered stone remains of a square foundation[14] in the centre of the bastion, and an earlier phase, predating the levelling of the terrain for the building of the bastion, visible in rows of holes for columns remaining from a wooden construction (Škiljan 2013: 159) (Fig. 11). The rows of holes for columns were found underneath thickly piled layers with which the interior of the bastion was covered at the time of its construction. Discarded building material was used,[15] and above it a layer of firmly packed marl, to level the walking surface of the bastion. The earlier phase[16] follows the natural slope of the terrain before the bastion was built, with two main rows of holes for columns,[17] probably remains of earlier palisade structures, dug into the terrain (Fig. 12) (Škiljan 2013: 159). The columns are lined up from the northwest to the southeast, following the contour of the stonemasonry remains of the outer defence wall joining the bastion and allowing for the possibility that there was a wooden palisade which predated the stone wall, and in the main north-south direction, underneath the stone remains of the foundations of the square structure. These excavations also revealed, across from the known location of the south-western corner of the probably pentagonal entrance tower of the outer defence wall (Škiljan 2013: 159), the north-east corner of the tower, attached to the outer defence wall (Fig. 13). At that point the route was widened and the foundations of the northern line of the outer

Fig. 11 Veliki Tabor castle – bastion, stone remains of a square foundation in the centre of the bastion and holes for wooden columns (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

13 More about the results of the archaeological excavations in: Špoljar 2010.

14 Possibly remains of the beams of an earlier roof construction, 2.24 x 1.84 m.

15 The stratigraphic units 62 and 48, which represent layers with a larger concentration of broken and crumbled roof tiles, bricks and sporadically Early Modern pottery.

16 Connected to the marl layer with traces of plaster, crumbled brick and soot.

17 20–35 cm in diameter.

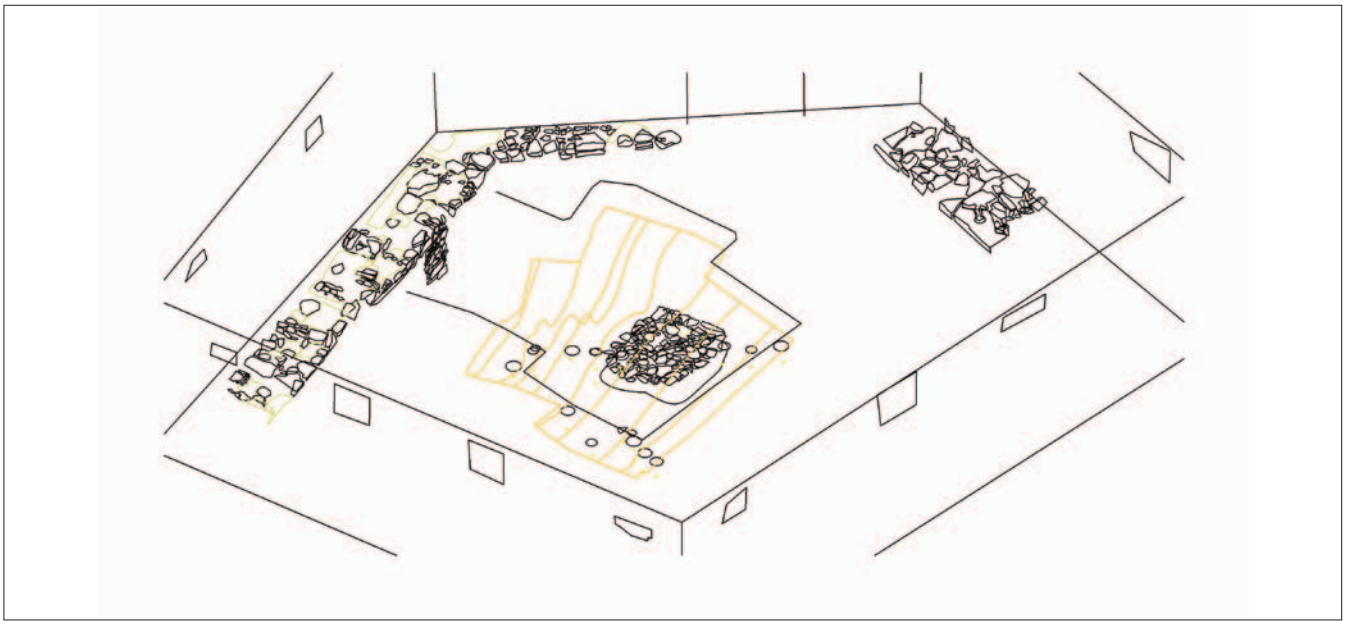

Fig. 12 Veliki Tabor castle – bastion, sketch of archaeologically researched area with remains of holes for wooden columns (created by: M. Mađerić)

Fig. 13 Veliki Tabor castle – stone remains of north line of outer defence wall at the entrance to the complex (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

defence wall of the castle were excavated, extending in an east to west direction. The southern tower, often mentioned in written and pictorial (Fig. 14) sources, was also archaeologically explored and its shape determined as circular (Škiljan 2013: 159) (Fig. 15). The interior of the tower was filled with discarded building material, underneath which the original floor of the tower, made out of regularly placed bricks, was partially preserved (Škiljan 2013: 160) (Fig. 9). In the north-east part of the tower, where a great concentration of soot and dust was observed, the floor had been destroyed. This relatively small tower was evidently at some point covered by a roof construction, judging from the two discovered foundations of a square-shaped base,[18] located by the inner face of the tower walls carrying it (Škiljan 2013: 160). The building was constructed on a thick layer of marl. The semi-circular Renaissance towers of the inner castle share this specific feature with the bastion and southern tower of the outer defence wall – the towers and the bastion were levelled using discarded material, which was piled in the interior together with layers of sterile clay, and the walls of the southern tower were also built on a layer of marl used to level the plateau. However, underneath the deep and firm layers of rubble and marl created during the construction, structures predating the Renaissance masonry buildings were discovered (Škiljan 2013: 160). Excavations of all the preserved cultural layers in the southern tower provided information which allowed for four separate phases of the use of the explored space inside the circular walls to be defined. The latest defined phase is the period when the brick floor was built and originally used. The aforementioned activities belonging to the period the walls were used are documented as several layers whose purpose was levelling for the con-

18 0.7 x 0.7 m in dimensions, preserved height 1 m.

Fig. 14 Veliki Tabor complex with preserved remains of outer defence wall (Ministry of Culture of the Republic of Croatia – Directorate for the Protection of Cultural Heritage, sig. MK – UZKB - F.; inventory number: 5418; neg.: VI – 155, photo by: Gj. Szabo, 1911)

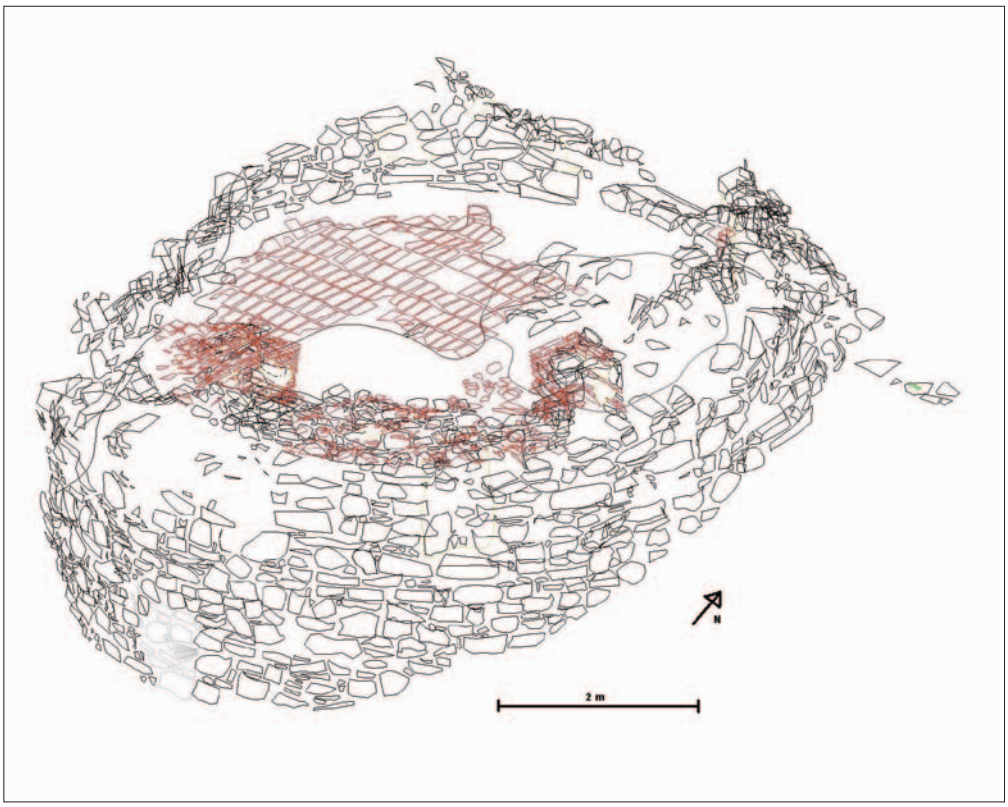

Fig. 15 Veliki Tabor castle – skech of round south circular tower of outer defence wall (created by: M. Mađerić)

struction or repair of the existing floor, loosely dated to the 18th century or later (Škiljan 2013: 161). The situation before the latest, relatively new floor is the phase when a screed floor was used, sporadically documented in the central part of the tower (Fig. 16). We can assume that the massive square-shaped masonry bases/supports, obviously made to support a roof construction, were built during this phase, and functioned in both suggested latest phases of the use of the southern tower (Škiljan 2013: 162). The oil painting on canvas The Genealogy of the Counts Rattkay from 1782 in the Croatian History Museum (Fig. 17) is a famous pictorial source showing the bastion, the northern and entrance tower of the outer wall and all the segments of the Veliki Tabor complex, with the outer defence wall surrounding the whole Veliki Tabor plateau. In

Fig. 16 Veliki Tabor castle – round south circular tower of outer defence wall, screed floor that functioned with massive square-shaped masonry bases/supports (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Fig. 17 Detail from the oil painting on canvas The Genealogy of the Counts Rattkay from 1782 (Croatian History Museum, inventory number HPM 8819)

this painting the entrance at the site of today's southern tower is clearly visible.[19] The painting, in other words, shows the southern, auxiliary entrance, but not the round tower controlling it. However, we can add another representation of the Veliki Tabor complex to this well-known painting – a detail of the Baroque wall mural (Fig. 18) from the manor house of Miljana,[20] which provides the best testimony about the appearance of the south tower. It clearly shows the tower with two openings and a conical roof, which could have been supported by the aforementioned bases.[21] The documented line of three holes for columns/supports, regularly laid out in the main north-south direction, in the central axis of the round space of the tower, and associated shallower holes of a regular round shape, belong to this phase (Škiljan 2013: 162). But the documented layers associated with the screed floor were not the earliest phase of the functioning of the interior space of the tower: they followed layers which can be interpreted as proof of earlier activities, associated with a simpler floor of firmly packed marl, ranging in colour from intensely yellow to yellow-brown.[22] The supposed roof construction of this phase (an upper storey, or a wooden gallery if it was an open structure without a roof) was carried by wooden beams documented by the column holes, whose layout follows the circle of

19 It was already mentioned by Žmegač that the Genealogy "showed a door, but without a tower, while the cadastre map from the 19th century showed the tower only".

20 The wall mural was photographed during a visit by the staff of Veliki Tabor Castle to the then owner of Miljana manor house Mrs Kajfež.

21 A separate group of holes for existing and assumptive square bases which were not preserved was documented, as well as holes for columns in line with the bases (Škiljan 2013: 162).

22 These events document the time of the levelling of the terrain and of the construction and original use of the circular stone building, with walking surfaces documented in the form of layers (stratigraphic units 203, 219 and 204), and above them layers of dark grey earth with some soot and iron nails suggest remains of a wooden construction that has caved in layers documented as stratigraphic units 201 and 202) (Škiljan 2013: 162).

Fig. 18 Detail of the Baroque wall mural from the manor house of Miljana (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

Fig. 19 Veliki Tabor castle – round south circular tower of outer defence wall, situation before the building of tower - remains of holes for wooden columns (Photo Library of Museums of Croatian Zagorje – Veliki Tabor Castle)

the inner tower wall in relatively regular intervals.[23] Finally, layers have been identified which document the period before the construction of the tower, when only the outer defence wall existed in its place, and before that, the assumptive wooden palisade.[24] The line of the outer defence wall was, therefore, positioned on a natural vein of marl of relatively regular shape, mainly east-west in direction, bordered by two trenches with documented holes for wooden columns (Fig. 19).[25] The documented structures could be interpreted as remains of a wooden palisade predating the building of the stone wall[26] (Škiljan 2013: 163). Archaeological excavations have included another important segment of the outer defence line: the structure situated on the northern section of the defence wall, or the northern tower (Fig. 20). With four visible openings, it is clearly identifiable in the aforementioned depiction of the castle in the painting showing the Rattkay family tree. Underneath a deep layer of scattered building material, preserved foundations of the entire wall of the northern tower were documented. Unlike the southern tower, this tower is horseshoe-shaped, with a thin partition wall from a later phase of its use, which encloses its south-eastern corner in a rectangular shape, like a small room of some sort (Škiljan 2013: 162). In the front central part of the northern horseshoe-shaped tower of the outer defence wall a larger backfill was documented, filling a circular hole about 1m in diameter, possibly used as a kind of hearth (Fig. 10). Numerous metal tools – chisels, small knives, wedges and metal slag – and coin, a kreuzer minted in Konstanz between 1657 and 1705, could affirm the hypothesis that the tower was at some point used for metallurgic activities.[27] A very concentrated layer of soot spreading over almost the entire surface of the tower interior was dated, using radiocarbon analysis of a coal sample,[28] to the second half of the 15th or beginning of the 16th century with 95% certainty. Due to this fact, it is interesting to note Srša's opinion that it was Beatrice Frankopan who, after the death of her husband John Corvinus and following the previous building activities from the time of Jan Vitovec

23 From 1.8 m to 1.28 m.

24 The walking surface of this phase is a marl layer of olive green-brown colour, south of the layer of firmly packed grey-yellow marl (Škiljan 2013: 162). This marl layer is above the sterile layer of yellow marl, and can be explained as reinforcement for the foundations of the outer defence wall.

25 The stratigraphic unit 244 trench is north, and stratigraphic unit 185 south of the south wall section; in the later, a line of holes for columns circa 20 cm in diameter was found (Škiljan 2013: 163).

26 By its length, stratigraphic unit 243 fits the dimensions of the defence wall and follows its basic line on the south edge of the Veliki Tabor plateau. Therefore, these columns could have carried the wooden construction leaning on the defence wall as an arcade of sorts.

27 Underneath the layer of soot layer (stratigraphic unit 310) was documented, perhaps the remains of a floor surface, very thin and firmly packed, greyish in colour with concentrated traces of plaster, soot and brick (Škiljan 2013: 66). Underneath this layer, layers documenting earlier activities in the tower were found, defined as larger column holes.

28 Radiocarbon analysis carried out in Kiel on a sample collected in layer stratigraphic unit 297 gave, with 95,4% certainty, the dates 1447 (77,7%) 1517 calAD and 1596 (17,7%) 1619 calAD.

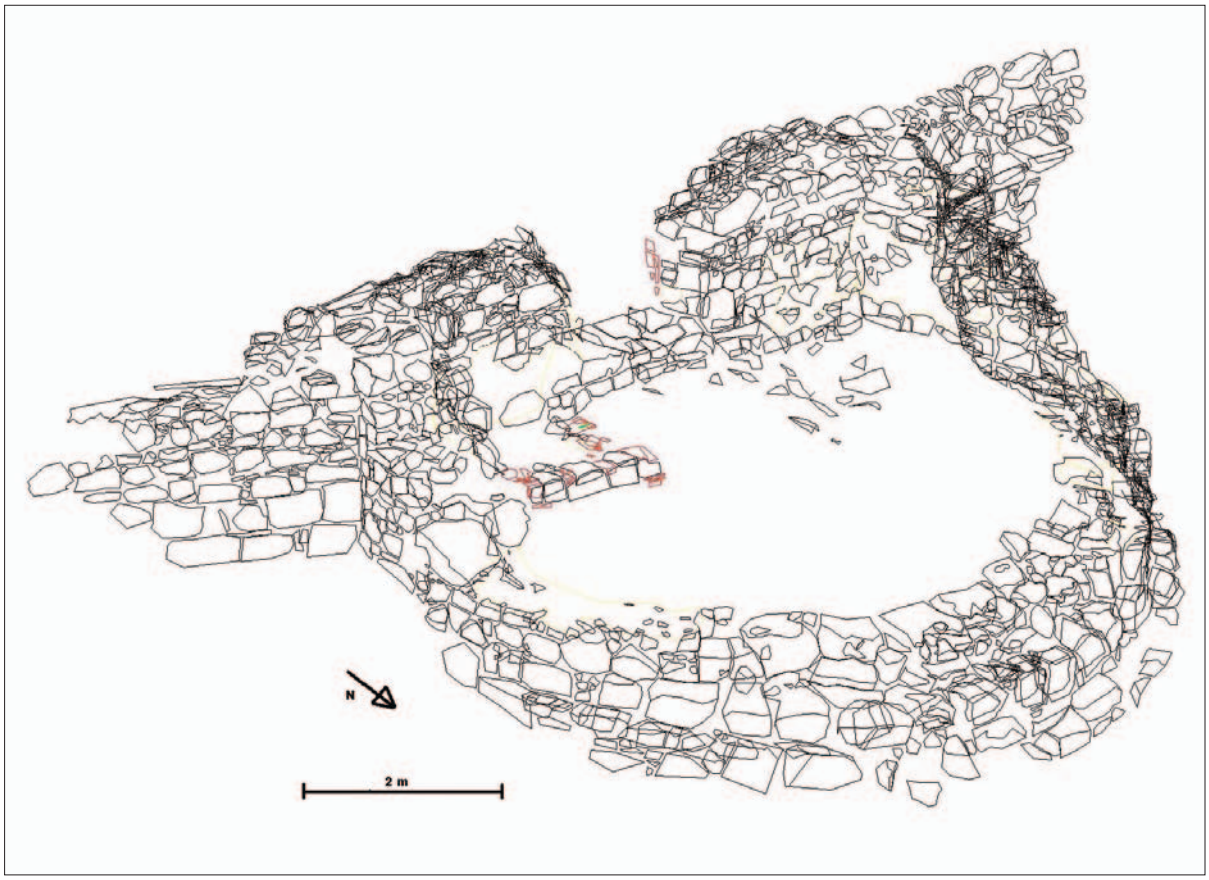

Fig. 20 Veliki Tabor castle – skech of north semi-circular tower of outer defence wall (created by: M. Mađerić)

and his sons, continued building the fortifications around the *palas*, and that she "had the whole property surrounded by walls of modest width, but with thicker walls on the half-towers, strengthening the defence of the property, securing it as much as possible from possible intrusions by Rattkay's men" (Srša 2012: 28). If we search for a very well documented (according to historical sources) process of construction of outer defence systems with walls and towers in Croatia (Slavonia), we should mention the fortifications built around the Zagreb Cathedral and Bishops residence. Fearing the Turkish invasion, the Bishop of Zagreb had the defensive towers and walls around the Cathedral built until 1476 (Dobronić 1991: 5). These defensive structures were only partially built of stone, but mostly they consisted of palisades, ditches and, only occasionally, strong towers (Dobronić 1991: 10). Parts of preserved defensive system still visible today around the Zagreb Cathedral and Bishops residence were built later, in the first quarter of 16th century[29] (Dobronić 1991: 6). Picolo Angelini's depiction of the Zagreb settlements of Kaptol and Gradec from 1566 shows an outer defence wall and stone towers, partially connected by wooden palisades, even though L. Dobronić concludes that the stone wall must have been built together with the towers (Dobronić 1991: 56), which after the year 1668 were slowly adapted into residential rooms (Dobronić 1991: 13).

It is generally agreed that the outer defence wall of Veliki Tabor, with its bastion and other auxiliary defence structures, was built after 1544[30] (Žmegač 2000: 32, 48). But, it should be reconsidered if the whole Veliki Tabor plateau was, prior to outer defence wall built of stone, enclosed by wooden palisades, maybe at some point functioning together with built stone towers at the most critical points of defence. Perhaps it should also be determined when and at what intervals the assumed wooden palisade was replaced by an outer encircling wall and other auxiliary defence structures, and the possibility allowed that some of the structures could have predated the bastion. The utility building (so called horse stable) by

29 In the period between 1512 and 1520 six towers of the Kaptol settlement defensive system were built, and the seventh tower was not finished up until the year 1612 (Dobronić 1991: 30). The towers were connected with 340 meteres of 2.25 m thick wall (Dobronić 1991: 51). The largest Kaptol round tower is 7 m wide in diameter, with the thickness of walls up to 3.5 m (Dobronić 1991: 38).

30 It was only in the second half of the 16th century that a centrally organised, polygonal castellum was made on the eastern part of the plateau, eventually defined by a lower, today less visible outer defence wall with a preserved bastion (Žmegač 1992: 67–75).

the southern section of the defence wall are preserved and still covered by roofs. Historical sources[31] mention a house for a shepherd and a groom, a large horse stable and coach houses. "In the outer part of the castle, the distribution charter from 1597 lists and describes some other buildings. On this plateau there are several utility, residential and fortification buildings: a house for the shepherd and groom, a large horse stable and coach houses. In the outer wall there is a covered defence tower. The outer courtyard of the castle is accessed through a small entrance, a gate in the ground floor of a larger quadrilateral tower. In this entrance tower there is a room for the wine press and rooms for some of the castle servants and craftsmen, smiths and wheelwrights."[32] Regarding the small gate on the east side mentioned in the charter[33], A. Žmegač points out that the document mentions it as situated "in the outer part of the castle" (Žmegač 1991: 58), and identifies it as the same gate mentioned in a later document as the gate to a small two-ceiling tower, which he identifies as the southern tower of the outer defence wall (Žmegač 1991: 58). Therefore, the position of the gate beside a "small tower" would refer to the southern, round tower of the outer defence wall (Škiljan 2013: 167). The existence of a "tower" above the gate is affirmed by the term *portam magnam extorioris* (Žmegač 1991: 59), allowing us to differentiate between the main and the auxilliary entrance to the plateau, with the winepress, smith's lodgings, dungeon and detention room. A document from 1602 documents rooms being added by the northern section of the castle walls (Žmegač 1991: 59). The outer courtyard is accessed through a small entrance, a castle gate on the ground floor of the entrance tower. Lodgings for the castle servants, smith and wheelwright are also situated here, as well as the wine press. "In the outer wall there is a covered defence tower" which could, according to the conservators (Čikara, Ćurić 2011b), refer to the bastion itself. The bastion was first mentioned in a document from 1597 which mentions the "Vodeni stolp" in Maribor as the closest analogy to the Veliki Tabor bastion, leading to the conclusion that the bastion in Veliki Tabor was made a little later than the one in Maribor (Žmegač 1991: 65). A document from 1616 "mentions one of the towers in the encircling wall and its purpose, with an upper room in the fortified middle part of the wall and a dungeon in the lower part, before the fortification", which does not refer to the bastion, which is mentioned separately later in the document. According to A. Žmegač, this refers to one of the smaller towers of the outer wall. There is also mention of a "small gate by the vineyard", which is according to the same author the same gate mentioned in 1597 as the eastern gate (Žmegač 1991: 70). In a document from 1633 there is mention of "mills above the agricultural area and a guardhouse by the dungeon", and in the outer area "a storeroom and a small house above it" (Žmegač 1991: 70). A document from 1672 mentions a "new, larger building between the stables and another small building" and a "smaller building in the outer part of the castle, next to John's part, with two rooms and a kitchen upstairs, and a masonry building just large enough for a stable and a storeroom". The same document mentions a granary in a small garden, and it probably mentions the southern, round tower of the pouter defence wall as a "small round tower above the vineyards" – *turricula rotunda, supra vines* (Žmegač 1991: 71). In a document from 1690, vaulted buildings and brick buildings are mentioned in the outer part of the castle (Žmegač 1991: 70). The pentagonal bastion tower is one of the "most important additions and free-standing buildings" (Žmegač 1991: 70) in relation to the inner castle area, recognised as one of the few polygonal hill bastions in continental Croatia. The bastion guards the most open and easily accessible, southwest access to the castle. If we define the bastion as a building with a pentagonal ground plan, not higher than the surrounding parts of the fortress, used to house heavy artillery (Žmegač 2000: 167), then its ground plan, as part of the bastion system, for the first time in the evolution of military architecture it allows for complete control of every part of the area in front of the defence zone, i.e. the curtain walls of the main part of the fortress.

According to the available and published historical data about the building of the outer defence wall (Žmegač 1991: 58–70), the bastion was built in the second half of the 16th century.[34] In continental Croatia the first bastions were made in 1544, when work started on the renovation of the Varaždin fortifications under the supervision of builder Domenico dell'Allio, at the same time when the most important Austrian cities, Vienna, Graz and Klagenfurt, were fortified with bastions because of the immediate Turkish threat (Žmegač 2000: 27). After this, bastions were made in the Slavonian fortresses of Koprivnica, Križevci and Ivanić (Žmegač 2000: 28). After 1562 the Zrinski family began the construction of a bastion fortress in Čakovec (Žmegač 2000: 29). This so-called "first period" of construction of bastion fortresses in continental

31 Veliki Tabor, the historic development of the castle – M. Kruhek, M. Pandžić, manuscript from the documentation of Museums of Croatian Zagorje – Veliki Tabor Castle.

32 Veliki Tabor, the historic development of the castle – M. Kruhek, M. Pandžić, manuscript from the documentation of Museums of Croatian Zagorje – Veliki Tabor Castle.

33 M. Kruhek and M. Pandžić, in their manuscript from 1990, interpret this as a secret exit broken out of the eastern tower. This exit was not found in the archaeological excavations of the tower.

34 "We have no information about the making of the bastion, except that we know that it existed in 1597, when it was mentioned as propugnaculum quadratum citing from a document from HDA, Obitelj Ratkaj, kut. IV, II 3".

Croatia ended in the Peace of Zsitvatorok in 1606, and it refers to the development of bastion fortresses along the Drava at first – Varaždin, Koprivnica, Križevci, Čakovec and later Ivanić – and fortresses south of the Sava – Karlovac, Petrinja. According to this the Veliki Tabor bastion would be created during this first phase of construction of bastion fortresses in the area, with other bastions adapted to older castles belonging to noblemen – Samobor and Brinje. A characteristic of these bastions, belonging to a separate group defined as bastions added to mediaeval castles,[35] is the use of masonry, as well as a diversity of dimensions and characteristics because each was created in its own individual conditions (Žmegač 2000: 32, 48).

A specific thing they have in common is the fact that just one bastion was added to each castle, instead of a whole bastion system added to a mediaeval centre, like elsewhere in Europe. The connection between the outer defence wall and the bastion can, besides in artistic depictions, be clearly seen in the building material of the bastion wall, on the corner of the east and north-east façade and on the north-west façade of the bastion (Čikara, Ćurić 2011b: 55). The defence wall was, at the points where it touched the facades of the bastion, connected to it by the same building material (Čikara, Ćurić 2011b: 57). Nineteenth century documents always refer to the bastion as the wine press (Čikara, Ćurić 2011b: 10). Access to the loop holes of the first storey was made possible by a wooden gallery, judging by the ledges of beams found between the first, second and third loop hole of the western wall of the bastion, and under the northern loop hole of the eastern wall, and also by the ledge of a massive beam in the southern wall (Čikara, Ćurić 2011b: 63, 65, 66). Also, the north-east wall with the current entrance to the bastion has a foundation base on its inner side that narrows from the north-east side of the wall and by the entrance becomes the same width as the wall itself, which is to be expected because this wall is newer and isn't structurally connected to the other walls (Čikara, Ćurić 2011b: 64). The bastion was built in the 16th century and originally had a wooden gallery allowing access to the loop holes on the first storey, carried by the upper surfaces of the fortified southern and western wall and of most of the northern wall (Čikara, Ćurić 2011b: 65). It is obvious that in the first, originally defensive building phase, the gallery was the only part of the bastion sheltered by a roof, judging by the precipitation drain in the north-western wall of the bastion, used for rainwater from the open part of the bastion (Čikara, Ćurić 2011b: 66).

It can be concluded that the packed soil floor is a recent walking surface of the bastion, lower than its original walking surface from the time when it served a defence purpose, judging by the interior of the bastion. It was only in the late 18th century that the bastion was completely covered by a roof, when it became a building for the production and processing of wine, with a pentagonal tent roof "built in such a way that each wall carried one roof slope, supported on the top by a tall beam, likely a tree trunk, vertically placed in the centre of the space. The wide, stone foundation of an approximately square ground plan supporting this beam" is the base found during archaeological excavations. In any case, this base had to be made at a point when the original floor surface of the bastion was already lowered for around thirty centimetres (Čikara, Ćurić 2011b: 67). The eastern wall of the bastion also has a fortified foundation base, although it has no reinforcement on the ground floor, so the walking surface of its gallery had to be carried by a free-standing wooden construction (Čikara, Ćurić 2011b: 66).

CONCLUSION

Although it also had a residential function from the very beginning, the emphasised defence function of Veliki Tabor, which would certainly remain its primary function until the Peace of Zsitvatorok in 1606, is evident in its very name: the name Veliki Tabor originates from the term tabor, i.e. war camp. The defence system of Veliki Tabor with its complex Renaissance defence structures, whose excellent present condition gives them an importance not limited just to the region of Hrvatsko Zagorje, was developed in several phases. All explorations and papers published so far suggest that the Renaissance castellum was built around the centre of a smaller castrum (Čikara, Ćurić 2011a, 70). Since the original Gothic pentagonal tower was built to protect from hand-held firearms, but not from gunpowder artillery, the upper limit of its construction cannot be later than 1453 (Srša 2012: 22). At this point in research we can conclude that Veliki Tabor was founded between 1445 and 1454 by Friedrich II of Cilli, as a Late Gothic castrum fortified by palisades, by the name of Gorica (Wingard in German), from which its names of the same meaning in Hungarian (Borovec) and Croatian (Vingrad) were later derived. Later, but definitely still in the second half of the 15th century, the palisades of the Cilli family were replaced by a ring of Renaissance ramparts with semi-circular towers. There are two main views on this. According to the first, this complex was taken over by the Vitovec family in 1460, and as the successors to the counts of Cilli and experienced warriors,

35 Bastions added to the fortresses of Požega, Ilok and Cetina belong to this group (Žmegač 2000: 49).

they started building an advanced defence system. According to the other view, the Renaissance castellum was built by King Matthias Corvinus himself in the period between 1484 and 1490, which would place Tabor among the series of border fortresses in which Matthias Corvinus's regular paid army was housed. The defence purpose of the compact castellum was emphasised with a large number of defence openings and rooms to house a large host armed with firearms, and the ground floor of the *palas* is the only room whose purpose is exclusively utilitarian[36] (Čikara, Ćurić 2011a: 70). The building of the defence structures on the outer defence wall was the final phase in the development of the complex defence system of Veliki Tabor. Besides the bastion at the entrance to the Veliki Tabor complex, preserved to this day, archaeological excavations have uncovered the remains of the entrance tower, the round southern tower, the northern semi-circular tower, and the remains of a palisade predating the stonemasonry structures. The northern semi-tower of the encircling wall could have already been in function at the end of the 15th and beginning of the 16th century. Apart from large preserved bastion tower, Velki Tabor outer defence wall towers are 5.5 m (south tower) and 6.5 m (north tower) wide, with thick walls (80–100 cm). The whole hill's plateau was surrounded by walls of modest width (up to 1 m). The entire assumed length of this thick walls that enclosed refuge made to protect people and livestock was less than 400 m. As several authors have noted, by the construction of a large fortified outer defence system with bastions, Veliki Tabor was essentially turned into a reduced bastion fortress (Regan 2017: 353).

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36 The year 1525 on the lower part of the vault in the coach house broadly matches the period into which the conservators date the construction of the tower vaults, which was connected to the reinforcement of the walls during the second building operation, when the fortress rooms were gradually adapted into residential rooms, and Veliki Tabor, in the middle of the 18th century, into a residential castle (Čikara, Ćurić 2011: 65).

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ANDREJ ŽMEGAČ

The Long Term – the Example of Dalmatian Venetian Fortresses

The article deals with the fact that some fortifications retain their function for many centuries. The question is how this role could be kept despite the incredible development of weapons in that long period. Obviously certain positions permanently remained of strategic interest, and fortification engineering strived to make them defensively effective by adaptation of the standard forms. Author analyses this phenomenon on Dalmatian fortresses of Knin and Klis, which were governed by the Venetian Republic for a significant part of their history. After the withdrawal of the Turks in the Morean war the fortress of Knin was modernised, thus becoming a first-range Venetian fortress. In addition to the adapted bastion structures, in these Venetian fortresses elements inherited from the Middle Ages (falsabragha/faussebraye, tenaglia/tenaille) can be found, now used in modern and original ways. Apart from the two elevated fortresses (Knin, Klis), there is the example of Drniš, where on the local plateau a bastion belt was erected in addition to an existing older fortress. Finally, the case of the detached fort of S. Giovanni in Šibenik is mentioned, as an example of difficulties in controlling an unfavourably configured site.

Key words: Venetian Republic, Middle Ages, bastion fortification, Knin, Klis, Šibenik, Jančić

In this paper we will focus on Dalmatian fortresses in the period of Venetian rule, particularly during the modern age, i.e. in the 17th and 18th centuries.[1] During the earlier period most of these fortresses were controlled by the Turks, so that after their liberation Venice faced the need and the problem of their upgrading and modernisation. As they were located in the particularly sensitive hinterland area, their position and future destiny were considered insecure. We are referring to the period during which the last three Venetian-Turkish wars occurred: the War of Candia (1645–1669), the Morean (1684–1699) and the Second Morean War (1714–1718).

We might start with the interesting question as to how certain positions could retain their defensive function over many centuries, despite the incredible development of attack technology, i.e. weaponry, over that period. The best example is the Klis (Clissa) fortress, which is believed to originate at least from the 9th century, and preserved some kind of military role until World War II. Similarly, there is the Knin fortress, whose millennial duration also began in the early Middle Ages. Both fortresses might have assumed their fortification role even in Roman times.

In the course of such a long period of time, which included the transition from cold weapons to firearms, the fortresses obviously had to undergo appropriate building adjustments. It has to be concluded that the locations of these forts – in terms of their ability to control a certain strategically important position – were a persistent reason for their being constantly maintained throughout all those centuries. In the example of Klis, this position is a passage between the Dalmatian hinterland and the Salona area, still crossed by some important roads today (Fig. 1), while Knin is located on the banks of the Krka river and in the vicinity of the former Triplex Confinium, where the borders of the Venetian, Habsburg and Ottoman states used to meet.[2]

1 This work has been fully supported by Croatian Science Foundation under the project IP-2016-06-5776.

2 As a curiosity, let us mention the note by Maximilian de Traux, a military engineer in Austrian service, who wrote in 1805 that Knin controlled the most important position in Dalmatia: M. de Traux, *Festungen Dalmatiens und Albaniens nebst vorliegenden Inseln, und Beschreibung,* manuscript, National Library of Serbia, Belgrade, 28.

It should be noted that in certain periods both fortresses were estimated as ready for abandonment or demolition, the possibility of their modernisation and further purpose not being evident. After the first conquest of Knin in 1648, the Venetian proveditore generale Foscolo thought that it should be abandoned because Venice would not be able to maintain and supply a fortress so far away from the sea. Schulenburg, the commander in chief of the Venetian army in the 18th century, shared this opinion.[3] And as far as Klis was concerned, there was a disagreement about whether the fortification should be maintained and perhaps even strengthened. At the time of its conquest, also during the War of Candia, the Venetians could not have been sure that Klis would stay permanently liberated from the Turkish rule. Foscolo wanted to keep and renew it, and thus significant interventions were made by engineer Magli.[4] There were opinions that the fortress would not be able to respond to its task in new circumstances, which is why it was to be demolished and abandoned (Novak 1972: 112, 113; 1977: 25; Piplović 1994–1995: 70). In addition, there was the idea of pulling down the lower zones (enclosures), and keeping only the top position (Novak 1972: 136).[5] But of course the final decision belonged to the Senate, which, led by its strategic considerations, continued constructing and modernising those fortresses.

It was mentioned that special attention would be paid to the Venetian period, during which interventions from the repertoire of bastion fortification were carried out. As the fortresses existed for centuries earlier, Venice was adding to the existing medieval or Turkish structures. It is precisely this relationship that is instructive, because it will be shown that in these places the bastion and the medieval types of defence had many common features.

Fig. 1 Klis (Clissa) (photo by: A. Žmegač)

In Klis, and Knin as well, one can notice that the most precious position on top of the hill or the ridge was used, previously occupied by medieval buildings and towers. Now they were removed and replaced by cannon positions. This means that the highest point that dominated the area was still the most desirable defence position. The position was the same, but the defence method involved a major difference: in the Middle Ages it was vertical defence, a defence against the enemy located at the base of the wall. Even in the modern age this kind of defence was employed if the attacker managed to penetrate into the lower zones of the fortress, although remote cannon defence was primarily used. Of course, as the same arms were or could be used by the enemy,[6] an important part of attack or defence was conducted with heavy

3 Croatian State Archives, Zagreb, Cartographic collection, K VII i 3, 11r.

4 Archivio di Stato di Venezia (from now on: ASVe), Senato, Dispacci, Rettori, Dalmazia, 53.

5 For example, engineer Benaglio proposes demolition, with the exception of the "ultima retirata"; Biblioteca del Museo Correr, Venice (from now on: BMCVe), Morosini-Grimani, ms. 540/VI (21. X. 1654).

6 Caused by poor planning or organisation, the Turkish army often lacked heavy cannons and thus returned without seizing an adversary fortress.

weaponry at a distance.

At the time of bastion construction the aim was to achieve a proper defence belt, with appropriate angles, calculated bastion sizes and their distances, but at elevated fortifications like Klis and Knin such ideas had to be completely abandoned and adapted to the available space and configuration of the terrain. In Klis particularly there is a lack of space in the top zone, so that smaller buildings of an adjusted shape were constructed (Fig. 2). Of course, they generally belonged to the bastion-building conception, but as they did not have the form of a proper bastion, Venetian sources called them "posto", positions for accommodating cannons. There was no additional space in the peak zone, so that the fortresses could have been enlarged only at the lower levels. It was possible to have some kind of cannon position there, but these zones were primarily used to accommodate auxiliary buildings, as well as additional defended gates in order to make the attackers' progress more difficult. These lower levels, "terraces", were often underbuilt and then filled up with earth to create a desired horizontal surface;[7] this is a distinctive solution in comparison with the Middle Ages, since it was previously not common to expand space in such an artificial way. However, it is the extension of the access road, its curvy course and the addition of gates that fully correspond to the earlier medieval defence measures.

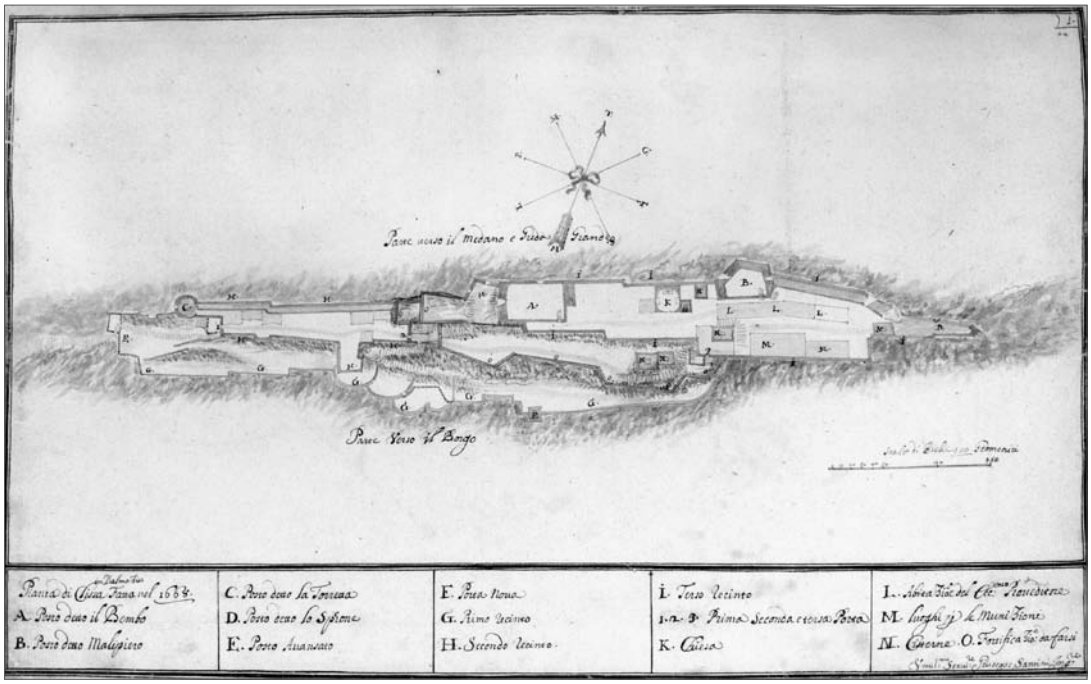

Fig. 2 G. Santini, Klis, 1668 (City Museum, Split)

Further interesting relations between bastion and medieval structures can be seen in Knin. At the time of its final liberation (1688), there was a project of a broad bastioned enclosure which would include the settlement at the foot of the hill.[8] It had been planned as quite a regular fortification with large bastions, but it remained just a project. However, it was decided to reinforce the older fortress at the Spas hill. This was confirmed by an anonymous description from 1708, which stated what had been done until then, but it still remained "d'antica struttura" and "molto debole e diffetosa".[9] After that engineer Jančić visited Knin and prepared a modernisation project for the fortress. It is certain that the Venetian Senate was acquainted with this project in 1710, when Knin was considered one of the most important Venetian fortresses.[10] This information is particularly valuable because it testifies that an originally medieval hilltop fortification could gain such, obviously strategic, significance through bastion adaptation. Jančić's description of Knin[11] is exhaustive, proving how thoroughly the engineer analysed the relief of the hill and the existing constructions in order to identify the sites that required intervention. As space was limited on the Knin fortress as well, he described the existing structures as "ristretto", "breve" or "angusto",[12] indicating that there was not enough room for optimal bastion fortifications.

7 This is well depicted by the Eraut cross section of Klis (1682): Biblioteca Nazionale Marciana, Venice (from now on: BNMVe), ms. it. IV 28 (5093), 51r.

8 BNMVe, ms. it. VII 94 (10051), 10; the author was engineer O. Alberghetti.

9 Of an ancient structure; very weak and faulty; Österreichisches Staatsarchiv – Kriegsarchiv, Vienna, Cartographic collection (from now on: KA), K VII i 2F.

10 ASVe, Senato, Deliberazioni, Rettori. Rettori, Filze, 165.

11 Fondazione Querini Stampalia, Venice, ms. 154; the same text in BMCVe, Donà dalle Rose, ms. 475, I.

12 Narrow, short.

Fig. 3 Knin, Jančić's bastion belt (photo by: A. Žmegač)

Jančić suggested interventions primarily on two sites: at a point where ascent was possible, and on the castle at the northern end of the fortress. In the first case he designed a restricted bastion belt, where he introduced the so-called falsabraghe, or outer ramparts (Fig. 3). These low walls formed an additional protection and obstruct the attackers' access to the main rampart. Interestingly, Jančić's description shows that he had already found falsabraghe in some places in Knin, which reminds us that they were in fact an older fortification solution. They existed in a similar form in the Middle Ages, but here they were used in the context of the new structure. Falsabraghe were widely applied in bastion construction, and in other Jančić's works as well, but they were usually used as part of lowland fortifications; here he presented an interesting solution by using them on steep ground.

Looking at the ground plan of Jančić's new arrangement, it can be noticed that the falsabraghe are not following a straight, but a broken line. Basically, this is the principle of the so-called tenaglia (pliers), a solution to confront the enemy with two symmetrical wings designed to enclose the attackers. There are different forms in which the tenaglia appears in modern age: in a simple shape like this, or as a typical tenaglia made up of two semibastions and a short curtain wall. But the tenaglia is another motif that originated in the Middle Ages, when the walls in such a sensitive place used to be set at right angles to each other in order to enable attacking the enemy soldiers in front of the walls as efficiently as possible. The tenaglia, therefore, appeared in various forms; in the case of Knin it dynamised the otherwise simple additional rampart, the falsabragha (Fig. 4). We could argue that the Knin example is a falsabragha in form of a tenaglia, but in his notes Jančić does quite the opposite and calls it a tenaglia in the form of a falsabragha.[13]

In any case, the new defensive belt, now with two bastions and two falsabraghe, meant a significant modernisation of the defence in that section. This can be confirmed in engineer Rossini's report from 1755, where he refers to it as "quel moderno recinto".[14]

The importance of the two medieval, now modernised and bastioned, fortifications can be discerned from Schulenburg's records on the defence of Dalmatia. Discussing Central Dalmatia, he concluded that there were only two directions for the enemy to enter the area[15] and reach the coastal towns: one was the Knin-Drniš-Šibenik route and the other the direction Sinj-Klis-Split. Because of such strategic considerations the Senate eventually came to the conclusion that it was not just important to maintain these fortresses, but to strengthen them considerably as well.

Attention should also be drawn to Drniš. This borough between Šibenik and Knin had its older fortification, and acquired a new one after it was seized by Venice on the eve of the Morean War. But the Venetian Republic focused on Knin, while the Drniš fortress remained modest in size and significance. Still, its interest lies in the relation of the bastion structure to the older nucleus. At the end of the plateau above the river Čikola there was a medieval-Turkish fortification with a dominant cylindrical tower and a set of auxiliary buildings around it. On the access side a belt consisting of a central bastion and two semibastions was concentrically added to the older complex. This belt crossed and defended the entire plateau and significantly increased the fortress space (Fig. 5). Unlike the cases of Klis and Knin, where medieval structures almost totally disappeared and were replaced by modern ones, here the old fort was retained and, in fact, became the core of the

13 "Tenaglie in forma di false braghe"; this is an explanation in the corresponding ground plan: BMCVe, XLIVb 504.

14 That modern enclosure; KA, Inl. C III Knin 1, 10v.

15 Schulenburg, of course, was referring to a huge Turkish army that would prepare for the siege of the towns, and therefore would carry cannons.

Fig. 4 Knin, bastion Pisani and falsabragha (photo by: A. Žmegač)

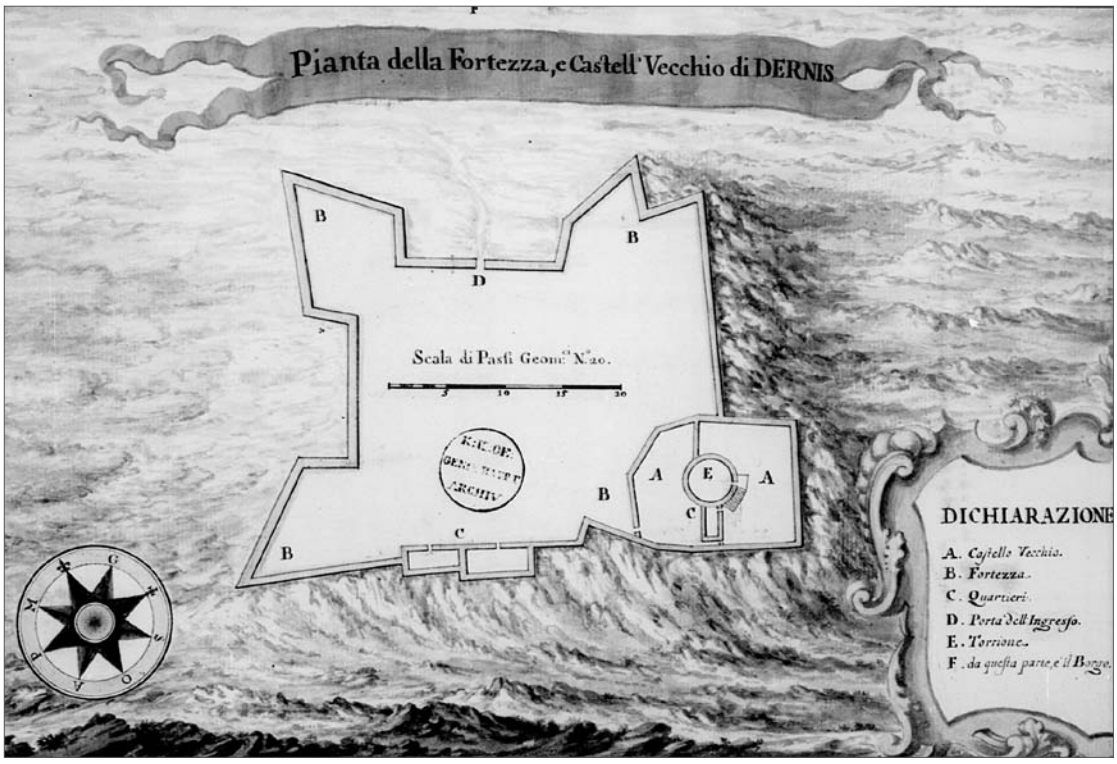

Fig. 5 G. Juster, Drniš, 1708 (Kriegsarchiv, Vienna)

new fortress. This is probably due to the fact that the location was a plateau, so the old fort did not occupy a particularly prominent position; otherwise it would surely have been replaced by some kind of bastion structure. In the Drniš case the defence was largely taken over by the new bastion belt, while the older core seems to have had some kind of auxiliary function in the fortress. Some of the historic records show that this core was neglected (Tosato 2014: 155),[16] but had not been demolished, and its buildings, even the tower, could still be used.

The recently undertaken excavations in the Drniš fortress have brought to light elements of the bastion belt; before that there were no traces of this structure above the earth. Archaeological research has also been carried out in recent years in the Šibenik (Sebenico) fort of S. Giovanni. This is a detached fort erected on the hill above the city, as it was noticed already in the 16th century that enemies could easily attack the city from that position (Fig. 6). The fort was finally erected at the beginning of the War of Candia in 1646. It is perhaps the most complex fortification in this area, as it had undergone several development stages in a very short period of time and was frequently expanded. It was modified and added to with such speed because of the immediate Turkish danger, which actually led to two sieges. Those fateful sieges took place in the first two years of the fort's existence, in 1646 and 1647. Numerous historical sources, both written and visual, exist about the fort at that time, but precisely because of their multitude, and because they recorded different facts regarding the state of the fort, their credibility was questionable. In other words, it could not be definitely established whether the elements recorded there had been really built, or whether they were just descriptions of proposed actions or even unreliable drawings with much arbitrary content. But eventually it was verified that all the sources were unusually credible, recording the frequent changes on the fort, some of which were later substantiated by archaeological research. For example, the existence of the first core according to Leni's project from 1646[17] was clearly confirmed by the disclosure of the tip of its northern semibastion.

Fig. 6 Šibenik with the hill of S. Giovanni (right) (photo by: A. Žmegač)

Thus the small original core existed, erected in just 58 days, and the works continued. There were also the repairs after the heavy siege of 1647, traces of which are still visible today, as well as the mentioned additions and the expansion of the fort. The works lasted until the 1660s. Bearing in mind the dramatic nature of the events at the time, which gave the inhabitants of Šibenik little time to carry out defensive measures and interventions, and the current technology of construction, this endeavour has to be considered an impressive feat.

The greatest difficulty in securing the elevation of S. Giovanni was presented by its unfavourable shape. It was not sufficient to occupy the location overlooking the town, because the plateau continued to the north, and a view opened over the northern valley only from its other end. This was recorded in current documents at the time, but was also substantiated by authors such as Divnić and Del Campo (Difnik 1986: 99; Bertoša 2003: 62). Not securing the northern end of the plateau would have meant no control over the valley, where the enemy could find shelter, just like behind the numerous rocks in the area, mentioned in historic sources and still visible today. This is why almost immediately a small fort was built at the northern end of the plateau and connected to the described core. It included a tenaglia facing the enemy at its end, which

16 For example, Binard's / Juster's drawing shows the roofless and ruinous tower. On the Treviso survey from 1756 there is the ruinous old fort, but the bastion belt is already marked by the same condition.

17 ASVe, Senato, Dispacci, Rettori, Dalmazia, 51, inset to the report of 29. X. 1646.

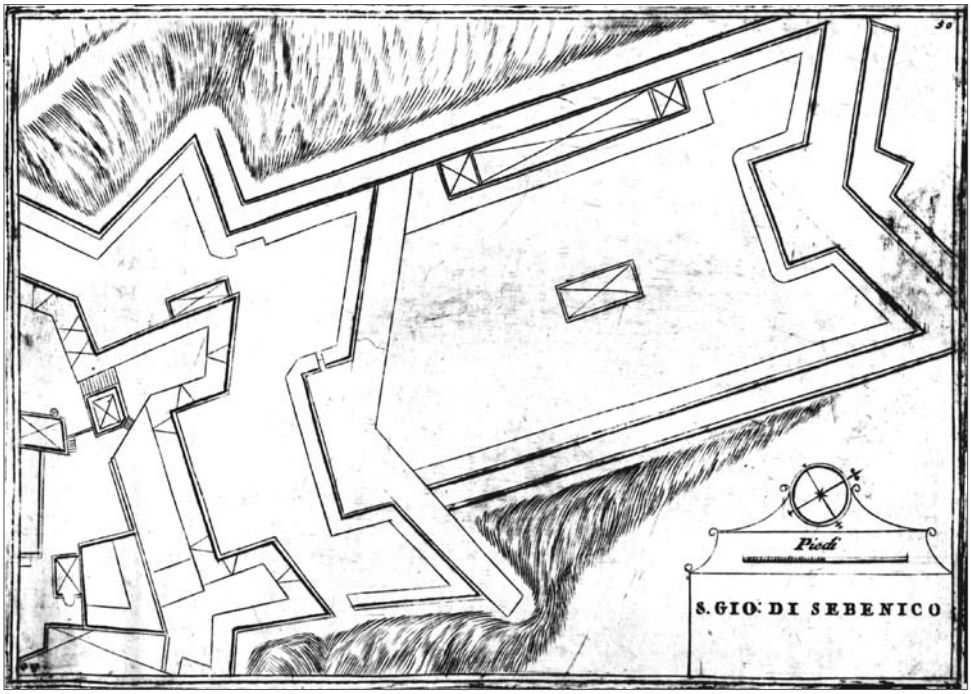

Fig. 7 V. M. Coronelli, S. Giovanni in Šibenik, print, 1688

has been preserved to the present day. It is precisely because of that long and characteristic body that the whole fort got to be popularly known as Tanaja.[18]

Difficulties, therefore, resulted from the vast space, both poorly controllable and rocky. Basically, there was no need for extensive construction projects, as this was an additional and separate fortification, detached from the town; there was neither much time nor sufficient other necessary resources. Such complex situations in which it is difficult to reconcile contrary demands, but action has to be taken and decisions reached, were quite common during the erection of fortifications. Let us mention an analogous case in this regard. The capital of Morea (Peloponnese) at the time of the Venetian Republic, Napoli di Romania, also had its own fortifications, but was threatened from the Palamida hill high above the town. For years between the first and second Morean Wars, Venice had been hesitant about the construction of a fort on that site, as it was considered that the mildly rounded and spacious elevation was almost impossible to secure. But since it was clear that this position was a threat to the city and that the attackers – both Turks and Venetians – had been using it to conquer the town, finally the construction started. The project was prepared by Jančić, who had previously, as mentioned, worked in Knin. His solution was to erect a detached fortress composed of separate bodies that controlled and supported each other. This represented a certain rationalisation intended to solve the problem posed by that vast and unfavourably configured space and put it under control. Therefore, both Palamida and the Šibenik fort S. Giovanni are good examples to demonstrate what kind of difficulties arose when there was too much space to be controlled on elevated positions, as opposed to Klis or Knin, in whose upper parts space was deficient.

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18 As can be seen from the historic ground plans, among which the most famous is the one by Coronelli (Fig. 7), at a certain period of time the fort contained three tenaglie, one in front of the other, all facing the side where the enemy was expected.

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MARIA FELICIA MENNELLA

Collections and Drawings: the Renaissance of Venetian Fortifications in the "Stato da Tera and Stato da Mar"

The continuous state of war that characterizes the sixteenth century leads the Republic of Venice to prime a radical revision of its defense systems. The complex operation of rectification of military buildings, characterized by preliminary phases which are constituted of inspections and evaluations of projects, will lead to the widespread dissemination of drawings and architecture military text.
The designs of the fortifications, the main cultural vehicle of the time, has particular importance for the history of their formation and testifies a particular and unusual form of collecting plans. In these opera the incessant detecting and planning activity are carried out by the most important exponents of the time, composed of engineers and military architects, at the service of the Republic of the Serenissima. The designs of the main Venetian fortifications belonging to unpublished collections, that constitute the "Stato da Mar", kept in the most important Venetian archives, will be the object of analysis and confrontations which will lead to explain in details the constituent elements, the chronological dating of the project drawn and the exponents involved in it.

Key words: architectural design, engineers, fortification plan, Adriatic sea, Serenissima, Dalmatia, fortress, collections

"Per certo se con giusto giudizio si vorrà andar considerando con quanta grandezza, con quale illustre apparato, e regale spesa siano state molte fortezze della Repubblica in questi tempi fabricate, e che per quanto comporta la diversa usanza di tempi faranno queste a quelli più famosi edificij presso all'antichità paragonate, troverassi che per respetto così della spesa, come della grandezza dell'opera, non minor laude di magnificenza devono haversi I Vinetiani acquistata di quella, che sia dia agli antichi Romani per le therme, acquedotti, & altre opere di fabriche eccellenti, fatte a publica commodità, & a memoria del nome, & della grandezza loro" (Paruta 1718: 288).

The observation of the historical Paolo Paruta, dating to the eighteenth century, attests the great importance and the various weaving of the fortified systems that will characterize the dominion of the Republic of Serenissima over the centuries.

The almost capillary distribution of the fortifications inside the three large administrative areas in which the Serenissima was subdivided, respectively "Stato da Mar", "Stato da Tera" and "Ducato", reflects the heterogeneity and the complex administrative system and generate, in fact, a wide range of fortified systems.

The fifteenth century represents for the Republic and its extensive domains an important turning point especially in military range (Boni De Nobili et al. 2016: 7).

In fact the continuous state of war that will characterize the sixteenth century and the consequent and continuous updating of the military structure will contribute to the multiplicity of fortified systems types.

The political and military necessities and the assiduous modernization of the fortifications will be the basics of an incredible phenomenon's birth: the large spread of military architecture drawings and operas that over the centuries will take on particular importance for the history of their formation and, in some cases, they will witness a particular and unusual form of collecting.

The heritage of the cartographic material that represents the main cultural vehicle of the time, will allow us to rebuild the construction phases of the city walls of a determinate historical period.

Over the centuries, the fortifications have undergone continuous transformations and destructions; so the reference designs analysis is useful for the reconstruction of historical phases.

New informations and reflections about this are obtained through the confrontation of graphic materials, some of them already published and others unpublished, part of a prestigious collection belonging to a noble Venetian patrician, Giacomo Contarini (Hochmann 1987: 447).

The considerations of my contribution concern above all the Venetian fortifications, which constitute the "Stato da mar" and the first evaluation is dedicated to an unpublished plan, part of the collection of Giacomo Contarini, concerning the fortification of Zadar (Fig. 1), (rif. 3800 – 28.34.10.01/11).

Fig. 1 Plan of Zadar fortification, Marciana National Library of Venice, Mss. It. VI, 188 (10039) tavola n. 46, entitled "Piante di città, fortificazioni e carte geografiche manoscritte dei sec. XVI e XVII" (rif. 3800 – 28.34.10.01/11)

Usually, the Dalmatian coast's fortifications start to be built by Venetian engineers in the first quarter of the 16th century especially in "key-cities" as Zadar, Šibenik, Trogir and Split (Žmegač 2005: 133).

These cities, characterized by the previously mentioned fortifications which are entrusted to the most important republic's military exponents of that ages, defend the navigation of the Adriatic sea.

The Venetian domination of the city of Zadar begin in about 1409 (Dal Borgo, Zanelli 2008: 15), through a slow and effective program of reorganization of the medieval defensive system, now militarily obsolete (Dal Borgo, Zanelli 2008: 28), and continue until 1797, the year in which the republic decline (Brunelli 1913: 525).

The unpublished design of the collection represents a project regarded to the fortifications of Zadar made on a little and folded paper, probably a single support, with dimensions equal to 42 x 62.5 cm and it is a plan made with pen and colors.

The colors used in the architectural table are respectively: the blue, that represents the sea element and the pink that colors the parts of the mainland and the interior of the same fortified structures.

In addition to these two colors stands out the yellow and red with an extremely indicative design function; it seems that the red color is used to represent the parts characterizing the new project, while the yellow, used to color the pre-existing structure of the fortified medieval wall and to give indications on the materials that would constituted the new fortress later.

The plan has on the "verso" of the paper along the right margin, the writing "Zara" in pen, made with a different nib from the one used inside the drawing and with a different handwriting, probably inserted at a later time, during the various arrangements of the Contarini archive.

The paper doesn't have any particular inscriptions, except the presence of the metric scale, inserted almost at the center of the it, bearing the inscription: "Passi 100 vinitiani", "Passi numero 100 veneziani", equivalent to a staircase of steps 100 = 8 cm [scale ca. 1: 2 173] (http://geoweb.venezia.sbn.it/cms/images/stories/MsGeo/10039.pdf), and for the presence at the right top of the indication "Caug: 20".

The interception of its watermark is an important reference for the dating and location of the design, useful for the chronological reconstruction of the manuscript, even if it is not possible to establish relationships of absolute reliability with this element.

The mark, identified and classified within the Briquet at number 6298, appears to be characterized by two arrows placed diagonally, with the vertices facing up and among them, in the upper part, a six-pointed star.

The watermark dating back to 1543–1548, has dimensions of 50 x 40x h 96 mm while the paper is produced in Prague (Briquet 1985: 362).

In order to understand in the details the design, we try to start a process of architectural analysis and comparison of all the cartographic materials founded from various sources till now, on the Zadar fortress.

The comparative designs are the following: a Zadar plan, exactly the number twenty-two of the Manuscript It. VI, 188 (= 10039) entitled "Piante di città, fortificazioni e carte geografiche manoscritte dei sec. XVI e XVII" (Fig. 2) that is the part of the same collection of the design in question (Concina 1983: tav. 25); a plan from Zadar, probably from around 1568, kept in Vienna at the Kriegsarchiv, K VII i 17 (Žmegač 2009: 33) (Fig. 3); a Zadar plan guarded in Venice, Correr Civic Museum, P.D. c 848/24 of about 1567 (Concina, Molteni 2001: 114) (Fig. 4), a Zadar plan conserved in the municipal library of Treviso, manuscript 1019, collection which constitutes the "J. Capitanio" archive, dated about 1625 (Tosato 2014: 145) (Fig. 5) and finally a map dated around 1571, published in the text by Andrej Žmegac, entitled "Bastioni jadranske Hrvatske" (Žmegač 2009: 36) (Fig. 6).

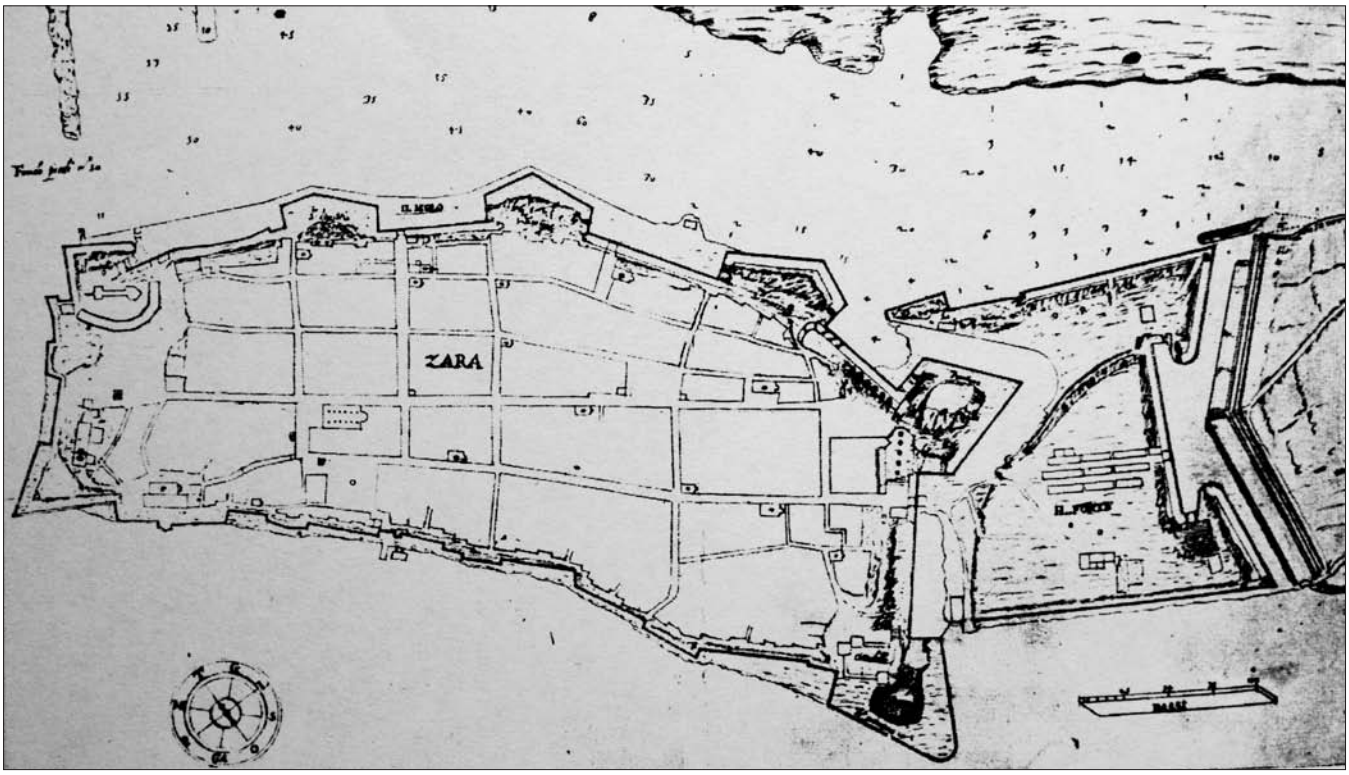

Fig. 2 Plan of Zadar fortification (Concina 1983: tav. 25)

Through a first examination of the documents and the realization of a precise chronological framework relating to the construction of the salient elements of the fortress, we can note: the "Ponton" was built in about 1531 (De Benvenuti 1952: 5), it is the central bulwark, located to the east of the fortified walls, of a pentagonal shape inserted between the mainland and the fortress.

The following evaluation is represented by the general framework of Zadar fortifications provided in the mid-sixteenth century by Giambattista Giustinian who states that in many places the walls of Zadar were still characterized by the existence of the ancient walls and that the stronghold has around itself three sides "porporelle", uninterrupted rows of stones,

Fig. 3 Plan of Zadar fortification, Vienna, Kriegsarchiv, K VII i 17 (Žmegač 2009: 33)

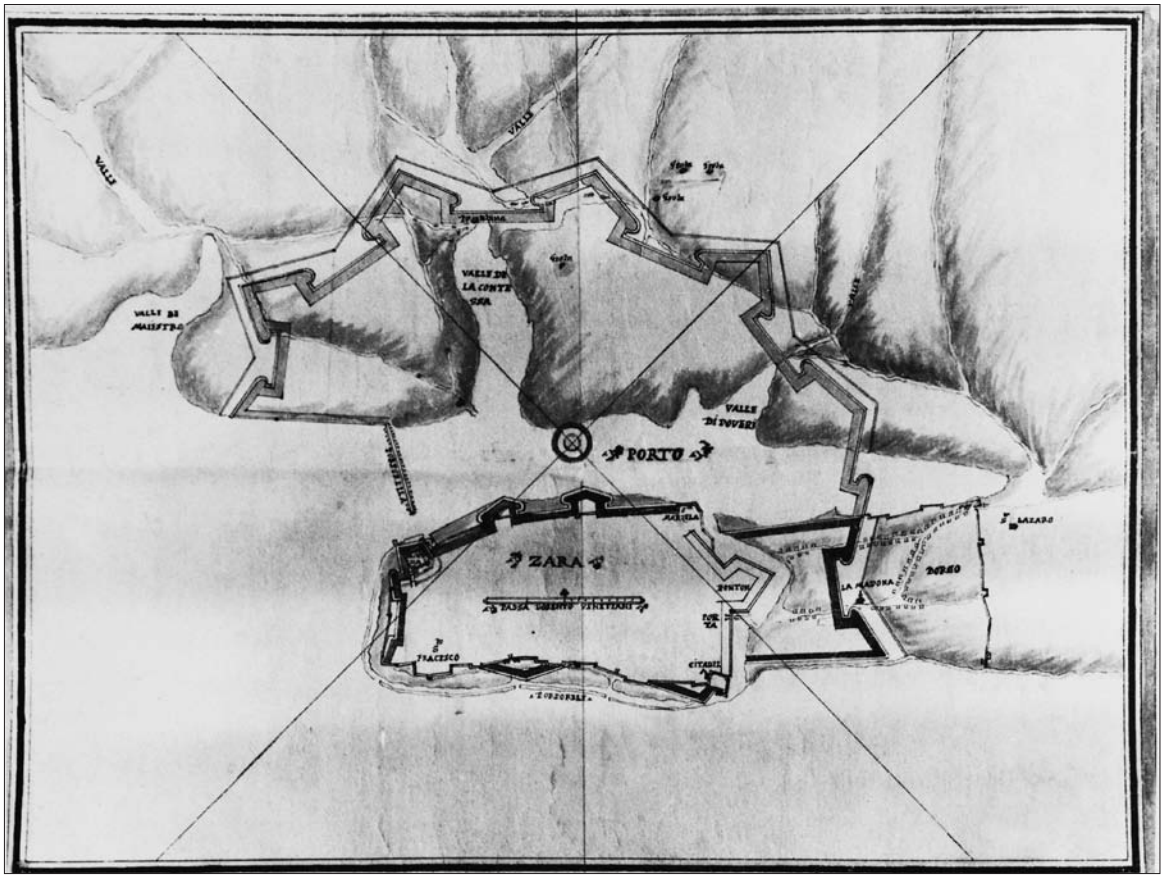

Fig. 4 Plan of Zadar fortification, Correr Civic Museum Library (Concina, Molteni 2001: 114)

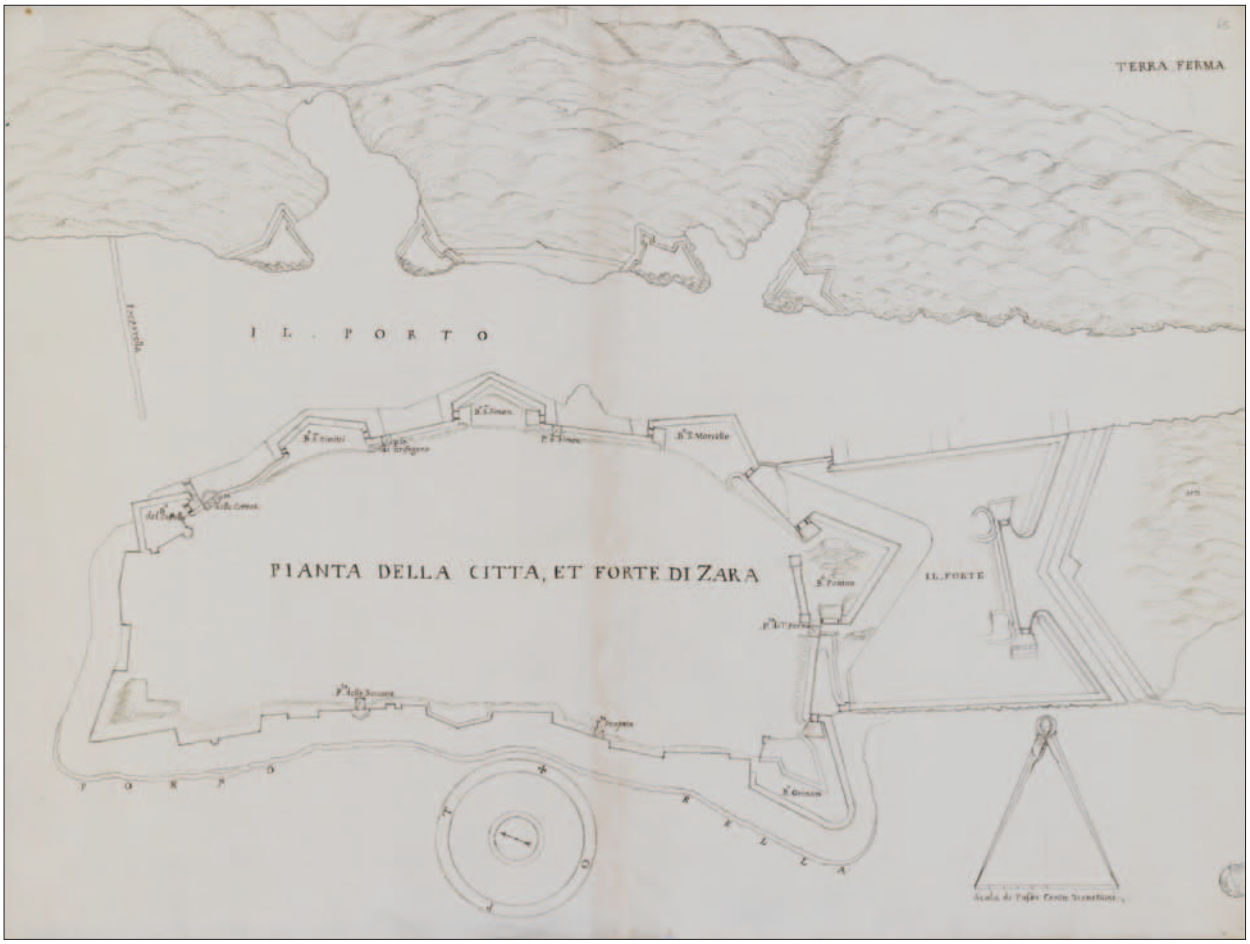

Fig. 5 Plan of Zadar fortification, municipal library of Treviso (Tosato 2014: 145)

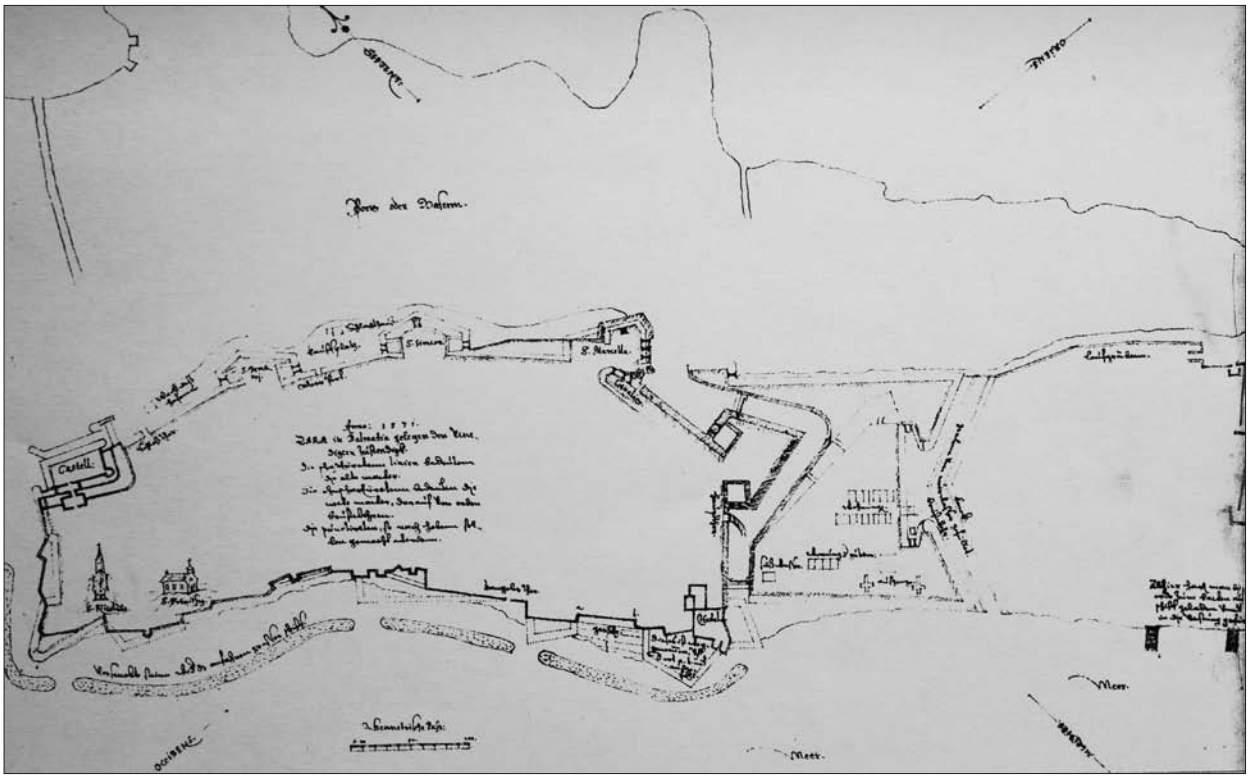

Fig. 6 Plan of Zadar fortification (Žmegač 2009: 36)

rock banks, placed in the sea that has the function of a breakwater and deterrent for the enemy boats hindering their approach to the walls (De Benvenuti 1952: 6).

The ancient hexagonal tower the Buovo d'Antona, part of the fortified complex of the medieval castle, appears at the west of the plan.

About the castle Antonio Civran, 1575–1642, Captain of the Gulf and Provincial General in Dalmatia and Albania, writes that the medieval castle must to be transformed into a bastion, provided with a plunger and casemate, has we can see in the project (De Benvenuti 1952: 8).

In 1589, thanks to the details added by the Provveditore Generale, Zuanne da Lezze, instead of the ancient castle, the bastion was built and the medieval complex remained a building that the Austrians will use later as warehouse.

Some sources considered furthermore, affirm that the "bastione di S. Marcella" was completed in 1574 and then renamed "bastione Moro", perhaps from the surname of the Governor General Benedetto Moro, 1597; while the "bastione di S. Rocco" and "bastione di S. Demetrio" were begun in 1537 and realized starting from "bastioncelli in terra", visible also on the design and finished later in 1580 together the "bastione Castello" and with the "bastione Grimani".

The insertion of the "Porta" element into the boundary walls still represents a significant component for evaluation.

Therefore, the "Porta di Terraferma" is built between 1541 and 1543, as many experts support by Giangirolamo Sanmicheli, according to a project by uncle Michele (Davis, Hemsoll 2004: 257), while "Porta San Grisigono" is inserted into the boundary walls in the about 1571. Both gates appear on the plan.

Also division pit between the "bastione Grimani", "Ponton" and the "forte Pallavicino" that will be designed subsequently appears in the considered plan and all the other plans and in advance we can see the wooden bridge which represents the only possible connection from the "Porta di Terraferma" to the fort.

With the architectural and chronological analysis of documents, we can observe: at the first, for the presence of the "Ponton" structure the unpublished plan of the Contarini legacy, certainly is dated after 1531, year in which it begins its construction.

Considering the presence of the "bastione di S. Marcella", even if it is just a project idea in a compared to the other designs, within which it is clearly defined, the Contarini document seems to have existed before 1574, the year in which this bastion is built.

Between the comparison of Contarini document and the plan published in the text entitled "Bastioni jadranske Hrvatske", it is evident that the design is made before the 1574 year.

In fact, in this last plan appear the two central "bastione di San Simeon" and "bastione di San Dimitri" not as project elements but as two already existing fortified elements.

Only the "bastione di Santa Marcella" appears revised while inside the Contarini plan all the bastions are represented in a planning phase.

Angelo de Benvenuti affirm in his "La città fortificata di Zara": "da bastioncelli di terra posticci, nacquero a partire dal 1537 i bastioni di San Rocco e San Demetrio" (De Benvenuti 1952: 9), in fact in the Contarini document it seems to be represented "bastioncelli" from which the two bastions will be generated during the sixteenth century.

In all the plans there is the presence of both bastions, even if "bastione di San Rocco" has a different denomination in all the others plans as for example San Simeone or Beccarie.

"Porperella" element contributes to know that the design belong to the following years the first half of the sixteenth century, for the presence of the three small "porporella" at the entrance of the port, in the boundary walls between the castle and the "cittadella" and finally the semicircle "porporella" to defende the "bastione Cittadella", described by "Giustinian".

Still useful is the news about of the achievement of the "bastione Grimani" and the "bastione Castello" in the 1580 year.

The plan of the Contarini collection already published in many texts, the number twenty-two of the manuscript, as well as the plan of the manuscript 1019 present the bastions and for this reason are dated after 1580 year, while plan of Museo Correr does not report the construction of the "bastione Grimani" rightly dated on around 1567.

The project and unpublished plan of the Contarini collection, the forty-six number of the manuscript, shows the presence of the "bastione Castello" and the insertion instead of the "bastione Grimani" two bastions of smaller dimensions, two half-bastions as happens in the plan kept in the Museo Correr library and in the plan kept in Vienna.

Furthermore, with the demolition of the district "San Martino", starts working for the planning and insertion of the fort "Sforza Pallavicino" around 1566, this element is present in all the considered plans.

Indispensable informations for the dating of the design are also a report, related by the two inquisitor mayors, "Anto-

nio Giustinian" and "Ottaviano Valier", from which we read that Zadar in 1575 was made up of six bulwarks (De Benvenuti 1952: 14) and the news that approximately in 1580, the Zadar fortifications reach an almost definitive conformation (De Benvenuti 1952: 15).

Trough these considerations, the plan belonging to the collection "Contarini", precisely the number 46 of the manuscript, could be contemporary with the plan kept in Vienna dated around 1568 and perhaps represent another phase or project proposal, starting from the same relief reported in the second plan on both designs.

The typical modern military element, "la tenaglia", also called "opera a corno", projected by Sforza Pallavicino in Zadar, could be a further comparison, in particular way with another important fortress of the "Stato da mar", the Šibenik fortification.

Over the years, many experts said that the insertion of the "tenaglia" between the construction techniques of fortification is to be attributed to Gian Girolamo Sanmicheli who uses it for the first time in Šibenik (Žmegač 2005: 148), in fact the architect will be in Dalmatia, in Šibenik in 1538 yet for the defense of the port, and starting from 1540 he begins to project the fortress of "San Nicola".

Probably the military expedient of the "opera a corno" is used for the first time in the "Rocca Paolina" of Perugia, around 1540, by Antonio da Sangallo il Giovane.

During his service under the Pope, Michele Sanmicheli has strengthened contacts with Antonio da Sangallo il Giovane and in 1526 is engaged with the same in a careful inspection of the defensive structures of the northernmost cities of the State Pontifical, including Parma and Piacenza, for a papal mandate (Puppi 1986: 101–107).

We can believe that Gian Girolamo, who was very young at the time, was able to follow the innovations introduced by Michele, who had the opportunity to notice the fortification techniques of Antonio da Sangallo il Giovane.

Now it's time to examine of the other unpublished design, part of collection Giacomo Contarini, concerning the territory of Zadar (Fig. 7).

Fig. 7 Plan of Zadar fortification, Marciana National Library of Venice, Mss. It. VI, 188 (10039) tavola n. 24, entitled "Piante di città, fortificazioni e carte geografiche manoscritte dei sec. XVI e XVII" (rif. 3800 – 28.34.10.01/11)

The map is part of the same collection as the previous one, properly the map number twenty-four of the Manuscript It. VI, 188 (= 10039) entitled "Piante di città, fortificazioni e carte geografiche manoscritte dei sec. XVI e XVII" (rif. 3800 – 28.34.10.01/11).

It is a plan in which we can find a perspective view, strongly accentuated along the NS line of the Dalmatian coast (http://geoweb.venezia.sbn.it/cms/images/stories/MsGeo/10039.pdf).

The map is plotted on a double paper, 32 x 74 cm in size, and made a design mostly by pen with the use of blue and red color, utilized to highlight some islands with a modality that will be the subject of further study.

The design presents on the "verso" of the paper, along the upper right margin, the writing "Territorio di Zara", probably inserted at a later time, as drawn with an instrument and a different handwriting compared to those used in the map, while

the inscription "Zara" appears in the center of the paper whose hand seems different from that of the first written.

Also the watermark is identified on this design as an element to be analyzed.

In this document the watermark is not so readable as that present in the map regarded Zadar's fortification's project.

Even if not perfectly correspondent, the mark detected, classified in the Briquet at number 494, appears characterized by an anchor inscribed within a circle, surmounted by a six-pointed star.

Not almost readable, the mark is represented by the probable presence of another circles, probably two superimposed, of smaller size between the circle and the same star (but this is just my opinion).

However, the identified watermark, dates back to about 1539–1542, has dimensions equal to 36.5 x 50 mm and the paper is produced in Udine and Gratz in 1540, in Nuremberg in 1534, in Arnoldstein in 1539–1542 and finally in Regensburg in the sixteenth century (Briquet 1985: 42).

The paper is characterized by the presence of particular and multiple inscriptions, among which there are absolutely the most important: the islands of Zadar, Susak, Osor, Pag and Eso, all Venetian possessions.

The island of Sansego in Croatian Susak, after the Benedictine government of 1267, entrusted to the monks, became the dominion of the Serenissima until 1797. Between the thirteenth and the eighteenth century it was mentioned in various documents, graphs and official messages by Venetian doges.

The island of Ossoro, Osor in Croatian, after some events becomes part of the Republic of Venice permanently during the fifteenth century. The dominion of the "Serenissima" gives to the city an impetus characterized by a profitable modernization, giving it the Venetian physiognomy that it still preserves today.

The island of Pago, Pag in Croatian, located in the northern part of Dalmatia, is one of the largest islands in Croatia, since 1409 it comes under the control of the "Serenissima" and from the fifteenth century until the fall of the republic the city of Pag will be the main source of income for Venice, for to the presence of salt works that are also represented inside the plan.

The island of Eso is in the Zadar's archipelago and it is also part of the dominions of the Serenissima.

The representation of the Venetian salt mines in the Dalmatian territory, in the design, let us to think to a representation realized for commercial purposes of the "Stato da mar" in the Adriatic.

After the deep-study of the graphic material it is important to consider some details useful for the performance of the work.

The "fortification machinery" of the "Stato da mar", whose Zadar certainly represents a nodal point, is the object of maintenance and renovation, due to the strong Turkish pressures, in the years ranging from 1515 to 1540.

With Zadar, to cover particularly important functions in the redevelopment of the "Stato da Mar", are the key-centers of Marano, with the function of a hinge between the mainland and the "Stato da Mar" (Concina, Molteni 2001: 111) of Chioggia, Šibenik, Corfù, Creta, San Nicolò al Lido and Arsenale.

The first coordinating element of the fortifications taken into consideration will turn out to be the complex executing machine, composed of the same architects, engineers and commanders who work inside these fortresses.

The protagonists are: the captain general "da Tera", the duke Francesco Maria della Rovere, the captain general "da mar" present in Dalmatia and engaged in many works in Corfù, Vincenzo Cappello, Michele Sanmicheli at that time engineer in the fortresses of the Consiglio dei Dieci (Concina, Molteni 2001: 109) and from 1535 superintendent of the fortifications in the Levant, in Dalmatia, in the "Terraferma" and in the lagoon and finally the nephew Gian Girolamo Sanmicheli.

The second element of analogy appears to be the realization modality for the construction of the fortresses mentioned, frequently used both in the Levant and Dalmatia during the sixteenth century. The Venetian defense strategy seems to be clear and based therefore on the idea to upgrade through the upgrading evolution of the military equipment the points considered invincible by natural conformation, simply bringing them to the island and separating them from the city, due to the close correlation with the morphology of the territory.

To safeguard and to protect the natural conformation of the territory, in the design of such fortresses, in fact probably represent the logic philosophy pursued mainly by Michele Sanmicheli.

For example, the fortress of San Nicolò al Lido, of which we now know many of the drawings that represent it, including a design in the same Contarini collection, already published, (Concina 1983: tav. 17), in which we represent the mouth of the port of Venice and the two restored castles, datable to the late sixteenth century, clearly represents the concept and the Sanmicheli philosophy: we can see that the structure of this fortification is characterized by the insertion of a central bulwark in the eastern part of the fortified structure two lateral bulwarks and a robust curtain that surrounds and envelops the entire fortress.

Also the fortress of Corfù, for example, has the same realization modality. In the years ranging from 1506 to 1532 the

fortress is the subject of a series of renovation projects by Venetian military architects who proposed to separate the "Fortezza Vecchia" from the city of "Terraferma" by creating the "Spianata" in about 1524 which would have offered greater resistance to possible attacks from the land (Molteni, Moretti 2006: 4).

Equally we will proceed for Chioggia, in fact, Michele Sanmicheli will oppose very hard (Concina, Molteni 2001: 145) to those who would wanted to fortify the city, through pre-established structures also used on land, that is bastion walls that would simply surround the city of Chioggia.

At the end, we can affirm that the presence inside the collection of Giacomo Contarini of the designs related to Zadar, the only Dalmatian city, in Corfù, in San Niccolò al lido, in Chioggia and in Marano would not seem to be at all random.

This presence could be justified and probably dictated as well as by the important role that these centers have played over the centuries for the "Serenissima" but above all by the offices held by the noble Venetian patrician over the years: remember the office in 1572 of deputy to the guard and fortification of the port of San Nicolò al Lido for suspicion of the Turkish army, deputed in 1574 to the decorations set up on the occasion of the passage of Henry III king of France, elected senator on proposal of the same king, "mayor" of Bergamo in 1579 , deputy to the construction of the new prisons, "savio at the merchandise", "savio to the fodder", "superintendent of the Arsenal" in 1593 (Tiepolo 1965: 3).

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FEDERICO BULFONE GRANSINIGH

Evolution of Border Fortifications. From the Siege Architecture to the Modern One throughout the Serenissima and the Empire (XVI–XVII century)

Such intervention underlined the diversities and points of contact between two political and administrative realities such as those of Austria and Venice. Innovating geometric shapes, in respect to those of the 13th–14th centuries, were proposed by Michele Sanmicheli, Mario Savorgnan and by the Vintana family's architects. The territories under discussion are in the present Region of Friuli Venezia Giulia and Innerösterreich.

When Francesco Maria della Rovere was nominated Governor of the General Militia in 1523 and later General Captainof the Serenissima, a unitary defensive plan of the Venetian territory was conceived and outlined in 1532. After a few decades, the Vintana and Imperial architects became an emblematic example to understand how the Habsburgs would integrate the modernizing landscape of shapes, materials and fortification concepts.

The interventions underlined, through some examples, the diversities and points of contact between two political and administrative realities such as those of Austria and Venice, analysing the approach supported by the two regarding the concept of fortifications and borders.

Key words: fortress, fortification plant, bastions, architects, Habsburg, Serenissima, Friuli, Innerösterreich

The specific interest in the Friuli by the Serenissima, is part of tensions and signs of renewal in 1525, and even before, had urged the decisions of the Venetian Senate on the defensive, and had found a strong push in the realization in the 1527 when the doge Andrea Gritti (1455–1538) was formerly nominated general superintendent. This interventional furor was materialized with a series of achievements in the land and at sea territories of the Venetian Republic, which opposed accomplishments along the entire eastern boundary intended by the Habsburgs.The development of modern fortification, therefore, found in the growing "Venetian territorial machine"(Concina 1983: 17) the favorable substrate with the aim of realizing more advanced and modern methods: bastions, walls and entire fortified cities.In the same period the territories of *Innerösterreich* had from the 15th to the 17th century two enemies, different in terms of organizational and cultural approach to the Art of War, the Serenissima and the Turkish Empire.

The Imperial borders of the Habsburg territories of the Region of Friuli were controlled by the fortifications of the cities of Gorizia, Gradisca, Trieste and some small feudal fortifications like the Castle of Porpetto. In Carinthia, Styria and Carniola some feudal castleswere modernized, for example the Castles of Tolmin, Ptuj, Stanjel or Judemburg and others in Styria. In the *Militärgrenze*, the Ottoman frontline was safeguarded by new established outposts from Croatia to Hungary and one can see some new "alla moderna" fortifications.

The Ottoman expansion and military superiority in the sixteenth century played an important role in the Habsburg military, fiscal and bureaucratic modernization. In order to cushion the Ottoman military might, from the mid sixteenth century the Habsburgs established a new border defence system in Hungary and Croatia, renovated their forts and centralized and modernized their military systems and fortresses.

In the territories of Friuli, the borders of Serenissima to the Habsburgs, one knows that Michele Sanmicheli (1484–1559) made inspections on the fortresses.In the Republic of Venice, with the appointment of Francesco Maria della Rovere (1490–1538) as Governor General of the Militia in 1523 and then Captain General of the Republic in 1529, one begins to conceive a unified plan of defence, which was outlined in 1532. In that same year della Rovere travelled to Friuli and proposed a territorial system with some fortified places where a good fellowship for the fortress of Venetia was accomplished: Osoppo, Udine, Sacile, and Marano. Palmawas finally built in 1593, which completed the defences against Austria along with Osoppo and Marano (Bonati Savorgnan d'Osoppo 1969: 19). The location of the new city-fortress was located close to the Friulian plains halfway from the city of Udine, yet potentially defensible and the wetlands of Aquileia, considered a natural obstacle hardly penetrable by an army.One can see the concept of "macchina territorial"(Concina1983: 29) and the connection over all territory.

Among the various fortifications listed in the report attention was towards the city of Udine at the time that the inspection done by Sanmicheli and della Rovere had medieval walls (Fig. 1).

Fig. 1 *Castrum Utini*, 16th century, watercolour drawing, 300 x 205 mm, Civic Library "V. Joppi", Udine (Bergamini, Donazzolo Cristante 1992: 16)

The evolution of the city walls of Udine, described by various border architects and engineers between the fifteenth and the eighteenth century, was not distorted by new ideas of "fortifying to modernity". However, various projects were presented to the Serenissima for the improvement of the fortifications of the Friulian town (Concina, Molteni 2001: 90).

Already the Lieutenant of the Fatherland of Friuli, Giovanni Moro, in 1525 had proposed a more decisive system in the fortification of Friuli, suggesting the fortification of the city of Udine, also urged by Giovanni di Strassoldo in the name of the same town and the city of Venzone, an important site for the control of the road that led to *Norico*. A few years later, in the thirties, the inspection wasdone by Francesco Maria della Rovere, Michele Sanmicheli, followed by Giovan Jacopo Leonardi (1498–1562) and Antonio da Castello (before 1499–1549). Guided by Mario Savorgnan (1511–1574), siege and architecturalexperts carried out an accurate survey of the city. As reported by Leonardi's reaction, after the inspection it was agreed not to fortify the hill by building a *castrum* but to give to the city a true and proper wall so as to build it as an outpost against the Turkish and Imperial incursions: "saria molto a proposito, fortificata che fosse la città astringere li Nobili della terra a ridurvisi dentro", therefore the fortification of the city had a double effect, for the Serenissima, control of the reactionary thrusts of the local nobility and safeguard against enemy raids "per levar all'inimico occasione di valersi del denaro et altro aiuto loro, se li havesse o tutti o parte, in suo potere"(Biblioteca Museo Correr, Venezia, mss. P.D. c 565/13).

This premise is propaedeutic to the reasoning proposed in relation to the two drawings, conserved at the Bonati Savorgnan d'Osoppo Archives (Miotti 1982: 248; 1984: 424); they describe the bastion built around the city of Udine and are commonly attributed to Mario Savorgnan.

He was born from one of the most important families of the Little Country and immediately started studying including the Art of War. Son of Girolamo Savorgnan (1466–1529) and his fourth wife, the Venetian patrician Orsina Canal, Mario was also Giulio Savorgnan's brother (1510–1595) who did so much for the construction and design of the city of Palma and other fortifications in the Land and Sea State. Both were formed in that environment of the cultural fervour that was Venice, coming into contact with both Michele Sanmicheli and other architects and engineers of the Serenissima but especially with the leaders of the della Rovere House.

Mario Savorgnan, in fact, accompanied della Rovere and Sanmicheli in aninspection on the Friulian fortresses in the thirties of the sixteenth century[1]. The relationships that bonded the Savorgnan, Michele Sanmicheli and the Duke of della Rovere, are multiple and gave rise to new perspectives on the cultural influences and the Art of War actually done by Sanmicheli and transposed in his architecture also including the cultural substratum in which he developed the art of "modern fortifications" in Venetian environments. Mario's military formation such as that of his brothers Giulio and Ascanio (1521–1581) is also due to the close relationship between the Friulian family and the Gonzagas, in turn bonded to della Rovere with the marriage of Francesco and Eleonora Gonzaga (1493–1550), daughter of Francesco II Gonzaga (1466–1519) and Isabella d'Este (1474–1539) (Bonati Savorgnan d'Osoppo 1967: 11; Casella 2009b: 2266). Mario, like his brothers, initially had a Venetian education and then started studying Latin, Greek and the classics under the guidance of the literatus and philologist Andrea Giovanni (Janos) Lascaris (1445–1534), whom his father Girolamo hosted him at the Castle of Osoppo. He was also educated in mathematics and geometry by Lazzaro Bonamico (1479–1552) in Padua (Norbedo 2009: 2284). The latter subjects are of considerable importance because of the advances both on the side of algebraic calculations and as well as geometry and physics towards mathematics arising from the Paduan environment. It is only with the advancement of this knowledge, thanks to the presence of engineers and soldiers in the Veneto region, with its epicenter at the University City of Padua, that one can understand the forward push of both internal and external ballistics and a reflection on practices subtended by these disciplines. It is no coincidence that in 1537 the *Nuova Scientia* of Nicolò Tartaglia (1499–1557), a Brescian citizen working in the Serenissima, was born, in which the results of Renaissance research were exhibited, definitively separating themselves from the Aristotelian imperatives. The two drawings that represent the proposals of Mario Savorgnan for the fortification of Udine, can therefore represent the *summa* of the studies carried out at the University of Padua and the meeting which occurred at the time of the inspection of della Rovere in Friuli where a bond of mutual esteem was born and collaboration due to the epistolary relationship also maintained with Francesco Maria's son , the Duke Guidobaldo II delle Rovere (1515–1574), as attested by the letters sent from Belgrade, a fief of the Savorgnan, in 1564 and 1571 (ASFi, *Ducato di Urbino*, Cl. I, div. G., filza CCLII, f. 414r, 415r; Norbedo 2009: 2286). The bastion forms presented in the two drawings arehowever to be considered avant-garde with respect to the notions of the fortification of

1 Among the sites visited by the inspection there is also the fortress of Osoppo, part of theSavorgnan fiefdom. It is interesting to note how it was recommended in the report by della Rovere in 1532, to implement the cisterns present on the Osoppo hill in order to ensure a greater quantity of water in case of siege. This is presumed to have taken place because the Savorgnan, as well as having visited the fortress by the Duke and the architect, spoke of the siege of 1514 in which the garrisons on the hill did not have sufficient supplies of water. See ASFi, arch. Dukes of Urbino, fil. 232, lett. n. 396.

the architects themselves and that of the same Sanmicheli before 1530; in fact, before Francesco Maria della Rovere's time, in the territories of the Serenissima the circular-shaped bastion was used,also called a washer as attested, for example, in the Castle of Trieste which saw numerous works by the Serenissima in conjunction with the conquest of Gorizia, Duino and Fiume by Girolamo Savorgnan (1508). In fact, in March 1508, when the clash between the Imperials and Serenissima flared up[2], Girolamo contributed with a contingent of *cernide* to stop the advance of Maximilian I of Habsburg's troops (1459–1519) in Cadore, allowing Bartolomeo d'Alviano (1455–1515), to command the Venetian troops, to defeat them and to subtract the territories of Belgrade, Castelnuovo and Pordenone from the Empire. The knowledge of the territory and a certain strategic capacity of Girolamo Savorgnan are also highlighted in the writing entitled *Ordini* […] *per la custodia e la difesa della Carnia e del Cadore*, published in 1896 by Vincenzo Joppi (1824–1900) together with the other historical letters of Savorgnan (Casella 2009a: 2265).

Therefore, the circular-shaped bastion is frequently found also in the Venetian fortifications such as in Treviso and Padua, both fortifiedaccording to Fra Giovanni Giocondo's project (1433–1515) in 1509 (Lenci 1980: 97–100). This type of bastion, not present in the walls of Udine, but recognizable both in Gradisca and in Trieste, was abandoned in the thirties of the sixteenth century to be replaced by the polygonal bastion developed in central Italy (Davies, Hemsoll 2004: 238).

The type of polygonal bastion was present in some cases already in the mid-twenties of the sixteenth century such as in Padua with the San Giovanni and San Prosdocimo bastion and in Verona with that of Maddalena, but without determining a constancy in the use of this type. This "alla moderna" structure was represented in the drawings depicting the proposal for the walls of Udine, which suggests that the new walls were designed following that of Francesco della Rovere and the said Savorgnan with the contribution of structural and architectural knowledge derived from Sanmicheli[3]. The first drawing (Fig. 2) represents a view of the city of Udine, in which the gates are identified as Aquileia and Poscolle, however, indicated with a spelling not according to the drawing and, indeed, very recent. The design re-proposes a wall structure composed of modern bastions which could be closed from the inside, incorporating some of them with the ancient medieval walls of the city. The castle is still represented with features that could be recognized in 1511, the year of the peasant revolt in Friuli; it does not have the features of a modern fortress. The proposed dating by Miotti and Fulvio Bonati Savorgnan d'Osoppo (Miotti 1984: 424) has to be reviewed based on the reasoning made and can be done to coincide with the

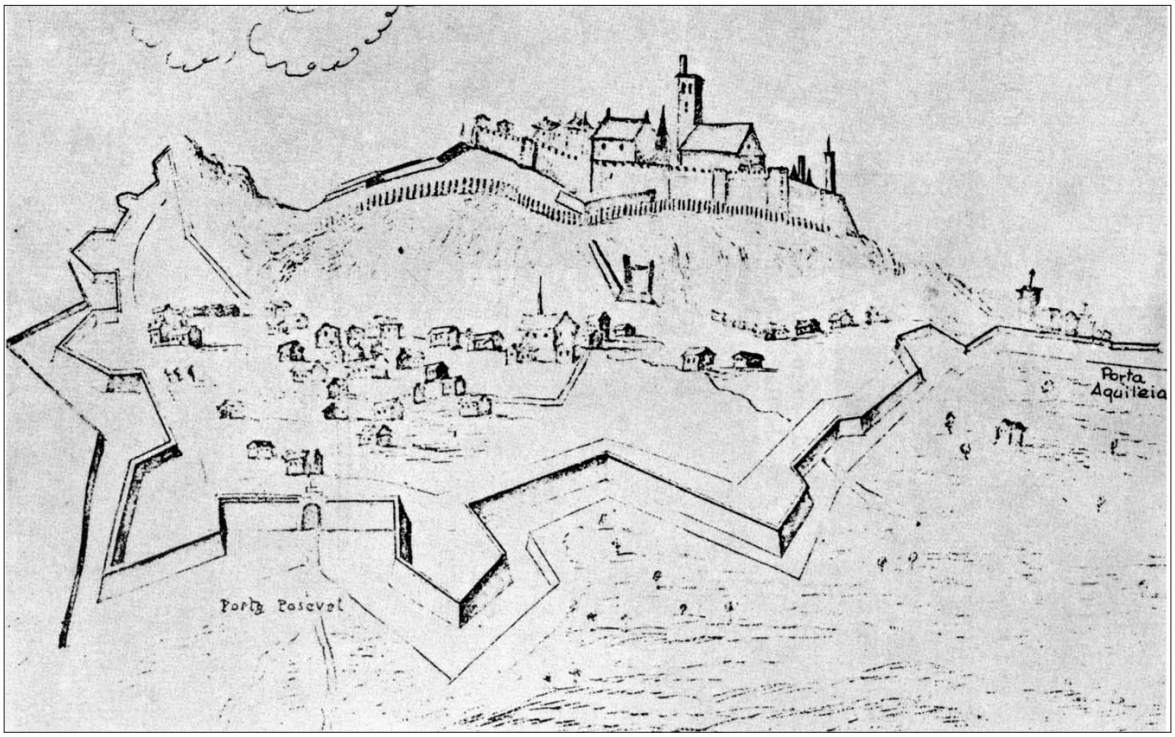

Fig. 2 Perspective drawing of the "modern" fortifications to be built around the city of Udine, Mario Savorgnan (?), first half of the 16th century, ink on paper, archive F. Bonati Savognan d'Osoppo (Miotti 1984: 424)

2 The clashes derived after the death of the last Count of Gorizia, Leonardo, who had opened a conflict for the rights of the county between the Venetian Republic and the House of Austria, which had become intertwined with the European vicissitudes of the Cambrai war.

3 A further hypothesis could be, for the two drawings presented here, drawsthe attention of Samicheli's hand or an architect or engineer belonging to his circle. This possible attribution is also examined through the rereading of archival documentation.

thirties of the sixteenth century immediately after the inspection made by della Rovere.

Also map (Fig. 3), again attributed to Mario Savorgnan and according to Miotti and Bonati Savorgnan d'Osoppo, depicting a proposal for Udine, represents the most external medieval walls, traced with lighter line below the walled bastions (Miotti 1982: 248). The map does not indicate the castle's hill and nor the routes of communication in the canalsthus already present, so it is presumed to be a draft proposal for the implementation of the new fortifications of the city, as expressly stated in the report of delle Rovere and of Leonardi. The ancient walls have an irregular construction and have circular-shaped doors and towers, the bastioned front is made up of nine bastions and the surrounding embankments. This proposal for the fortification of Udine encompasses the details of "alla moderna" architecture; si suppone quindi possa essere stata affiancata alla relazione stilata da Francesco Maria della Rovere e Giovan Jacopo Leonardi.

Leonardi in his report expressly states that the castle cannot be fortified and thus in this case, the idea of the *castrum* in many of the fortresses on which Michele Sanmicheli and della Rovere intervened was abandoned, a reason why it was not mentioned in Savorgnan'ssecond proposal. This architectural form derives from the cultural and military training of the Duke, a scholar of military treaties, among which that of Polybius. The classical author influenced the formation of della Rovere and Savorgnan and no doubts. Indeed, it is remembered that in 1529 in Venice, the Greek-Latin text from a fragment of the sixth book of Polybius was published, the *de militia Romanorum et castrorum metatione* (Concina 1983: 25) and how Mario Savorgnan was involved in some translations of the military sections of the history of Polybius, then merged into the *Militia antica et moderna*, a pragmatic work of military art and a manuscript has been conserved, but was published posthumously by Cesare Campana in 1599, with alterations and additions (Norbedo 2009: 2284).

Ideal for della Rovere, however, it remained the newly founded city, which could be built according to the indicationsof a fortified and modern architecture, resisting attacks by siege machines and *proietti*. A concept that was also supported by Savrognan including Mario and Giulio. Of this process of alternation between new construction techniques and medieval ones, besides to a practical implementation, there are highly significant graphic documentation in Europe and Veneto.

The polygonal project based on Albrecht Dürer (1471–1528), contemporary with the elaboration of Nicolò Tartaglia's *Nuova Scientia*, foresaw bastions entirely made of masonry, geometric shapes characterized by curves and proportions so imposing as to make the proposal economically unsustainable.

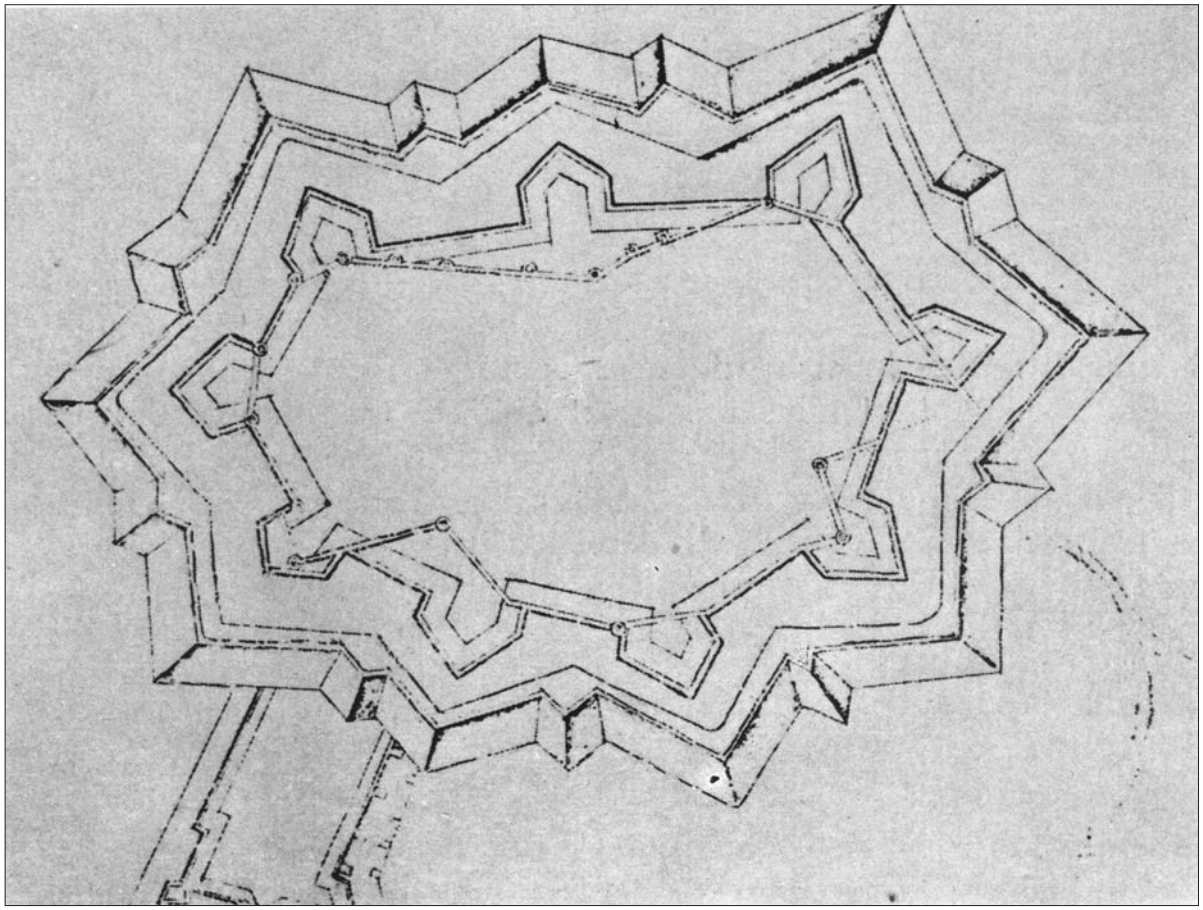

Fig. 3 Udine, plan of the new fortifications proposed following the recognition of 1532 by the Duke della Rovere and Michele Sanmicheli, archive F. Bonati Savorgnan d'Osoppo (Miotti 1982: 248)

This method of making "alla moderna" architecture was also accepted by the different powers of the Serenissima and handed down by the workers who, like today, moved from different places for work and to have more opportunities. Thus, the principles of the angled bastion which was borrowed from Sanmicheli thanks to Giuliano's projects (1445–1516) and Antonio da Sangallo the Younger (1483–1546), transposed into the Veneto Region and from there to the rest of Europe. It is sufficient to remember the fortresses of Karlovac of 1579, or that of Koprivnica of 1582, in the Imperial territories.

Many years after the inspections of Michele Sanmicheli and the Dukes Francesco and Guidobaldo della Rovere, we can find some engineers and architects that were at service to the Habsburgs. We can imagine the condition of the fortifications in *Innerösterreich*(Miculan 2003: 23) and in the line of the Ottoman border by the scripts of a family of architects: the Vintana, military architects for the Habsburg Empire.

Kaiser Ferdinand I (1503–1564) carried out a largereorganization of the bureaucracy and fortifications of the *Innerösterreich*.

The Vintana's were a family of architects from Gradisca and Gorizia, supervisors of military works of the fortifications at the end of the fifteenth century and up to the end of the seventeenth century with the task of perfecting the combat effectiveness of fortifications *[...]following the progress in technique and practice of building fortresses[...]*. Among its leading exponents there were Vintana Corrado (1549–1561), Giuseppe, son of Corrado (1561–1587), Giovanni Battista, Giuseppe's brother (1585–1605), Giangiacomo (or just Giacomo), son of Giovanni Battista (1605–1620) and Gian Pietro, or Giampietro (1587–1594) whostudied architecture at the University of the Netherlands (Bulfone Gransinigh 2017: 425–427).

They made some inspections and product manuscripts from all the fortifications in *Innerösterreich* that includedthe areas of Styria, Carinthia, Carniola, part of the territories of Gorizia and Gradisca even beyond Trieste and the territories of *Militärgrenze*in Croatia and Hungary (Mugnai 2001: 312). This period was when the Habsburgs decided to modernize the fortresses, where Giuseppe Vintana visited and designed some fortifications"alla moderna"in the *Militärgrenze*.

In 1565 Giuseppe Vintana was commissioned by the Archduke CharlesFrancis II (1540–1590) to inspect the fortress of Gradisca, in an evident state of decay.

Gradisca, a city of a new foundation (Concina, Molteni 2001: 68, 69), had bastions and structures built by the Serenissima before the inspection of Vintana.

Giuseppe Vintana was later summoned to documenting Gorizia; here the Archduke ordered him *[...]to give a strong hand to a warehouse for provisions, some wells and windmills, and move the powder magazine[...]*.

In 1566 he was again instructed to rearrange the bastion belt at the top and bottom part of the town of Gorizia. These precautions were taken following the intention of the Venetians to fortify Udine derived from the visits of a few decades earlier by Sanmicheli and the Duke della Rovere.

As shown in the drawing drafted by Giuseppe, the care in the design was focused towards the bastion placed at the entrance inthe high fortress and at the gate that was studied by the Architect Pietro Ferrabosco (1512–1599 ca.) who brought a different proposal (Antonello 1999: 262). From 1583 the enclosure within the wall project "alla moderna", signed by him and the plans of the city of Gorizia, is preserved in the *Hof-und Haus Staatsarchiev* of Vienna). The proposal suggested by Giuseppe Vintana was very similar for reasons to that presented years ago by della Rovere and Mario Savorgnan, the bastions were composed in this case by seven bastions very distant from each other and then were connected with the walls of the fortress which still had a medieval layout given by the five washers at the corners and on which the entrance to the citadel was grafted. The project was not built and the Castle of Gorizia did not undergo the demands of modern fortification. However, this shows the building and architectural knowledge acquired by Giuseppe perhaps thanks to the close attendance at the "Graz School".

More or less in the same years, Giuseppe, was also involved in the drafting of the project for the Castle of Stanjel and of all the external fortified walls; in this case the architect made some choices not in line with "modern" architectural indications, in fact, perhaps at the request of the client, Count Koblenz, Vintana created a siege structure composed of circular towers and washers, disdaining the new fortifications of a polygonal bastion.

During this period, he had a project for the fortified town of Stanjel (Seražin 2005: 170, 171). In this city he had planned the construction of modern Renaissance city walls, with the strategic disposition of watchtowers and fortified by a double gate access. He also intervened at the castle of Ptuj. Giuseppe Vintana with his brother Giambattista was active in Ptuj between 1564 and 1584.

From the sixties of the sixteenth century, Giuseppe Vintana was involved with the Port of Trieste and consequently in the Castle of San Giusto as it appears from the letter he wrote on 24 January 1885 (in Styrian Provincial Archive: StLA, Graz, Osterreich, mieller XXI-V-3).

The castle had been fortified by the Serenissima decades earlier (1508–1509); the interventions carried out during the two-year period of Venetian control were mainly of consolidation of the medieval structures with the sole exception of the northern front which saw the construction of the Round Bastion and the strengthening of the tower with a rubble masonry. The structure, however, was not completed in so much that it had to wait for the second half of the seventies of the sixteenth century when a veneering of the Venetian washer and some parts of the Venetian city wall was made. From the second half of the sixteenth century, with the appointment of Giovanni Hoyos to Imperial Captain (Pitacco 2010: 71) there was an impulse in the modernization of the castle structure that arose in the construction of the Bastion of San Giusto or Lalio. The demands of architecture to the modern and the constant danger of invasions by the Serenissima had definitively forced the central government of Graz to speed up the work of modernizing the fortress. Morpurgo reports that in 1583 Count Koblenz, then the Chamber President, had ordered Giuseppe Vintana to build a new wall near the castle gate, to build platforms for the artillerymen and to demolish the highest parts of the castle to transform them into ravelins. The works were all aimed at the definitive transformation of the medieval castle into *castrum* "alla moderna", a structure so often mentioned in the reports of the Duke della Rovere (Fig. 4). Even in this case, however, the funds were not sufficient and the works were not completed. A few years later, when Giuseppe Vintana passed away, his brother Giovanni Battista, already active for many years at his side, took over from him. In a written report to Gorizia on April 1, 1588, he informed how it was necessary to fill the empty bastions with earth, so they could safely support the weight of the artillery (Morpurgo 1937: 79; Pitacco 2010: 86).

In 1586 Giuseppe Vintana visited the Castle of Porpetto (Styrian Provincial Archive: StLA, Graz, Osterreich, Innerösterreichische Hofkammer (IÖ HK), Castelporpeth, 1586-XII-38), near the border of the Serenissima territories and near the place where the fortress of Palma was founded.

His appointment to *Baumeister der Windisch-Kroatischen Grenze und der Landbefestigungsgebaude* on October 14, 1576, brought him to the first inspection of the border territories on April 5, 1578, but it is from 1581 that the first structured inspection and ultimately to control the construction of all border fortresses. The first was Weitschavar (*seu* Vizvar or Bajcsa). This castle-fortress was located in southwest Hungary about eight kilometres from the town of Kanizsa. The stronghold, inserted, like the others within the boundary called *Militärgrenze*, was built in the autumn of 1578. The work began on September 8, 1578. (Cofek, Štefanec 2011: 17, 18). The major problems that were encountered in the construction of the castle

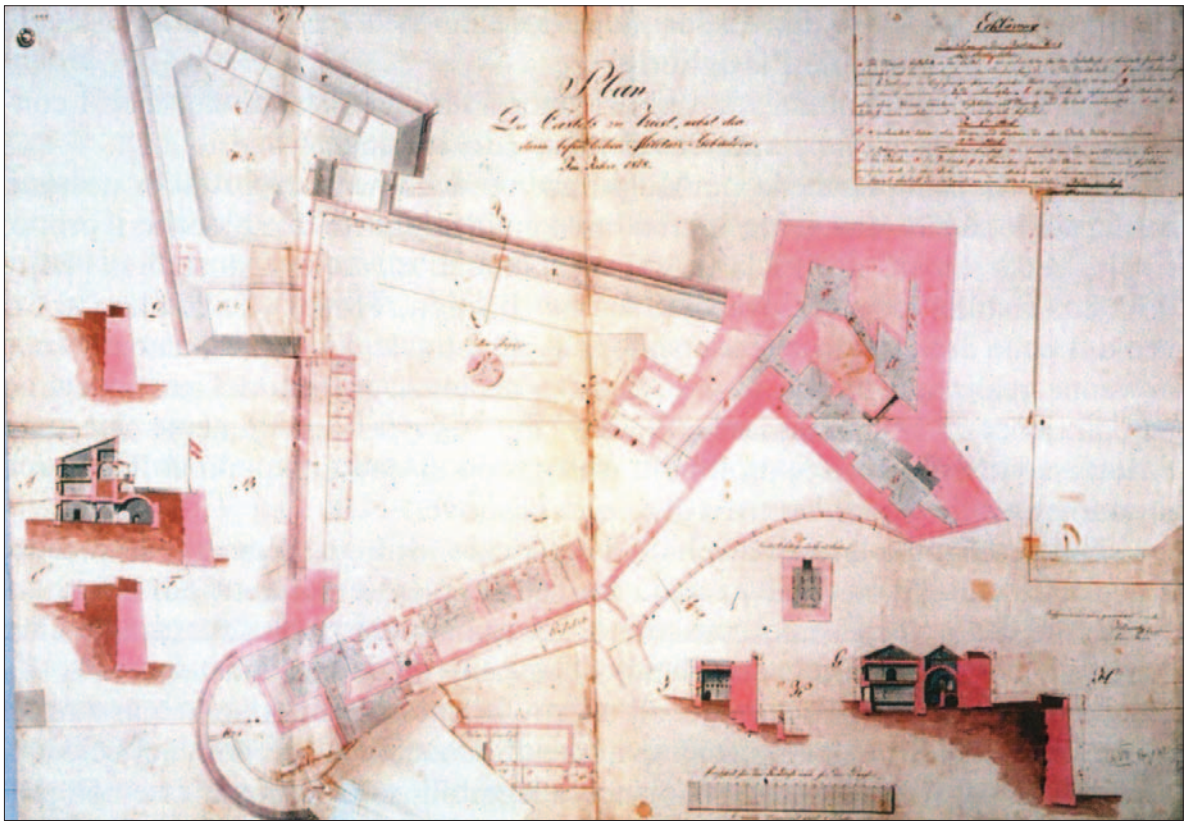

Fig. 4 Trieste castle with the attached military buildings, 1818, Wien, Österreichisches Stadtarchiv (Pitacco 2010: 93)

were due to the unstable terrain on which the fortress had to be erected, which is why the sandy soil had to be improved with stones and firmer foundations.Following the reports from Vintana, it is learned that the castle was greatly plagued and in severe maintenance conditions. The brick walls as well as the wooden parts were severely damaged.Following the visit, Giuseppe Vintana estimated the work to be done on the citadel structures, establishing that the total cost was about 816 renani florins. Today this fortress no longer exists.A further inspection at the site of the fort was carried out in 1582 by the Gorizian architect, as shown by the documents conserved at the *Steiermarkisches Landesarchiv* in Graz.

In fact, on October 14, 1584, Servatius von Teuffenbach, Wilhelm von Windisch-Graetz and Jonas von Wilfersdorf carried out an inspection on the structures and on the town square, finding that the castle and the walls were almost on the verge of collapse and the tower next to the fountain had almost collapsed and the moat was still heavily buried. Leaving behind the fortress of Weitschavar, the second stop of Giuseppe Vintana's excursion was the city of Keresztúr, in Slovakia. In this circumstance, he had to oversee the reconstruction and strengthening of part of the castle (today Hrušovský hrad) from which the entire town depended under the control and ownership of the noble family of Keglevich. After the inspection of the castle, Vintana went into the territories of Croatia, as shown in the report compiled in June 1582. Its progress in the Croatian territories was to establish first a degree of maintenance of the most important squares of the Croatian region, the starry city of Koprivnica.The idea of building this fortress had already been planned between 1576 and 1577 at the time of the reorganization of all the border regions of Croatia and the territories extending between Transylvania and the Drava River. Already in 1577, Giuseppe Vintana was first sent to Koprivnica (Nadilo 2004: 577). In 1582 on these inspections he made a plan for the defences of the town, implementing the construction with stone and wood bastions.

The project of the bastioned walls, however, did not foresee the construction of five bastions as it usually did for fortresses of this size, but limited to the construction of a fortress set on four bastions. The motivations were many; they were mainly due to the unfavourable conditions of the ground and the nearby presence of the river.

In addition to this, the urgent need to build the structures, in the first place with temporary wooden fittings and land repossessions, as well as the ever-inexpensive availability of state crates, had determined the realization of this form. Then the south-east bastion had to be built because it was the most important fort for the protection of the city.

Following his visit to Koprivnica, in 1582, Giuseppe Vintana moved to the nearby town of Križevci. This town, which was already present before the Renaissance reform, which led it to be a fortified city "to the modern", was redesigned in 1553 by the commander in charge of the defenses of the Slavonia border, the noble Ivan III Ungnad baron Sovneški (1493–1564) in collaboration with the architect Domenico dell'Allio(1515–1563), active throughout the *Innerösterreich* area at that time.

With the arrival of Giuseppe Vintana, the construction was accelerated and organized in a different way so to be completed in 1590.The noble Vid Halleg, who had demanded the presence of Vintana on the fortified citadel died the same year; he, together with Archduke Karl, who passed away a few years later, had been one of the major advocates of the project for the fortification of the border territories in Slavonia (Kruhek 2001: 108).With the death of the military and archduke also the influence of Giuseppe Vintana diminished, so that he was replaced by Francesco Marmoro.

As late as 1582, in the summer of 1583, he, as mentioned above, carried out another inspection campaign, this time dedicated to castles in Styria and Carniola.In 1583 Giovanbattista Vintana, for example, worked on the fortifications of Tolmin**.**

This brief *excursus* should have been read differently, giving food for thought for future research, some architecture is considered in various border eras. The evolution of the medieval fortified structures, which began firstly in the territories of the Serenissima and then expanded to the territories of Inner Austria and in the whole of Europe, was defined. The winds of innovation of the siege techniques have led more often to proposed solutions, such as Udine and Gorizia, which for various reasons were not implemented. In other cases, especially for new fortifications such as those of the Croatian border, subject to siege needs of a state under attack by the Ottomans, an architectural construction was completed following the indications of modern fortifications. The case of the Castle of Trieste, although briefly outlined, however, allows us to understand the evolution of a fortification, from medieval bastioned structure, allowing a comparison with other contemporary projects.

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UROŠ KOŠIR

Defending the Empire: Austro-Hungarian Great War Defence Systems in Slovenia

During the Great War, the territory of western Slovenia was the scene of almost two and a half years of heavy fighting between Kingdom of Italy and Austro-Hungarian Empire. Between 1915 and 1917, the frontline of the Soča Front ran across the Julian Alps, the Soča Valley, and the Karst Plateau to the Adriatic Sea. During the conflict, many defence lines on both sides were constructed. However, the Soča Front positions were not the only ones associated with the Great War as this article shows. Archaeological data supported by LiDAR evidence and historical sources provided an overview of vast pre-war and Great War conflict landscapes in western Slovenia. In the framework of modern conflict archaeology, different Austro-Hungarian defence systems were identified, ranging from fortified positions built from the end of the nineteenth century, and defensive structures dating to 1914 and early 1915 (before the start of the war in the Soča Valley), to positions on the wartime frontline and reserve defensive lines in the hinterland. Different archaeological approaches provide detailed information on the appearance of conflict landscapes of the Great War in a way that was previously impossible to imagine.

Key words: Austro-Hungarian defence systems, First World War, Soča Front, Sava line, Modern conflict archaeology, trenches

MULTI-LAYERED CONFLICT LANDSCAPES

The Soča Valley in western Slovenia is an important border region at the crossroads of the Alps and Mediterranean. Abundant archaeological finds ranging from prehistory to twentieth century conflicts speak to the strategic importance of this geographically diverse landscape. People were constantly changing the landscape through different activities, but events such as the First World War changed these landscapes and societies in ways that are still seen and felt today.

The militarisation of this region and the war itself created a palimpsest landscape of different layers of conflict and their related materialities that are still being shaped (see Saunders *et al.* 2013). Each of these landscape layers is intertwined with others through spatial, chronological, symbolic and physical ties that bring them together in a complex world as seen through the interdisciplinary lens of modern conflict archaeology (Saunders 2010; 2011; 2012; Saunders *et al.* 2013). The Austro-Hungarian defence lines in Slovenia can be attributed to different interpretative landscapes. Some of the defence structures were a part of pre-war conflict landscape, but were reused during the war and became an integral part of the active conflict landscape and subsequent landscapes of memory and tourism.

The pre-war conflict landscape can be divided into two layers: one created before the start of the Great War in 1914, and one produced by the start of the conflict but before fighting began along the Soča Valley and on the Karst in May 1915. Numerous traces of these two layers can be traced in the field as shown below, but are rarer and less visible than those created during the wartime. The conflict landscape of 1915–1917 covered large areas of Slovenia and sometimes reached far inland with reserve positions, hospitals, cemeteries, and army barracks well behind the frontline (Fig. 1). Today, archaeology can help identify and understand these different landscape layers and their materiality with aerial photography analysis, airborne laser scanning (ALS or LiDAR), topographical studies, and excavations, supported (and sometimes contested) by written and oral historical sources.

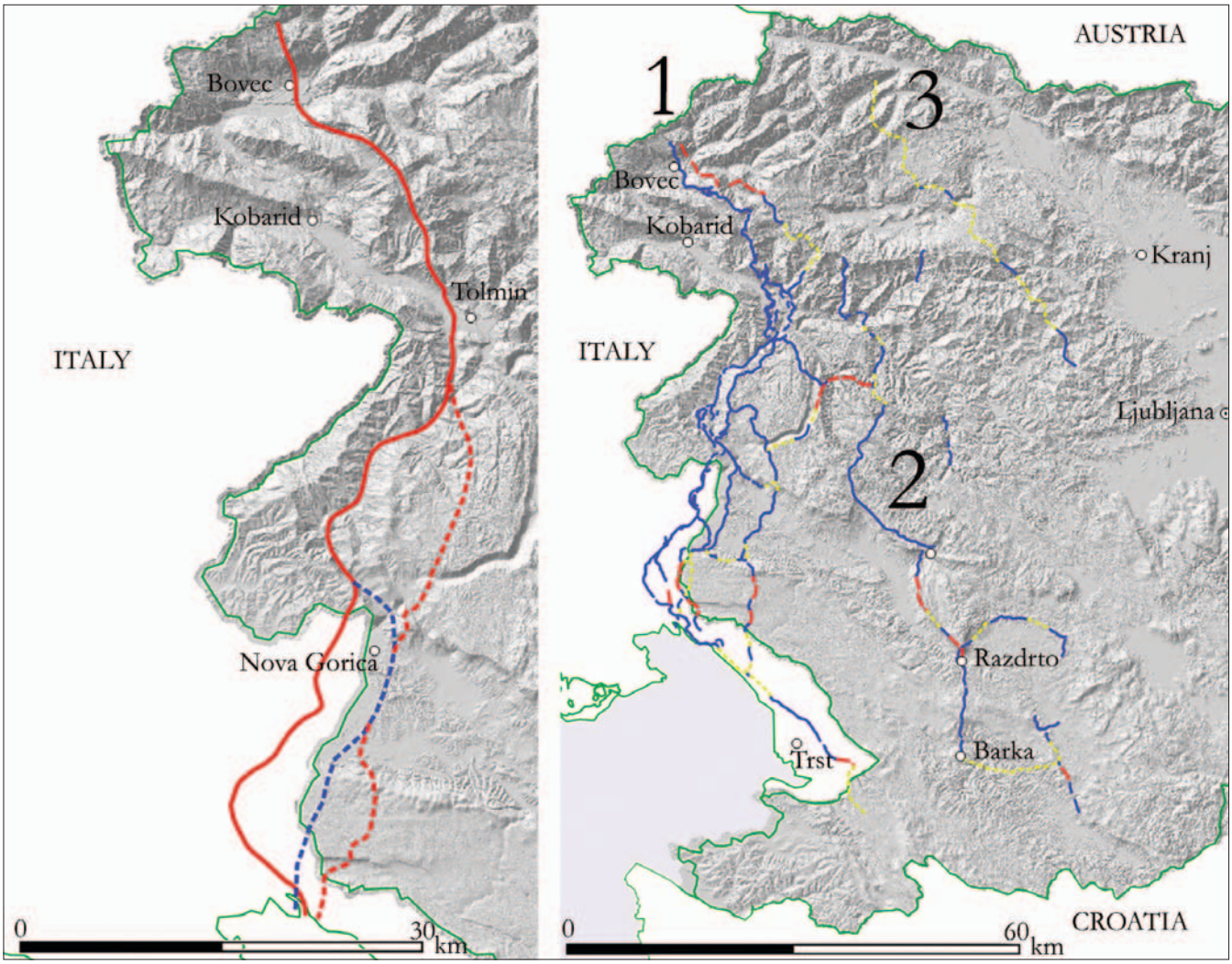

Fig. 1 Soča Front (left) between 1915 and 1917. Red solid line represents positions between first and sixth Soča battle, blue dotted line represents changes after the sixth Soča battle and red dotted line represents the change after eleventh Soča battle. Large parts of western Slovenia became militarized during the First World War as early as middle of October 1915 (right). Nr. 1 – Soča Front; nr. 2 – Barka-Rodica defence line; nr. 3 – Sava line. Blue lines represent finished positions, red lines positions under construction and yellow lines are planed positions. Map is based on ÖULK III, supplement 23 (according Košir 2017: 171, figure modified by author)

PRE-WAR FORTIFICATIONS IN THE BOVEC BASIN

One of the Austro-Hungarian border regions was today's *Primorska* (Slovene Littoral), then a part of the larger region of *Küstenland*. Due to strategic and political reasons, the army was present here throughout Austro-Hungarian times. Army barracks, fortifications, and experiences of soldiers who trained in the karstic landscape and alpine peaks represented the foundation of the later defence on the Soča Front from 1915 onwards.

Two of the most visible pre-war defence structures are without doubt the Kluže (*Strassensperre Flitscher Klause*) and Hermann (*Werk Hermann*) fortresses in the Koritnica gorge and on the slopes of Mt. Rombon (see Simić 2005). They were built as part of an Austrian line of fortresses constructed along the Italian border between 1808 and 1900 (Simić 2005: 89). Kluže fortress was built at the strategic entrance to the narrow Koritnica gorge (see also Mlekuž *et al.* 2016) and represented the southernmost defence point of the Austrian region of Carinthia (*Kärnten*). The fortress still exists, on the spot where an Austrian fort was burned during the Napoleonic wars. Today's fort was constructed between 1881 and 1882 (Simić 2005: 89–90) and has been modified ever since; today it is an important cultural monument. The fort survived the Great War almost undamaged, as the Italian artillery were unable to achieve a direct hit, in contrast to fort Hermann (see Simić 2005: 132–177). This newer fortress (already outdated when built between 1897 and 1900) stands on the slopes above Kluže fortress and the Koritnica river (Simić 2005: 135–141). It was destroyed in the first months of the war by heavy artillery fire and totally abandoned in 1916 (Fig. 2; Simić 2005: 207–271).

Fig. 2 Werk Hermann (photo by: U. Košir, 2014)

In years before the war, the north-western and western parts of the Bovec basin were additionally reinforced with artillery observation posts and infantry positions. Artillery observation post on 'height 1313' (*Kote 1313*) on the slopes above fort Hermann was actively used during the war. At the same time, observation post 'height 1127' on Sleme was erected along with optical telegraph stations nearby (Simić 2005: 188–194). Infantry positions were also constructed, as they represented an important element in defensive war. Construction of the artillery and infantry positions known as *Stützpunkt Kal*, began in November 1914 above village of Kal-Koritnica. During the same process of fortification of the Bovec basin, positions known as *Stützpunkt Kersovec Nord* and *Stützpunkt Kersovec Süd* were also created (Simić 2005: 242–245). At *Stützpunkt Kal*, builders used stone, concrete and wood to construct fire trenches with embrasures, two artillery positions for 12 cm calibre M.80 cannon, latrines, shelters, kitchens, and other features (Fig. 3). Similar building techniques can be found at *Stützpunkt Kersovec Nord* and *Stützpunkt Kersovec Süd*. These positions differ from the wartime examples, as there was no

Fig. 3 Stone build trench with embrasures at Stützpunkt Kal, today's Čelo (650 m) above Kal-Koritnica village (photo by: U. Košir, 2014)

hurry and no direct threat from Italian infantry or artillery attack. Both locations were never actively used during the war, but some of the pre-war structures were, such as *Batterie Hum*.

This pre-war conflict landscape and its remains underwent very different transformations and reuse during and after the Great War. Kluže fortress is now home to a small museum and lies on a touristic trail towards Mt. Mangart and the Predil Mountain pass, and *Stützpunkt Kal* became an open-air museum on a Walk of Peace route, making it an important part of conflict related touristic landscape, involving 'dark tourism' (see Gosar, Koderman, Rodela 2015).

DEFENCE LINE OF EARLY 1915

The pre-war conflict landscape is not limited to the northern part of the Posočje region as Austro-Hungarian army barracks were built all across the border region, down to the Adriatic coast. Nonetheless, the defensive structures were more or less concentrated in the area around the Bovec basin, guarding the route towards the Austrian town of Villach and inland into Austria-Hungary. When the First World War began a new defence line was built in early 1915, prior to the Italian declaration of war at the end of May 1915. As former Major General Moritz Brunner of the Engineering Headquarters, wrote in 1922, on the Soča Front:

[…] in the peacetime […] there were no fortification objects whatsoever, as the last permanent fort before the mountain frontline, blocked only the Soča river in vicinity of the spring. Due to the understandable reasons, the AOK[1] hesitated to begin with improvised fortification of totally opened line to the sea immediately after the mobilisation. Only when there were enough reasoned arguments for the necessity of reinforcing the defensive capabilities, the decision was made in the end of December 1914, not as to be expected of building a line at Soča, but of a defence line, set way inland. For its realisation, the 'Direction for building of fortifications' was established in Ljubljana in the beginning of 1915, to which, little less than 2000 civil workers were appointed to (Brunner 1922, 344ss; in Harl 2013: 10).

According to Brunner, the main defence line was between mountain Rodica (1964 m), Veliki Golak (1480 m), Razdrto and village Barka in southwestern part of Slovenia (Fig. 4). The decision to build a defence line next to the Soča River came

Fig. 4 Schematized location of Rodica-Barka defence line (according Košir 2017: 153, figure modified by author)

1 Army headquarters – germ. *Armeeoberkommando*.

to life only four to three weeks prior to the start of the war in end of May 1915 (Brunner 1922: 344; Harl 2013: 11).

An interesting and important account on constructing these defensive positions is the diary of Alois Harl (Harl 2013), a retired and later reactivated officer of engineering headquarters (germ. *Genistab*), who was appointed head of 'Direction for Building of Fortifications' in Ljubljana. He organized the construction of defence lines in Carniola's western border and the Austrian Littoral in early 1915 (Galić, in Harl 2013: 7). His work can be recognized in the landscape even today. Lovro Galić attributes the remains of the defence systems at Petrovo Brdo and Šebrelje, the line Brinje–Landol–Razdrto, and that between Črni Vrh and Col to Harl (Galić, in Harl 2013: 21). According to Harl, defence structures were built not only on Rodica-Barka line, but also inland at different strategic points such as Vrhnika, Logatec, Postojna, Kranj and Radovljica (Harl 2013: 25–36). These inland defensive structures consisted mostly of roadblocks and were not physically connected with each other. Some of these fortifications were also built in the Soča Valley, as in the vicinity of Tolmin. Alois Harl wrote:

Žabče:[2] marked a fort. Kozlov rob:[3] observing fortifications works – not good. After that on left flank position, and with a car to the cemetery and positions by the river. […] then with a car to Kozaršče[4] where I check the roadblock. It is not the best location, that's why I order it to be moved back. I ascend on Mengore[5] on a road, built by the pioneers. I mark a fort at Kozaršče and drive to the fort at Sela (Volčanska)[6] (Harl 2013: 34).

In his diary, Harl mentioned that he received the order to build a defence system near Soča as late as 20 April 1915 (Harl 2013: 46). On the 24 May 1915, Italy declared war on Austria-Hungary and the pre-war militarized landscape was transformed into a conflict landscape that changed differently in different areas. Some of the pre-war structures were used or even destroyed and their appearance altered. On the other hand, some were never used at all and were left unchanged to this day.

The remains of this pre-war defence line are mostly visible in the hinterland of the Soča Front, especially in areas unchanged by war. An analysis of a digital terrain model, derived from airborne laser scanning (ALS) or LiDAR, shed light on this almost unknown defence line between Rodica and Barka. The majority of positions were recognized in its southern part between Razdrto and Barka, with rare examples in other areas. Such examples can be found on Mt. Rodica (1964 m) where almost 80 meters long trench with four traverses can be recognised (Fig. 5), similar to those at Prapetno Brdo,[7] where 180-metre-long trench with eight traverses is still visible on the surface.

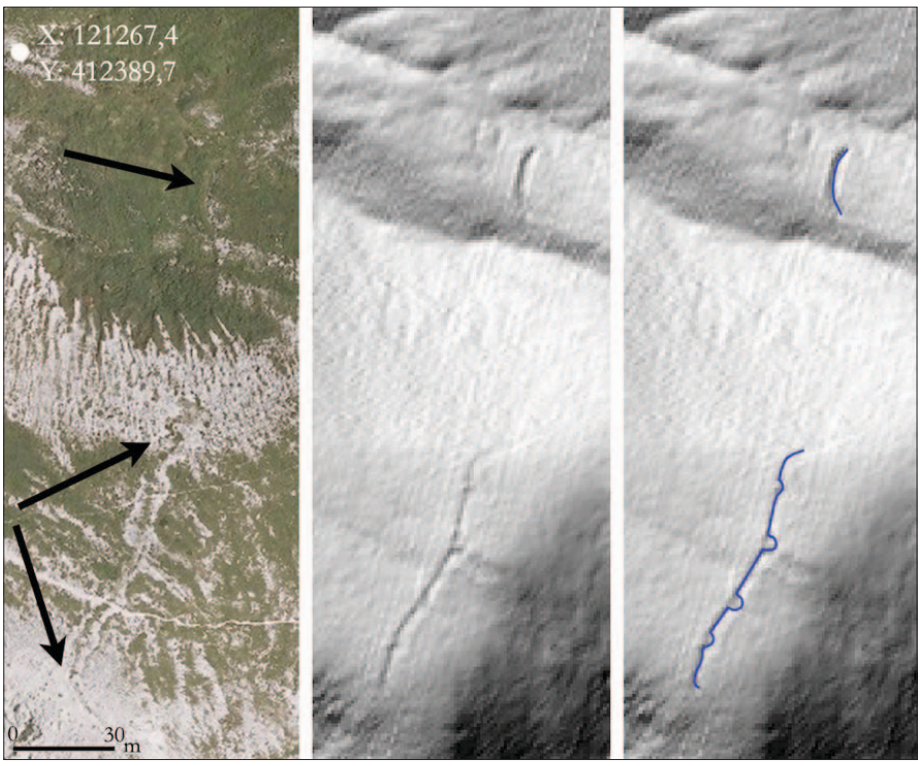

Fig. 5 Trenches on Rodica as seen on aerial photo and ALS (Košir 2017: 164)

2 Žabče - a village less than 500 m northeast of Tolmin.

3 Kozlov rob - 426 high hill at northwestern part of Tolmin.

4 Kozaršče – a village between Mrzli vrh (590 m) and Mengore (452 m), less than 3 km south of Tolmin.

5 Mengore – 452 m high hill near Tolmin.

6 Sela pri Volčah – a village around 5 km south of Tolmin and south of Kozaršče.

7 Prapetno Brdo – village in Tolmin municipality, above Idrijca River.

In the area between Razdrto, Barka, and Divača, there are many different types of trenches and other positions, but not all features belong to the First World War (Fig. 6). Positions that were probably built in early 1915 can be seen around Razdrto. Linear trenches with breastworks following natural ridges can be seen in the field, sometimes ending with a possible machine gun emplacement. Rare trenches of this early date have traverses, and interesting examples are found on Goli vrh (710 m),[8] where trenches were dug into ditches and ramparts of early nineteenth century Austrian forts (Fig. 7). Positions were also constructed on some neighbouring hilltops and towards the south. Nevertheless, the majority of the defence line was created by short segments of trenches, mostly consisting of semi-circular, lunette, and redan-like positions. Simple trenches can range from 10 to 70 meters in length, but are most commonly around 30 to 35 meters long, and built 30 to 170 meters apart. The hilltops were usually more fortified than the slopes due to the strategic importance of elevated ground. Such high ground positions were usually a little bit more complex in form, in contrast to the ones on slopes. These hilltops positions can have short perpendicular trenches on one side of the longer trench.

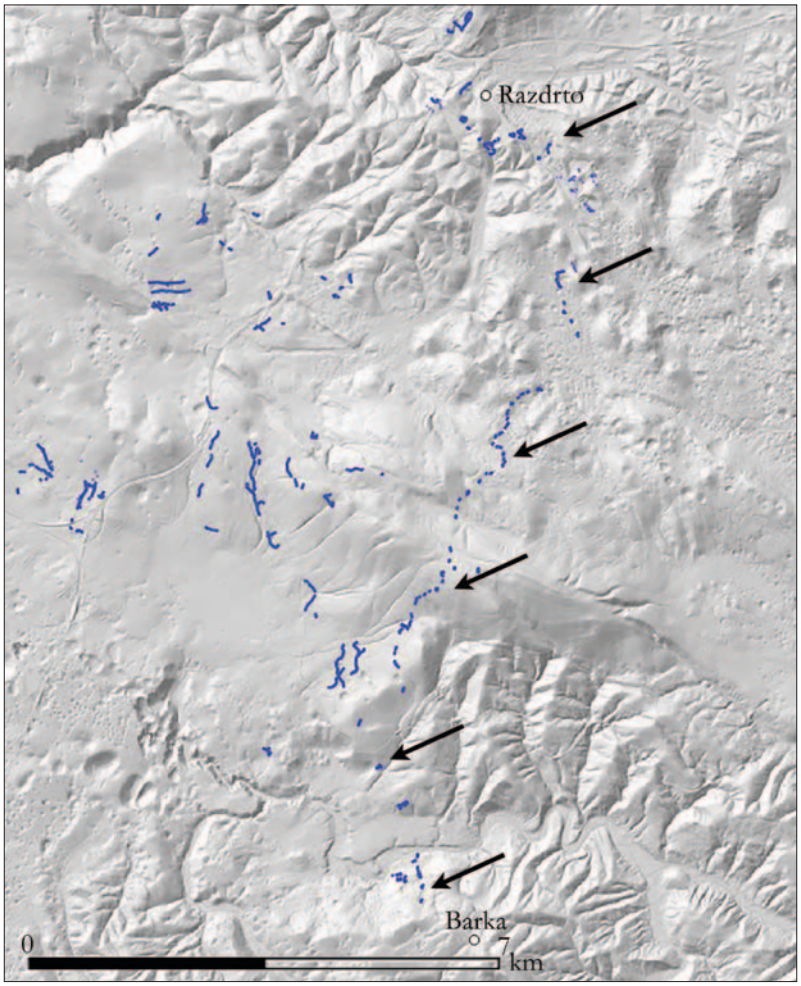

Fig. 6 Trenches and other military positions in area between Razdrto, Barka and Divača. Arrows point to defence line, probably constructed in early 1915 (Košir 2017: 166)

Since there was no archaeological excavation or test trenching of these positions, it is impossible to be absolutely sure that all of the identified positions were actually built as a part of this early defence line, but their simplicity and location in the landscape corresponds to rare historical sources. The Rodica–Barka defence line was constructed across a vast land-

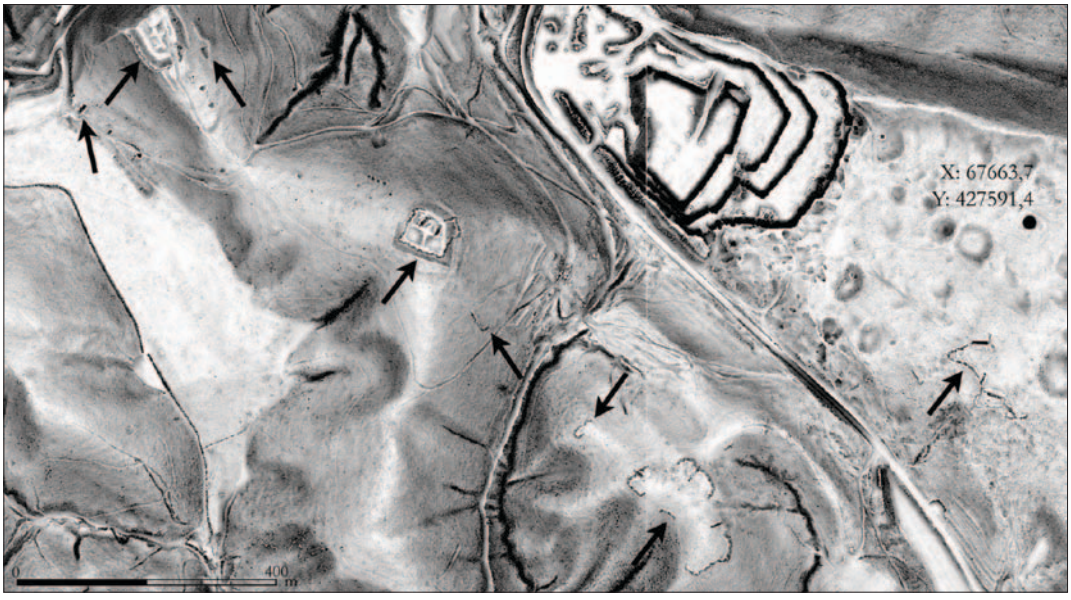

Fig. 7 Positions near Razdrto. First World War trenches can be seen inside early nineteen-century Austrian fortifications (Košir 2017: 167)

8 Goli vrh (710 m) – small hill in vicinity of Razdrto village in southwestern Slovenia.

scape, and consisted mostly of one line of defence, defending communications, strategic points, and large parts of the landscape. It was built using simple structures and rare trench systems.

DEFENDING THE RIVER – SOČA FRONT 1915–1917

At the end of May 1915, the Great War conflict landscape began to take shape as the war with Italy started. The Soča front was an almost 90-kilometres-long section of the entire frontline on the Italian and Austro-Hungarian border (Simić 1998: 11). It ran across diverse topographical regions, from the high mountains of the Julian Alps, the hilly landscapes of the Tolmin area and the Banjšice plateau, to the lowlands of the Gorica area and the Karst plateau.

Each of these regions or geographical zones had its own distinct impact on the way the war was fought and what kind of defensive positions were required (see Saunders *et al*. 2013; Mlekuž *et al*. 2016; Košir 2017). The rugged terrain of the high mountains did not allow uniform shapes and configurations of trenches or even a connected frontline. The trenches instead followed the terrain and its natural contours and features, and in some cases, the landscape itself was a strong natural barrier against attack. In other areas, such as the lowlands or Karst plateau, the frontline resembled the Western Front of France and Belgium, with several lines of well-built fire and communication trenches with fire bays and traverses. Belgian archaeologist Birger Stichelbaut's typology of First World War trenches in Flanders (Stichelbaut 2009: 183–205), can in some cases be applied to the trenches on the Soča Front. This is the case on many locations on the Karst, where there was enough space for vast defensive trench systems. These were necessary as the majority of the Italian army was concentrated in this southern part of the frontline. A similar situation can be observed on wartime aerial photos of Tolmin (Fig. 8), where trenches were dug near the Soča River and amongst the buildings of pre-war Austro-Hungarian military barracks (Košir 2012: 57; 2017: 191–197). Different types of fire and communication trenches were built following natural features and roads, and using buildings as cover. Construction of such uniform types was possible due to the flat alluvial terrain that enabled easy construction of positions, but had other drawbacks, such as a high water table. Contemporary accounts recorded water gathering at the bottom of these trenches. One of these accounts was written by Alice Schalek, a war reporter who spent three months, between March and July 1916, on the Soča front. Schalek observed that trenches were only a metre deep and of which the bottom 10 centimetres were waterlogged (Schalek 2005: 218).

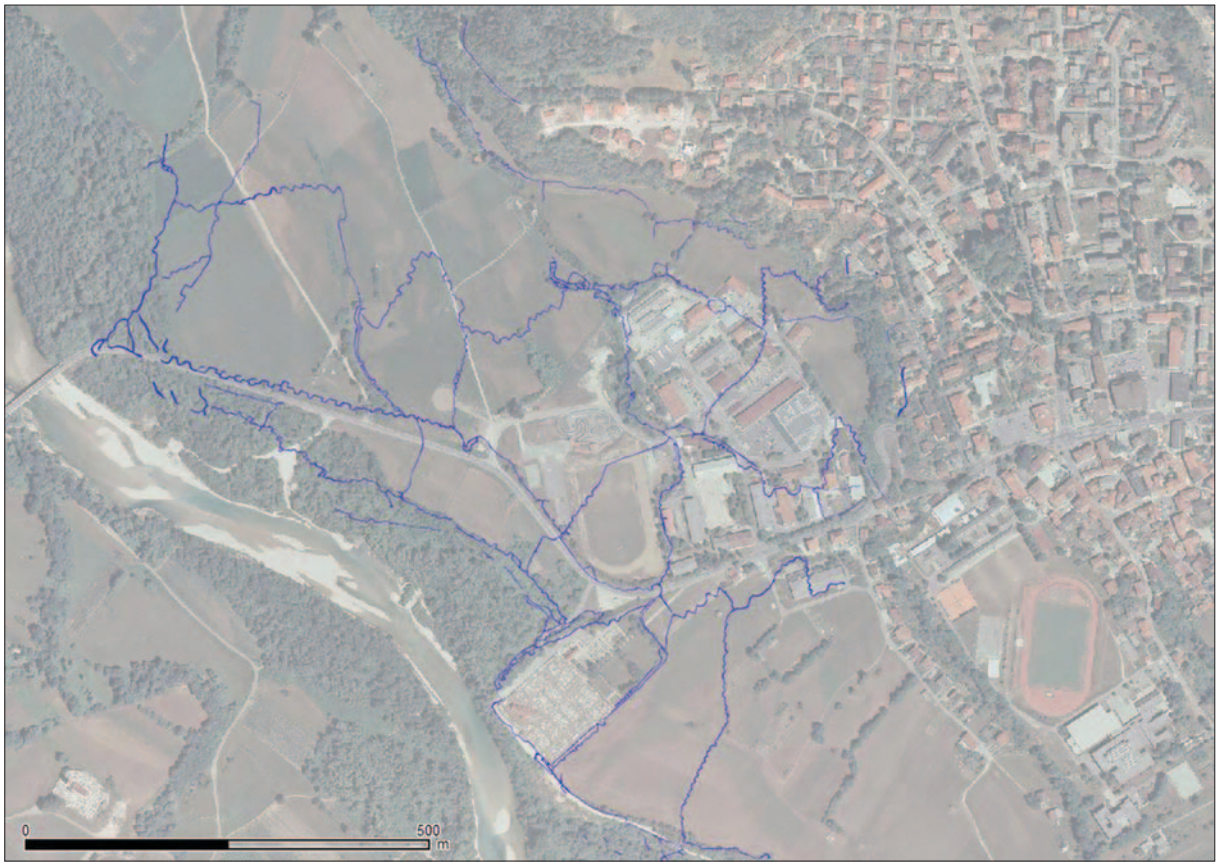

Fig. 8 Austro-Hungarian trenches near Tolmin (mapped by U. Košir, 2012)

However, trenches did not differ only in their purpose and form, but also in construction. In general, the Austro-Hungarian army used several different types of trench revetment. Observable in wartime photographs are trenches with wickerwork, wooden and stone revetment, sandbags, or nothing at all, or indeed, a combination of different materials, including concrete. During archaeological research near Tolmin, a test trench was dug into the Austro-Hungarian communication trench. The profile of the trench gave some indications of wooden revetment that was probably removed just after the war, before the trench was filled in and the land returned to agriculture. A piece of wire was also found, associated with the revetment construction (Košir, Črešnar 2013).

Another archaeological survey brought further detailed insights of trench construction. Parts of Mt. Rombon's (2208 m)[9] high mountainous battlefield were researched during 2010, 2011 and 2015 (Košir 2011; 2014; 2017). Different features such as caverns, machinegun positions, barracks platforms, dress stations, trenches, and a cemetery were located and investigated, providing valuable high-altitude information on their use, building process, and appearance.

The first aspect noticed in the field or on aerial photographs and ALS results are the irregular trench systems or trench line, which has unconnected stretches in some locations. This discontinuity was the result of the karstic geology of the high mountains. Steep slopes with rocky cliffs were enough of a barrier, and in some cases, few or no defence positions were necessary. In contrast to lowland and alluvial terrain, the rocky landscape proved a real obstacle when it came to digging trenches. They could be dug into ground with or without visible breastworks (i.e. a parapet in the front and/or parados in the back; Fig. 9, type 1 and type 2). Different types of revetment were also used when constructing trenches. Some examples found in the field were 'simply' cut into solid rock, so no revetment was necessary. This process required arduous digging and drilling into the rocky surface, providing good cover from enemy artillery shells and small arms fire. In some cases, the parapet was built of stones on ground level, without a trench being cut into the ground (Fig. 9, type 3). Such types were not common on the Rombon battlefield and only a few examples constructed in this way were observed. Dug trenches also had stone and/or wooden revetments or were just simply dug into the surface without additional construction.

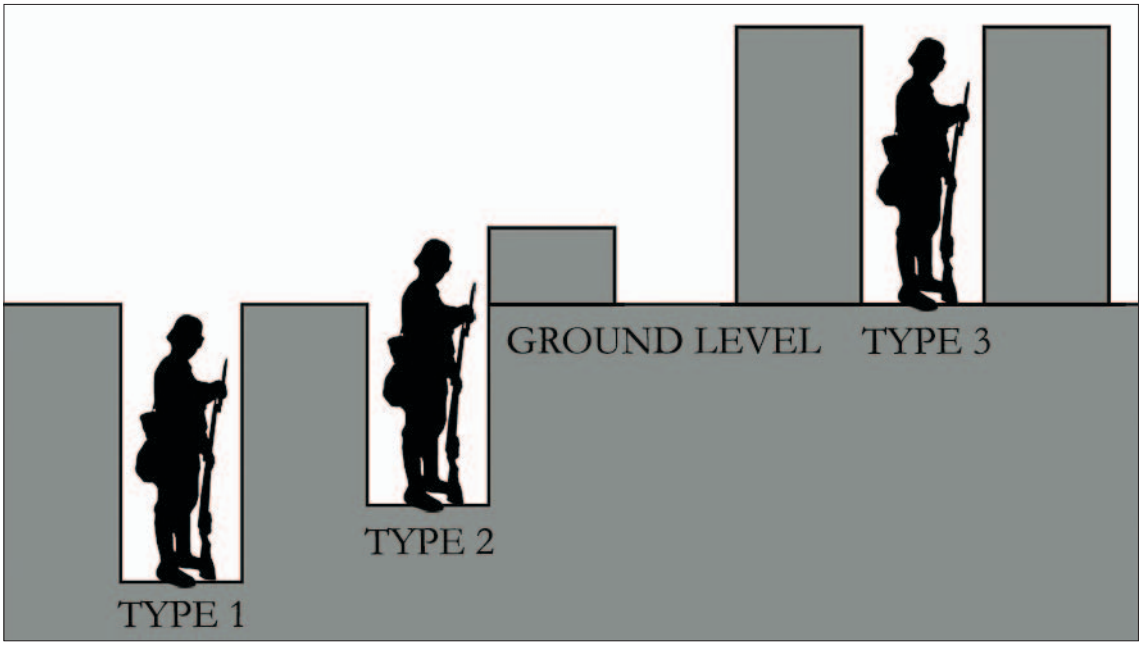

Fig. 9 Types of basic trench profiles as found on Rombon battlefield (according Košir 2017: 280; figure modified by author)

An archaeological test trench was excavated inside the Austro-Hungarian trench on 'Mrtvaška glava' (1583 m),[10] literally meaning 'dead mans' head' or by its wartime name *Totenkuppe* (Fig. 10). The summit was reinforced with wide trenches with sides constructed of stone and concrete. The trench in question was researched in a vicinity of one of many caverns that provided shelter and machinegun emplacements. The trench was dug into a rocky surface, and its southwest side

9 Rombon – 2208 m high mountain on the northern part of Bovec basin.

10 A small summit under Rombon near Čuklja, where the first Italian positions were located. These were the closest Austro-Hungarian positions to the Italian ones on Rombon battlefield.

was formed by natural rock, reinforced with stone wall and concrete. The opposite side was built from ground level up. The cut of the trench, dug for the construction of the built-up side, was probably also used as a drainage canal. This detailed demonstrates that even in the mountains, soldiers had problems with mud and water gathering at the bottom of the trenches. As this was a frontline position, the discovery of empty cartridge cases (8 × 50R mm calibre), Italian bullets (6,5 mm calibre), shell, mine and hand grenade fragments was no surprise, together with everyday objects like food tins. The situation was very different at a nearby communications trench. This contained almost no finds associated with fighting or everyday life as it was intended to provide safe movement between different positions on and behind the frontline. It can be assumed that due to this reason, the floor of the trench was regularly cleaned and cleared of possible obstacles. Small test trench provided information on its original depth which, adding the remains of the parapet, had to be at least 2.5 metres deep.

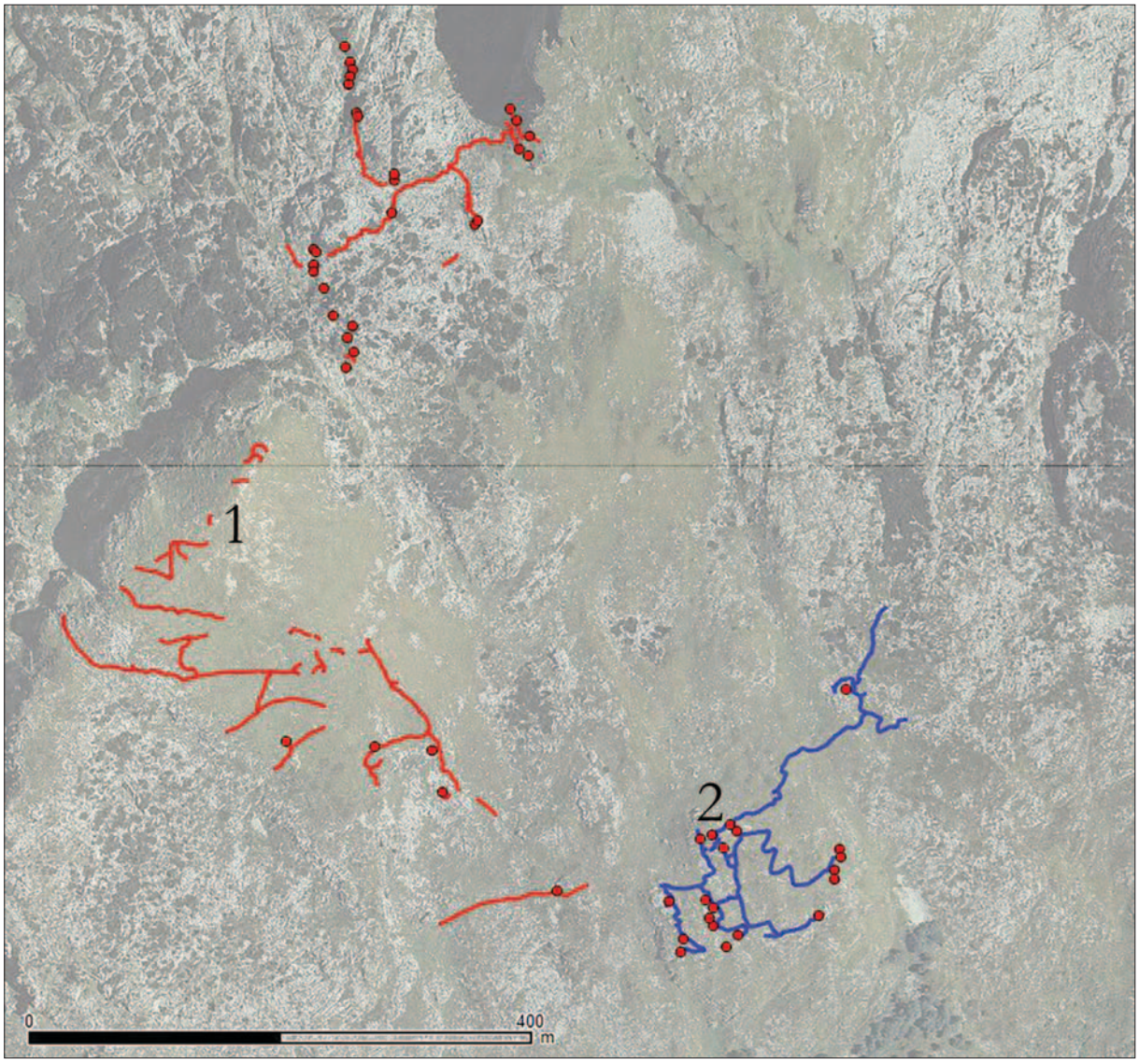

Fig. 10 Italian positions (in red) at Čuklja peak (1767 m) and its vicinity and Austro-Hungarian positions (in blue) on 'Mrtvaška glava' (1583 m). Red dots represent locations of caverns (GPS mapping by U. Košir, 2011)

Nonetheless, no Great War battlefield consisted only of trenches and the Rombon battlefield was no exception. A military map from 1916, held in Vienna's War archives, reveals a schematic frontline with machinegun, artillery and mortar positions and other important structures such as dressing stations (for map see Galić 2007: 202). Focusing on a small summit of Mrtvaška glava (*Totenkuppe*), a small trench system with zigzag and irregular trenches can be seen. Field survey in 2010 and 2011 revealed several caverns and different machinegun positions that played important defensive roles in the Great

War. Machineguns could be used in covered positions in caverns or in opened positions in the trenches. The same military map also reveals the positions of different mortar and grenade launcher emplacements, with rare artillery positions on the frontline.

An integrated approach, using historical sources, aerial photographs, ALS and field survey can provide insights into conflict landscapes and defence systems of the modern conflicts and also into the personal experiences of soldiers and civilians. The use of different sources is necessary, as archaeological heritage is often poorly visible, buried and fragmented. Different methods and approaches manifests in different results (Košir *et al*. 2016: 197) and the synergy of those is an account of past conflicts from different perspectives.

SAVA LINE – RESERVE LINE OF THE SOČA FRONT

The conflict landscape was not limited to the Soča Valley and pre-war locations. It also stretched inland, towards the east. Next to several reserve positions immediately behind the frontline, a longer reserve defence line, known as the *Savelinie* or Sava line, was planned in the hinterland. Its parts were built gradually between 1915 and 1917. In the book *Österreich-Ungarns letzter Krieg* (ÖULK III, supplement 23) is a map with positions drawn as they were in October 1915. The Sava line is mapped from mountain Kepa (2139 m), across the Radovna valley, and the Pokljuka plateau towards the Ljubljana basin. According to this map, some parts of the line were already built in October 1915. Construction was carried out also in 1916 and 1917 (Budkovič 2007: 495). According to some sources, the line was built with the help of Russian and Italian prisoners of war. The trenches were reinforced with wooden revetments, which were removed in the post-war period. Archival documents reveal that the forest administration office from Bled allowed a local inhabitant to remove the wood for making charcoal in 1919 (Budkovič 2007: 497–498).

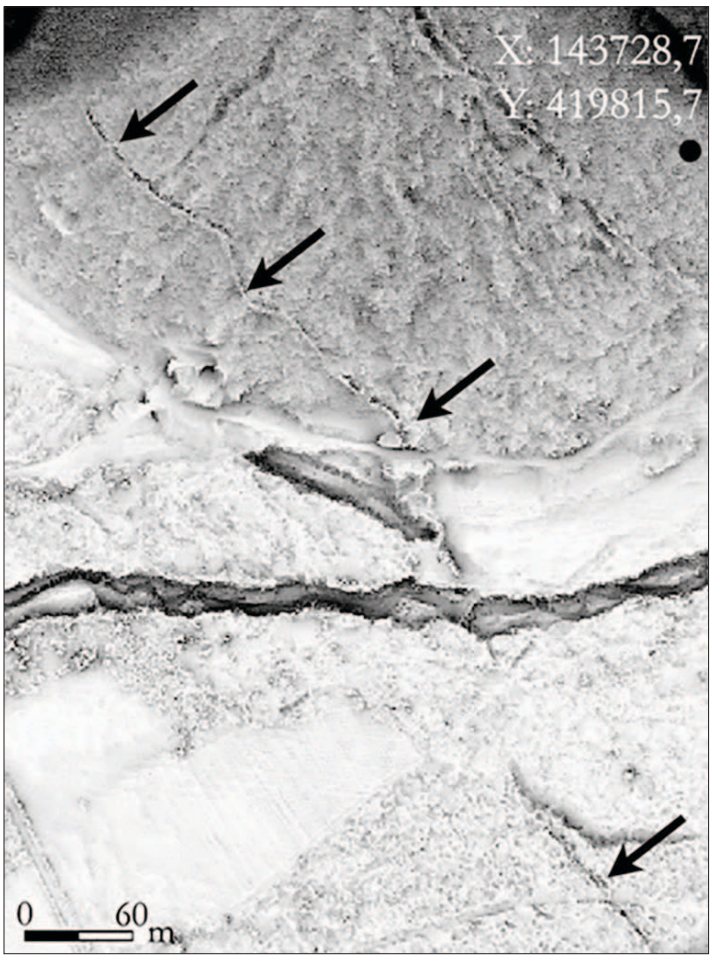

Fig. 11 Positions in Radovna valley (according Košir 2017: 182, figure modified by author)

A short study of the digital terrain model, gained by ALS, brought new information on the reserve line. Large sections were never built and only segments survive today. The majority of these are located in slightly different locations than on the map of 1915 positions in ÖULK. Trenches were first built to protect important communications and narrow valleys. Others defended elevations and were strategically positioned on high grounds. A nice example of well-preserved trenches can be found in the Radovna valley (Fig. 11 and 12). Amongst trenches with rectangular traverses, machinegun and possible artillery positions were identified. On one of the trench parapets, a used Austro-Hungarian cartridge casing (8 × 50R mm calibre) was found. It can be assumed that some positions were also used for military training during the war. The positions of the Sava line were never used in active combat, as the Italian army never breached the frontline in the Soča valley.

SOCIAL LIFE OF GREAT WAR FORTIFICATIONS

All of these defence lines and features have many things in common yet also can have very different social lives (see Appadurai 1986; Hoskins 2013). This depends on their function, strategic importance, appearance, location, historical meaning, etc. Just as small objects have social lives of their own, so do big objects like forts or entire landscapes. Different

Fig. 12 Trench with traverse in Radovna valley (photo by: U. Košir, 2017)

episodes in the lives of objects can be studied, providing us with insights into the broader context of individual things, their fluctuating meanings and appearances (Saunders 2010: 29; Hoskins 2013; Tilley 2013: 63).

The earliest defence structures mentioned here are the Kluže and Hermann fortresses, sharing almost the same function, location and historical meaning. However, their social lives are very different. While both guard a strategic route, one was actively used in fighting during the war and destroyed by artillery shells, while the other survived the conflict mostly undamaged. Fort Hermann was abandoned in 1916 and left in ruins, covering with vegetation over time until it was partly cleaned up in the last 20 years. It was also stripped of its metal embrasures and cupolas in the period between both world wars. Fort Kluže, located next to the road in the valley, was slightly altered and occupied during the Second World War by the Germans and also by the allied forces during the period after end of the war (Simić 2005: 301–303). Since Slovenia gained its independence in 1991, the fort has become a touristic site, resulting in some renovations, and is a centre for different cultural events, and keeps a small museum exhibition. A similar fate has befallen the positions of *Stützpunkt Kal*. Partly used at the beginning of the war, they were abandoned for decades before being excavated and rejuvenated in the last two decades, and now serving as an open-air museum. The fortifications of *Stützpunkt Kersovec Süd* or *Nord*, remain mostly overgrown by vegetation and are rarely visited by hikers and tourists. The same goes for the remnants of the Sava line, with an exception of short section of trenches, renewed by Slovenian army in 1996 (Budkovič 2007: 498).

First World War fortifications in Slovenia have different social lives, but the majority of them is left abandoned, especially those in remote mountainous regions. As the importance of the Soča Front grows from year to year, especially in the last two decades, open-air museums and renewed/reconstructed trenches and other conflict-related locations grow in number, creating new social meanings of the almost forgotten frontline of the Great War.

CONCLUSION

This brief overview of Austro-Hungarian defence systems in Slovenia represents only a tip of the iceberg of work that lays ahead for archaeological research into landscapes and remains associated with the First World War in Slovenian territory. The Austro-Hungarian army built different defence systems, ranging from simple lines of short trenches to large artillery forts and complex trench systems. The majority were used, destroyed, and rebuilt on an almost daily basis, and some positions were never used at all. Different building techniques and forms of defensive positions were used, mostly dictated by army doctrine and environment, which sometimes represented a greater barrier than manmade obstacles.

These various defence systems are also not simply positioned in an empty space and without any engagement with people. They construct different interpretative landscapes and held different meanings and social values that can change over time. Places of war destruction and death are becoming places of peace, historical awareness and tourism, spreading the knowledge of grim reality that are twentieth and twenty-first century conflicts.

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DAVID ŠTRMELJ, DEJAN FILIPČIĆ

Adaptations of the Renaissance City Walls of Zadar into Air Raid Shelters during the Italian Reign

During the interwar period (1918–1939) city of Zadar/Zara, situated on the East Adriatic coast, was an isolated enclave ruled by Italy, yet completely surrounded by Kingdom of Serbs, Croats and Slovenes / Kingdom of Yugoslavia. For the protection of the city an elaborate defensive system of bunkers, fortlets and defensive lines was built. This paper discusses one small and neglected aspect of Italian-era fortification efforts – the modifications of renaissance city walls into the Air raid shelters. The bunkers built into the renaissance bastions were just a part of an extensive shelter-building project, conducted by the local authorities just before and during the Second World War. The main purpose of these shelters was the protection of civilian population as well as military personnel of the city, as the danger from the air strikes incised when Italy entered the war with Yugoslavia in 1941, and after the Allies gained foothold in Southern Italy in 1943. The Allied bombing campaign culminated with heavy carpet bombardments in late 1943 and 1944, in which 80% of the city was completely destroyed. Particular attention is given to the plans and designs of these shelters, as well as to the documents of the Government institutions that planed and conducted these projects. Moreover, the paper deals with the modifications of Ancien Régime public buildings into military facilities.

Key words: Zadar city walls, Italian rule in Zadar, World War II, shelters, military barracks

The city of Zadar, capital of pre roman Liburnia and Byzantine, Venetian, French, Austrian and Italian Dalmatia, has impressive history of fortification that extends over two millennia. From the renaissance period, up to the 18th century, at the time of the fiercest conflicts with the Ottoman Empire, the republic of Venice decided to considerably fortify the city (Žmegač 2009: 97–120). The impressive new defensive walls were built around the city in renaissance fashion – composed of seven bastions (Raukar et al. 1987: 196–280, de Benvenuti, 1952: 15). A large fortress Forte was built in front of the city and various barracks were built in the city proper (Raukar et al. 1987: 538) (Fig. 1).

In the second half of the 19th century the gradual process of demilitarization started. The city officially stopped being a fortress on 14th of December 1868 (Stagličić 2013: 61). The renaissance city walls on the maritime side were soon demolished, and the bastions on the port and southern side, with the greater part of fortress Forte were transformed into public parks (Stagličić 2013: 60–65). The mentioned process swept over various barracks scattered across city centre, which were also gradually demolished or transformed. With the collapse of Austro–Hungarian monarchy in closing stages of World War I, and with the arrival of Italian troops in Zadar in November 1918, local Italians gradually assumed control of the city. However, in rather complicated diplomatic arrangements after the end of the war, instead of promised large territories in Dalmatia by the Treaty of London, Italy was stuck only with islands Lastovo, Palagruža and Zadar enclave – which consisted of Zadar city proper and several nearby villages – a total of 50 square kilometres.

The Government in Rome had no illusions concerning the unfavourable strategic position of the city, so in the first decade of Italian rule not much has been done to fortify it. However, as the political perspective changed (incoming of fascist party on power), starting from the early thirties an extensive network of bunkers and fortification was build – the new policy was to defend the city to the last man and the last bullet (Egić 1957: 97). Impressive even on the European scale – with

Fig. 1 Venetian era city walls on modern topographical map of Zadar (http://www.unesco-venetianfortresses.com/parti-del-sito/zadar-2/, 11 February 2019)

over 200 bunkers and fortlets, the new fortifications consisted of several defensive lines that enveloped the city proper.[1]

For the defence of the province in 1936, the *Comando Truppe del Presidio di Zara* was established, and in 1942 the formation was expanded into 158th (light) infantry division (Torsiello 1975: 23).[2] It was an occupational Division by type 1941. The

1 The first defensive line stretched on the state (and municipal) border; three lines of barbed wire were strengthened with fortified border crossings while the vegetation was cleared on the entire perimeter. The second defensive line was put 5 – 7 km from the city centre, it stretched along villages Bibinje – Dračevac – Bokanjac – Diklo and consisted from bunkers of various types, set 70 – 100 meters apart, together with personnel shelters and gun encampments. The third line stretched along suburban settlements of Puntamika, Pudarica and the city graveyard, and was backed with the forth line which stretched from suburban settlement of Arbanasi to the church of St. John. The third and fourth line consisted of bunkers mixed with fortified houses. The entrances to city centre were protected with ramps and fortified houses. See also Egić 1957: 97–99.

2 The document was released by Stato Maggiore Dell' Esercito – Ufficio Storico.

unit was created from various military and fascist party formations[3] – a considerable force in comparison with the Italian population of the city which didn't count more than 9000 people. The need for housing the garrison of that size stopped, and in some cases completely reversed the process of demilitarisation which started in the second half of the 19th century, and thus many antique military facilities stayed in use longer that one would expect.[4]

Although the Italian Commandment of the XVIIIth Corps predicted that Zadar would be a prime target of Alied air attacks, these raids did not happened up to the Capitulation of Italy on 8th September 1943. The command of the German army, after occupying Zadar, continued to use the city harbour as an important focal point of maritime traffic of various war materials between Trieste and Greece. As a result, the Allies decided to launch attacks on Zadar at the end of September 1943, which was in the beginning designated as secondary, but later became the primary target of the air campaign. The first serious bombing of Zadar happened on 1st of November 1943, and already in that first bombing raid majority of the city was destroyed, especially the harbour and the area around the beginning of the peninsula. Since that raid, virtually no civilian objects in the city proper has been spared, and the attacks of the first day have taken great civilian casualties. It is estimated that over 80% of the city was completely destroyed in the attacks that lasted until 30th of October 1944, and that more than 600 civilians were killed in it (Pribilović 2006: 120–164).

As said before, prior the war, the renaissance bastions and a greater part of fortress Forte were used as public parks. However, it seems that already in 1935 the preliminary sketches were made for the transformation of bastion systems into a complex of bomb shelters (HR – DAZD - 122 (IX) box no. 45). Nevertheless, the actual adaptation process dragged well into the war years - 1942/1943 (HR – DAZD - 122 (IX) boxes no. 42, 43, 45). The works were conducted by the local chapter of the Ministry of Public Works (*Ministero dei Lavori Publici, Corpo Reale del Genio Uffice- Ufficio per la Provinzia di Zara*), (HR – DAZD - 122 (IX) box no. 42), in according to official documents prescribed by governmental bodies (HR – DAZD - 122 (IX) box no. 45). The documents of technical office of the Prefecture of Zadar preserved today in the State archive of Zadar can give some insight of the building process; for example a document from 1942, under the authorization of Giovanni Salghetti Driolli – a chairman of the technical office, following the circulars of the *Ministerio dell' Interno, Direzione Generale per i Servizi della Protezione A.A* from the 19/12/1941/XX and 1/11/1942/XXI contains a decision for building two shelters under the city bastions (HR – DAZD - 122 (IX) box no. 42). The building process was entrusted to the ing. Vittorio Marchioro, and another document dated to 20th of March 1943 contains the authorization of the prefect of the province for payment of 270.000 lire to the Marchioro for the works under the bastion Wagner (ex bastion Santo Crisogono) and the gates of St. Rocco (HR – DAZD - 122 (IX) box no. 42). Document dated to the 5th of February 1943/XXII, records the payment for the building of shelters under the fort Forte (*Parco Regina Elena*) (HR – DAZD - 122 (IX) box no. 43). Another document dated to the same date refers to the decision from 13th of August 1943, about the construction of shelter under the bastion Moro (HR – DAZD - 122 (IX) box no. 43)

Similar documents pertained to the construction of shelter under the bastion *Di sanita* (ex bastione Castello) situated at the very end of the city. (Fig 2, Fig 3). A bombshelter for 350 people was construcet in the extension of the wall, more to the South, but not under the *bastion* but under the *curtina* from *Porta Marina to* bastion *Wagner* (HR – DAZD - 122 (IX) box no. 44) (Fig 4, Fig. 5). On the opposite, Western part of the city a large covert was built under now semi-demolished bastion near church of St. Francis. The documents of technical office of the Prefecture of Zadar describe also, in the great length and detail, the actual process of adaptation – from the price lists of the materials for every individual shelter and technical characteristics (HR – DAZD - 122 (IX) boxes no. 42, 43, 44),[5] to the types of rescue equipment used in them (HR – DAZD -

3 Before the April war in 1941, the unit was unified of several infantry battalions, artillery detachments, several groups (*gruppe*) and a 107th legion of CC.NN paramilitaries, mechanised detachment, elements of the navy personnel and 10ª legion of MACA. (cf. Riccardi 1999).

4 The bulk of the garrison troops were situated on the renaissances fort Forte, in the barracks which were built by late K.uK. Monarchy. The barracks and the courtyard were expanded and partially rebuild (Stagličić 2013: 29, 62–63). Terrain south of the fort, which was used as a military training ground kept the function under the auspices of GIL, as a large stadium and GIL centre was build there. The rest of the troops were distributed among various posts in the city proper. The command of the *Presidio di Zara* was placed in a palace of ex-Austrian governor of Dalmatia situated on the bastion of St. Nicholas. Nearby Austrian military hospital, placed in an ex-monastery of St. Nicholas was transformed into naval base/hospital – *Caserma R. Marina Tommaso Gulli*. From 1933 the renaissances city guard house situated on the main city square housed *Fascio di Combattimento* among other offices (Benvenuti 1940: 250). However, the greatest concentration of military facilities was on the southern part of the city as in Venetian times. Ex-palace of the Venetian captain was transformed into a centre of RRtroops, the old K.uK. barracks in the vicinity housed *carabinieri*as well as monastery of St. Dominik. Now destroyed old monastery of St. John in the vicinity became *caserna Francesco Rismondo* that garrisoned MVSN (*Milizia Volontaria per la Sigurezza Nazionale*) (Benvenuti 1940: 251). On the renaissance bastion to the west the large naval communication antenna was placed, and possibly an naval artillery encampment (Fisković 1946: 11). Regarding said artillery encampment, it seems possible that Fisković confused bastion della Cittadella and the bastion Moro. In any case, during the 1943, in the perimeter of the southern wall on the seal level, German military installed directly into the bastion della Cittadella a gun encampment as a part of preparations for the Alied invasion that has never occurred. Finally, Zadar peninsula was demilitarized after departure of Yugoslav People's Army (JNA) in 1964, although some administrative personnel remained until the Croatian war of independence.

5 The prices of the shelters varied significantly from 185.000 to over 800.000 lire (HR – DAZD - 122 (IX) box no. 42).

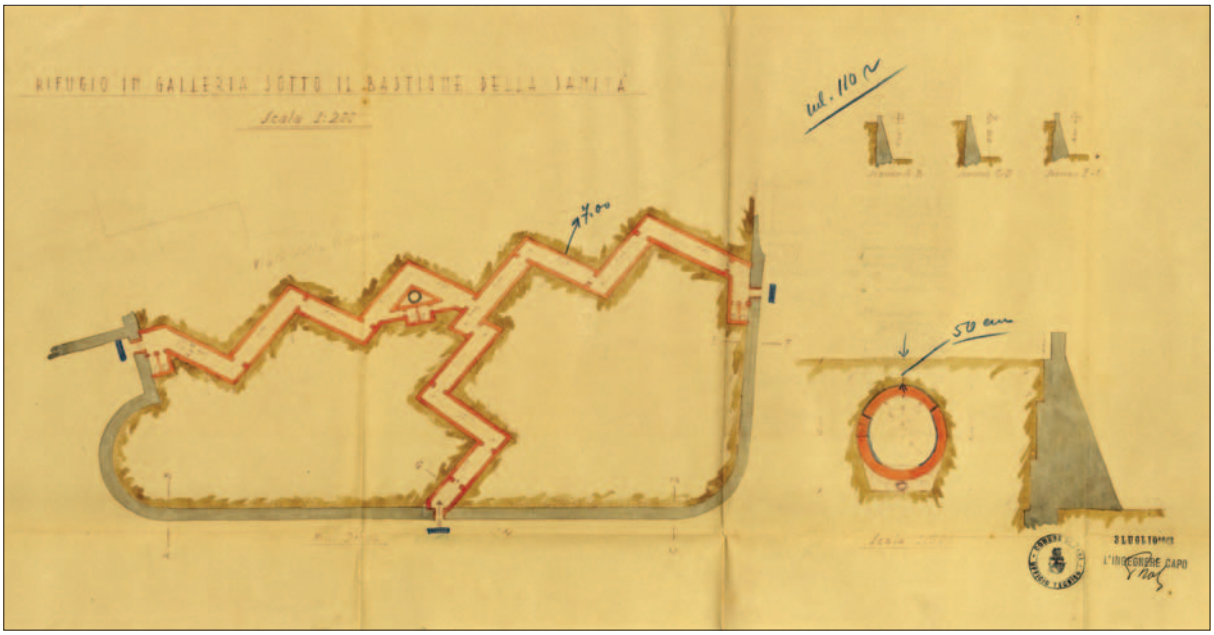

Fig. 2 Plan of the tubular shelter under the Bastion della Sanita (ex Bastione Castello) (HR – DAZD – 122 (IX) box 43)

Fig. 3 Photography of the Bastion della Sanita today (photo by: D. Štrmelj)

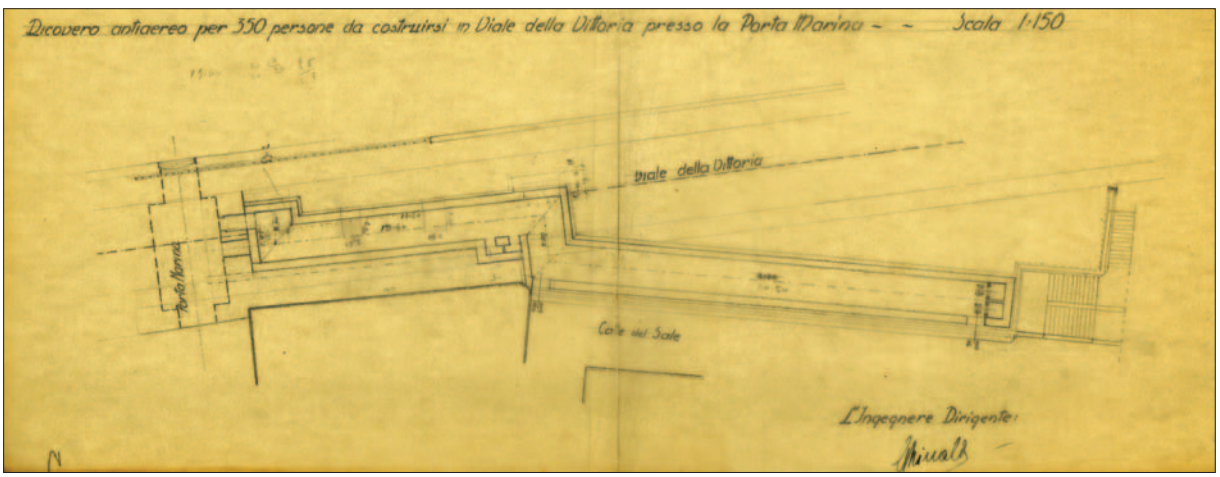

Fig. 4 Sketch of the shelter build into the curtina from Porta Marina to bastion Wagner (ex Bastione San Crisogono) (HR – DAZD – 122 (IX) box 44)

Fig. 5 Photography of the segment of the city walls on the port side, mentioned on a sketch from previous picture, on the right – Porta Marina, on the opposite left – Bastion Wagner (photo by: D. Štrmelj)

122 (IX) boxes no. 45, 46). It seems that majority of coverts build inside the renaissance bastions were variations of tubular shelters (*ricoveriantiaerei tubolari* in the documents) – which, to maximise the usage of space and chances of survival consisted of one, and sometimes two, oval corridors (height varieties from 2 to 2.5 m) which stretched through the bastions, and were protected with special entrances with an impenetrable doors (HR – DAZD - 122 (IX) boxes no. 42, 43, 44) (Fig. 6).

The shelters sometimes had galleries in the middle point and, as a rule, several entrances and air openings. Thus, an ideal shelter under the bastion would have two entrances around the bastions *ears* or if that was not possible, the en-

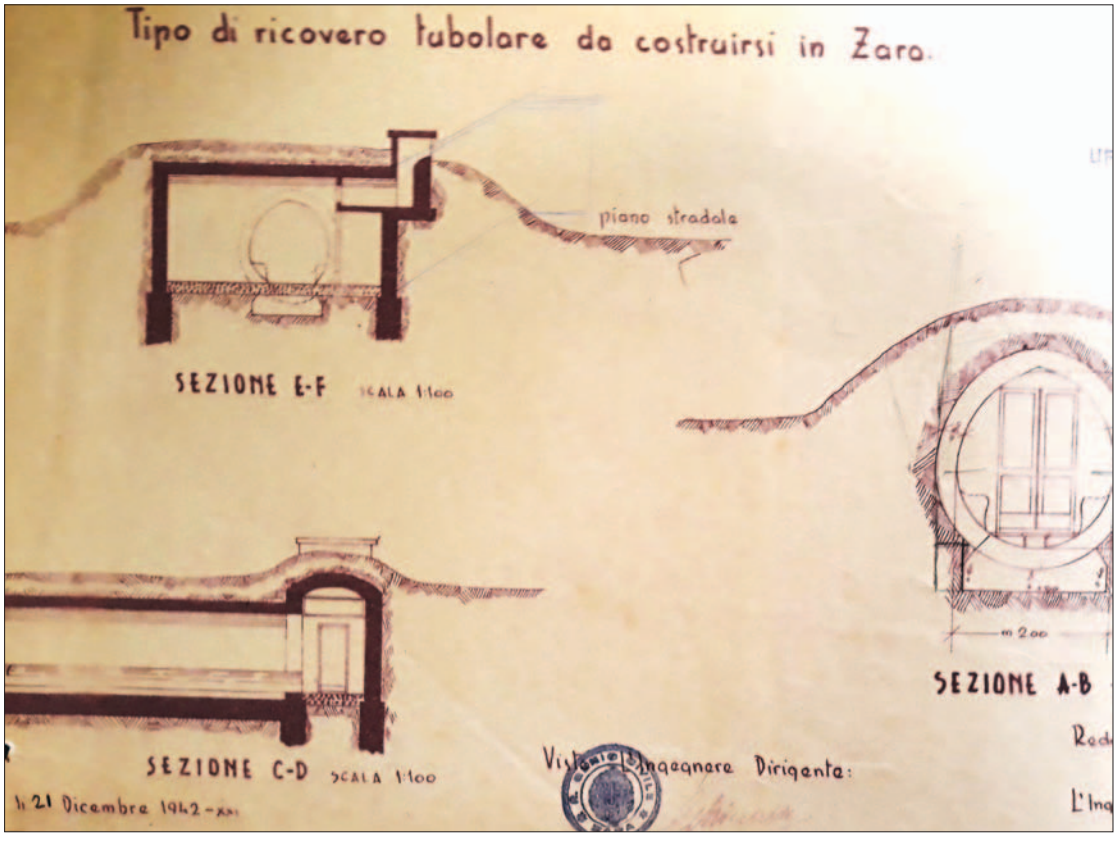

Fig. 6 Ideal sketch of tubular shelters constructed in Zadar (HR – DAZD – 122 (IX) box 42)

trances would be built on the opposite walls. These two entrances were connected with a tunnel which, if the situation permitted, was built in a broken manner i.e. not strait, sometimes with a gallery in the middle, and a third tunnel under the right angle which would lead to the port side of the city. If the shelter was built under the curtina and not the bastion itself (like in a case of shelter under the *Via della Vittoria*), the entrance would be at one of the renaissance city gates, and would consist of single tube running underneath the said curtina with reserve exits on the sides.

To conclude, the bunkers build into the renaissance bastions were just a part of an extensive shelter-building project, conducted by the local authorities during the Second World War. Usefulness of various shelters remains dubious – in the very first day of the bombing more than 160 people were killed in a shelter at Voštarnica outside of city proper. While the substantial financial resources were spent, the majority of hastily built shelters did not behave in satisfactorily manner; however it seems that the shelters positioned in the renaissance city walls performed quite good.

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HR – DAZD - 122 = Državni arhiv Zadar, Fond samostalnog tehničkog ureda Prefekture (Genio civile), kat. IX / State archive of Zadar, Fundus of the independent Technical office of the Prefecture of Zadar (Genio civile) cat. IX.