SMLEDNIK CASTLE

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E-MONOGRAPHIAE INSTITUTI ARCHAEOLOGICI SLOVENIAE 8

Series **E-Monographiae Instituti Archaeologici Sloveniae 8**
Editors of the series Jana Horvat, Andrej Pleterski, Anton Velušček

Benjamin Štular (editor) **Smlednik Castle**

Translation Sunčan Patrick Stone
Drawings by Larisa Skalerič, Dragica Knific Lunder
Technical Editor, DTP and preparation of illustrations Mateja Belak
Published by Inštitut za arheologijo ZRC SAZU, Založba ZRC
Represented by Oto Luthar, Jana Horvat
Editor-in-Chief Aleš Pogačnik

Published with the support of Research Centre of the Slovenian Academy of Sciences and Arts and Slovenian Research Agency

Front cover graphics by Ladislav Benesch, The Ruins of the Smlednik Castle, 1890, National Museum of Slovenia Inv. No. R-352 (photo: Tomaž Lauko, digitally remastered by Nives Spudić)

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

904(497.4Smlednik)(082)(0.034.2)
728.81(497.4Smlednik):902(082)(0.034.2)

SMLEDNIK castle [Elektronski vir] / edited by Benjamin Štular ; [translation Sunčan Patrick Stone ; drawings by Larisa Skalerič, Dragica Knific Lunder]. - El. knjiga. - Ljubljana : Inštitut za arheologijo ZRC SAZU, Založba ZRC, 2015. - (Zbirka E-Monographiae Instituti Archaeologici Sloveniae, ISSN 2335-2930 ; 8)

Način dostopa (URL): http://iza.zrc-sazu.si/pdf/e_monografije/Smlednik.pdf

https://doi.org/10.3986/9789612547981

ISBN 978-961-254-798-1 (pdf)
1. Štular, Benjamin
279068160

Smlednik Castle

Edited by: Benjamin Štular

ZALOŽBA ZRC

LJUBLJANA 2015

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FOREWORD

SMLEDNIK CASTLE IN HISTORICAL AND ARCHAEOLOGICAL RECORDS

Andrej GASPARI

According to a narrow definition which classifies a castle as a historical, cultural-historical and architectural phenomenon which, according to the castleologist Igor Sapač not only marked, but also defined our view of the Medieval and Modern Periods, a castle is a *medieval fortified building on a natural or manmade, protected location which functions as the centre of the feudal lands and a residency of the feudal lord or the castle's caretaker.*[1] In the Middle Ages the castle primarily represented a military stronghold which protected, oversaw and controlled its surroundings. The Slovene name for castle (grad) supposedly developed from the Slav word gôrd, which stands for fence, wall, walled. All of the indicated meanings can be found in the archaeological building records at the Smlednik Castle, one of the most important cultural heritage sites in the central Ljubljana basin, which also represents the focus of this publication.

The historian Vladimir Levec (1877–1904), the author of the extensive study *Schloss und Herrschaft Flödnik in Oberkrain* (published in 1896 and 1897), excellently summarised the main comparative advantage of the 515 m high hill rocky heap with the castle remains, when he stated that there were few elevations of similar height that had such a good view of the Gorenjska landscape. From this unique position Levec could see 149 churches in a panoramic view that is only slightly obstructed by Šmarna gora to the south.

The imposing silhouette of the castle with the remains of the tower - which were preserved to a height of 18m as recently as the turn of the 20th century – are visible from afar as they dominate their surroundings. The castle as depicted in a lesser known drawing by Ladislav Benesch (1845–1922), shown on the covers of this publication, drew the attention of Otto Piper, the founder of German and Austrian castleology, who stated that the Smlednik Castle was the tallest stone keep in Carniola;[2] the thickness of its walls and the length of the tower's sides indicate that three or four floors rose above its cellar ground floor and that it might have been over 20 metres high. As one of the most important Slovene castles the *Old Smlednik Castle* was declared a cultural and historic monument in 1989. This act was implemented by the municipality of Šiška upon the proposal by the Ljubljana Regional office (RO Ljubljana) of the Institute for the Protection of Cultural Heritage of Slovenia (IPCHS). In the same year this status was also granted to the medieval fortification at Gradišče nad Zavrhom which was closely tied to the history of the Smlednik Castle.

The material remains of the 500 or more year history of the castle, which was already in ruins in Valvasor's times (17th century), have been the subject of archaeological research since the 1960s, when the first plans for the conservation and presentation of the castle remains were made. The excavations that took place between 1960 and 1968, and during which most deposits within the inner walls were removed, were carried out by archaeologists Andrej Valič from the Museum of Gorenjska, Marijan Slabe from the IIPCHS RO Ljubljana and Ivan Puš from the City Museum of Ljubljana, while the restoration of the walls took place during the occasional visits of dr. Ivan Komelj and under the supervision of the conservator Špela Valentinčič. The advantages of archaeology as a science with developed methodological tools for recognising, documenting and analysing building structures with corresponding deposits were recognised early on in medieval castle research, especially in cases in which the ruins on the surface were scarce or hard to see, which made it impossible for them to be the subject of a classical castleology or art history analysis.[3] The excavations of the tower on Krancelj above Škofja Loka in 1954 and 1955[4] and the successful start of a systematic documentation process of similar remains in this part of Slovenia, which was based on the evaluation of the archive records and carried out in cooperation between prof. Milko Kos and the team from the IPCHS RO Kranj, the Museum of Gorenjska and the Kamnik Museum in 1967 and 1968[5]. A long pause in research that followed was brought to an end by the

[1] Sapač 2012.

[2] Piper et al. 1904.

[3] C.f. Predovnik 2012; Predovnik, Nabergoj 2010.

[4] Avguštin 1954.

[5] Komelj 1967; Žontar, Zupančič 1967.

archaeological research of the Ljubljana castle bastion between 1988 and 1997,[6] which gradually revived interest in other castles on the outskirts of the Ljubljana basin. The first structural analysis of the buildings and the documentation of the open surfaces, which were carried out by the Department of Archaeology at the Faculty of Arts in Ljubljana and the IPCHS RO Ljubljana between 2004 and 2008, were conducted for the following castles belonging to the Spanheim ministerials and castellans: *Falkenberg* (Old castle) with the nearby fortification on the hill Oključje by Rogatec above Želimlje,[7] *Hertenberg* (Jetrbenk), *New Hertenberg* (Gradišče above Sv. Marjeta v Žlebeh),[8] Stari grad Goričane[9] and the fortifications on Gradišče above Draga[10] and Gradišče above Zavrh,[11] while on *Osterberg* (Stari grad above Podgrad) the Centre for Preventive Archaeology at IPCHS carried out trial geophysical research (2009).[12] Most of these locations were visited in the 1990s by unlicensed treasure hunters with metal detectors, who - with their selective exclusion of objects - hindered the archaeological deposits and the story it could reveal. Especially unfortunate is the case of the concealed circumstances in which a small group of 14th century silver coins were discovered in 'a forest' some 20 kilometres west of Ljubljana, which according to the general localisation in the publication and the mention of the tip of an arrow[13] found in the vicinity might originate from the area of one of the medieval fortifications in the northern part of the Polhov Gradec hills. The scientific interest in the find of the 15 silver coins mainly lies in the 9 coins of the Bans of Bosnia, for they could be linked to the Nebojša (*Neboyz*) tower mentioned in written documents, which belonged to the *Hertenberg* castle and the builder of which, according to Božo Otorepec, once served as a knight in Serbia.[14]

The archaeological research, the results of which form the core of this publication, was envisaged as a basis for the conservation plan which would define the starting points and guidelines for future interventions. In his book *Gradovi, utrdbe in mestna obzidja* (*Castles, fortifications and city walls*, 2006) Igor Sapač drew attention to the fact that the Smlednik Castle, as many others, did not manage to avoid new buildings in its direct vicinity and an impromptu reconstruction of the ruins in the past. As documented in newspaper reports from 1961 and 1978[15] the various circumstances, especially the haphazard financing of the conservation and restoration works and the gradual domination of the tendency to 'renew' or 'newly construct' the castle and not merely 'conserve the newly discovered ruins', led to a point that demanded immediate and thorough consideration as to the continuation. The procurement of the conservation plan, with which the Ministry of Culture supported the endeavours of the local community to revive and upgrade the existing use of the monument, which also included the demand to define the areas in which the archaeological remains would be protected and measures for preserving the authentic situation would be applied, was accepted by the Tourist Association of Smlednik, the owner of the castle and the investor in the project.

The beginnings of the project reach back to 2007, when parts of the municipality of Medvode were laser scanned from the air (Flycom, d. o. o.) within the frame of the topography and structural overview of archaeological sites (IPCHS RO Ljubljana). This was performed to provide the spatial analysis of the immediate surroundings of the castle with which we wished to identify the structures and parts of the castle complex that had not been identified before. In the same year the existing state of the remains had been documented with the use of a 3D terrestrial laser scan (Geodetski zavod Celje, d.o.o.). This allows for a wide variety of uses, from drawings for the needs of the architectural analysis to virtual reconstructions and monitoring of the conditions for the needs of planning the conservation and restoration interventions. In 2011 and 2012 the Centre for Preventive Archaeology at IPCHRS (with co-workers) performed a detailed evaluation of the available documents and archives kept by IPCHRS RO Ljubljana, City Museum of Ljubljana, Museum of Gorenjska and the Archive of the Republic of Slovenia, and selected areas with a preserved archaeological potential. This was followed by two small excavation trenches east of the tower, and an entire post-excavation analysis of the site archive was performed including the categorisation of stone building blocks and mortar samples.

The discovery of a layer which included pottery from the end of the Bronze Age or Early Iron Age (12th – 7th century BC) stands out from the other finds resulting from the trial trenching that reached all the way to the bedrock. This came as a surprise, even though we were aware of the previous mentions of prehistoric remains at this location. Taking into account the scope and the fortification at the nearby settlement on Gradišče above Hraše this could confirm the estimates by Simon Rutar and Jernej Pečnik from the 1890s stating[16] that the peak of the Smlednik hill was populated in the Early Iron Age for similar reasons to those that resulted in it being chosen, 1500 years later, as the location for one of the first castles in the area. The discovery of the prehistoric remains also led to the conclusion that the upper pla-

[6] Šinkovec 1992; Horvat 1994.

[7] Gaspari, Nadbath 2008.

[8] Novakovič 2008; see also Gaspari 2006a.

[9] Gaspari 2008.

[10] Gaspari, Nadbath, Nabergoj 2008.

[11] Gaspari 2006c.

[12] Rutar 2010.

[13] Švajncer 2009.

[14] See Kos 2005, 146.

[15] M. A., *Stari grad nekdaj in danes (The old castle in the past and today)* – 15. 07. 1961, unknown newspaper; Tršan, Rozman 1978.

[16] Levec 1896.

teau still holds a part of untouched deposits from the pre-castle period, even though extensive excavations have been performed in the past. This was confirmed by the statements of the people who participated in the excavations in the 1960s and 70s, according to whom the excavations rarely reached the bedrock.

At this point in time the state of the visible parts of the castle and the fragmented fieldwork documentation from the older archaeological and architectural history research do not enable a wholesome analysis of the reported remains of the pre-castle phase, nor the verification of the hypothesis of the building development of this strongly fortified feudal post that was proposed by respected castle researchers Ivan Komelj and Ivan Stopar. In opposition to Komelj, who stated that the tower was an independent structure during the first phase (at which he did not exclude the possibility of a wooden structure west of the tower),[17] Stopar defined the tower as a keep and together with the first walls, the castle chapel and the water tank defined it as a part of a complex castle plan which emerged during the first half of the 12th century.[18] The analysis of the metal finds and the unexplained remains of the 'transversal' wall in the vicinity of the tower (discovered in the 1960s) indicate that this location might have been inhabited as early as the 10th or 11th century, which in turn indicates the possibility of a pre-feudal fortification. This could be supported by the onomatologic explanation of the Slovenian and original German name for Smlednik, which according to France Bezlaj both originate from the ancient word smled which stands for guard point.[19] This expression fits the purpose of the fortification in the Early Middle Ages when the exposed position of the natural promontorium provided control over one of the main regional communication routes and the nearby crossing of the Sava river. The location also provided a clear view of the entire Gorenjska plain and with its good visibility the fortification offered its owner leverage for economic exploitation and a symbolic control of the territories. Especially exciting is the well grounded hypothesis that before the upper plateau was more densely covered with buildings, which apparently took place in the 13th century, a gôrd with wooden and partially stone structures stood on this location, possibly similar to those that were excavated by the archaeologist Alojzij Bolta on Štrucelj's hillfort near Mozirje in the 1950s.[20]

I have the pleasant duty of thanking all contributors, authors of the contributions, reviewers and supporters who contributed to the successful research and enabled the publication of this book. I would especially like to thank Benjamin Štular, the internationally recognized castle archaeology expert, who agreed to lead the research and prepare the publication, and Rok Klasinc, the experienced excavator and head of the excavation team. The task could not have been carried out without the support of Metod Ferbar, the president of the Tourist Association of Smlednik, and Alojz Tršan, while the research and the publication were financially supported by the Ministry of Culture and the Municipality of Medvode. I would like to conclude with my wish that the book will be accepted as a part of a mosaic of the joint endeavours to upgrade the existing management and raise sufficient funds for a static consolidation and further conservation and restoration work on this monument,[21] which will return a part of the old Smlednik Castle to glory and provide the local community with better conditions for a lasting and economic use of their tourist attraction.

[17] Otorepec, Komelj 1971.
[18] Stopar 1998.
[19] Bezlaj 1981.
[20] See Predovnik 2012.
[21] See e.g. Markun 2011.

1 INTRODUCTION

Benjamin ŠTULAR

Modern science started studying the Smlednik Castle over a century and a half ago.[1] However, what might be even more important is the fact that more or less intense conservation works have been carried out at this location for over half a century. Regardless of this there is almost no expert literature on the castle to be found: short papers can be counted on the fingers of one hand, while monograph publications are sought in vain. The situation regarding contributions that promotie cultural heritage is somewhat better. The purpose of the book in front of you is thus clear: to present the history of the research and conservation efforts as well as the findings gained from the latest research.

At first the name of the Smlednik Castle as used in this book should be explained. The current commonly used name Stari grad (nad Smlednikom) (Old Castle (above Smlednik)) or Stari grad – Smlednik (Old Castle – Smlednik) will remain in use. The first is used by the locals, who do not need to explain every time that they have in mind the old castle above Smlednik and not the old castle above Kamnik or any other old castle in Slovenia. The second is the official name of the monument. However, in this book we will use the only precise, clear and historically correct name: the Smlednik Castle.[2]

The prefix *old* emerged only once the Renaissance mansion in Valburga was built in the 1620s (at the latest). This was constructed with the intent to build the n*ew* Smlednik Castle on the location of the former manor house of Smlednik Castle, which in the mid 14th century was still known as *under* Smlednik. Similarly, in 1558 and 1559, the land registry mentions today's village of Smlednik as *Spodnji Smlednik* (Lower Smlednik). As long as there was an operational castle on the hill it carried the name *the Smlednik Castle*. The adjective *old* was only added when a new "castle" was built at the foothill in Valburga. Since new manor houses were being regularly built at foothills of old castles all across 15th and 16th century Slovenia, the land is covered with *old* castles.[3]

The monograph emerged from a relatively modest wish to collect all known data on the Smlednik Castle in one book. We wished to supplement this data with our findings from very small archaeological revision excavations. However, the desired clear image of a medieval castle started slipping further and further away and the scope of the research increased accordingly.

Of course, the previously mentioned long history of continuous conservation interventions demands a chapter of its own. In the chapter ***The history of post 1961 research*** Jernej Rihter describes the works carried out on the architectural monument registered as Smlednik – Stari grad (No. 5911) in the cultural heritage registry. For this purpose a detailed analysis of a relatively vast archive needed to be performed. This archive was organised for the very first time for the purpose of this book. The archive is kept by IPCHS RO Ljubljana.

Already at the end of the 19th century the first researchers believed that the castle hill - recorded in the cultural heritage registry under the name Smlednik – archaeological site Stari grad (No. 22065) - was also home to a prehistoric hillfort. Research from the beginning of the century clearly showed that the main prehistoric settlement was on the nearby Breceljev hrib. However, the new finds from the castle hill, which Petra Vojaković presents with reference to a broader prehistoric settlement context in the chapter ***Smlednik in prehistoric times,*** alters this image somewhat.

Any medieval castle research research should be grounded in a precise analysis of written documents. In the case of Smlednik we have had the great fortune that it was researched by two of the most important 20th century Slovenian historians. In his excellent historic study, written while he was still at secondary school and living in the Smlednik mansion, the prematurely

[1] Hormayr 1840, 119 (quoted from Stopar 1998, 72).

[2] A note to the English translation. Translating in English the accepted norm in History is to translate the names into the standard German names, in this case *Flödnig* Castle. In Achaeology, however, the excepted norm is to use the names in the (current) official language of the land, in this case Smlednik Castle. Since this is primarily an archaeological book we have chosen to use the term Smlednik Castle throughout it.

[3] *C.f.* Štular 2009a, 32–34.

deceased Vladimir Levec published the mansion's archive which focuses on Smlednik's post medieval past.[4] The historian Božo Otorepec created the first precise overview of medieval historic documents. Unfortunately, this overview was never published in its entirety.[5] The chapter ***The castle in written documents*** is predominantly based on the work of the latter and the abundant and selfless help provided by Miha Kosi.

The archaeological report from the small scale excavation west of the tower, which took place in winter 2011 and spring 2012, is presented by Rok Klasinc. Regardless of their small area the excavations have brought some surprising new data which form an important part of the final discussion.

The chapter ***Finds*** addresses all known archaeological finds that originate from the castle. The finds are presented in the form of archaeological drawings kept by the Gorenjska Regional Museum and other finds from older excavations that are kept by IPCH and the Museum and Galleries of Ljubljana. The pottery with stratigraphic contexts from the 2011 and 2012 excavations was analysed in great detail, and an especially thrilling read can be enjoyed in the study of the Smlednik book clasps and bosses as written by Anja Vintar.

Animal remains, which represent a constituent part of any modern archaeological analysis, were interpreted by Borut Toškan and Janez Dirjec.

The same holds true for the ***Charcoal analysis*** analysed by Tjaša Tolar.

It is impossible to envisage any modern castle research without a detailed ***Analysis of building materials***, which was prepared by Maja Gutman and Tomaž Verbič. In their analysis they studied the building stones used and performed a macroscopic and microscopic analysis of the mortar.

Architectural analysis represents one of the foundations of castleology. Regardless of the relatively modest remains available for analysis, we have addressed the Smlednik riddles using all data at our disposal as well as certain modern methods.

In order to understand the castle and its context we need to understand the role of the ***Castle in its environment***. While not considered essential even in contemporary research, this helps us understand the details related to the castle's origin and role.

The analysis results are interpreted in the chapter entitled ***The Smlednik Castle***. The chapter starts with a presentation of the chronology of individual stratigraphic phases. This is followed by a presentation of the current state of research and our view as to their continuation. The castle and life in the castle in 1297 is described at the very end. This final text is written in a style that the famous archaeologist Ian Hodder calls 'a window in time'. The possible images of the actual buildings, events and processes are passed on in an essayistic style. Every statement is grounded on actual data which is presented in the notes. This form enables multilayered reading: the less demanding reader will read it casually and obtain a clear image of the Smlednik Castle; on the other hand, the more demanding reader will - with the aid of the notes - gradually deepen his knowledge of the castle. The book ends with chapters that are a part of the scientific apparatus: ***Bibliography and sources***, and ***Catalogue and plates***.

[4] Levec 1896.

[5] Otorepec s. a.

2 THE HISTORY OF POST 1961 RESEARCH

Jernej RIHTER

The Smlednik Castle drew the attention of modern researchers at an early stage. It was already included in a mid 19th century castleological overview, and by the beginning of the 20th century it was a part of the standard study material.[1] Among the first researchers were self-taught Jernej Pečnik and Simon Rutar, a historian and conservationist at the Emperor's Central Committee for the Research and Protection of Historic Monuments, who, when they visited the site in 1893, came up with the hypothesis of the prehistoric hillfort in the area of the medieval castle.[2]

The study of the Smlednik Castle started within the 1961-1963 castle conservation and reconstruction programme.[3] Overseeing the archaeological research in the south east part of the castle were the Museum of Gorenjska and the City Museum of Ljubljana. These were followed by numerous interventions into the archaeological heritage that were not carried out using a proper archaeological method, although at least a certain degree of supervision existed. In 1983 IPCHS RO Ljubljana temporarily kept selected small finds from these interventions.[4] Some of them were published and handed over for safekeeping to the City Museum of Ljubljana.[5] The Museum of Gorenjska has four 1961 drawings of the archaeological layers by Marijan Slabe in its archives as well as a few drawings of artefacts, mainly stove tiles.[6] The IPCHS RO Ljubljana archive keeps the ground plan of the upper castle platform by J. Velkavrh, created during the August 1962 excavations, as well as the ground plan of the conservation works that was prepared on its basis. A part of the fieldwork excavation documentation from 1963 is preserved and this shows that excavations were carried out on the plateau between the tower and the eastern outer wall in November. Three cross-section drawings and two ground plan drawings have been preserved. These drawings reveal that the area between the tower, the modern water reservoir in the southeast corner and the eastern outer wall was excavated. The only exception to this is the small area on the far northwest part which is marked on the drawing as *not excavated*.

From the preserved fragmented documentation, for instance the markings of the enumerated special finds and the quadrants with the find tags, we have concluded that the excavators kept what was at the time considered exemplary fieldwork documentation, which has since alas been lost. Also lost are most of the finds, which are described as *numerous standard pots, bowls and stove tiles, mainly with non-glazed decorated surfaces, iron nails, wedges and various small everyday objects. Also found were various iron arrowheads which were attached to the arrow either with a socket or a hook, and which assumed a pointy tubular shape or that of a leaf, deltoid or pyramid*.[7] It appears that the finds kept at the City Museum of Ljubljana are merely a selection, which was handed over so that the pieces could be drawn for the purposes of the aforementioned article. The comparison of the description and the drawn objects clearly shows that this is a selection of the "nice" artefacts, while a typological selection was made for nails and arrowheads. Most artefacts, kept by IPCHS RO Ljubljana at the be-

[1] Hormayr 1840, 119 (quoted after Stopar 1998, 72); Piper 1904, 207–208.

[2] Jernej Pečnik and Simon Rutar, 1893, partial publication in Levec 1896.

[3] In the overview of the castle research (January – March 2012) we studied the scanned materials obtained from the IPCHS RO Ljubljana archive. For the needs of this chapter these were sorted chronologically. We also compiled descriptions of the contents and stored them in folders that we marked with numbers ranging from 001 to 112 (data collection for the Smlednik Castle). The post 1996 documents (data collection for the Smlednik Castle No. 0113– 126) were obtained at a later stage (April 2012). The latter documents were also obtained from IPCHS RO Ljubljana, for which we would like to thank Sabina Ravnikar, who gave us the lead, and Modest Erbežnik, who prepared the documentation (published in Štular 2013, Appendix 1).

[4] Slabe 1983, 266–271, Figs. 90–93; it is impossible to determine whether the finds originate from the first archaeological research or from the later non-expertly carried out interventions.

[5] Slabe 1983, 266–271, Figs. 90–93.

[6] The documentation is kept at the Museum of Gorenjska in Kranj.

[7] Slabe 1983, 271.

ginning of the 1980s, have therefore been lost and the same holds true for the documentation.

The conservation works planed for 1963 included the consolidation of the ruins, construction and sealing of the castle walls, clearing the paths and the surroundings, planting vegetation on the slopes and roofing the excavated object. As an unknown author ascertained, the castle ruins were cleared to the extent that its layout and fortification system could be established by 1966. This was to represent the basis for the analysis that would include the architectural measurements obtained from additional trial trenching and the inventory of the previously discovered objects.

The 1966 castle renovation programme included the reinforcement of the south-east defensive tower as well as a part of the south defensive tower.[8] The financial estimate for the 1967 *conservation and consolidation works* reveals that some parts of the defensive walls were uncovered in 1966. The excavation of the south and east defensive wall and the foundations of the northeast tower are also mentioned within the frame of the planed works. Merely documenting without any large reconstruction work was planned for the poorly preserved remains along the inner western wall, while the original castle well was to be marked more visibly. The third archaeological campaign took place in 1967 or 1968. During this excavation the remains of the castle walls were discovered and documented, as were the following small finds: spear heads, knives, spurs, stove tiles and pottery.[9] If we compare the plan of the broader castle ruins drawn at the end of 1969 with the plan of the structures on the castle plateau drawn in August 1962 we can see that most of the known outer walls west of the tower were reconstructed during the initial period and that most of the work, with the exception of the tower, was focused on the outer defensive structures. The latter were rebuilt to an appropriate height by 1969. The reconstruction works on the central tower were carried out according to plan between 1966 and 1977. However, this turned out to be such a financial burden that the preservation focused almost exclusively on the tower for almost the entire following decade. In the financial estimate for the work on the tower dated to January 1969, J. Biščak charged for the cleaning of the tower surroundings as well as partial excavation of the surface (400 m^2) and transporting the rubble (450 m^3) to the landfill 6 km away. Work on the tower also took place in 1970 and 1971. During the 1973 review of the works carried out thus far and the preparation of the new restoration plan for the tower, it was ascertained that the tower was reconstructed up to a height of 7 m. However, as early as 1974, the regular financial influx for the renovation of the tower stopped.

The initial research period was summarised by Ivan Komelj. Once the geodetic measurements of the area and the first trial trenching, headed by the archaeologists Andrej Valič were performed, the built areas on the castle plateau and a part of the south slope were cleared. This was followed by conservation works on the outer coat of the inner walls and the beginning of the reconstruction of the central tower walls. The works were headed by the architect Špela Valentinčič from IPCHS RO Ljubljana, which was also in charge of the project. Komelj, an occasional visitor, recorded important information related to the nature of the earth works (which are sought in vain in the documentation): *the castle area* (was) *cleared of the debris right down to the* (Medieval) *walking surface*. The task of the IPCHS RO Ljubljana was to reconstruct the already visible parts of the castle and clear other parts, thus revealing the most visible and most informative essence of the castle: its position with the defensive trenches, the tower and the inner and outer walls. Also important was the only mention of a wall that was older than the first medieval stone wall (see chapter 10.1).[10]

The costs estimate for the works to be carried out in 1977 and 1978 only mentioned the works planned for the tower; however, due to the lack of funds these works were not carried out. In 1976 the IPCHS RO Ljubljana, received funds from the Cultural Community of Slovenia and Cultural Community of Ljubljana. However, as the funds were insufficient, the works were not started in 1977. In 1979 the idea of preserving the tower in accordance to the 1973 preservation plan was abandoned as it was too costly. In 1979 the plans were changed and the new plans focused on the preservation of the walls, as this was cheaper. However, no funds were given for preservation works between 1977 and 1982. In 1980 an unknown author summarised the state of the performed works on the entire complex: the ruins were partially cleared, the defensive walls and the tower next to them were partially reconstructed, and the works on the reconstruction of the main tower had started. The plan for 1981 and the following five years included preservation works on the central tower, presumably according to the 1973 plans, and preservation works on the defensive walls. Various letters dated from 1982 and 1983, various articles in the media in 1984 and the reactions of the authorities show that the renovation works came to a standstill, for in the 1980–1985 period the Smlednik Castle was not included in the midterm plan of the Cultural Community of Slovenia.

In 1986 the Tourist and Beautification Association of Smlednik forwarded an initiative to continue works on the ruins to various addressees. The Municipality of Ljubljana-Šiška's draft policy for the period between 1986 and 1990 foresaw the continuation of the renovation works on Smlednik Castle. The works began in

[8] Valentinčič-Jurkovič 1966.

[9] Slabe 1970, 178.

[10] Komelj 1972.

October 1986; the invoice reveals that the first phase merely involved small works, such as clearing the slope and cutting down trees. In November a special three member committee was set up to supervise the works (Stojan Ribnikar, Franc Vardjan and Marijan Slabe), while the works were headed by Š. Valentinčič-Jurkovič from IPCHS RO Ljubljana. In December 1986 they continued to cut down trees and remove bushes and roots from the slopes, while in December 1987 the works focused on *carefully clearing the stone wall on the ruin (289 m^2)* and clearing the slopes underneath the defensive wall – removing the stumps and bushes, gathering stones, clearing the plateau and the water reservoir and removing the soil and sand. At the end of 1987 the following works are mentioned as finished: the water had been pumped away, the castle ruins and the surrounding slopes had been cleared, certain restoration works were completed, the site was photographically documented, a protective roof was installed, and roots were removed from the embankment and the castle water reservoir. In September 1988 a wall measuring 69 m^2 was cleared and extended to 84 m^2. In 1988 other works included horticultural interventions on the castle hill, which were to be continued in March 1989 together with the photographic documentation of the current situation.

The invoices from the summer of 1989 indicate that archaeological excavations of the defensive walls and the palatium were carried out during that period. During our research (January–March 2012) we failed to find any archaeological documentation of these excavations at IPCHS, City Museum of Ljubljana or at the Museum of Gorenjska. All we could find was indirect documentation of the performed work, such as payments for student work and side notes in the invoices. Based on the working hours of 3 students in July – totalling 220 hours – we can conclude that the works spanned two or three weeks. The only preserved documentation is represented by the 17 photographs dated to 27. 7. 1989. These photographs show excavated walls, foundations and area as well as details in the walls. We know that the excavated stones were sorted during the archaeological excavations and that the water shaft was moved three times. At the same time the direct vicinity of the castle palatium west of the tower was cleared of trees and the stumps on the embankment were removed. An invoice dated 1st August 1989 reveals that employees from Ivanka Vidmar's company also worked on the excavation and that they performed the following tasks: archaeological excavation of the tower cellar (removing 30 m^3 of soil and 6 m^3 of stones and driving it all to the landfill), excavation of the outer palatium wall in the direction of the second tower (removing 18 m^3 of soil on the west side of the tower wall), removing soil and rocks from the lower part of the defensive wall between the tower and the access road and the archaeological excavation of a part of the palatium, up to a depth of 1.5 m, in phases (as instructed by experts) and sorting out the stones. The invoice addresses these works in greater detail, and we will list them here in full: *Lower part of the wall, between the tower in the south, next to the shack – removal of soil and stones – lower part of the wall, on top 50 cm of soil, followed by 30 cm of stone and 120 cm of soil, right down to the rock foundation, in total 26 m^3; removal of soil – lower part of the tower in the south, from the well, preparations for building works, all soil was driven to the embankment with wheelbarrows; removal of soil from the west side of the tower along the wall*. In the same period, i.e. July 1989, the well was cleared and the stones that were to be reused were sorted. In the same year work was carried out on the back wall measuring 35 x 1.7 x 0.8 m = 48 m^3 (wall, 35 m long, 1.7 m high and 0.8 m wide) and the central wall measuring 33 x 1.7 x 0.6 m = 34 m^3. In September 1989 the works continued with reconstruction around the preserved core of the wall being carried out. In October 1989 the western side of the tower (most likely the lower) was rebuilt, and the accounts also show that the walls were cleared and soil removed on the west side (it is not clear of what, maybe the tower, note by J. R.).

In 1990 the preparations for the electrification of the castle took place, and in 1991 and 1992 the works were carried out and electricity was introduced. In 1991 Š. Valentinčič-Jurkovič and M. Torkar included clearing of the castle slopes and creating a geodetic record in their mid-term plan. However, during the first half of 1991 the Republic Secretariat for Culture did not authorize the funds for the preservation of the castle ruins; with the exception of the electrification works, work was brought to a halt. Finally, in October 1991 a contract was signed for the works on the walls, water reservoir and the central tower: the vegetation was to be cleared from the walls (measuring 95 m in length), the top of the walls were to be rebuilt in stone (along the same distance), the ruins from the water reservoir removed, the soil along the upper edge of the tower entrance, which appeared as a result of the renovation works on the water reservoir walls, was to be removed and the damaged parts of the water reservoir were to be rebuilt in stone and lime mortar. The work was to be completed by the end of 1991. In 1991 archaeological trial trenching was carried out along the castle, however no documentation of this survived. We have an estimate for the preparation of a conservation project for the central part of the Smlednik Castle dated to 1992, however there are no traces that this was carried out. In 1996 the Tourist and Beautification Association of Smlednik summarised the activities that had been carried out on the castle hill over the past 25 years. The following tasks were performed: a 1.8 km long macadam road was built from Smlednik to the castle; a 740 m long three phase power line with secondary distribution points was laid from the power station in Valburga to the top of the castle;

a pressurised water pipe with a reservoir connected to the water pump in Smlednik was installed next to the castle tower; a car park was created on the pass under the castle; 20,000 bricks were deposited alongside the tower for future works on the tower's inner panel; the covered stone building or shack that was used to house the workers during the castle renovation was equipped and completed. The planned works for 1997 included preservation works on the water well next to the tower and the final preservation and protection of the tower. We have found various requests for co-financing these works that have been issued between autumn 1996 and spring 1998. A co-financing proposal for 1999, dated from the autumn of 1998, mentions the preservation and protection of the central tower. The mentioned works carried out in the past include: a partial conservation of the ruins; preservation of the central tower, up to the second floor; clearing the defensive trench and the Renaissance wall and the introduction of electricity. The estimate for the construction of the supporting wall is dated to 1999. M. Erbežnik's description of *Smlednik – Stari grad, entry No. 5911* in the heritage registry, states that new, more powerful, power lines were installed between 1998 and 2001 and that the Tourist and Beautification Association of Smlednik had cleared vast amounts of undergrowth from the slopes and the trenches over the past years, and that they had gradually started to carry out strengthening works on the disintegrating walls. The original castle well (water reservoir) on the south side was reconstructed. As regards future plans Erbežnik wrote: *'This year we will continue to work on the south walls, and we plan to fill in the plateau surrounding the central tower, thus creating a flat surface.'* He stated that the most important task in the future would be to reconstruct the central tower in its original dimensions, materials and appearance. He also mentioned that Geodetski zavod Celje performed a 3D terrestrial laser scanning of the area and the ruins which will serve as a basis for the 3D model needed for the reconstruction. He also envisaged that lime mortar samples would be collected and used for Carbon C^{14} dating of the building, thus providing precise data.

This presentation of the research history is a result of a detailed overview of the available documentation kept at IPCHS RO Ljubljana, the Heritage Information – Documentation Centre at the Ministry of Culture, The Museum of Gorenjska and the City Museum of Ljubljana. For the purpose of this paper we have studied 126 archive units, which in total include 387 pages of various formats (Štular 2013, *Appendix* 1). The studied sources include hardly any expert descriptions or graphic documentation.

3 SMLEDNIK IN PREHISTORIC TIMES

Petra VOJAKOVIĆ

3.1 MATERIAL ANALYSIS

Simon Rutar and Jernej Pečnik were the first to assume the existence of a prehistoric settlement on Smlednik (*Figs. 3.1* and *3.2*). They believed that the two trenches cut into bedrock and the low trench on the east side of the rocky pile were a part of this settlement.[1] However, it was only the 2011/2012 excavations that brought actual archaeological evidence of prehistoric activities. Two stratigraphic units (SU 77 and 82) just above the bedrock revealed included 9 pottery fragments, 6 fragments of burnt clay and some animal bones. Above these two layers a new prehistoric layer (SU 59) was documented (see chapter 5.4). This included 8 prehistoric pottery fragments and 3 fragments of burnt clay. The remains included two pottery fragments (found in SU 77) that were preserved to an extent that they could be included in further analysis, these were:

1. A wall fragment of a vessel; production type: handmade; colour of the outer and inner surface: dark brown; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere, reduction atmosphere in the final phase; hardness: hard; decoration: horizontally applied rib with imprints. Preserved length 2.3 cm, preserved width 4.4 cm.

2. Fragment of a rim and body belonging to a portable fireplace; production type: handmade; colour of the outer and inner surface: light brown; surface: coarse; composition: fine pottery clay; firing: oxidising atmosphere; hardness: hard. Note: the surface was charred during use. Rim diameter 34.4 cm, height 3.5 cm.

The production type, firing and decoration indicate that this is prehistoric pottery. Decoration with applied ribs, whether smooth or divided with imprints (*Fig. 3.4:* 1), was in use between the 12th and 7th century BC (Ha A–Ha C), which is indicated by analogies.[2] A similar date is provided for the fragment of the portable fireplace type Pp1c in Grahek's classification (*Fig. 3.4:* 2).[3] In Slovenia such fragments appear in Late Bronze and Early Iron Age settlement contexts.[4]

The rather modest collection of finds provides a better picture when placed in the context of other nearby finds. According to Rutar and Pečnik a small settlement on the neighbouring Šternov hrib can be expected (*Fig. 3.3*).[5] However, there is still no evidence to back this statement – with the exception of the non-datable terracing on the northern side of the summit. They also assumed a prehistoric settlement on Breceljev hrib (also known as Gradišče nad Hrašami; *Fig. 3.3*), where they allegedly recognised spiral terracing with remains of round buildings covered with clay plaster.[6] Their assumptions were confirmed in 2006 by the fieldwork that included precise geodetic measurements (*Fig. 3.2*). Andrej Gaspari described the hillfort in great detail and presented the first solid evidence of a prehistoric settlement on Šternov hrib, the ceramic finds discovered in the roots of a fallen tree (*Fig. 3.2:* 1). The finds included 39 prehistoric pottery fragments, 7 fragments of burnt clay and 1 piece of slag.[7] In order to substantiate this analysis we are going to list the fragments:

3. Bowl, a fragment of a rim and a wall; production type: handmade; colour of the outer and inner surface: dark brown; surface: coarse; composition: coarse pottery clay; firing: reduction atmosphere; hardness: hard. Preserved length 3.8 cm, preserved width 4 cm, (see Gaspari 2006a, No. 11).

4. Pot, a fragment of a rim and a wall; production type: handmade; colour of the outer and inner surface: grey-orange; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere; hardness: hard; decoration: horizontally applied rib with finger imprints. Rim diameter 31.4 cm, height 9 cm.

5. Pot, a fragment of a rim and a wall; production type: handmade; colour of the outer and inner surface: light red-brown; surface: coarse; composition: coarse pottery clay; firing: reduction atmosphere, in the final phase oxidising atmosphere;

[1] Rutar 1894, 184; Levec 1896, 5; Pečnik 1904, 8, 128.

[2] Oman 1981, T. 2/1, 3; 14/1; 28/5; 32/19; Teržan 1990, 32; Lamut 1988/89, T. 13/12, 15/1, 23/11; Dular 2013, 47, Fig. 14/O2, O3; Stare 1954, T. 23/2, 48/5, 51/3; Horvat 1983, 144.

[3] Grahek 2013, 126, Fig. 63/Pp1c.

[4] Pavlović 2008, 479–488; Grahek 2013, 126.

[5] Rutar 1894, 184; Levec 1896, 5; Pečnik 1904, 8 and 128.

[6] Rutar 1894, 184; Levec 1896, 5; Pečnik 1904, 8 and 128.

[7] Gaspari 2006b, 138–140; Gaspari 2006a, 15–44.

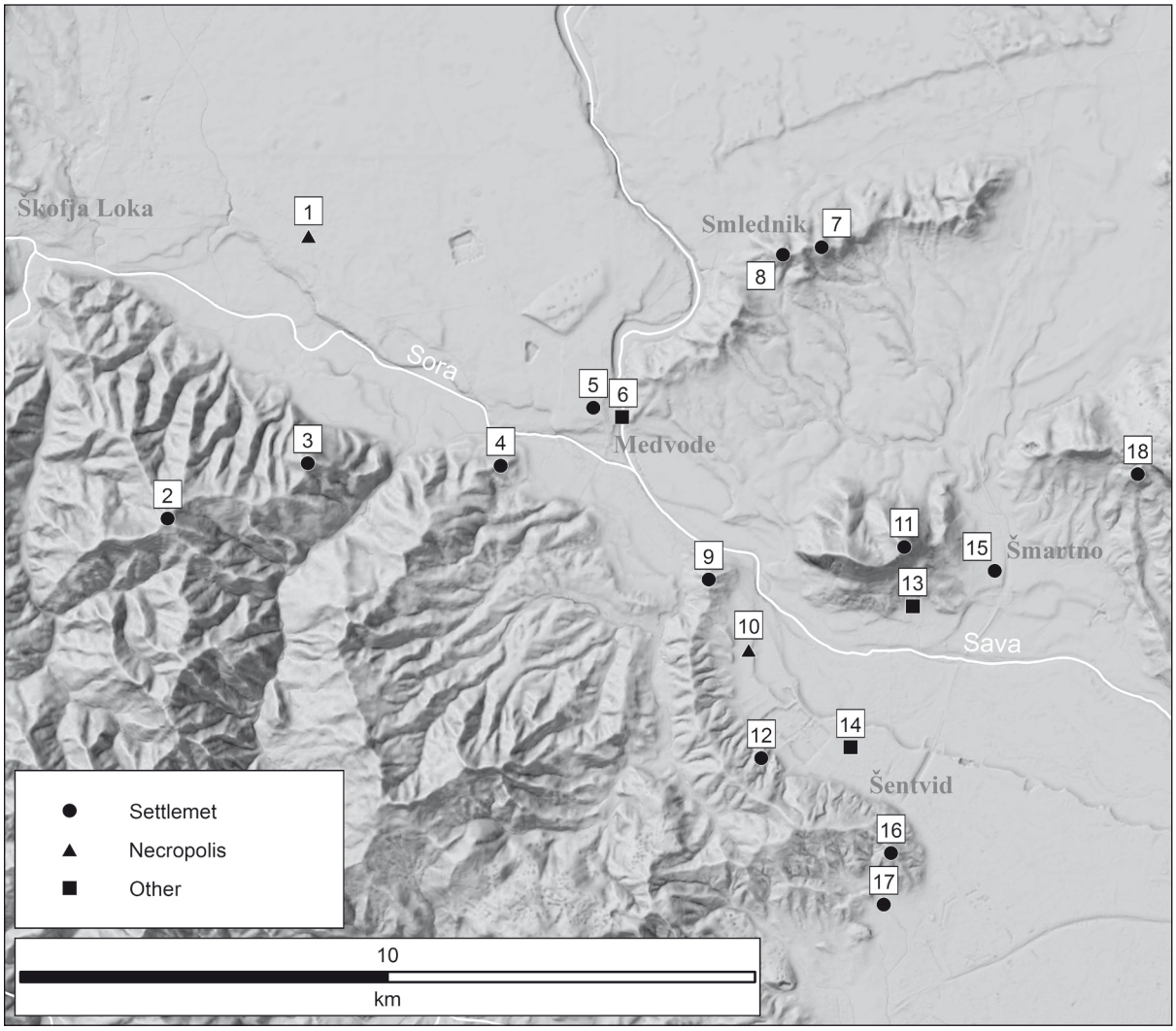


Fig. 3.1: Prehistoric sites in the vicinity of Smlednik (author: Benjamin Štular). *Burial mounds with urn graves*: **1** – Godeško-rateške dobrave (Ramšak 2009). *Urn graves in the planes*: **10** – Na Ježah (ANSl 1975, 199). *Prehistoric settlements*: **2** – Rožnikovo gradišče na Osolniku (ANSl 1975, 193), **3** – Hom nad Soro (Gaspari 2006a, 41), **4** – Stari grad nad Goričanami (Gaspari 2006a, 40), **5** – Svetje (Nadbath et al. 2009), **7** – Brecljev hrib (Gaspari 2006b), **8** – Stari grad Smlednik (see this book), **9** – Gradišče na Medanskem hribu (Ribič 1969; Gaspari 2006a, 32-34), **11** – Šmarna gora (Nadbath, Draksler 2009), **12** – Gradišče nad Dvorom pri Šentvidu (Gaspari 2005a), **15** – Šmartno (Peterle Udovič, Nadbath 2007), **16** – Gradišče nad Pržanom (Gaspari 2005b), **17** – Pržan (Turk, Svetličič 2005), **18** – Gobnik (Puš 1981). *Small metal finds*: **6** – Sava riverbed (Gaspari 2012), **14** – Šentvid (Šinkovec 1995, 84). **13** – Tacen (information J. Šilc).

hardness: soft. Note: the surface was charred during use. Rim diameter 24 cm, height 4.8 cm.

6. Lid, a fragment of a rim and a wall; production type: handmade; colour of the outer and inner surface: brown; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere; hardness: hard. Rim diameter 27 cm, height 4.8 cm.

7. Vessel, a fragment of a rim and a wall; production type: handmade; colour of the outer and inner surface: dark brown; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere, reduction atmosphere in the final phase; hardness: hard. Preserved length 2.7 cm, preserved width 3.6 cm (see Gaspari 2006a, No. 9).

8. Vessel, fragment of a stem; production type: handmade; colour of the outer and inner surface: grey-orange; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere; hardness: soft; decoration: several horizontally applied ribs. Note: the surface was charred during use. Stem diameter 10 cm, height 9.3 cm (see Gaspari 2006a, 1).

9. Vessel, fragment of a handle; production type: handmade; colour of the outer and inner surface: dark brown; surface: smooth; composition: fine grain pottery clay; firing: reduction atmosphere; hardness: hard. Preserved length1.7 cm, preserved width 4 cm (see Gaspari 2006a, 12).

10. Vessel, fragment of a base and wall; production type: handmade; colour of the outer and inner

Fig. 3.2: Brecljev hrib, geodetic measurements of the site (source: Gaspari 2006a).

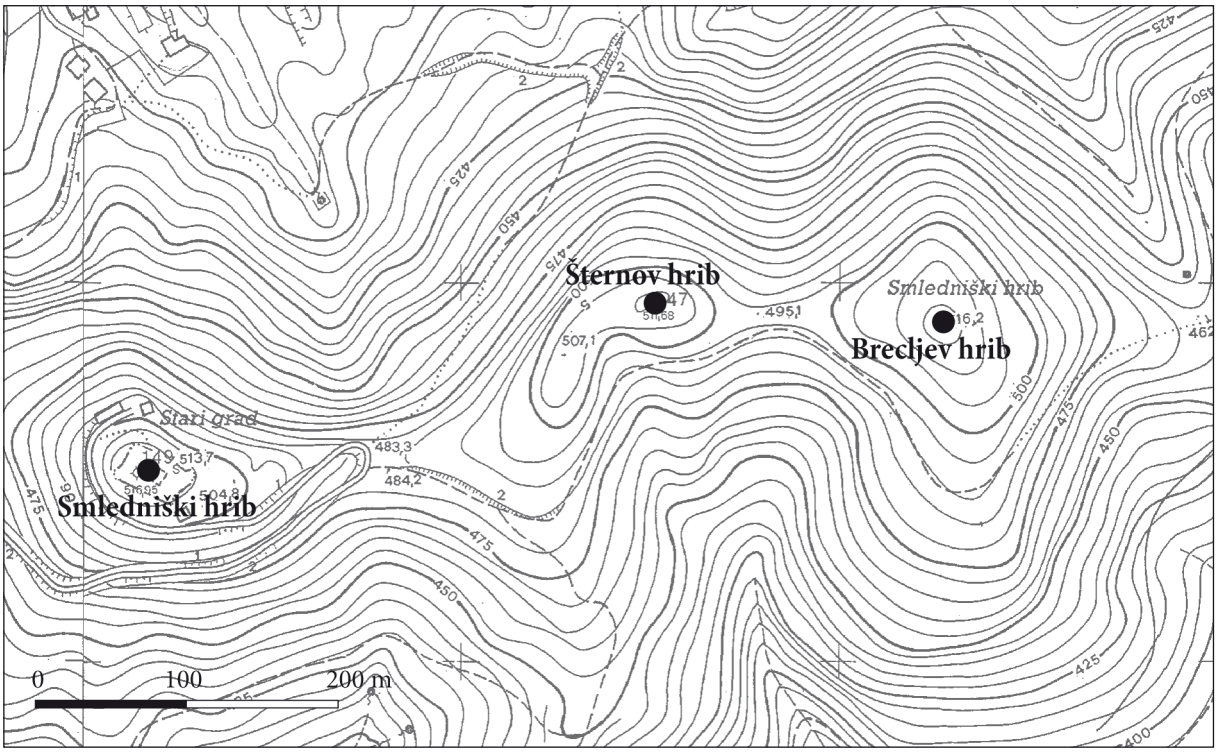


Fig. 3.3: Smlednik, locations of prehistoric finds: Smledniški hrib (Smlednik hill), Šternov hrib, Brecljev hrib.

surface: red-brown; surface: coarse; composition: small grain pottery clay; firing: reduction atmosphere, oxidising atmosphere in the final phase; hardness: hard. Diameter of the bottom 17 cm, height 3 cm (see Gaspari 2006a, 13).

11. Vessel, fragment of a base and wall; production type: handmade; colour of the outer surface: brown; colour of the inner surface: grey-black; surface: coarse; composition: small grain pottery clay; firing: reduction atmosphere, oxidising atmosphere in the final phase; hardness: hard. Diameter of the bottom 14 cm, height 2.8 cm (see Gaspari 2006a, 14).

12. Vessel, fragment of a base and wall; production type: handmade; colour of the outer and inner surface: grey-black; surface: coarse; composition: small grain pottery clay; firing: reduction atmosphere; hardness: hard. Diameter of the bottom 7 cm, height 1.8 cm (see Gaspari 2006a, 15).

13. Vessel, fragment of a wall; production type: handmade; colour of the outer and inner surface: grey; surface: coarse; composition: small grain pottery clay; firing: reduction atmosphere; hardness: soft. Note: the surface was charred during use.. Preserved length 5.5 cm, preserved width 7 cm (see Gaspari 2006a, 2).

14. Vessel, fragment of a wall; production type: handmade; colour of the outer and inner surface: grey-orange; surface: coarse; composition: fine grain pottery clay; firing: oxidising atmosphere; hardness: soft. Note: the surface was charred during use.. Preserved length 10.4 cm, preserved width 5.5 cm (see Gaspari 2006a, 3).

15. Vessel, fragment of a wall; production type: handmade; colour of the outer and inner surface: orange; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere; hardness: soft. Note: the surface was charred during use. . Preserved length 6.8 cm, preserved width 5.5 cm (see Gaspari 2006a, 6).

16. Vessel, fragment of a wall; production type: handmade; colour of the outer surface: grey-brown; colour of the inner surface: orange; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere, reduction atmosphere in the final phase; hardness: soft; decoration: horizontally applied rib. Note: the surface was charred during use.. Preserved length 5.7 cm, preserved width 5 cm (see Gaspari 2006a, 4).

17. Vessel, fragment of a wall; production type: handmade; colour of the outer and inner surface: dark brown; surface: smooth; composition: small grain pottery clay; firing: reduction atmosphere; hardness: hard; decoration: horizontally applied rib. Preserved length 4.5 cm, preserved width 5 cm (see Gaspari 2006a, 5).

In 2001/02 the archaeologist Helena Rismondo discovered prehistoric artefacts on the west side of the hillfort (*Fig. 3.2:* 2). She found 27 prehistoric pottery fragments on the terrace just underneath the summit (today these finds are kept by City Museum of Ljubljana). Two fragments have marks of secondary burning on the surface, while three were preserved to such an extent that they could be included into the further analysis. These are:

18. Fragment of a top and wall belonging to an earthenware oven; production type: handmade; colour of the outer and inner surface: brown; surface: coarse;

composition: small grain pottery clay; firing: reduction atmosphere, oxidising atmosphere in the final phase; hardness: hard; decoration: several horizontally applied ribs. Diameter at top 18 cm, height 4 cm.

19. Vessel, fragment of a base and wall; production type: handmade; colour of the outer and inner surface: red-brown; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere; hardness: hard. Preserved length 2.5 cm, preserved width 3.8 cm.

20. Brown clay conical shaped bobbin. Diameter 3 cm, weight 12 g.

In the same year Rismond found an additional 12 fragments (*Fig. 3.2:* 3) a few metres away. Two pot fragments and a piece of slag stand out.

21. Vessel, two fragments of a base and wall; production type: handmade; colour of the outer and inner surface: red-brown; surface: coarse; composition: coarse pottery clay; firing: reduction atmosphere, oxidising atmosphere in the final phase; hardness: hard. Diameter of the bottom 7.7 cm, height 7 cm.

On the north side of the hillfort (*Fig. 3.2:* 4) Rismondo discovered 17 pottery fragments. Four of them were charred at a later stage, while five of them were preserved to such an extent that they could be included in future analysis. These were:

22. Vessel, fragment of a rim and wall; production type: handmade; colour of the outer and inner surface: brown; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere; hardness: hard. Preserved length 2.5 cm, preserved width 1 cm.

23. Small pot, fragment of a rim and wall; production type: handmade; colour of the outer and inner surface: grey; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere; hardness: soft. Note: the surface was charred during use. Rim diameter 8.5 cm, height 5.6 cm.

24. Pot, fragment of a rim and wall; production type: handmade; colour of the outer and inner surface: red-brown; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere; hardness: hard; decoration: horizontally applied rib. Rim diameter 18.3 cm, height 8 cm.

25. Fire cover, fragment of a wall; production type: handmade; colour of the outer and inner surface: red-brown; surface: coarse; composition: small grain pottery clay; firing: oxidising atmosphere; hardness: hard. Preserved length 6 cm, preserved width 8 cm.

26. Fire cover, fragment of a wall; production type: handmade; colour of the outer and inner surface: brown; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere; hardness: hard; decoration: horizontally applied rib. Preserved length 5 cm, preserved width 3.8 cm.

On the south part of the hillfort (*Fig. 3.2:* 5) Mija Topličanec, a conservationist and archaeologist from IPCHS RO Ljubljana, discovered 27 prehistoric pottery fragments (of which 10 show signs of secondary burning), 4 fragments of burnt clay and several pieces of iron slag.[8] The following are further analysed:

27. Bowl, fragment of a rim and wall; production type: handmade; colour of the outer and inner surface: dark brown; surface: coarse; composition: coarse pottery clay; firing: reduction atmosphere; hardness: hard. Rim diameter 26.5 cm, height 3.2 cm.

28. Pot, fragment of a rim and wall; production type: handmade; colour of the outer surface: red-brown; colour of the interior surface: dark brown; surface: coarse; composition: small grain pottery clay; firing: reduction atmosphere, reduction atmosphere in the final phase; hardness: hard. Rim diameter16 cm, height 3.9 cm.

29. Vessel, fragment of a rim and wall; production type: handmade; colour of the outer and inner surface: orange; surface: coarse; composition: coarse pottery clay; firing: reduction atmosphere; hardness: soft; decoration: several horizontally applied ribs which end in a horizontal handle on the body. Note: the surface was charred during use. Maximum circumference 35.6 cm, height 5.4 cm.

30. Fire cover, fragment of a rim and a wall; production type: handmade; colour of the outer and inner surface: brown; surface: coarse; composition: coarse pottery clay; firing: oxidising atmosphere; hardness: hard; decoration: several horizontally applied ribs. Maximum circumference 24 cm, height 6 cm.

The above mentioned fragments have been uncovered by illegal destructive earthworks; which were continued in 2013 (*Fig. 3.2:* 5). While looking through a fresh pile of manual excavations in April 2013 Gaspari and Štular found five large Late Bronze or Early Halstatt pottery fragments that could not be more precisely dated. The five pieces of slag that were also collected at the time appear to yield more important information. Even though these are atypical pieces, three could be further defined. The first is a piece of a partially sintered oven wall, the second is most likely a small convex-concave piece of blacksmith's slag, while the third is most likely a fragment of liquid slag from the bottom of the furnace.[9] These are traces of iron production, similar to the ones found at Dolenjska region sites such as Kučar above Podzemlje, Branževec near Dolenjske Toplice and Marof in Novo mesto.[10] However, unlike the sites in the Dolenjska region, the finds on Breceljev hrib have been found within the ramparts, thus indicating that the metallurgic processes took place on the edge, but within the settlement.

Similar to the hill of Smlednik, the settlement on Brecljev hrib can also not be narrowly dated. Gaspari suggests that the hillfort is of the Late Bronze Age date. His proposal is based on Rutar's mention of urns "from three different periods", that mayor Anton Burger from Hraše supposedly dug out on the northern slopes of

[8] Topličanec 2011.

[9] I would like to thank Ivan M. Hrovatin for categorising the slag.

[10] Dular, Tecco-Hvala 2007, 215–217

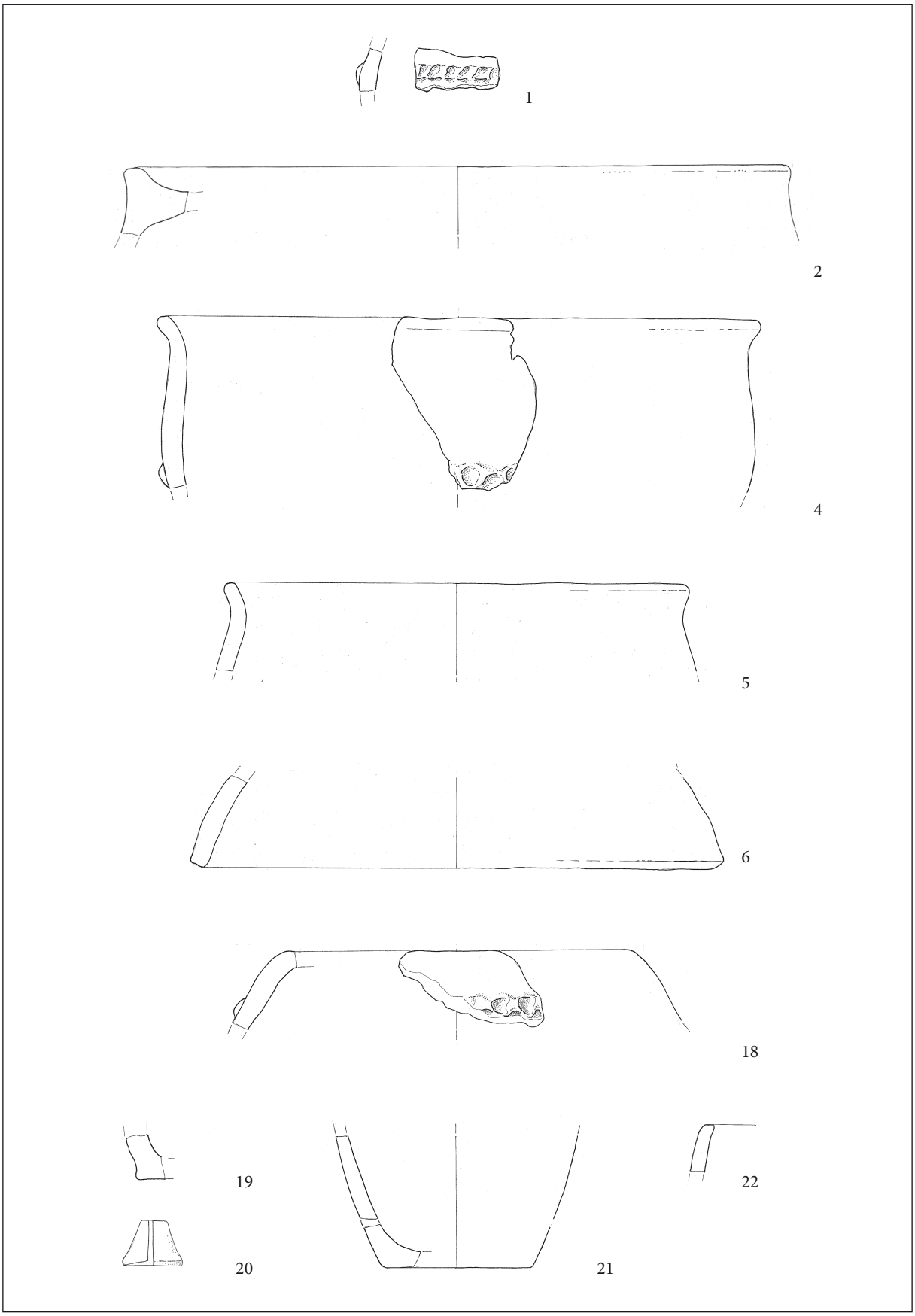


Fig. 3.4: 1, 2 – Smledniški hrib; 3–6, 18–22 – Brecljev hrib. Prehistoric pottery discussed in the text. Scale = 1:3.

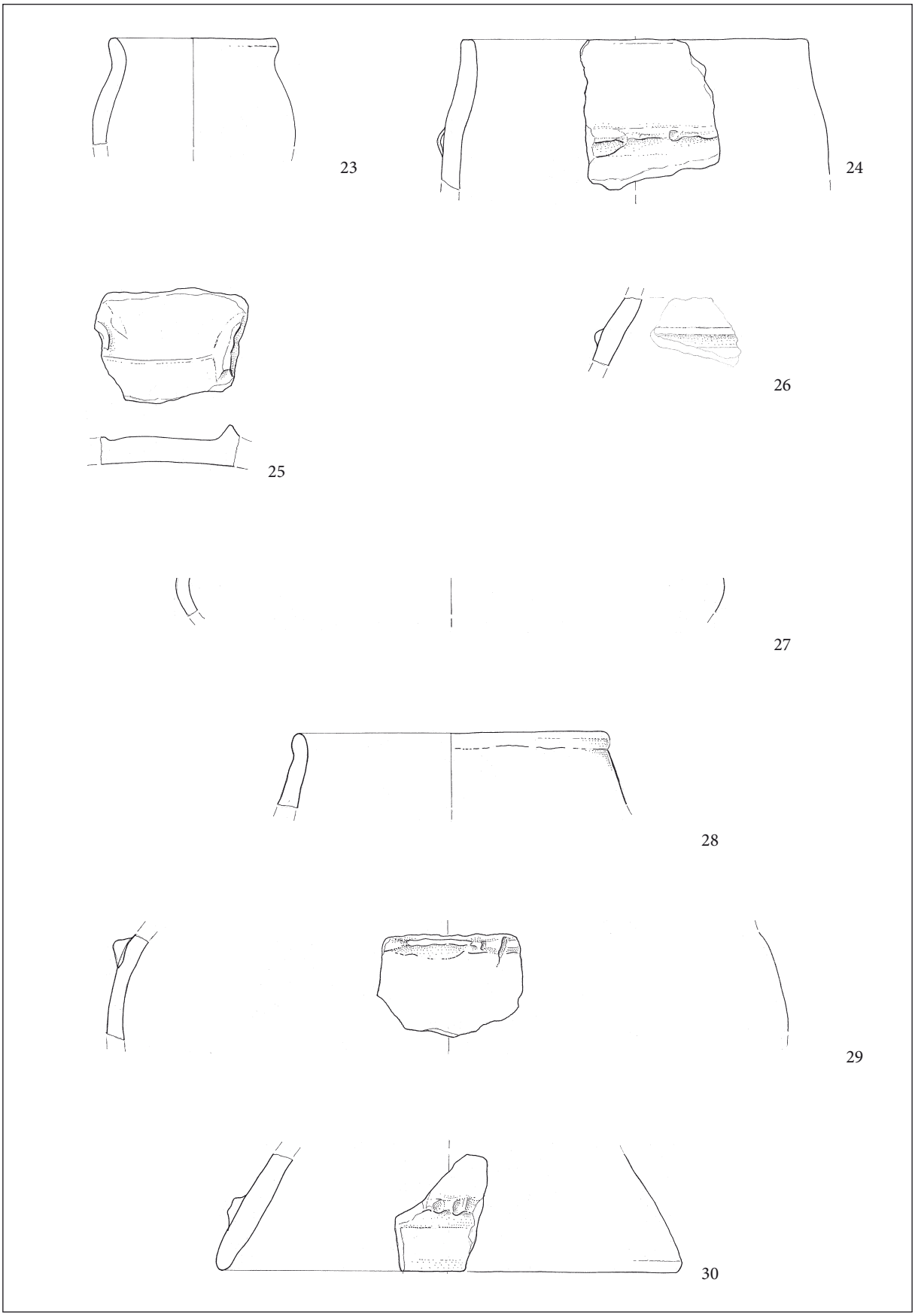


Fig. 3.5: Brecljev hrib. Prehistoric pottery discussed in the text. Scale = 1:3.

Šternov hrib (*cf. Fig. 3.3*). Gaspari also believes that these finds were most likely the ones referred to by Pečnik when he mentioned the prehistoric graves "in the woods and on the plains" in the vicinity of the *Smlednik* Castle.[11] Of course, one should not forget that cremation burials remained in use in the Gorenjska region and Ljubljana until the Early Iron Age.[12] The newly discovered and previously published finds from Brecljev hrib merely allow for a rough estimate of the date – sometime between 12th and 7th century BC (Ha A–Ha C). This date is based on the bowls (*Figs. 3.4:* 3 and *3.5:* 23, 27), which can be compared to the ones found at the SAZU burial site in Ljubljana, in all chronological levels ranging from Ljubljana I to Ljubljana IIIa,[13] and the numerous comparable ones discovered in the Dolenjska region, where they were found in all Halstatt Period horizons.[14] The pots (*Figs. 3.4:* 4, 5 and *3.5:* 23, 24, 28) indicate a similar date, for based on analogies they can be dated into the same period, between 14th/13th century and 7th Century BC (Bd C/D–Ha C).[15] This date is also indicated by the decoration of applied ribs with imprints (see above).

Topličanec assumes that the plains at the foothills of Brecljev hrib were inhabited in prehistoric times. She documented a prehistoric cultural layer in Hraše, which included 23 prehistoric pottery fragments and 1 fragment of burnt clay, on the basis of which she assumed the existence of a prehistoric site, most likely a settlement.[16] Even though a simultaneous settlement of elevated positions and plains is not unprecedented,[17] such assumptions must be made with caution. It is possible that these are settlement remains, however, we should consider the possibility that this is a colluvial layer, with artefacts that drifted into position with the soil that slipped from the adjacent slopes of the Brecljev hrib. The latter is indicated by the rounded edges of pottery fragments, however the final answer can only be provided by a geo-archaeological analysis. This opinion is also shared by Luka Rozman and Maruša Urek who found prehistoric pottery and burnt clay fragments in the vicinity.[18]

The fact that the lower Sava plain area was attractive for settling in the Late Bronze and Early Iron Ages is also indicated by Šmarna gora, only a few kilometres away. The archaeological excavations were carried out by IPCHS RO Ljubljana (*Fig. 3.1:* 11) in 2007, after a local reported that prehistoric pottery was revealed by construction works. This excavation included the area directly alongside the crossroads, where a route splits off the main route and leads to the church of the Blessed Mother of God.[19] Based on the stratigraphic relations the excavator Matej Draksler recognised two settlement phases. With the exception of the rubble layer and the walking surface the first phase does not provide sufficient data to enable precise dating. However, the second phase is more revealing. The walking surface of this phase revealed a wall built from large limestone stones that was interpreted as a strengthening of the settlement terrace or as a part of a building. The same surface also revealed two stone structures similar to each other, the function of which remains unknown. It was all covered by two layers rich in prehistoric finds. Based on the analogies with sites in the Dolenjska region the author believes that they belong to the Late Hallstat Period i.e. 6th and 5th century BC (Ha D1/D2).[20]

3.2 INTERPRETATION

It is not merely Rutar's and Pečnik's notes that made us expect a central prehistoric settlement on Brecljev hrib. This expectation was strengthened by the modern topographic research and the recent findings, especially the proof of metallurgy activities.

The relation between the settlement on Brecljev hrib and the settlement on the nearby Smlednik hill is still unclear (*Fig. 3.3*). Prehistoric findings on the latter discovered during the 2011/12 excavations included merely a few datable pottery fragments. However, the oak charcoal (see chapter 8), which might have been used as construction wood, indicates that these were not merely so-called stray finds. At this stage it is not possible to ascertain whether summits were inhabited simultaneously. If so, the settlement on Smlednik hill could be interpreted as performing a different function. Alas, the modest finds do not allow for the definition of the functions. As Smlednik hill offers an excellent view, it is possible that this area was used to observe and control the river and land routes.[21] The existence of the river crossing in prehistoric times is indicated by the discovery of bronze weapons and tools from the Early Urnfield period (13th –11th century BC)[22] which were found close to the wooden construction at the end of the narrow Sava valley, between Verje and

[11] Gaspari 2006b, 138–140.

[12] Vojaković 2008, 176–178.

[13] Dular 1982, 113, 115, Fig. 13: 17.

[14] Dular 1982, 75, No. 244–249.

[15] Dular *et al*. 2002, 149, Fig. 6; Oman 1981, 148–149, T. 5/10, 17/8;Lamut 1988/89, 238–239, T. 18/12; ib. 2001, Pl. 2/2, 2/8, 12/13, Pl. 8/2, 17/5; Teržan 1990, 378, Figs. 1/4, 8/9, T. 1/27, 2/6, 2/12, 4/19, 31/26, 32/18, 33.

[16] Topličanec 2007, 75.

[17] Vojaković *et al*. 2011.

[18] Rozman, Urek 2011; Rozman, Urek 2012.

[19] Numerous authors assumed the existence of a prehistoric settlement of Šmarna gora, including Jernej Pečnik (Pečnik 1904, 128).

[20] Summarised from Draksler 2008, 1–18.

[21] Similar to some later authors Levec assumed that a Roman fortification stood on the castle location, and that this fortification controlled the communication in the direction Ljubljana–Smlednik–Kranj (Levec 1896, 5; ANSl 1975, 101 and 173).

[22] Gaspari 2012.

Medvode. The assumed function of Smlednik hill is also indicated by the size of its peak which covered just a few tens of square metres before the medieval castle was built and was thus much smaller than Brecljev hrib, which leads us to believe that a permanent settlement was unlikely.

A similar situation was noticed on Šmarjetna gora above Stražišče,[23] where, according to Andrej Valič, pottery fragments were discovered on the southeast slope, just under the peak of Gradišče (eastern peak). These fragments belong to the same period as the finds from the vicinity of the parish church in Kranj.[24] Based on this comparison the author concluded that these were the remains of an Early Iron Age settlement.[25] A few years later this was proved by the finds discovered during the topographic probing, which revealed that the site can be dated into HaC or the Early Iron Age.[26]

Prehistoric finds that Draško Josipovič dated to the Early Iron Age were also found on the neighbouring western peak, around the ruins of the church of St Margaret.[27] Due to the lack of further research and insufficient data it is impossible to ascertain what sort of a settlement this was and what the relation was between the two peaks.

[23] Rutar 1894, 184; Pečnik 1904, 127.
[24] Horvat 1984.
[25] Valič 1970, 145.
[26] Sagadin 1987, 244–245.
[27] Josipovič 1985, 204–205.

4 THE CASTLE IN WRITTEN DOCUMENTS

Benjamin ŠTULAR

The Smlednik Castle[1] lies on an important medieval transport route connecting Northern Italy, Lower Styria and the Hungarian empire through Škofja Loka and Kamnik.[2] It seems that the location (*Figs. 11.1.* and *11.3*) represented a key factor when building the castle at this spot. It combines natural advantages (dolomite bedrock and an excellent vantage point; see ch. 10) as well as strategic (river crossing) and political factors (an empty area between three powerful landlords).

In medieval documents the local name Smlednik appears exclusively in its German forms: Flednic, Fledinich, Vletnich, Vlednich, Vledinch, Vlednic, Flednich, Vlednik, Vledenik, Flednik, Wlednich, Vlednyk, Flednig, Flednikch, Flednikg, Flednigk, Fledoigkh; in the 14th and 15th century these mentions become more frequent, in most cases they assume the form of various derivatives of Vlednik.[3] The derivatives Floednich, Flödnig in Flödnigg appear as late as the 18th century.[4] The name Flödnig is the standard version used for modern German and English translations and will be referred to as such.[5]

The origin and meaning of the word Smlednik has been researched in great detail. The German name is derived from the Slovenian name Smlednik, from the root *smled*. At first it seemed that it originated from the root *smléda*, the adjective meaning pale, yellow that is used for the meadow flower *Peucedanum oreoselinum*.[6] The meaning *airy, deciduous forest* thus seemed likely.[7] However, Bezlaj discovered the true meaning of the name Smlednik, when he established that the name originates from the word *smled,* meaning outlook post (Germ. *Warte*): *One needs to start from the original* ***svled*** *– a base that has parallels in the Gothic* ***wlaiton*** *'be on the lookout, look around', possibly adopted from a Germanic language before the so-called Slavic liquid metathesis; it might even be a remnant of an ancient Slav derivative of the same base*.[8] The Gothic root, the excellent position of Smlednik hill and the burial sites of Eastern Goth soldiers in Dravlje by Ljubljana[9] and Lajh in Kranj[10], both merely a little over 10 km away, make us consider the various interpretations as regards who was the first to erect the post and name it Smlednik.

The preserved contemporary documents do not reveal when in the Middle Ages the fortified castle appeared on top of the 515 meters high, cone shaped Smlednik hill. It is possible that this occurred already in the 11th century, when the Kranj and Istria margraves from the nobles of Weimar-Orlamünde (who died out in 1112) owned lands here. The oldest preserved document that includes the name Smlednik was written in 1118. The name is mentioned in connection with the chapel of St. Ulrich in the forest (sv. Urh v gozdu), which was the local church of the Flödnig[11] knights.[12] In 1136

[1] This chapter is based on the unpublished text by Božo Otorepec (Otorepec s. a.) and has been built upon by the findings of the last four decades. All thanks that it appeared in front of you in this form go exclusively to my colleague Dr. Miha Kosi, who not only guided me with his valuable instructions, but also diligently checked all names and sources. Any eventual mistakes and inconsistencies that might have remained are exclusively my fault.

[2] Kosi 1998, 247–253.

[3] Prim. Kos 1975, 559.

[4] Otorepec s. a., 2.

[5] The exception is the archaeological site that is referred to thorough the book as the Smlednik castle.

[6] Bezlaj 1995, 271, smléd II.

[7] Petnauer 1938, 12. (quoted from Otorepec s. a., 1).

[8] Bezlaj 1981; *cf.* Bezlaj 1973, 180.

[9] Slabe 1975. "The necropolis in Dravlje offers a vision of a rounded burial site that can be dated to the first half of the 6th century. The special meaning of the burial site is made clear by the short time scale of its duration, which indicates the existence of a post that can only be linked to the period in which the Eastern Goths were present in our lands, and as such represents a true exception amongst the sites discovered so far. It draws attention to a post in the vicinity, which had a special task in the hinterland of former Emona – most likely it was established to control a transport route or even a crossroads" (Ciglenečki 1999, 308).

[10] Knific 1995 and the literature quoted there.

[11] Note to English translation: As mentioned, for personal names we are using the form of translation accepted in History, i. e. knights of Flödnig; for the castle we are using the form of translation accepted in Archaeology, i. e. the Smlednik castle. The knights of Flödnig therefore resided in the Smlednik castle.

[12] Kos, Žontar 1939.

Ulrich of Flödnig (*Odalricus de Fledinich*) is mentioned as a witness for the monastery in Moggio Udinese in the documents of the patriarch of Aquileia Pellegrino I. 1136 can thus be used as the *terminus ante quem* for the existence of a type of fortified manor house or possibly even a proper castle on the hill of Smlednik.[13] In this period numerous ministerials (lesser lords) lived in unfortified manor houses in larger villages to the north and east of Kranj.[14] This does not hold true for Ulrich, for the name Smlednik was clearly linked to the location on top of the castle hill. This is additionally substantiated by the previously mentioned etymology of the word smlednik, and especially by the fact that throughout the Middle Ages the village was called *under* Smlednik or *Lower* Smlednik, and the name Smlednik was always associated with the location of the castle (see below).

Valvasor mentioned that Ebaid was the owner of the castle in 1165, Bernard and his sons Berthold and Ulschalk in 1216 and finally Günter in 1340,[15] however this data is questionable.[16]

Older authors believed that the nobles of Flödnig were Andechs' ministerials,[17] for the Andechs inherited vast lands from the Weimar-Orlamünd's as well as from Poppo of Heunburg. However, the broader Smlednik area never belonged to the nobles of Andechs, for these lands were highly fragmented and divided amongst a multitude of owners already in the 11th century.[18] In the 12th century Smlednik was an island amidst larger feudal estates, upon which new ecclesiastical nobility built their power.[19]

Smlednik Castle and the nobles of Flödnig do not reappear in documents throughout the entire 12th century. The first known inhabitants of the Smlednik Castle in the 13th century were the knights from the old nobles of Montpreis, Werigand (also *Weriand*, *Wernand*) and Rapoto of Flödnig.[20] From the viewpoint of the history of the Smlednik Castle the low social status of Werigand and Rapoto is revealing. Amongst the 50 witnesses they were signatories No. 44 and No. 45. Gerloch of Hertenberg was signatory No. 5, Gerloch of Stein No. 11 and Magens of Mannsburg No. 12. Even Gerwich, a mere citizen of *Škofja Loka*, was signed above the two Smlednik signatories. A different document dated to 1216 reveals that Rapoto was a son-in-law of the previously mentioned Werigand. In this document Albert from Mary›s mountain (most likely Šmarna gora) allowed Werigand and his sons Berthold and Ulschalk (*Bertoldi and Vlscalchi)*, to offer a farm in Zbilje to the altar of St. Mary in the Gornji Grad monastery. This document is the most likely source for Valvasor's mention of Werigand and his sons as the benefactors of the mentioned monastery.[21] In this document Werigand appeared as a destinator and was addressed as sir, which shows that he was an important ministerial.[22]

A priest is mentioned in Smlednik as early as 1228 and 1264,[23] however, in 1341 Ulrich from Stein/Kamnik is mentioned merely as the vicar of the church of St. Ulrich under the castle of Smlednik, which at the time came under the administration of the Vodice parish.

Hainzo of Flödnig, who is mentioned in l260 as a witness for the Velesovo monastery in a document issued by Henrik of Schärffenberg, was most likely a descendent of the Flödnig knights. It is possible that this was the same *Heinzo* of Flödnig, who backed the Šmartno vicar Wilhelm from Škofja Loka in 1286 against the Emicho, bishop of Freising.[24] In 1306, Heinzo's son Konrad, who is also mentioned in documents dating to 1299[25] and 1300, sold - with the consent of his brother Ulrich (*Welli*) - two farms in Trzin to Ortolf Oechlein.[26]

Unfortunately it is impossible to ascertain the relationship between the nobles of Flödnig and either Peterlin of Flödnig (mentioned in 1299) or Mainhard of Flödnig (mentioned in 1321). The existence of Günter of Flödnig, named by Valvasor in 1679 as the last member of the family line from around 1340, cannot be verified by the documents available nowadays.

By the beginning of the 14th century the nobles of Flödnig had no longer possessed the Smlednik Castle for quite a while. A reliable *terminus ante quem* is a document dated to 1297, issued at the Smlednik Castle (*dacz Flednich vf der pürg*), which is explicitly mentioned for the first time. In this document Otto of Montpreis (*Montparis*, *Mumpareis*) bequeathed Juta (*Gewt*), the daughter of Ulrich Chropf married to the Freising ministerial Winter of Burgstall, to the Freising bishopric. This document was also signed by Ulrich Chropf, mentioned as the castellan in Smlednik (*Vlrich der Chropf vnser burgraf ze Flednich*) and his son, also named Ulrich.[27] This document reveals that the nobles of Montpreis were the owners of the Smlednik Castle and its dominion by 1297 at the latest and that a vassal or castellan based at Smlednik Castle oversaw this dominion for them. Two years later – in 1299 – when Otto of Montpreis gave a farm in Šenčur to the citizen of Škofja Loka Peter Silbersach and his wife Nedeljka,

[13] Otorepec s. a., 2.

[14] Kos 1960, 57 and 60.

[15] Valvasor XI/137.

[16] Otorepec s. a., 2.

[17] Žontar 1939, 20.

[18] Kos 2005, 215; a somewhat different opinion can be found in Kos 1928; Grafenauer 1955, 84–85.

[19] Kos 2003, 173.

[20] Zahn 1881, 31, No. 127 (dated: cca. 1215); Kos 1928, No. 232 (dated: 1214–1220).

[21] Kos 1928, No. 261; *cf.* Kos 2005, 216.

[22] Kos 2005, 174–175.

[23] Kos 1928, 242, No .486; Schumi 1884–87, 257, No. 328.

[24] Zahn 1870, pg. 431, No. 395.

[25] Wiessner 1958, No. 452.

[26] Otorepec 1956, No. 13.

[27] Zahn 1870, pg. 462, No. 422.

the document, issued at the Smlednik Castle (*in castro Vlednik*), mentions Peterlin of Flödnig as well as Ulrich Chropf and his son once again.[28] The two Chropfs are mentioned again a few months later, when they appear in the role of guarantors for their master Otto of Montpreis when he sold a ferry in Tacen to Porger's widow Marsa from Ljubljana.[29] In this document Otto stated that he inherited the ferry in Tacen from his father and that it was owned by the family for more than one hundred years. This could lead to the conclusion that the nobles of Schärffenberg - Montpreis owned land in this area already in the 12th century and that the nobles of Flödnig were merely their vassals.

There is no reliable *terminus post quem* date for the takeover of the Smlednik Castle by the nobles of Schärffenberg. One hypothesis states that the Smlednik Castle became a freehold property of the old nobles of Montpreis – a branch of the nobles of Schärffenberg – already at the end of the 12th or at the latest the beginning of the 13th century.[30] The property was handed over by the nobles of Trixen. The more likely hypothesis is based on the extremely complex analysis of the family and landowner ties within the nobles of Schärffenberg, which reveals that in 1251 the Smlednik dominion and castle were governed by Henrik III of Schärffenberg independently from the Montpreis/Planina Castle and Hörberg/Podsreda Castle.[31] However, Henrik kept on the old staff, the knights of Flödnig.[32]

The last mention of Ulrich Chropf and his son Ulrich can be found in a document dated to 1300. In this document Otto of Montpreis allowed his vassal to sell a farm in Log to the Freising bishop.[33]

However, the 13th century events must be looked at in the broader political context - the formation of margraviate Carniola. Following the death of the Istrian margrave Henrik IV of Andechs in 1228 – with a seat on Stein Castle/Mali Grad in Kamnik not far from Smlednik - a battle for the Andechs heritage and with it a political supremacy in Carniola arose. Through the marriage of Frederick II Duke of Austria to Henrik's niece and heiress Agnes of Merania, the former dominion of the House of Andechs from the Adriatic Sea to the Alps temporary fell into the hands of the Babenbergs. Based on this dominion Frederick II was the first to use the title *dominus Carniole*. The formal margrave of Carniola, the Aquileian patriarch Berthold V of Andechs, silently agreed to this by not responding. Berthold V died in 1251 and the last remaining Andechs to hold the title *domina Carniolae* became Agnes of Merania who in 1243 divorced Frederick II and married the Carinthian duke Ulrich III of Spanheim in 1250. When she died in 1263 Ulrich III of Spanheim inherited the dominion of the House of Andechs.[34] However, following the death of Ulrich of Spanheim (1269) the Czech king Ottokar II of Bohemia became the owner of the Andechs heritage in Carniola for a period of less than ten years. When he too was killed in 1278 in the battle against Rudolf of Habsburg, the Habsburgs became the masters of most of Carniola. However, in 1279 King Rudolf gave Carniola to Meinhard I Gorizia-Tyrol and it was only with the death of his son Henrik (1335) that Carniola fell completely under the control of the Habsburgs, in whose hands it remained for almost six centuries thereafter.[35]

The 1311 list of lands in Carniola owned by the Carinthian duke, i.e. the House of Gorizia-Tyrol, does not include Smlednik,[36] for this was at the time still owned by the nobles of Montpreis. This is also confirmed by a document dated to l32l, with which Rapot Schrawas sold the land in Šenčur that was in the Smlednik dominion to the Velesovo monastery (with the consent of his masters Henrik and Ulrich from Montpreis).[37]

In 1328 Ulrich and Henrik of Montpreis – most likely due to debt – first pawned the Smlednik Castle for 2,000 silver marks and then sold it, complete with the dominion and vassals, to Friedrich of Sannegg for 1,012 silver marks.[38] This was the highest price paid for any castle on the territory of present day Slovenia between 1280 and 1409.[39] The precise account of the events runs as follows: on 17th April 1328 Henrik and his wife Elizabeth of the nobles of Schärffenberg - Montpreis first issued a document in which they pawned and immediately after that sold the castle. On 25th July 1328 Henrik's brother Ulrich and sister Alheide did the same. Both documents reveal that the castle and the dominion were pawned for 2,000 silver marks, however they were sold for 1,012 silver marks. It is obvious that the amounts indicated the price to be received in total by all sellers and not by each seller individually. D. Kos proposes a simple explanation: The Schärffenberg - Montpreis couple issued an additional document with which they guaranteed to hand over the Smlednik Castle and the dominion in its entirety to the nobles of Sannegg if they failed to repay their debt. In the event that the nobles of Schärffenberg - Montpreis disputed this, the nobles of Sannegg would have a legally

[28] Wiessner 1958, No. 437.
[29] Otorepec 1957, No. 1.
[30] Kos 2005, 176.
[31] Kos 2005, 173–175 and 179.
[32] Kos 2005, 178.
[33] Zahn 1871, pg. 4, No. 433.
[34] Hauptman 1999, 49–78; Kos 2001, 186–188; Komac 2006, 81–144.
[35] Otorepec s. a., 4.
[36] Dopsch 1901, 461–462.
[37] ARS 1321, 21st December (from Božo Otorepec's transcript. ZIMK ZRC SAZU); *cf.* Parapat 1874, 185, No. 29; Kos 1996, No. 122.
[38] ARS 1328, 17th April; 1328, 25th July (from Božo Otorepec's transcript, ZIMK ZRC SAZU); Kos 1996, No. 123, 124.
[39] Kos 2005, 84.

binding document at their disposal. The Schärffenberg - Montpreis couple received 2,000 marks in total. 1,012 marks was handed over when Smlednik was legally assigned to the new owners, since they had already received the first instalment of 988 marks (the previous debt), when they pledged the castle. With the final payment the ownership legally changed hands.

This is how the rise of the nobles of Sannegg – known as the Counts of Cilli from 1341 onwards - started in the Gorenjska region, with their centre in Smlednik. In the same way as they did in the Savinja valley and along the Sotla River, the Counts of Cilli purchased small and large fiefs with money that they (to a certain extent) borrowed from Jewish bankers in their hometown Celje, Ljubljana, Maribor and elsewhere. They then lent money to various noble families in the Smlednik area (e.g. the Montpreis and Stein families) and rendered them increasingly dependent. In this way they created the Smlednik territorial dominion which bordered on the territory of the Velesovo monastery at Voklo and Voglje.[40] Friedrich of Sannegg, the local governor in Carniola from 1332 and l340,[41] started to further expand the Smlednik dominion. In order to obtain money for other needs he pawned the castles of Rohitsch/Rogatec, Kostreinitz/Kostrivnica, Lengenburg, Sannegg/Žovnek, Osterwiz/Ostrovica, Schönstein/Šoštanj, Prassberg/Mozirje and Flödnig/Smlednik (he became the owner of the latter only the previous year) to his relatives, the nobles of Walsee, for 8,000 silver marks in 1329.[42] However, he soon freed these castles from this pledge. In 1334 he purchased the land in the vicinity of Smlednik, including the hillfort *Vnsern Vrown perg* (most likely Gradišče above Zavrh) from the nobles of Kranichberg (Lower Styria).[43]

In the second half of the 14th century the castellans (*burggrafen*) seated at the Smlednik Castle oversaw the Smlednik dominion on the behalf of the Counts of Cilli. A certain Martin is mentioned as the castellan in 1356, and Otto of Turn in 1374. Hans of Müllingen (*Mulling, de Muollingen*), a lower noble (*armiger*), possibly the son of Egelof (*Egelloff v. Mülling*), mentioned in the entourage of the Counts of Cilli between 1364 and 1367, was the castellan of Smlednik between 1397 and 1404.[44]

Smlednik did not have its own provincial court at the turn of the 15th century, for it belonged under the jurisdiction of the Stein/Kamnik provincial court. The land registry from this period shows that every caretaker (*ambtman*) of Smlednik had to pay an annual fee of 50 measures of oats and 100 chicken or two pfenings for each to the Stein/Kamnik provincial court.[45]

In 1400 Hermann of Cilli gave the Bistra monastery some land in Suhadole, which belonged to the Smlednik dominion.[46] In 1394 Wilhelm Lamberger purchased the manor house under Smlednik (*hof vnder Flednikg*) together with the farms in Podreče, Moste, Brnik and Vikrče as well as a tithe in Vodice, all of which belonged to the feudal estate of the Counts of Cilli, from Williem Lusperger. In 1437 Friderik of Cilli re-confirmed that these fiefs belonged to the nobles of Lamberger.[47]

Medieval sources reveal very little about the Smlednik Castle itself, though. One of the rare pieces of information is dated to 1406, when Herman of Cilli was involved in settling a dispute between the Stična abbot Albreht and Johhan of Auersperg. In this settlement Hermann ordered Johhan to be jailed in his tower on Smlednik (*in unsern turn gen Flednik*), until he paid the abbot the agreed compensation.[48] There is no information on whether there was a solitary fortified tower on the hill of Smlednik, or if the tower mentioned was a part of the castle which was often used as a dungeon in medieval times. Taking the formulation into account the latter seems to be a more likely explanation.

Lienhard of Igg (1412) was also a castellan for the Counts of Cilli. In 1431 he was mentioned in a document by Friderik of Cilli as 'our castellan on Smlednik' (*vnsero burggrauen ze Flednikg*).[49] In 1442 Ulrich II of Cilli sold the Stein/Kamen Castle to the Smlednik castellan known by the name of Hans Sepacher.[50]

With the death of the last Count of Cilli on 9th November 1456 all Carniolan castles and lands owned by the Counts of Cilli – including Smlednik – came into the hands of the Habsburg emperor Frederick III. From this date onwards the Smlednik Castle and its dominion were run in the name of the emperor. Following an agreement between the emperor and the counsellors of the last Count of Cilli in 1457, Rudolf Khevenhüller, the last castellan of the House of Cilli, was allowed to remain on Smlednik until his death, as long as he remained loyal to the emperor and put the castle at his disposal whenever necessary. Later in the same year Khevenhüller's status as the caretaker of the Smlednik Castle was reaffirmed. The new contract stipulated that if he would be removed from Smlednik, he would be made caretaker of the Goldenstein Castle and receive 1.000 pounds

[40] Žontar 1939, 28.

[41] Kos 1996, No. 127.

[42] ARS 1329, 30th December (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[43] ARS 1334, 24th May (from Božo Otorepec's transcript. ZIMK ZRC SAZU); Kos 1996, No. 148.

[44] ARS 1367, 19th June (from Božo Otorepec's transcript. ZIMK ZRC SAZU); Kos 2005, 216, note 748.

[45] Milkowitz 1889, 39.

[46] ARS 1400, 6th September, Kranj (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[47] ARS 1394, 31st March, Celje; ARS 1437, 20th April, Celje (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[48] Komatar 1907, 170 (quoted from Otorepec s. a., note 23).

[49] Haus-, Hof- und Staatsarchiv, Vienna, 1431, 20th May (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[50] ARS 1442, 21st April (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

pfennigs.[51] This occurred immediately the following year (1458), when the emperor borrowed money from Caspar of Tschernembl, to whom the emperor pawned the castle and made Caspar its caretaker.[52] A few days later Khevenhüller and Caspar swapped castles. However, this did not last for long, as Caspar of Tschernembl appeared as the emperor's caretaker on Smlednik once again as early as 1461.[53] He held this position at least until July 1478.[54] Documents also mention Lienhard Kazianer (between 1489 and 1492),[55] and Caspar II. Lamberger (between 1493[56] and 1496) as the caretakers of the Smlednik Castle. In August 1503 the emperor borrowed 1,500 goldinars from the Kranj vice-count Georg Egkh to whom he pledged the Smlednik Castle together with the manor house, the fields, meadows, half of the provincial court and a caretaker's fee of 225 goldinars.[57] Just half a year later, in April of the next year, the dominion was handed over to the Kranj provincial governor Hans of Auersperg, and later on to his sons Georg and Wolf Engelbreht.[58]

The large earthquake which damaged numerous castles in Carniola on 24th and 26th March 1511 did not spare the Smlednik Castle. However, it appears that the castle was not damaged to the extent that it would be abandoned, which was the fate of numerous other castles in Carniola.

In 1535 Hans Kazianer purchased the Smlednik dominion and the provincial court from King Ferdinand. Following his violent death in 1538, all of his lands, including Smlednik, came into the hands of the prince, who pledged it to the previously mentioned Wolf Engelbreht of Auersperg in 1541 as a result of Kazianer's debts. In 1547 Wolf Engelbreht of Auersperg sold the castle to Hans Josef of Egkh who handed it over to Caspar II Lamberger, who, in turn, handed it over to Hans of Auersperg in 1550, although the castle soon ended back in the hands of the nobles of Egkh.[59]

All of the mentioned feudal lords had their caretakers (*phleger*) at Smlednik. The following caretakers are mentioned: Andreas Gall in 1526, Franz of Rain and Wilhelm of Rattal after 1540, and Seifrid Rasp between 1543[60] and 1547. He was succeeded by the gentrified son of the Ljubljana merchant Franz Glanhoffer in 1548.[61] In 1549–1551 he was succeeded by Georg Schwab of Lichtenberg, Toman Veider in 1554, and Jacob Wesenpach[62] and Caspar Reitter[63], both in 1558.

A 17th century transcript mentions the first Smlednik land registries that list the subjected farmers (in 1558 and 1559) in forty-one villages: Spodnji Smlednik, St. Valburga, Dragočajna, Moše, Trboje, Podreča, Breg, Jama, Šenčur, Predoslje, Luže, Pešata, Cerklje, Polica, Poženik, Lahovče, Komenda, Zalog, Moste, Žeje, Suhadole, Vodice, Selo, Skaručna, Polje, Dvorje, Tacen, Rocen, Spodnje Pirniče, Zavrh, Vikrče, Zgornje Pirniče, Virje, Hraše, Stanežiče, Jeprca, Rafolče, Zlato polje, Studenec, Gabrovka and Krašnja (*Fig. 11.5*).[64]

The land registry also shows that the Smlednik serfs had to pay 2 copper coins in rebellion tax (*pundgelt*), demanded in 1515 from all peasants who participated in the Slovenian peasant uprising. This means that the revolt included the serfs from Smlednik.[65]

On 7th October 1559 Andreas Nastran became the caretaker of the Smlednik Castle. His duties included maintaining the castle furnace and windows. At the time the owner of Smlednik was Hans Josef of Egkh, who became a baron in l560. When he became the provincial governor in 1568 and thus had numerous new duties to fulfil, his son Bartholomäus took over the caretaking duties at the castle.

In that period Smlednik was still owned and leased by the emperor, and as such it belonged under the dominion of the Lower Austrian chancellery in Graz from 1564 onwards. In 1569 the chancellery sent two commissionaires to settle the dispute between the castle caretaker and the serfs and to establish a new land registry at the same time. Upon the demand to see the castle's inventory and reports on the construction works executed at the castle and manor house (which stood on the same location as the later Smlednik manor in Valburga), Egkh responded[66] that the inventory was lost, most likely due to the negligence of the caretaker and his sons, and that the castle stocks had by no means increased, if anything they had dwindled, and that this held especially true for gunpowder stock. As his sons failed to come up with an exact calculation for the construction works on the castle and manor house, he would have the works valued by impartial experts. The

[51] Birk 1853, 203, No. 165.

[52] Birk 1853, 215, No. 263.

[53] Birk 1853, 381, No. 529.

[54] Chmel 1855, 905, No. 1230.

[55] Listini 1489, 6th January 1490, 13th December in the Archdiocesan Archives in Ljubljana; ARS 1492, 7th May (from Božo Otorepec's transcript, ZIMK ZRC SAZU).

[56] Haus-, Hof- und Staatsarchiv, Vienna, 1493, 22nd March (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[57] Smole 1982, 445.

[58] Preinfalk 2005, 77, note 47.

[59] Otorepec s. a., 7.

[60] ARS 1543, 8th January in the protocol of the provincial court 1543–1544, pg. 5 (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[61] ARS 1548, 27th August in the protocol of the provincial court 1547–1548, pg. 409 (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[62] ARS 1558, 12th March in the protocol of the hearings at the vice-count court 1554–1558, fol. 166 (from Božo Otorepec's transcript. ZIMK ZRC SAZU).

[63] Otorepec s. a., 8.

[64] Šilc 2002.

[65] *Cf.* Grafenauer 1956, 72–79.

[66] Translation of the original taken from Otorepec, s. a.

inventory that he produced for the two commissionaires in September of the same year included guns for warning shots in the event of Turkish raids, a copper mortar, a few barrels of gunpowder, 460 pellets, 10 pounds of lead and accessories for rifles. The chain and the elevator for the mortar were missing, but there was a thick rope that was used to lower prisoners into the tower (*damit man die gefangen in den turm hinab last*). The spears for wild boar hunting[67] (*Schweinspiess*) were also missing. Out of the original two sermon robes only one remained in the chapel, which also included an altar cloth in poor condition, a holy waterfont, a chalice, a wafer dish, two old books of Masses and two candlesticks. In the continuation the inventory lists beds and tables; the old broken clock was given to the church in the Smlednik village. Still remaining were various measuring recipients, barrels, one bathtub, a cabbage barrel, a wine barrel, a lard tub, while the carved stone basin was no longer there, nor were the wooden receptacles, the wheelbarrows, or the chests for carrying lime. Several wooden ox yokes were still there, as was a broken fettered cart and a single iron spade (out of the original six), while hoes, picks and iron stone breakers were missing, as were the mortar mixer, the iron for wheelbarrows and some other tools.

According to the 1569 land registry Egkh had to sign a new lease contract for a much higher amount the following year. In 1571 he became the provincial governor and he once again started to oversee his lands. In the same year he appointed Wolf Rasp, his brother in law, as the caretaker of Smlednik. According to the contract he had to allow Eghk and his people to enter the castle or manor house at all times (*es sey oben im gschloss oder herungen in mayerhof*). Rasp remained caretaker until 1575, when he was succeeded by Ulrich Arnold.

Baron Hans Joseph von Egkh died in 1579 and Smlednik was passed down into the hands of his son Bartholomäus. In reality Smlednik and the offices Naklo and Primskovo, which both belonged to Egkh, were all leased by Archduke Karl to the Carniolan provincial governor count Hans Ambros of Thurn in 1583. However, the nobles of Egkh maintained some rights, which is why Thurn decided to settle with them in 1585. Later on, Volkard, the son of the mentioned Bartholomäus of Egkh, became the owner of Smlednik. As Volkard was a protestant, he left Carniola and died in Regensburg in 1609. In 1590 he leased Smlednik to Alexander Paradeiser, who left Smlednik to his son Johann Paul of Egkh when he died. He purchased Smlednik from Emperor Ferdinand in 1626, who sold off numerous leased dominions to raise funds for the thirty year war.[68]

On this sale in 1626 a new land registry entry was made. Together with the Smlednik dominion Egkh also became the master of the provincial court. Executions ordered by this court were carried out at St. Mary's chapel under the church in Sv. Valburga, a location that the locals called the bloody sign for centuries to come. On the road leading towards Ljubljana, in the village of Smlednik, opposite the so-called Šlager's house, stood a forest plot called Na gavgah (On the gallows).[69]

The 1626 land registry reveals that the new Smlednik Castle, i.e. the Smlednik mansion,[70] was not yet built. Only the manor house was there at the time, most likely built by Baron Hans Josef of Egkh in 1569–1571, standing in the spot where the later mansion in Valburga stood. The list of mills in the land registry also mentions the mill next to the manor house in *St. Valburga on Sava*. In this land registry the village of Smlednik is still referred to as Spodnji Smlednik (Lower Smlednik) in order to differentiate it from Zgornji Smlednik (Upper Smlednik), where the castle stood. The name Spodnji Smlednik no longer appears after 1628 indicating that there was no Upper Smlednik, i. e. functional castle, on the hill.

As a protestant Hans Josef of Egkh should have moved from Carniola after 1628, but he received special permission to stay until 1635 when he moved to Nürnberg. Prior to his move, or possibly even as early as 1634, he sold Smlednik to the chancellor of Ferdinand II, Count Johann Bapt. Verda of Verdenberg. He is the most likely to have commisioned the building of the mansion in Valburga since he had had numerous buildings built on his other premises, e.g. the palace and family tomb in Vienna. A reliable *terminus ante quem* for the abandonment of the old Smlednik Castle is given to us by Valvasor in 1679, who states that the *ruins (of the old castle) have been a pile of disintegrating walls for years*. However, the copperplate engraving of Smlednik that Valvasor commissioned shows the remains of the old castle preserved to the third floor (*Fig. 4.1*). Based on this we can conclude that even though the castle was no longer maintained at the beginning of the 17th century, it was at least protected from intense decay.

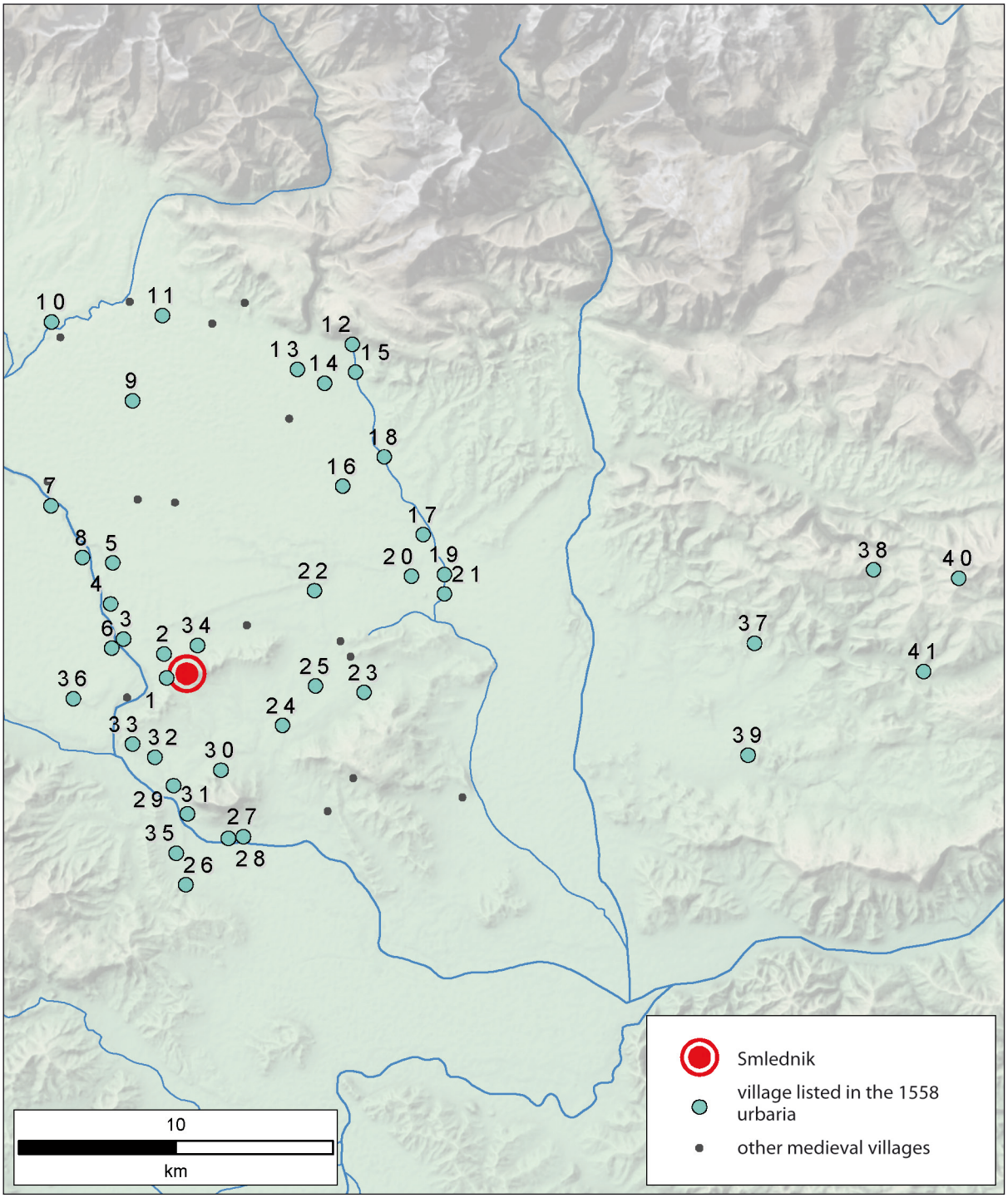
As is usually the case there are two types of written documents that deal with the Smlednik Castle. The first are High Medieval documents from the *golden age of castles*, which are by rule laconic. These revealed a possible name of a mid-12th century Smlednik castellan: Ulrich. For the 13th century these documents revealed the names of noblemen who acted as signatories on various documents (Rapoto and his son-in-law Bernard, Hainzo, Peterlin, Meinhart) or had land at their disposal (Bernard donated a farm). It is very revealing that the Smlednik vicar is mentioned twice in the 13th century even though the vicar Ulrich from Stein/Kamnik held masses in Smlednik in the mid-14th century. This information might reveal the administrative changes that

[67] Otorepec (Otorepec s. a., 8) translated it as a heavy spear.

[68] Otorepec s. a., 9; Smole 1982, 445–446.

[69] Otorepec s. a., 9.

[70] Stopar 1998, 76–92.



1 – Spodnji Smlednik
2 – Sv. Valburga
3 – Dragočajna
4 – Moše
5 – Trboje
6 – Podreča
7 – Breg
8 – Jama
9 – Šenčur
10 – Predoslje
11 – Luže
12 – Pešata
13 – Cerklje
14 – Polica
15 – Poženik
16 – Lahovče
17 – Komenda
18 – Zalog
19 – Moste
20 – Žeje
21 – Suhadole
22 – Vodice
23 – Selo
24 – Skaručna
25 – Polje
26 – Dvorje
27 – Tacen
28 – Rocen
29 – Spodnje Pirniče
30 – Zavrh
31 – Vikrče
32 – Zgornje Pirniče
33 – Virje
34 – Hraše
35 – Staneže
36 – Jeprca
37 – Rafolče
38 – Zlato polje
39 – Studenec
40 – Gabrovka
41 – Krašnja

Fig. 4.1: Villages listed in the Smlednik urbaria from 1558 and 1559.

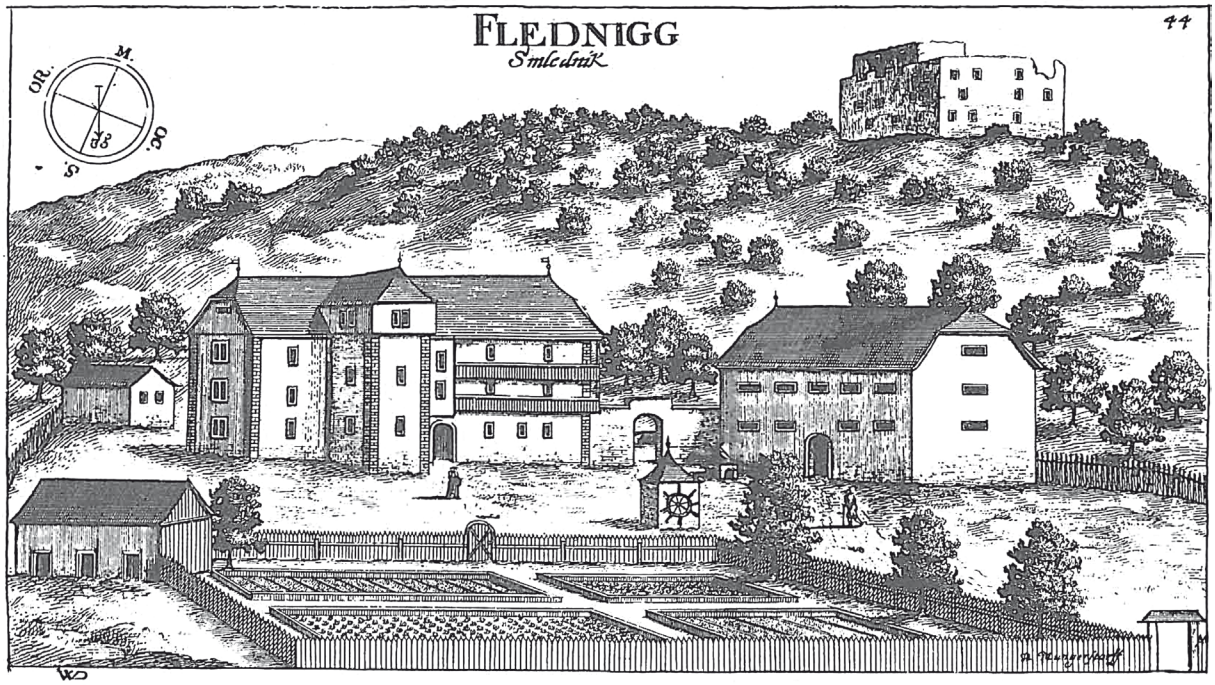


Fig. 4.2: Copperplate engraving of Smlednik, end of the 17th century, (J. V. Valvasor 1679, Topographia Ducatus Carniolae Modernae, No. 44).

took place under the free gentry of Sannegg, the later Counts of Cilli, who are the most likely candidates to have formed the Smlednik dominion in the shape and form that it remained in until the 18th century. However, it is impossible to draw conclusions as regards the dynamics of the administrative modifications based on so few changes.

A large proportion of the written sources are from Late Middle Ages or Early Post-Medieval Period. Land registries and inventories, which represented a new type of document affording more information of the castle itself, were much more common. However, these still merely provide us with information of a castle as an object of pawning and trade or a temporary work post for individual caretakers. First decent insight into the castle is provided by the 1569 inventory, which revealed a castle in a pitiable state. Not only did all of the valuable objects disappear from the old castle - which sole remaining importance was to serve the emperor as a possible defensive stronghold in the event of Turkish invasions - but so did spades, picks and hacks. After this this time any significant construction taking place on the castle cannot be expected. The state of affairs was so pitiable, in fact, that it begs the question whether the dominion's administrative centre had by that time already moved to the manor house in Valburga. Why would the owners – the nobles of Egkh – otherwise demand that the caretaker provides them with free access to the manor house? It is fairly certain that the old Smlednik Castle was completely abandoned in the 1630s and that it was then, when Count Verdenberg built a Renaissance mansion on the location of the old manor house in St. Valburga.[71]

Exactly when the relationship castle – manor house changed into the relationship *Old Castle – New Castle*[72] cannot be determined. The beginning of this process can be noticed as early as 1394, when Wilhelm Lamberger purchased the manor house under the Smlednik Castle from Wilhelm Luspergar. If the formulation *hof vnder Flednikg* indeed denotes the manor house in St. Valburga, then this is a point in time when the Smlednik Castle had already lost its role as the (sole) economic centre of the dominion, i. e. the Smlednik Castle already lost one of the key prerogatives of a castle. However, at this time it cannot be proven beyond any doubt that the document in question refers to another mansion.

Any detailed insight into the past of a medieval castle, especially a castle from the high medieval *golden era of castles*, must therefore include other sources, especially archaeological sources and an architectural analysis.

[71] Levec 1896, 36; Stopar 1998, 88.
[72] *Cf.* Štular 2009a, 32–34.

5 THE ARCHAEOLOGICAL REPORT ON THE 2011 AND 2012 EXCAVATIONS

Rok KLASINC

The small scale archaeological excavations aimed at determining the contents and composition of the archaeological site at Smlednik Castle[1] were carried out between 16th and 19th November 2011 and in May 2012. The main purpose of these excavations was to define the stratigraphy of the site and provide some archaeological context to the existing finds. To be more precise, the aim was to confirm the existence of archaeological layers that could be dated to the same period as the preserved remains of the walls of the medieval castle. This data were necessary in order to prepare a conservation plan for the castle. We also wished to subject the existing mortar remains from the castle's tower to radiocarbon dating and determine the age of the castle walls.

The excavations have been documented in a relative grid with a starting point in the Gauss-Krüger's (D48) grid: x – 5457307; y – 5113623; z – 514.86. The excavated area was 1.7 m wide, along the east side of the tower wall and 3 m from here towards the east, along the later east-west wall. By choosing this area we wished to find archaeological layers from the same period as the existing walls. The central area of the castle south and west of the tower has been severely damaged by modern conservation that included digging one or more metres under the walking surface that was preserved to the east of the tower. The limited works that were carried out to the north of the tower most likely destroyed most archaeological records; what has not been destroyed is most likely preserved to the same extent as the archaeological records on the east side.

During the excavation 9 stratigraphic phases which could be classified into four chronological periods have been defined (*Fig. 5.1*). Above the bedrock we have thus documented the prehistoric period (phase 2), High and/or Late Middle Ages (phases 3–6), the transition between the Late Middle Ages and the Early Post-Medieval Period (phase 7) and the recent history of the castle ruins (phases 8 and 9). For phases 3 to 6 it is especially important to keep in mind that these are stratigraphic and not chronological phases.

5.1 NATURAL LAYERS (PHASE 1)

The bedrock mainly consists of dark grey to black limestone flat chalk and layered limestone (Stratigraphic Unit - SU 58), which includes lumps, particles and even layers of chert in some places. Only on rare occasions are these limestone rocks light grey or even red, for as a rule these colours belong to the slightly more marly limestone that appears as inserts in the mainly dark limestone. The limestone is exceptionally dolomitised. As a result of tectonic thrusts the large rocks are often cracked towards the south and thus appear in the form of slates (Verbič 2012). The layers fall steeply towards the north; generally they are compact, except in the north-east corner of the excavation area (*Fig. 5.6*), where they appear to be crumbling, which is most likely the result of exposure to the weather conditions. To a certain extent this could also be the result of the terrain levelling that took place in the preparations for the castle construction.

In the north part of the trench the bedrock is covered by compact natural, i.e. non-man-made, red-yellow clay (SU 82), which is the thickest in the far north edge of the trench and alongside the tower, where it is at least 0.2 m thick (we did not reach the bedrock during the excavations).

5.2 PREHISTORIC PERIOD (PHASE 2)

The two documented prehistoric layers (SU 77, 59) have an almost identical composition and form, i.e. 10 cm thick dark brown clay silt. The layers are interpreted as the prehistoric walking surface (*Fig. 5.2*) and have been created when the upper part of the natural clay (SU 82), was anthropogenically transformed. One of the layers (SU 77) includes a few coarser compounds (rubble, small stones), which is a result of the bedrock

[1] Monument No. EŠD 5911, EŠD 22065, official name of the site Smlednik – Stari grad; k. o. Smlednik, alotment No. 635; Cultural protection consent of the Ministry of Culture No. 62240-418/2011/2 dated on 21. 11. 2011.

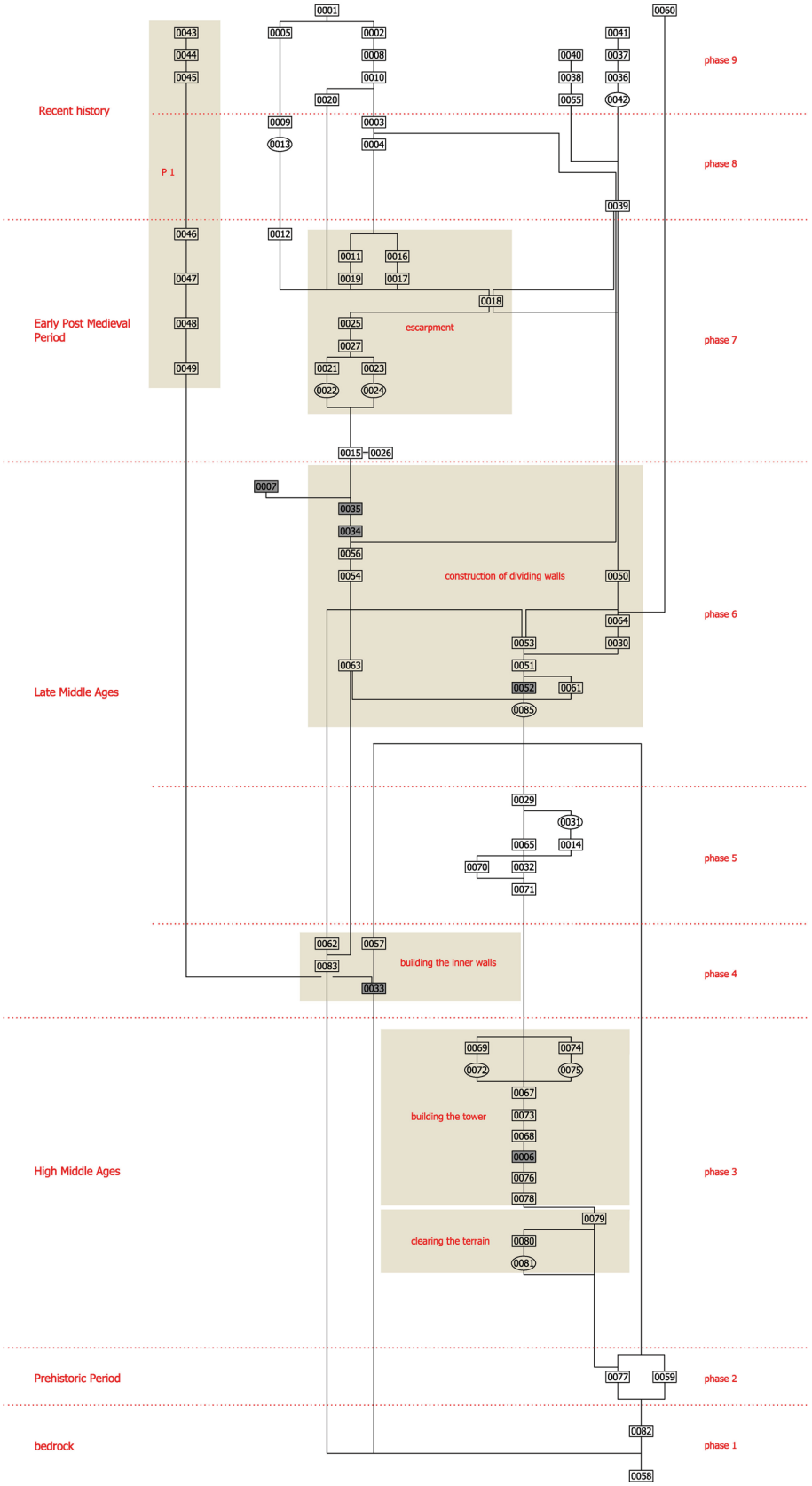


Fig. 5.1: Harris matrix of the 2011/2012 excavation.

Fig. 5.2: Prehistoric ground surface (SE 59 and SE 77), a view to the north (photo: Grega Babič).

crumbling due to weathering. Both layers revealed small fragments of animal bones and poorly preserved black pottery dated to the Early Iron Age (see chapter 3). Traces of fire in the form of an orange patch and charred stone at the edges have been documented on the surface of the hard clay silt (SU 59). The coloration of the soil was a few centimetres deep, but no compact pieces of burnt clay were to be found. However, the layer just above the prehistoric walking surface reveals that this was not a prehistoric fireplace but that these are traces of a fire that was started in order to clear the terrain in phase 3 (see next section).

5.3 HIGH MIDDLE AGES, BUILDING OF THE TOWER (PHASE 3)

In this phase the earliest stratigraphic units are represented by the layer of soft clayey sand (SU 79) and the pit (SU 81) with the filling (SU 80); these stratigraphic units are interpreted as clearance and the preparation of the terrain for the construction of a medieval castle. The pit could have been left behind after a large rock or stump was removed. The pit was filled in immediately with available materials, which is indicated by the pieces of clay from the sterile archaeological base (SU 82) found in the pit filling. The filling was covered by at least a few centimetres of dark clayey sand which included a lot of charcoal (SU 79). It is well preserved in the far northern part of the excavation area (alongside the tower), while it thins down towards the southeast and disappears after a bit more than 0.5 m into the castle. This layer could not be found in the central part of the excavation area, but it reappeared in the northeast edge of the trench at the end of the excavation trench. There it was seen as a few centimetres thick, fragile strip of charred matter filing the individual gaps along the rock. The preservation of the layer alongside the tower can be linked to the fact that in this area the layer was covered by other layers immediately after it was created. This layer can be read as a result of a fire that was started in order to clear the terrain, i.e. the vegetation was deliberately burned down in preparation of the construction site. This burning resulted in the previously mentioned traces of fire on top of the prehistoric walking surface (SU 59).

Fig. 5.3: The light firm layer of silty sand (SE 78), which continues under the foundations of the tower, presents the remains of the earthworks during the tower construction. A view to the northwest (photo: Grega Babič).

The remaining layers from this phase are linked to the construction of the tower; the oldest are the layer of sandy clay (SU 76) and the firm layer of silty sand (SU 78) underneath it, both a mere 2 cm thick; they are at their thickest alongside the tower, they thin out towards the southeast and disappear slightly over a metre away. Since both layers can be found under the tower foundations (SU 6), they are explained as traces of work connected to the construction of the foundations (*Fig. 5.3*). Two layers similar to each other (SU 68, 73) lay above the previously mentioned ones, and together they form an almost 0.4 m thick backfill layer. It is significant that both include not merely small and medium sized stone and gravel but also up-to-0.15-m-large chunks of yellowish plaster floors bound with sandy silt. The layers represent a backfill used to create a flat and compact working surface (SU 67), upon which the tower was built. The latter is an up-to-0.2-m-thick compact layer of slit sand, gravel and small stones, with pieces of the yellowish plaster floors. The upper level of the layer has not been flattened, but it visibly dips by 0.15 m over 1.2 m towards the south. All layers linked to the construction of the tower are cut off by the trench (SU 85) to the east, while to the north and south they continue outside of the excavation trench.

We have already mentioned the thin sandy layers (SU 76, 78) that continue under the tower foundations, while the remaining layers lean upon it. In a usual construction we would expect the trench for the foundations to cut into the flattened level or working surface (SU 67), however the mentioned layers indicate the opposite, for if this were the case they would be cut by the trench. It is impossible for the trench to end precisely above the 2 cm thick layer of friable sand (SU 76) and not damage it at all. We can thus conclude that the lower part of the tower foundations (SU 6) were built at the same time that the terrain alongside the tower was being raised (SU 68, 73, 67). The mentioned pieces of the yellowish plaster floors that appear amongst the cornerstones can only be remnants of an older plastered walking surface. The only possible interpretation is that they belonged to the interior of an older building.

On the level of the previously mentioned working surface (SU 67) we have managed to document two cuts with fillings (SU 69/72 and SU 74/75). The first is a linear trench (SU 72), up-to-0.45-m-deep, which runs

parallel to the south side of the excavation area and continues into the cross section, while the second is an oval pit (SU 75) slightly over 0.5 m in diameter and 0.6 m deep. The function of the trench is unclear, while the pit undoubtedly represents a posthole for a post the impression of which we have found at the bottom of the pit, in the form of a round 16 cm wide imprint in the prehistoric walking surface SU 77 (*Fig. 5.4*). Both cuts can be linked to the construction works that took place when the tower was being built (possibly a building construction or an elevator), and both are damaged on the east side by the previously mentioned small trench (SU 85) that cuts through all the layers.

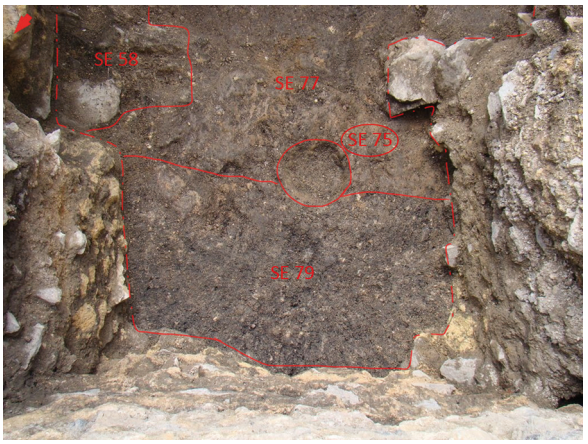


Fig. 5.4: The impression of a post at the bottom of the pit SE 75; photo oriented to the southeast (photo: Grega Babič).

5.4 LATE MIDDLE AGES 1, BUILDING THE INNER WALLS (PHASE 4)

This stratigraphic phase denotes the construction of the inner walls (SU 33), the outer face of which leans directly onto the bedrock, which dips sharply in this part of the excavation trench. The space between the outer face and the bedrock was filled with medium sized and large stones, covered with sturdy mortar (SU 57), upon which the inner face of the walls stand.

This 1.5 m long and 0.7 m wide filling runs alongside the walls. Towards the southeast it continues outside the excavation trench, while in the northeast part it ends just over 0.6 m before the transverse wall (SU 34). It is obvious that the base of the inner face is steeply descending in this area. The upper level of the layer, which was covered in mortar, formed the compact working surface for the construction of the inner walls. The same role was held by the 0.1 m thick compact layer of silt sand and gravel with no mortar traces, which also leaned directly upon the bedrock (SU 62). The third layer, i.e. the one that we have interpreted as the walking surface in the period during which the inner walls were under construction, is the 0.06 m thick layer of sand silt and gravel which appears on the bedrock right next to the wall (SU 83).

5.5 LATE MIDDLE AGES 2, REPAIRS (PHASE 5)

This phase marks the period after the tower and inner walls were constructed, but before the chambers within the castle perimeter were built (SU 34, 35). All layers of this phase lie to the far north of the excavation area and are cut off by the trench (SU 85) on the southeast. The top layer, and thus the youngest, is the up-to-0.15-m-thick layer of compacted dark grey clayey sand, gravel and some stones with up-to-5-cm-large pieces of pure orange clay (SU 29). This layer represents the compacted walking surface that is horizontal to the south, while to the north it leans upon the tower wall at a slight angle. Underneath this layer we have documented three non-compacted layers of clayey sand with gravel particles (SU 65, 32, 71). These layers also included a large concentration of stones (SU 70), as well as high numbers of pottery fragments, animal bones and metal objects. These layers are understood as refuse layers on the overgrown and only occasionally cleared backyard behind the tower, hidden from the main castle activities.

This phase also includes the clay coating (SU 14) with interfaces (SU 13) that cover the upper part of the tower wall. This could be the continuation of layer SU 29, which leans upon the wall.

5.6 LATE MIDDLE AGES 3, BUILDING THE CHAMBERS WITHIN THE CASTLE PERIPHERY (PHASE 6)

The processes in this phase, during which the dividing walls (SU 34, 35, 7) were constructed, are the hardest to understand (*Fig. 5.5*). The layers in this phase cover the central and south part of the excavation trench, but do not reach into the north of it. The first mentioned walls (SU 34, 35) were undoubtedly built during this phase, while the third wall (SU 7) is of a later date and could belong to phase 7.

On the edge of the north and central part of the excavation trench a vertical trench cuts through the older layers (from the bottom SU 68 to the highest lying SU 29); this is a trench (SU 85) or a border surface where the terrain was prepared for the building of the walls (SU 34 and 35). The trench can be followed as deep as the sterile clay (SU 77), where it becomes unclear whether layers from the 3rd phase (SU 76, 78) were cut off by the trench or whether they end just before the edge of the trench. This is not considered a classic trench, where the older layers would be completely removed, but as

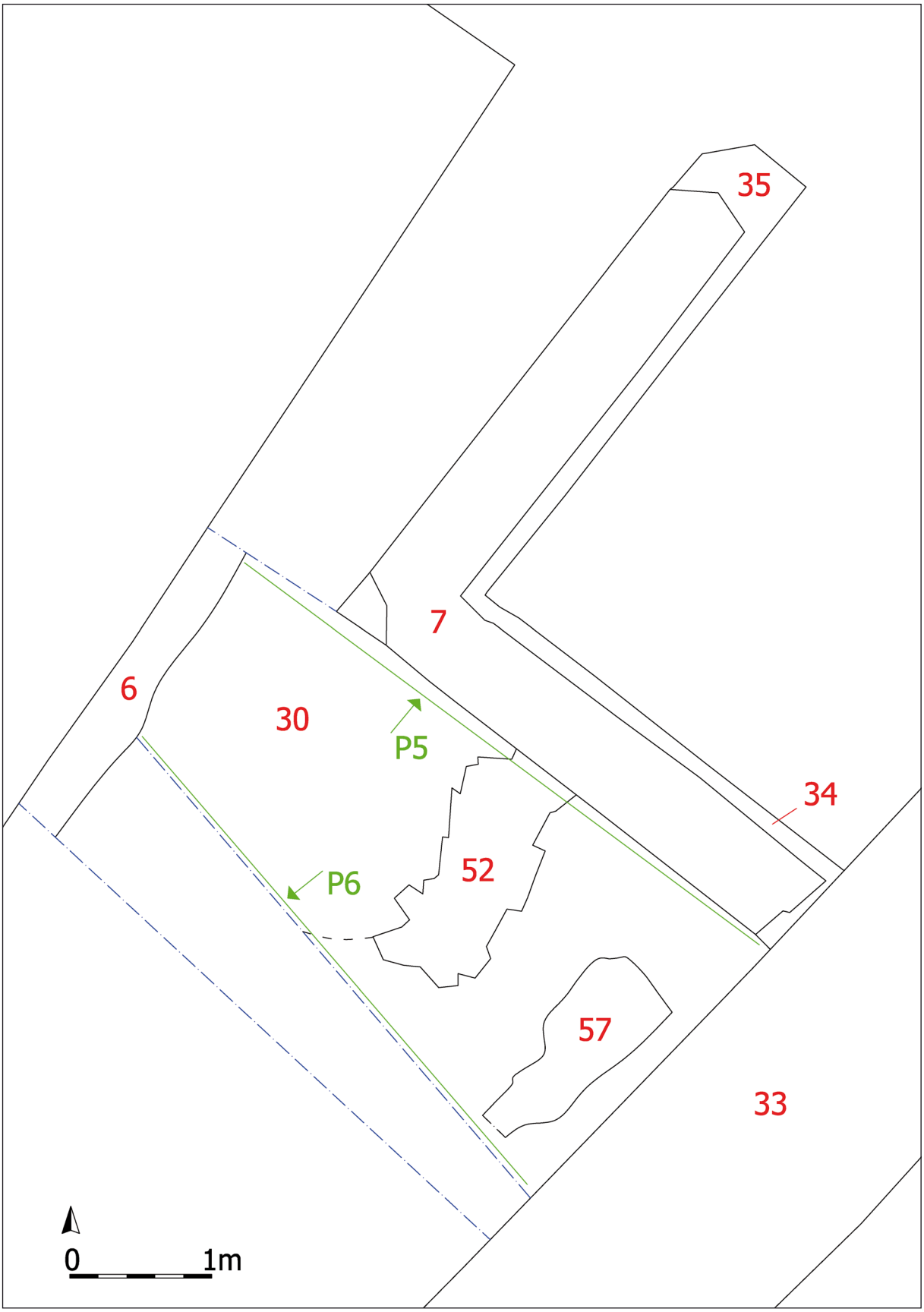


Fig. 5.5: Composite plan of structures and stones (SE 30). The excavation area is blue, the positions of sections P 5 and P 6 are green.

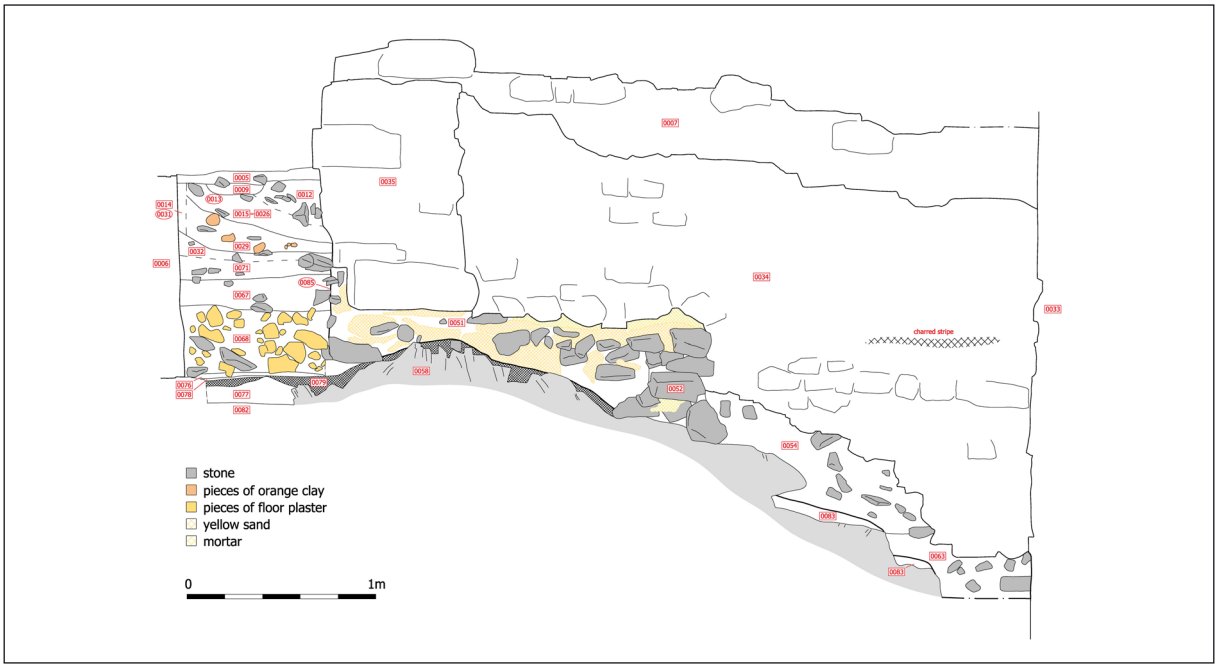


Fig. 5.6: Drawing of section P 5.

a cut into the layers with which the existing edge was straightened. We believe that the older phase 3 layers already ended with some sort of a reinforcement or support at the point where the trench is located, possibly with a wooden fence, which was removed with this intervention (SU 85). Further on towards the centre and south part of the excavation area this border surface cuts through the layers which were on the surface at the time of construction.

Following the previously mentioned preparation of the terrain the central part of the trench was filled in, or levelled out, with a layer of grey silt sand, gravel and small stones (SU 61) that was 0.1 m thick on average. This layer can be clearly seen in the cross section, however it does not reach under the transverse wall or phase 5. Towards the southeast it reaches to the retaining wall (SU 52), which lies partially on the prehistoric layer (SU 59), and partially on the bedrock (SU 58). The retaining wall is 1.7 m long, 0.6 m wide and runs perpendicular to the transverse wall (SU 34). The east face of the retaining wall is roughly straight and is covered in a thick layer of mortar, while the west face is non-existent. On one side the wall functions as a support for the transverse wall, while on the other side, towards the southeast, it is strengthened by the edge of the 0.25 m high terrace. The top of the retaining wall is not covered in plaster, but is smoothened with a few centimetre thick layer of friable yellow sand and gravel (SU 51). The sand also fills the individual cracks between the stones in the retaining wall, runs above it and continues across the cross-section, where it covers the previously mentioned gravel layer (SU 61) for its entire length. It can also be followed across the entire length of the cross-section where it covers the bedrock and the charred layer (SU 79) and serves as a base for the transverse wall (SU 34). At this point the layer (SU 51) is somewhat thicker (up to 0.3 m) and includes a relatively high share of large stones. It is interesting that the layer appeared only in a relatively narrow strip above the retaining wall (SU 52), while it did not appear in the central part of the trial trench or above the gravel layer (SU 61). In this part the latter is covered by a layer of medium size and large stones, loosely stacked with no order, with a lot of empty space between them (SU 30), which gives the impression of a ruin. Amongst the stones one could find faint, dark grey, silty sand with gravel, quite a few pieces of the walking surface and charcoal (SU 64). Apart from this we have also found numerous fragments of Late Medieval pottery, animal bones and forged iron nails. On one side the stones (SU 30) leaned upon the sand (SU 51) and the retaining wall (SU 52), while on the other side they leaned upon the lower part of the transverse wall (SU 34), with some stones even reaching under the wall. The stones (SU 30) are clearly visible in the phase 5 cross-section; small stones dominate and the layer lies on top of the yellow sand (SU 51; *Fig. 5.6*).

The lower, southern terrace is covered by rubble that is rather similar in its composition, and that sits upon the older layers (SU 57, 58, 59, 62, 83) at an angle. Three layers (SU 63, 54, 56) follow one another alongside the transverse wall (SU 34), and it is on these layers that the wall stands. These are dark, grey, light sandy layers with

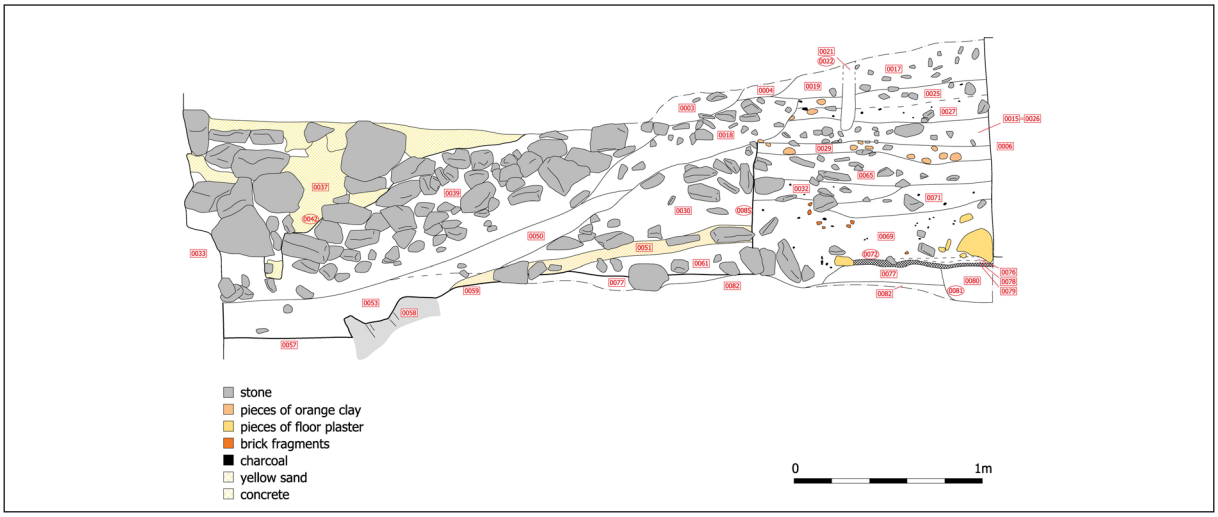


Fig. 5.7: Drawing of section P 6.

gravel and small stones and numerous pieces of the yellow walking surface. This could originate from the backfill (SU 68) that was damaged by the mentioned trench (SU 85). The top of the sand layer (SU 54) is preserved merely in traces as it was damaged by modern interventions (SU 38, 39). It was roughly 0.25 m below the main terrace or the top of the retaining wall (SU 52), which formed a step and was thus visible on this side. The upper part of the previously mentioned sand layer (SU 54) thus leans upon the retaining wall (SU 52). An almost 0.8 m wide strip of sand rubble (SU 53) covers the last stones of the retaining wall (SU 52) and gradually descends to the wall (SU 33) along the western edge of the excavation area, where it creates a ramp and makes it easier to approach the south terrace from the main terrace. The 0.2 m thick layer of rubble (SU 53) is composed of light yellow-brown, slightly adherent sand and gravel, with rare pieces of yellow walking surface. This area revealed quite a few finds: Late Medieval pottery, animal bones and forged iron nails. Towards the northwest the layer ends rather steeply, with the backfill (SU 54) leaning upon it. The last backfill in the series (SU 50) is the slightly adherent layer of pale yellow sand with gravel. On the southwest edge of the excavation trench it leans upon an older backfill (SU 53), a ruin (SU 30) and gently levels out the slope, which dips evenly from the top of the trench (SU 29) to the inner walls (SU 33), as can clearly be seen in the cross-section P 6 (*Fig. 5.7*). In the lower part the layer is 0.5 m thick, and it narrows down towards the northwest and soon disappears into the cross-section.

From the functional aspect the above interpretation is somewhat ambiguous. Especially problematic is the rubble layer (SU 30), which on one hand manifests itself as a ruin, but on the other hand it, together with the backfill, represents the foundations of the transverse wall (SU 34; *Fig. 5.8*). In addition, it clearly leans upon the wall in the trench (SU 85), which undoubtedly places it into this phase. The layer is not compact, has an uneven top and empty spaces between the stones, which does not make it the most suitable as a levelling layer. The function of the retaining wall (SU 52) only makes sense if it supports the levelling surface on the inner side. The most likely explanation seems to be that there was a wooden construction or a platform on stones on the central terrace, and that this leaned upon the previously mentioned retaining wall. If we accept the hypothesis that the platform burnt down at some stage, the charcoal and the forged nails found amongst the stones (SU 30) and the sand layer (SU 64) could be traces of it.

5.7 EARLY POST MEDIEVAL PERIOD (PHASE 7)

The two postholes with their fillings (SU 22/21 and 24/23) are amongst the first elements of this phase. The poles were hammered in from the level of the walking surface (SU 15 = 26). The latter was covered by a layer of backfill, a brown layer of clayey sand (SU 27), which was in turn covered by a similar layer of clayey sand (SU 25). The two small holes in this layer were filled with yellow-brown clayey sand (SU 16, 17). These layers represent the levelling out backfill, and were all documented merely in a narrow strip right alongside the tower, i.e. directly above the compacted walking surface belonging to an older phase (SU 29). They were covered by a very dark grey-brown sand layer (SU 18) with a high percentage of charcoal. The latter continues into the central part of the excavation trench, where it covers the rubble and levelling out layers, which fill the trench or the border surface for the construction of the transverse wall (SU 85). In the north of the excavation trench the sand layer

Fig. 5.8: Large stones (SE 30) alongside the traverse wall (SE 34). In the forefront we can see the retaining wall (SE 52) with traces of yellowish sand and gravel (SE 51) in the upper part. A view to the north (photo: Grega Babič).

(SU 18) was covered by an additional sand layer (SU 19), which ran parallel to the tower wall (SU 6), and alongside a high proportion of charcoal also included large sandstone quarry stones. As the individual stones were not in direct contact, we can conclude that this was not a wall. In certain places this layer was covered by a similar sand layer (SU 11), which did not include any sandstone quarry stones, but did include pieces of mortar. This was interpreted as an escarpment. The two aforementioned posts (SU 21/22 and 23/24), that were connected by a wall made from organic materials, most likely intertwined wicker, represented the support elements for this escarpment. Rubble piles (SU 27, 25, 17, 16) were found between the tower walls and this wicker wall, while other backfill (SU 18, 19, 11) leaned upon the wicker wall. The task of this escarpment was to strengthen the walking surface, a narrow path that led alongside the tower. This phase is dated to the period when the tower was last in use.

An additional four stratigraphic units, documented only in the P 1 cross-section along the northeast corner of the inner walls (SU 33), outside of the excavation area (*Fig. 5.9*), can be conditionally dated to the same phase. The layers were not excavated, thus their interpretation is temporary. Two layers of sand, gravel and medium sized and large stones, up to 0.7 and 0.4 m thick respectively (SU 47, 49), are interpreted as ruin layers. Between them lies a 0.1 m thick levelling layer comprised of coarse sand, gravel and crushed bricks (SU 48). Above the first mentioned ruin layer (SU 47) lies an up-to-0.3-m-thick layer of dark grey sandy silt and coarse sand with individual small stones (SU 46), which is also interpreted as a levelling backfill. We consider this levelling process to be the final act in arranging the castle surroundings, at the time when the walls already started decaying. This is confirmed by the finds in these layers: the iron pellet for the hand held gun and the Early Post Medieval pottery.

5.8 RECENT HISTORY (PHASES 8 AND 9)

Phase 8 consists of the layer of sand backfill (SU 3, 4), the trench filled with sand (SU 9, 13) and the up-to-0.6-m-thick sand layer (SU 39). The finds include a mixture of medieval, post-mediaeval and modern pottery fragments, glass and metal. The layers have been interpreted as ruins of the surrounding walls spanning from the time when the castle was abandoned to the beginning of the conservation works in the 1960s.

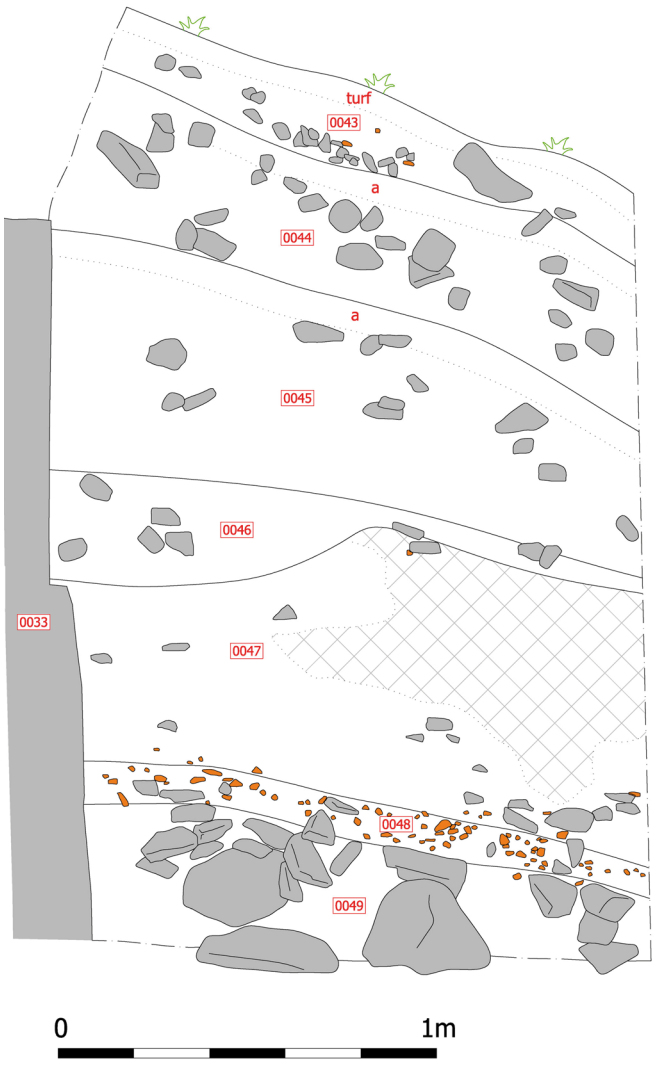


Fig. 5.9: Drawing of section P 1.

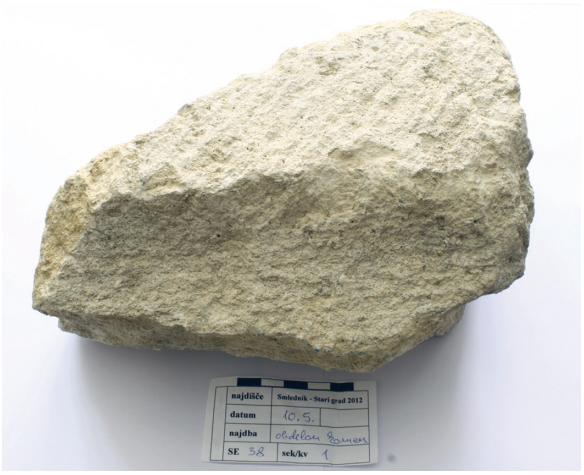


Fig. 5.10: A manipulated piece of yellowish sandstone.

Fig. 5.11: A yellowish sandstone lintel *in situ* (photo: Grega Babič).

The last phase, phase 9, consists of layers that have developed during the conservation works. A narrow layer of ruins (SU 5) was documented alongside the tower; the central part of the excavation area revealed another four sand levelling layers (SU 2, 8, 10, 20), all of which were covered by a recent sand levelling layer (SU 1). The plastic bottles, tins, beer bottles and similar confirmed that these were recent layers.

Numerous backfill layers developed (SU 36, 37, 41) during the construction of the concrete water reservoir (SU 36). These are located west of the trench, between the tower wall and the inner walls (SU 33). The trench excavated for the water tank (SU 42) was filled with a fine layer of dark silt sand mixed with gravel (SU 41).

The next set of layers with a mixture of Medieval, Post-Medieval and Modern finds (SU 38, 40, 55) is linked to the conservation works in the 1960s and 70s. During these works a large part of the ruins (SU 39) was removed, and in places (in the east corner of the trench, i.e. where walls SU 34 and 33 are connected) the works also damaged the lower lying archaeological deposits (SU 56, 54, 63). The backfill (SU 55) appeared as a result of these works. The same can be said for the layer lying above it (SU 38), which ran next to the support wall (SU 52) and the deep under wall (SU 34). At this spot the layer was especially fine and it included a higher number of modern finds – it seems that the wall was partially destabilized during the conservation works. Within the layer we discovered two pieces of masonry: a worked limestone (*Fig. 5.10*) and a yellowish limestone crossbeam measuring slightly over one meter in length (*Fig. 5.11*). This layer was covered by a burnt layer of

black sandy silt with a lot of charcoal and numerous modern nails (SU 40), which marked the final act of the conservation works. The layer was interpreted as a site where construction wood was burnt, since the traces of burnt wood can be seen in the charred stripes that are documented on the walls (SU 33 and 34), and which coincide with the height of the top of this layer.

This phase also includes the uppermost layers covering the slopes outside the inner castle walls documented in the cross-section (SU 43, 44, 45; *Fig. 5.9*). These layers follow the slope, and do not include any finds. The upper part of each layer was darker and included more soil, which indicates that turf was formed. This means that the layers were not all created at the same time, but at certain time intervals.

Understanding this phase is important for the comprehension of the events that accompanied the conservation works and the processes that followed them. The documentation related to these works is so modest that it needs to be supplemented with the findings from archaeological excavations (see chapter 2).

5.9 INTERPRETATION

In the continuation we will attempt to define the time scales for the individual construction phases. One of the main purposes of this research was to confirm or reject weather or not the tower and the castle's inner wall are contemporaneous. The direct stratigraphic contact between the layers connected to the construction of the tower and the construction of the inner walls (SU 33) is unfortunately not preserved, however certain characteristics of the layer compositions indicate that these construction works were not related. A significant number of fragments of yellowish plaster floor were found in the foundations of the tower as well as in the supporting layers alongside it (SU 68), which are dated to the same period as the tower. These refuse materials from the previous building were used to fill in the holes. A similar layer, which also includes pieces of mortar from a destroyed wall (SU 57), developed during the construction of the first layers of the inner walls; however this layer did not include any traces of the plaster floor, even though the distance between the inner walls and tower is merely 4 m.

The transverse walls, i.e. walls SU 7, 34 and 35, were constructed at a later stage than the inner walls SU 33; the crevice where wall SU 34 leans upon the inner walls is a telling witness to this. The backfill SU 54 and 63, upon which the transverse walls stand, do not appear to make sense in the construction phase. In this phase the bedrock was on the very surface and the transverse walls were placed onto it just as the inner walls were.

Taking the above into account it seems that we have enough indicators - regardless of the lack of a direct stratigraphic contact - to consider the building of the tower and building of the inner walls as two separate events. At a later stage a smaller building with walls SU 7, 34 and 35 was attached to the inner part of the walls.

It is difficult to provide the absolute dating for the various events, especially the construction of the tower. The rare datable pottery fragments that were found in the construction layers (SU 78, 76, 68, 73, 67) are Late Medieval and could not have been made before the 13th century. Based on the pottery analysis we have determined the remaining Mediaeval phases (phases 4 – 6) to be Late Medieval and we have thus dated them between the 14th and the first half of the 16th century.

The issue of the provenance of the large chunks of the yellowish plaster floor remains open. In the oldest layers linked to the construction of the tower (SU 68), these appear as multiple large chunks and are interpreted as secondary refuse. The pieces can measure up to 15 cm in length, and between 4 and 7 cm in thickness; one side is smoothened. They also appear in the smaller construction works (transverse wall, backfill SU 54, 56, 63), where they most likely represent tertiary refuse (fewer pieces, higher level of fragmentation). The yellowish sand SU 51, upon which parts of the SU 34 and 35 walls stand, is of the same colour, which leads us to the conclusion that it is - to a great extent - comprised of shattered pieces of the same plaster floor.

6 SMALL FINDS

Benjamin ŠTULAR

This chapter will address all currently known archaeological small finds from Smlednik Castle.

The finds from the older excavations are kept by the Museum and Galleries of Ljubljana and the Museum of Gorenjska. This group includes mostly metal small finds, unfortunately without their archaeological context. The analysis also includes the stove tiles of which only drawings survived in the Museum of Gorenjska. Most of the pottery addressed was collected during the archaeological excavations, which took place in 2011 and 2012. With the exception of rim shards fragmented pottery is usually not as rich in information as metal artefacts, however their archaeological context is known (see chapter 5). The full description of each artefact is given in the catalogue (see chapter 15).

Small finds are addressed in three groups. The first group includes metal, bone and glass finds. As stated the archaeological context for most of these is unknown. In the second group pottery is analysed. As this group reveals the most when addressed as a whole a quantitative analysis was applied. The book clasps and bosses are treated separately, for this is the most important group of artefacts from Smlednik Castle. The chapter ends by interpreting small finds within the context of Smlednik Castle.

6.1 METAL, BONE AND GLASS ARTEFACTS

6.1.1 JEWELLERY AND OBJECTS FOR PERSONAL USE

The finds from Smlednik Castle include three copper alloy ***finger rings***.[1] The first (***Cat. No. 1***) is a tin ribbon ring with a frontal plate. It is a simple ring that was made using the same technique as some Early Medieval rings.[2] No analogies were found for this ring amongst the High and Late Medieval rings.

The second ring from the Smlednik Castle is a gilded forged copper alloy ribbon ring, decorated with three applied longitudinal ribs (***Cat. No. 2***). It is similar to the Early Medieval ring found in the Ljubljanica river[3] or the rings found in 10th century graves in Ptuj[4] and Bled castles for instance.[5] No analogies were found for this ring amongst the High and Late Medieval rings.

The third ring is a gilded cast copper alloy signet ring with a crescent and a star (***Cat. No. 3***). Taking into account the motif and form[6] this is most likely a High or Late Medieval ring. In medieval iconography the sun is often a metaphor for god, while the moon is a metaphor for the king: just like the moon does not have its own light, but merely reflects the sunlight, the king merely reflects god. The moon is sometimes used as an iconographic metaphor for secular authorities in general.[7] A ring with this motif is mentioned in the 1295 inventory of the papal curia.[8] Territorially closest is the comparison with the seal of the town of Kamnik, where the tower, dragon and St. Margaret are accompanied by a crescent and a six-sided star in its first versions (end of the 13th century to the 15th century).[9] Much later, in the 19th century, the motif of the crescent and the star is associated with freemasons (for example on cufflinks).[10]

The tin non-ferrous circular pendant with the motif of a human face (C***at. No. 4***) might have served as a decoration on a button made from organic matter. Buttons came into general use in the 13th century,[11]

[1] A laboratory analysis of material composition was not performed on these artefacts. According to experience it seems that such artefacts from the Middle Ages and the Post Medieval Period were usually made from brass or other copper alloys, often from almost pure copper; bronze was rarely used for small artefacts. For the purpose of this text, we will use the generic term copper alloy artefacts. This term includes bronze as well as all other types of copper alloys.

[2] E.g. Knific, Pleterski 1981, T. 12: 34/6; Štular 2007b, Fig. 2: 10 and 22.

[3] Bitenc *et al.* 2009, 306–307.

[4] Korošec 1999, T.5: g. 43: 4; T. 6: g. 55: 4; T. 9: g. 82: 9 etc.;

[5] Valič 1964, T. II: 7 etc.

[6] E.g. Boardman, Scarisbrick 1977, Cat. No. 142 and 143.

[7] Le Goff 1988, 148.

[8] Lightbown 1992, 18.

[9] Otorepec 1988, 51–62.

[10] Majewski, Gaimster 2009, 220–221.

[11] Predovnik, Dacar, Lavrinc 2008, 75.

however the buttons found at Smlednik are not typical medieval buttons[12] and this one is most likely of an Early Post-Medieval date.

The copper alloy ***plaque*** or pendant made in the perforated technique (***Cat. No. 5***) might be a part of clothing or a part of a horse harness. The motive consists of the letters "R", "A" and "S" in majuscule and two transversal lines.

The finds include two ***spoons*** with handles with a rhombic cross-section; the first (***Cat. No. 6***) has a concave and the other a flat (***Cat. No. 7***) bowl. The latter is not unusual for medieval spoons. Spoons were usually made from various non-ferrous alloys or sometimes even lead. The rhombic cross-section of the handle and especially the skilfully decorated button on the handle are the two elements which allow to roughly date the two Smlednik spoons to the 15th century.[13]

Non-ferrous tin ***thimbles***, as found at Smlednik Castle (***Cat. No. 8, 9*** and ***10***), are relatively common finds in settlements from the Late Middle Ages onwards. As they are functional artefacts, their form and material did not change greatly through time: mostly they are made from a zinc alloy. Thimbles with a dome top, similar to the ones found at Smlednik, were found in the mid 15th century top soil[14] at the Bedern site in York, England as well as in the first half of the 15th century contexts in London.[15]

6.1.2 SHACKLES AND OTHER COPPER ALLOY ARTEFACTS

The finds from Smlednik also include a copper alloy protective panel from a small ***rotary-lock mechanism***[16] with a preserved piece of wood. Based on its size this lock was most likely a part of a chest (***Cat. No. 11***). Such rotary-lock mechanisms were in use throughout the Middle Ages, from the 9th or 10th century onwards, through the 11th and 12th centuries, in Switzerland between the 12th and the 16th century, and in Germany from the end of the 13th to the beginning of the 15th century.[17] However, keys are much more commonly found in archaeological contexts than locks. The key already had a symbolic value in medieval times, which is indicated, for instance, by the numerous Late Medieval depictions of St. Peter as the heavenly gatekeeper. Keys were also interesting artefacts that drew the attention of early collectors, which might be the reason why no keys were found in the collections from Smlednik Castle.

The copper alloy ***plaque*** with a vegetation decoration is most likely a part of a horse's harness (***Cat. No. 15***). Such artefacts are extremely hard to define as regards their function and dating. A similar artefact from medieval London was defined as a part of a horse's harness and dated to the end of the 14th or 15th century.[18]

The copper alloy ***belt buckle*** with a double square frame and punctured belt shackles (***Cat. No. 16***) was most likely a part of spurs. A similar, but not as elaborately made belt buckle, was found in medieval London, in layers dated between 1270 and 1350.[19] The elaborate craftsmanshift of the Smlednik buckle indicates[20] an Early Post-Medieval date.

The second belt buckle is a simple copper alloy buckle with a square frame (***Cat. No. 17***). These belt buckles are impossible to date typologically, for they are the second most popular medieval type of belt buckles, after D-frame buckles. Buckles similar to the Smlednik one, have been found in 14th century contexts in York, England.[21]

Rumbler bells[22] (***Cat. Nos. 18*** and ***19***) are artefacts for making sound, similar to small bells. They differ from small bells as the clapper does not hang within the bell, but is placed in the closed or almost closed interior of the rumbler bell. The round or conically shaped rumbler bells can be either cast or made from sheet metal. In the High Middle Ages the most common were round sheet metal rumbler bells that measured between 1.5 and 3.5 centimetres in diameter, which is a perfect description of the Smlednik examples. Round sheet metal rumbler bells are usually made from four parts: two sheet metal hemispheres, a loop and the clapper. Usually all parts are made from copper alloy, with the exception of the clapper, which is in most cases metal, but can sometimes be replaced by a small pebble. The copper alloy characteristics provide an ideal ratio between form, strength and sound of the bell.

Fragments of two rumbler bells have been found at Smlednik Castle. With a diameter measuring 2.6 and 2.1 cm they are medium sized rumbler bells, categorised as type 1 by Krabath[23] or D 1 by Spindler[24], which are both most commonly dated to the 13th and 14th century. One of the oldest rumbler bells originate from the North German towns of Lübeck and Braunschweig, the first dated to around 1200 and the second to around 1230/40. Numerous rumbler bells found North of the Alps are dated between the 13th and 16th century. Similar dates

[12] E.g. Ottaway, Rogers 2002, 2918-2921.

[13] See Egan 1998, 245–252.

[14] Ottaway 2002, 2739–2741.

[15] Egan 1998, 266–268.

[16] See Štular 2009a, 83–88 and the bibliography quoted there.

[17] Štular 2009, 87.

[18] Clark 2004, 53–54.

[19] Clark 2004, 150–151, Fig. 109: 373.

[20] E.g. Egan, Pritchard 2002, 21–23.

[21] Ottaway, Rogers 2002, 2891–2893.

[22] See Štular 2009a, 114–117 and the bibliography quoted there.

[23] Krabath 2001, 215–225.

[24] Spindler 1998, 32–38.

hold for the rumbler bells in Alpine lands, where they peaked in popularity in the middle and second half of the 14th century.

Rambler bells are common finds at castles, they were found at the nearby Mali grad in Kamnik, as well as at the sites of Mstěnice in the Czech Republic and Alt-Wartburg, Scheidegg and Alt-Wädenswil in Switzerland. The distribution map of round sheet metal rumbler bells shows that North of the Alps they were most popular in England, France and Germany. We can add at least seven examples from Slovenia to the aforementioned examples from Alpine countries.

The last artefact in this group is a copper alloy ***console***, which could have supported a shelf (***Cat. No. 20***). The shape of the partially preserved round attachment opening leads us to assume that the artefact was cast so that it would be screwed in by a screw. As such it is of course of a modern date.

6.1.3 TOOLS

Five metal artefacts from the tools category were found at Smlednik Castle.

The ***sickle***[25] is one of the first agricultural tools, for it was known already in the Neolithic period. By the Middle Ages the sickle was not used merely for harvesting grain, but was also commonly used for various tasks in castle gardens, which makes the sickle a common find in castles, including castles where no other agricultural tools were found. The shape of the sickle has remained almost unchanged since Late Antiquity. Typologically sickles are differentiated as regards the shape of the blade and the transition between the blade and the handle.

Two sickles (***Cat. No. 21***) were discovered at Smlednik Castle. Brmbolić classifies the first Smlednik sickle, the blade of which turns sharply after the first quarter, as type 1 Б. This type is more popular in the eastern part of Central Europe, for instance in the Czech Republic and Slovakia. The second sickle from Smlednik belongs to group I A or I B according to Brmbolić, the same group which also includes the three examples from the Belgrade National Museum. Characteristic of them is a rounded blade shaped like the letter "C". The sickle from the French fort Colletiere a Charavines and the sickle from the Hünenburg Castle in Lower Saxony, both dated into the 11th or 12th century, are also similar. However, neither Smlednik sickles differ greatly from the fragments of the sickle found in the oval shepherd's house on Velika planina, which was in use from the 16th to possibly the beginning of the 18th century.

The ***iron handle of a bucket*** (***Cat. No. 22***) is a functional object that is impossible to date precisely, as similar artefacts can be found in High as well as Late Medieval contexts.[26] The size of the Smlednik handle and the relatively low arch indicate that the handle was most likely in use with one or more chain links on each side. As it is a relatively small, this could also be a handle from a piece of furniture, for instance a chest.

It is impossible to establish the function and date of origin of the triangular metal artefact (***Cat. No. 23***).

The ***iron wedge***[27] (***Cat. No. 24***) is a wood working tool. This is a forestry tool or tool for coarse woodworking, commonly found in ministerial castles. Joinery and carpentry tools were common in all castles. Various sized wedges were used for chopping down trees and splitting logs. The medieval wedges found in York range between 30 and 104 millimetres in length. This is a simple wrought iron artefact, similar to an axe blade. When viewed in its cross-section it narrows down to a blade in the lower third. When viewed from the wider side the artefact appears rectangular or narrows down slightly from its base towards the blade. The base often shows traces of use, as it was frequently driven with a heavy hammer or axe. As an analogy the York wedges from 11th and 12th or 12th and 13th century stratigraphic contexts can be mentioned.

Due to its poor condition it is impossible to determine the use for the iron artefact with a square cross-section (***Cat. No. 25***). It is also impossible to determine the use for similar, but smaller, rod like artefacts (***Cat. No. 26*** and ***27***). The latter could be a damaged large nail.

Chain links shaped like a figure eight[28] (***Cat. No. 28***) appear in various sizes and are relatively common in High and Late Medieval contexts. Such links with an attachment link were found in Veliki Gradac, a site in Vojvodina, which was dated to the 10th and 11th century. Small figure eight shaped links, measuring 0.5 centimetres in length, were found amongst scrap metal in the village's blacksmith in the Czech site of Sezimovo Ústí-Nové Město, which was abandoned by 1420 at the latest. Individual links were also found in the Swiss castle of Clanks, which was destroyed in the 13th century, while at the Swiss Madeln Castle they represented a part of the shackles used to chain legs and hands. Twice the size of the Smlednik links were links which were a part of the chain used to lift a wooden bucket from an early 15th century well in York, while only slightly smaller were links found at the same site, but in a 15th and 16th century context.

No analogies were found for the ***iron cover for an oval artefact*** (***Cat. No. 29***). It could be an outer mantle for weights filled with e.g. lead.[29] We assume that this is a Post Mediaeval artefact.

[25] See Štular 2009a, 88–89 and the bibliography quoted there.

[26] Egan 1998, 177–178.

[27] See Štular 2009a, 90 and the bibliography quoted there.

[28] See Štular 2009a, 120 and the bibliography quoted there.

[29] *Cf.* E.g. Egan 1998, 301–329.

The Smlednik finds included four ***nails***.[30] Their size and shape indicate their use. As regards their shape, the head is the most important, for it is necessary in order to drive the nails in, but it can also have a decorative (furniture) or functional (shoes, horseshoes) role. When determining their use we followed the general scheme according to which nails that measure 10 centimetres or more are used as building material, those measuring up to 5 centimetres are used to fasten horseshoes, while short nails were used for shoes.[31]

Nails with a rectangular head measuring up to 6 centimetres in length (***Cat. No. 30, 31*** and ***33***) were most likely used for joining small building elements, while those measuring roughly 10 centimetres in length were used to join larger building elements, e.g. roofing boards. As the only remains of the Smlednik nails are not-at-scale-drawings, one can merely assume that the preserved examples were used to join building elements.

6.1.4 WEAPONS AND HORSESHOES

Arrowheads[32] are the most common part of a firing weapon that is preserved in the archaeological records within medieval castles. One should not treat an arrowhead without considering its broader context, i.e. the arrow and the bow or crossbow. Attributing individual arrowheads to a bow or crossbow is the main theme of numerous papers on High Medieval and Late Medieval arrowheads. This issue was especially popular amongst German speaking researchers, as the German language differentiates between arrowheads found on an arrow fired by a bow (*Pfeileisen*) or a crossbow (*Armbrustbolzen*). Throughout the High and Late Middle ages, until firearms prevailed, the longbow and crossbow were used simultaneously. Crossbow archers were usually held in higher regards; from the 12th century onwards they were often equipped with protective gear and a sword and could be found riding horses, as the weapons were complementary. The advantages of the bow lay in its cheap production and fast reloading, while the crossbow's advantages lay in its greater precision and penetration. The penetration is proportional, and the speed is inversely proportional to the arrow's kinetic energy. In practice higher kinetic energy means more time spent tensioning the weapon. This means that for greater penetration, longer preparation for the shot was necessary.

The most common elements for differentiating between arrowheads for a longbow or crossbow are their weight and base diameter, less frequently their length. The ideal crossbow arrow is 390 millimetres long, measures approximately 15 millimetres in diameter and weighs between 60 and 70 grams. The ideal longbow arrowhead is between 70 and 80 millimetres long and weighs between 30 to 40 grams, but certainly no less than 28 grams. Other authors set a similar maximum weight for the heaviest longbow arrowheads, 25 grams, however a study of eighty-six preserved crossbow arrows of an undefined age showed that the arrows themselves were mainly made from oak and that the weight of the arrowheads ranged between 11 and 47 grams. The diameter of the base ranged between 10 and 12 millimetres.[33]

Ten arrowheads were found at Smlednik Castle. Four (***Cat. No. 34, 35, 36*** and ***37***) were arrowheads on tangs with a spear like body, characteristic of the High and Late Middle Ages. All had a massive spear shaped body with a square or rectangular cross-section. This was a typical battle arrowhead – type D 2–4 according to Zimmermann[34] –, intended to pierce armour. Somewhat unusual is the square cross-section of two examples, which is usually found on similar arrowheads on sockets. A square cross-section appears to be more common in Eastern Europe. Such arrowheads were most likely not used before the 12th century, and they remained in use throughout the 13th and 14th centuries. In the Czech Republic and Slovakia such arrowheads were used in the 13th and the beginning of the 14th century.[35] The closest analogies can be found on Mali grad in Kamnik[36] and at the Kostanjevica fort.[37] These analogies are surely representatives of the slender variety (***Cat. No. 35***), which was most likely used on arrowheads for longbows. The remaining three examples are not as well preserved, but they appear to be more massive and as such better suited for crossbows.

The arrowhead on the tang with a spear like rhombic shaped body (***Cat. No. 38***) is a variation of a characteristic battle crossbow arrowhead.

The arrowhead on the tang and a pyramidal body with a triangular profile (***Cat. No. 39***) is somewhat rarer. A good analogy can be found at fort Kostanjevica, although its archaeological context is unknown.[38]

Four arrowheads on tangs and a deltoid body (***Cat. No. 40, 41, 42*** and ***43***) are also typical battle arrowheads – type 9 according to Predovnik[39] or type M 10 according to Jessop[40] – used to pierce armour. Characteristic of this type is the narrowing of the body in the lower third and the widening in the upper third. The upper third of the arrowhead has a square cross-section, while the lower third has a circular one. The stockier speci-

[30] See Štular 2009a, 91 and the bibliography quoted there.
[31] Štular 2009, 91.
[32] See Štular 2009a, 106–113 and the bibliography quoted there.
[33] Zimmerman 2000, 25–28.
[34] Zimmerman 2000, 74–76.
[35] Štular 2009a, 113 and the bibliography quoted there.
[36] Štular 2009a, t. 5: 12.
[37] Predovnik 2003, Fig. 76: 804.
[38] Predovnik 2003, 94.
[39] Predovnik 2003, 95.
[40] Jessop 1996, Fig. 1.

men (***Cat. No. 41***) stands out slightly, however it seems that this is just a variation within the type. Numerous analogies for such arrowheads can be found in Central Europe, where they are usually dated between the 12th and 14th century.[41]

All of the Smlednik arrowheads that could be weighed were categorised as crossbow arrowheads when weight categorisation was applied.[42] Regardless of the previously listed High Middle Age analogies we need to take into account that such arrows were used in combinations with crossbows as late as the 15th and 16th century.

In the 15th century crossbows were gradually substituted by handheld canons or arquebuses. Two ***bullets***, one iron (***Cat. No. 44***) and one lead (***Cat. No. 45***) were found at Smlednik Castle. Characteristically a castle in that period did not have standardised firearms. The collection of arrowheads and bullets from Smlednik Castle is, for example, directly comparable to the finds at Pusti grad above Zgornja Lipnica. [43]

Two ***horseshoes*** (***Cat. No. 46*** and ***47***) have also been documented at Smlednik Castle. Horseshoes were used in Western Europe already in the Early Middle Ages. Amongst the oldest horseshoes is the one found in grave B 17 at the Aldaieta graveyard in the Basque territory which can be dated to the second third of the 6th century, and the horseshoe from Caister, which was found on the surface of the Roman road and stratigraphically under the grave, from the Middle Saxon period. On the other hand, horseshoes appear as late as the 10th century in Poland. The Smlednik horseshoes are 'round', which means that their length to width ratio is approximately 1:1. The sections are relatively wide, and one horseshoe has at least 10 and the other 4 symmetrically positioned square holes for nails. The calkins oriented towards the grip are not worn out. As regards their shape the horseshoes belong to type 4 in Clark's classification and have excellent analogies at the nearby Mali grad in Kamnik, where they were built into the foundations of the fort in the last quarter of the 15th century.[44]

6.1.5 BONE AND LEAD ARTEFACTS

A simple double-sided ***bone comb*** with a concave ending is decorated with impressed-ring-and-dots (***Cat. No. 48***) and is considered to be a personal item. This is a useful artefact that is hard to date. Even though the impressed-ring-and-dots decoration is typical for Late Antiquity artefacts, the Smlednik comb is believed to be of a High or Late Medieval date. A similar comb was found in London in layers dated between 1330 and 1380.[45]

The bone clamp (***Cat. No. 49***) is a functional artefact that we have not found any analogies for amongst the medieval finds.

The stone bead (***Cat. No. 50***) was most likely a part of a rosary, but it could also have been a part of a necklace. Rosaries appeared in the 13th century, and they became ubiquitous towards the end of the Middle Ages. In the Post-Medieval Period the beads became more ornate and were often created from semi-precious stones or metals.[46]

The ***knife*** (***Cat. No. 51***), similar to the one found in the Ljubljanica river, is dated to the 16th century.[47] However, the Smlednik example is much less decorative than most of the Early Post-Medieval knives with stone coating and ribbon handles that were found in the Ljubljanica river.[48]

The round lead artefact (***Cat. No. 52***) was most likely used as a ***weight***. Numerous similarly shaped and sized weights from medieval York did not reveal a unified measuring system even though they were thoroughly weighed.[49] A similar decoration to the one found on the Smlednik artefact was also found on the weights on the fishing net in York, which was dated to the early 15th century.[50] It is impossible to come up with a more detailed period and functional definition for this artefact.

We have also included the fragments of a **lead window frame** with an H-profile (***Cat. No. 53***) in this category. It is impossible to typologically date these artefacts, but it is clear that they represent a part of glazed windows. In castles such as, for instance the Croatian castle of Vrbovec, glazed windows appeared in the 15th century in the quarters denoting a high status.[51]

6.1.6 GLASS

The preserved half of a ***round bead*** (***Cat. No. 54***), made from black glass paste with a white stripe, was most likely a part of a necklace, for it is too large to be a rosary bead. It is impossible to precisely date this artefact.

A **bottle neck** (***Cat. No. 55***) fragment of a specific bi-conically shaped small bottle that was common in the 15th and 16th centuries, has also been preserved.[52] A handle from a glass jug (***Cat. No. 56***) and a fragment with two fused glass beads, which was most likely a

[41] Predovnik 2003, 95.
[42] Predovnik 2003, 94.
[43] *Cf.* Lazar T. 2012, 455–457.
[44] Štular 2009a, 96–98 and the bibliography quoted there.
[45] Egan, Pritchard 2002, 370, Cat. No. 1721.
[46] Predovnik *et al.* 2008, 88–89.
[47] Nabergoj 2006, 133: 14.
[48] Turk et al. 2009, 338–339.
[49] Ottaway 2002, Fig. 1520: 14576.
[50] Ottaway 2002, Fig. 1352: 12939.
[51] Tkalčec 2010, 104–105.
[52] E.g. Kos 2007, Cat. No. 220–223.

fragment of a glass stem (***Cat. No. 57***) can also be dated to the same period.[53]

6.1.7 METAL FINDS FROM AFTER THE CASTLE WAS ABANDONED

Most metal finds are hard to define severely damaged metal fragments or functional objects, e.g. nails that cannot be precisely dated. Such artefacts are dated by the archaeological contexts, most commonly by pottery finds (*Fig. 6.3*).

Firstly we would like to present modern metal finds and those indefinable finds which can be reliably dated into modern contexts.

Finds without a context include 4 modern firearms bullets.

Another modern bullet, thirteen pieces of wire, a piece of slag and two nails were documented in SU 38. Four nails were found in SU 39, one bullet and one nail in SU 40, two nails and pieces of wire in SU 41, SU 55 included a plastic peg for hanging washing and numerous similar finds, SU 60 included 3 fragments of aluminium foil while SU 64 revealed one nail.

Nails, pieces of wire and bullets prevail amongst the finds. Such artefacts can be infiltrated into the lower, older layers, especially in sand and ruin layers, which are the most common layers at our site.

However, based on the percentage of the type of finds within each layer the time of origin can be deduced. Layers *SU* 1, 2, 5, 8, 40, 41 and 55 are most certainly modern. It is highly likely that layers *SU* 38, 10 and 60 are also modern. Layer *SU* 39 revealed four nails and ten medieval pottery fragments, thus it cannot be reliably dated merely by the finds. The remaining layers, i.e. *SU* 25 and 64, revealed one modern artefact each. We have to allow for the possibility that these two are infiltrated artefacts (*Fig. 6.4*).

6.2 BOOK CLASPS AND BOSSES

Anja Vintar

Book metal furnishings are forged or cast metal parts made from various metals which are attached to book covers primarily to protect the book from damage. They are most commonly made from copper alloys, usually bronze or brass, more rarely from iron.[54] Liturgical books were often protected by gold and silver[55] bosses inlaid with precious and semi-precious stones.[56] The metal furnishing was thus not merely useful, but also served an aesthetic function. The leather covers which were often already decorated with a blind imprint were thus additionally decorated by various shapes, decorations and the use of various metals.[57] The books were also protected by chains, with which they were attached to the reading desks in libraries.[58] Some authors consider the chains to be a part of the book metal furnishings,[59] while others consider them to be a part of the reading desks.[60] As regards the protective elements, they are divided into bosses and clasps.[61]

***Bosses* or book fittings** can be found in various shapes and sizes and are attached to the outer side of the covers (front and back) with small nails or rivets. They are used to prevent the covers from breaking; they protect the leather cover as well as the edges of the covers and parchment or paper. Corner bosses are attached to the corners or edges of the cover, while central bosses are attached to the centre of the cover. Strip bosses in the form of a narrow metal strip are rare,[62] and they usually run along the edge of the entire cover. There is not a lot of evidence that would speak in favour of the existence of Early Medieval bosses.[63] Archaeological finds from this period are rare,[64] and they become more common only at the break between the first and the second millennium. We can compare them to the preserved book bosses or to their depictions from the time.[65] Early bosses are smaller and round, and appear in a number of variants (*Fig. 6.1)*. At first they were simple, flat or convex, but they soon appeared as decorated buttons or in hat-resembling forms. As such bosses are simple to produce they remained in use at least until the end of the 17th century.[66] Round bosses were attached to the edges (four on each cover), while the central one could be the same or of the same shape, but somewhat larger. At the end of the 12th century and throughout the 13th century multi-leaf rosettes with a central bulge appeared in addition to the round bosses.[67] By the beginning of the 15th century several variants appear: semicircular,

[53] E.g. Kos 2007, Cat. No. 124–129.

[54] See Vodopivec 2000, 105.

[55] Dürrfeld 1996, 277.

[56] Often these are not book bosses, but books with covers that have a metal coating across the entire surface, e.g. the codex from Nitra (see Slivka 1996, 190, Fig. 5).

[57] Svoljšak 2009, 25.

[58] See Szirmai 1999, 269, Fig. 9.12.

[59] Adler 2010, 50–52.

[60] Vodopivec 2000, 108.

[61] Vodopivec 2000, 105–106.

[62] See Szirmai 1999, 240, Fig. 9.11.

[63] Golob 1994, 41.

[64] Krabath 2001, 100–101.

[65] As an attribute of wisdom, knowledge and spiritual wealth books are often depicted in paintings or found on statues of saints as well as on tombstones of church dignitaries.

[66] See Holl 2010, 186–187, Fig. 136–137; Kreitner 2000, 228, Cat. No. 20.19; Polla 1986, 278, Fig. 140.

[67] Holl 2010, 180, Fig.125.

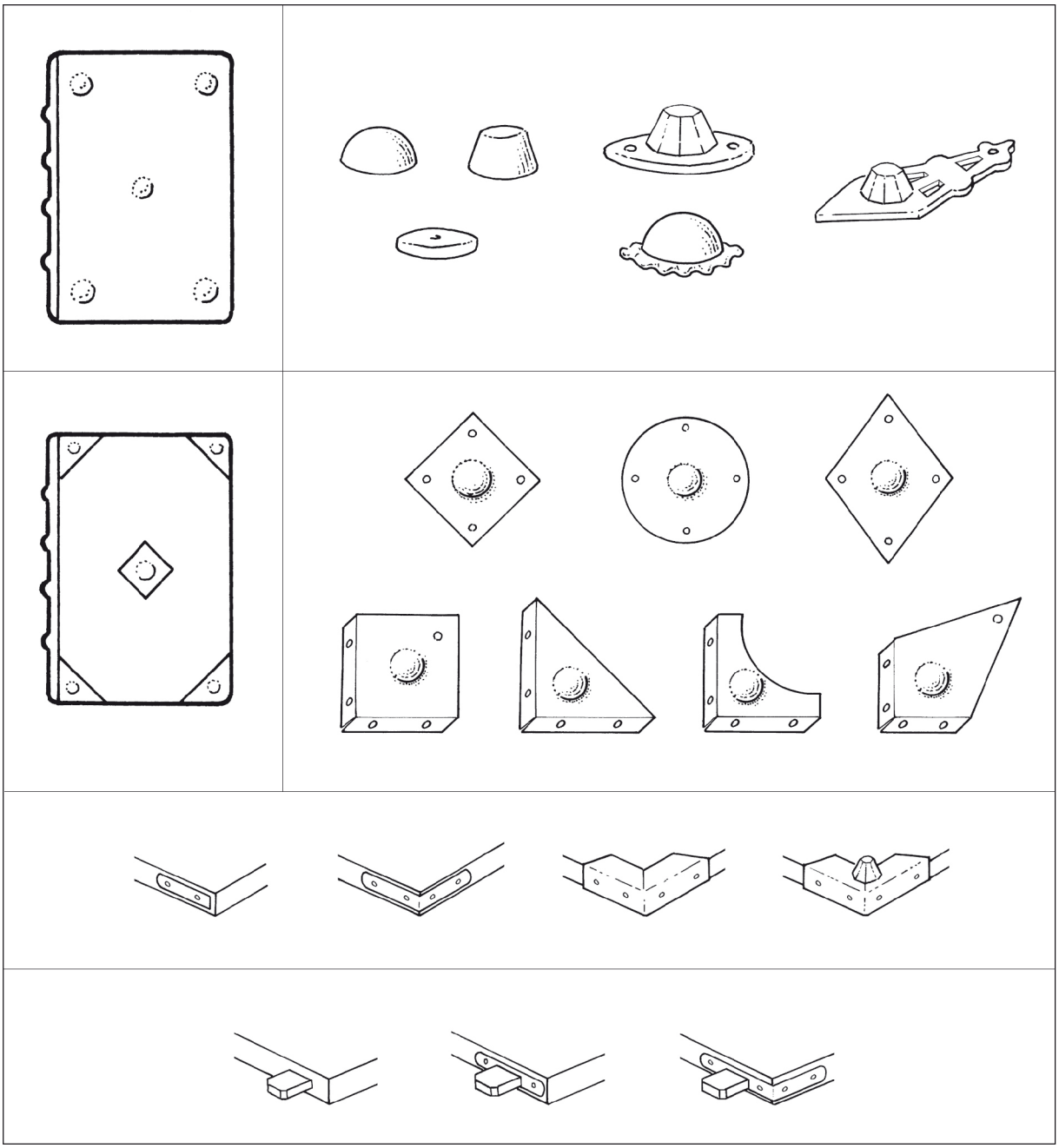


Fig. 6.1: Different types of corner and central bosses (source: Vodopivec 2000, 105).

triangular, square and most commonly rhomboid[68]. The corner boss from Smlednik (***Cat. No. 14***) is of a rhomboid shape. Square and rhomboid shaped central bosses became popular in the Late Middle Ages, and they are usually stylistically matched to the corner bosses. A nice example of a copper alloy central square boss, the edges of which imitate flower leafs, can be found in the collection of 15th century finds from Pusti grad above Zgornja Lipnica, nearby Radovljica.[69] A similar bronze and gilded Late Medieval central boss was found at the Dominican monastery in Buda.[70] This boss was additionally decorated with the letter M (standing for Mary). The ornamental value of bosses increases after the mid 15th century, which is clearly indicated by their greater diversity as well as the increased variety of book bosses and clasps in general. In most cases they include a

[68] See authors at the description of the corner boss Cat. No. 10, see also: Holl 2010, Fig. 9, 128, 130–133, Durdik 2001, Fig. 26.1; Fitz, Lányi, Bánki 1978, T. 2: 330 –331; Fűryová 2004, Fig.1.5, Fig. 2.3–4.

[69] Predovnik 2011.

[70] Gyürky 1981, 43 and 47.

carved vegetation motif and additional perforated decoration. Anthropomorphic and zoomorphic decoration is rare and more common in cast bosses.[71] The square gilded bronze plaque, with a hammered depiction of the ruler from the second half of the 13th century fort Kostanjevica,[72] shows what forged central bosses with an anthropomorphic decoration could look like.

Clasps were used to keep the book covers firmly together while the books were stored, as well as when they were moved around, for clasps reduce the movements of individual parts of the book and thus prevent any damage to the spine. A leather strip or a piece of string tied around a button was sufficient for soft cover books. Books with hard covers were kept together in different ways. In the literature the metal fastening mechanisms that kept them together are called *clasps*.[73]

Clasps consist of two parts: a rigid or fixed and a flexible one. The rigid part of the clasp is firmly attached to the front cover in the form of a clasp nail or a clasp plate. The flexible part of the clasp can be made from a leather strap and one or more metal parts, or it can be made entirely from metal. The flexible part locks together with the rigid part of the clasp (*Fig. 6.3*, bottom). In most cases the same metal is used for both parts of the clasp. The size of the book determines the number of clasps that are to be used. For smaller codices one clasp was sufficient, however, larger codices were fastened by two clasps. On rare occasions books had two pairs of clasps.[74]

Early and High Medieval clasps (*Fig. 6.3*, top*)* had the locking pin or a catch plate (hasp) attached at the side of the book. The flexible part was made from a leather strap (rarely a woven one)[75] that was sewn, or attached with a decorative rivet, to the back cover. The locking part, i.e. clasp, was attached to the other side of the strap, and this could be locked or hooked with the hasp. The hook plates (clasp) could assume various shapes, from simple rings to more elaborate rods. One of the rare archaeological finds from this period originates from Dorestad in the Netherlands,[76] while book clasps transformed into jewellery can be found in graves, e.g. Žale pri Zasipu,[77] Birka in Sweden[78] and Nitra in Slovakia.[79] Fastening books with a large catch pin remained in use until the end of the 13th century.[80] Between the end of the 10th and the end of the 12th century the catch pin started to be moved towards the centre of the cover, and both lock types started to appear simultaneously. The end of the High Middle Ages saw changes in how books were fastened together and an increase in the various shapes and forms of books clasps. In the 13th century (*Fig. 6.3:* middle*)* clasps with catch pins in the middle of the cover prevailed. Animal figures became more common. Changes also appeared in the flexible part of the fastening mechanisms. The leather strap became longer and was attached to the cover with small florally decorated pins, rivets or a plate. The locking mechanism also saw a version with a commonly used so-called bird locking part (*Fig. 6.2A:* 10, 11) and hinges. The locking mechanism on the flexible part had a string or a strap that ran from the small lateral hole, which made it easier to unfasten the clasp. For fastening a book one or a pair of such clasps were needed, depending on the book size.[81] The second half of the 14th century saw a new way of fastening when hook plates or clasps on the flexible part of the fastening appear (*Fig. 6.3*, bottom). The gripping hook plates grasped onto the catch plates that were attached to the edge of the cover in various ways. In its various variations this became the most commonly represented book clasp. Also common were small rectangular plates decorated with engraved initials[82] or a floral motif, while most common of all were clasps that ended in shapes reminiscent of deer antlers (*Fig. 6.2:* B).[83] Older forms remained in use, which is clearly indicated by the Post-Medieval hook plate from the church of Sv. Jernej in Šentjernej.[84] In some Late

[71] See the cast corner boss, shaped like a lion with a crown, which is preserved on the book in the Archdiocese Archive NŠAL 18. Vodopivec 2000, 106, Fig. 84.

[72] Guštin, Cunja, Predovnik 1993, 64; Predovnik 2000, 39; ead. 2003, 111–112.

[73] Vodopivec 2000, 100.

[74] Four clasps have been preserved on each of the two books: No. 112 (1/2) and 143 (4/L3), both preserved in Diocesan Archive in Maribor.

[75] Predovnik, Dacar, Lavrinc 2008, 84.

[76] Krabath 2001, 106 and 111, Fig. 19.2.

[77] A gilded and decorated boss with a hinge was used as a pendant in an 8th century Slav grave of a child; Knific, Pleterski 1993, 244.

[78] The silver locking plate with a lock, a three-dimensional animal depiction and a cross found in the 9th century grave 464 was transformed into a buckle; Košnar 1992, 40, Fig. 7.4.

[79] In the Šindolka site in Nitra the child's grave E299 revealed a catch plate with a massive overreaching locking pin with three holes for attaching to the cover, dated between 955 and 1030. In its secondary use it was used as a pendant on a necklace; Fusek 2007.

[80] Krabath 2001, 106.

[81] Vodopivec 2000, 103.

[82] These initials were not the maker's mark. See: Kreitner 2000, 228, Cat. No. 20.27; Fitz, Lányi, Bánki 1978, T. 2, 332.

[83] See e.g. Kreitner 2000, 229, Cat. No. 20.24; Krenn 1996, 209, Cat. No. 56 and 57; Sauer, Renhart 2001, 319; Fröhlich 1997, 135; Wachowski, Piekalski 2010, 352.

[84] Predovnik, Dacar, Lavrinc 2008, 84; the mentioned hook plate was found in mixed layer 1, within the church, while a similar hook plate, dated into the second half of the 19th century was found in the latrine in Kitzbühl (Kneußl 1990, 86, 124 and 168, Cat. No. 273).

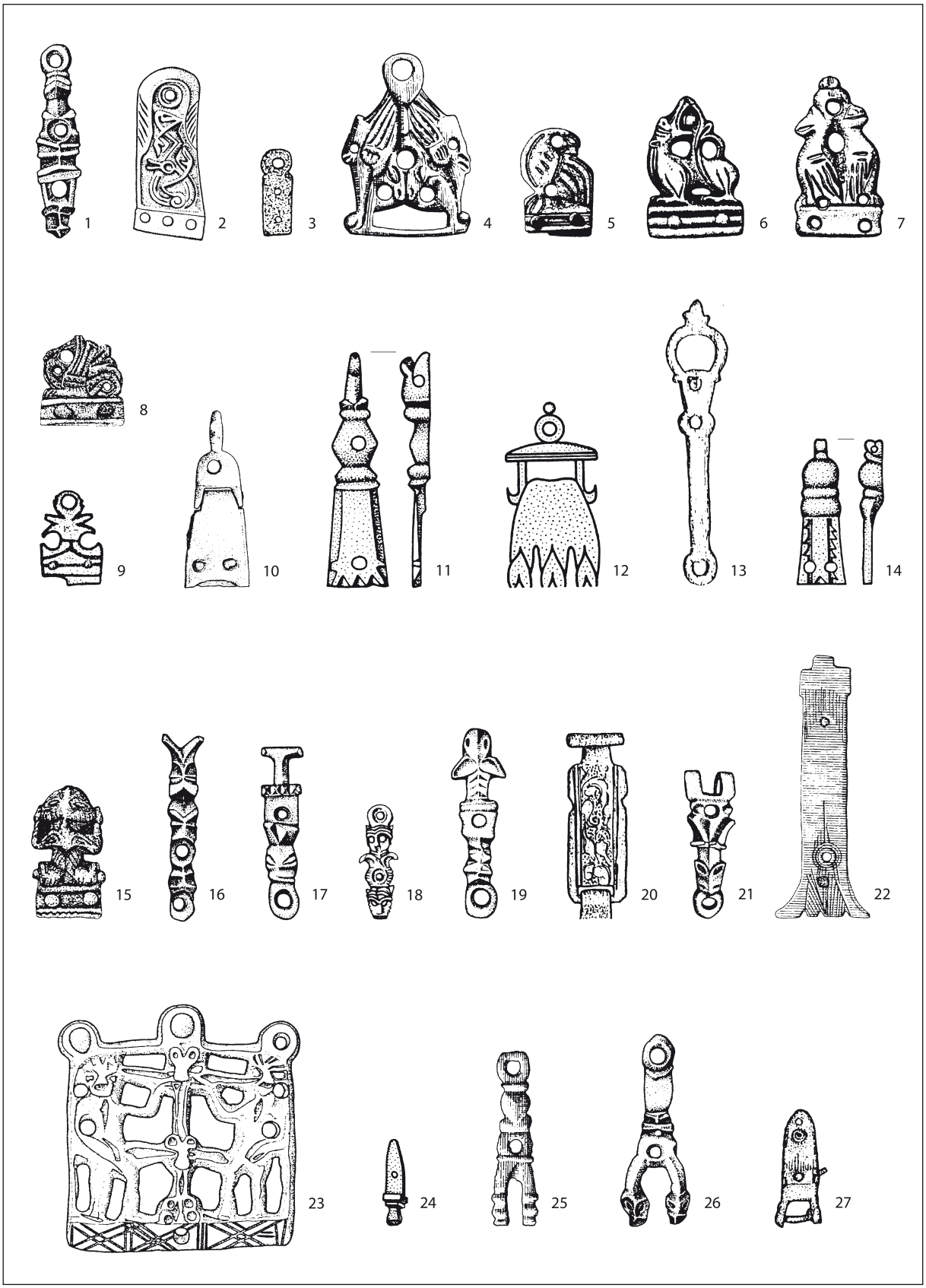


*Fig 6.2*A: Different types of locking mechanisms from the end of the 8th to the end of the 17th century (after: Krabath 2001, 103, Fig. 19).

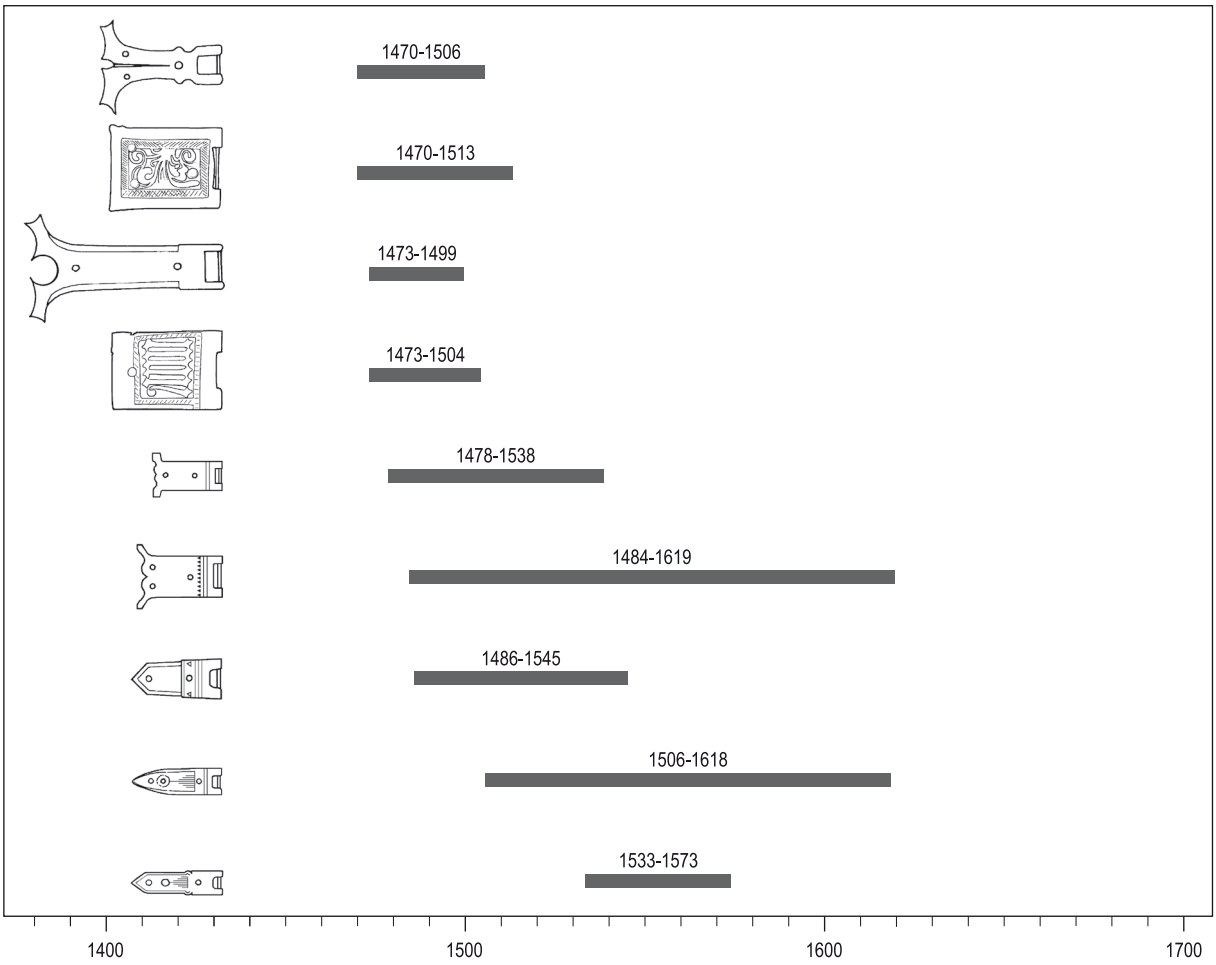


Fig. 6.2B: The most common types of clasps at the end of the Late Middle Ages and the beginning of the Post-Medieval Period (source: Dürrfeld 1996, 272, Fig.1).

Medieval and Early Post-Medieval versions the leather belt is substituted by a metal strip.[85]

Book clasps become more unified and numerous after 1480, when they started to be produced in larger quantities.[86] Following the invention of the printing press, books became widely accessible to a broader audience of readers and thus more common in the 15th and 16th century, which led to an increased number of book clasp finds across Europe in the later archaeological excavations. This also meant that the finds were no longer limited to monasteries, rich castles and university centres, but could also be found in towns,[87] graves and rural parish churches.[88]

In the 18th and 19th century clasps were removed from books in large quantities.[89] As the books lay open on the desks the clasps often tore sleeves, while the corner bosses often damaged other books when they were stacked vertically one against the other.

Only rare sources mention how book clasps and bosses were manufactured. The earliest written reference of the use of metal as a part of a cover decoration can be found in the archive of the Tegernsee Benedictine monastery in Bavaria and is dated to 1054, while the first illustration of the production process can be seen on a parchment from the first third of the 12th century kept at the Michelsberg monastery in Bamberg.[90] Until the 15th century the production most likely took place in monasteries. In order to make book bosses and clasps one did not only need knowledge but also the appropriate tools and materials. Thus if it was impossible to make them, they would be ordered from other monasteries,

[85] See for instance Herbert, Heymans 1999, Fig. 31.5.

[86] Dürrfeld 1996, 274; Holl 2010, 71; Adler 2010, 55 and 56.

[87] E.g. Egan 1998, 277–280.

[88] A book was found in a 15th or 16th century grave at the church of St. Mark in Litovel, Czech Republic (Faltýnek, Šlézar 2006, 312, Fig. 13–14), and a 16th or 17th century sermon book was found in a grave at the parish church of Mary's Assumption in Hollenburg, Austria (Lieb 2007, 447 and 448).

[89] Dürrfeld 1996, 272.

[90] Adler 2010, 54.

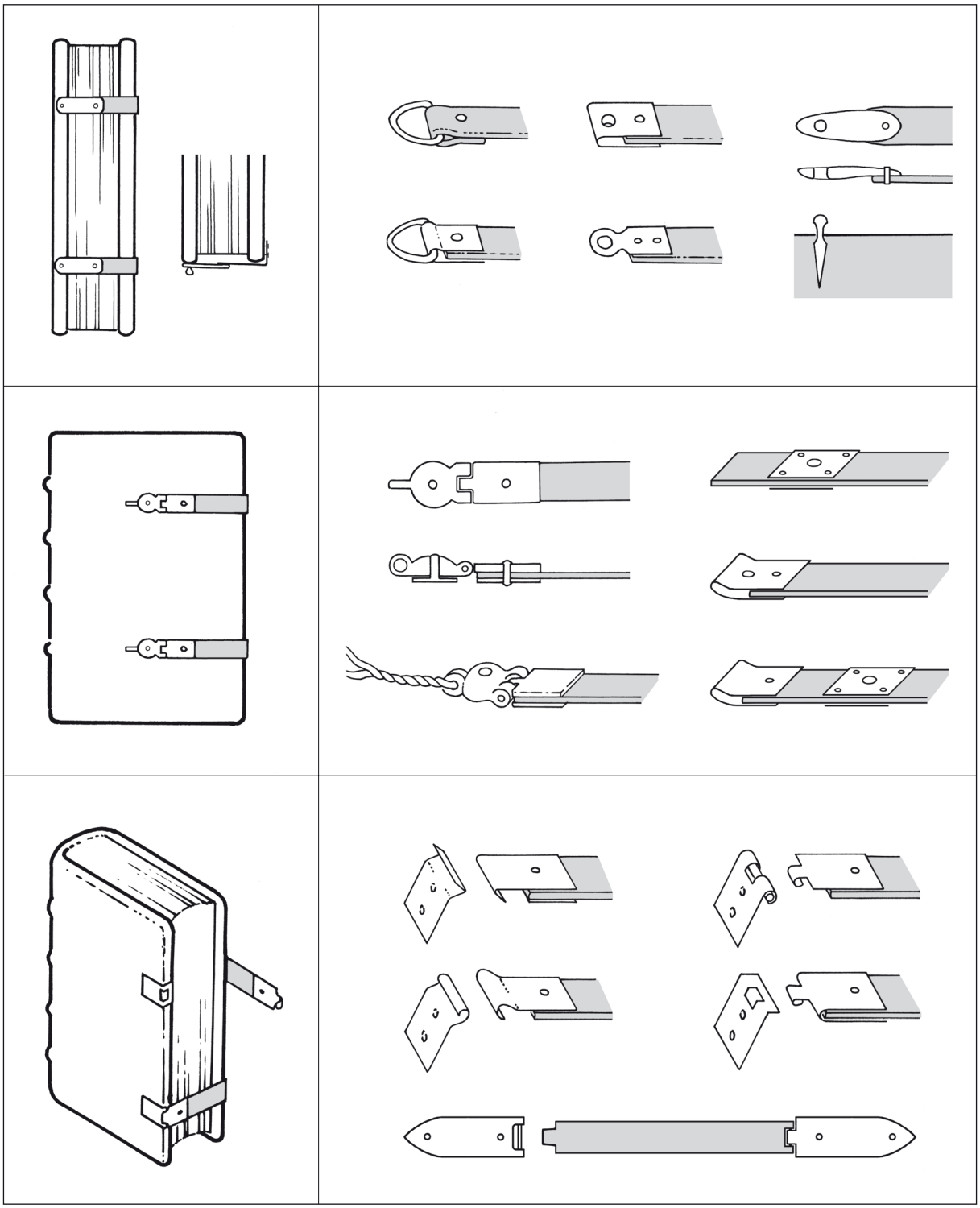


Fig. 6.3: Schematized clasps: Carolingian (Early Medieval) on top, Early Gothic (High Medieval) in the middle, Late Gothic (Late Medieval) on the bottom (source: Vodopivec 2000, 101).

and by the mid 15th century they could be bought[91] on markets in larger towns, where there was also a greater offer of books. In the 16th century the book trade was very lively, and in most cases books were transported

[91] Lists of book bosses and clasps that the Augustine monastery in Klosterneuburg purchased in 1420 and 1499 have been preserved, however they also produced book bosses and clasps themselves (Adler, 2010, 54).

in barrels.[92] The books were usually only bound by the town bookbinders once the book was purchased, as this task followed the wishes of the buyer. It is possible that the buyer could have chosen the bosses and clasps whilst placing the order. The names of certain German craftsmen[93] from the beginning of the 16th century are known, however already towards the end of the century the demands was insufficient for the profession to survive. Thus bosses and clasps became an important part in the offer of craftsmen who worked with non-ferrous metals: belt makers, engravers, locksmiths, copper workers, goldsmiths, etc.[94] Archaeological discoveries do not reveal a lot of finds that would deal with the production process[95]. The closest sites which might have had workshops are the Cistercian monastery in Pilis, Hungary[96] and the Mauerbach monastery in Austria.[97] Pilis not only had a scriptorium but also a blacksmith which revealed material and damaged 16th century objects, while Mauerbach revealed a waste part of a Late Medieval semi-product and an unfinished corner boss from the same period.

During the various excavations at Smlednik Castle three clasps from non-ferrous metals, two of which were gilded, were discovered. The gilded clasp (***Cat. No. 12***) with an engraved tendril-like decoration (*Fig. 6.4*) was found during the 1961 - 1963 excavations or during the later non-expert excavations.[98] The strip clasp is flat and ends on one side with two protruding semicircles with holes, between which there is a small protruding tongue. The decorated strip has one whole and one damaged hole for attaching to the base. Taking its shape into account analogies with a medieval bronze book clasp from Nussdorf at dem Traisen in Austria[99] can be mentioned; however, this has significantly smaller holes on the semicircular parts of the ending and does not have any smaller holes for attaching to the base. Differences can also be found in the decoration: the Austrian clasp is decorated on both sides and is curved. The semi-circular parts are convex, while the clasp from Smlednik Castle is straight and not decorated on the underside. Analogies for the flat shape and decoration can also be found in the chest clasp in London[100] or the thin book clasp from Höxter in Germany.[101] The latter not only carries a similar engraved decoration, but also has a hole for attaching in the middle of the lower half; however this book clasp is made from multiple parts and ends with a curved pin on the upper side. A similar decoration was also noticed on the clasp with a hinge from the Grad above Draga near Medvode.[102] The clasps from London and Höxter are dated to the 15th century. As regards its shape the Smlednik clasp can also be compared to parts of a Renaissance belt or a women's chain girdle from Vranovice in the Czech Republic.[103] The clasp from Smlednik Castle is forged, and parts of the chain girdle, including the plant decoration, are cast and have a three-dimensional plaque shaped like a head in the centre.[104] Even though similar volute endings can be found on Early Medieval knives,[105] the Smlednik clasp is too wide for such use. Regardless of the ornamental similarities with parts of the previously mentioned book clasps, the Smlednik clasp is too big for such use and was most likely used as part of a chest clasp. Based on analogies the Smlednik clasp can be dated within a broad time frame ranging between the 15th and 17th century.

Fig. 6.4: Gilded clasp with an engraved tendril-like decoration, Cat. No. 12.

[92] Dular 2002, 54.
[93] For the list of names see Adler 2010, 55 and 56.
[94] Adler 2010, 55.
[95] Moulds for casting bosses and clasps have not been found in archaeological contexts.
[96] Holl 2010, 68.
[97] Kreitner 2000, 230, Cat. No. 20.22 and 20.34.
[98] Slabe 1983, 271; Museum and Galleries of Ljubljana, Inv. No. A33 (PN 026).
[99] See Neugebauer 2000, 70, T. 33: 7.
[100] Egan 1998, 74–75, Cat. No. 163.
[101] Krabath 2001, T. 14.4, 67.1 and 68.1.
[102] Nabergoj 2006, 212, Cat. No. 8.
[103] See Měchurová 2012, 751, Fig. 3a and 3b
[104] Měchurová 2012, 750.
[105] See Jażdżewski 1960, 65, Fig.8

Fig. 6.5: Rectangular gilded copper clasp with pulled out hinges, Cat. No. 13 (photo: Tomaž Lauko).

Fig. 6.6: Corner boss, upper and bottom side, Cat. No. 14 (Scale 1:1).

The second gilded clasp (***Cat. No. 13***)[106] is of a rectangular shape and has pulled out hinges on its longer side (*Fig. 6.5*). It is decorated with a series of applied studs along all four sides, and the line of studs divides the clasp into two squares, convex pyramid halves. A small hole used for attaching to the base was drilled out in the centre of each half. In Slovenia the clasp has a good analogy in the two bronze clasps from Grad above Draga near Medvode,[107] which were also gilded. As regards their origin they can be dated to the 13th or 14th century, however both clasps have one pyramid protuberance and no hinges. A two pyramid decorative clasp with one hole for attaching was also found in the Austrian castle of Thurnschall.[108] This bronze clasp without any decoration and hinges was dated to the first half of the 13th century. Pyramid shaped clasps without hinges are more common in belt buckles. A grave at the Slovak burial site of Duchova[109] included a belt made from such rivets. These belt rivets from the end of the 14th century have three or four pyramid shaped protuberances on each piece and edges decorated with small semi-circular shapes, but none of them have hinges. According to decoration and shape a part of a similar copper alloy multiple pyramid clasp was discovered in Höxter, Germany.[110] The latter had a similar decoration but no hinges and was dated to the 15th century or later. It is broken on one side, and it was classified as a decorative piece of a belt. The only known analogy of a book clasp divided into two decorative fields and with hinges on the longer side was found at the Wartenberg Castle in Germany.[111] Both decorated fields have eight-leaf rosettes that were riveted onto the engraved base. Together with other finds this clasp was dated within a narrow time frame between 1225 and 1265. Based on analogies the Smlednik gilded book clasp or part of a clasp can be dated between the middle of the 13th century and the middle of the 15th century. It was a part of a larger clasp composition with hinges, that was used to join covers.[112] This part of the clasp was attached to the outer side of the back cover or to a leather belt with small nails. The second part of the clasp with hinges was represented by a decorated strip, which was originally made from leather, but was later changed to metal. On one side this strip was wrapped into a part of the hinges, while on the other side it was bent and stuck to the bar on the clasp plate that was attached to the front cover.

The corner boss (***Cat. No. 14***) was found in 2012 on the north slope of the castle hill during a metal detector scan of the spoil heap from the previous excavations. The partially corroded, copper alloy, rhomboid shaped corner boss has an engraved floral decoration on its flat part (*Fig. 6.6*). The longer edges are partially wave shaped. The shorter edges take the shape of two wings that can be attached to the edge of the cover. The button like semi-circular protuberance in the corner of the flat part is slightly concave and damaged.

This is the most common rhomboid corner boss variant to be found. As regards shape and style comparable analogies can be found in the broader neighbourhood: e.g. at the site Suhopolje – Kliškovac in Croatia,[113] amongst the finds from the excavations in the Cistercian monastery in Pilis, Hungary,[114] in the town palace in Buda[115] and amongst the finds from the former Dominican monastery in Pasewalk, Germany.[116] The aforementioned corner bosses have a flat surface between the round protrusion (which are flat at the top) and the floral decoration, also decorated with leaf shaped cuts. These corner bosses also have a florally decorated belt on the edge that separates the flat surface

[106] Nabergoj 2006, 121, Cat. No. 7.
[107] Nabergoj 2006, 121, Cat. No. 5 and 6.
[108] Höglinger 2006, 176, T. 9: 15.
[109] I would like to thank dr. Katarina Predovnik for this note; Wachowski 2001, 88, Fig. 1.
[110] Krabath 2001, 538, Cat. No. XXXVIII.4, T. 30: 10 and 127: 2.
[111] Bauer, Maurer 1961, 260–264, T. XI: 48.
[112] See Szirmai 1999, 252, drawing 9.47 f.
[113] Tomičić, Jelinčić, Turkalj, Mahović 2010, 275.
[114] Holl 2010, 184–185, Fig.132 and 134.
[115] Holl 2005, 67.
[116] Adler, Ansorge 2006, 174, Fig. 3.3.

and the wings used for attaching. All are dated between the second half of the 15th century and the beginning of the 16th century. Alongside other similarities, the corner boss from the Austrian monastery of Altenburg, dated into the 15th century,[117] also has a convex button like bulge, the centre of which is decorated by a floral motif. Also similar are the brass corner bosses which are preserved on the covers of the mid 15th century codex (NUK Ms 224) kept at the National University Library in Ljubljana.[118]

The Smlednik clasp with a hinge (***Cat. No. 13***) and corner boss (***Cat. No. 14***) protected the covers of two different books, and in most cases it is impossible to assume the contents of the book merely from the shape and decoration of the preserved bosses,[119] even less so for book bosses made after the introduction of the printing machine. As literacy spread amongst townspeople and the lower nobility at the end of the 15th and throughout the 16th century, books started losing their prestigious value, and book prices fell due to the faster production and greater availability. The market grew notably to cater for the ever expanding circle of literate readers, which is also indicated by the numerous finds of book bosses in towns and remote castles. Peddlers started selling books to small Carniolan castles as early as the second half of the 16th century. Only a few were written in Slovene and printed in Ljubljana,[120] while most came from Italian (Venice, Rome, Bologna) or German speaking lands (Strassbourg, Nürnberg, Basel, Augsburg).[121] Both Smlednik book bosses have the most analogies from sites located in what were at the time German speaking lands. Even though the 1569 castle inventory mentions two Roman Missal books in the castle chapel, it would be daring to state that the two archaeologically discovered bosses belonged to the two books mentioned in written sources. However, it is likely that they decorated the covers of two liturgical books.

6.3 POTTERY

6.3.1 TABLEWARE

The finds from earlier excavations at the Smlednik Castle included three fragments of Early Post-Medieval tableware. Two were fragments of the same jug with an opaque tin polish (***Cat. No. 58***). It is characteristic for these vessels that the coating (usually white, rarely found in grey-blue or blue shades) covers the surface completely and thus serves as a base for the decoration. Blue started appearing in North Italian production centres in the first half of the 14th century. Blue archaic majolicas are usually dated to the 14th or 15th century,[122] however the Smlednik examples are most likely representatives of the so-called Renaissance majolica, which is usually dated between the end of the 15th and the first half of the 17th century.[123]

The plate fragment, decorated with a multi-colour lead polish and a geometrical motif (***Cat. No. 59***) can most likely be dated to the Early Post-Medieval Period.

6.3.2 STOVE TILES

16 stove tiles without an archaeological context have been preserved at Smlednik Castle. For all but one (***Cat. No. 76***) merely drawings have been preserved in the Museum of Gorenjska archive. The drawings (***Cat. No. 60-75***) reveal that this was a selection of well preserved stove tiles, most of which had a three dimensional decoration in the central field. As the drawings do not reveal the technological details of the manufacturing process, it is hard to perform a comprehensive analysis.

It appears that there were two groups of stove tiles with clear iconographic outlines. One iconography depicts the cycle of the Passion of Christ (***Cat. No. 60-64***), while the other depicts historic moments (***Cat. No. 65-69***).

Amongst the first, Stopar recognised the following motifs: Mount of Olives, Christ falls under the cross, Christ in pre-hell and Christ before the judges; within the second group he recognised two portraits of Roman emperors and an emperor's wife. In the entire corpus Stopar recognised parts of a stove, which is almost identical to a preserved stove in Schönberg near Oberwölz in Austrian Styria, dated to 1568.[124]

The stove tile with the depiction of the horseman (***Cat. No. 70***), a fragment of a crest stove tile (***Cat. No. 71***) and a fragment of a stove tile with a preserved depiction of a mythological animal (***Cat. No. 76***) should also be mentioned.[125] Smlednik stove tiles represent an excellent starting point for an iconographic analysis, however this would exceed the intention of this text.

[117] Kreitner 2000, 226, Cat. No. 20.12.

[118] Vodopivec 2000, 442.

[119] The exception are book bosses and clasps from sermon books, bibles and prayer books, which include depictions of biblical individuals, and bosses and clasps with one or more letters M (Mary) and inscriptions AVE and IHESV on them. Cross shaped bosses and clasps with a crucified Jesus have not been recorded as archaeological finds.

[120] Dular 2002, 53 and 54.

[121] Dular 2002, 54–50.

[122] Predovnik 2003, Cat. No. 358; Mileusnić 2009, 122–125.

[123] I would like to thank K. K. Predovnik for the classification.

[124] Stopar 1977, 66.

[125] I would like to thank Katarina K. Predovnik for the classification of stove tiles based on drawings. Any mistakes are exclusively down to me.

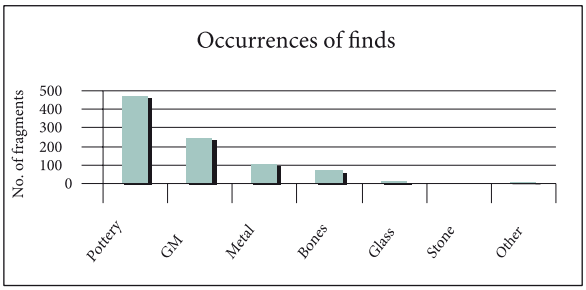


Fig. 6.7: Smlednik castle, excavations 2011/2012: occurrences of finds.

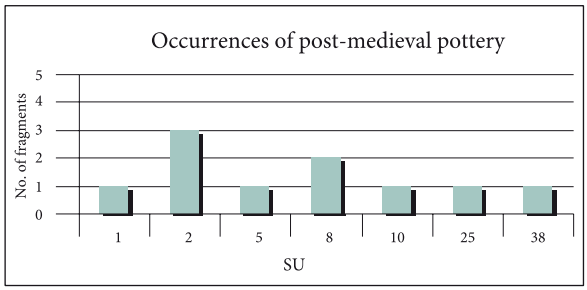


Fig. 6.8: Smlednik castle, excavations 2011/2012: occurrences of Post-Medieval pottery (NVL) in stratigraphic units (SU).

The stove tiles already drew attention to themselves during the excavations. They were found during the excavations carried out in the palatium and were dated to the Late Renaissance as was the palatium itself. The direct link between the dating of the construction phase of a castle and the finds of stove tiles (without a known archaeological context) has already been rightfully refuted by Stopar.[126]

6.3.3 POTTERY FROM PERIODS AFTER THE CASTLE WAS ABANDONED

At this point we will address the 474 pottery fragments found during the 2011 and 2012 archaeological excavations. The pottery from older excavations is no longer preserved (*Fig. 6.7*). The pottery from the periods after the castle was abandoned was analysed only quantitatively, i.e. it was defined as modern. Most of it was locally produced, made from the mid-19th century onwards.[127]

The layers in which this pottery appeared are extremely important in informing the interpretation of the site. Layers which do not include this pottery, or have a negligible share of it, can be marked as medieval contexts. The Late Medieval and Early Post-Medieval pottery in layers dominated by Modern pottery should thus be treated as pottery in its secondary context.

10 Late Post-Medieval or Modern pot fragments (*Fig. 6.8*) have been documented in seven stratigraphic units. The fragments were mainly documented in the post-1961 layers, which emerged after the restoration work started on the site (*SU* 1, 2, 5, 8, 10 and 38). The fragment in *SU* 25 was interpreted as an infiltrated find, as this layer was strongly dominated by Late Medieval pottery.

SU 1, 2 and 8 included exclusively Modern pottery. This pottery also dominated in *SU* 10. These are thus layers that have been formed in the 19th century or later. The remaining layers (*SU* 5, 25, 38) contain a low percentage of modern pottery (*Fig. 6.9*).

[126] Stopar 1998, 71.

[127] See Štular 2009b, 112; id. 2009c, 78–80.

Taking into account their relatively small size and low numbers these fragments are interpreted as tertiary refuse. This means that they were brought to the site indirectly, as refuse or they were already embedded into the removed soil.

6.3.4 MEDIEVAL AND EARLY POST-MEDIEVAL POTTERY

In this pottery analysis the methodology[128] developed for pottery analysis on Mali grad in Kamnik was used.[129] This analysis is based on the following procedures:

Forming groups by shape (pots, lids, bowls, cups, jugs, stove tiles, other);

Typological classification based on rim shapes (pots, lids) or other significant characteristics (bowl decorations);

Observing surface and fracture characteristics (so-called technology);

Measurements (pottery taphonomy);

Interpreting the finds within the phases and/or taphonomic units.

Forming groups by shape is of key importance for the interpretation of archaeological contexts[130] and typological classification.[131] The definition is performed with a comparative analysis, in which the groups are defined with their known analogies.

As regards its shape Medieval pottery is divided into the following groups: pots, lids, bowls, cups, jugs, stove tiles, other (*Fig. 6.11*). This division differs some-

[128] We addressed the finds with the same method as was used for the finds from Šentvid pri Stični – Župnišče 2011. The work method was thus published together with the finds from the aforementioned site (Porenta *et al.* 2015), however, in order to round up this monograph publication we are going to be reprinting it in parts.

[129] Štular 2007.

[130] See Štular 2007, 377–379; Pleterski 2010, 57–58; Klokočovnik 2010, 94-120.

[131] Štular 2009a, 129–130 and the bibliography quoted there; Klokočovnik 2010, 97.

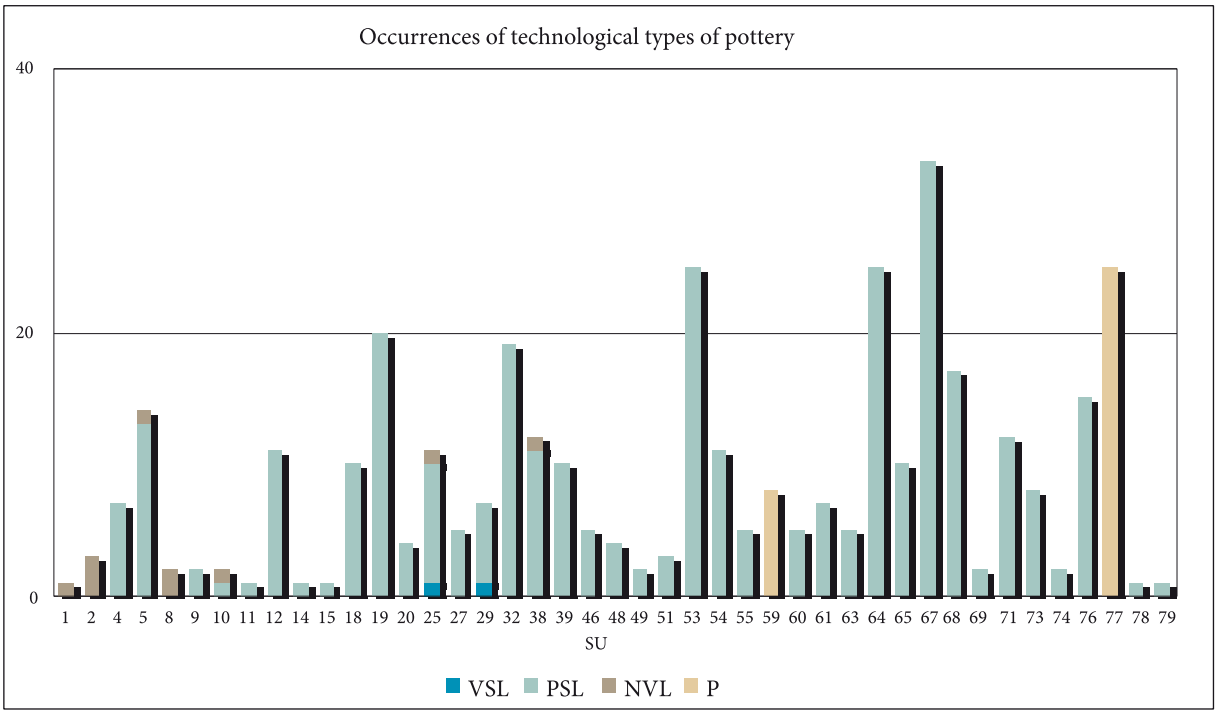


Fig. 6.9: Smlednik castle, excavations 2011/2012: occurrences of pottery forms: VSL – High Medieval pottery; PSL – Late Medieval pottery and early Post-Medieval pottery; NVL – Post-Medieval or Modern pottery; P – Prehistoric pottery.

what from the functional division often used in Roman Period archaeology.[132] There are two reasons behind this. The first is that at least in the Early and High Middle Ages the same vessel-type, the pot, was used for preparing as well as serving food.[133] Amongst the lower social strata this remained the case until the 17th century, when bowls started to be used for serving food also in farmers' households.[134] The second reason is that the current knowledge of medieval pottery in Slovenia does not allow for a more precise division.

The typological classification of rim shards is based on the typology carried out with the so-called envelope method that was used at the site Mali grad in Kamnik.[135] Due to the different time frame – Mali grad is a predominantly High Medieval, while Smlednik Castle is predominantly a Late Medieval and Early Post-Medieval site – this typology was expanded with 28 new or extended types of Late Medieval or Early Modern rim-types (*Fig. 6.12*).

A combination of various characteristics was used for the ***period classification*** of individual pottery fragments on the basis of the characteristics of the pottery fabric, i.e. fabric analysis. Based on the observed characteristics we can recognise those technical characteristics, which reveal the *chaîne opératoire* (French for "operational sequence") of pottery manufacture. This approach was developed by the French archaeologist André Leroi-Gourhan[136] in the 1960s and has received great attention in pottery analysis over the last years.[137] In the context of the treated material we have used the *chaîne opératoire* method for classifying fragments into three chronological groups: Early Medieval, High Medieval and Early Post-Medieval pottery.[138] The observed characteristics are :

temper,
colour,
surface,
hardness,
firing atmosphere and
manufacturing traces.

The following is characteristic of High Medieval pottery: high firing temperatures in a controlled, often reduction atmosphere, gluing (manufacturing traces) and later working on the shoulder and body of the vessel with a comb, while the rim was smoothened on a pottery wheel (traces of workmanship). The following is characteristic of Late Medieval and Early Post-Medieval pottery: wheel-thrown production and a controlled firing atmosphere (reduction and oxidation are equally represented), high hardness and a coarse surface.[139]

[132] E.g. Horvat, Bavdek 2009, 78–91.
[133] Štular 2007, 379–383; Pleterski 2008, 90–100.
[134] Štular 2009c, 81.
[135] Id. 2007, 376–377.
[136] Leroi-Gourhan 1990.
[137] E.g. Livingstone Smith *et al.* 2005; Scarcella 2011.
[138] See Štular 2009b.
[139] Id. 2009a, 114–117.

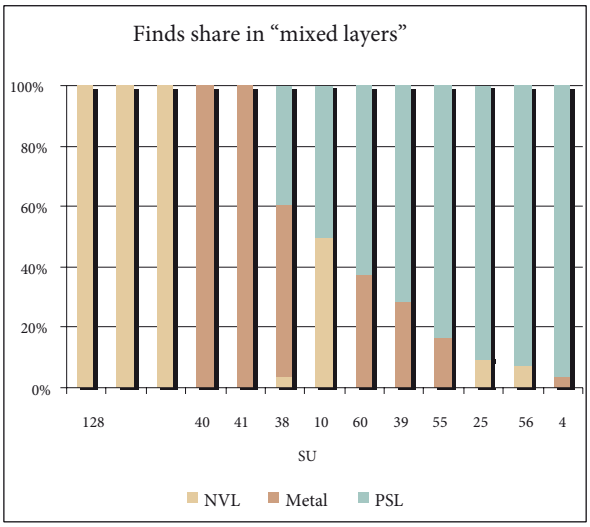


Fig. 6.10: Smlednik castle, excavations 2011/2012: occurrences of Late Medieval pottery (PSL) in the layers containing Post-Medieval pottery (NVL) and modern metal finds (Metal).

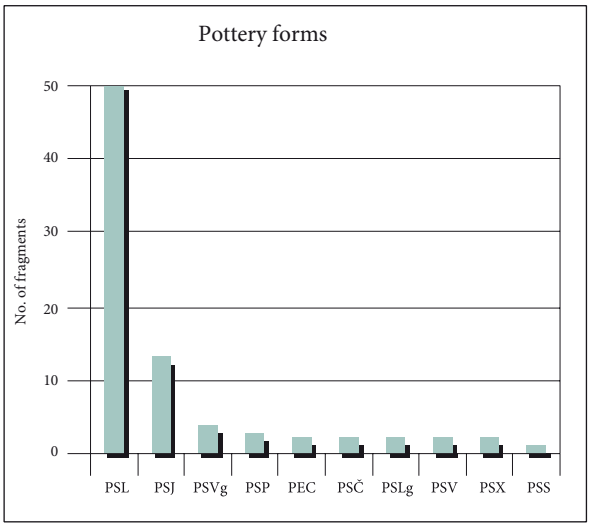


Fig. 6.11: Smlednik castle, excavations 2011/2012: occurrences of Late Medieval pottery forms: PSL – pots, PSJ – tallow lamps, PSVg – glazed pitchers, PSP – lids, PEC – stove tiles, PSČ – beakers, PSLg – glazed pots, PSV – pitchers, PSX – undefined, PSS – a dish.

In this case the use of the terms High and Late Medieval/Early Post-Medieval pottery is not considered strictly chronological but as technical terms used to collectively describe the above listed features. Chronologically the broad period division passes the test, however there are relatively long overlapping periods between the chronological groups that need to be accounted for. E.g., 13th century pottery is categorised as High Medieval when it is glued and Late Medieval when it is wheel thrown since both manufacturing techniques were used in the 13th century.[140] Fragments with a preserved rim can be dated with relative accuracy if a cross-sectional dating of the pottery type and rim type are used.

Appropriate recording of ***measurement data*** is extremely important for any future analysis and interpretation, for it enables us to obtain key data on the pottery taphonomy.[141] In this analysis we measured weight and size of the finds. Each fragment was classified into one of the three size-classes: up to 4 cm^2, 4 to 25 cm^2 and 25 cm^2 and more. The preliminary analysis has shown that these size classes allow for a relatively precise taphonomy of the pottery fragments.[142] The roundness of the fragments is often recorded with the same goal in mind. However, this characteristic was not included in our analysis since 100 percent of the fragments in the test group had sharp edges. In the continuation we monitored this characteristic only qualitatively, i.e. we paid attention to any eventual fragments with extremely rounded edges. The finds did not include any such fragments.

Due to their robustness and efficiency, the methods for classifying the shapes into groups and obtaining measurements are often the only data available for an individual fragment, which only emphasises the importance of these characteristics.

In the continuation we will present the finds by groups.

As expected ***pots*** were the most common find, with a total of 393 documented pot fragments (*Fig. 6.11*). It needs to be taken into account that amongst the hard to define small fragments, which were categorised as pots, some might belong to jugs; however this cannot significantly influence the data as pot fragments represent 93 percent of all finds. This is comparable to the contemporary site at Šentvid by Stična – Župnišče 2011,[143] where 96 percent of the 17,525 fragments were classified as pot fragments.

Typologically classifying rim shards is still the most efficient method for dating archaeological contexts when dealing with high numbers of medieval finds. However, it should be emphasised that the current state of research in Slovenia does not allow for a more precise time frame as there isn't a single comparable site with an appropriate stratigraphic sequence, absolute dates and sufficient number of finds. The time frame is thus limited to the range of precisely dated analogies found in the broader area. In most cases this range spans over at least two centuries and fits the actual tempo of the changes in the shapes of the vessels and rims.

[140] Štular 2005, 441–443; id. 2009a, 110–117.
[141] E.g. Schiffer 1996; Pleterski 2010, 13–56; Millson 2011.
[142] Štular 2009a, 143–157; id. 2010, 266–269.
[143] Porenta *et al.* 2013.

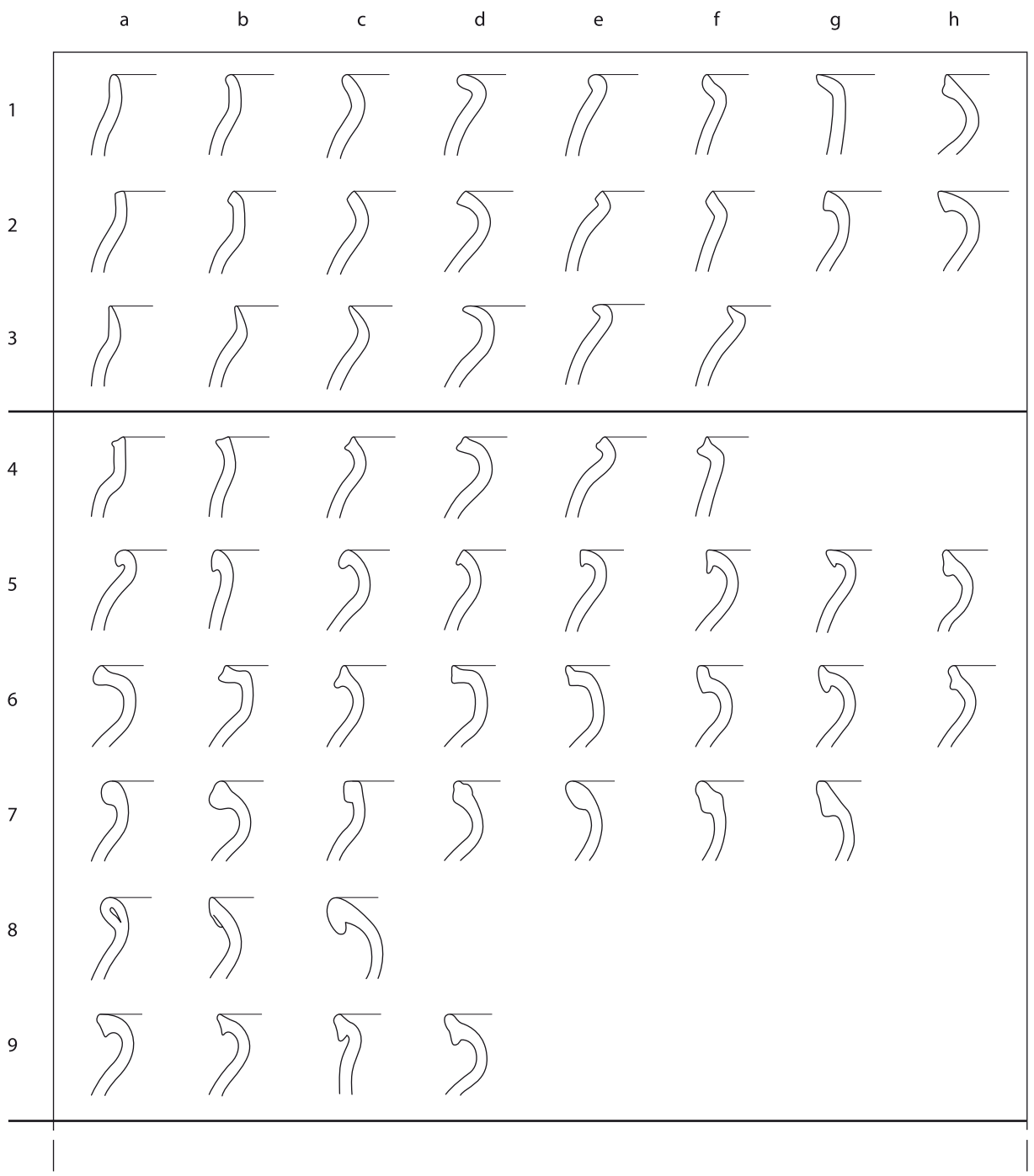


Fig. 6.12 >>

In our classification we used the typology that we have developed for sites with high numbers of finds (*Fig. 6.12*).[144]

A few fragments can be typologically classified as High Medieval rim types: 5G, 6E, 7E, 7G.[145] However, 3 of these fragments were wheel-thrown, which means that they are atypical Late Medieval or Early Post-Medieval pottery fragments.

3 fragments – types 5G, 6E and 7G (***Cat. No. 78***) – are dated to the High Medieval Period, i.e. to the 12th or 13th century.[146] Only one of these fragments, i.e. fragment type 6E, has a known context, SU 25.

The finds are dominated by the Late Medieval rim types 10, which account for 74 percent of all rim

[144] Štular 2009a, 125–129 and 230–237.

[145] Definition, analogies and dating in Štular 2009a, 230–237.

[146] See Štular 2009a, 230–237.

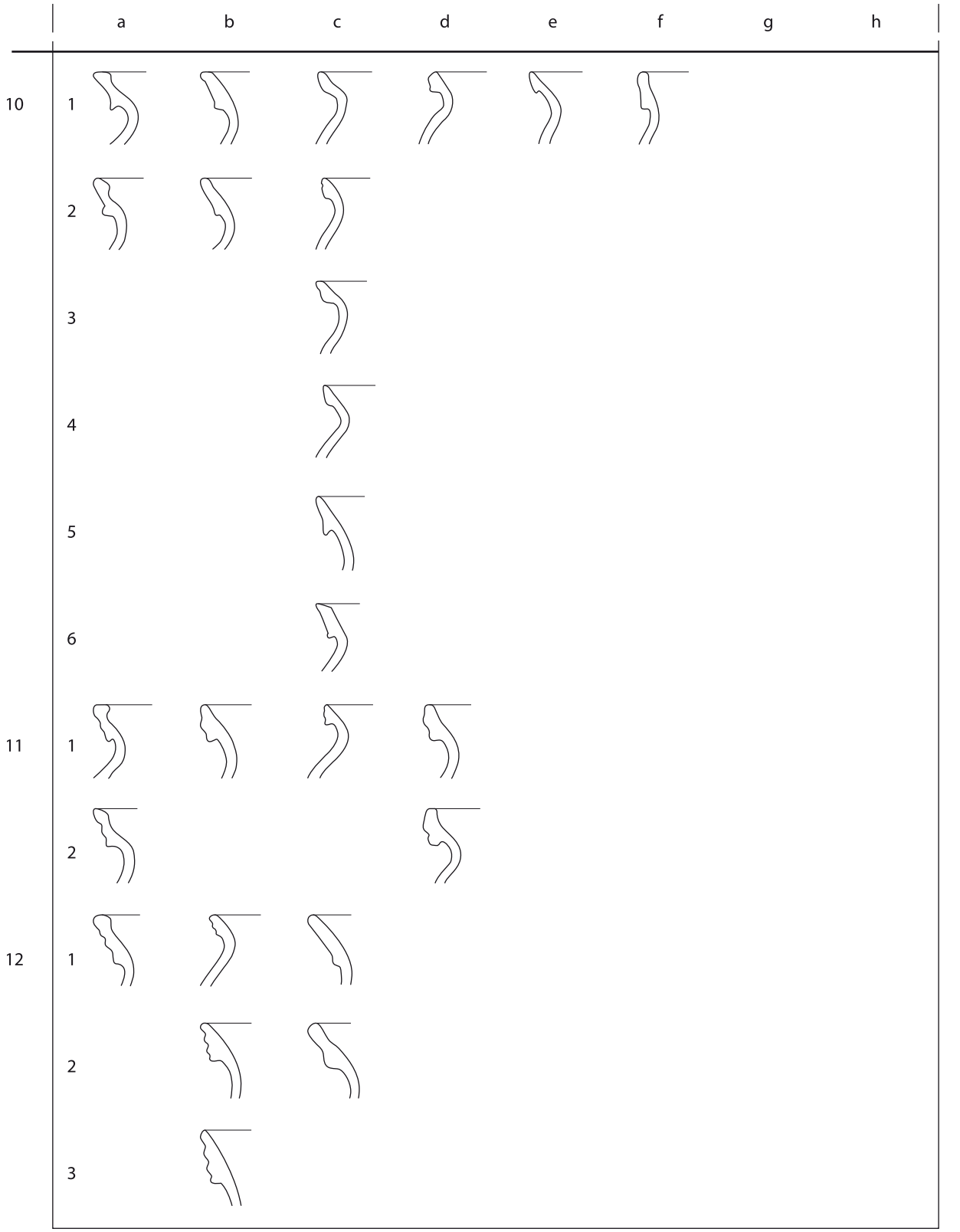


Fig. 6.12: Typology of Medieval and Post-Medieval pottery.

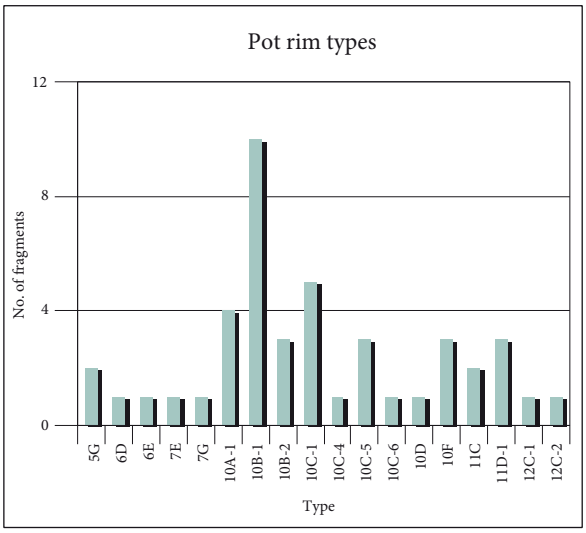


Fig. 6.13: Smlednik castle, excavations 2011/2012: occurrences of different pot rim types.

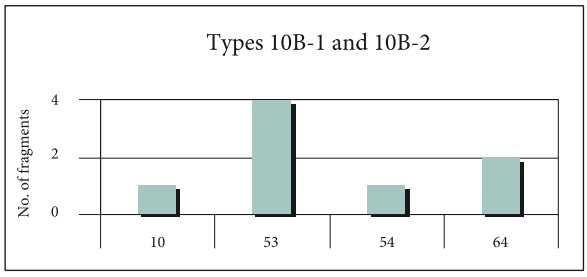


Fig. 6.14: Smlednik castle, excavations 2011/2012: occurrences of 10B-1 and 10B-2 rim types in individual stratigraphic units.

fragments. Most common are rim types 10B (***Cat. No. 84-95***). Types 10B–1 and 10B–2 are variants of the broad "curtain" type rim with an angular top with grooved interior and edge; the rim is outwardly oriented and has a gradual or quarter circle joint with the neck. The groove, where the rim transforms is a characteristic element. The versions differ by the groove of the inner edge: version 10B–1 does not have a groove on the inner edge or it has a very slight one, while version 10B–2 has a non-expressive groove.

Many variations can be found within this division, one of them being that the lower and upper edge of the rim have numerous different versions.

Analogies for type 10B–1 can be found in Fort Kostanjevica[147] and the mansion in Polhov Gradec.[148] In these two cases the fragments were documented in layers from the 15th and beginning of the 16th century. Analogies for type 10B–2 were found at the same two sites: fort Kostanjevica[149] and the Polhov Gradec mansion.[150] These analogies are slightly older, for they were dated between the mid 14th and the end of the 15th century.

Similar fragments were documented in Šentvid pri Stični, where they shared the layers with engraved tableware (so-called Ljubljana or Škofja Loka pottery), which was certainly used during the last quarter of the 16th century,[151] but most likely from the end of the 15th to the mid 17th century.[152]

At Smlednik these fragments were documented in four layers (*SU* 10, 53, 54 and 64; *Fig. 6.14*).

The next most common rim type is type 10C and its various variants (***Cat. No. 96-102***). This is a high thickened rim type; the rim is outwardly oriented and has a gradual or quarter-circle joint with the neck. Characteristic for this rim type is the non-existent groove on the inner as well as the outer edge of the rim. The variants differ by the specific locations at which the outer edge of the rim is transformed.

Analogies for variant 10C–1 were found at Fort Kostanjevica, where a fragment was found within a context dated to the end of the 13th to the mid 14th century.[153] A similar rim was found at Rihemberk Castle, where it was dated to the 13th century.[154] This is thus one of the oldest Late Medieval rim types, dated to the 13th and 14th century. A similar range of dates is assumed for type 10C–4 with analogies dated between the end of the 13th and the end of the 15th century,[155] and type 10C–5 with analogies dated between the end of the 12th and the end of the 15th century.[156]

Version 10C–6 is later and can be categorised as Early Post-Medieval. Analogies are dated between the end of the 15th and the beginning of the 17th century.[157]

Type 10C rims appeared individually (*SU* 27, 55, 60, 67 and 71).

Type 10A–1 (***Cat. No. 79-83***) is a typical Late Medieval rim, a wide "curtain" rim with a grooved edge and inner side and a rounded rim, oriented towards the outside with a gradual or quarter circle joint with the neck. The location where the groove is transformed is characteristic. The versions differ by the shape of the groove, orientation and the thickness of the rim edge, which is an especially chronologically meaningful detail.

The numerous analogies date this type between the 12th and the 16th century, however the particular variant found at Smlednik is characteristic of the 14th and 15th century.[158]

[147] Predovnik 2003, No. 268.

[148] Železnikar 2002, T. 6: 6; T. 9: 7.

[149] Predovnik 2003, No. 80 and 81.

[150] Železnikar 2002, T. 5: 20.

[151] Kovacs 2009.

[152] Porenta *et al.* 2013; Štular 2009a, 134 and bibliography quoted there.

[153] Predovnik 2003, Cat. No. 39 and 40.

[154] Klokočovnik 2010, T. 2: 1.

[155] E.g. Predovnik 2003, Cat. No. 39 and 70–75; Klokočovnik 2010, 105.

[156] E.g. Predovnik 2003, Cat. No. 26, 88–90, 117 and 195; Železnikar 2002, T. 6: 9.

[157] Železnikar 2002, T. 6: 8, 11; 9: 2.

[158] Štular 2009a, 235 and bibliography quoted there.

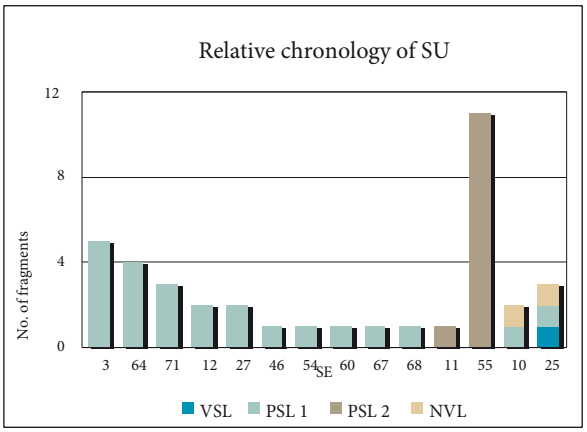


Fig. 6.15: Smlednik castle, excavations 2011/2012: relative chronology of the stratigraphic contexts based on the occurrences of definable pottery fragments: VSL – High Middle Ages, PSL 1 – 15th century, PSL 2 – 16th century, NVL – 19th century.

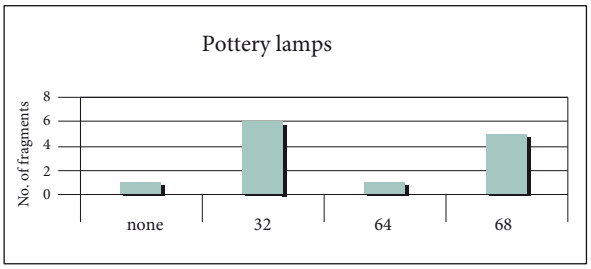


Fig. 6.16: Smlednik castle, excavations 2011/2012: occurrences of tallow lamp fragments in stratigraphic units.

Types 10D and 11C (***Cat. No. 105***) are dated to a similar time frame.

Type 10F (***Cat. No. 103***) is also common. This has a graded wide "curtain" rim, with a groove on the inside, oriented to the outer side and with a gradual transition into the body. The graded rim is a characteristic element. The versions differ by their orientation and the edge of the rim. The analogies are dated to the 15th and first half of the 16th century.[159]

Type 11D–1 (***Cat. No. 107-108***) is also common. The edge of the rim on type 11D is in the cross-section twice concavely profiled and usually grooved on the inner side; the rim is oriented to the outer side and has a quarter circle joint with the neck. The profile is characteristic. The versions differ by the shape of the lower and upper part of the rim and the groove on the inner edge. Version 11D–1 is strongly grooved. Version 11D–2 differs from it by the strongly thickened lower part of the rim edge, the so-called bit, and the horizontal or convex upper edge of the rim. Characteristic of version 11D–3 is the non-grooved inner edge of the rim. Comparable finds were dated between the 14th and 16th century.[160]

Types 12C are Early Post-Medieval types, dated between the 15th and 17th century (***Cat. No. 109-110***).

Most of the analysed pottery is thus Late Medieval or Early Post-Medieval. Regardless of the small number of definable fragments with a known context, certain layers could be chronologically defined. The only High Medieval fragment originated from *SU* 25, which also included modern pottery fragments. This is thus a mixed layer. Or, to put it differently, the High Medieval contexts were destroyed while activities were carried out on the castle ruins, most likely in the 19th century. The same holds true for *SU* 10 (*Fig. 6.15:* NVL).

This is followed by a series of layers with older finds (*Fig. 6.15:* PSL 1), which have been dated to the 15th century. Two layers with slightly younger finds (*Fig. 6.15:* PSL 2) can be dated roughly to the 16th century.

We should also mention the fragments of modern metal finds in *SU* 60 and 55 (*Fig. 6.10*). A final opinion as regards the relative chronological placement is not possible due to the small excavated area.

Apart from the previously mentioned rim fragments the finds also included 353 other pot fragments, four of which were glazed. Almost all exhibit fabric characteristic of the Late Medieval period (*Fig. 6.9* and *Fig. 6.11*): wheel-thrown and made from characteristic fabric types. Regardless of its name this shape was the most common kitchenware not only in the Middle Ages, but also in the Early Post-Medieval Period.

3 ***ceramic tallow lamp*** fragments (***Cat. No. 115-116***) were documented at Smlednik Castle. These are bowl-type vessels with a flat bottom and an oval rim that has been characteristically transformed into an inexplicit funnel. The charred parts indicate that a wick was placed within the funnel. And as the name tells us, the most common fuel for these lamps in the Middle Ages was tallow.

Ceramic lamps are common finds in castles that appeared in Alsace as early as the 11th century, while in South Germany, Switzerland and Austria they appeared at the turn between the 12th and the 13th century.[161] Regardless of their simple forms ceramic lamps were considered high-status objects in the 13th and 14th century due to the valuable fuel they were burning.[162] Fragments from Smlednik as well as the fragment from Šentvid by Stična – Župnišče indicate that typologically the same objects were used at least until the end of the Middle Ages. However, size increased through time.

At Smlednik Castle ceramic tallow lamps appeared in SU 32, 64 and 68. Chronologically these layers can

[159] Predovnik 2003, Cat. No. 222 and 313; Železnikar 2002, T. 6: 17.

[160] See Štular 2009a, 240, type 11A.

[161] See Gross 1991, 124–125; Felgenhauer-Schmiedt 1995, 128; Krauskopf 2005a, 62–63; Štular 2009a, 139.

[162] Krauskopf 2005a, 62.

thus be defined as Late Medieval (*Fig. 6.15*). Layers SU 32 and 68 included an especially large concentration of fragments, which could be important for the interpretation of the stratigraphic contexts (*Fig. 6.16*).

Only 16 pottery fragments did not belong to pots or lamps.

4 fragments belonged to glazed jugs (***Cat. No. 58***). ***Jugs*** were used to store, carry and pour liquids. This pottery form became popular in the Late Middle Ages.[163] In Central Europe glazing was used only in the Late Middle Ages,[164] and as much as the finds from the well published sites in the studied area reveal[165], it became popular from the 15th century onwards.

Amongst the analysed material we have documented 4 glazed jug fragments and 2 fragments without glazing, however none of them can be dated more precisely.

There are surprisingly few ***lids*** amongst the finds, as only 4 fragments were found. A similar ratio was also noticed at the High Medieval site of Mali grad[166] and the Late Medieval site Šentvid pri Stični – Župnišče 2011.[167] Such a high contrast of almost one hundred pot fragments for each documented lid fragment indicates that only a small share of pots were fitted with a ceramic lid. This can only partially be explained by the hypothesis on the use of wooden lids.[168]

The so-called lid rims reveal that only a few pots were made to be intentionally used with a lid. The shape of the inner edge of the rim indicates whether the pot was fitted with a lid or not.[169] 27 percent of our rim finds (12 rim fragments out of the total 44) were rims made to fit lids. However, apart from the stated factors there must be an additional reason that would explain the gap in the number of pot and lid fragments. It is possible that the lids were less likely to break, however pottery lids were relatively rare even in the Late Middle Ages and might have been used only for certain kitchen activities.[170] Such an activity could be covering the pot in which water was being heated on the edge of the fireplace throughout the cooking process.

We have documented three fragments of lid rims (P1.1, P2.2 and P3.2) and one lid handle fragment (PV). Regardless of the relatively precise typology these are not chronologically sensitive artefacts.[171] The finds can only be roughly dated to the Late Middle Ages or Early Post-Medieval Period.

2 cup fragments and 1 bowl fragment that are impossible to date precisely were also found. For cups and bowls the same holds true as for jugs: these are forms that appear in the Late Middle Ages, and in the Early Post-Mediaeval Period they become a common part of table sets and are in most cases glazed. Unglazed bowls and cups thus most commonly originate from the Late Middle Ages.

6.3.6 TAPHONOMY

As mentioned, appropriate recording of measurements enables us to obtain key data as regards the pottery taphonomy, or to be more precise, on certain post-depositional processes. In our analysis we have assigned each fragment to one of the three size groups as regards its surface: up to 4 cm^2, between 4 and 25 cm^2 and 25 cm^2 and more.

Of course, it is impossible to interpret an individual stratigraphic unit merely on the basis of the shares of the various fragment sizes. Statistically defined normal and average deployment cannot be transferred from one site to another. The final condition or size of the fragment is most commonly influenced by the following factors:

– depositional processes,
– post-depositional processes,
– the quality of the pottery and
– the chemical characteristics of the soil.

We are interested in the depositional processes or the circumstances in which the analysed SU was formed. We are not aware of any other serious attempts to quantify the remaining three characteristics, thus we can merely ascertain when the conditions in the post-dispositional processes, pottery quality and chemical characteristics of the soil are constant. This condition is fulfilled when a small scale single phase site, without any major post-dispositional processes is observed – which is applicable in the case of Smlednik.

The starting point of such an analysis is based on the following axiom: *Under the influence of mechanical forces pottery disintegrates into ever smaller pieces*. In the usual life cycle of pottery these mechanical forces are a consequence of handling by the users of the individual object and/or the users of the space in which the object is located. Most commonly referred to is the hypothetical process from the finds *in situ* to the tertiary refuse or backfill (*Fig. 6.17*).

Of course, in practice numerous problems are encountered, most of which can be summarised in two points. The first is the problem of defining the size classes and the second, which is applicable to archaeology as a whole, is how to pinpoint the exact process that caused the fragmentation. As there is no absolute answer, one

[163] Predovnik 2003, 60; Klokočovnik 2010, 115.
[164] Štular 2009b, 117 and the bibliography quoted there.
[165] E.g. Predovnik 2003.
[166] Štular 2009a, 132–134.
[167] Porenta *et al*. 2013.
[168] Štular 2007, 382 and the bibliography quoted there.
[169] Štular 2007, 381–384; Klokočovnik 2010, 98–100.
[170] See Štular 2007, 380–383 and the bibliography quoted there.
[171] E.g. Štular 2009a, 132–134 and the bibliography quoted there.

process / event	typical archaeological record	prevailing size and re-fitting
brakeage, deposition	*in situ* finds	very large, re-fitting ≥ 50%
"throwing-away", i.e. deposition on the area designated for rubbish	primary refuse	very large and large, re-fitting 15-50%
primary refuse is reworked	secondary refuse	medium, re-fitting ≤ 15%
secondary refuse exposed to further activities/processes	walking/working surface or tertiary refuse	small, re-fitting negligible
further reuse	levelling or filling, original context unrecognisable	very small, re-fitting negligible

Fig. 6.17: The taphonomy of pottery in archaeological record, a hypothetical display of the post-depositional processes and the manifestations in archaeological record.

has to be satisfied by the best possible approximation: the size classes are determined as deviations from the average, while the processes are merged into larger groups. In this case the size classes have been defined in advance, based on the previous analysis, while the shares will be addressed with regard to the site average. The processes that we are trying to detect with this procedure are described as ***primary refuse***, ***secondary refuse*** and ***walking surface or tertiary refuse***. Of course, these interpretations do not intend to become the final interpretations for all stratigraphic units, but are to be considered as an aid in the process of archaeological interpretation. Actually, these classes merely summarize the following: above average size fragments, average size fragments and below average size fragments.

In the above graph all fragments are summarized; the graph confirms that we have selected the size classes appropriately, for it has the shape of a normal statistical distribution also known as the bell or Gaussian curve. The relevance of this method is confirmed by the fact that when observing individual SU's the bell curve is most often not exhibited.

Small fragments dominate in twelve stratigraphic units (SU 2, 51, 73, 76, 4, 29, 25, 27, 60, 32, 67 and 68). These are interpreted as walking surfaces or tertiary refuse. A 50 percent share of large and medium fragments is surpassed in five stratigraphic units (SU 55, 61, 63, 46, and 18) and these are interpreted as primary refuse. Amongst the two extremes we can find thirteen stratigraphic units with a share of small fragments ranging between 75 and 60 percent (SU 20, 48 19, 71, 38, 54, 5, 65, 49, 64, 39, 53 and 12). These can be broadly interpreted as secondary refuse (*Fig. 6.18*).

The results are comparable to the 'usual' settlement pottery which was found for instance at Mali grad in Kamnik and Pristava in Bled.[172] As an example of a different site we can mention Šentvid by Stična – Župnišče 2011. This site has some contexts, which could be interpreted as rubbish pits, i.e. primary refuse, during the excavations. In these contexts large fragments represented at least one quarter of all finds, while small fragments represented less than one quarter.[173]

[172] E.g. Štular 2009a, 150-156; Pleterski 2010, 20; Štular 2010, 266–267.

[173] Porenta *et al.* 2013.

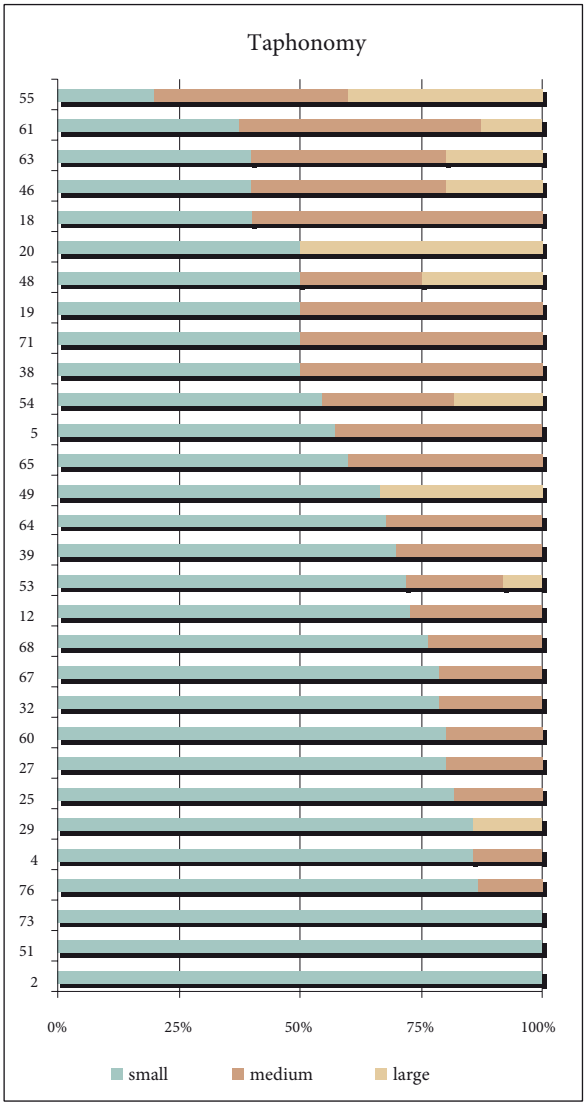


Fig. 6.18: Smlednik castle, excavations 2011/2012: the ratio of different fragment size categories in stratigraphic units. Only stratigraphic units containing at least three fragments were taken into account.

6.4 INTERPRETATION

Amongst the described finds the two rings (***Cat. No. 1*** in ***2***) with the only known analogies in 10th century burials stand out. It is important to take into account the fact that in the 11th century the ritual of adding jewellery into graves no longer existed in this area, or to be more precise, it is presumed that jewellery was no longer placed into the 'post-Slav' 11th century burials and such burials were not, until now, the subject of archaeological research. This does not, however, disprove the use of such rings in the 11th century or even later. This just means that there is no archaeological data for it so far, i.e. the absence of proof is not proof of absence. However, it seems more likely that the rings are merely testimonies to the activities in the 10th and maybe in the beginning of the 11th century in the area where the castle later stood. The comparison to the nearby Mali grad in Kamnik, built at the end of the 11th century on what was the graveyard of the local lord's family from the last quarter of the 10th and the first quarter of the 11th century, seems especially appropriate.[174] Taking into account other known data, the situation at Smlednik Castle could be similar. However, it is not necessary for the rings to have emerged from a burial, for jewellery items are relatively common finds in settlements.

The remaining small finds represented an expected selection of finds from a medieval castle that remained in use as late as the 16th century. The first important factor to take into account is the fact that most finds at comparable sites[175] originated from the last phase of occupation, in our case from the 16th and the beginning of the 17th century. The second, possibly even more important factor, is the fact that we are dealing with a selection of finds excavated at a time when High and Late Medieval archaeology was not considered to be relevant in Slovenia.

The book bosses are one of the more illustrative finds, and as such a part of a special analysis (***Cat. No. 12, 13*** and ***14***). These are finds without a known archaeological context, however it is hard to imagine a book being thrown into the mud in the castle courtyard. It seems more likely that these are the remains of the castle furnishings from the last period of use. In fact, it is possible that the 1569 castle inventory, which includes 'two old Roman Missal books' (*Allt messpieher sein 2*), could explain them. Thus, we are not dealing with objects that were thrown away, but rather with objects which were no longer important to the castle inhabitants. In this case the small archaeological finds mirrors what is revealed in the written sources (see chapter 4).

The finds from the older excavations do not shed any light on the life in the castle. Instead, they are indicative of the archaeological approach in the 1960s, as we are dealing merely with a collection of so-called nice objects. From the viewpoint of modern artefact analysis this is a random sample without any context information, thus it has very small interpretative value. Maybe the set of panel-type stove tiles should be mentioned, which indicate that the castle was equipped with stoves in the 16th century. The inner castle furnishings suited the highest living standards of the period. These stove tiles were almost certainly built into one of the stoves, which were serviced by Andrej Nastran from 7th October 1559 onwards (see chapter 4). Sometime in the 16th century, or possibly even later, the castle furnishings were updated with high-status earthen stoves. This might have taken place as late as 1610, when the castle renovation works were headed by Abondio de Donino (see chapter 10.1).

Amongst the relatively rare finds the most telling is pottery, which was documented during the modern archaeological excavations, however, due to the small excavation area it is impossible to discuss the use of individual castle parts and similar. However, we should mention that kitchenware was found in much greater quantities than tableware that would be used for *castle feasts*. The pottery represented an important tool for dating the individual phases of the archaeological records (see chapter 12.1).

[174] Štular 2007.

[175] E.g. Štular 2009.

7 ANIMAL REMAINS

Borut TOŠKAN

The archaeozoological material found at Smlednik castle during the 2011 and 2012 excavations consists of 561 bones and teeth. Mammalian remains prevailed (94.3 percent), but bird and amphibian bones were also present (*Fig. 7.1*). From the 529 mammalian finds 164 (31 %) could be taxonomically identified at least to the level of genus (in the case of sheep/goat to the level of subfamily, i.e. Caprinae). Most of the finds were dated between the mid 13th century and the beginning of the 17th century (i.e. phases 3–7), one bone fragment was dated to the Early Iron Age (phase 2), while the remaining ones were dated to the semi-recent past (phases 8 and 9). Slightly more than a dozen archaeozoological finds did not have an archaeological context.

The analysed material includes few whole, undamaged bones (60 or 10.7 percent), however the bone substance seems to be fairly well preserved in general. Most of the finds were hand collected during the excavations, as only a small share of the removed sediment was sieved[1]. Thus it comes as no surprise that the average size of the analysed fragments exceeds four centimetres. We can assume that the number of small skeletal remains – as well as small animals in general – is underrated. The share of small finds amongst hand collected bones and teeth can be several times lower than amongst the sieved sediments from the same archaeological contexts.[2]

The second important fact that is to be taken into account when interpreting the results is the modest sample size. Namely, the number of available animal remains is on the lower end of what is still considered useful for a relatively credible estimate as regards the

[1] Approximately 5 dm^3 of the sediment was sieved from each stratigraphic unit, which represents roughly 10 percent of all excavated soil. When compared to comparable local excavations this is above average. The sieves used had holes with a diameter of 5 or 2 mm.

[2] See for instance Payne 1972; Toškan, Dirjec 2004a, 158–161; 2011, 350–353.

Taxon	**Phase 2**	**Phases 3–7**	**Phases 8–9**	**NAC**	**TOTAL**
Bos taurus	-	19	4	4	27
Sus sp.	1	35	10	2	48
Caprinae	-	28	9	8	45
Capreolus capreolus	-	1	-	-	1
Caprinae s. *Capreolus*	-	1	-	1	2
Felis catus	-	1*	-	-	1
Lepus europaeus	-	2	-	-	2
Glis glis	-	-	1*	-	1
Gallus gallus	-	13	1	1	15
Aves gen. et spec. indet.	-	4	1	-	4
Bufo cf. *bufo*	-	-	1*	-	1
TOTAL	1	99	27	16	147

Fig 7.1: Animal rremains in the material from Smlednik Castle (excavations 2011/12), in individual phases or groups of phases. The number of finds is expressed as the number of identified specimens (NISP). The asterisk (*) denotes more or less completely preserved skeletons; in the chart they are labelled as NISP = 1, although the actual number of identified remains is larger (i.e. F. catus: 30; G. glis: 9; B. bufo: 12). NAC – no archaeological context.

Taxon	Σ remains	Reliably determined	Conditionally determined
S. domesticus	48	12	5
S. scrofa		0	3

Fig. 7.2: Smlednik Castle, the pig and wild boar remains among the remains of the genus *Sus* in the material from phases 3–7 (excavations 2011/12). The taxonomic determination is based on metric data.

share of individual taxa.[3] Apart from this the excavations at Smlednik encompassed just a few percent of the entire castle surface area, which is problematic as the spatial distribution of animal remains within the site was most likely not homogenous. However, there is a mitigating circumstance as most of the analysed material originated from rubble layers, i.e. layers that were in most cases moved to the researched area of the castle courtyard from other areas within the walls or the direct vicinity. Consequently, the bones and teeth that were found in the rubble layers actually originate from a larger surface than the one excavated.

Due to the modest sample size and its nature[4] the quantity of the finds was expressed merely as the *number of identified specimens*[5] (NISP). An exception is represented by the finds of the more or less completely preserved skeletons, which are treated as NISP = 1 (*Fig. 7.1*). All skeletal elements were submitted to identification with the exception of ribs, which were represented by 72 fragments.[6] Sheep and goat remains were separated on the basis of the morphological characteristics of individual finds,[7] while the remains of the domestic pig and wild boar were most commonly separated by size (*Figs. 7.2; 7.3*). Capturing metric data followed the well established guidelines.[8] The same holds true for the estimation of the age at death of individual animals.[9]

7.1 PHASES 3 – 6

The complete archaeozoological sample from Smlednik Castle includes the remains of at least ten species, eight of which were mammalian. With the exception of the edible dormouse (*Glis glis*) and the common toad (*Bufo bufo*), all could also be found in the Medieval and Early Post-Medieval phases 3–6. With one third of all the taxonomically identified finds the most common were suid remains (*Sus* sp.). Most of them were assumed to be of domestic pigs (*Sus domesticus*; *Fig. 7.2*), but the large (fragmented) ulna[10] and scapula from SU 67 might well be of either wild boar or a crossbreed.

Quantitatively, pigs are followed by Caprinae[11] and cattle (*Bos taurus*). The difference in the number of finds between the latter two taxa does not exceed the limit of statistical significance,[12] however, we have to take note of the fact that large (e.g. bovine) bones are more exposed to anthropogenic and post-dispositional fragmentation.[13] Moreover, we can assume that smaller animals would be better represented if more sediment was sieved. Interestingly, the data from Smlednik shows no noticeable differences between taxa in the intensity of post-depositional bone fragmentation, as cattle is much better represented in stratigraphic units with above average pottery fragment size, when compared to those in which the size of these fragments is below average.[14] Moreover, the difference in the ratio between the taxonomically identified bones and teeth (i.e. NISP) and the number of all bones and teeth (N) within the two mentioned contexts (i.e. primary and tertiary refuse) are negligible as well. Thus, taking into account also the marked difference in the mass of cattle compared to other species represented in the studied material, we can conclude that beef was the meat of choice at Smlednik Castle in the Middle Ages and the Early Post-Medieval period.

What about the numerical prevalence of pig remains? This can be understood as a reflection of the specific eating habits of the higher social strata at the time, for pork was highly cherished in the Middle Ages.[15] Even though this is a relatively non-demanding species to breed, suitable even for being kept within

[3] Davis 1987, 46.

[4] Most of the finds originated from rubble layers (e.g. Grayson 1984, 29–34).

[5] Grayson 1984, 17–26.

[6] The selection of remains that was impossible to precisely identify taxonomically, but allowed for anatomical identification, include fragments of at least seven different skeletal elements: skull (N = 6), mandible (N = 1), scapula (N = 1), humerus (N = 1), vertebrae (N = 6) and pelvis (N = 1).

[7] Boessneck *et al.* 1964; Zeder, Pilaar 2010.

[8] Von den Driesch 1976.

[9] Silver 1972; Payne 1973; 1987; Grant 1982; Rolett, Chiu 1984.

[10] The greatest breadth across the coronoid process (BPC *sensu* von den Driesch 1976, 79): 20.5 mm.

[11] A mere five finds could be classified to the level of species; as expected sheep prevailed (N = 4).

[12] The difference between pig and Caprinae: $\chi^2 = 0{,}29$; degrees of freedom: 1; $p > 0{,}5$. Difference between pig and domestic cattle: $\chi^2 = 2{,}42$; degrees of freedom: 1; $p > 0{,}1$.

[13] Bartosiewicz 1991.

[14] We could be dealing with a primary and a tertiary refuse (see chapter 6.2.4).

[15] Audoin-Rouzeau 1995, 292–297; Baker, Clark 2003, 64–65; Bartosiewicz 1999, 144; Adamson 2004, 83.

Taxon	Sk. element	Dimensions	Measurments				
B. taurus	Radius	Bp	71.5				
	Femur	DC	36.0				
	Tibia	SD	33.5				
	Metatarsus	SD	19.5				
	Astragalus	GLl	52.0				
		GLm	48.5				
		Dl	27.5				
		Dm	26.5				
		Bd	32.2				
	Phalanx 1	GL	50.5				
		Bp	26.0				
		Bd	24.0				
Sus sp.	Humerus	SD	14.5	13.5	14.0	15.0	12.5
	Ulna	BPC	20.5				
	Femur	SD	13.0	15.5			
	Tibia	SD	16.5	16.5	18.5		
	Calcaneus	GB	21.5				
	Metatarsus 4	GL	12.5				
Caprinae	Humerus	SD	11.5				
	Femur	SD	14.0				
	Tibia	SD	13.5	12.5	11.5		
		Bd	24.0	21.0	-		
		Dd	18.5	17.0	-		
	Calcaneus	GL	50.0*				
	Astragalus	GLl	26.5*				
		GLm	24.5*				
		Dl	15.0*				
		Dm	14.5*				
		Bd	17.0*				
F. catus	Tibia	GL	106.0				
		Bp	17.0				
		SD	6.5				
		Bd	14.0				
	Calcaneus	GL	26.0				
		GB	11.5				
	Astragalus	GL	14.5				
	Metatarsus 2	GL	43.0				
	Metatarsus 3	GL	46.5				
	Metatarsus 4	GL	46.5				
	Metatarsus 5	GL	45.0				

Fig. 7.3: Smlednik Castle, the dimensions of individual large mammalian bones in phases 3–7 (excavations 2011/12). All measurements are in millimetres.

an individual household in a town,[16] pig breeding on a larger scale demanded access to a forest, where these animals could roam freely.[17] However, in contrast to cattle and caprinae breeding, pig breeding does not provide for any secondary product except manure and skin, due to which it could have been considered some sort of a luxury activity in medieval times.[18] The rise in the share of pig finds within individual urban contexts could thus be seen as an indicator of the rising level of living standards,[19] however at least within the Holy Roman Empire (of German nationality)[20] the species was represented in higher numbers only in contexts

[16] Bartosiewicz 2003, 187–188.
[17] Ervynck 2004, 217.
[18] Grant 2002, 18.
[19] Bartosiewicz 1999, 144; id. 2006, 460.
[20] Audoin-Rouzeau 1995, 299–300. See also Bartosiewicz 1999, 146.

Taxon	Otok	Pri Muri (Ivankovci)	Šentvid	Novo mesto	Sl. Gradec	Kamnik (Mali grad)	Lendava (castle)	Grad (castle)
Bos taurus	161	29	336	224	1673	3	15	21
Sus sp.	21	9	110	105	646	4*	5*	3
Caprinae	31	1	57	48	818	1	-	2
Equus caballus	2	16	7	2	6	-	-	-
Canis familiaris	-	-	3	3	12	-	-	3
Felis catus	-	-	1	-	4	-	-	-
Lepus s. *Oryctolagus*	-	-	-	-	12	-	-	-
Cervus elaphus	3	-	-	-	-	1	1	1
Capreolus capreolus	-	-	-	-	1	-	-	-
Vulpes vulpes	-	-	1	-	-	-	-	2
Ursus arctos	-	-	-	-	1	-	-	-
TOTAL	218	55	515	382	3173	9	21	32

Fig 7.4: Individual large mammalian taxa found in the material from Medieval or Post-Medieval sites in Slovenia that were archaeozoologically analysed. The number of finds is expressed as the number of identified specimens (NISP). The asterisk (*) denotes finds of the genus *Sus* with a significant percentage of wild boar. Chronological determination of samples: Otok near Dobrava, 12th–14th century; Pri Muri near Lendava (Ivankovci), 12th–14th century; Šentvid near Stična, Župnjiski dom, 13th–16th century; Novo mesto, town core, 15th–17th century; Slovenj Gradec, music school, 16th–19th century; Mali grad, Kamnik, 12th–13th century; Lendava, castle, 15th–17th century; Grad, castle, undefined time frame.

that could be linked to secular[21] objects of a higher status (i.e. mainly castles).[22]

Based on the modest data at our disposal it seems that this was the case also in the territory covered by present day Slovenia. A majority pig share was – alongside Smlednik Castle –ascertained only at Mali grad in Kamnik and the assumed manor house in Šentvid pri Stični. Within the remaining three relatively rich samples of Medieval and/or Early Post-Medieval sites[23] in this area, domesticated cattle is way ahead in the number of finds (*Fig. 7.4*).[24]

In view of the above a better representation of suid finds could be expected at Lendava Castle and at the castle Grad in Goričko, for these were both buildings of a higher status (*Fig. 7.4*). Nevertheless, this does not mean that the high share of pig on other sites is not to be rightfully understood as an indicator of a higher status. We need to be aware that the samples from the Lendava and Grad castles were very modest in size and that there was an obvious positive selection in favour of large finds in the sampling process. Additionally, at least in the case of the Grad Castle, the analysed bones could not be precisely chronologically classified on the basis of the available documentation. The key to it all is the understanding that even though a relatively high number of pig finds indicates a higher status of the building or its inhabitants, this in itself does not mean that the opposite also holds true, i.e. that the lack of pig bones and teeth can be understood as an indicator of a lower social position. In archeozoological research the social barometer can also be represented by the evidence of

[21] Due to the strict medieval restrictions in consuming red meat (enforced by the church), a large number of the remains belonging to this species were usually not found in ecclesial contexts (Ervynck 2004, 219).

[22] See e.g. Becker 2003; Pucher, Schmitzberger 2006; Riedel, Pucher 2008; Štular 2009a, Fig. 17.1; Trbojević Vukičević *et al.* 2010, 242 and 244 and the bibliography quoted there; Boschin 2012, Table. 1.

[23] In the town of Sovenj Gradec a relatively rich Medieval and Early Post Medieval founal assemblage was excavated at the location for the music school (*Fig. 7.4*). In addition to this, animal remains of roughly the same period were also found during the excavations of the town walls in 1994 and 1995. Unfortunately, published data so far revealed only that pig was the best represented taxon within the mentioned samples (Snoj 1995, 117; id. 1997, 138), without disclosing any further details.

[24] In this sense a unique position could be held by the coastal towns of the time, where the eating habits were more likely to resemble those on the Apennine peninsula (Audoin-Rouzeau 1995, 299–300).

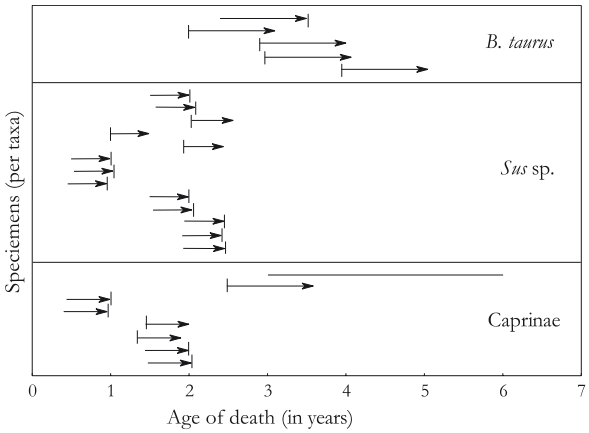


Fig. 7.5: Smlednik Castle, the age structure of cattle (top), pig (middle) and caprinae (bottom) in phases 3–7 (excavations 2011/12). The estimates are based on the observed wear of the lower molars and the data on the fusion of epi- and diaphyses.

hunting with birds of prey (falconry),[25] finds of exotic animal species[26] or high number of remains belonging to game.[27] Any one of these social-status indicators can be encountered within the castles, which are otherwise characterized by low numbers of pig remains (*Fig. 7.4*).[28] The finds of game from Smlednik Castle include hare (*Lepus europaeus*), roe deer (*Capreolus capreolus*)[29] and possibly wild boar (*Fig. 7.1*).

To continue we should briefly focus on the estimate of the preferential age-at-death, even though this was obtained from a relatively modest data set. Worth mentioning is the high share of young caprinae specimens (*Fig. 7.5*), as this corroborates the thesis of the high status of the castle inhabitants. Namely, the slaughter of lambs or kid goats is sensible merely from the culinary point-of-view, making this sort of luxury affordable only by the rich. In contrast the usual breeding policies favoured the economically more viable production of fleece and possibly milk,[30] due to which the animals were slaughtered at a much later stage of their lives.

The age-at-death data for cattle and pig are less meaningful. The latter were seemingly fat enough to be slaughtered only in their second or third year (*Fig. 7.5*), which is most likely a result of the fact that they were generally left to roam freely.[31] Cattle breeding was aimed at harnessing power and milk production, which pushed the preferential age for slaughter much higher. In contrast to sheep and goat, the remains of calves are practically non-existent (*Fig. 7.5*). Likewise noteworthy is the modest representation of skeletal elements from the least meaty (and thus culinary least favourable) parts of the body in cattle, lagging behind both pig and sheep/goat (*Fig. 7.6*). This is despite the fact that if hand-collected most of the small skeletal elements (such as for instance phalanges, carpal and tarsal bones, isolated teeth and skull fragments) are likely to belong to large species (as is cattle).[32] Of course, in such cases one has to keep in mind the possibility that smaller bones were deposited in greater numbers at an alternative, archeologically unresearched location within the same site.[33] Alternatively, the data as regards the representation of individual skeletal elements by taxa (*Fig. 7.6*) could reflect the selective supply

[25] Krauskopf 2005b, 57

[26] Boschin 2012, 287.

[27] Krauskopf 2005b, Fig. 5; also see Salvadori 2003, 181.

[28] See e.g. Pucher 2009, 260–263 (Sand Castle); Boschin 2012, 284–285, 287.

[29] Alongside the reliably identified thoracic vertebra from SU 67 a scapula fragment from SU 62 most likely belonged to this species. The latter is included in the *Caprinae* s. *Capreolus* section in Fig. 7.1.

[30] Crabtree 2001, 5.

[31] See Salvadori 2003, 180.

[32] Toškan, Dirjec 2004a, 158–161.

[33] See Toškan, Dirjec 2011b, 323–325.

Taxon	**Cranium**	**Maxilla**	**Mandibula**	**Dentes**	**Vertebrae**	**Pelvis**	**Scapula**	**Humerus**	**Radius**	**Ulna**	**Ossa carpalia**	**Femur**	**Tibia**	**Fibula**	**Ossa tarsalia**	**Ossa metatarsalia**	**Indet. metapodia**	**Phalanges**
B. taurus	-	-	2	2	1	-	1	1	1	1	2	1	4	-	1	1	-	1
Sus sp.	2	1	-	5	-	1	3	6	-	1	1	2	5	-	1	2	2	3
Caprinae	-	-	4	4	2	1	2	1	1	1	-	1	6	-	2	-	-	1
C. capreolus	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
F. catus	-	-	-	-	-	-	-	-	-	-	-	1	2	2	7	8	-	10
L. europaeus	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-

Fig. 7.6: Smlednik Castle, individual large mammalian taxa found in the material from phases 3–7 (excavations 2011/12), by skeletal elements. The number of finds is expressed as the number of identified specimens (NISP).

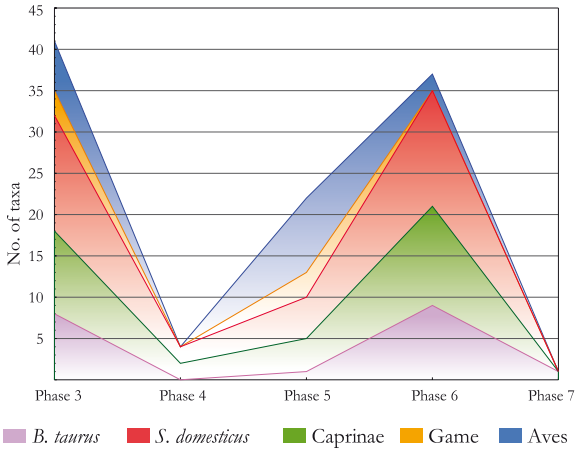


Fig. 7.7: Smlednik Castle, individual large mammalian and bird taxa found in the material from phases 3–7 (excavations 2011/12), by phases. The number of finds is expressed as the number of identified specimens (NISP).

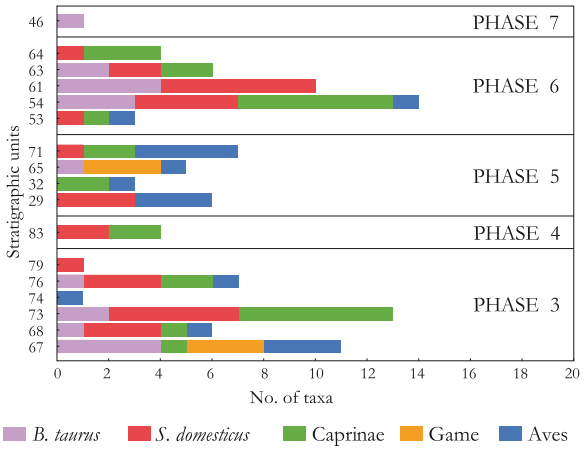


Fig. 7.8: Smlednik Castle, individual large mammalian and bird taxa found in the material from phases 3–7 (excavations 2011/12), by stratigraphic units. The number of finds is expressed as the number of identified specimens (NISP).

of the castle with beef, by which priority was given to the more meaty, and thus also higher cherished, parts of the body.[34] In contrast to this practice, smaller animals were delivered to the castle whole or in halves (e.g. half of a pig), resulting in better representation of head and lower extremities bones (*Fig. 7.6*).

7.2 DIACHRONIC CHANGES

Five out of the total ten stratigraphic phases that have been classified at Smlednik Castle belong to the High and/or Late Middle Ages (phases 3–6) or to the transition between the Medieval and Early Post-Medieval Period (phase 7; see chapter 5.7). Even though one needs to be aware that at least phases 3– 6 are stratigraphic and not chronological phases, a part of the archeozoological research was aimed towards ascertaining the existence of any diachronic changes worth mentioning.

The main focus was on the comparison of the representation of individual taxa, since the low numbers of finds did not allow a detailed analysis.[35] Especially interesting is the decline in the share of pig and game in the transition between phase 4 and 5, which in the chronological sense relates to the end of the 15th or the beginning of the 16th century (*Fig. 7.7*).[36] Eventhough not statistically significant,[37] this decline was also confirmed by the analysis of data from individual stratigraphic units (*Fig. 7.8*), which is very important. Namely, when small samples are analysed, the results of the pooled material from all of the stratigraphic units may reflect the shares of individual taxa within a single (or a few) stratigraphic units that are the richest in finds, even though they might be functionally specific and as such not representative of the entire site.[38] As we have previously stated this was not the case with the finds at Smlednik Castle. Amongst the total of ten SUs with taxonomically identified animal finds from phases 3 to 5, the total share of cattle and sheep/goat surpassed the share of pig and game in just three, while this was the case in four out of the total of six SUs from phases 6 and 7. It seems highly unlikely that the observed data on the representation of individual large mammalian taxa amongst the finds from the archeozoologically studied Medieval or Early Post-Medieval sites in Slovenia (*Fig. 7.3*)[39] would reflect a general decline in the popularity of pork at the time in this region – similar to some other parts of Europe.[40] It is more likely that the modest representation of pig and game in the 16th century deposits[41] at Smlednik is an indicator of the decline in the importance of this castle in the mentioned period and the lower status of its inhabitants.

This hypothesis could be supported by the interpretation of the inventory from the Smlednik Castle dated to 1569,[42] while from the archeozoologial perspective

[34] See Bartosiewicz 1998, 157–158.

[35] Davis 1987, 46.

[36] See chapter 4.

[37] The comparison of the sets from phases 4 to 6 and 7 to 8 as regards the number of pig remains with game on one side and cattle with sheep and goat on the other (χ^2 test): $\chi^2 = 1.45$; degrees of freedom: 1; $p = 0.228$.

[38] See e.g. Dirjec *et al.* 2012, 37–40.

[39] See also Pucher, Schmitzberger 2006, Table. 1; Porenta *et al.* 2015, Table. 1.

[40] See Audoin-Rouzeau 1995, 288–291.

[41] Phase 8, dated to the first decades of the 17th century, is represented in the sample with a single taxonomically identified find.

[42] See chapter 4.

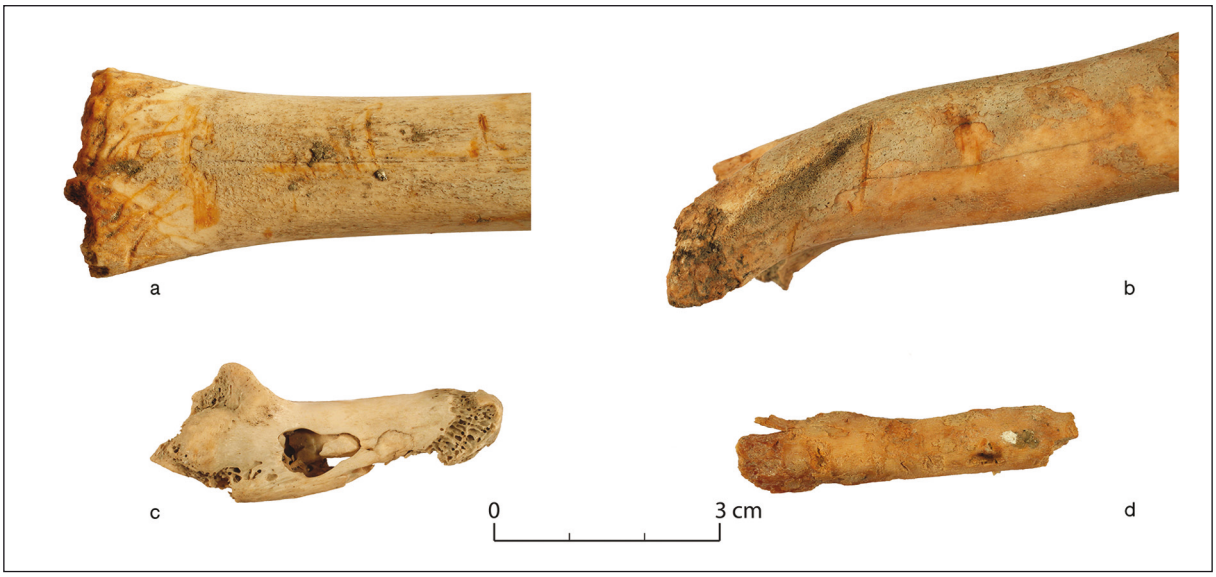


Fig. 7.9: Smlednik Castle, gnawed (a–b) and partly digested (c–d) bones found in phases 3–7 (excavations 2011/12): a – *B. taurus*, metatarsus (SU 68, phase 3); b – *S. domesticus*, humerus (SU 61, phase 6); c – *O. aries*, calcaneus (SU 64, phase 6); d – taxonomically and anatomically undefined bone fragment (SU 64, phase 6). Photo: M. Zaplatil.

something else appears to be more meaningful in this context. Namely, by analysing the vertical distribution of bones that were gnawed and partially digested by dogs (*Fig. 7.9*) it turned out that nine out of the total twelve such specimens originated from phase 6. Could the mentioned rise in the number and share[43] of gnawed/digested bones amongst the remains from this phase, when compared to prior phases, be understood as a reflection of the changes in the status and manner of castle administration, maybe as a consequence of less diligent refuse treatment? Certain analogies[44] lead us to the conclusion that this explanation is possible, however, it is purely speculative in the light of our meagre knowledge of the castle conditions at the time. We should keep in mind that numerous other factors could lead to the same result, for instance an increase in the number of dogs or changes in regulating their mobility.

7.3 THE INCOMPLETE SKELETON OF A DOMESTIC CAT

The incomplete skeleton of a domestic cat (*Felis catus*) found in SU 69 is one of the more interesting animal finds at Smlednik Castle. Unfortunately, the excavations revealed merely the bones from the hind legs (*Figs. 7.3* and *7.9*), as the remaining skeleton was most likely destroyed with the previous trench SU 85.[45] It appears that the preserved bones were positioned in an anatomical position, which indicates that the cat was buried. Based on the still unfused distal epiphysis of the only preserved femur the age at death of the animal was estimated at a maximum of eight months.[46] The taxonomic identification is based on metric data and is indisputable; the dimensions of the preserved bones are significantly smaller than those of a present day wildcat (*Felis silvestris*; see appendix).[47]

The find of a cat skeleton (albeit incomplete) within the walls of a medieval castle demands commentary as this animal had a bad reputation in the Middle Ages.[48] The superstitions of the time were more likely to turn a cat into a victim of (mass) persecution or even public torture rather than a pet.[49] However, individual finds of more or less well preserved medieval or early post-medieval cat skeletons are reported from several castles in Eastern Central Europe.[50] Let's consider what led to this.

Economically cats were interesting in medieval society predominantly as rodent eliminators, as a source

[43] There are a total of 356 animal remains from phases 4–6, and 102 from phase 7. The share of gnawed and partially digested bones amongst the finds from phase 7 is statistically significantly higher than amongst the remains from phases 4–6. χ^2 test: $\chi^2 = 18.02$; degrees of freedom: 1; $p < 0.001$.

[44] See Bartosiewicz 1998, 159.

[45] This was the border area where the terrain was prepared for the construction of the so-called transverse wall from phase 7 (see chapter 5).

[46] See Curgy 1965, 281.

[47] Kratochvíl 1976.

[48] Serpell 2000, 187–189.

[49] Smith 1998, 881–882; Serpell 2000, 187–189; Binney 2006, 54–55.

[50] See e.g. Pucher 1986, 50; Pucher, Schmitzberger 2006, Table 1; Boschin 2012, Table 1; Twigg 2012, 202.

Fig. 7.10: Smlednik Castle, some of the excavated domestic cat bones from SE 69 (phase 3) (excavations 2011/12). Photo: M. Zaplatil.

of not too highly valued fur[51] and potentially meat.[52] However, it would be highly unlikely for castle inhabitants to consider a cat for its fur. If this was the case we would expect to find cuts on at least one of the bones,[53] even though this would depend on the skills of the skinner.[54] Even less likely is the interpretation that the skeleton is a part of kitchen waste, for at the time cats were eaten merely in times of great hunger.[55] The only likely economically viable reason for the presence of this animal at Smlednik Castle thus remains the desire to limit the population of mice and rats. It was not only the inhabitants of towns who were aware that (predominantly stray)[56] cats could be successfully used to catch rodents,[57] for the elite also often used them to protect their granaries and any other stored food.[58]

However, if we accept this hypothesis for the presence of the cat at Smlednik Castle, we have to address the issues of its young age (see above). Even more so, as remains of juvenile and young adult animals supposedly prevail also in contemporary contexts at other castles in this part of Europe.[59] If we can explain the slaughter of e.g. sheep and castrated rams that were more than five years old with the gradually decreasing

[51] Baxter 2003, 92.

[52] Luff, Moreno García 1995; Smith 1998, 881–882; De Venuto 2010, 314.

[53] See e.g. Luff, Moreno García 1995, 104; De Venuto 2010, 313–314 and the bibliography quoted there; *cf.* with e.g. Pucher 1986, 50; Pucher, Schmitzberger 2006, 613.

[54] Luff, Moreno García 1995, 110.

[55] Luff, Moreno García 1995, 107–108; Smith 1998, 878; De Venuto 2010, 314; see also Pucher 1991, 91; Luff, Moreno García 1995, 108.

[56] Salisbury 2011, 11.

[57] Luff, Moreno García 1995, 93; Smith 1998, 875; see also Fig. 7.3: Slovenj Gradec.

[58] Binney 2006, 53–54.

[59] See e.g. Pucher 1986, 50; Pucher, Schmitzberger 2006, 613.

Skeleton element	No. of specimens	Dimensions	Measurments	
Scapula	1	-	-	
Coracoideum	1	-	-	
Humerus	2	Greatest length	58.0	65.0
		Breadth of the proximal end	14.0	17.5
		Smallest breadth of diaphysis	-	6.5
		Breadth of the distal end	12.0	14.0
Ulna	1	-	-	
Vertebrae	1	-	-	
Pelvis	1	-	-	
Femur	1	Greatest length	71.0	
		Breadth of the proximal end	17.5	
		Breadth of the distal end	14.0	
Tibiotarsus	1	Diagonal of the proximal end	16.0	
Tarsometatarsus	4	Greatest length	59.5	59.5
		Breadth of the proximal end	12.5	11.5
		Smallest breadth of diaphysis	-	5.0
		Breadth of the distal end	11.5	10.0

Fig 7.11: Smlednik Castle, domestic hen remains from phases 3–7 (excavations 2011/12), by skeletal elements. The dimensions of individual bones are also given. All measurements are in millimetres.

quality of fleece,[60] we can of course not speak of the decline in the hunting capabilities of a cat that is merely a few months old. On the other hand, the observed age at death cannot be satisfactory explained by the policy of removing the superfluous young ones with the intent of limiting the feline population neither, for if this was the case the share of newly born animals would have to be greater.[61]

Alongside the economic reasons for owning a cat one has to – as already mentioned – take into account also its role as a pet. In the Middle Ages this was not common practice,[62] and in this sense the representatives of the higher social strata[63] and church might have been pioneers.[64] One of the more convincing archeozoological indicators behind such a hypothesis is represented by the find of a skeleton of a robust long-furred cat, assumedly imported from the Mediterranean, which was owned by a Salzburg church dignitary in the 16th century.[65] Unfortunately, not a lot of metric data for the cat from Smlednik Castle could have been taken and the comparative information from the broader region is also meagre. In fact, the only similar data originates from early post-medieval Slovenj Gradec, where the third and fourth metatarsal bones, practically identical in size to the examples from Smlednik Castle, were found.[66] Based on the stated evidence it would be hard to ascribe the Smlednik feline skeleton to an animal that was exceptional in any way. SU 69, in which the incomplete skeleton was found, belongs to phase 3 and represents the filling of trench SU 72 with an unknown function.[67]

7.4 POULTRY

Apart from mammals the only other medieval and early post-medieval animal remains at Smlednik Castle were birds (*Fig. 7.1*). Most of the finds were chicken (*Gallus gallus*) remains, which were common finds at most contemporary sites in the broader European area.[68] Most of the remains belonged to the fleshier parts of the body, while the bones from the distal segments of the extremities and the head were missing entirely (*Fig. 7.11*). It is hard to ascertain from the existing data which one of the numerous potential taphonomic factors[69] played the key factor in producing such a skeletal-part profile. However, the missing crania – especially when taken into consideration with the similar situation from other roughly contemporary castles in this part of Europe and

[60] De Grossi Mazzorin 2008, 183.
[61] See e.g. Binney 2006, 54–55.
[62] Smith 1998, 881–882.
[63] Bökönyi 1974, 312.
[64] Smith 1998, 873.
[65] Pucher 1991, 93.
[66] Metatarsal bone 3: greatest length = 45.0 mm, breadth of the proximal end = 6.0 mm; metatarsal bone 4: greatest length = 45.0 mm, breadth of the proximal end = 5.5 mm (own unpublished data).
[67] See chapter 5.
[68] Audoin-Rouzeau 1995, 306–307.
[69] See e.g. Payne, Munson 1985; Lyman 1999, 234–257; De Grossi Mazzorin 2005, 354–355.

the above mentioned observations as regards the representation of various skeletal elements in cattle – could be understood as a consequence of the chicken being delivered to the castle already beheaded.[70]

Less ambiguous are the conclusions as regards the size of the studied chicken. According to the available metric data (*Fig. 7.11*) these were smaller not only than the contemporary specimens of the same species from the Apennine peninsula,[71] but were often also smaller than the small chicken found north of the Alps.[72] Based on the stated it is impossible to confirm the coexistence of various breeds of this animal at Smlednik, even though this was ascertained at some castles in this part of Europe.[73] The available data also does not indicate any changes in the role of poultry in the eating habits at Smlednik Castle in the Middle Ages and Early Post-Medieval Period (*Figs. 7.8* and *7.9*). Written sources indicate that at the time the representatives of the local higher social strata frequently eat this type of meat.[74] In addition to this, poultry breeding was also a good source of eggs,[75] feathers and high quality chicken manure.[76]

[70] See e.g. Pucher 1986, Table 1; Bartosiewicz 1998, Table 2; Pucher, Schmitzberger 2006, Table 3.

[71] De Grossi Mazzorin 2005, 355.

[72] Pucher 1986, 56–57; 1991, 97–100; Pucher, Schmitzberger 2006, 613; Riedel, Pucher 2008, Table 9.

[73] Bartosiewicz 1998, 160; see also De Grossi Mazzorin 2005, 357.

[74] Simoniti 1991, 11, 19, 22, 33, 57, 60 and 83.

[75] All three tarso-metatarsal bones from phases 4–8, which were preserved to an extent that enabled gender determination (*cf.* Bökönyi, Bartosiewicz 1983), were those of hen.

[76] De Grossi Mazzorin 2005, 355.

8 CHARCOAL ANALYSIS

Tjaša TOLAR

8.1 INTRODUCTION

Wood and charcoal remains are relatively rare at medieval sites, since medieval castles were most commonly positioned on hilltops and elevated sites, i.e. on well drained dry areas, and in which archaeobotanical remains (i.e. wood, charcoal, fruits, seeds and pollen) are poorly preserved.

Some of the most common medieval archaeobotanical finds are finds of wood from former wells, such as for instance from the sites at *Mura pri Lendavi*, *Nedelica pri Turnišču* and *Gornje njive pri Dolgi vasi*, where oak (*Quercus* sp.) wood was identified (amongst others).[1] Also researched were a few old building remains, e.g. at medieval sites in Croatia (*Gudovac* and *Torčec*), where the analysis of the relatively well preserved, non-charred wood remains infused with water and large damp charcoal chunks has shown that oak was the most commonly used wood. Apart from oak, European silver fir (*Abies alba*) and common beech (*Fagus sylvatica*) were also found.[2]

Wood is a rare find at prehistoric sites, an exception to this being the relatively well researched pile-dwelling settlements in the Ljubljana marsh.[3]

8.2 METHODOLOGY

We took and analysed 20 charcoal samples during the 2011/2012 excavations. Most samples originated from the remains of the medieval walls, while a few samples might be wood remains from prehistoric layers. The charcoal samples were crushed into smaller pieces (measuring between 2 mm and 1 cm), which were still large enough to identify the wood species.

We used a scalpel and a razorblade to slice the charcoal into smaller pieces which made it possible for us to view the typical anatomical wood sections (transverse, radial and tangential). We used play dough to fix the charcoal, and we observed it through *Leica MZ75* and *M165C* stereomicroscopes with up to 50x magnification and an *Olympus SZ11* microscope with up to 120x magnification. Wood-anatomical identification keys[4] and our own referential charcoal collection[5] were used to identify the wood.

Wood belonging to coniferous trees was mainly identified by the fact that the wood is mainly composed of tracheids, however the presence and size of the resin channels were also taken into account. Wood belonging to deciduous trees was mainly identified by the presence and layout of the tracheas (diffuse, semi-ring or ring porous), but also by the layout, width and height of the rays (uniseriate, multiseriate and aggregate rays with a height either below or above 1 mm) (e.g. *Fig. 8.1*) and in some cases by the perforations between the tracheas (simple or scalariform).

Due to the limited preservation and size of the sample and the low magnifications we limited ourselves to the aforementioned signs, thus the classification often reaches to the genus or the two possible species, as the small sample often made it impossible to distinguish between the oak (QUSP) and chestnut (CASA) for example (*Figs. 8.2* and *8.3*).

It was impossible to estimate the number of charcoal samples, for while we were mainly dealing with small particles, fragments of larger pieces, we were limited to the number and type of identified plant taxa in our interpretation (*Figs. 8.2* and *8.3*).

[1] Čufar, personal communication, Levanič and Čufar 2008, Čufar and Krže, 2011.

[2] Čufar et al. 2006, Čufar and Šimek 2008, Čufar et al. 2008.

[3] E.g. Čufar et al. 2010, Čufar and Velušček 2012.

[4] Schweingruber 1990; Torelli 1991; Richter and Dallwitz 2002, *Commercial timbers: descriptions, illustrations, identification, and information retrieval* (INTKEY computer software – key for determining commercial wood species); Schoch et al. 2004, Čufar and Zupančič 2009a.

[5] http://iza.zrc-sazu.si/pdf/recenten_les_oglje.pdf.

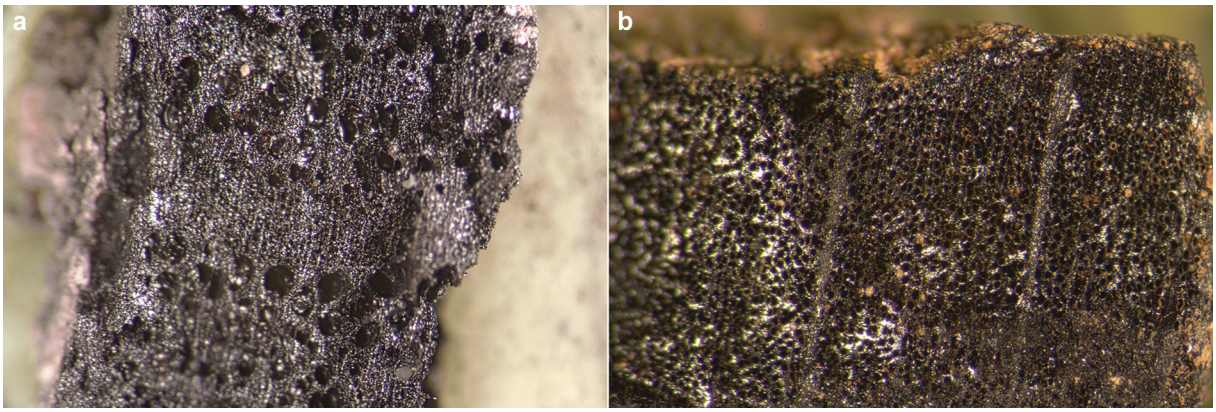


Fig. 8.1: Cross-section of the charcoal anatomy.
a: a ring-porous deciduous tree with narrow rays. b: a diffuse-porous deciduous tree with wide and narrow rays.

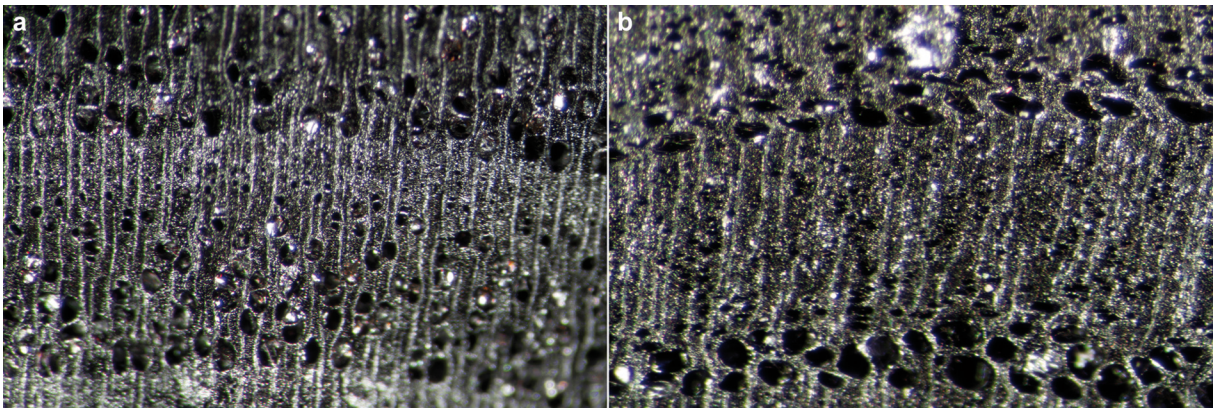


Fig. 8.2: Two charcoal fragments belonging to a ring-porous tree; only the narrow rays are visible.
a: ash: pores in latewood are scattered individually. b: oak / chestnut: pores in latewood are arranged radially.

8.3 RESULTS AND DISCUSSION

The analysed charcoal samples were found in 14 stratigraphic units, most of them medieval (*Fig. 8.3*) and a few prehistoric (*Fig. 8.4*).

In most cases the samples were preserved together with pieces of mortar.

The *figure 8.2* indicates a great diversity in the tree species within the analysed charcoal remains, since at least 10 taxa, mainly tree species, were identified.

As we are uncertain as to the role of the wood in the wall, the results are hard to interpret. In Slovenia the wood species used for construction changed through time, depending on the growth characteristics and the state of the environment and the socio-economic conditions.[6] Also, usually much larger pieces of charred construction wood remains are preserved than they were in our case.[7]

The ring porous **oak** (*Quercus* sp.), which has a similar construction to the **sweet chestnut** (*Castanea sativa*) is amongst the most commonly identified wood remains at Smlednik Castle. Due to the similarity in the construction of the two tree species *Fig. 8.3* often includes the result QUSP/CASA (oak/sweet chestnut). Oak and sweet chestnut both have relatively dense, hard and solid wood and a coloured heartwood[8]. Both types of wood have long natural durability, which is a result of the high share of tannins found in their wood. This is why both species are often used in construction.[9] Oak and sweet chestnut have a similar composition, which can anatomically be differentiated only when we have fragments large enough to include broad strips. Oak is the most common archaeological wood found in Europe. This is most likely not merely a result of its wide spread use due to its good qualities, but it also remains preserved for a longer period of time as it is more resistant than wood of other species. Oak-wood was commonly

[6] Čufar, personal communication, Čufar and Zupančič 2009a.

[7] E.g. Čufar et al. 2006.

[8] Čufar 2006.

[9] Čufar 2006.

SE	Charcoal samples	
6	**QUSP** (3 samples)	oak
	QUSP / CASA	oak / chestnut
51 / 52	ACSP (5 samples)	maple
61	**QUSP / CASA** (3 samples)	oak / chestnut
	DPDT with 1-2 CWR (4 samples)	DPDT; poplar or willow
	QUSP	oak
62	ALGL / COAV	alder / hazel
63	**QUSP** (8 samples)	oak
	POSP / SASP (2 samples)	poplar / willow
	ABAL (2 samples)	fir
	DPDT with 1 CWR (2 samples)	DPDT
64	ALGL / COAV	alder / hazel
67	**QUSP / CASA** (3 samples)	oak / chestnut
	QUSP (3 samples)	oak
68	**QUSP / CASA**	oak / chestnut
	DPDT with up to 4 CWR and SP with more than 20 scales	DPDT
68	DPDT	DPDT
68	POSP / SASP (10 samples)	poplar / willow
	QUSP / CASA (4 samples)	oak / chestnut
	ALGL / COAV (3 samples)	alder / hazel
	QUSP (2 samples)	oak
	ACSP (3 samples)	maple
	coniferous tree	coniferous tree
	DPDT (2 samples)	DPDT
68	ABAL (2 samples)	fir
73	? ACSP	DPDT, ? maple
	DPDT with 1-2 CWR and SP with 20 scales (4 samples)	DPDT
	QUSP / CASA (2 samples)	oak / chestnut
	QUSP	oak
	ALGL / COAV	alder / hazel
76	**QUSP / CASA** (2 samples)	oak / chestnut
	FASY (2 samples)	beech
	DPDT (? branch)	DPDT
	POSP / SASP (2 samples)	poplar / willow
	ALGL / COAV (2 samples)	alder / hazel
	ACSP (2 samples)	maple
	QUSP (3 samples)	oak
79	DPDT, less CWR (7 samples)	DPDT
	QUSP / CASA (8 samples)	oak / chestnut
	FASY	beech
	ALGL / COAV (3 samples)	alder / hazel
	ACSP (4 samples)	maple
	DPDT with up to 4 CWR	DPDT
	ABAL	fir
83	ALGL / COAV	alder / hazel

DPDT – diffuse porous deciduous tree; CWR – cells wide rays; SP – scalariform perforation

Fig. 8.3: Charcoal analysis results – the remains of building blocks from a medieval wall (**oak / ash / chestnut** are highlighted).

SE	Charcoal samples	
59	ACSP	maple
	QUSP	oak
59	**QUSP**	oak
77	**QUSP** (3 samples)	oak
	SASP / POSP (3 samples)	willow / poplar
	ALGL / COAV	alder / hazel
	QUSP / CASA	oak / chestnut
	ACSP	maple
77	DPDT with up to 3 CWR and SP	DPDT

DPDT – diffuse porous deciduous tree; CWR – cells wide rays; SP – scalariform perforation

Fig. 8.4: Charcoal analysis results – the remains from prehistoric contexts (oak / ash / chestnut are highlighted).

used also in Slovenia, and as it is much more common than sweet chestnut-wood, it can be found in large quantities in sites from all periods.[10]

The remaining charcoal originates from diffuse porous wood species which were generally not commonly used in construction.[11]

Apart from wood from deciduous trees we have also identified wood from coniferous trees, or to be more precise of the European silver fir (*Abies alba*). At this stage we should mention that in the past silver fir wood was more commonly used than spruce for construction in central Slovenia.[12]

Four pieces of charred wood (i.e. charcoal) were found together with prehistoric pottery fragments (samples 35 and 39 in SU 59 and samples 33 and 36 in SU 77). These samples include oak wood as well as wood from four diffuse porous wood species (*Fig. 8.3*).

The best researched wood from prehistoric sites in Slovenia came from the archaeobotanical and dendrochronological research of the pile dwellings in the Ljubljana marsh. This site revealed a lot as regards the quality and use of individual wood species.[13] For these pile dwellings, where large chunks of wood were preserved, oak and ash and the wood of approximately 10 diffuse porous deciduous trees, mainly cut down in the vicinity of the settlement, were used.[14]

No sweet chestnut wood has been identified so far in the pile dwellings in the Ljubljana marsh.

Sweet chestnut is naturally present in areas with a mild climate and a longer vegetation period[15]. It mainly grows on non-carbonate, humus rich and acidic soil,[16] thus the pile dwellers from the Ljubljana marsh probably did not encounter it often.

The studied wood samples from the Smlednik castle were not large enough to allow us to confirm that the wood was that of sweet chestnut (*Castanea sativa*), which supposedly spread from its natural (southern) growth areas with the Etruscans and Romans.[17] The people who followed continued to spread the sweet chestnut as it was a useful all round tree (solid and durable wood and edible fruits), thus it can today be found much further north of its natural borders.[18] However, we can safely state that sweet chestnut appeared naturally in Slovenia, as this is confirmed by the pollen finds that can be dated to a few thousand years ago[19], which would mean that it should come as no surprise if sweet chestnut wood/charcoal remains were found in Slovenian archaeological sites.

8.4 CONCLUSION

The charcoal analysis indicates that medieval layers included the wood of ring and diffuse porous deciduous trees as well as small amounts of wood from coniferous trees.

Prehistoric layers have revealed the existence of wood originating from ring and diffuse porous deciduous trees. The charcoal fragments were small, preserved in small quantities and in some cases disintegrating.

Almost half of the charcoal particles (approximately 40 percent), which should - according to archaeological interpretations - represent construction parts of the medieval castle, were oak, which could confirm the archaeological assumptions that the charcoal represents the remains of construction timber. On the other hand, this assumption is opposed by the small size of the charcoal remains and the high number of diffuse porous taxa. Over the last millennia diffuse porous deciduous trees were not often used as construction timber.

The charcoal from prehistoric layers (SU 59 and 77) also originated from oak timber (in approximately 46 percent of the analysed samples) and diffuse porous deciduous trees. According to what we know so far different trees found in the vicinity of the settlements were used in prehistoric times (e.g. marsh pile dwellings from the 4th millennia BC), however oak and ash, i.e. the more solid and hard types, were most commonly used for construction purposes.

[10] Čufar, personal communication.
[11] Čufar, personal communication.
[12] Čufar and Zupančič 2009b.
[13] E.g. Tolar et al. 2008, Čufar et al. 2010, Tolar et al. 2011.
[14] E.g. Tolar et al. 2011.
[15] Kotar and Brus 1999.
[16] Brus 2004.
[17] Kotar and Brus 1999.
[18] Kotar and Brus 1999.
[19] E.g. Šercelj 1996, Andrič, personal communication.

9 CONSTRUCTION MATERIAL ANALYSIS: NATURAL SCIENCE BACKGROUND

Tomaž VERBIČ, Maja GUTMAN

9.1 GEOLOGICAL STRUCTURE OF SMLEDNIK

The north slope and the top of the hill with the Smlednik Castle (*Fig. 3.1*) is mainly composed of Cretaceous dark grey and black platy and layered limestone, which occasionally includes nodules, lenses and layers of chert. Not as common is the light grey or even red limestone, which as a rule appear as inserts of the somewhat more marly limestone amongst the prevailing dark coloured limestone. The layers dip towards the north. In rare locations the limestone is dolomitizied. As a result of the tectonic thrusting to the south, large and frequent cracks appear in these layers, which makes them appear as slates. This phenomenon is known by experts as cleavage. A tectonic breccia appears at tectonic faults that cut through limestone.

The layers described lie on the light to medium grey, thick layered, early Triassic dolomite and dolomite with chert. These rocks can be noticed most of the way alongside the road that leads from the village of Smlednik towards the castle, as they form the western, and partially the south, slopes of the Smlednik hill. In this area the dolomite is often strongly fractured and has disintegrated into dolomite rubble or even dolomite sand.

The aforementioned Cretaceous and Triassic layers were pushed upon the Oligocene layers in the north-south direction, so later ones form the lower part of the south slope of Smlednik hill. The Oligocene layers consist of marlstones, sandstones and conglomerates. Similar Oligocene layers can be found on the eastern side of the Hraše hill above the hamlet of Dornice.

9.2 THE CONSTRUCTION USE OF THE ROCKS FOUND IN THE VICINITY OF SMLEDNIK CASTLE

The layered and platy limestone at the top of the Smlednik castle hill is relatively durable, and thus represents good construction material. As it is nicely layered, two of its sides need hardly any work on them. The disadvantage of this limestone - as regards its use in construction - is that due to the aforementioned cleavage, which represents the preferable fracture surface, it often fractures irregularly, sometimes even into rubble, and is thus harder to shape into regular blocks. When we look at the disintegrating castle tower we can clearly see how this limestone disintegrates into rubble. The ruin practically does not include a single large block of limestone but merely rubble.

The dolomite that can be seen alongside the road leading to the Smlednik Castle is tectonically crushed into rubble and even dolomite sand in numerous locations. The dolomite is less resilient to mechanical (also tectonic) pressures, and thus it is even more likely to disintegrate into rubble and sand. However, this characteristic makes it extremely useful as a mortar compound, for one almost does not need to crush it.

The Oligocene sandstone can be easily shaped, however it is less resistant to weathering and the same holds true for the Oligocene conglomerate.

9.3 MACROSCOPIC CHARACTERISTICS OF THE CONSTRUCTION MATERIALS

In the continuation we will present the results obtained from the analysis of the six samples that we took in the Smlednik castle area. When choosing the locations for the samples we took into account the interpretative questions we wished to answer (*Fig. 9.1:* 1–6).

The tower (sample 1) was built from various quarry stones (*Fig. 9.2*). The macroscopic analysis of the mortar between the quarry stones showed that it was made predominantly from light grey dolomite rubble (*Figs. 9.3* and *9.4*). Within the mortar we can find dark grey limestone grains and "lumps" of calcium oxide. These "lumps" indicate that the burning process did not run to its end, i.e. that the limestone was not turned completely into burnt lime. The quarry stones are only roughly shaped, even those facing outwards, i.e. on the face of the tower (*Fig. 9.5*).

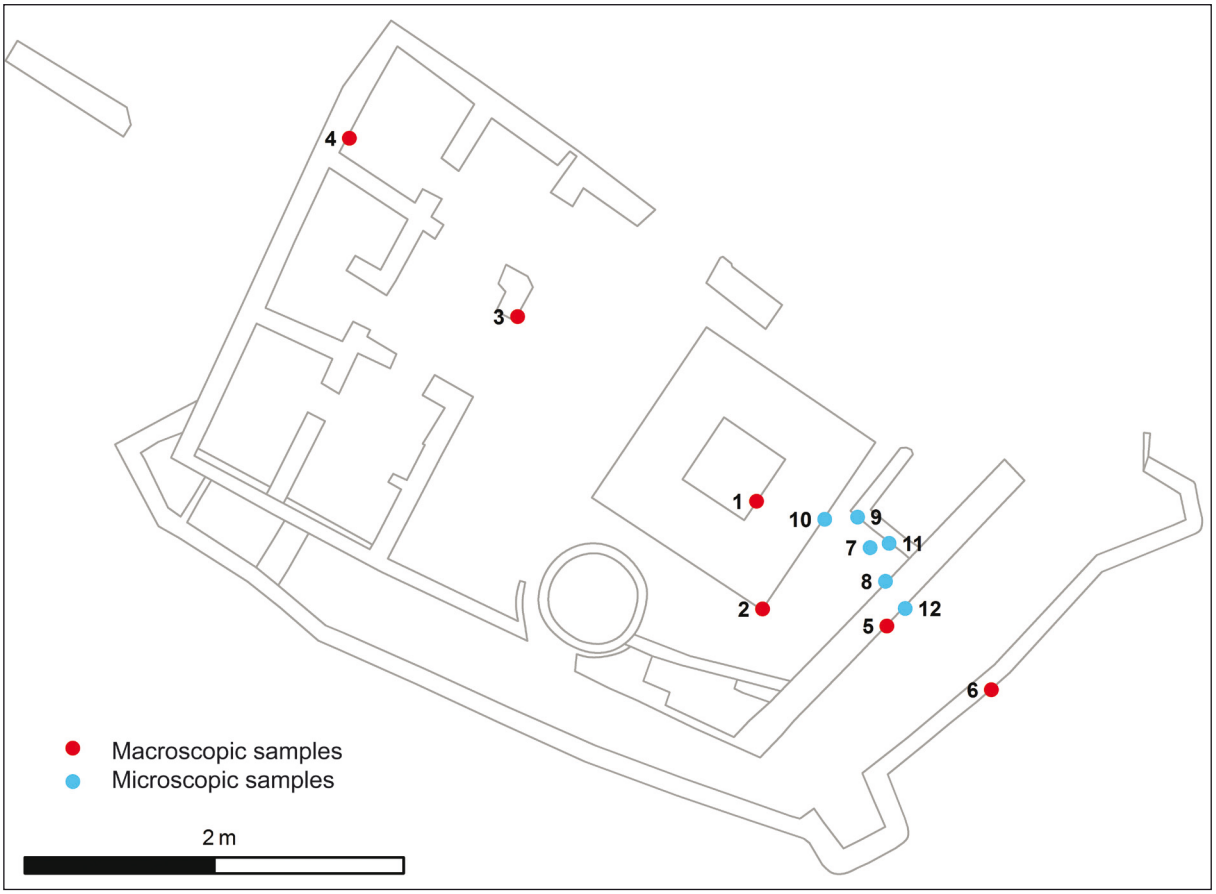


Fig. 9.1: Smlednik Castle, locations of the analysed samples.

Lithology	**%**	**Stratigraphic age**	**Source**	
Layered limestone	80	K	locally quarried	the Smlednik Castle hill summit
Layered limestone with chert	5	K		the Smlednik Castle hill summit
Limestone breccia	5	K		the Smlednik Castle hill summit
Dolomite and dolomite with chert	5	T		the Smlednik Castle hill, south and east slopes
Marly limestone	5	K		the Smlednik Castle hill summit
Fine-grained conglomerate	individual (*Fig. 9.5*)	Ol		the Smlednik Castle hill, lower part of the southern slopes and parts of the Hraše hill above Dornice
Brick	individual			

Fig. 9.2: Macroscopic properties of the construction materials used for the the tower. Legend: Ol – Oligocene; K – Cretaceous; T –Triassic.

There are merely a few original dark grey layered limestone cornerstones in the tower (*Fig. 9.7*). The lower cornerstones that were built into the tower during the reconstruction (sample 2) are made from red grey limestone, known as Povodje limestone, which means that it most likely originates from the quarry in Povodje (*Figs. 9.6* and *9.7*). We are certain that this limestone was not used in the original building, neither in the tower, nor in the walls. The upper cornerstones that were also added during the reconstruction are made of concrete.

The walls were only partially rebuilt with individual original quarry stones that fell from the tower walls, but mostly they were substituted by equally handcrafted small blocks of the same limestone (*Fig. 9.8*) from which

Fig. 9.3: The mortar used in the construction of the tower was made from dolomite chippings, sand and lime. Chippings measure up to 2 cm. View 1.

Fig. 9.4: The mortar used in the construction of the tower was made from dolomite chippings, sand and lime. Chippings measure up to 2 cm. View 2.

Fig. 9.5: The tower wall. Almost exclusively, quarry stones from the top of the Smlednik Castle Hill were used. The quarry stones in tower walls were coarse and heterogeneous – they came in different shapes and sizes. As a rule their edges were not chiselled. The construction was not rough.

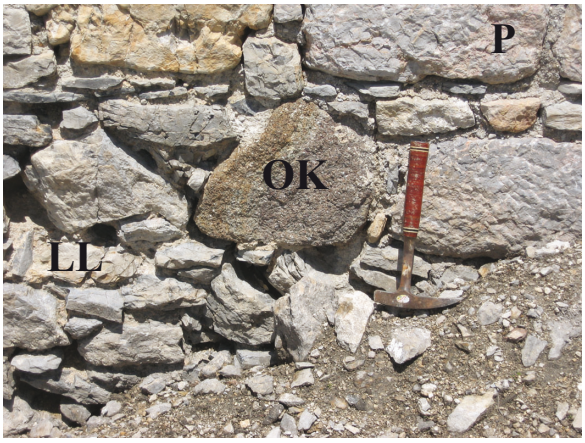


Fig. 9.6: A piece of Oligocene fine-grained conglomerate (OK) in the tower wall. Limestone from the quarry in Povodje can be seen in the reconstructed corner of the tower. Local quarry stones (LL) were found in the original wall.

the corner stones are made. One of the reasons for this was that the original quarry stones that fell from the wall disintegrated into smaller pieces, sometimes as small as rubble, and could thus not be used in the reconstruction. The mortar used in the reconstruction was made of cement, which was made with gravelly sand from the Sava river as a basis.

The two bases in the courtyard, west of the tower (sample 3), were made from fine-grained grey sandstone, which turns brown on its surface when weathered. The sandstone is fine sorted and is only partially carbonate (in particular the binding material between the grains), and the most commonly included grains are made of quartz. This is Oligocene sandstone, which can be found above the hamlet of Dornice and on the south slope of the Smlednik castle hill.

The palatium wall (sample 4) was made from the stones quarried localy that were bound with the same mortar as the tower (dolomite sand and rubble), however the wall was plastered with mortar which also included pebbles from the Sava River, which could indicate that the plaster was applied at a later stage.

The inner walls (sample 5) show different characteristics to the tower (*Fig. 9.9*). The most important difference can be found in the mortar: Sava river gravelly sand was used, and numerous brick fragments were found in the mortar used for the inner walls. These macroscopic differences were confirmed by the microscopic petrological analysis (see the continuation). The presence of travertine in this wall might be linked to the assumption that individual construction elements, details, were made from travertine which is a good carving stone.

Fig. 9.7: Local quarry stones (LL) and limestone blocks from Povodje (P). The bottom two rows of the corner are original, made from smaller chiselled blocks of local black bedded limestone (LB). Larger chiselled blocks of Povodje limestone can be found higher up in the corner. The original wall was made entirely of local quarry stones, while the reconstructed one was made almost entirely of smaller, not so well chiselled blocks of Povodje limestone. Cement mortar was used between the Povodje limestone blocks, while the original stones were bound by limestone mortar with dolomite grains.

Fig. 9.8: The original lower and the reconstructed upper part of the tower wall.

Characteristics of the samples from the inner castle wall in comparison to the tower	**SIMILAR/DISSIMILAR**
Mortar is predominantly made from the Sava River gravelly sand (*Figs. 9.12* and *9.13*)	DISSIMILAR
Mortar includes numerous tiny brick fragments (*Fig. 9.13*)	DISSIMILAR
The wall is predominantly built from locally quarried stone	SIMILAR
Individual oligocene conglomerate stones(*Fig. 9.15*)	SIMILAR
Individual large blocks carved from oligocene sandstone at the base of the wall (*Fig. 9.14*)	DISSIMILAR
Meticulously cut stone	DISSIMILAR
Hollows between larger stones filled with slates (*Figs. 9.10* and *9.11*)	DISSIMILAR
A carved travertine block (*Fig. 9.10*)	DISSIMILAR

Fig. 9.9: Macroscopic properties of the building materials in the inner curtain wall. Legend: Ol: Oligocene; K: Cretaceous; T: Triassic.

Fig. 9.10: Inner curtain wall. The stones are slightly better chiselled and provide a better fit. The blocks were chosen more carefully than in the tower and the construction was better. Fig. 9.8 shows a tufa block (L) between the quarry stones. Gaps in the wall were filled with smaller "schistose" limestone pieces (SA). View 1.

Fig. 9.11: Inner curtain wall. The stones are slightly better chiselled and provide a better fit. The blocks were chosen more carefully than in the tower and the construction was better. Fig. 9.8 shows a tufa block (L) between the quarry stones. Gaps in the wall were filled with smaller "schistose" limestone pieces (SA). View 2.

Fig. 9.12: Mortar in the inner curtain wall. The mortar was made from lime and gravelly sand from the Sava river. Brick fragments were found within the mortar. View 1.

Fig. 9.13: Mortar in the inner curtain wall. The mortar was made from lime and gravelly sand from the Sava river. Brick fragments were found within the mortar. View 2.

The outer walls (sample 6) were constructed exclusively from local quarry stones (*Fig. 9.16*), which were more meticulously carved and more precisely placed into the wall than those found in the inner walls and tower. The mortar is similar to the one used for the inner walls: the base is represented by Sava gravelly sand, however it does not include brick fragments.

9.4 PETROLOGICAL ANALYSIS OF THE DIFFERENT MORTAR SAMPLES

During the 2012 excavations we collected six samples for the ***petrological analysis of mortar*** (*Fig. 9.1:* 7–12). **Mortar** is a binding element used in construction, the basic compounds of which are the aggregate (usually sand), mineral binding and water. The analysis of historical mortars is usually a part of the broader research of an individual building. The results obtained

Fig. 9.14: Chiselled Oligocene sandstone blocks found in the foundation of the inner curtain wall. Such blocks were not found in the tower. While easy to chisel, this type of sandstone is prone to weathering. The two pedestals in the courtyard are made from the same sandstone.

Fig. 9.15: A block of Oligocene conglomerate (OK) in the inner curtain wall. View 1.

Fig. 9.16: A block of Oligocene conglomerate (OK) in the inner curtain wall. View 2.

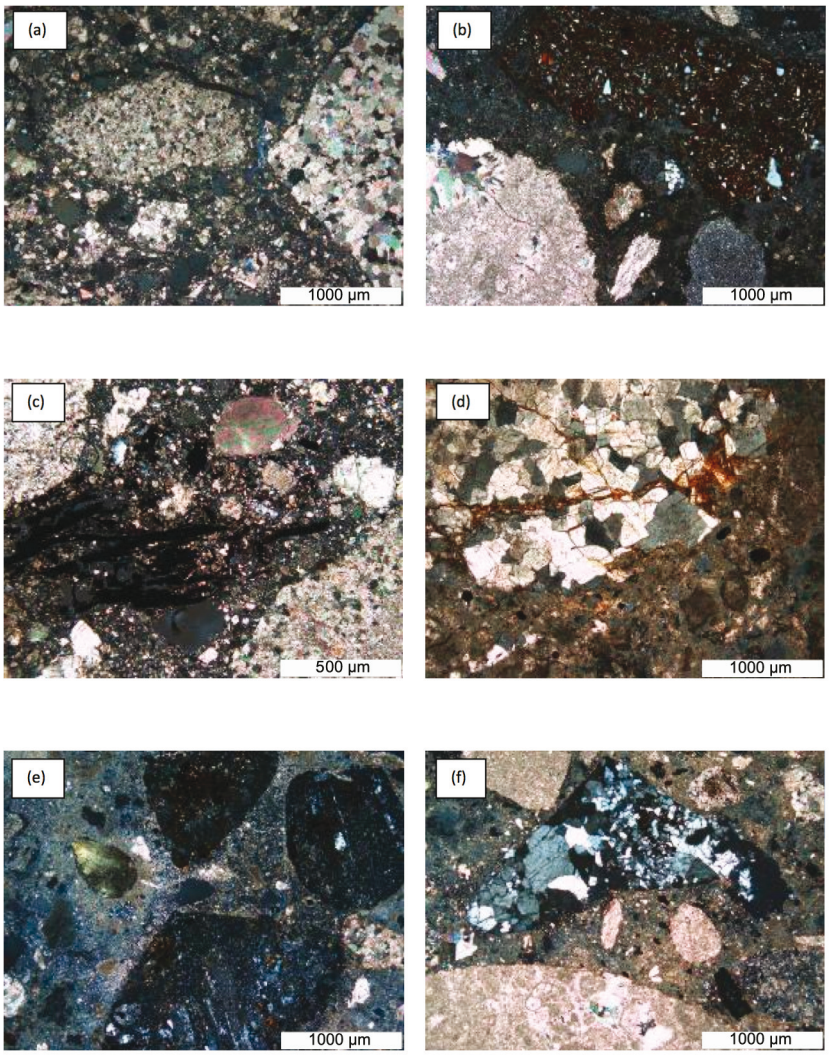


Fig. 9.17: A: Sample SMG 1: Macrocrystalline (sparitic) grains of aggregate. Transmitted light, crossed nicols. B: Sample SMG 2: Brick grain. Transmitted light, crossed nicols. C: Sample SMG 3: Fragment of an organic component. Transmitted light, crossed nicols. D: Sample SMG 4: Macrocrystalline carbonate grain, limonitized along the fracture. E: Sample SMG 5: Lithic grains of an extrusive rock. Transmitted light, crossed nicols. F: Sample SMG 6: Sharp-edged polycrystalline flint grain, surrounded by rounded carbonate grains. Transmitted light, crossed nicols.

through this analysis provide data as regards the chronology, source of material and production technology.

The basic analysis of the polished thin sections, carried out with an optical microscope, reveals the structure and texture of the samples and provides the basic information as regards the qualitative and quantitative mineral and petrological composition. This enables us to observe the shape, size and distribution of the aggregate and the ratio between the various components within it.[1] With this process we can ascertain the type of binding and the possible additives as well as the secondary mineral formations, including salts.

We used the sample to create a polished thin section for the petrographic and mineralogical analysis, and this was analysed with a microscope (Olympus BX60) in polarised light. The sample taken was covered with araldite epoxy so that it did not crumble during the slicing and preparation process. In order for the light to travel through the mortar components the thin section has to be 20–30 µm thick. In modern petrographic microscopes the light source is represented by an electric light bulb that is placed at the back of the microscope. The light is directed through lenses and mirrors so that it falls upon the studied specimen at a right angle.

In order to perform a more accurate analysis of the mortar, especially that of the additives and binding, we need to use both a Scanning Electron Microscope (SEM) and Energy Dispersive X-ray Spectroscopy (EDS).[2] The

[1] Kramar, Mirtič 2009.

[2] Kramar, Mirtič 2009.

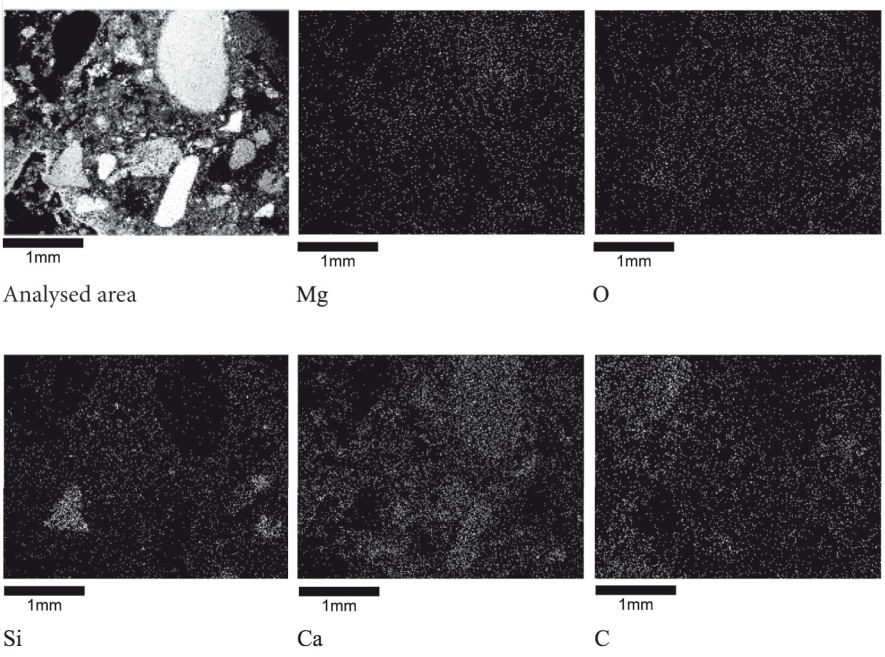


Fig. 9.18: Sample SMG2, dispersion of individual elements in the chosen area. The dispersion of the elements in the sample shows that the binding material was predominantly composed from calcium and magnesium. Silicon was manifested in the form of grains, but was also present in the binding material. Carbon was present in the carbonate component, while oxygen could be found in both, the silicate and carbonate component of the sample.

SEM is used to observe the morphology and structure of the surface and includes a quantitative and qualitative analysis of the mortar components.

The SEM-EDS analysis performed on our polished thin section samples helped us define their chemical composition. We used the JEOL JSM – 5500 LV microscope at the department of the Laboratory for Stone and Aggregates at the National Building and Civil Engineering Institute in Ljubljana. The scanning electron microscope enables much greater magnifications than an optical microscope, while also offering a precise analysis of the chemical elements and their distribution within the sample. The SEM method uses electron beams, which, with their short wavelength, theoretically enable up to 100.000-times better resolution than white light. When the electron beam hits the surface, it starts various reactions in the atoms found in the material. As the beam does not penetrate the sample it merely allows for a surface analysis. Because electrons have a shorter wavelength than white light, they enable a clearer picture i.e. allow for a larger magnification.

The samples were analysed by points or by displaying the distribution of individual elements within a certain area.[3]

The petrological and mineralogical analysis with the optical microscope revealed that the aggregate in samples 7 and 10 comprised of exclusively sedimentary rocks, or to be more precise, carbonate grains. The grains were poorly sorted in both samples, they had semi-rounded or sharp edges, and ranged in size between 0.05 and 2.44 mm. The carbonate grains consisted of sparry carbonate cement (sparite) and microsparite dolomite, while limestone grains were rare. SEM-EDS confirmed that calcite lime was the prevailing binding in both samples. The binding was cracked. Numerous lime lumps and clumps were noticed, which indicated that the lime was poorly slaked. The samples did not contain any brick particles.

The aggregate in samples 8, 9, 11 and 12 consisted of carbonate and silicate grains. The aggregate grains were rounded, semi-rounded or sharp-edged. Most of the rounded grains were lytic, while the semi-rounded and sharp-edged shapes grains were quartz. The carbonate grains comprised sparite, microsparite and micrite (small grains) limestone and dolomite grains. The silicate grains were lytic sediment grains (chert, sandstone) and igneous rocks (extrusive), to a lesser extent quartz (monocrystal and polycrystal), mouscovite grains and brick fragments. The polycrystal quartz could represent fragments of igneous rocks, while the monocrystal quartz could represent grains that fell out of igneous rocks or quartz sandstones. All samples included grains of brick. In some cases the samples also included organic components, possibly straw. These could have been added to the mortar in order to improve its mechanical solidity, or, they could be the

[3] ZAG (National Building and Civil Engineering Institute) 2008, scanning electron microscopy – a view into the microcosmos of materials. – Ljubljana.

remains of the vegetation that grew on the structure. The binding was not homogenous and was cracked in most samples. Numerous lumps of lime were present.

ELECTRONIC MICROSCOPY

The analysis conducted with the optical microscope and scanning electron microscope revealed that the binding in samples 8, 9, 11 and 12 was rather heterogeneous, while the binding in samples 7 and 10 was more homogenous. We performed a point analysis as well as an analysis of the distribution of individual elements within a selected area (*Fig. 9.16*). We can confirm that the binding in samples 8, 9, 11 and 12 was not pure calcite lime, as it included particles of magnesium, silicon and to a lesser extent aluminium. We could say that the binding in these samples was of lime-dolomite origin, while the presence of aluminium and silicon might be ascribed to contamination from the weathered debris. The aggregate in the samples mentioned was represented by silicate and carbonate grains of which the carbonate grains consisted of calcite as well as dolomite. The binding in samples 7 and 10 was calcite lime. The aggregate in sample 7 consisted of dolomite grains, only rarely calcite grains. Dolomite grains were also present in sample 10. All samples included a fair amount of lime lumps.

9.5 INTERPRETATION OF THE PETROLOGICAL ANALYSIS

The mineralogical and petrological composition of the aggregate in the mortar reveals the location from where the aggregate was taken. It is also possible that other materials such as brick or organic particles were added to the aggregate. They influence the way in which the mortar hardens as well as its final characteristics.

The main purpose of the aggregate is to improve the mechanical characteristics of the binding. The aggregate provides stiffness and influences the volume stability and structural characteristics of the mortar.[4] The composition of the aggregate varies depending on the geographic position of the building, the time period in which it was built and its purpose. Based on the research carried out so far we can conclude that the plaster materials were usually obtained from local sources.[5]

The aggregate consists of angular or rounded grains of various minerals and rocks. The angular grains might indicate a short transport route from the original source to the location where the aggregate was used in the mortar; alternately, it might also indicate that the aggregate was obtained by crushing rocks or rubble. The rounded grains are usually a sign that the material was extracted from river sediments. We need to state that grains comprised of hard minerals are less rounded than those from soft minerals. Aggregates with silicate materials (minerals or rocks) such as quartz are considered to be hard. Soft minerals include carbonates (calcite and dolomite) or rocks from these minerals – limestone and dolomite.

The analysed samples indicate a polymodal distribution of the aggregate size. If the grains are poorly sorted, the mortar structure is more compact and less porous, for the small grains fill the spaces between the larger grains.

Taking into account that the aggregate in samples 7 and 10 was predominantly sharp-edged and semi-rounded, we can safely state that this is dolomite rubble. The remaining samples (8, 9, 11 and 12) also incorporated rounded aggregate grains. The petrological-mineralogical analysis has shown that mineral grains characteristic of the Sava river sand can be found in these samples. We can assume that the mortar was made using gravelly sand as the aggregate. Taking into account the location of the castle and the mineralogical composition this sand could have been taken from Sava river sediments.

The results have shown that lime was used for the binding in the samples. The electronic microscope analysis confirmed that the binding in samples 7 and 10 were calcite lime, while the binding in samples 8, 9, 11 and 12 included magnesium. The presence of magnesium indicates that dolomite or a combination of limestone and dolomite was used for firing lime which was used as binding.

The findings can be summarised as follows: samples 7–12 were analysed in order to define the composition of the mortar and the eventual differences or similarities between the samples. We can conclude that there is a great difference in the composition of the binding and aggregate between samples 7 and 10 on one hand and the remaining samples on the other hand. Calcite lime was used as the binding in samples 7 and 10, and dolomite lime was used in the remaining samples. The two samples also differ from the rest in the composition of the aggregate, as they include exclusively carbonate grains (dolomite), while the remaining samples also include silicate grains.

For the architectural analysis (see chapter 10.3) it is of great importance that sample 7 was taken from the tower and sample 10 from the wall that belonged to the same stratigraphic phase. This means that the tower was built using a slightly different construction technique to the rest of the castle. Different binding, and to a certain extent different building blocks, were used. However, this should not be considered as direct evidence that the tower is older than the inner walls.

[4] Stefanidou et al., 2005.

[5] Kramar and Mirtič, 2009.

10 BUILDING ARCHAEOLOGY

Benjamin ŠTULAR

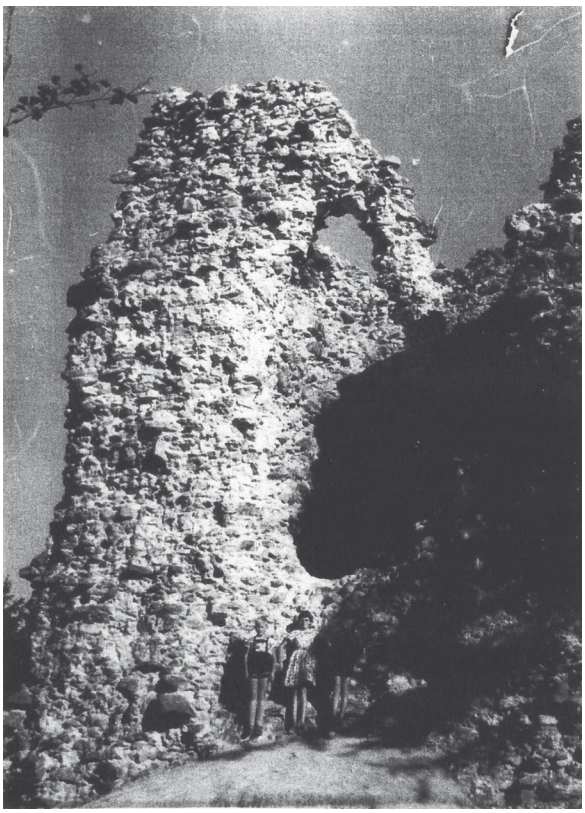


Fig. 10.1: Smlednik Castle, situation in 1952 or 1953 (author: Zvonko Žagar; source: Zvonko Žagar's archive, Vaše)

10.1 PREVIOUS RESEARCH

As early as the mid 19th century, when the first modern researchers described Smlednik Castle[1], only the central tower was discernable above the ruins. And this is how it remained until the works on the castle commenced in 1961 (*Fig. 10.1*).

Thus, the first attempt of an architectural analysis was made only in the 1970s, and even then it was based on sketches and was not a result of the planned research. The sketches used were made for personal use by Ivan Komelj, one of the founders of Slovene castle studies working as a conservator – art historian at ZVKD. As his work was based in the Dolenjska region, he merely took over an advisory role in the conservation project at Smlednik Castle.[2]

Komelj recognised five development phases at Smlednik Castle as well as one pre-castle phase (*Fig. 10.2*).[3]

The latter was only assumed: *Between the south east corner of the inner wall and the central tower, under the walking surface and under the wall foundations, ran a diagonal wall, which did not have any connections to the current ground plan; it could be a remnant of a previous wall that accompanied the central tower and was flattened to the surface in order to make space for the later wall, but it could also be a remnant of the castle which supposedly already stood at this location at the beginning of the 12th century*.[4] Later, Stopar presumed that the wall was built in prehistoric times.[5]

Komelj assumed that the tower stood on its own during the *first phase*. He allowed for the possibility that other wooden castle buildings stood on its western side. The tower was built with emphasised *sandstone* corner stones *in the "stitched" technique*.

During the *second phase* the castle plateau was encircled by a trapezoid and slightly elongated wall, by which the height differences were overcome on the western side and the original tower was incorporated in the east. In this phase the *stitched cornerstones* were more emphasised *and the construction materials better differentiated* than in the central tower. Komelj dated this phase to the fully blown gothic period.

The third phase was limited to building new rooms within the walls from the previous phase.

The fourth phase was a vast reconstruction of the castle and can be *considered as the great restoration works that followed the earthquake in 1511*. New living quarters,

[1] Hormayr 1840, 119 (quoted from Stopar 1998, 72); Piper 1904, 207–208.

[2] Komelj 1972, 205; Stopar 1998, 72, note 15.

[3] Otorepec, Komelj 1971, 7–9; Komelj 1972.

[4] Komelj 1972, 205.

[5] Stopar 1998, 71.

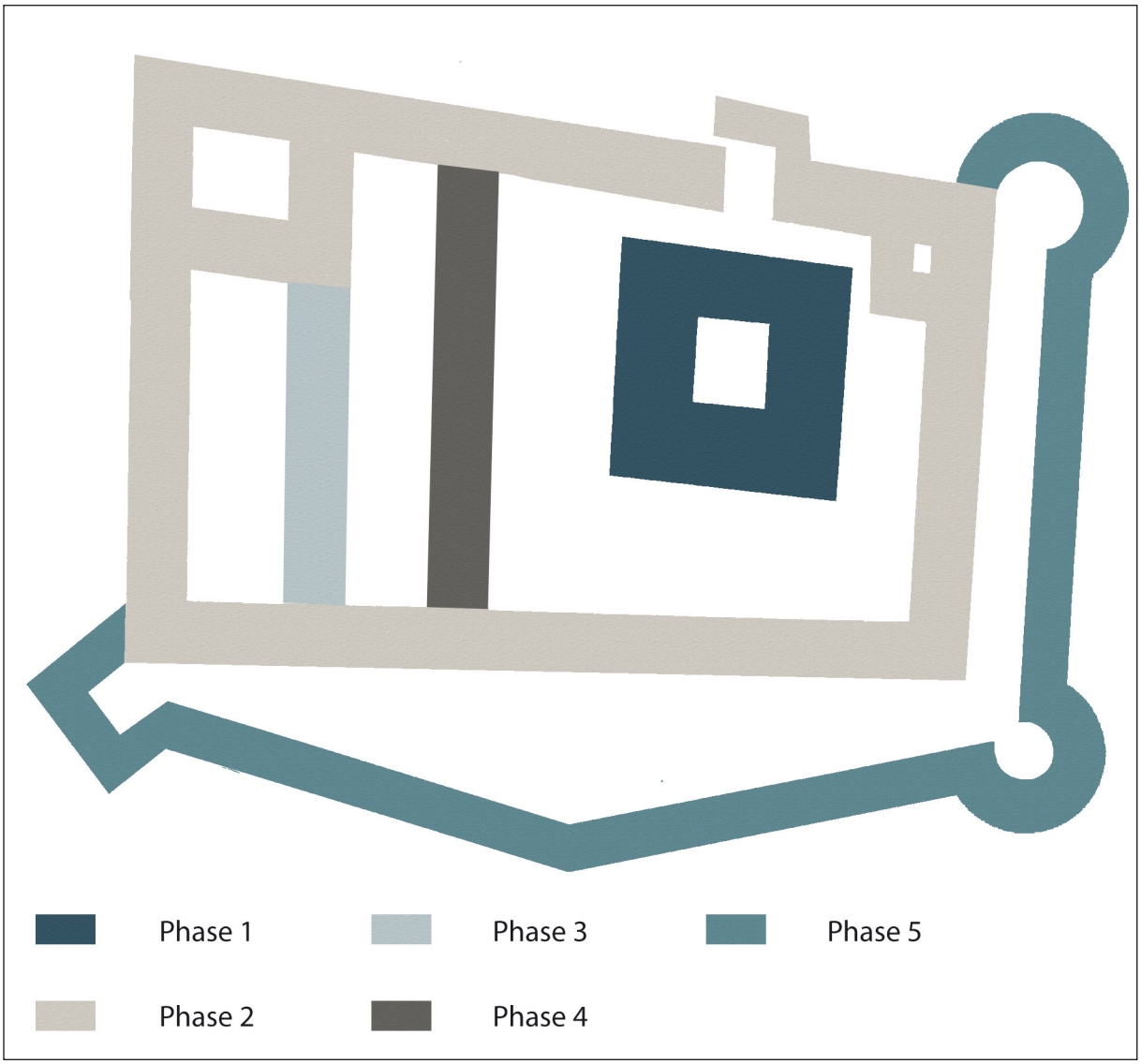


Fig. 10.2: Smlednik Castle, Komelj's building analysis.

at least one floor high, were added to the western tract that was attached to the walls. The living quarters with an open arcade porch on the ground floor are indicated by the numerous stove tiles remains found in this area (see chapter 6.2.2).

According to Komelj, finishing off the outer walls, which encircle the castle area to the south and east, represented the *fifth phase*. The walls on the east side, where a trench stood during the first phase, were *levelled and fortified with two small towers*. This phase is assumed to have taken place in the 16th century as *new weapons were being introduced*. The wall was created as a frame in line with the Late Gothic tradition, while the two small towers positioned diagonally above the edge of the trench *indicate an explicitly renaissance tradition*.

Stopar, who as he himself stated, had great difficulties analysing the Smlednik Castle due to the lack of documentation and the poor state of preservation, changed Komelj's interpretation of the architectural development slightly (*Fig. 10.3*).[6]

According to Stopar the tower was the first building to be built once the ground was levelled out, however not as an independent residential tower functioning as a castle, but as a typical bergfried with a square ground plan. It was certainly one of the most distinctive in the territory of present day Slovenia, possibly similar to the former bergfried on Windischgratz/Grad pri Slovenj Gradcu. Stopar estimates that with walls three and a half metres thick and over ten meters long, the tower stood between 20 and 30 metres high. Above the high cellar-

[6] Stopar 1998, 68–72.

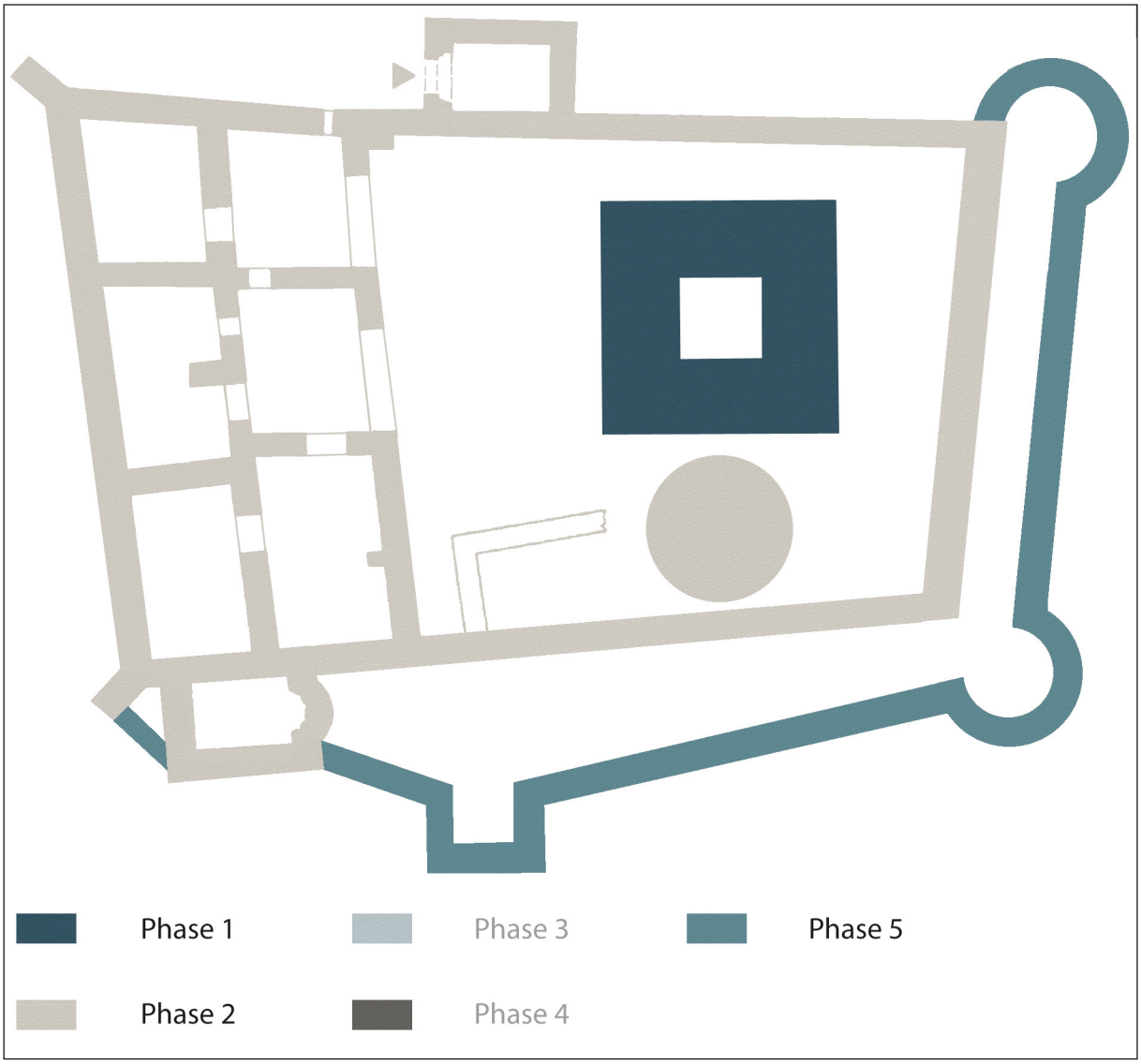


Fig. 10.3: Smlednik Castle, Stopar's building analysis.

ground floor it had an additional three or four floors. At this Stopar was surprised by the fact "*that it had, alongside a construction made from non-finished conglomerate stone with a sufficiently emphasised tendency to layer, corners from cut sandstone, which remained intact to the height of a meter and a half at the base since they were until recently covered in gravel...*". Sandstone was commonly used during the Late Romanesque period, however the proportions of the Smlednik tower indicate that this was not when it was built. Stopar thus believes that the tower was built in the first half of the 12th century, when such towers were built in castles of strategic importance.

Stopar only conditionally believes that the first inner walls belong to the second phase of the castle development, even though they reveal a *different, possibly already Gothic approach to architecture*. However, it should be emphasised that Komelj was also not consistent in his differentiation between the first two phases.[7]

Stopar also rejected Komelj's third phase, even though he agreed that the structure of the outer layer of the wall was different to the one used for the tower, since it was made from conglomerate. Stopar supported his theory with a plan of the Smlednik Castle drawn by Abondio de Donino in 1610. This plan was discovered by Branko Reisp and was not known to Komelj (*Fig. 10.4*).[8] Based on this Stopar drew attention to the small entrance tower, placed within the northern inner walls, and on the staircase access to the tower, which could be entered only on the first floor. The most important revelation obtained from Donnino's plan was the location

[7] *Cf.* Komelj 1971, 7; id. 1972, 205.
[8] Reisp 1987, Fig. 7.

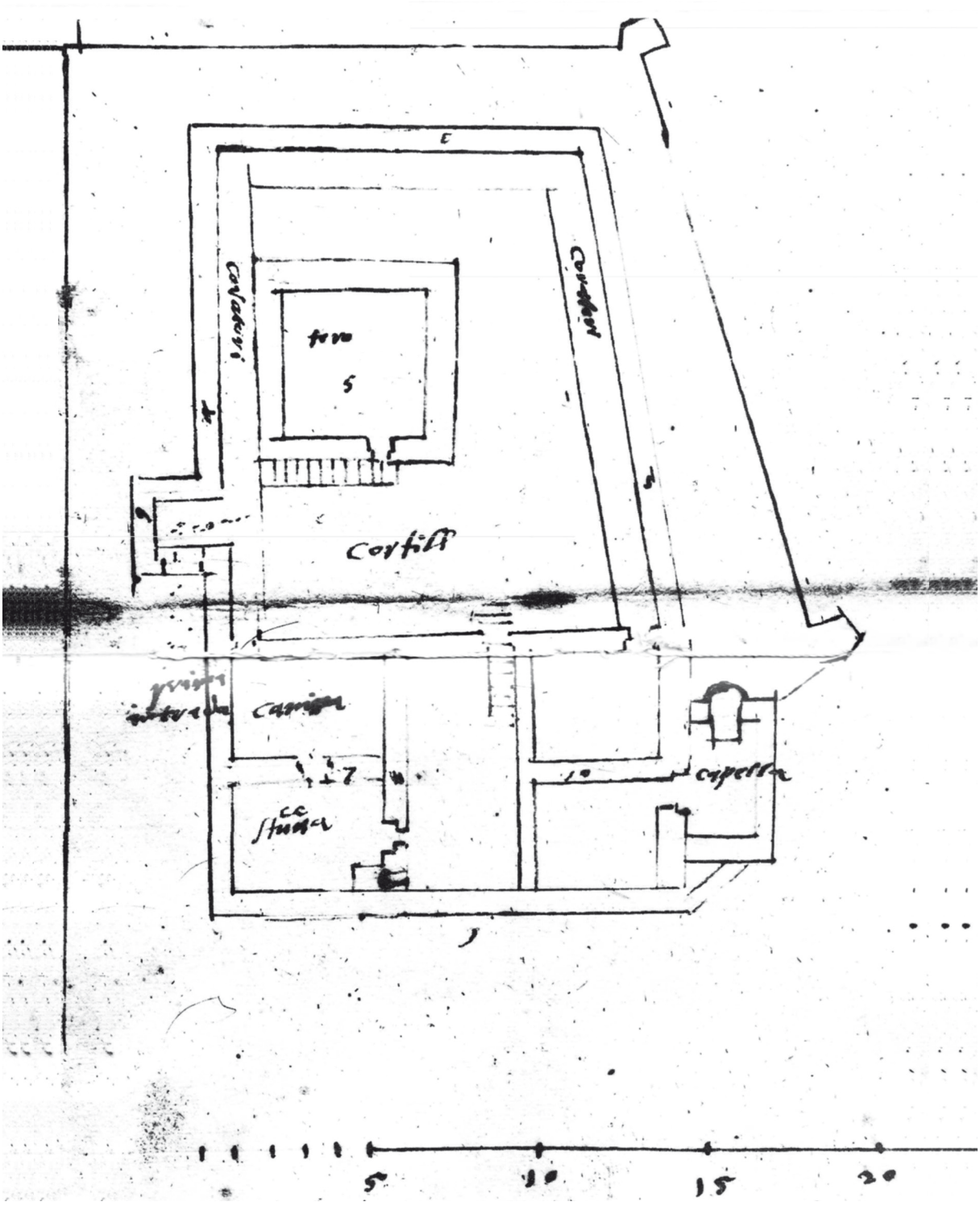


Fig. 10.4: Smlednik Castle, plan by Abondio de Donino, 1610 (source: Reisp 1987, Fig. 17).

of the castle chapel. This leaned upon the western corner of the castle and could be accessed from the palatium; it was properly oriented and ended in a semi-circular Romanesque apse. *This knowledge inevitably dates the inner wall into the Romanesque period*. Thus Stopar concludes that the construction of the oldest inner wall did not belong to an independent construction phase, but were a logical continuation of the works *that were planned from the very beginning*. This phase also included the water reservoir within the castle's yard south of the tower that was necessary in order for the castle inhabitants to survive.

Stopar also found it impossible to date *the next phase, which should (if at all?)* have included the expansion of the palatium – i.e. Komelj's fourth phase – as no architectural remains were preserved that would enable dating. Even the *frame of the portal fragment, which was preserved and which might have helped us obtain a more precise dating,* has *a completely destroyed profile*. Dating this phase to the Late Renaissance, which Komelj backed with stove tile finds, was rejected by Stopar: *A stove is not a building!* However, Stopar saw the preserved stove from Schönberg near Oberwölz in Austrian Styria, built in 1568, to represent a precise analogy for dating *the green glazed stove tiles with allegories of planets and the free arts from Smlednik* (*cf.* Chapter 6.3.2).

Based on the comparisons to contemporary Slovenian castles, Stopar concludes that the expanded palatium was built as early as the High Gothic period. We have no data as to its original appearance, but based on the 1.2 metre thick mantle wall Stopar concludes that there were two living floors above a sunk ground floor.

The earthquake in 1511, which damaged numerous castles in Carniola and which hit the hardest in the area between Turjak and Bled, certainly damaged Smlednik Castle, even though Valvasor, who informs us about the castle, does not mention this explicitly. It is certain that some parts of the castle were changed by the renovation works, however, this period most likely also included the new outer walls and the small outer entrance tower, i.e. Komelj's fifth phase. The ground plan *of these additional fortification compounds is reminiscent of contemporary anti-Turkish fortifications, which only confirms this dating*.

Stopar was uncertain as to the date of the transverse wall, which was found in the vicinity of the tower during the archaeological excavations and which he assumed belonged to the *prehistoric period*. As regards the medieval period Stopar exposes the issue as to whether the palatium was really expanded at a later date, for it appears to perfectly fit the standards of the time.

10.2 STRUCTURES OUTSIDE THE CASTLE CORE

Recent castle research more and more often includes the study of the castle's immediate surroundings. With this in mind an aerial **li**ght **d**etection **a**nd **r**anging was performed in 2007. The detection was performed by Flycom for ZVKD's Centre for Preventive Archaeology. The primary analysis and data filtering was performed by Aleš Marsetič (ZRC SAZU), and the archaeological interpretation was performed by Benjamin Štular. The detection was optimised for archaeological purposes so that the data gathered were sufficient for creating a digital surface model (henceforth DSM) with a precision of 0.5 m.[9]

In order to analyse the relative archaeological data the DSMs from the 1st and 3rd pulse have been combined. 1st pulse DSM is usually used in the analysis of the forest biomass or urban areas, while 3rd pulse DSM is used in terrain analysis. In our case the final DSM was created by merging the 1st reflection DSM – this is best suited for showing the remaining walls – in the area of the castle ruins, with the 3rd pulse DSM – best suited for the terrain – for the surroundings. Minimal filtering was applied in the creation of the 3rd reflection DSM. The disadvantage of this approach is that the vegetation is not removed in some parches. However, such an approach is necessary for an archaeological analysis, as an overly aggressive filtering would remove not only the vegetation, but also most archaeological data. The resulting model is best suited for archaeological interpretation (*Fig. 10.5*).

Alongside a solid documentation of the state of the castles and the precise location of the three modern buildings (the cafe and toilets to the west and the tourist association building to the east of the castle core) we also recorded six additional anthropogenic features. Probably the most interesting are two rectangular shaped anomalies on the east and west end of the castle hill ridge (*Fig. 10.6:* 1, 2). The one in the west is 5.3 m wide and 7.9 m long, while the one in the east measures 5.2 m by 4.9 m. Taking into account the dimensions and positions, it seems that these could have been two small *propugnaculum* towers.

East of the castle the castle moats are recognisable (*Fig. 10.6:* 5). The moats are clearly visible at the location itself, but the discovery and recording of the precise layout of the earth bank between the two castle moats is of exceptional importance (*Fig. 10.6:* 4). The inspection of its section (the result of non-archaeological intervention) revealed that at least the outer front of the bank was strengthened with stone. The polygonal earth bank is documented in a total length of 37.5 m and is preserved to a height of 1.1 m, and can be seen *in situ* during periods of low vegetation.

Other man-made features include slight traces of terraces to the southeast of the castle (*Fig. 10.6:* 3) and the remains of either forestry traction paths or hollow ways to the northeast of the castle (*Fig. 10.6:* 6).

None of the features recorded on DSM can be dated without further archaeological research. Only the stratigraphic relation of the inner castle moat that cuts through the earth bank is clear. However, the new data will reinvigorate the debate that was started by Otto Piper over a century ago when he mentioned a pre-castle structure on the northeast foothill of the rocky peak of the hill.[10] Nine decades later Stopar responded to this idea by mentioning the possibility of a bulwark, a *propugnaculum*.[11]

[9] For the data on the method and its use and history of use in archaeology see Štular 2011.

[10] "Nordöstlich hat am Fusse des Felssens eine nicht weit Vorburg gelegen, von welcher gleichfalls nur geringe Mauerreste übring sind" (Piper 1904, 207).

[11] Stopar 1998, 67.

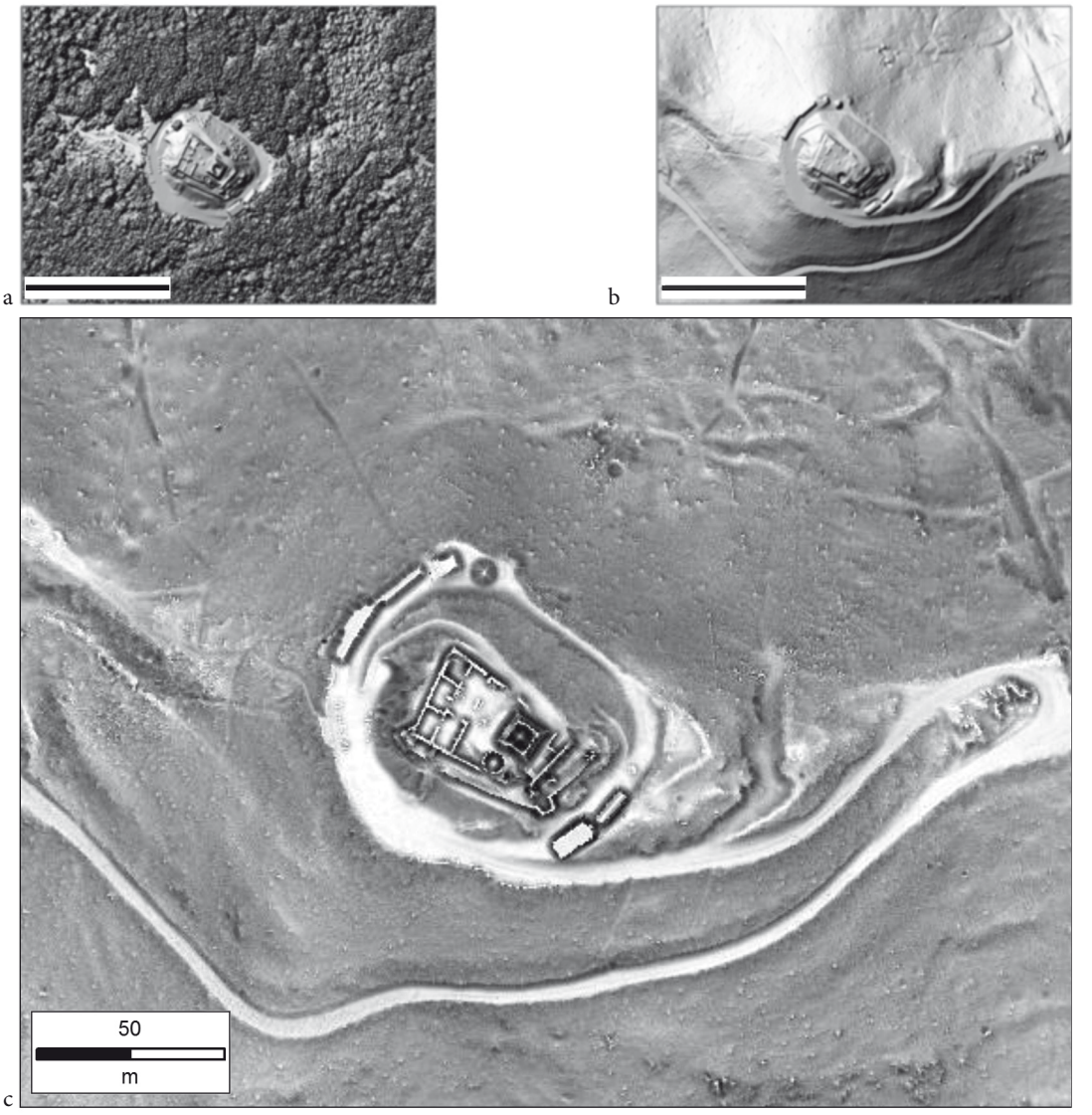


Fig. 10.5: Smlednik Castle, lidar data:
a – 1st return digital surface model (top left), b – 3rd return (top right), c – combined data used in the analysis.

It is clear that Piper was describing the remains of an earth bank that predated the inner castle moat and should thus not be linked to the medieval castle, for it was either a prehistoric or Early Medieval hillfort (see chapter 12.1).

Of great interest are the barely visible traces of the eventual towers (*Fig. 10.6:* 1, 2). Of course, both structures need to be additionally researched; however the idea that these could be bulwarks (*propugancula*) seems appropriate.[12]

The analysis of the lidar derived DSM's thus led to the precise mapping of previously unknown archaeological features and to defining the precise extent of the remaining intact archaeological features adjacent to the inner castle (*Fig. 12.3*).

While exploring the terrain we have also discovered a wall to the northwest of the inner castle, on the north edge of the plateau, nowadays utilised as the café. It appears that the café toilets were built on the ruins of a building outside the castle, possibly another tower.

10.3 INTERPRETATION OF THE CASTLE'S ARCHITECTURAL DEVELOPMENT

Similar to numerous other branches of archaeology, building analysis also witnessed great development over the past decade. The changes focus primarily on the combination of excavation with the study of standing

[12] A note to the English edition. The trees fallen during the ice storm of 2014 revealed stone built structures on both mentioned locations. Pending further investigation the interpretations put forward in this book seem even more likely.

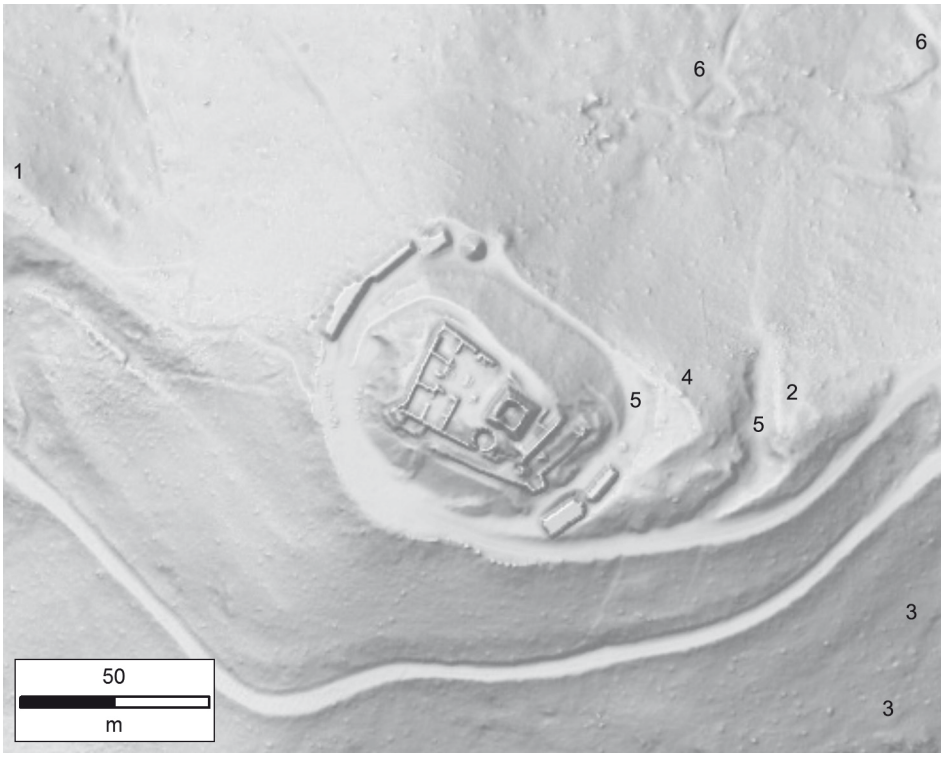


Fig. 10.6: Smlednik Castle, digital surface model created from lidar data (recording in 2007, resolution 0.5 m; data analysis A. Marsetič, visualisation and interpretation B. Štular, both Scientific Center of the Slovenian Academy of Sciences and Arts). Interpretation: **1** – rectangular building (the western *propugnaculum*?); **2** – rectangular building (the eastern *propugnaculum*?); **3** – remains of terraces or slope erosion; **4** – stone drywall; **5** – castle moat; **6** –hollow ways and/or skidding trails.

remains. Stratigraphy thus remains at the core of such analysis as it is the mean to establish the relative chronology to be included in the Harris's diagram together with other archaeological layers (*Fig. 5.1*). Stratigraphy allows us to establish a relative chronology, which in turn enables us to establish the absolute chronology. The latter is usually still based on typologically dating the architectural elements as well as the small finds in the archaeological layers. Whenever possible the absolute chronology is specified more precisely with dendrochronology or radiocarbon dating. Over the past decade the ever increasing accessibility of certain analytical and documentation methods, such as dendrochronology and 3D-scanning for example, played an important role in the methodological development.[13]

However, Smlednik Castle is an extremely poor study case. The main reason behind this can be found in the used building material, i.e. the local stone (see chapter 9), that is prone to quick decay. The research potential of the castle had deteriorated greatly over the past fifty years. The series of poorly documented cleaning actions that were followed by undocumented re-construction interventions made it almost impossible to perform a building analysis based on establishing stratigraphic relationships between the individual walls and typological dating. Due to the current condition of the walls it was impossible to determine the stratigraphy for a larger part of the castle, at least on the macroscopic level. To a certain degree this situation was helped by the data stemming from the 2007 3D scan (*Fig. 10.7*; see chapter 13), however, the key stratigraphic relationships between the walls have unfortunately been destroyed prior to 2007. The appropriate time for such analysis would have been each time the walls were dug up, as is clearly shown by one of the rare photographs of the excavations, most likely made during the 1980s (*Fig. 10.8*).

Of course, taking into account the castle's condition, samples suitable for dendrochronology could not be expected, which is why we turned to radiocarbon dating of the walls. The organic matter necessary for this analysis can be obtained from the mortar[14] providing that proper procedures have been followed during the extraction of the sample. Even so, the analysis does not yield reliable results every time.[15] Unfortunately we were unsuccessful in this procedure.[16]

[13] E.g. Cadamuro, Zanetto 2011; for an overview see Wood 1994; Morriss 1999; Pearson, Meeson 2001. For dendochronology see Hanesa, Čufar, Beeckman 2009. For three dimensional documentation in archaeology see Wittur 2013.

[14] Ringbom *et al.* 2011.

[15] Hodgins *et al.* 2011.

[16] The sample that we obtained from the bergfried mor-

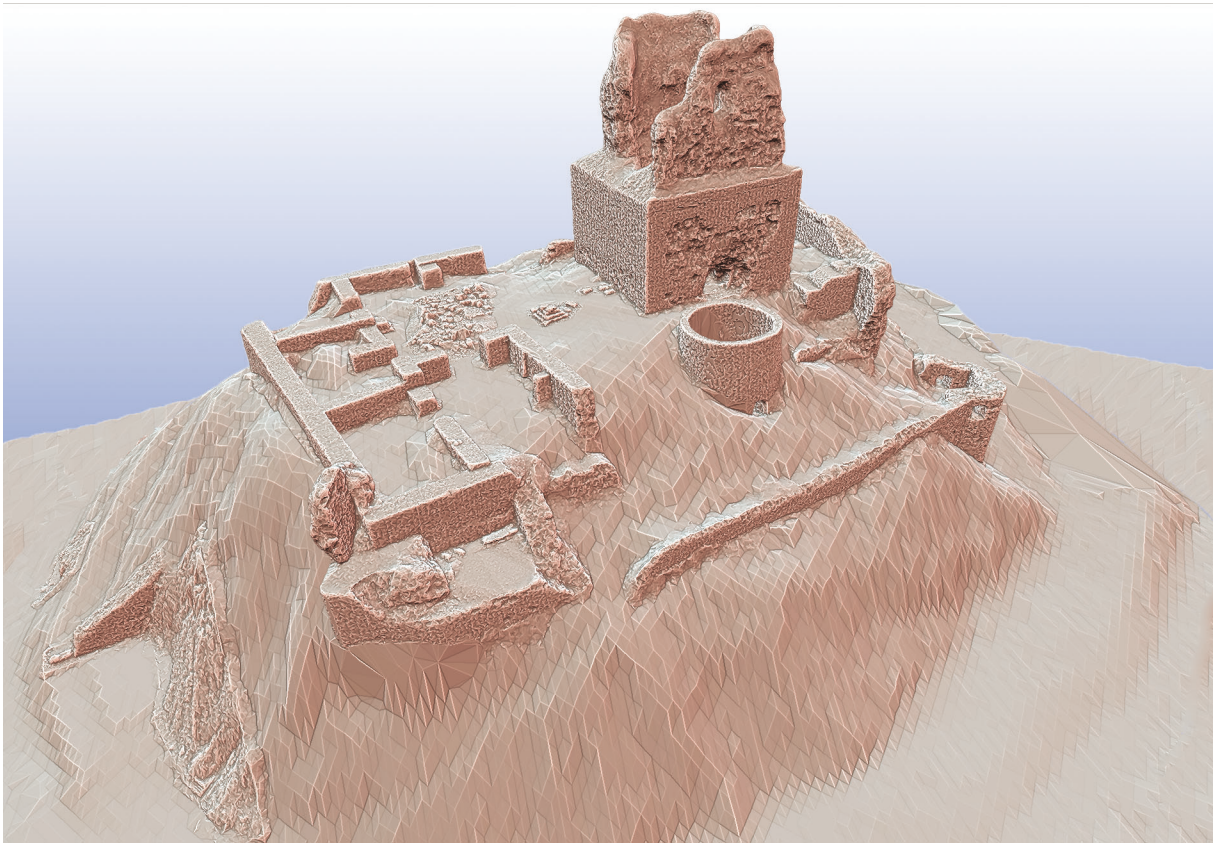


Fig. 10.7: 3D scan of Smlednik Castle (meshing A. Lazar; visualization author; see chapter 13).

Therefore, only the following new data can be included in the architectural analysis:

– two stratigraphic relationships,
– measurement data obtained from the 3D scan
– the analysis of the building material.

The main intent behind the 2011 and 2012 archaeological excavations was to establish the presence of archaeological layers that would disclose the stratigraphic relationship between the tower and the inner walls. The excavations have shown that the contact was already destroyed by the time the wall was built. The walking surface was cleared to the bedrock or to layers older than the tower. The probability that this relationship was preserved at a different location is extremely low, but through the precise analysis of archaeological records we have obtained an indirect indication that the tower and inner walls were not built at the same time (see chapter 5.9).

The data obtained by archaeological excavations is mainly applicable to areas in the northeast corner of the castle, which was attached to the inner walls as late as phase 6 (*Fig. 5.1: SU* 34, 35, 7; see chapter 5.6). Komelj thus wrongly classified these areas into his phase 2 (*Fig. 10.2*).

Their construction might not have been the last in the area between the tower and the eastern inner walls. During the 1963 excavations a series of postholes were documented in this area, and the area was marked as *the kitchen*. This is the most likely area from which the older finds originated (see chapter 6.1). The preserved ground plan (*Fig. 10.9*) does not reveal any details except for the location. In the cross-section these postholes are the youngest stratigraphic event recorded (*Fig. 10.10*). At first glance it seems that this was some sort of a structure, maybe scaffolding, that was used when the ruins were being removed.

However, the comparison of the cross-sections and the photograph of the state prior to the intervention (*Fig. 10.1*) reveal that the several meters thick ruin was removed before the ground plan and the cross-section were documented. Apart from this the locations of three of the drawn in *postholes* fit the location of the three postholes that were documented during the 2011 excavations and belonged to the last phase in which the castle was used (*SU 22*/21 and *24*/23; see chapter 5.7). We have interpreted these postholes as the wall for a very limited area of the 2011 and 2012 excavation field.

tar was too depleted and as such not suitable for radiocarbon analysis. This means that the usual archaeological sampling method was insufficient and that in the future specialists will need to be included already in the sample collection process.

However, the possibility that a large wooden building stood in this area during the last phase in which the castle was used (phase 7) cannot be excluded.

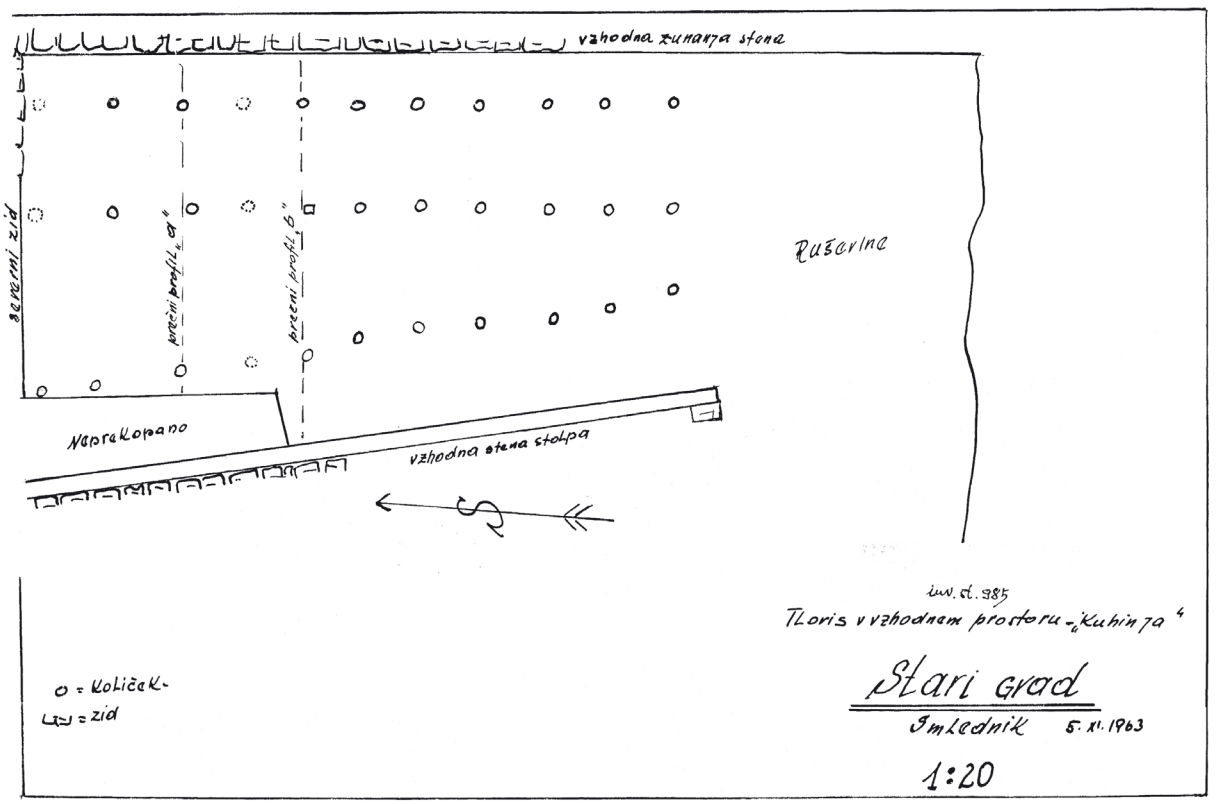
Another stratigraphic element was recognised in the photographs taken in 1989 (*Fig. 10.11*).[17] When these photographs were compared to the situation in 2007 it was clear that they show a location in the south west edge of the castle, where Stopar assumed that a Romanesque chapel was located (*Fig. 10.4*). It can be observed that there is no trace of walls belonging to the chapel. It seems that one has to treat Stopar's hypothesis that the Romanesque chapel was built at the same time as the inner wall with great caution. I am also not aware of any High Medieval castles where the chapel would be built at the same time as the walls and entirely on the outer side of the walls. However, a chapel was built between the outer and inner walls in approximately 3 percent of all castles.[18] In this case the chapel would of course be built at the same time as or after the outer walls.

[17] Appendix 1, No. 71, Figures 3 and 4.

[18] See Krahe 1994, 60–63.

<< *Fig. 10.8:* Smlednik Castle, earthworks in 1989 (unknown author).

Fig. 10.9: Smlednik Castle in 1963, archaeological plan of excavations (unknown author).



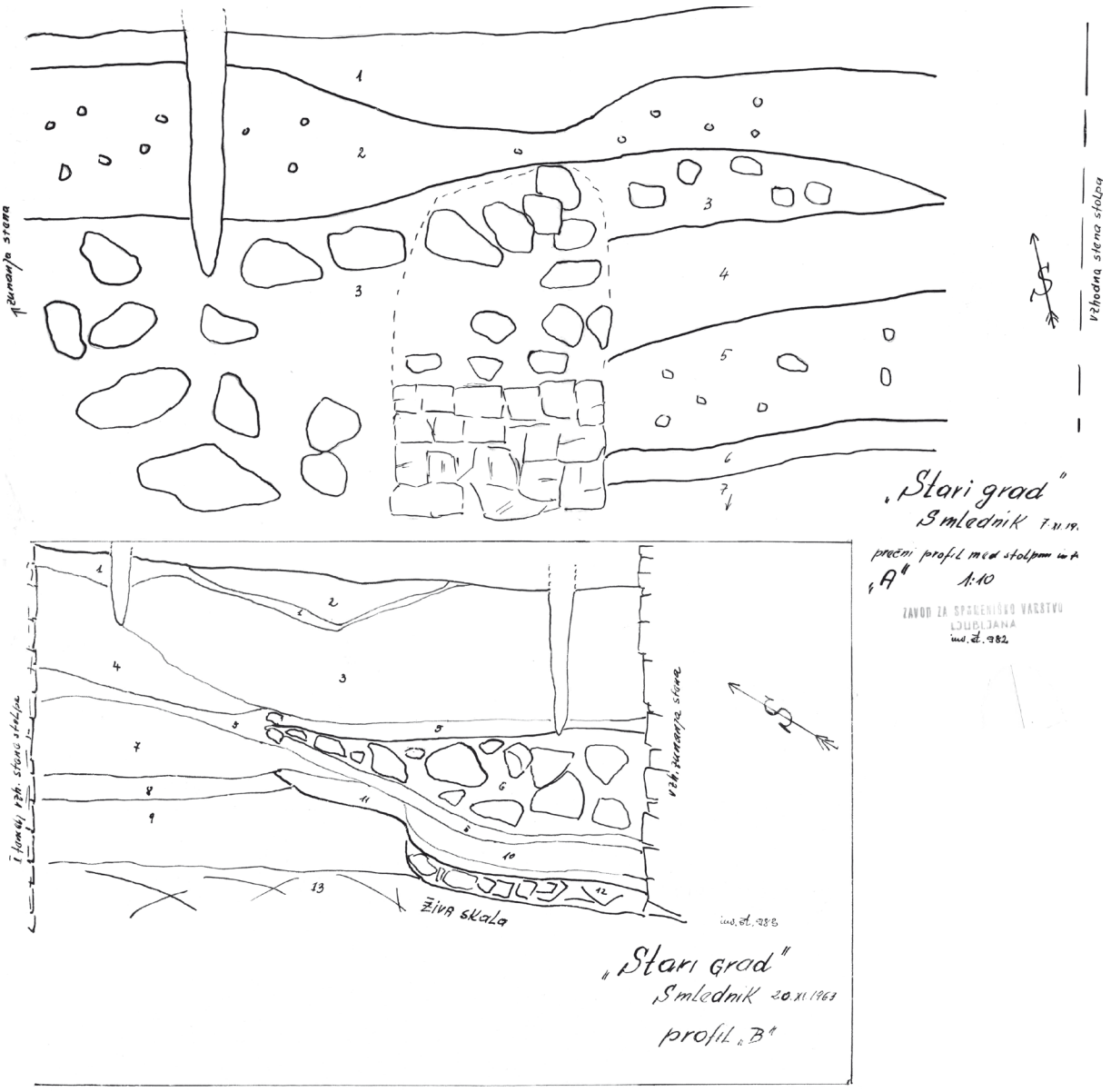


Fig. 10.10: Smlednik Castle in 1963, archaeological cross-sections of excavations (unknown author).

Accurate measurements enabled us to describe the castle palatium more precisely. As a rule castle palatiums have a rectangular ground plan with smaller deviations that occur as adjustments to the terrain[19] and this is the case also with Smlednik Castle.

In Slovenia these were predominantly rectangular buildings, in which the floors were supported by wooden crossbeams. The structure of the ceiling or the floor in a High Medieval palatium is well known from the nearby Stein/Mali grad in Kamnik. There the wooden pillars that bore the longitudinal oak beam with a roughly square cross section with sides measuring 0.3 meters were positioned on stone bases. Oak joists with one third of the cross section were placed across it and fir boards were placed across this construction.[20] The width of the palatium was limited by the effective length of the joists. In the first phase the inner width of the palatium measured approximately 5 m.[21] A new palatium, the inner width of which did not surpass 10 m, was built during the second phase, however it included additional support in the centre of the room, first in the form of a wall, later in the form of two pillars.[22] The effective width without support thus did not exceed 5 m, however with additional support multiples of this width

[19] Krahe 2002a, 37.

[20] Štular 2009a, 65.

[21] Štular 2009a, 50.

[22] Štular 2009a, 54–55.

Fig. 10.11: Smlednik Castle in 1989, situation after the earthworks; the south-western corner of the castle, view towards the west (unknown author, see Appendix 1, ID 71).

were possible. The same holds true for Smlednik Castle. At its widest the palatium measures 10.69 m; as it was divided in the centre, the inner width did not exceed 5.21 m at any point.

The length of the palatium was not limited by static demands, but usually by the wall proportions. The Smlednik palatium stood alongside the shorter side of the castle and measured 23.5 m in length (interior). From the architectural aspect the comparison with Stein/Mali grad is interesting, for there the first palatium measured between 20 and 22 m in length;[23] in the second phase the old palatium was completely demolished and a new one was built alongside the castle courtyard measuring up to 33 m in length.[24] This means that it was not only the final surface that was important, but also the proportions of the palatium. They could have obtained the same surface by expanding the older palatium, however it would have an almost square ground plan. The architects of Stein/Mali grad attempted to keep the proportions of the palatium – and with it the large hall – between 1:3.8 and 1:2.9. If they chose to obtain a similar surface with the expansion of the old palatium to three times its original width, the ratio between the length and width of the building would be 1:1.33. As this was clearly not acceptable they levelled the original palatium and rebuilt from scratch.

This information is important because it is not known what the ground floor of the original palatium at Smlednik Castle looked like. There are two possible interpretations. According to the first, Komelj's interpretation, the original palatium measured 5.21 m in width, while according to the second, Stopar's, it had a double width of 10.69 m from the very start. The length 23.38 m did not change. The ratio in the first interpretation would be 1:4.5 and for the second 1:2.2. The ratio in the second interpretation is thus somewhere half way between what the constructors of Stein/Mali grad considered to be acceptable and what was not acceptable when the second phase was constructed at the beginning of the 13th century.

Looking at the potential surface areas the ground floor measured 107.31 m^2 according to the first interpretation, and 240.02 m^2 according to the second interpretation. It can be assumed that the surface area of the ground plan was directly linked to the importance of the lord of the castle. Why? The lord's entourage grew with his importance, and at mealtimes the entire entourage gathered in the large dining hall. Thus it comes as no surprise that this surface area was large in most cases, measuring from under 50 m^2 to over 300 m^2.[25] One can use Mali grad, where the original palatium at the beginning of the 12th century covered a surface area of 93.5 m^2, while the large palatium built at the beginning of the 13th century measured 245.5 m^2, as a good analogy once again. The palatium at Stein/Mali grad was thus only slightly larger than the Smlednik palatium built roughly at the same time. In considering this one needs to keep in mind that Stein/Mali grad was the seat of one of the most important people in the land, the Istrian margrave Henrik IV of Andechs!

What about the Romanesque palatium at the Montpreis Castle? In 1297 the Montpreis and Smlednik Castles were owned by Otto of Montpreis, who inherited both castles from his father Henrik IV of Schärffenberg. Otto was the first to break with the nomenclature tradition when he stopped addressing himself of Schärffenberg like his father and grandfather before him, but only Otto of Montpreis.[26] His main castle was thus Montpreis, while Smlednik was his secondary castle. The surface area of the Romanesque palatium at the Planina/Montpreis Castle measures approximately 215 m^2.[27] Would he address himself with the title of Montpreis, if Smlednik Castle was bigger?[28] For the time being this question remains unsolved, as additional cases will have to be analysed before we can truly ascertain the relation between the size of the palatium of the main castle, the status of the owner and his identification with the castle in relation to the other castles in his ownership.

An additional important factor should be added to the previous argumentation: there is no surviving evidence of a wall that would divide the second phase of the palatium and the castle courtyard. However, this wall exists on Komelj's (*Fig. 10.2*) and Stopar's (*Fig. 10.3*) interpretation as well as on Donini's plan (*Fig. 10.4*). The only element visible today is reminiscent of a pillar base,[29] but unfortunately there are no records of what was discovered during the reconstruction at this location.

[23] Štular 2009a, 54.

[24] Štular 2009a, 54.

[25] Krahe 2002a, 37–38.

[26] Kos 2003, 285.

[27] Measured on the plan published by Stopar (1993, 64).

[28] *Cf.* Kos 2003, 287.

[29] This was what most likely led Komelj to come up with his interpretation of the expansion of the palatium with an 'arcade porch' in 1511.

	Komelj	Stopar	2011/12
		prehistory	1
			2
	Pre-phase		3
Castle	1	1	4
	2	2	5
	3		6
	4		7
	5	3	
			8
			9

Fig. 10.12: Smlednik Castle, a comparison of Komelj and Stopar's phases with the stratigraphic phases of archaeological excavations in 2011 and 2012.

Based on the relatively large surface area and the proportions of the palatium at Smlednik Castle we have to agree with Komelj's assumption that the second variation of the palatium at Smlednik Castle seems to be too large for the 13th century.

In the description of the walls we need to draw attention to two additional details on the north part of the inner walls. *In situ* modest remains of an entrance towerette are still visible.[30] Even though only a few stones are preserved, it is clear that the towerette was built simultaneously with the inner walls.

The second detail is the hole in the walls on the north side, west of the entrance. Previous researchers offer no interpretation for this. This might have been a hidden passageway, and if this was the case, it would have been made so that the castle inhabitants could

[30] Stopar 1998, 70.

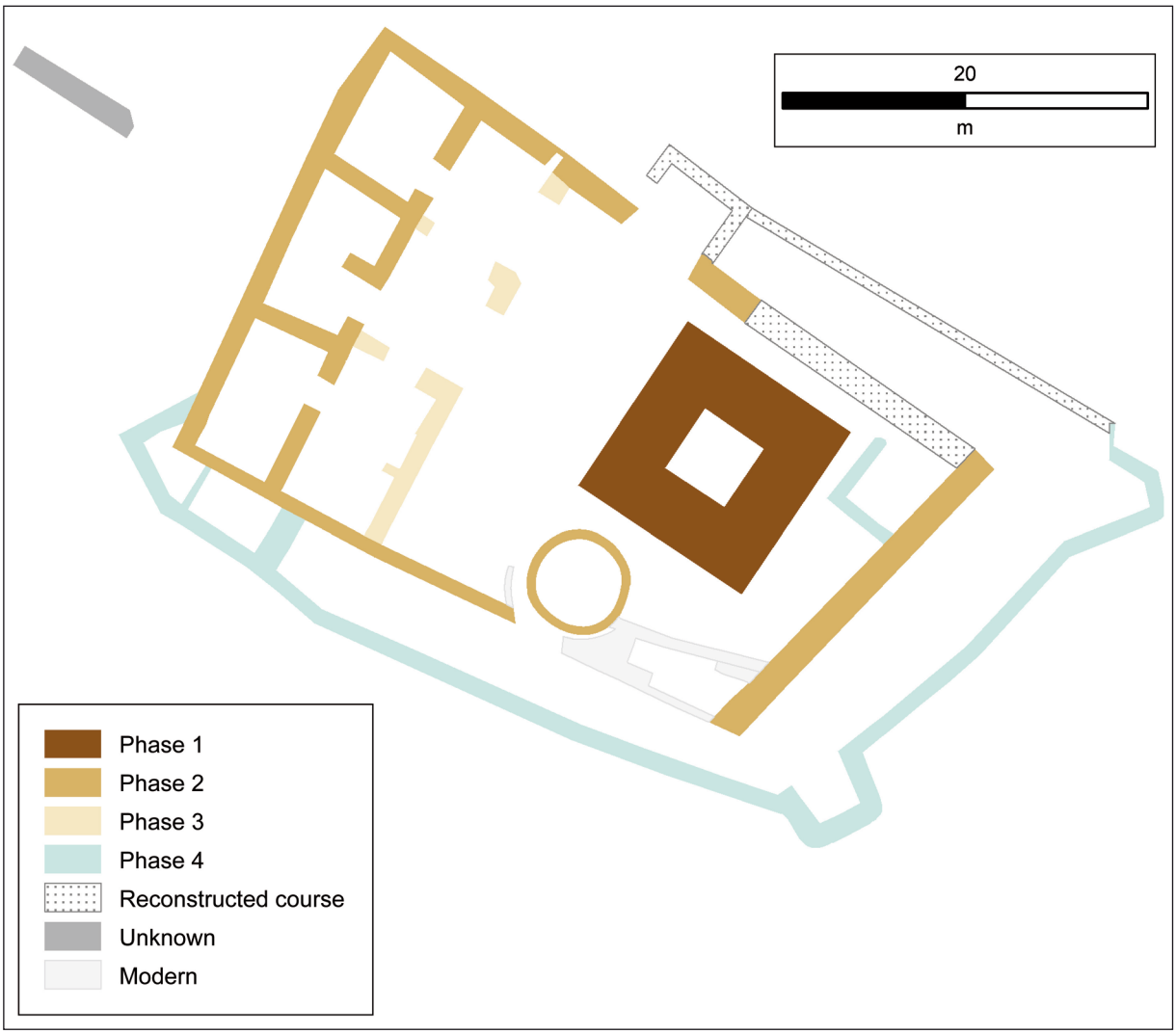


Fig. 10.13: Smlednik Castle, building analysis based on the 2012 research.

escape from the castle under siege, should the attackers gain control of the main entrance.

The building material analysis that was presented in greater detail in chapter 9, brought some key new insights, important for the building analysis:

– compared to other parts of the castle different mortar was used in the tower construction,

– the mortar used in the tower construction includes brick fragments,

– the comparison of the binding and construction material used revealed three different construction types (tower, inner walls, outer walls).

The different construction techniques do not provide direct evidence that these were chronologically separated interventions. It is possible that the tower was built first and that the inner walls were constructed immediately after it. It is unlikely for the tower and the walls to be built at the same time but with different mortar. Regardless of the lack of elements for an absolute chronology we agree with Komelj's original assumption that the standalone tower was the first to be built.

At this point of the analysis it is important that we can link the building phases with the archaeological ones. Regardless of the modest number of finds the latter is easier to define chronologically (*Fig. 10.12*). The result comes as no surprise. Because Stopar allowed for the possibility that the tower stood on its own at first, we can confirm his phases in entirety. For a while the tower stood on its own or was surrounded by wooden objects; later the inner walls and the palatium were added, most likely both at the same time. Towards the end of the Medieval Ages the outer walls were added, while small renovations in the interior were a regular feature. During the last phase in which the castle was used, a large wooden building could have been erected in the east part (*Fig. 10.13*).

10.4 *UNSERN TURN GEN FLEDNIK*

At this point we pose the question whether the tower at Smlednik Castle could function as a standalone living tower? The preserved material finds, i.e. the proportions and the openings, were included in the debate. Stopar described the proportions as a *typical, characteristic [...] bergfried*.[31] This is a type of a tower that is broadly defined in recent literature as the main tower (*Haupturm*), i.e. the tower that dominates the castle.[32]

Such towers differ from living towers (*Wohntürme*), the main function of which was to provide a living space, similar to the *donjons* found in French and English castles. Amongst over 4000 castle buildings in the German Empire live in towers are found in towns, villages and castles, while 16.5 percent of the towers stand on their own. 21 percent of them are located on rocky heaps or ridges similar to Smlednik.[33]

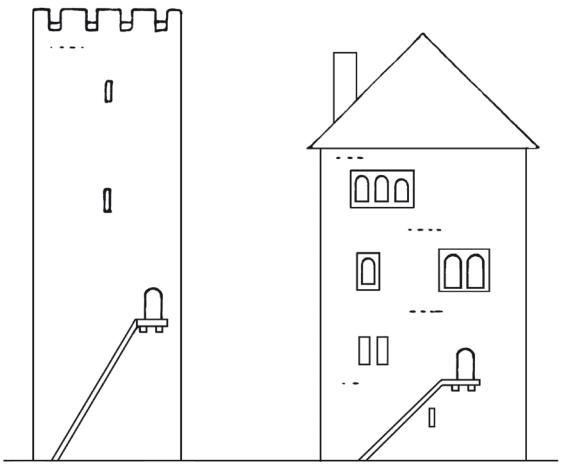


Fig. 10.14: A schematic depiction of a bergfried construction: support beams (left) and a residential tower (right; after Krahe 2002b, Abb. 19; drawings: T. Korošec).

The dichotomy bergfried – live in tower is a somewhat simplified view of the numerous forms of medieval towers, for already living towers can differ greatly one from another. However, on one hand we have a bergfried, the main purpose of which is to symbolise the power and strengthen the defensive capabilities of the castle, while on the other hand we have a functional tower, the main purpose of which is to enable what was at the time considered to be relatively comfortable dwelling (*Fig. 10.14*). The only differentiation criteria that can still be observed at the Smlednik Castle remains are the ground plan and the openings.

The square ground plan and the thickness of the walls alone are sufficient to establish that this was not a strong house.[34] However, based merely on the square ground plan, one cannot differentiate between a live in tower and a bergfried, for 44 percent of the first and 41 percent of the latter had such ground plans.[35]

The thickness of the walls is a better differentiating criterion. The average wall of a live in tower was 1.6 m thick and merely 15 percent of the walls were thicker than 2 m.[36] Bergfrieds had stronger walls, which were on average 2.2 m thick, with extremes ranging between 1 and 4.5 m.[37] Taking into account merely the reconstructed

[31] Stopar 1998, 69.

[32] Merinsky, Kouril, Polaček 2006.

[33] Krahe 2002b, 13–56.

[34] *Cf.* Krahe 2002b, 30.

[35] Living tower: Krahe 2002b, 32; bergfried: Krahe 2002a, 45.

[36] Krahe 2002b, 38.

[37] Krahe 2002a, 44–45.

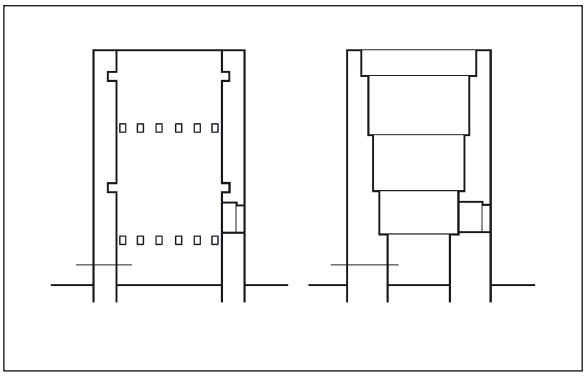


Fig. 10.15: A schematic depiction of bergfried construction: installing support beams (left) and stepped construction (right; after Krahe 2002b, Abb. 65; drawings: T. Korošec).

wall thickness (measuring 3.13 m[38] or as much as 3.47 m at the base[39]) Smlednik Castle could be categorised as a bergfried with an above average thick walls. In light of the findings from the construction material analysis (see chapter 9) we should mention the possibility that the walls were made thicker in order to compensate for the relatively poor quality of the stone used.

A similar conclusion was also indicated by the surface area of the ground floor, which on average measured 71 m^2 in bergfrieds, with extreme values of 20 and 254 m^2. With a square ground plan the average side would thus measure 8.4 m. With sides measuring 10.67, 10.64, 10.56 and 10.69 m the Smlednik tower would not be amongst the largest bergfrieds, but would be above average.

The preserved building remains also allow us to conclude as regards the size of the potential living area in the tower. The living area in living towers measured from 75 m^2 to over 600 m^2, however only one third had a surface area up to 125 m^2, while half of the living towers had a total surface area of 150 m^2 or more.[40]

The reconstructed interior of Smlednik Castle, measured 3 m above today's walking surface (518.5 m.a.s.l.), measures 13.42 m^2. Alongside the basement the tower most likely had an additional three or four floors.[41] As the original surface elements of the wall have not been preserved and are nowadays reconstructed, it is impossible to know whether the floors in the tower were supported by arches or wooden lintels. As regards the living area it is of particular interest whether or not this was a step-like building with a stepped inner facade which provided support for the floor above, a technique used in 20 percent of all living towers (*Fig. 10.15*).[42] Since we do not have this information three different calculations were made for the potential living surface of the tower:

– the smallest (cellar and three floors without a step-like construction),

– medium (cellar and four floors without a step-like construction) and

– the largest (cellar and four floors with a step-like construction with a half meter offset).

Calculations show that the smallest potential living surface is a mere 53.68 m^2, the medium 67.10 m^2 and the largest 111.54 m^2. Only the largest potential living surface area would be sufficient for a modest living tower.

As the second observed element we have mentioned the openings. The only original opening remaining today is the tower entrance, which is preserved at an altitude of 522.89 m.a.s.l., approximately 7.5 m above the surface. A typical bergfried entrance stood between 5 and 14 m above the surface,[43] while the entrance into a living tower was lower, approximately 3 m above the floor.[44]

The first person to describe the Smlednik Castle was von Hormayr in 1840. At the time he could still see *an abundance of irregularly scattered windows, similar to arrowslits* in the tower.[45] Today they are no longer preserved, even though the tower is preserved to a height of 14.33 m. The loopholes described by Hormayr, must thus have been higher up, which indicates that at least one additional floor was preserved at the time.

This information is important, as one of the essentials in a living tower is the living floor – usually a floor above the entrance – with a large window (*Fig. 10.16*).[46] At Smlednik such a window could be expected somewhere between 10.5 and 12.5 m above the surface.[47] Traces of a large window at this height would be visible in Hormayr's time and would be imposing.

The calculation of the living area surface, the height of the entrance and the lack of a large window are thus in accordance with the description of a typical bergfried.

The Smlednik tower was thus not designed as a living tower, nor was it equipped in such a way. On the contrary, it was designed as a mighty bergfried with an above average sized ground plan, above average wall thickness and possibly above average height. Such a bergfried was always a composite part of a castle. However, if a stepped construction was used, the tower still offered sufficient surface area for habitation, in accordance with the standards at the time.

[38] Unless otherwise stated all measurements were performed on a three dimensional model with MeshLab software.

[39] The width of the base (0.34 m) was measured manually during excavations.

[40] Krahe 2002b, 51–53.

[41] Stopar 1998, 69.

[42] Krahe 2002b, 66.

[43] Krahe 2002a, 44.

[44] Krahe 2002b, 53–55.

[45] Quoted from Stopar 1998, 67.

[46] Krahe 2002b, 48–49.

[47] The entrance floor is 7.5 m above the surface, while the height of an individual floor is usually between 3 and 5 m (*cf.* Krahe 2002b, passim).

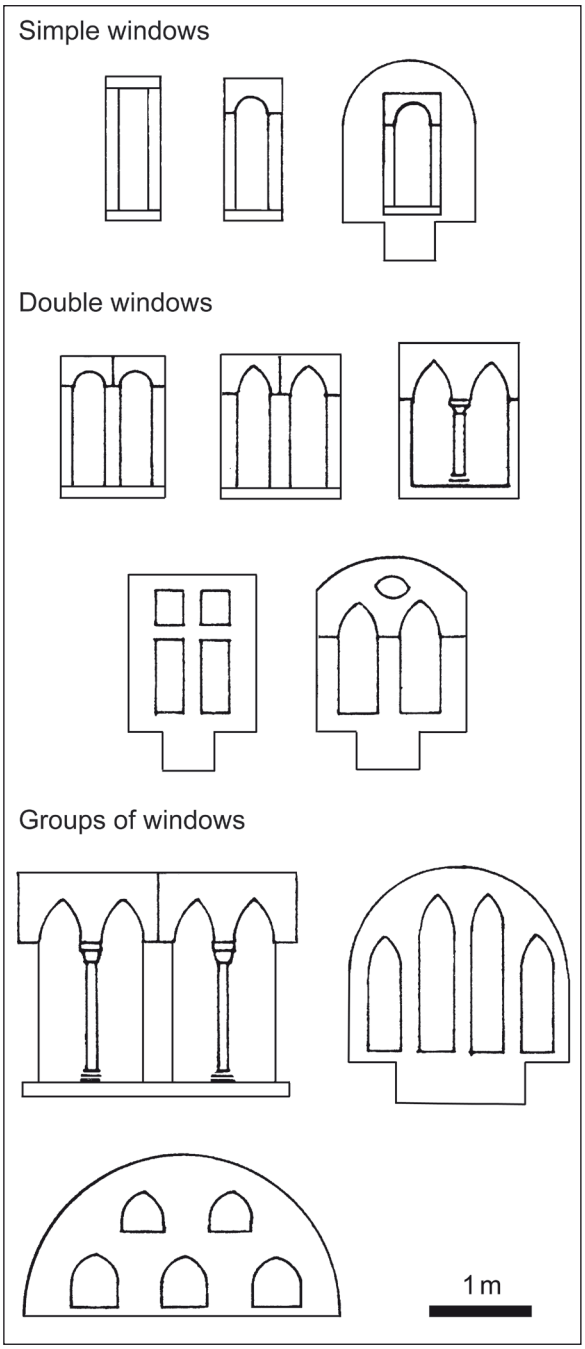


Fig. 10.16: A schematic depiction of typical windows on the living floor of residential towers (after Krahe 2002b, Abb. 91; drawings: T. Korošec).

Two written sources indirectly confirm (see chapter 4) that Late Medieval contemporaries considered the tower at Smlednik Castle to be exceptional. The first source is dated to 1328, when the relatively average Smlednik Castle (in all other aspects but the tower) was pawned for 2000 silver marks, which represented the highest price for any castle in Slovene lands between 1280 and 1409. What was so exceptional at Smlednik Castle if not the tower?

The second source is dated to 1406, when Herman of Cilli was involved in settling a dispute between the Stična abbot Albrecht and Johhan of Auersperg. Herman decided that Johhan has to be jailed in his tower on Smlednik. The document was not issued at Smlednik Castle, and in 1425 the counts of Cilli owned over 125 castles.[48] Why did Johhan of Auersperg have to be jailed in the tower at Smlednik Castle? Was the bergfried at Smlednik Castle so distinctive that the counts of Cilli used it as a notorious dungeon?

[48] Kosi 2012, 466.

11 THE CASTLE IN THE LANDSCAPE

Benjamin ŠTULAR

11.1 MICRO LOCATION AND DOMINION

It would seem that the location of Smlednik Castle played an important role in its establishment. Regardless of the new findings (see chapter 12.1) Smlednik Castle is one of the oldest in the area (*Fig. 11.1*). It is located in the centre of Carniola and has direct visual contact with three of the four centres at the time: Kranj, Škofja Loka and Kamnik (*Fig. 11.2*).

The castle's micro location was carefully selected, for it stands in the vicinity of a Sava river crossing named Brod (ferry). This used to be a trade route between North Italy and the Hungarian kingdom, which, at least when the route ran through the Tuhinj valley, led from Brod across the Sava to Moste (bridge). Before the Pšata stream, crossed at Moste, was regulated it often flooded during autumn and spring rainfall.[1] Medieval sources reveal that river crossings represented important points on medieval routes, and there were two such crossings on the Sava river, one at Smlednik and the other at what is today known as Brod (ferry) near Tacen.[2] The placenames *Pruk* (Moše near Smlednik, most likely a bridge over the Sava river, mentioned in 1334) and *Prukk* (Moste near Kamnik, mentioned in 1362) reveal the locations where the Sava river and Pšata stream were crossed. Sources also indicate that a bridge was built across the Sora River at Medvode (1491).[3] These data enable us to create a reconstruction of the medieval routes in the direct vicinity of Smlednik (*Fig. 11.3*).

We have also analysed the factors that had a direct influence on the position of castles in the landscape (*Fig. 11.4*). The geomorphology and the distance from potentially arable land have been taken into account. The result confirmed the expectations: the castle location was chosen to fit an appropriate micro-topography, i.e. a position on a ridge or a top of a hill. There are numerous locations in the studied area that fit this description, thus an additional factor was introduced - the vicinity of potential arable land.

By performing a spatial analysis of the data found in written sources it was also possible to limit the site catchment or hinterland of the castle, i.e. the Smlednik dominion. 41 villages are mentioned in the mid 16th century Smlednik land registry (*Fig. 11.5*; see chapter 4). Several groups can be recognised amongst them. The first group consists of five villages that are remote and isolated from the rest (*Fig. 11.5:* 37–41). These were annexed to the Smlednik dominion during the rule of Henrik III of Schärffenberg, in the mid 13th century.[4]

The other villages are listed in the land registry in concentric clockwise circles, with the centre in Smlednik. This means that the villages are listed in the order of the actual visitation. These villages clearly indicate a limited area that reflects the core of Smlednik Castle's site catchment in the mid 16th century. However, the land registry does not list all medieval villages that were located in this area, for at the time this was not a unified property.

The question emerges whether a retrograde analysis of this registry can be used to explain the medieval past of the dominion. This has proved to be a difficult task in the case of the Smlednik dominion, for we know that the dominion withstood numerous development phases prior to 1328, when it came into the hands of the Sannegg family.[5] The properties on the right bank of the Sava River, which in the 13th century presumably belonged to the medieval Škofja Loka dominion and the Spanhaims, came as a surprise (*Fig. 11.5:* 26, 35, 36).[6] We therefore assumed that these villages became a part of the Smlednik dominion at a later stage. In 1431 the southern border of the Smlednik dominion ran along the Sava River (*an der Saw bey Teczn*).[7] The northern border

[1] Štular, Poglajen 2002.

[2] Kosi 1998, 188 and 248.

[3] Kosi 1998, 141 and 184.

[4] Kos 2003, 179

[5] Kos 2003, 176–178.

[6] E.g. Kosi 2006.

[7] 1431, 29th May, Jurklošter: document No. 125, ARS. A. Muchar VII, pg. 220; *cf.* I. Mlinarič, *Kartuziji Žiče in Jurklošter*, pg. 226 (quoted from Mlinarič 2001, 139); see Svetina 2010, 68–69.

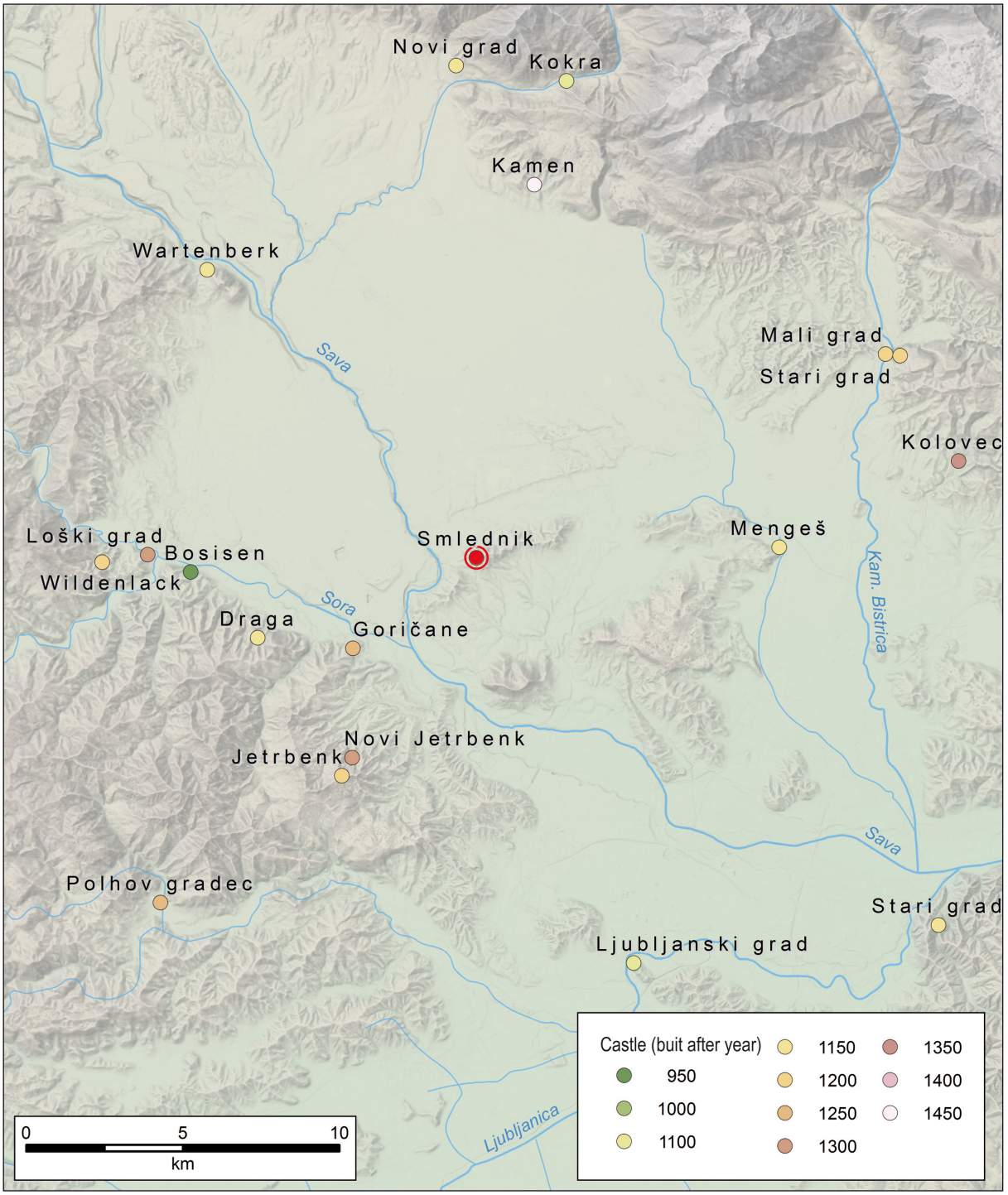


Fig. 11.1: Castles in the eastern Gorenjska region (source: I. Stopar, Grajske stavbe v osredni Sloveniji – Gorenjska (Castles in central Slovenia – Gorenjska; Slovenian names after Stopar; Gaspari et al. 2008).

at the villages of Brnik and Šenčur, where the Smlednik dominion bordered on the Velesovo monastery at the beginning of the 14th century, is also mentioned in written sources.[8]

Of course, we need to take into account the dynamics behind the growth of a village. One possibility is to start by looking at the earliest mention of individual villages in written sources,[9] however great caution should be used in linking the year of the first mention with the actual age of the village, which is why this data should

[8] ARS 1321, 21st December (from the transcript by Božo Otorepec at ZIMK ZRC SAZU); *cf.* Parapat 1874, 185, No. 29; Kos 1996, No. 122.

[9] Vir Kos 1975.

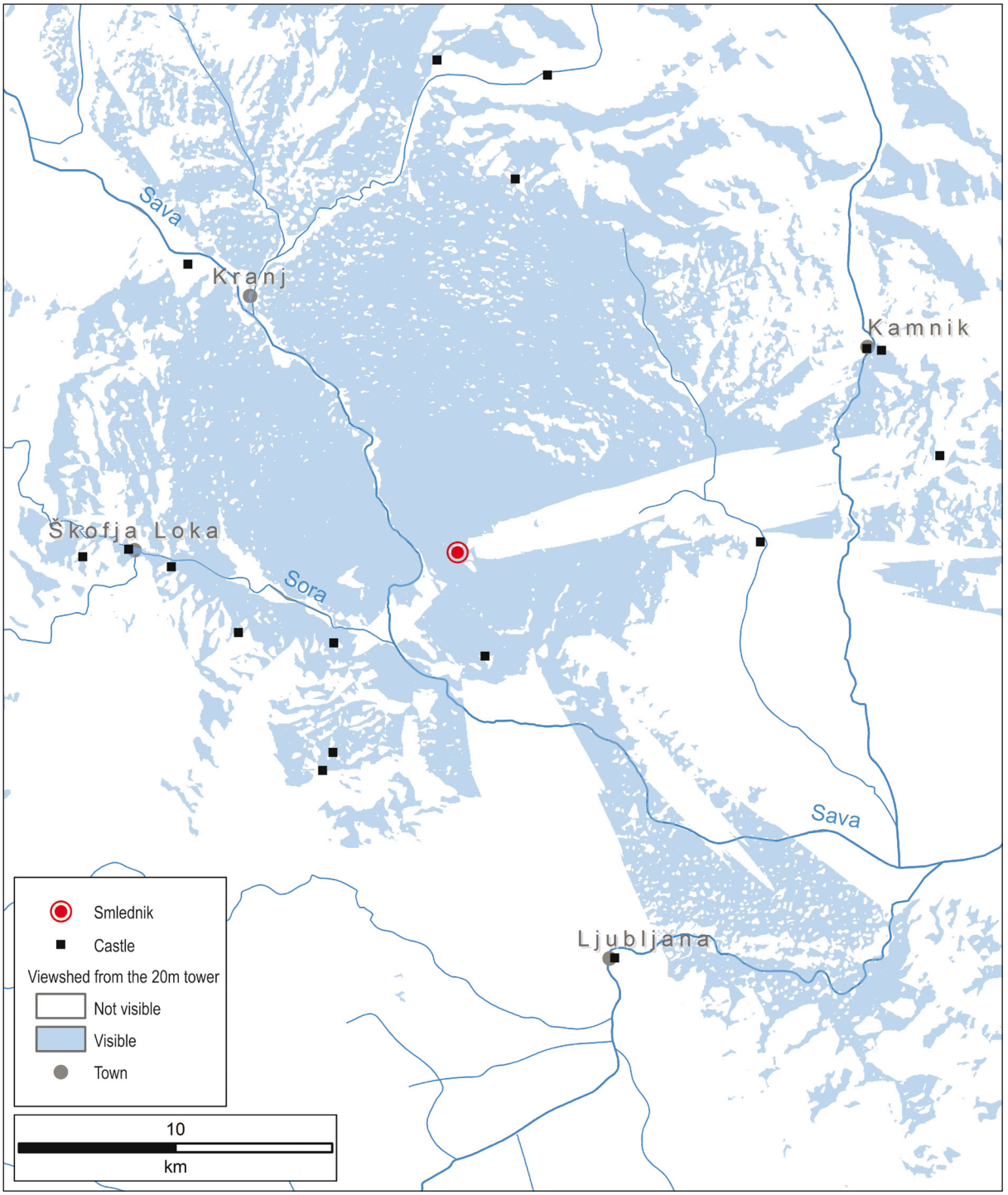


Fig 11.2: Viewshed from the Smlednik Castle.

be used quantitatively. Two relatively clear groups can be noticed. Villages that are mentioned in written records in the 12th and 13th century can be found in the central part, at the highest Sava river terrace, where the best arable lands are to be found. The only exception was Tacen, where a crossing across the Sava River stood in the High Middle Ages. The villages that were first mentioned in the 14th century or later, can be found on the outskirts, either on the hills or on the riverbanks (*Fig. 11.6*).

Important additional source of information are also the villages that are mentioned in direct relation to Smlednik Castle in written records (*Fig. 11.7*); for these villages it is certain that they belonged to the Smlednik dominion at the time the document was written.

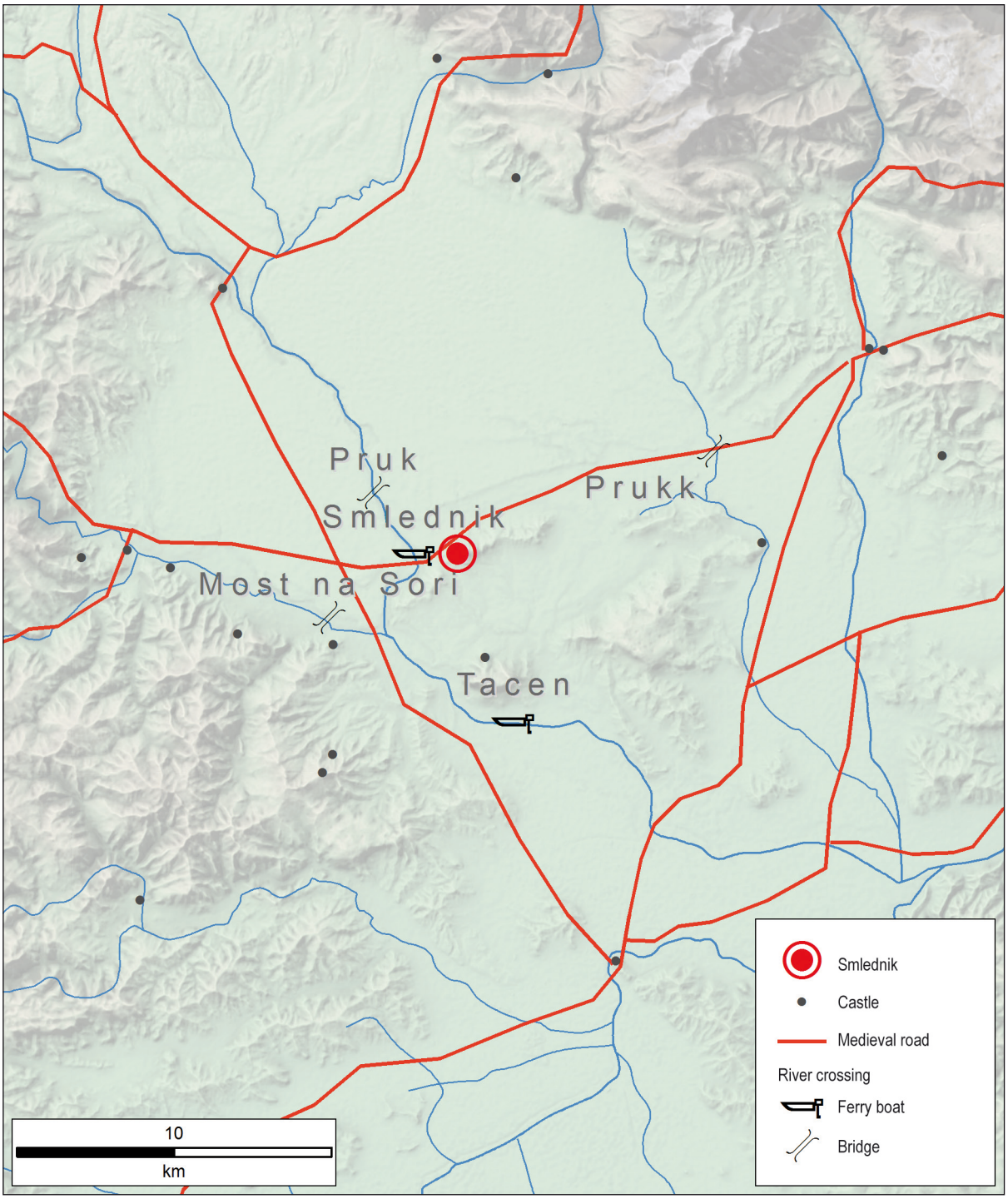


Fig. 11.3: A reconstruction of medieval roads (source: Kosi 1998).

The above data provides a relatively clear picture. The core of the dominion that belonged to Smlednik Castle in the High Middle Ages should be sought amongst the villages with which the Smlednik gentry or castellans traded and which existed already in the 12th and 13th century (*Fig. 11.8*). We can also conclude that the Smlednik dominion was located entirely on the left bank of the Sava river and ended with the stream of Pšata on the east, the Rašica hill on the south and the villages of Brnik and Šenčur on the north. The question whether the villages of Voklo and Voglje ever belonged to Smlednik remains unanswered.

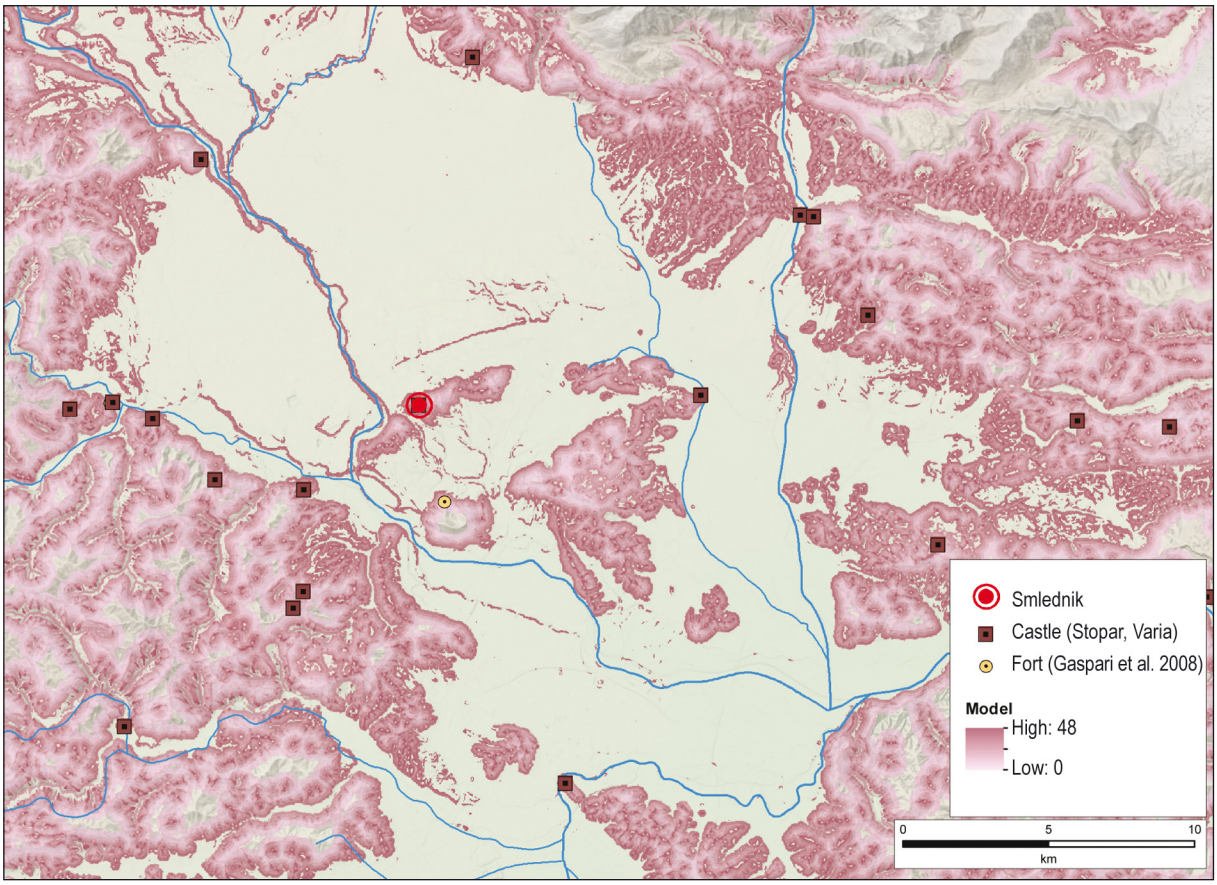


Fig. 11.4: A predictive model of the geomorphologic factors that influenced the selection of the castle's location. The following factors were used in the calculation: farmland less than 5 km away, position on a ridge or hilltop. Higher values represent better conditions for a castle.

11.2 GRADIŠČE NAD ZAVRHOM

If the above were truly the borders of the Smlednik dominion we need to ascertain where did Gradišče nad Zavrhom belong to, for it shares with Smlednik the strategic importance of the broader communication crossroads at the Sava and Sora confluence. A smaller fort on the hill of Gradišče rises from the northern foothills of Grmada next to Šmarna gora, opposite Smlednik Castle.[10] The artificially flattened rocky peak with modestly preserved sediments was excavated by Davorin Vuga and Draško Josipovič in 1981; this was a part of the topography of the prehistoric settlement of central Slovenia project which was backed by the Institute of Archaeology at ZRC SAZU. The location was interpreted as a Prehistoric, Roman and Medieval site, however the approximately 2 x 1 m large excavation trench on the east side of the hill revealed only medieval wall remains, approximately 0.6 m wide and bound together with mortar. In 2006 a structural analysis was performed and the location was recorded, and this revealed approximately 36 metres of preserved wall that changed direction twice; it also revealed four locations in the north with clearly stacked and worked stones, measuring 30 x 20 x 15 cm each. To the east and west the wall ran into low rock levels and the steep slope, where the fort might have been secured by a wooden palisade. A small rectangular object was recognised on the top of the plateau, and east of it was a large trench which most likely emerged as a result of extracting building stone used in the construction of the fort. On the north slope, immediately behind the walls, lie a few level terraces, which were not necessarily created in the same period as the fort (*Fig. 11.8*).

This fort is most likely the one mentioned in the document dated on 24th May 1334,[11] which mentions that the brothers Henrik, Hermann and Seifrid *von Chranchperg* sold their land in Smlednik as well as the ruins near Šmarna gora *(purehstal pei Vnsern Vrown perg)* to the Carniola provincial governor *von Sewnek*. The fort was thus already in ruins when sold. As it is possible that at the time the fort had already been in ruins

[10] Gaspari 2006a, 25, Fig. 5; id. 2006b, 192–193.

[11] ARS 1334, 24th May (from the transcript by Božo Otorepec at ZIMK ZRC SAZU); Kos 1996, No. 148.

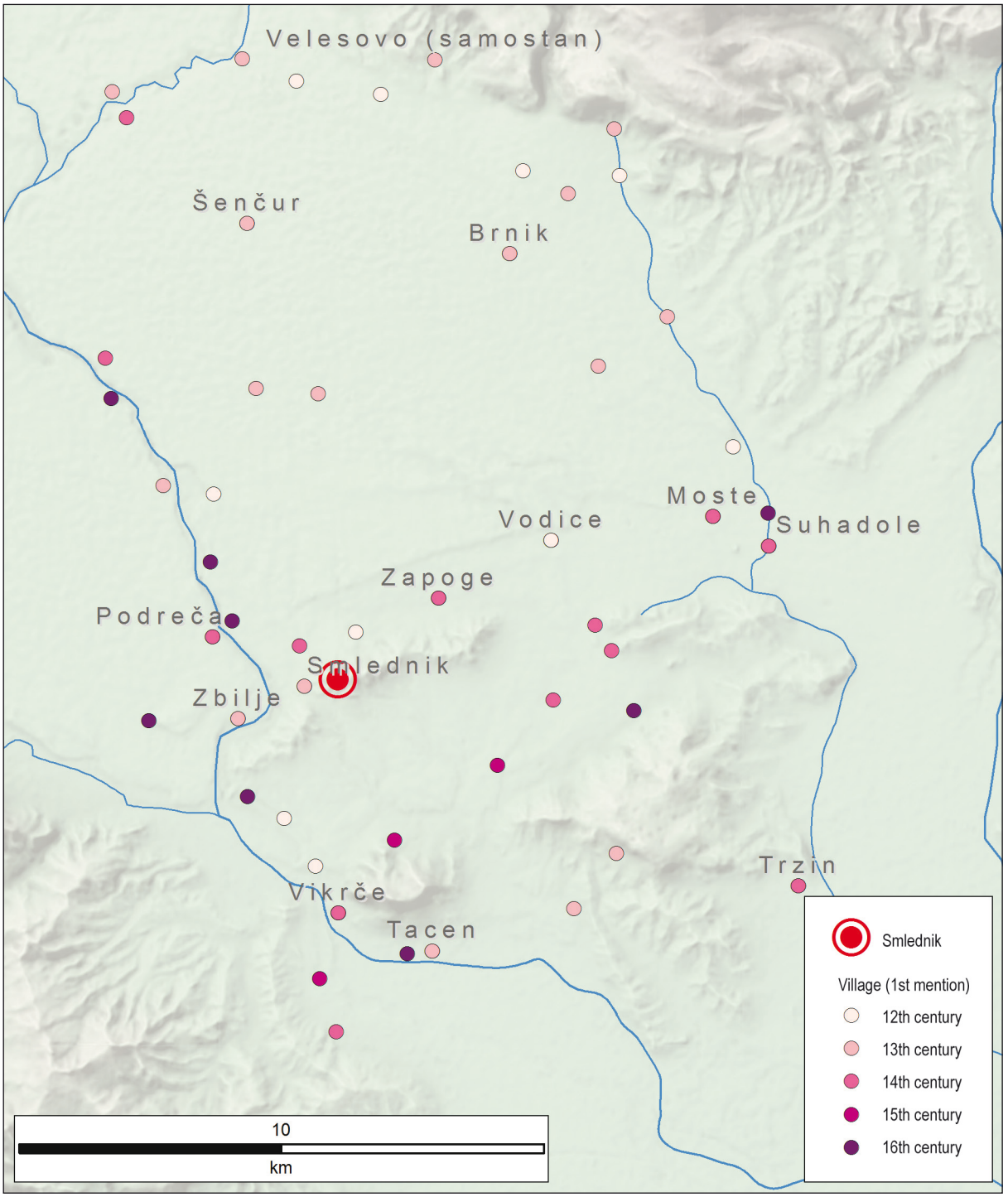


Fig. 11.5: The age of medieval villages in the vicinity of Smlednik (source: Kos 1975).

for a longer period, it would have to have been built at the latest in the first half of the 13th century.

This document also revealed interesting ownership relations. On one hand the buyer is the owner of Smlednik Castle, which means that in 1334 Gradišče and Smlednik Castle were not a part of the same dominion. On the other hand the deed also included lands in Smlednik, which indicates that the territories were interconnected.

The fort was most likely linked to the communication route on the left bank of the river Sava, which led from the ferry near Tacen past Vikerče towards Smlednik and the ferry there. It is also possible that they started using the alternative crossing across the Sava River across

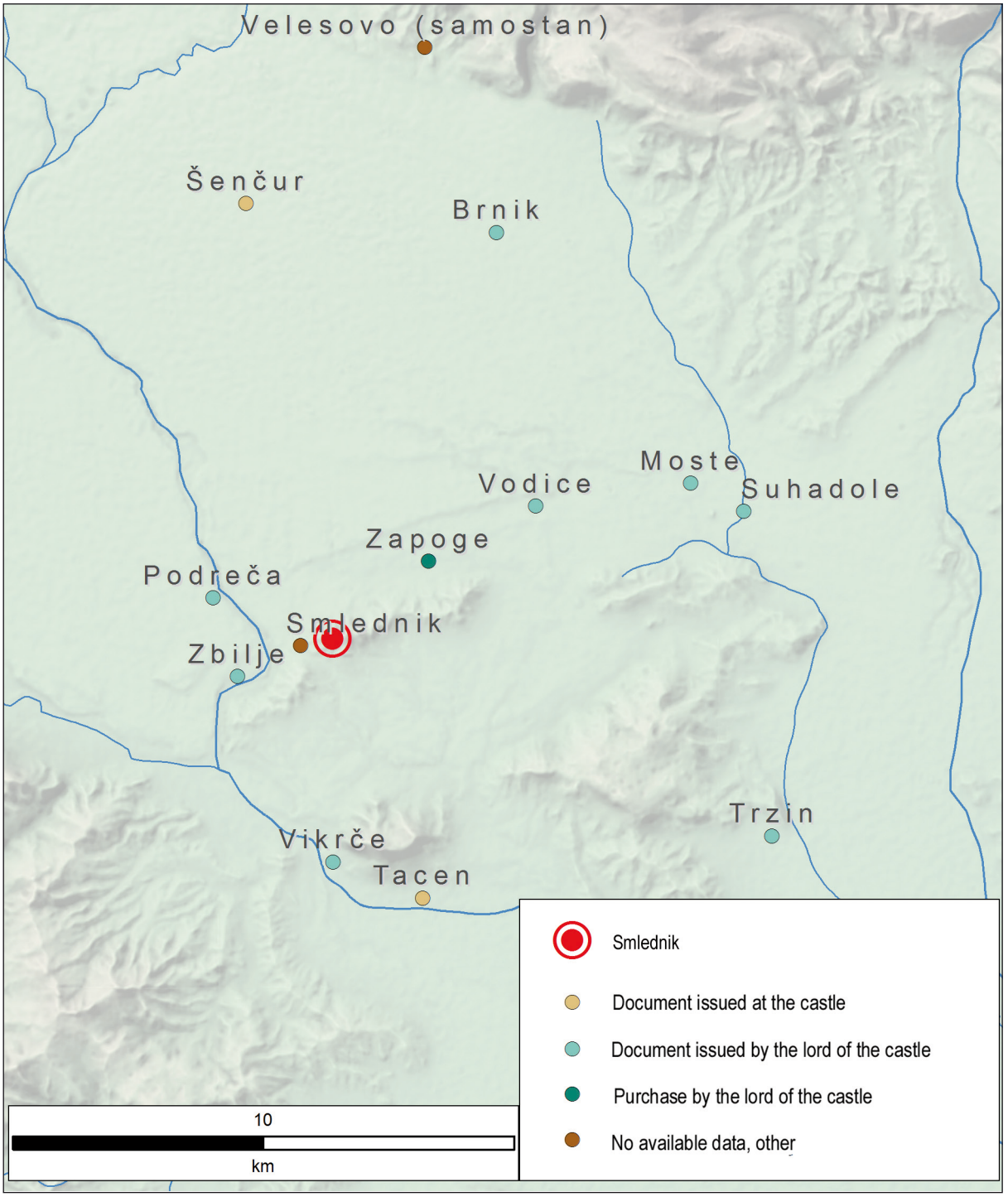


Fig. 11.6: Villages mentioned in medieval sources in connection with Smlednik Castle (for sources see Chapter 4).

the rocks above the spectacular waterfall at the end of the Sava gorge at Medvode, which was used as early as in the Early Bronze Age.[12]

Numerous nearby analogies confirm that this was in reality a way of controlling the communication routes. The first comparison is the important Goričane castle on the Modrejan hill (429 m),[13] which belonged to the Spanheim family and gave them control over the nearby crossing across the Sora River in the area of Stres's ferry and the route along the right bank of the Sora towards the border with the Freising dominion in the Gosteče

[12] See Gaspari 2012.

[13] Jakič 1997, 114–115; Stopar 2000, 55–57; Gaspari 2006, 88; id. 2008, 64–66.

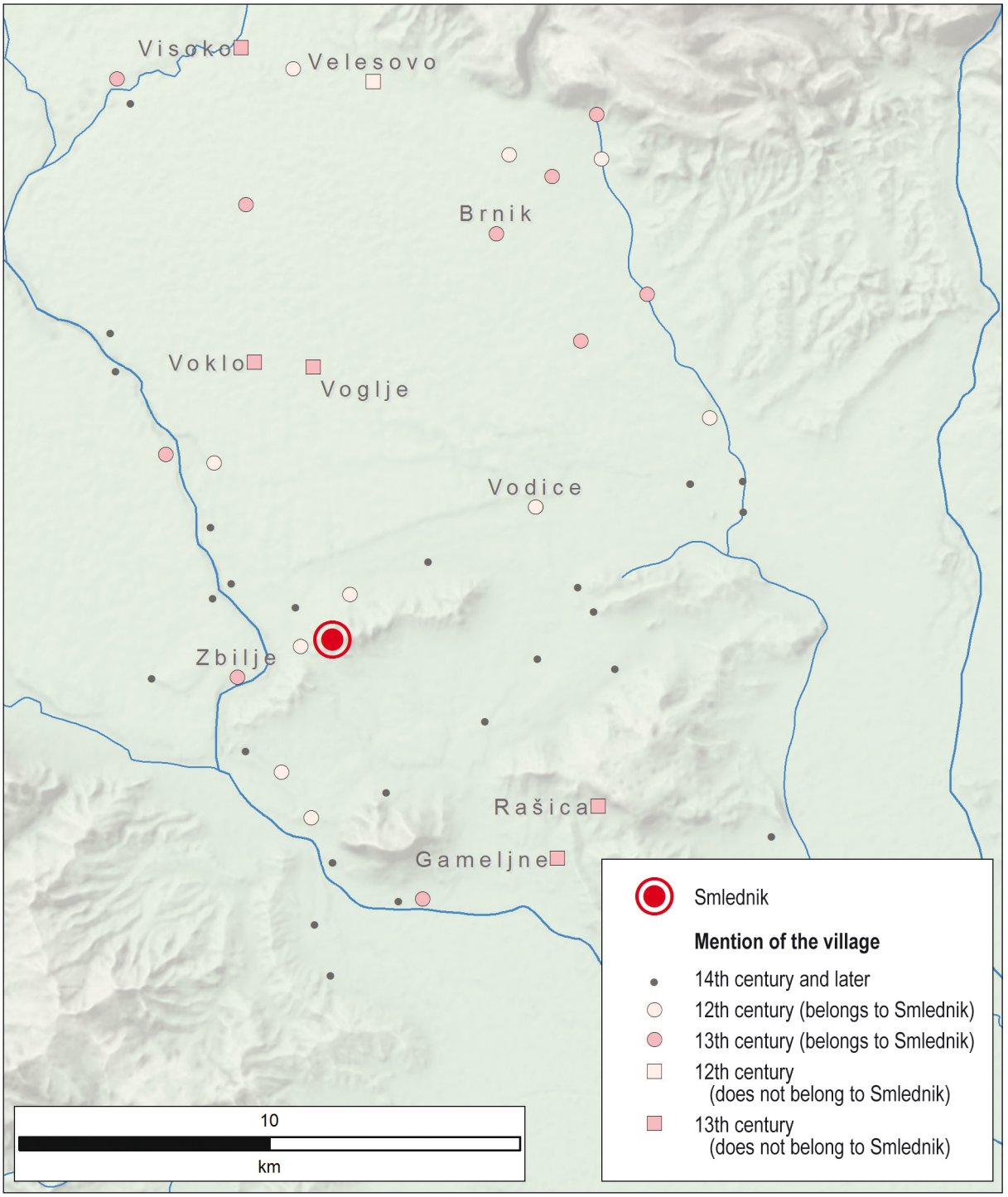


Fig. 11.7: Villages that the lords of Smlednik or their castellans managed or traded with in different periods and which existed as early as the 12th and 13th century (for sources see Chapter 4).

area. The Spanheims or their ministerials, the Lords of Sora, controlled the border from a smaller fort with a live in tower and a fortification located on a steep hill (567 m) in the ridge above the village of Draga, which was additionally protected by a system of trenches cut into the rock.[14] The location provided a clear view of just a short part of the route towards the Freising Loka, while visual contact with the Goričane castle was blocked by the Hom massive.

[14] Jenko 2002; Gaspari *et al.* 2008.

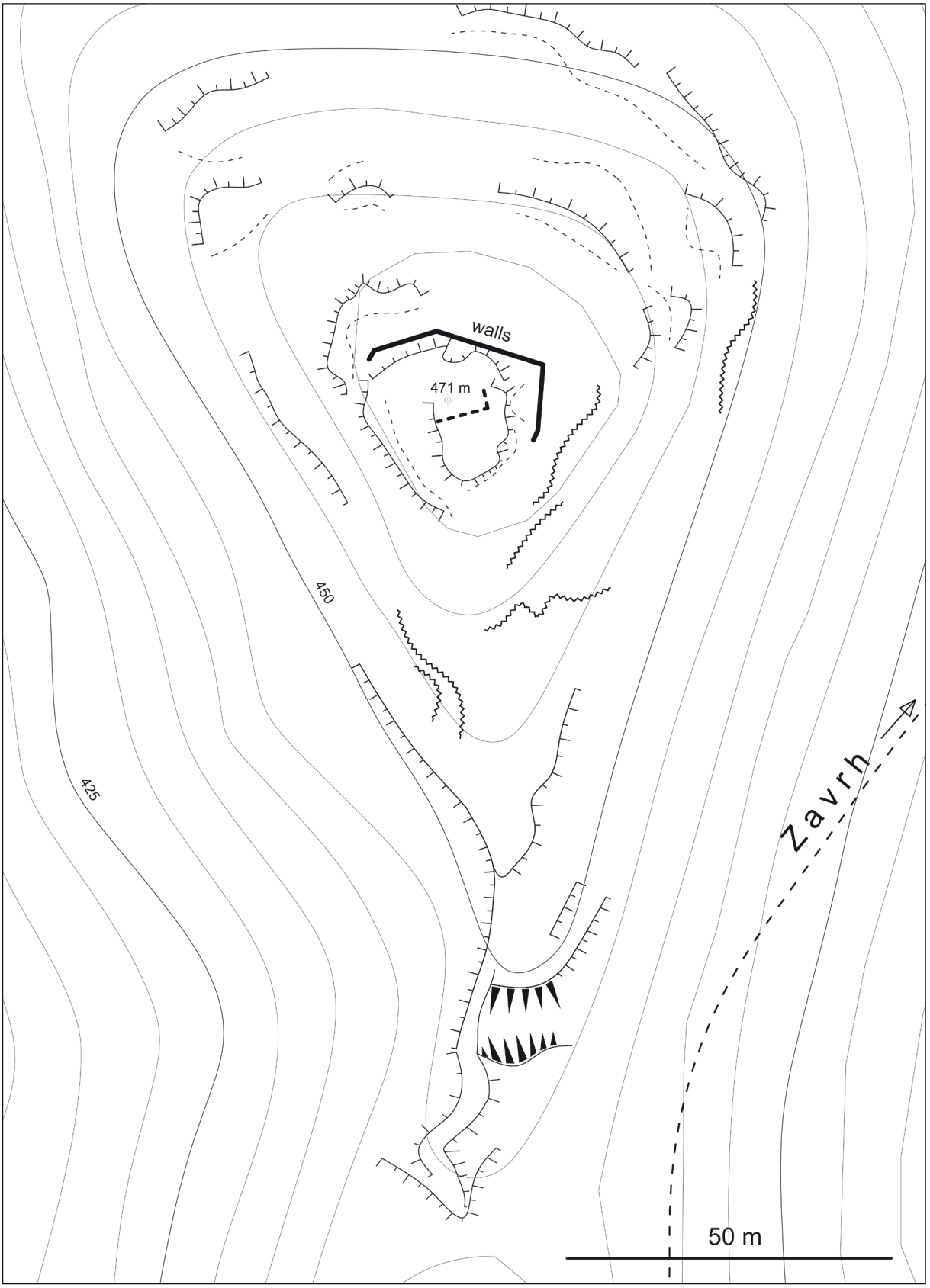


Fig. 11.8: Gradišče above Zavrh, ground plan (measurements and design by V. Ivanc).

The importance of this area for the 12th and 13th century Ljubljana gentry is indicated by the Hertenberg/Jeterbenk Castle (774 m) that belonged to the Spanheim ministerials, [15] which is located on the highest point of the sharp ridge in the massif that divides the central part of the Ljubljana basin from the Sora-Kranj field. The tower castle with four defensive trenches was one of the highest located castles in Slovenia and thus provided a great lookout spot. The early history of the knights of *Hertenberg* shows that they were willing to fight, especially against the masters, bishops of Freising seated in Loka, with whom they had regular disputes during the second half of the 13th century.[16]

The fortifications above Draga and Zavrh and the (Old) Hertenberg/Jeterbenk were most likely already abandoned before the mid 14th century, and the Hertenbergs temporarily moved their headquarters to the somewhat lower lying Gradišče (579 m) above Sv. Marjeta in Žlebe,[17] which was already in ruins by the beginning of the 15th century. However, the main feudal headquarters of the broader surroundings, such as Goričane and Smlednik, preserved their importance up to the beginning of the 17th century. This process could be explained in the light of the dynastic policies of the 12th and first half of the 13th century, when this territory was a part of the large feudal lands of the Spainheim, Andech and Freising families.

[15] Jakič 1997, 146; Stopar 2000, 80–81; Gaspari 2006, 39–40; Šemrov 2012.

[16] Volčjak 2006.

[17] Gaspari 2006, 39; Novaković 2008.

12 SMLEDNIK CASTLE

Benjamin ŠTULAR

12.1 SMLEDNIK CASTLE IN THE MIDDLE AGES: INTERPRETATION

Archaeological excavations revealed 9 stratigraphic phases that were allotted into 5 chronological periods.

The stratigraphic ***phase 2,*** dated approximately between the 12th and 7th century BCE, covers the earliest human activities on the castle hill and is presented in chapter 3.

It seems that the area of the castle was inhabited as early as the 10th century (Early Middle Ages). Two finger rings (Cat. Nos. 1 and 2), dated to the 10th or the beginning of the 11th century, were found in the south-eastern part of the castle. It is possible that the modest pottery fragment (Cat. No. 77) documented during a topography alongside the embankment, northeast of the outer curtain wall, belongs to the same period (*Fig. 10.6:* 4).[1]

Although the finds are scarce, the analogy with the nearby Mali grad castle in Kamnik seems appropriate; the latter was built at the end of the 12th century on top of župan's[2] family cemetery. The cemetery was in use during the last quarter of the 10th century and the first quarter of the 11th century. The Mali grad castle probably destroyed the assumed remains of župan's manor house (ger. *Hof*), that – based on the comparisons with Great Moravia (*Fig. 12.1*) – could have been located in the immediate vicinity of the cemetery.[3] A similar situation was documented at Bled and Ptuj[4], as well as at Puščava above Stari trg near Slovenj Gradec (although the latter belongs to the 9th century).[5]

However, in the previously mentioned examples, the cemetery was not located on top of the hill and therefore the two finger rings from Smlednik should not be associated with a cemetery.

There are two indications that the rings were not isolated early medieval finds.. The first one is a traverse non-rectangular wall, which was destroyed during the 1960s restoration works (at the very latest when the

[1] Benjamin Štular and Andrej Gaspari, 3 April 2013. The fragment was discovered in the spoil heap resulting from non-archaeological excavation.

[2] The Slavic word for the pre-feudal local lord.

[3] Štular 2007.

[4] Predovnik 2012.

[5] Pleterski, Belak 2002.

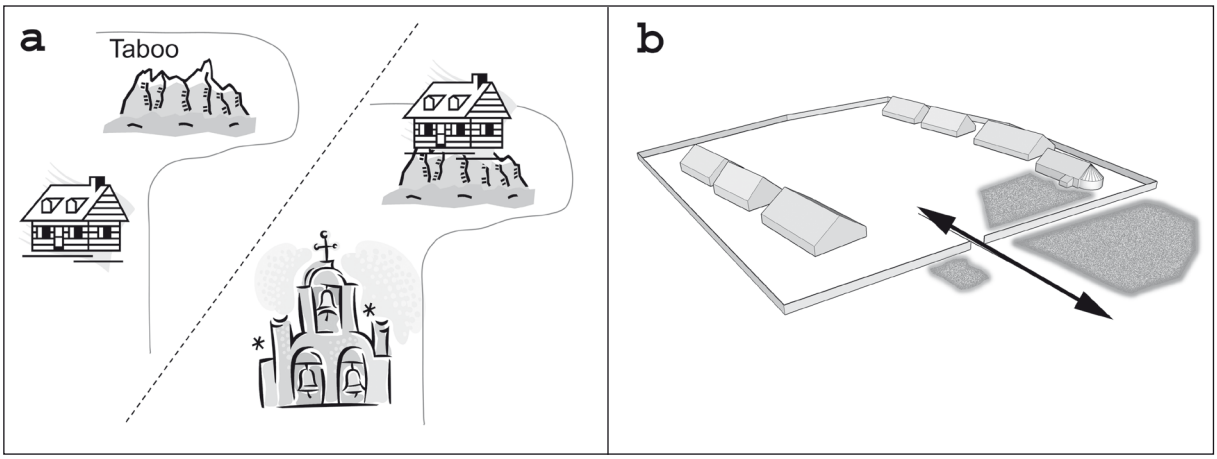


Fig. 12.1: Župan's manor house (ger. *Hof*) at Pohansko (Máchaček 2000, 331; *cf.* Máchaček, Pleterski 2000). The only access (black arrow) to the living and working buildings, as well as to the church (the building with an apse) lead across the cemetery (grey area).

cistern was built in 1964) and hence it left behind only scarce data (*cf.* Chapter 10.1):

– it is stratigraphically older than the inner curtain wall

– it was preserved in the south-eastern corner of the castle core (from where the two rings originate)

– it was tailored to suit the terrain (i.e. irregular plan of the curtain wall) and

– it was probably bound with mortar (*argumentum ex silentio*).[6]

We are therefore certain that this fortification structure predated the inner curtain wall, however it is unclear as to by how much. The location of the rings and perhaps the irregular plan could indicate the 10th or the beginning of the 11th century. While the two artefacts are indeed poor evidence, it should be emphasized that there are no finds from the second half of the 11th century or the entire 12th century, which opposes the hypothesis that a castle existed at this location in the 12th century. However, the irregular plan in itself is not a reliable argument for dating.[7]

On the other hand, the fact that the wall was bound with mortar could imply a later date (perhaps a curtain wall built at the same time as the tower), since no such walls from the 10th or the beginning of the 11th century have been found in Slovenia. However, in the neighbouring areas there is some evidence of early medieval stone-built fortifications.

The first example was reported in the Frankish annals for 821: priest Tiberius told Emperor Louis that Fortunatus, the Patriarch of Grado, encouraged Duke Ljudevit (Posavski, author's comment) to wage war with the Franks, and sent him artists and masons (*murarios*) to help him build annexes to his existing fortresses (*castella sua munienda*) (in Pannonia, author's comment).[8] As the second example archaeological sources confirm the existence of mortar bound fortification structures at Königspfalz, present day Krnski grad/Karnburg, where two construction phases were dated to the 9th and 10th centuries.[9] However, these two examples indicate that in the Early Middle Ages, a mortar bound wall could only be used to protect a fortification of the highest status in the land. In early medieval *Carniola*, this leading position belonged to Kranj, the defensive walls of which were built as early as the 6th century.[10] Therefore a mortar bound stone curtain wall does not seem likely at Smlednik.

Since the wall in question was not documented prior to its destruction, it cannot be dated more precisely than to a period ranging between the 10th and 13th century. The earlier date is based on the dating of the two finger rings, while the later is based on the construction of the tower (see below). The later date seems more likely.

The embankment documented in the lidar data (see chapter 10.2) is more fitting of a 10th or the beginning of the 11th century fortification. The dry wall with an irregular plan would be disregarded as prehistoric were it not for the pottery fragment, for which many analogies can be found in the 10th century.[11] At the time being no such Early Medieval defensive walls are known in the area. However, based on the analogies from Austrian Carinthia,[12] it is highly likely that the reason for this lies in the insufficient research. In this case evidence is scarce: the probable dating of the embankment (which at the time of writing enables additional surveys).

The interpretation allowing for the possibility of an early medieval fortification is supported by Bezljaj's etymological explanation of the place-name Smlednik: this might be *a residue of an early Slavic variant of a Germanic root* (see chapter 4). If a hillfort, possibly similar to the one at Mali grad, stood on the location of Smlednik Castle in the 10th century, its inhabitants were most likely Slavic speaking people who were in direct contact with their Germanic-speaking northern neighbours, predominantly Bavarians.[13]

The interpretation of the early medieval phase can only be concluded by a positive assertion that some activities took place in the area of the later castle. However, further research is needed to prove or disprove that the first early medieval hillfort known in Slovenia has been indeed discovered on Smlednik. On the other hand, if the irregular wall within the castle core was early medieval, the evidence has been lost forever with the so-called restoration works in the 1960s.

Stratigraphic ***phase 3*** is crucial for the interpretation of the castle ruins as seen today, for this is the phase in which the tower was built. We have documented traces of intense terrain levelling, which is indicated by a perfectly horizontal charred layer. On the levelled ground, the first two strata of the tower walls were built and simultaneously strengthened with the material at hand; the latter incorporated a destroyed plaster floor, residue of an older building. The construction continued by layering roughly shaped stones quarried locally.

According to Komelj and Stopar, the construction took place in the first half of the 12th century (see chapter

[6] While its description is not preserved, Komelj associated the wall with the *previous* castle phase. It could be assumed that the wall was built in a similar technique as the remaining walls. In other words, it is inconceivable that an experienced castellologist such as Komelj would associate a dry wall with a potential curtain wall.

[7] Sapač 2003, 30, note 42.

[8] Kos 1906, No. 67.

[9] Dolenz, Baur 2011, 26-31 and 114-121.

[10] Sagadin 2008, 141-144.

[11] Pleterski 2010: T. 2: 1; T. 5: 10; T. 12: 3; T. 17: 13; T. 23: 15-31.

[12] Gostečnik 1997.

[13] *Cf.* Štular 2009a, 118-119.

10.1). Stopar supports his date with the following three elements:

– tower proportions
– Romanesque apse of the chapel and
– cornerstones made of cut sandstone.

As the latter were a late Romanesque element, Stopar considered them to be "alien". Nevertheless, it seems that these cornerstones influenced his dating of the tower into the first half of the 12th century rather than into the 12th century in general, which is the most commonly ascribed date for the remaining two elements – the Romanesque apse and tower.

Once more Smlednik Castle can be compared to the contemporary Mali grad/Stein Castle. Mali grad/Stein was the seat of the seigniorial estate belonging to arguably the most powerful lord in Carniola. And yet its chapel with a semicircular apse on the second floor and the tower of similar proportions and built in the same technique as the Smlednik tower were built as late as the end of the 12th or the beginning of the 13th century.[14]

The discrepancies between Stopar's and our own conclusions can be explained by the insufficient documentation at Stopar's disposal: *It is regretful that due to insufficient documentation, it will not be possible to answer certain questions about the architectural history of the castle, for even the comparison of the existing random field sketches and photos indicates discrepancies that cannot be discussed here*.[15] As indicated (see chapter 9), the cornerstones made from cut sandstone were not part of the original construction, but were added in 1960s or 1970s as a part of an undocumented reconstruction. As for the chapel with the Romanesque apse it has been demonstrated that it could not have been built simultaneously with the inner curtain wall (see chapter 10.3). Thus, not a single element that would date Smlednik tower reliably into the 12th century, let alone its first half, remains. The best dating is therefore provided by the analogy with the previously mentioned phase 4b at Mali grad/Stein Castle in Kamnik which is securely dated between the end of the 12th and the beginning of the 13th century. We should add that the lower status of the Smlednik Castle owners at the time indicates a building date later than Mali grad/Stein.

The Smlednik castle and tower are not directly mentioned in 12th century records. The tower's first direct mention is dated to 1406, which is a reliable *terminus ante quem* for this phase. There is a single 12th century source in which *Odalricus de Fledinich* appeared as a signee. In that period such titles denote the owner of the castle and therefore indirectly the castle itself. However, it was merely during a short period between 1214 and 1228 that the lords and the parish priest of Smlednik appeared in written records more frequently. This indicates a brief period of active estate management by the lords of Smlednik. This is not necessarily a coincidence and can be explained by the activities of the powerful neighbour Henry IV of Andechs, the Margrave of Istria. He spent the decade between 1208 and 1218 in his *alpine homeland*, with the centre of his property in Mali grad/Stein Castle. During this time he was predominantly occupied by the consolidation of his regional authority; he died in 1228.[16] As a consequence of Henry's focus on external matters and his sudden death, some of his subordinate lesser lords – bordering Smlednik estate on three sides – actively engaged in enlarging their properties, thus laying the foundations for their new careers and social connections.[17] This period appears to have been favourable also for the lords of Smlednik.

The omnipresent romantic notion of one of the mightiest castle towers of the 12th century – the like of which even the Margrave of Istria could not build at the peak of his power – owned by the otherwise economically and politically mediocre lords of Smlednik, seems to be just that – a romantic notion. It seems much more likely that the tower was built in the 13th century. The historical context indicates that the earliest possible date for the beginning of the tower construction was the second decade of the 13th century. Even more likely is the possibility that the tower was built by the lords of Montpreis, who became the owners of Smlednik sometime before 1251.

Unfortunately archaeology does not permit more precise dating. The pottery from the tower construction phase, including the pottery from the layer **underneath** the tower walls, does not predate the 13th century. In most cases such pottery would be dated into the 14th century, however rare analogies exist from the mid-13th century onwards. It would also be hard to explain the brick fragments in the mortar originating prior to the 13th century as they are more commonly expected from the 14th century onwards.[18] Thus, the only question remaining is how late in the 13th century can the construction of the tower be expected? In our opinion the tower was not built before the second decade of the 13th century, however an increasing number of clues are pushing this date later into the 13th century.

If this is the case, where did *Odalricus de Fledinich* dwell in 1136? It seems that the answer lies in the often mentioned levelling that took place prior to the construction of the tower and that included burning and demolishing a building (see chapter 5.3). This building had a plaster floor, which was always associated with

[14] Štular 2009a, 54–61.

[15] Translation from Stopar 1998, 71.

[16] Štular 2009a, 24; see the bibliography quoted there.

[17] Štular 2009a, 29–30; see the bibliography quoted there.

[18] While bricks were used in mid-12th century Romanesque architecture, they did not appear south of Germany before the 13th century; see e.g. Conant 1978, passim, especially 414–420.

prestigious living quarters in the High Middle Ages.[19] The following data for the building can be deduced:

– the location was suitable for a castle

– it included prestigious living quarters

– it was predominantly built from impermanent, possibly organic materials (which left almost no traces)

– the 13th century castle builders saw no use for it.

Was it a so-called strong house that needed to be completely demolished in order for a tower to be built on the exact same location? Or was in the wooden castle deteriorated to an extent where it was best to level it to the ground before new construction began?

Phase 4 of Smlednik Castle denotes the period in which the inner curtain wall and the palatium were built, i.e. the phase in which the castle became complete. The analysis of the archaeological excavation implied (see chapter 5.3) that the curtain wall was not built at the same time as the tower, which was also confirmed by the mortar analysis (see chapter 9). Unfortunately, there were no other elements that would allow us to conclude how much time had passed between the construction of the wall and the construction of the tower. They do not appear to have been built by the same masons, for they would not have changed the construction technique (mortar) during the construction phase, nor would they have demolished another building (mortar in the foundations of the inner curtain wall). Therefore, it is most likely that at least several years passed between the two constructions.

It has been already stated that phase 4 builders seemed to have had no technical or any other impediments to demolishing older buildings. In fact, frequent reconstructions are one of the basic characteristics in the life of a castle. It is therefore significant that the remains of the embankment between the two moats were not levelled, but remained at least 1 metre high (see chapter 10.2). A century ago, the embankment was still so prominent that Oto Pipper, a visitor to numerous castles, mistook it for the castle's outer ward (see chapter 10.1). The embankment would have certainly provided protection for the attackers of the medieval castle if they bridged the first moat. From the functional point of view – the castle's defence – not levelling the embankment was an obvious mistake, and yet it was not eliminated in the three centuries of the castle's existence. Since the embankment is dated either to the prehistoric or Early Middle Ages, it can be assumed that its precise age was not known neither to the castle builders nor to the castle dwellers. On the other hand, it is known that in the High Middle Ages, people were able to recognise the ruins of Late Antique fortifications as such. E.g. in mid 12th century Countess Hedvika was fully aware that she was donating *a hill in the village of Bašelj, which was suitable for a castle, and upon which a fort stood in the past*.[20] On that location, archaeologists discovered a Late Antique hillfort settlement, which was reused (but not rebuilt) in the Early Middle Ages.[21]

Why was the embankment on Smlednik Castle preserved? The only possible explanation can be found in the invention of tradition. This is a process with which the builders of the castle emphasized their right to authority by presenting themselves as the lawful heirs of the previous rulers. In this case this was demonstrated by leaving traces of the previous fortification untouched. A similar process can be observed at castles in Bled and Ptuj and Mali grad/Stein Castle in Kamnik.[22]

Phase 5 is an intermediary phase which took place prior to the drastic re-construction works in *phase 6*.

The absolute dates of phases 4 and 5 are based solely on the few typologically unified kitchenware fragments documented in strata belonging to phases 4 to 6. However, in the Late Middle Ages kitchenware forms were long-lived and changes can be studied only on larger samples.[23] Being able to study merely a small number of finds only substantial typological changes in kitchenware were detected in *phase 7* (*Fig. 12.2*). Therefore, as far as dating kitchenware pottery, it can only be said that *phases* 4 and 5 belong to the Late Middle Ages.

Phase 6 can be dated more precisely. Its *terminus post quem* is the time of the last extensive construction activities, which - according to both historical context and architecture - took place in the beginning of the 16th century. On the other hand, the 1569 inventory shows a castle which has not been invested into for quite a while, perhaps for decades. So this is the *terminus ante quem* for phase *6*.

The post-medieval ***phase 7*** denotes the last period during which the tower was in use; at the time the remaining walls were already decaying. This corresponds to the historical sources in the last phase during which the castle was in use. Phase 7 probably belongs to the period of the previously mentioned inventory and did not last longer than until the third decade of the 17th century when the castle was ultimately abandoned in favour of the mansion built in the village bellow the castle.

Phases 8 and 9 encompass modern activities, when the castle was no more than a decaying ruin. Most activities can be associated with research, conservation-restoration works, and the construction of the concrete water reservoir in the second half of the 20th century.

[19] E.g. Štular 2012.

[20] Translated from Kos 1915, No. 338: »... *collem castro aptum, in quo et quondam fuit castellum in loco, qui Uasche nuncupatur*".

[21] Knific 1999.

[22] Predovnik 2012.

[23] E.g. Porenta *et al*. 2015.

Thus, the findings can be summed up as follows: the earliest activity that left clear traces in the medieval archaeological record of Smlednik Castle was the construction of the tower, which began in the first half of the 13th century. It might have been commissioned between 1214 and 1220 by Wergant and his son-in-law Rapot, the first two lords of Smlednik to take on an active political and economic role. The castle's predecessor, either a fortified strong house or a wooden castle, was demolished and burnt to the ground. The new castle was **planned** much more ambitiously and included a rectangular curtain wall, a relatively comfortable palatium, and a mighty bergfried.

The construction began with the mighty bergfried, that even two centuries later made such an impression on Herman of Cilli – owner of over 100 castles – that he used it as a dungeon. However, during its construction major discrepancies between the planned and actual building appeared. We know that different types of mortar were used for the curtain wall and the tower. The likeliest explanation for this is that there was a disruption, after which the construction was resumed by a new team of masons. Such disruptions were relatively common in the Middle Ages, one of the most frequent reasons for them being a lack of funds. The forty-year absence of the lords of Smlednik in written records (between 1220 and 1260) might coincide with the financial problems of the family, although it is not necessary that the construction would have been halted for so long. Based on the presented data the most likely explanation seems to be that the tower was finished and surrounded by an irregular curtain wall of modest dimensions. If this was the case, the tower could have served as a perfectly acceptable high status residence, albeit it was somewhat narrow and gloomier than desired.

This unusual state of affairs might have been merely temporary in which case it ended in the middle of the 13th century, when the Flödnig family lost the castle. The new owners were the lords of Montpreis, who kept the family of Flödnig as their castellans for a while; the two Ulrichs from the Chropf family are known from the end of the 13th century. This is when the castle was completed and obtained its recognizable image: the palatium, the curtain wall, two moats, and the mighty tower offering a view across the entire upper Carniola and its towns: Kranj, Škofja Loka, Kamnik. The castle was visible from almost the entire estate of Smlednik, which was situated on the left bank of the Sava river and delimited by the Pšata stream on the east, the Rašica hill on the south, and the villages of Brnik and Šenčur on the north.

Traces of an older fortification were still visible at the foot of the castle, between the two moats. Had the builders complied merely with the functionality of the castle, the area between the two moats would have been levelled completely. However, this was not the case, as the lords of the castle displayed these ruins as proof that their nobility had ancient roots.

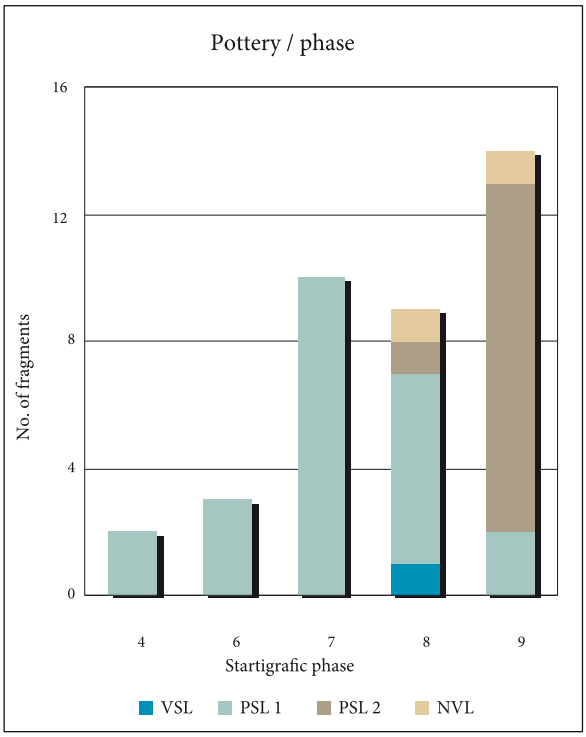


Fig. 12.2: Smlednik Castle, pottery forms in stratigraphic phases (x – stratigraphic phases; y – No. of sherds). VSL – High Medieval pot; PSL 1 – Late Medieval pot; PSL 2 – Late Medieval or Early Post-Medieval pot; NVL – Post-Medieval pot.

In 1328 the castle of Smlednik was bought by the family that later became known as the Counts of Cilli. They made no alterations to the castle building. Instead, the owners of numerous castles reorganized the manor house and started using the castle of Smlednik in a new way, for the famous tower became an infamous dungeon. Like most medieval prisons, the Smlednik dungeon served to "encourage" the settlement of debts. The tower of Smlednik served this purpose at least between 1409 and 1569.

In the 15th century, probably still while in the hands of the Counts of Cilli (i.e. before 1457), the castle was furnished as a modern, prestigious residence. In this period, windows were already glazed.[24] Eating habits also changed. Hands and knives behind improvised tables were replaced by real tables in dining rooms, and tableware not dissimilar to the one used today was introduced: plates, bowls, glass stemware,[25] spoons[26] and knives. The menu expanded accordingly: roasted

[24] The 2012 excavations revealed fragments of leaded window frames.

[25] Several glass stemware fragments were documented at Smlednik Castle (see chapter 6.1.6).

[26] Two spoons were documented at Smlednik Castle (see chapter 6.1.1).

and cooked meat was replaced by a broader selection of complicated dishes with numerous courses.[27]

Following the extinction of the Counts of Cilli in 1457, the castle became the property of the House of Habsburg, just like the rest of the Cilli inheritance. At the beginning of the 16th century, in the light of Turkish raids, the Habsburg family additionally fortified numerous castles, including Smlednik. The construction of the outer curtain wall represents the final castle modernization process. Since the task of the outer curtain wall was to protect the castle from cannonballs, the area between the two curtain walls was filled with soil up to a certain height. This construction technique gave the wall the necessary elasticity to absorb the kinetic energy released by cannonballs. A stonewall, even when 3.47 metres thick (as is the case in the tower of Smlednik), behaves as a rigid body, crumbling and breaking under the force of cannonballs. In addition to the protective wall, firearms were installed in the castle's defence. In 1569, the castle had long guns for firing warning shots at the raiding Turks, a copper mortar, several barrels of gunpowder, 460 bullets, 10 pounds of lead and firearm accessories.

The castle was not only fortified, but its living quarters were updated to the highest living standards for a final time. While the palatium was not enlarged, the auxiliary rooms were probably moved to wooden buildings in the narrow eastern courtyard, between the tower and the inner curtain wall. Even though they were not enlarged, the interior palatium rooms received new furniture. Some of the furniture was listed in 1569, when it was already old and broken or even lost: a bathtub, a carved stone basin, beds and tables, a clock. The fact that the castle was no longer a highest-status residence, was also demonstrated by the food that appeared on the dining table: the analysis of the animal bones revealed that pork and game were becoming increasingly rare.

In the mid-16th century, the castle's importance boiled down to its value to the Emperor as a possible point of defence against Turkish raids. Not only the valuables, but even shovels, hoes and picks were removed from the *old* castle. The miserable state of armament indicates that the castle's military crew – if a permanent crew was even stationed in the castle – would not have been capable of providing a serious defence.

12.2 RESEARCH HISTORY AND POTENTIAL

While studying Smlednik Castle we found ourselves in a rather unusual situation in which we had to use an archaeological method in order to understand the conservation and restoration works that took place since the 1960s (see chapter 5.8). Of course, this cannot lead to an in-depth understanding. However, the composition of the upper excavated layers revealed that the material excavated in the 1960s was sorted with the intent of reusing the larger stones for the wall renovation. Additional things can also be learnt from the composition of these layers. East of the tower, the humification process - a result of growing pioneering vegetation - started three times. This means that the ruins were removed and abandoned to be overgrown by vegetation, a process which can occur within a few years, three times.

Once we compared the construction material to the achive documentation it was clear that one of the key pieces of information on the castle was incorrect. This information is linked to the cornerstones which were used in the reconstruction of the tower's outer layer. The works were carried out in 1969 in accordance with the official guidelines of the time. The outer layer of the wall was rebuilt using stone from the quarry in Povodje. After this concrete blocks were used for cornerstones.[28] This was standard procedure in 1969, however by the mid 1990s such an intervention seemed so unlikely that it misled an experienced castleologist in his interpretation (see chapter 10.1). The dating and interpretation of Smlednik Castle that was taken for granted was thus based on misleading and undocumented modern interventions. The *three or four strata [...] from cut sandstone,* that Stopar mentioned were a part of the reconstruction: they were built from the Povodje sandstone which was brought to the site in January 1969 and bound with cement mortar (see chapter 9).

Archaeological excavations in 2011 and 2012 revealed additional information that is of key importance for the further protection of the monument. When the ruins were cleared and the archaeological layers removed during the 1960s-1980s excavations the digging stopped once the castle's original walking surface was reached. This means that the archaeological layers have been preserved in some areas. This is demonstrated by the 1989 non-archaeological excavation, the only intervention that was at least photographically documented. 17 photographs[29] reveal what was at the time a standard working process: digging alongside the walls at least to the walking surface contemporary to the walls, in some areas down to the bedrock.[30] Of course, this kind of work destroys the archaeological record in key areas – the stratigraphic relation between the walls, walking surfaces and deposited sediments containing datable artefacts is lost.

[27] Paolo Santonino wrote famous descriptions of such feasts at the end of the 15th century. They could last a dozen courses (Santonino).

[28] Appendix 1, No. 3.

[29] See appendix 1, No. 71.

[30] For the description of the methodology from the viewpoint of modern archaeology see Štular 2009a, 18–20 and 39–46.

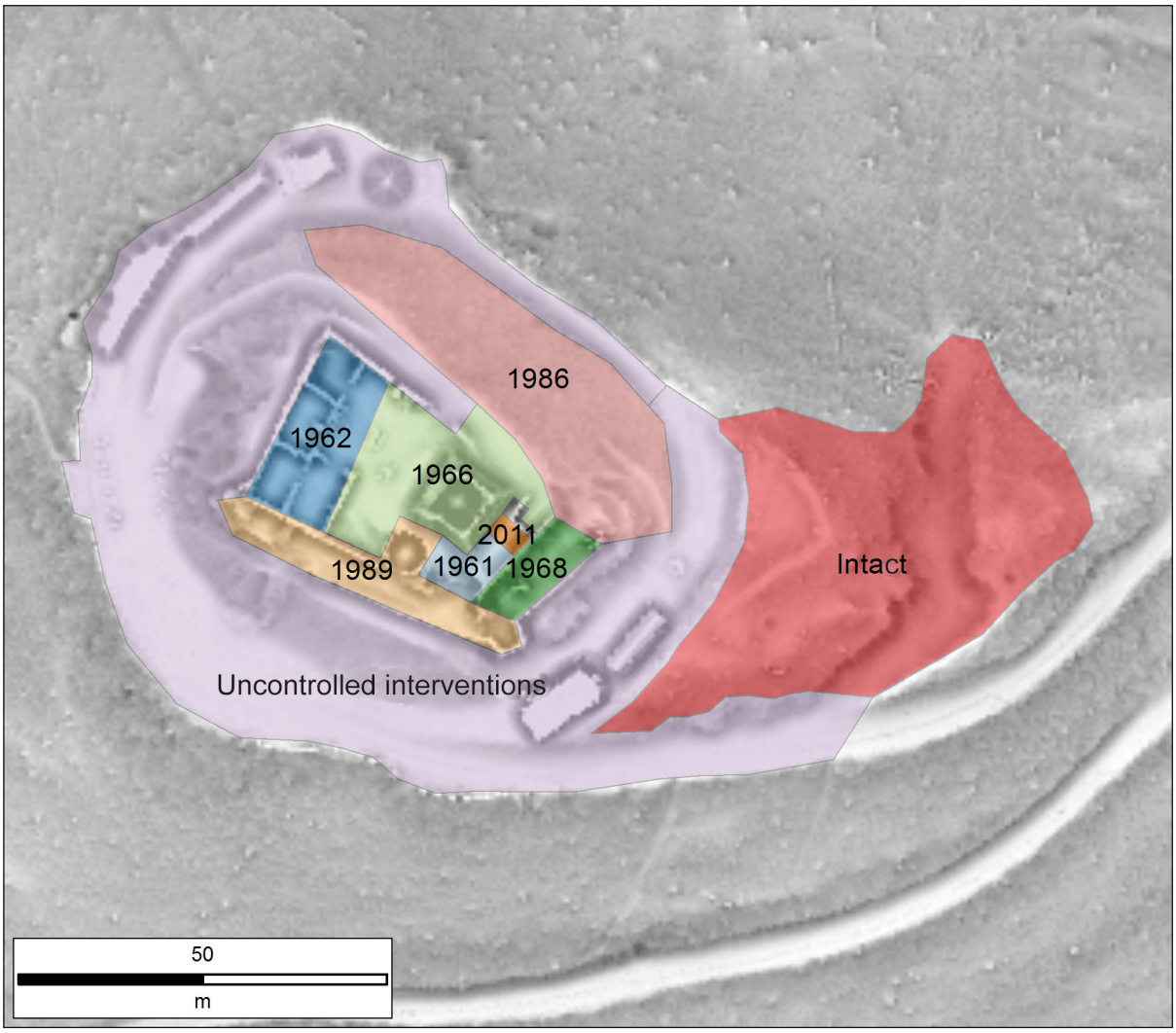


Fig. 12.3: Smlednik Castle, history of excavations performed at the castle (for sources see Chapter 3).

As clearly indicated by the three Early Medieval finds, in some areas the archaeological records from the pre-castle period have been reached already during the earlier works. Also, archaeological records were completely destroyed in the tower interior and the castle's water reservoir, which is where we would expect the oldest archaeological records. The area west of the tower, where a modern water reservoir stands today, was also cleared to the bedrock. In this area the most intense archaeological excavations took place in 1961 and 1963; unfortunately not a lot was left behind: four drawings of archaeological cross-sections, one drawing of the ground plan and one of a wall side view. Without any accompanying descriptions these documents do not reveal a lot (*Fig. 12.3*).

The archaeological potential of the site was thus severely damaged by the works carried out over the last fifty years. However, in the greater part of the castle core at least partially preserved archaeological deposits are to be expected. We also believe that it would be possible to establish at least a partial stratigrapic sequence (which is of key importance for any modern architectural analysis) of the standing elements by systematically trenching the joints between the walls.

In order to obtain new data on Smlednik Castle, an interdisciplinary, systematic research that would be guided by research questions and not the current architectural interventions is necessary. Smlednik Castle still has the following research potential:

– partially preserved archaeological records,

– a partially preserved architectural structure beneath the current walking surface and

– original binding, i.e. mortar, used in the building.

Further research could reveal the chronological and architectural development of the castle as well as the living conditions in the castle. The chronological issues can be addressed with a coordinated archaeological excavation and simultaneous architectural analysis. The

latter needs to include a planned documentation of all preserved joints between the walls and a simultaneous collection of radiocarbon samples from the mortar binding.[31] Further archaeological research would be justified only if it took place over a relatively large area and included all available natural science analysis. The surface research needs to enable systematic documentation of all wall joints for the needs of architectural analysis as well as including a part of the existing archaeological potential, which of course first needs to be documented. This is the only way we can expect enough new data to justify a new intervention into the heritage building.

This holds true for the castle core, while the newly discovered embankment and the possible exposed towers to the east and west of the castle core remain a closed chapter. In the sense of further research this means that new important data can be obtained through geophysical research which would have to be coordinated with precisely oriented and limited scope archaeological interventions. Any type of digging around the walls in this area would be barbaric to say the least, and of course a terrible scientific error.

12.3 EPILOGUE: A DAY AT SMLEDNIK CASTLE IN 1297

It can be said that Smlednik Castle reached its glory days during the second half of the 13th century.[32] Based on the relatively good data from that period I can imagine a day at Smlednik Castle at the end of the 13th century.

On a spring day in 1297 the lord of the castle, Otto of Montpreis, from the Schärffenberg family was at Smlednik Castle.[33] Otto became head of the Montpreis branch of the mighty Schärffenberg family years ago. He inherited his wealth from his father Henrik IV, who inherited it from his father Henrik III, who was responsible for procuring most of the family wealth. However, the years following his father's death were hard for Otto. In the family tradition he swore allegiance to the Counts of Gorizia and it seemed that he would take over his inheritance without any disturbances. While he was getting acquainted with his new obligations, his cousin William II of Schärffenberg rebelled against the king. In the decisive battle William died a heroic death and his family was excommunicated.

Luckily for Otto only his cousin Rudolf was excommunicated[34] and at the time Otto suffered more harm from the Sannegg family, who lived in the vicinity of his domicile castle of Montpreis. They were unstoppable in the expansion of their dominion and were supported by most of the neighbours. Otto had thus recently decided to focus his attention on his lands in Carniola. He was aware that this would mean he had to stay at Smlednik Castle for longer periods of time and would often have to travel to Ljubljana.[35]

It was said that Otto had a strong character that was formed by an event in his youth: in 1284 he was kidnapped by Konrad of Pischätz, who was in a blood feud[36] with Otto's father Henrik. As an adult Otto was an upright man who wanted to establish himself as an independent lord and thus he brought his grandfather's and father's tradition to an end: he decided he would no longer carry the old family name of the old family Schärffenberg Castle, and instead opted to carry the name of his castle Montpreis. Otto thought it was important that he and his slightly younger cousin Rudolf were similar in their capabilities and strategies, which is why they found it easy to cooperate to the best benefit of the entire Schärffenberg family.[37]

On that spring day in 1297 Otto's day at Smlednik Castle started soon after dawn.[38] He woke up in the tight embrace of his young wife Geburga, who was from a very important Styrian family of the Liechtensteins.[39] They slept in a bed with a baldachin and curtain, which stood in a small bedroom alongside the palatium's south wall;[40]

[31] Due to the castle's condition it is impossible to perform other usual procedures – e.g. mapping the areas where the wall has unified material, building technique (based on macroscopic observation, optical characteristics as well as the use of appropriate analytical methods).

[32] This chapter is written on two parallel layers: in the main text the interpretations are given in the form of a narration, while the argumentation and references to the chapters in this book are provided in the notes.

[33] The men named explicitly are signatories of the document issued at Smlednik Castle in 1297 (see chapter 4, note 127); spring was chosen arbitrarily to allow for the description of the morning scene (cold night, light in the large hall).

[34] Summarised from Kos 2003, 285.

[35] In the first decade of his rule Otto was not especially active and the document dated to 1297 is the first preserved document he issued (Kos 2003, 285). In 1297 and 1299 he issued another two documents, which were co-signed by Ulrich Chropf and his son of the same name (Kos 2003, 286–288).

[36] In medieval times a feud or private war was the right of any nobleman to ensure justice with weapons. This led to feuds between individual noble families as well as feuds between noble families and the ruler.

[37] Summarised from Kos 2003, 284–285.

[38] For the daily routine see Ralph Lewis 2007, chapter 3. Strictly following the daily schedule, especially as regards the sleeping and eating times, was considered to be of paramount importance for a balanced life in the Middle Ages (Régnier-Bohle 1988, 351).

[39] Kos 2003, 286.

[40] There is almost no direct physical evidence that would indicate the interior division of spaces across the various floors, neither at Smlednik Castle or elsewhere. However it is known that a wooden wall could be used to separate the large hall from the small bedroom (Barthélemy, Contamine 1988, 420). The bedroom could be represented merely by a bed in the corner of the large hall, but it could be a sepa-

it was separated from the large hall only by a thin partition wall.[41] This made it warm, as the fire in the open fireplace in the large hall burnt throughout the night.[42] Their three children, Henrik, Ulrich and Adelheida, slept with the servants.[43]

As a part of the morning hygiene ritual they would comb their hair with a bone comb.[44] The lord was combed by his bearer, a boy from a lower nobility family learning to become a knight, who spent the night on the floor next to the bed.[45]

When Otto and Geburga were presentable, they had breakfast in the large hall, which covered almost the entire first floor[46] of the palatium at Smlednik Castle. Once Otto stepped out of the dark bedroom into the hall his eyes slowly grew accustomed to the light.[47] The hall seemed small, for it was half the size of the one in his domicile castle in Montpreis.[48]

The guests and the castellan's family slept in the hall, side by side.[49] The castellan Ulrich Chropf, his wife and their son Ulrich[50] all slept on the bench next to the fireplace. The bench on the other side of the open fireplace was occupied by Ulrich Chropf's daughter and her husband Winther of Purschstall.[51] The other guests[52] and the castle crew slept on benches further away from the open fireplace, while the servants slept on the straw-covered floor. However, this castle was not overcrowded as some people spent the night in the tower.

By dawn everybody in the hall was awake, and when the lord and lady of the castle entered, the hall was prepared for a modest breakfast. Most had a piece of bread made from a mixture of wheat, oats, barley and

rate room (Ralph Lewis 2007, chapter 3). Some castles had two small separate bedrooms; in this case the children would sleep in the other bedroom with some servants, in most cases nannies (*cf.* Duby, Barthélemy, Roncière 1988, 61-62).

The seating order in the large hall was defined by a strict protocol: the higher the status of the individual, the closer to the lord of the castle he would sit; the lord of the castle sat next to the warm fireplace (Barthélemy, Contamine 1988, 421). This clearly indicates that heat was considered to be a prestigious commodity, and we can thus assume that the bedroom was placed against the south wall. The temperature differences in the non-isolated stone walls on the north and south side are vast, especially in spring and autumn: the stone wall functions as a heat collector, thus the wall heats up during the day and releases warmth during the night.

[41] These walls could be portable wooden walls (Barthélemy, Contamine 1988, 420), the predecessors of the later privacy screens, or, as was the case in Mali grad in Kamnik, they could be made from intertwining rods that were puttied with clay (Krahe 2002a, 24–25, Štular 2009a, 52).

[42] Prior to the introduction of tile stoves, apart from the kitchen the only heat source in castles was an open fireplace in the large hall (*cf.* Krahe 2002a, 67–68).

[43] Otto of Montpreis and Geburga of Liechtenstein had at least three children who lived to adulthood and were mentioned in written records. These are Henrik II of Montpreis, Ulrich III and Adelheida. It is possible that Eberhard, the abbot in Stična, was the forth descendant. All four of them appeared in documents dated to the 1330s (Kos 2005, 393). However, it is impossible to discover when these children were born and how many children died in their childhood or youth. Also, there is no information that would indicate when Otto and Geburga got married, but it is assumed that they got married between 1283 and 1298 (*cf.* Kos 2005, 286). As Geburga survived Otto by at least 16 years, it is likely that she was younger, as was the norm at the time. Based on the stated I assume that Otto and Geburga already had children by 1297.

[44] A bone comb was found at Smlednik Castle (see chapter 6.1.5.).

[45] The nobility often sent their children to learn with other families of a similar status, for it was believed that parents were too lenient towards their own children (Douby 1988, 19; Lewis 2007, chapter 6).

[46] Only the foundations are preserved at Smlednik Castle, however, based on the numerous analogies I can assume with high certainty that the large hall was located on the first floor (Krahe 2002a, 36–39).

[47] In the High Middle Ages the castle palatium usually had one large window, which was positioned in the centre of the longitudinal wall and was oriented towards the castle courtyard. The remaining rooms were lit only by small light holes (Krahe 2002a, 39–40). With the exception of the large hall all castle rooms were very dark even during the day.

[48] According to the first interpretation the ground floor of Smlednik Castle's palatium measured 107.31 m^2. The smaller separated bedroom needs to be deduced from this surface area. The ground plan of the Romanesque palatium at Montpreis Castle was at least double the size (see chapter 10.3).

[49] With the exception of the lord of the castle and his wife nobody in the castle was given a private bedroom, which is clearly visible from the preserved ground plans of medieval castles (Krahe 2002a, 37–38). Those with a higher status slept on benches in the large hall in the same order as they sat at mealtime. This means that those with a higher social status slept closer to the open fireplace. The rest of them lay on the floor where a bed was made from straw. They covered themselves with blankets or coats (Krahe 2002a, 103; Ralph Lewis 2007, chapter 3).

[50] Ulrich Chropf's wife is of course not mentioned in the documents, for in this period the wives of castellans and lower ministerials were not mentioned in documents. But the fatherhood of Ulrich and the unnamed daughter is proof that Ulrich Chropf was married at some stage. If his wife, the mother of Ulrich jnr., was alive in 1297 she almost certainly lived in the castle and slept next to her husband.

[51] Winther does not appear as a witness in the document, but he is a subject of it: on that very day Otto of Montpreis confirmed Winther's marriage. Winther was a Freising ministerial, a castellan from Purschstall, less than one day on horseback from Smlednik. In addition, Winther personally knew both Ulrichs from Smlednik – his brother- and father-in-law – for he managed to successfully negotiate his marriage even though he and his wife belonged to different lords. Taking all of this into account it is highly likely that he and his wife attended the festive event.

[52] An important symbol of power in the Middle Ages was the gesture with which the lord invited his guests to a feast and to spend the night in the large hall (Duby, Barthélemy, Roncière 1988, 67).

millet for breakfast, while Otto and Geburga ate cold meat that was left over from previous night's feast.[53]

After breakfast the foldable tables made from planks placed on trestles were moved away. During the morning Otto performed his duties at Smlednik Castle and made the rounds of his serfs. The main task of every lord was to manage his estate and castle, which included trading with individual farms or pledging his castle when he needed a larger sum of money. His second most important task was to perform judicial functions. On this day he had a single task: he was to give away the daughter of Ulrik Chropf, his castellan at Smlednik, to Winther, the Freising ministerial from Purschstall. The old days when the ministerials had to choose husbands for their daughters from amongst the lord's serfs, were definitely over in this part of the world. Otto's consent was an important legal act, but already quite common in his time.[54] A scribe wrote the contract in ink onto parchment with a quill. First to sign it was Otto of Montpreis, and then the father and son Ulrich. The notary sealed the contract with Otto's personal wax seal.

This signature and a few smaller tasks dealing with the castle and land administration were already completed in the morning hours, as usual. The sun was shining through the window[55] and since morning the aroma of meaty dishes, that were being prepared in the castle kitchen one floor below, came wafting through the gaps in the floorboards.[56] The gathered guests could hardly wait for their main meal of the day. The menu consisted of numerous complex meals[57] most of which were, of course, meat dishes: mainly pork but also lamb and strong beef soup.[58] Eggs, poultry and cheese were also a part of their meals.[59] Regardless of the large meal Otto and Geburga missed selected spices that they enjoyed at certain important castles.[60] Liquid food was served in smaller pots,[61] solid food on wooden trays or in wooden bowls,[62] while meat was sometimes served on pieces of toast.[63]

Before the feast could start the dishes were blessed by the priest.[64] The food was eaten with the hands, only meat was cut by small knives.[65] Otto and Geburga

[53] For meals in general see Ralph Lewis 2007, chapter 3. The actual mixture of the cereals mentioned was found on one pile of charred cereals at the nearby Mali grad/Stein in Kamnik (Štular 2009a, 149–150; see the bibliography quoted there). Taking into account the proximity and the intertwining of the lands owned by the two castles we can safely assume that the Smlednik subjects sowed the same grains.

[54] At least since the 1220s some Andechs ministerials, direct neighbours of the Smlednik dominion, were given a free hand in legal and political decisions. Individual families could break from the previously enforced inbreeding and marry outside the circle of Gorenjska ministerials. By doing this families increased their wealth and established the foundations for new strategies, careers and social ties, especially with the Spanheim ministerials from the nearby Ljubljana and Carinthian area (Kos 1994, 180–182; Kos 2001, 221–224). As the document dated to 1297 reveals, a similar process was taking place also amongst the Montpreis and Freising ministerials. Otto merely confirmed the already completed act, for the daughter of Ulrich Chropf was already Winther's wife at the time.

[55] The palatium window looked into the courtyard and was thus turned towards the southeast. It was partially shaded by the tower and the walls. The sun shone directly into the large hall only during the morning hours, between 9 am and midday.

[56] The structure of the ceiling and floor in a High Medieval palatium is known from Mali grad/Stein (see chapter 10.3). Small beams were attached transversely onto the large supporting longitudinal beams, and these were covered by planks. Of course, such a structure is far from airtight.

[57] The oldest preserved recipes found in European castles were written at the end of the 15th or the beginning of the 16th century. As regards the food prepared in the kitchens in 13th century castles I can merely speculate based on the archaeological finds. One such find was the iron cauldron on a chain found in Mali grad/Stein. In the 13th century such cauldrons could only be found in the most important castles, however by the 14th century they were already a part of the standard inventory of every castle (Štular 2009a, 71–73). The relatively complicated mechanisms for hanging them show the desire to precisely regulate the cooking temperatures, which indicated that the recipes were already relatively complex.

[58] I have mentioned the species for which bones were found at Smlednik Castle (see chapter 7).

[59] These foods were, alongside the already mentioned, listed as duties in the Brixen land registry for the Bled dominion in 1253 (Bizjak 2006).

[60] Most castles had a herb garden, but the gardens belonging to secular lords were usually richer. The Freising family living at Loka Castle had such a garden (oral information from D. Likar's research). Written sources reveal that Otto held close contacts with bishop Hartnid (mainly due to his wife's uncle) and that he generally had good relations with church dignitaries (Kos 2003, 286). This allows for a conclusion that Otto and Geburga were often guests of church dignitaries, where they ate richly seasoned food, something they did not experience at home.

[61] In the Early and High Middle Ages pots were the most common vessels, for they were clearly also used for serving soups and grainy meals (*cf.* Štular 2007; Pleterski 2008, 99); the latter represented the base for meals of common people, while nobility only turned to them in extreme cases.

[62] Excavations on sites with preserved organic materials indicate that wooden bowls were common in the 14th and 15th century. They were made on lathes (Hather 2007), most commonly from maple and alder wood (e.g. Holl 1966, Abb. 52–55, 59–65).

[63] Ralph Lewis 2007, chapter 4.

[64] A priest was mentioned in Smlednik already in 1228 and 1264, however, in 1341, Ulrich from Kamnik/Stein was mentioned as the vicar of the church of St. Ulrich under Smlednik Castle (see chapter 4).

[65] No such knives (usually with a thorn for attaching the handle) were documented at Smlednik Castle. However, such knives are a relatively common find at High Medieval castles, also at the nearby Mali grad/Stein (Štular 2009a, 74-77). In this area metal spoons appear only at the end of the Middle Ages (see chapter 6.1.2).

drank wine from silver chalices,[66] while the rest drank beer from wooden cups.[67] Hunting dogs were looking for bones and other food bits amongst the feet of the owners.[68]

The meal was finished before noon and Otto focused on his favourite task of the day, hunting with the two Ulrichs and his guest Winther.[69] Smlednik was surrounded by forests, but the hunting expedition, lead by Otto with his falcon on his shoulder,[70] set off towards the forest in the plains some half an hour by foot to the north. The forests in the direct vicinity of the castle were hilly and dangerous for hunting on horseback. The expedition set off along the winding path from the castle. When they reached the church of St. Ulrich under Smlednik[71] the group split. Otto, the two Ulrichs and Winther took a few men and set off through the village and past the fields to the pastures bordering on the forest to hunt rabbits with the falcon. The other participants of the hunt took the dogs and set off to the other side of the Smlednik forest, north of the village. Their task was to quickly find deer or even boar. When the hunt with the falcon ended and the nobles came to the forest, Otto blew the hunting horn which was the signal for the main hunt to begin. When the people on the other side of the forest heard this signal they started creating a terrible noise and let the dogs loose. The hunted animal would start running away from the noise and straight towards Otto and his guests, who would give the tired animal a deadly blow with his hunting spear.[72] The killed animal was cut up on the spot and the meat was divided - according to strictly defined rules - amongst the lord, the other participants of the hunt and the lord's hunting dogs.[73]

While men were out hunting, women remained in the castle. The Lady of the castle sat at the palatium window embroidering with her chambermaid.[74]

Following a successful hunt the expedition returned to the castle, where they enjoyed a light meal, usually leftovers from lunch. The castle interior was already dark in the middle of the day, and by dusk it was pitch black. The fire in the open fireplace only provided dim light in the large hall, so they also used tallow lamps.[75] However, these gave off such poor light that they could be used only for completing the most necessary tasks. In any case, after an exhausting day most castle inhabitants set off to sleep early.

[66] Such chalices were not documented at Smlednik Castle and they are generally rarely found. This can be explained by the fact that this was an extremely valuable accessory that would not get lost or misplaced, thus it was not left behind to be found during later archaeological excavations. However, his status not only enabled but also demanded of Otto of Montpreis to use such valuable accessories.

[67] We have no direct proof of drinking at Smlednik castle but written sources reveal that vine was cultivated and beer brewed in 13th century Bled (Pleterski 2008, 28–29).

[68] See chapter 7.2.

[69] The generic hunting procedure (according to Ralph Lewis 2007, chapter 10) was placed into the actual surroundings of Smlednik Castle. According to the Franciscan land registry the forests in the plains north of Smlednik were directly attached to the vast mountain forest of the Kamnik-Savinja Alps as late as the 19th century. Wild animals could thus roam freely across vast territories, which meant that the forest was suitable for hunting game. The forest also accommodated the hunting party of Maximilian I, the Holy Roman Emperor in the early 16th century.

[70] Two small bells were found at Smlednik Castle; in castle contexts these objects are usually linked to falcon hunting (see chapter 6.1.2).

[71] Today's village of Smlednik was recorded in medieval documents as the village under Smlednik or Lower Smlednik. The chapel of St. Ulrich in the forest was mentioned as early as 1118 (se chapter 4) and was one of the most prominent buildings in the surroundings, which made it an excellent signpost.

[72] Such a spear is mentioned in the Smlednik Castle's inventory list (see chapter 4). A 13th century hunting spearhead was found at the nearby Mali grad/Stein (Štular 2009a, 104).

[73] English medieval written documents show that there were precisely defined rules as regards the division of the catch, which is understandable, for the entire hunting procedure was full of symbolism (Ralph Lewis 2007, chapter 10). For the time being the quality of the data from Slovenian or other central European castles does not allow us to confirm or reject such habits in our area, however this is certainly an achievable scientific goal.

[74] Numerous thimbles were found at Smlednik Castle (see chapter 6.1.1). These objects were most likely of a later date, but documents indicate that embroidery was practiced already in the High Middle Ages. The only space in the castle that was bright enough for precise tasks like this was on the benches next to the window or in the window sill in the large hall.

[75] 13 tallow lamp fragments were documented at Smlednik Castle (see chapter 6.3). In modern expert terminology lamps are named after the fuel they burned, in our case tallow. One of the names in Slovene language is expressive and means a *light that shines poorly* (SSKJ). Language as well as experiments clearly indicate that these lights had low luminosity.

13 3D SCANNING OF THE SMLEDNIK CASTLE

Benjamin ŠTULAR

3D scanning[1] is one of the most promising new documentation techniques in archaeology.[2] It is especially suitable for documenting and analysing castles and castle ruins. When documenting the castle's standing remains, i.e. architecture, modern 3D scanning relies heavily on the integrated use of 3D laser scanning and photogrammetry. This data is used to create a photo-realistic 3D model that can be used either as a tool for creating conventional 2D documentation or for 3D visualizations and analyses.[3]

Several techniques are currently used in 3D scanning in castle archaeology. The selection of the most appropriate method often depends on the desired accuracy and precision, two notions that should by no means be considered the same. *Accuracy* describes the closeness between measurements and their true values. The closer a measurement, e.g. wall thickness, is to its true value, the more accurate it is. On the other hand, *precision* describes the consistency with which a measurement or set of measurements can be repeated and is most often expressed as the standard deviation from the median value. A measurement system is considered *valid* if it is both accurate and precise.[4]

In cultural heritage practice the precision of a survey should correspond to the intended scale of presentation within certain tolerances. It is expected that the surveyed data will allow for the repetition of a given measurement as presented on a plotted drawing within certain tolerances when checked from the nearest control point (*Fig. 13.1*).[5]

Considering the desired accuracy, precision and the size of the scanned object, terrestrial laser scanners (TLS) are the most appropriate 3D scanning tool for the purposes of castle preservation and research. Terrestrial laser scanners can be divided either according to the method of length measurement or to the orientation of the laser beam. The length measurement method is differentiated between pulse and phase terrestrial laser scanners. Pulse-based TLS uses laser energy pulses and defines the metric system with the time of flight (TOF). On the other hand, phase TLS uses phase continuous waves, at which the phase distance measurement is based on modulated electromagnetic fluctuation. Pulse scanners reach larger distances and are more frequent, while high-speed scanning speaks in favour of phase scanners.[6]

There are three types of terrestrial laser scanners as regards the orientation of the laser beam: camera, hybrid and panoramic TLS. The activity of the camera TLS depends on the orientation of the laser beam with two rotating mirrors, whereas the activity of the panoramic TLS is based on the rotation of a single mirror, while the rotation of the scanner's head provides for the horizontal deflection. As the name suggests the hybrid TLS is somewhere in between and the laser beam is deflected by a single mirror. Panoramic scanners provide the largest field of view (FOV).[7] Recent technological progress has enabled exceptional quality measurements in almost all types of conditions.[8]

scale	*acceptable precision*
1:20	± 5 mm
1:50	± 6 mm
1:100	± 15 mm
1:200	± 30 mm
1:500	± 60 mm

Fig. 13.1: Required maximum tolerance for detail precision; no less than 67% of the sample is to be within the stated tolerances and no less than 90% is to be within 1.65 times the stated tolerances (after Bryan, Blake, Bedford 2009, 21).

[1] This chapter does not appear in the printed version of the book. It has been written especially for the ebook edition due to its ability to incorporate the actual 3D model.

[2] E.g. Štular, Štuhec 2015, 6-26 for an overview.

[3] Lazar A. 2012, 30-74.

[4] E.g. Bryan, Blake, Bedford 2009, 20.

[5] Bryan, Blake, Bedford 2009, 21.

[6] Štular, Štuhec 2015, 9.

[7] Straiger 2011.

[8] Fröhlich, Mettenleiter 2012.

Fig. 13.2: 3D scan of the Smlednik Castle ruins in 2007, point-cloud (animation by S. Štuhec; to view animation please use Adobe Reader X or above.)

Fig. 13.3: 3D scan of the Smlednik Castle ruins in 2007, close-up view of the point-cloud of the tower, entrance above the current ground. Due to the low point cloud density measuring the height of the entrance above the ground level was a demanding task to be performed merely with the use of the point cloud data.

In the case of Smlednik Castle the potential of 3D scanning had been recognised early in the process. In 2007 3D scanning with a terrestrial laser scanner was carried out by Geodetski zavod Celje d.o.o. Unfortunately, not a lot of the scanning procedure details, i.e. metadata, is available. However, it was possible to deduce the most important metadata from the raw data file "RiSCAN".

The scanning was carried out during winter, in most favourable conditions, when the dense vegetation that surrounds the castle's outer walls is dormant. One of the Riegel terrestrial laser scanners that were available in 2007 was used for the scanning process. Twenty-four scanning positions were chosen within and on the outside of the castle. In addition to laser measurements the scanner's on-board camera recorded an average of 5 2D images from each scanning position. The resulting point cloud consists of at least 17.4 million points in the local coordinate system (Gauss-Kruger D48). The data was processed with the Riegl RiSCAN Pro software, at which each point was attributed the RGB value based on the recorded 2D images. Records as to whether the point cloud was decimated in any way were not available at the time of writing. According to the most common procedure and non-uniform point cloud density it was assumed that 17.4 million points represent a non-decimated point cloud. The point cloud with xyz and RGB values was exported into the "las" format that was made available to us (*Fig. 13.2*).

High-density point clouds such as this have an effect on data post-processing and use. Even though the post-processing hardware and software performances are on the rise, the post-processing times are not getting any shorter, as these improvements are offset by the increasing amount of points that are captured by new 3D scanners. Therefore, an increasing number of tasks (in mining and civil engineering for instance) are performed with point clouds rather than meshes.[9]

However, the experience of working with an unprocessed point cloud demonstrated that this work flow is not suitable for castle studies. This is partially due to the fact that an inexperienced operator, such as a castle specialist, will find working with a point cloud demanding. In addition, the point cloud density used in this particular case did not allow for the necessary close-up views (*Fig. 13.3*).

Therefore, a 3D mesh was produced from the point cloud. To start off, the points recording the vegetation obscuring the view of the castle's walls were manually deleted. In addition, the points with low intensity were automatically removed and points were segmented, which simplified the procedure.[10] The final mesh was decimated to approximately 0.6 million vertices in accordance to the operator's estimate of the best compromise between scan quality, file size and the intended use of the 3D mesh (*Fig. 13.4*). This 3D mesh was used in the analysis (see chapter 10.3) and in the creation of sections (*Fig. 13.5*).

In addition to its value in the analysis, the Smlednik Castle 3D scan can also be used to demonstrate how challenging the practice of 3D cultural heritage digitalisation truly is. With the rising quality of modern 3D

[9] Štular, Štuhec 2015, 24-25.

[10] *Cf.* Lazar A. 2012, 83-84 for a description of the procedure on another example.

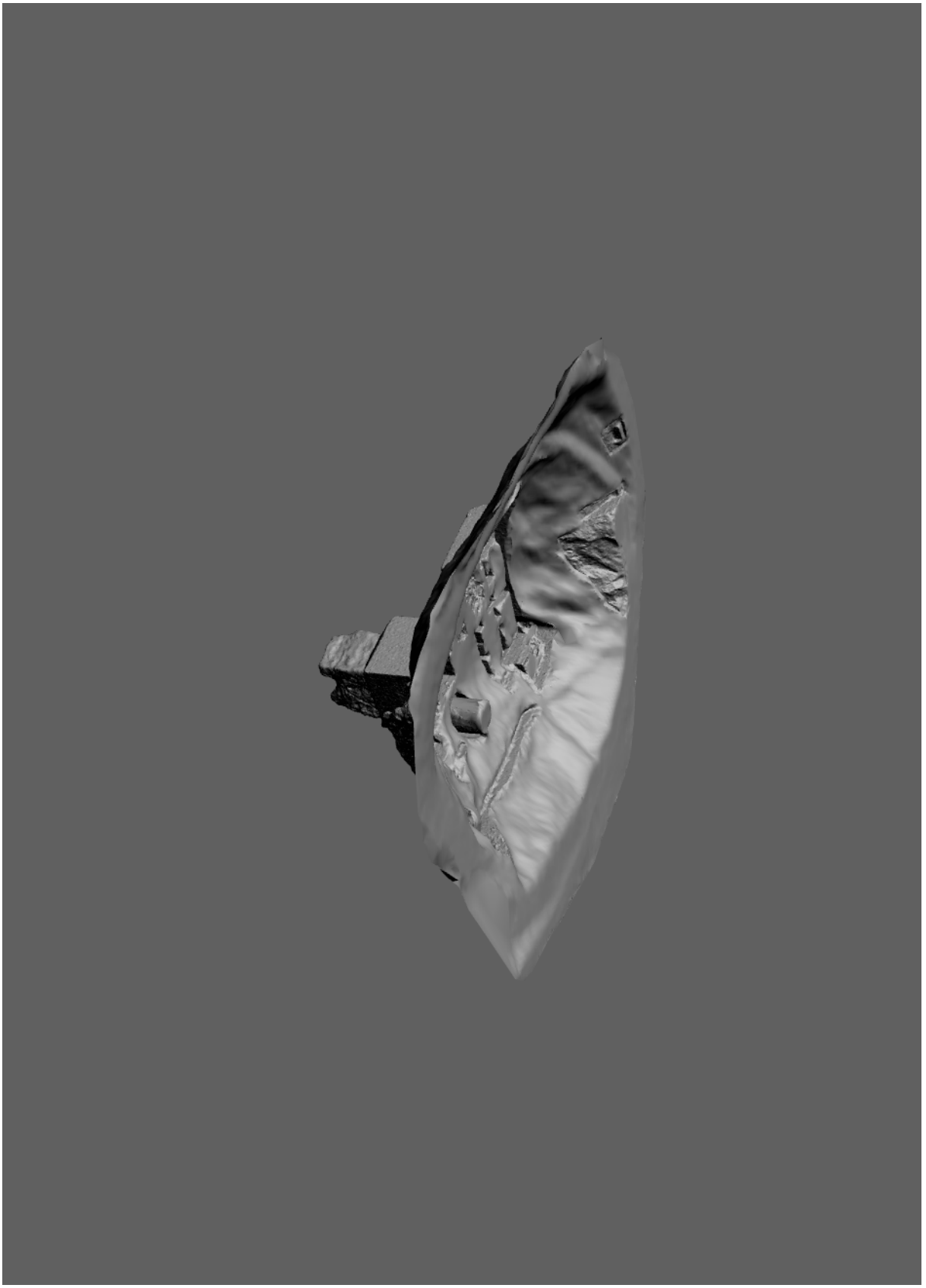


Fig. 13.4: 3D scan of the Smlednik Castle ruins in 2007, 3D mesh (mesh from point cloud by A. Lazar; decimated for 3D PDF using quadratic Edge Collapse Decimation, target No. of faces 200000, quality threshold 1; to interact with 3D model please use Adobe Reader X or above.)

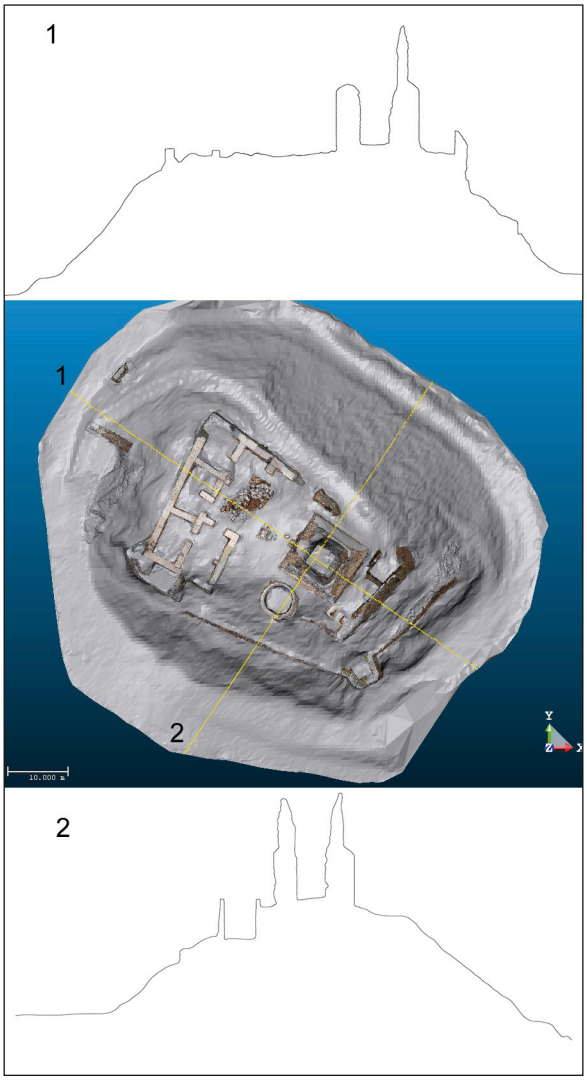


Fig. 13.5: Sections of the Smlednik Castle ruins, produced from the 3D mesh (A. Lazar).

Fig. 13.6: The locations of scanning positions in 2007 (red) and the "missing" positions (blue) that should have been used in addition.

scanners one of the major factors that influences point cloud density is the choice of the scanning positions. In order to record the object from all sides the scanner is moved several times: the more complex the object, the more scanning positions are needed. Any mistake in the search for an optimal ratio between the number of scanning positions and the quality of captured data can result in an uneven point cloud density, especially when scanning a complex object such as a castle.

In the case of the Smlednik Castle 3D scan, the point cloud density in the north-western corner of the castle's core is not optimal. When the actual scanning positions are plotted on the castle's plan, it becomes obvious from where additional scans should have been taken (*Fig. 13.6*).

Therefore, as in any other archaeological documentation process, it is necessary to plan the documentation procedure based on prior knowledge. For example, one of the most important details in castle studies are the wall joints from different construction phases. Unfortunately, the data capturing process often fails to include this data and while the scanning might result in a point cloud with several million points measured with sub-millimetre accuracy, the result might not yield sufficient data in the most important details. Therefore, in addition to the accuracy and precision of the 3D scanning instrument, a plan for the 3D scanning procedure based on prior archaeological knowledge needs to be made if to produce a valid 3D scan of a castle.[11]

[11] *Cf.* Štular, Štuhec 2015, 24.

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15 CATALOGUE AND PLATES

Benjamin ŠTULAR, Anja VINTAR (Nos. 12, 13, 14)

FINDS CURATED BY

MGML – Museum and Galleries of Ljubljana
GM – Museum of Gorenjska
IZA ZRC SAZU – Institute of Archaeology, Research Centre of Slovenian Academy of Sciences and Arts

ABBREVIATIONS

we. – weight
w. – preserved width
h. – preserved height
t. – average thickness

1. Finger ring forged from a copper-based metal; **w.** – 2.2 cm, **h.** – 2.3 cm. Curated by MGML, inventory No. 510:LJU; 0003747. Bibliography: Slabe 1983, 267, št. 12.

2. Gilded finger ring forged from a copper-based metal, ornamented with 2 longitudinal shafts; preserved as a fragment; **w.** – 1.1 cm, **h.** – 1.9 cm. Curated by MGML, inventory No. 510:LJU; 0003748. Bibliography: Slabe 1983, 267, št. 13.

3. Gilded seal ring cast from a copper-based metal; the seal consists of moon and a star; **w.** – 2.2 cm, **h.** – 2.3 cm. Curated by MGML, inventory No. 510:LJU; 0003749. Bibliography: Slabe 1983, 267, št. 14.

4. Circular pendant with a human mask forged from a copper-based metal; **w.** – 1.5 cm, **h.** – 1.4 cm, **t.** – 0.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 129.

5. Pendant forged from a copper-based metal, perhaps belonging to horses harness; **w.** – 6.3 cm, **h.** – 6.4 cm. Curated by MGML, inventory No. 510:LJU; 0003758. Bibliography: Slabe 1983, 268, št. 1.

6. Spoon forged from a copper-based metal with concave ladle and a handle with rhomboid shaped section and twisted termination; **w.** – 4.1 cm, **h.** – 15.8 cm. Curated by MGML, inventory No. 510:LJU; 0003759. Bibliography: Slabe 1983, 268, št. 2.

7. Spoon forged from a copper-based metal with concave ladle and a handle with rhomboid shaped section (and likely twisted termination); preserved as a fragment; **w.** – 4.4 cm, **h.** – 6.4 cm. Curated by MGML, inventory No. 510:LJU; 0003760. Bibliography: Slabe 1983, 268, št. 3.

8. Thimble forged from a copper-based metal; **w.** – 1.5 cm, **h.** – 1.5 cm. Curated by MGML, inventory No. 510:LJU; 0003744. Bibliography: Slabe 1983, 267, št. 8.

9. Thimble forged from a copper-based metal; **w.** – 1.7 cm, **h.** – 1.6 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 123.

10. Thimble forged from a copper-based metal; **w.** – 1.8 cm, **h.** – 1.4 cm. Curated by GM, inventory No. A1929.

11. Key-guard plate of a small rotary-lock mechanism forged from a copper-based metal, most likely a part of a chest; a small fragment of wood is preserved; **w.** – 3.0 cm, **h.** – 2.8 cm, **t.** – 0.1 cm. Curated by MGML, inventory No. 510:LJU; 0003763. Bibliography: Slabe, 1983, 266-271.

12. Gilded copper clasp with an engraved tendril-like decoration; its flat and longitudinal body terminates with a double perforated circular expansion. Left perforation has a diameter of 1.0 cm and the right one 0.8 cm. The flat body is additionally perforated twice (diameter 0.4 cm). The clasp has been broken. The two perforations on the upper extension were used to bind the book while the smaller perforations on the body were used to attach the clasp to the book's cover; **w.** – 3.2 cm, **h.** – 6.6 cm, **we.** – 17.5 g. Curated by MGML, inventory No. A33, PN 0026. Bibliography: Slabe 1983, 268, št. 4.

13. Rectangular gilded copper clasp with pulled out hinges on its longer side. It is decorated with a series of applied studs along all four sides, and the line of studs divides the clasp into two squares, convex pyramid halves. A small hole used for attaching to the base was drilled out in the centre of each half. The guild has been worn out on the exposed surfaces; **w.** – 3.6 cm, **h.** – 2.7 cm, **t.** – 0.1 cm. Curated by NMS, inventory No. G11564. Bibliography: Nabergoj 2006, 121, kat. št.7.

14. Corner boss forged out of copper alloy is rhomboid shaped and has an engraved floral decoration on its flat part. The longer edges are partially wave shaped. The shorter edges take the shape of two wings that can be attached to the edge of the cover. The button like semi-circular protuberance in the corner of the flat part is slightly concave and damaged; **w.** – 2.4 cm, **h.** – 2.3 cm, **t.** – 0.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 122.

15. Pendant forged from a copper-based metal with floral ornamentation, possibly part of a horses harness; **w.** – 1.8 cm, **h.** – 1.9 cm, **t.** – 0.1 cm. Curated by MGML, inventory No. 510:LJU; 0003751. Bibliography: Slabe 1983, 267, št. 4.

16. Belt buckle forged from a copper-based metal with double-sided buckle and perforated forged brace, most likely a part of a spur strap; **w.** – 4.5 cm, 1.4 **h.** – cm, **w.** – 2.3 cm. Curated by MGML, inventory No. 510:LJU; 0003761. Bibliography: Slabe 1983, 267, št. 6.

17. Square iron belt buckle; **w.** – 2.0 cm, **h.** – 1.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 127.

18. Rumbler bell, bottom half; **w.** – 2.2 cm, **h.** – 0.8 cm. The artefact has been lost. Bibliography: Slabe 1983, 267, št. 7.

19. Rumbler bell, upper half; **w.** – 2.0 cm, **h.** – 1.6 cm. GM A1928.

20. Console cast from a copper-based metal, perhaps a shelf fastener; **w.** – 3.2 cm, **h.** – 2.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 131.

21. 2 iron sickles, partially preserved. Curated by MGML, inventory No. 510:LJU; 0003736; **w.** – 4.6 cm, **h.** – 21.0 cm and **w.** – 5.3 cm, **h.** – 18.7 cm. Bibliography: Slabe 1983, 270, št. 2 in 3.

22. Iron bucket handle. Curated by MGML, inventory No. 510:LJU; 0003739; **w.** – 15.2 cm, **h.** – 5.1 cm. Bibliography: Slabe 1983, 270, št. 1.

23. Triangular iron object, perhaps a spike. Curated by MGML, inventory No. 510:LJU; 0003738; **w.** – 4.1 cm, **h.** – 10.2 cm, **t.** – 0.5 cm. Bibliography: Slabe 1983, 270, št. 4.

24. Rectangular iron wedge. Curated by MGML, inventory No. 510:LJU; 0003738; **w.** – 3.2 cm, **h.** – 9.7 cm, **t.** – 0.7 cm. Bibliography: Slabe 1983, 270, št. 5.

25. Rectangular iron object with a rectangular section. The artefact has been lost; **w.** – 0.9 cm, **h.** – 3.6 cm or **w.** – 1.8 cm, **h.** – 7.2 cm.[1] Bibliography: Slabe 1983, 270, št. 12.

26. Iron rod with rectangular section, a fragment; perhaps a nail. The artefact has been lost; **w.** – 0.3 cm, **h.** – 3.7 cm. Bibliography: Slabe 1983, 270, št. 15.

27. Iron rod with rectangular section, a fragment; perhaps a nail. The artefact has been lost; **w.** – 0.3 cm, **h.** – 3.9 cm. Bibliography: Slabe 1983, 270, št. 16.

28. Chain links shaped like a figure eight; preserved as a fragment. The artefact has been lost; **w.** – 1.7 cm, **h.** – 4.6 cm, **t.** – 0.5 cm or **w.** – 3.4 cm, **h.** – 9.2, **t.** – 1 cm^2. Bibliography: Slabe 1983, 270, št. 14.

29. Iron cover for an oval object; preserved as a fragment; it could be an outer mantle for weights filled with e.g. lead. Curated by MGML, inventory No. 510:LJU; 0003737; **w.** – 6.1 cm, **h.** – 9.5 cm, **t.** – 0.7, **we.** – 146.3 g. Bibliography: Slabe 1983, 270, št. 13.

30. Iron nail with rectangular section. The artefact has been lost; **w.** – 0.8 cm, **h.** – 7.8 cm. Bibliography: Slabe 1983, 270, št. 17.

31. Iron nail with rectangular section. The artefact has been lost; **w.** – 0.7 cm, **h.** – 8.2 cm. Bibliography: Slabe 1983, 270, št. 18.

32. Iron nail with square section. The artefact has been lost; **w.** – 0.6 cm, **h.** – 8.3 cm. Bibliography: Slabe 1983, 270, št. 19.

33. Iron nail with rectangular section. The artefact has been lost; **w.** – 0.4 cm, **h.** – 10.4 cm. Bibliography: Slabe 1983, 270, št. 20.

34. Arrowhead with tang and a spear like body; section is not preserved; **w.** – 0.8 cm, **h.** – 4.8 cm. Curated by MGML, inventory No. 510:LJU; 0003755. Bibliography: Slabe 1983, 270, št. 6.

35. Arrowhead with tang and a spear like body of square section; **w.** – 0.5 cm, **h.** – 5.3 cm. Curated by MGML, inventory No. 510:LJU; 0003755. Bibliography: Slabe 1983, 270, št. 7.

36. Arrowhead with tang and a leaf like body; section is not preserved in upper part and is circular in lower part; **w.** – 0.6 cm, **h.** – 4.6 cm. The artefact has been lost. Bibliography: Slabe 1983, 270, št. 11.

37. Poorly preserved arrowhead with tang and a spear like body of square section; **w.** – 0.6 cm, **h.** – 3.3 cm. Curated by MGML, inventory No. 510:LJU; 0003755. Bibliography: Slabe 1983, 270, št. 8.

38. Arrowhead with the cylindrical attachment and a spear like body of rhomboid section; **w.** – 0.8 cm, **h.** – 3.8 cm. Curated by MGML, inventory No. 510:LJU; 0003755. Bibliography: Slabe 1983, 270, št. 5.

39. Arrowhead with the cylindrical attachment and a pyramid like body; **w.** – 0.7 cm, **h.** – 3.2 cm. Curated by MGML, inventory No. 510:LJU; 0003755. Bibliography: Slabe 1983, 270, št. 10.

40. Arrowhead with a spear like body; the (most likely) cylindrical attachment is not preserved; **w.** – 0.7 cm, **h.** – 4.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 004.

41. Arrowhead with the cylindrical attachment and a short deltoid like body; **w.** – 0.7 cm, **h.** – 3.1 cm, **we.** 32.9 g. Curated by GM, inventory No. A1925.

42. Arrowhead with the cylindrical attachment and a deltoid like body; **w.** – 0.7 cm, **h.** – 4.3 cm, **we.** 52.4 g. Curated by GM, inventory No. A1926.

43. Arrowhead with the cylindrical attachment and a deltoid like body; **w.** – 0.7 cm, **h.** – 3.7 cm, **we.** 44.1 g. Curated by GM, inventory No. A1927.

44. Iron bullet; **w.** – 1.9 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 210.

45. Lead bullet; **w.** – 1.4 cm, **h.** – 1.4 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 118.

46. Iron horseshoe with 10 rectangular perforations for nails; preserved as a fragment; **w.** – 4.8 cm, **h.** – 7.0 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 121.

47. Iron horseshoe with 4 rectangular perforations for nails; preserved as a fragment; **w.** – 3.8 cm, **h.** – 6.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 116.

48. Simple double-sided bone comb with concave termination ornamented with two circles; **w.** – 3.2 cm, **h.** – 4.2 cm, **t.** – 0.5 cm. Curated by MGML, inventory No. 510:LJU; 0003740. Bibliography: Slabe, 1983, 266-271.

49. Bone ring-shaped clamp; **w.** – 2.2 cm, **h.** – 1.4 cm. The artefact has been lost. Bibliography: Slabe, 1983, 266-271.

50. Stone bead, most likely a rosary bead; **w.** – 0.8 cm, **h.** – 0.8 cm. Curated by MGML, inventory No. 510:LJU; 0003742. Bibliography: Slabe 1983, 267, št. 8.

51. Scale-tang knife, preserved is one bone scale with 3 riveting perforations; **w.** – 2.1 cm, **h.** – 9.5 cm. Curated by MGML, inventory No. 510:LJU; 0003756. Bibliography: Slabe 1983, 267, št. 11.

52. Perforated lead object, most likely a weight; **w.** – 1.8 cm, **h.** – 1.9 cm, **t.** – 0.7 cm. Curated by MGML, inventory No. 510:LJU; 0003746. Bibliography: Slabe 1983, 267, št. 5.

53. Fragment of lead window frame with an H-profile; **w.** – 1.6 cm, **h.** – 5.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 126.

54. Half of a round bead made from black glass paste with a white stripe, most likely a part of a necklace; **w.** – 1.4 cm, **h.** – 1.6 cm. Curated by MGML, inventory No. 510:LJU; 0003752. Bibliography: Slabe 1983, 267, št. 9.

[1] The object is lost and the scale of the only preserved drawing is not known. However, the other drawings on the same plate are drawn at scales either 1:1 or 1:2.

[2] See footnote 2.

55. Small narrow-neck-bottle, preserved is a bottleneck fragment; **w.** – 1.6 cm, **h.** – 3.5 cm. Curated by MGML, inventory No. 510:LJU; 0003764. Bibliography: Slabe 1983, 269, št. 3.

56. A handle from a glass jug; **w.** – 1.6 cm, **h.** – 5.7 cm. Curated by MGML, inventory No. 510:LJU; 0003743. Bibliography: Slabe 1983, 269, št. 5.

57. Fragment with two fused glass beads, most likely a part of a glass stem; **w.** – 2.9 cm, **h.** – 1.8 cm. Curated by GM, inventory No. 1924.

58. 2 fragments of a jug with white glaze and blue ornament; **w.** – 3.2 cm, **h.** – 4.6 cm and **w.** – 4.8 cm, **h.** – 3.6 cm. Curated by MGML, inventory No. 510:LJU; 0003765. Bibliography: Slabe 1983, 269, št. 1 in 2.

59. A rom fragment of a plate with polychrome glazing representing a geometric motif; **w.** – 3.4 cm, **h.** – 8.4 cm. Curated by MGML, inventory No. 510:LJU; 0003757. Bibliography: Slabe 1983, 269, št. 4.

60. A fragment of stove tile with a scene from the Passion shown in relief (Jesus in the Garden of Gethsemane); **w.** – 22.0 cm, **h.** – 22.3 cm. Artefact is lost but a drawing is preserved and curated at GM.

61. A fragment of stove tile with a scene from the Passion shown in relief (Mount of Olives); **w.** – 15.4 cm, **h.** – 17.2 cm. Artefact is lost but a drawing is preserved and curated at GM.

62. A fragment of stove tile with a scene from the Passion shown in relief (Jesus in pre-hell); **w.** – 11.8 cm, **h.** – 14.6 cm. Artefact is lost but a drawing is preserved and curated at GM.

63. A fragment of stove tile with a scene from the Passion shown in relief (Jesus falls under the weight of the Cross); **w.** – 5.9 cm, **h.** – 15.5 cm. Artefact is lost but a drawing is preserved and curated at GM.

64. A fragment of stove tile with a scene from the Passion shown in relief (Jesus rises from death); **w.** – 12.8 cm, **h.** – 16.8 cm. Artefact is lost but a drawing is preserved and curated at GM.

65. A fragment of stove tile with a historic representation of a man in relief (based on the armament a Roman soldier is most likely depicted; it is also possible that a 16th or 17th century nobleman is depicted); **w.** – 13.4 cm, **h.** – 17.3 cm. Artefact is lost but a drawing is preserved and curated at GM.

66. A fragment of stove tile with a historic representation of a man in relief (A Roman soldier with the inscription (MER)CVRIVS as an allegory for the planet Mercury is most likely depicted); **w.** – 12.0 cm, **h.** – 29.4 cm. Artefact is lost but a drawing is preserved and curated at GM.

67. A fragment of stove tile with a historic representation of a woman in relief (an allegory of one of the liberal arts is most likely depicted); **w.** – 11.3 cm, **h.** – 17.0 cm. Artefact is lost but a drawing is preserved and curated at GM.

68. A fragment of stove tile with a historic representation of a woman's portrait in relief (most likely a mythological or historical person, perhaps an allegory); **w.** – 20.2 cm, **h.** – 20.1 cm. Artefact is lost but a drawing is preserved and curated at GM. Bibliography: Stopar 1998, 70.

69. A fragment of stove tile with a historic representation of a man's portrait in relief (most likely a depiction of a Roman soldier); **w.** – 11.8 cm, **h.** – 16.4 cm. Artefact is lost but a drawing is preserved and curated at GM. Bibliography: Stopar 1998, 70.

70. A fragment of stove tile depicting an armed horseman with a lowered spear in relief, most likely a scene from the knightly tournament; **w.** – 15.6 cm, **h.** – 15.9 cm. Artefact is lost but a drawing is preserved and curated at GM. Bibliography: Stopar 1998, 69.

71. A fragment of an architectural stove tile; **w.** – 24.4 cm, **h.** – 9.0 cm. Artefact is lost but a drawing is preserved and curated at GM.

72. A fragment of a stove tile; **w.** – 7.7 cm, **h.** – 10.9 cm. Artefact is lost but a drawing is preserved and curated at GM.

73. A fragment of an architectural stove tile; **w.** – 11.1 cm, **h.** – 19.5 cm. Artefact is lost but a drawing is preserved and curated at GM.

74. A fragment of an architectural stove tile; **w.** – 20.1 cm, **h.** – 9.0 cm. Artefact is lost but a drawing is preserved and curated at GM.

75. A fragment of a stove tile, most likely a rosette is depicted in relief; **w.** – 15.9 cm, **h.** – 12.4 cm. Artefact is lost but a drawing is preserved and curated at GM.

76. A fragment of a stove tile with relief depiction of, most likely, a head of a mythological animal; **w.** – 3.9 cm, **h.** – 5.3 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 242.

77. Pot, a fragment of the wall; fabric type: ZSL;[3] context unknown; **w.** – 2.4 cm, **h.** – 1.6 cm. Temporary curated by IZA ZRC SAZU.

78. Pot, a rim-fragment type 5G; fabric type: VSL; context unknown; **w.** – 3.4 cm, **h.** – 1.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 246.

79. Pot, a rim-fragment type 10A-1; fabric type: PSL; context unknown; **w.** – 4.7 cm, **h.** – 2.6 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 248.

80. Pot, a rim-fragment type 10A-1; fabric type: PSL; context unknown; **w.** – 5.4 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 249.

81. Cup, rim-fragment; fabric type: PSC; SU 54; **w.** – 3.5 cm, **h.** – 1.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 214.

82. Pot, a rim-fragment type 10A-1; fabric type: PSL; context unknown; **w.** – 7.5 cm, **h.** – 2.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 247.

83. Pot, a rim-fragment type 10A-1; fabric type: PSL; SU 46; **w.** – 6.4 cm, **h.** – 2.4 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 203.

84. Pot, a rim-fragment type 10B-1; fabric type: PSL; context unknown; **w.** – 1.4 cm, **h.** – 1.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 256.

85. Pot, a rim-fragment type 10B-1; fabric type: PSL; context unknown; **w.** – 7.1 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 255.

86. Pot, a rim-fragment type 10B-1; fabric type: PSL; context unknown; **w.** – 3.9 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 252.

87. Pot, a rim-fragment type 10B-1; fabric type: PSL; context unknown; **w.** – 4.7 cm, **h.** – 2.3 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 206.

88. Pot, a rim-fragment type 10B-1; fabric type: PSL; SU 53; **w.** – 1.9 cm, **h.** – 1.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 219.

89. Pot, a rim-fragment type 10B-1; fabric type: PSL; SU 53; **w.** – 4.5 cm, **h.** – 1.6 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 215.

90. Pot, a rim-fragment type 10B-1; fabric type: PSL; SU 53; **w.** – 2.3 cm, **h.** – 1.7 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 218.

[3] For full explanation on fabric types see chapter 6.3.

91. Pot, a rim-fragment type 10B-1; fabric type: PSL; SU 54; **w.** – 3.8 cm, **h.** – 2.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 212.

92. Pot, a rim-fragment type 10B-2; fabric type: PSL; context unknown; **w.** – 6.1 cm, **h.** – 1.7 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 254.

93. Pot, a rim-fragment type 10B-2; fabric type: PSL; context unknown; **w.** – 4.1 cm, **h.** – 2.3 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 205.

94. Pot, a rim-fragment type 10B-2; fabric type: PSL; SU 53; **w.** – 2.4 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 217.

95. Pot, a rim-fragment type 10B-2; fabric type: PSL; SU 64; **w.** – 3.3 cm, **h.** – 1.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 223.

96. Pot, a rim-fragment type 10C-1; fabric type: PSL; context unknown; **w.** – 1.2 cm, **h.** – 1.0 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 245.

97. Pot, a rim-fragment type 10C-4; fabric type: PSL; context unknown; **w.** – 2.9 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 207.

98. Pot, a rim-fragment type 10C-5; fabric type: PSL; SU 71; **w.** – 5.4 cm, **h.** – 1.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 231.

99. Pot, a rim-fragment type 10C-5; fabric type: PSL; context unknown; **w.** – 6.1 cm, **h.** – 2.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 250.

100. Pot, a rim-fragment type 10C-5; fabric type: PSL; SU 60; **w.** – 4.7 cm, **h.** – 1.7 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 226.

101. Pot, a rim-fragment type 10C-6; fabric type: PSL; SU 55; **w.** – 4.9 cm, **h.** – 1.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 220.

102. Pot, a rim-fragment type 10C-3; fabric type: PSL; SU 64; **w.** – 10.3 cm, **h.** – 3.3 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 239.

103. Pot, a rim-fragment type 10F; fabric type: PSL; context unknown; **w.** – 2.0 cm, **h.** – 1.0 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 253.

104. Pot, a rim-fragment type 10F; fabric type: PSL; SU 53; **w.** – 3.7 cm, **h.** – 1.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 216.

105. Pot, a rim-fragment type 11C; fabric type: PSL; context unknown; **w.** – 2.3 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 251.

106. Pot, a rim-fragment type 11A-2; fabric type: PSL; context unknown; **w.** – 3.5 cm, **h.** – 1.6 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 256.

107. Pot, a rim-fragment type 11D-1; fabric type: PSL; SU 71; **w.** – 6.7 cm, **h.** – 1.8 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 229.

108. Pot, a rim-fragment type 11D-1; fabric type: PSL; SU 71; **w.** – 3.5 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 228.

109. Pot, a rim-fragment type 12C-2; fabric type: PSL; context unknown; **w.** – 3.4 cm, **h.** – 2.2 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 240.

110. Pot, a rim-fragment type 12C-1; fabric type: PSL; context unknown; **w.** – 1.8 cm, **h.** – 1.5 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 257.

111. Pot, a non-typical rim-fragment; fabric type: PSL; SU 68; **w.** – 2.3 cm, **h.** – 1.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 241.

112. Pot, a rim-fragment type 7D; fabric type: PSL; context unknown; **w.** – 1.1 cm, **h.** – 1.4 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 244.

113. Pot, a non-typical rim-fragment; fabric type: PSL; SU 77; **w.** – 1.2 cm, **h.** – 1.7 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 238.

114. Bowl, a rim-fragment; fabric type: PSS; SU 64; **w.** – 2.0 cm, **h.** – 1.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 225.

115. Tallow lamp, a rim-fragment; fabric type: PSJ; SU 64; **w.** – 2.8 cm, **h.** – 2.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 235.

116. Tallow lamp, a fragment; fabric type: PSJ; SU 32; **w.** – 8.5 cm, **h.** – 1.6 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 227.

117. Bowl, a rim-fragment; fabric type: PSS; SU 54; **w.** – 1.9 cm, **h.** – 1.4 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 213.

118. Deep bowl, a rim-fragment; fabric type PSS; SU 61; **w.** – 2.6 cm, **h.** – 2.1 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 232.

119. Deep bowl, a rim-fragment; fabric type PSS; SU 61; **w.** – 2.7 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 236.

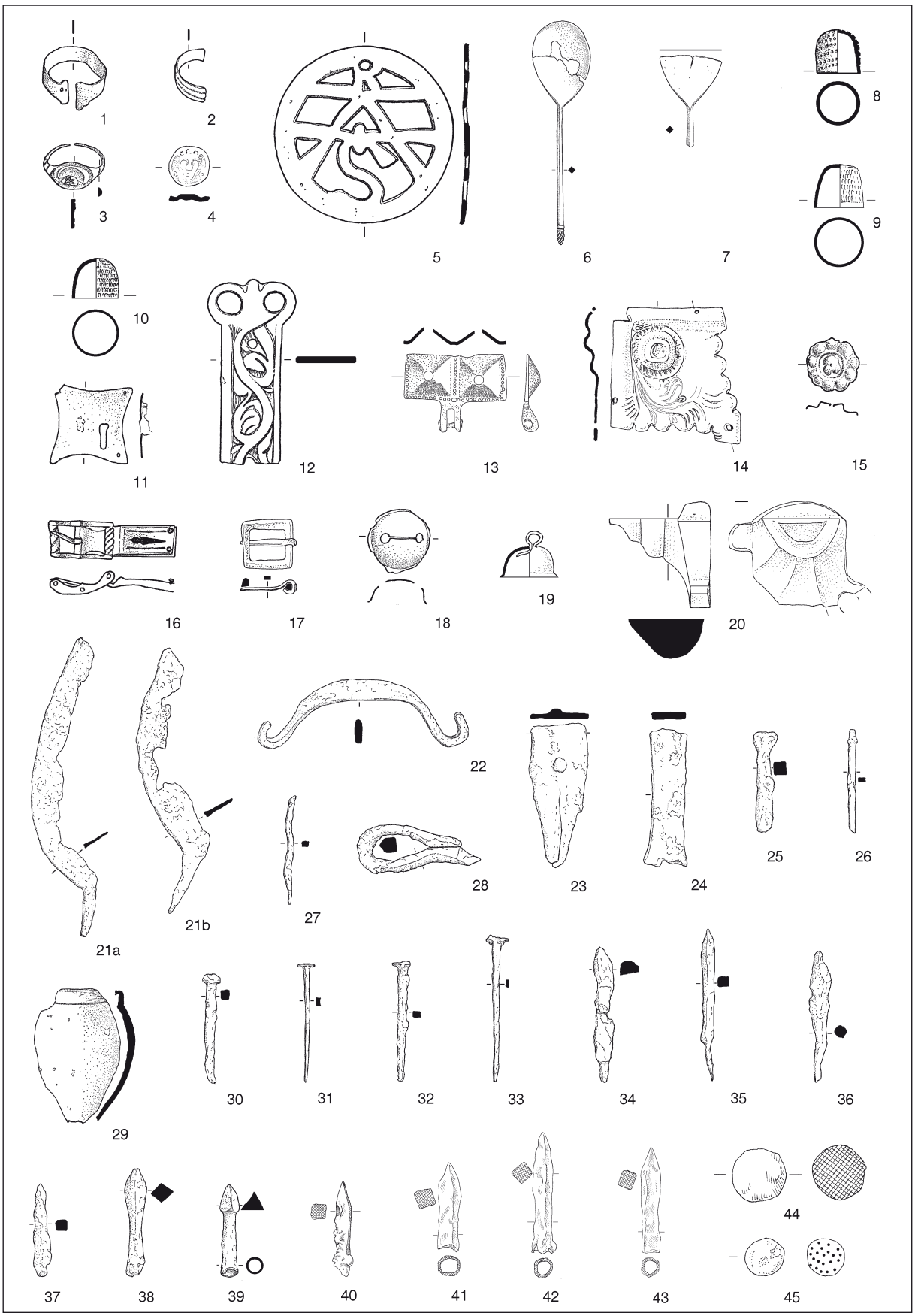
120. Bowl, a rim-fragment; fabric type PSS; SU 38; **w.** – 1.4 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 202.

121. Bowl, a rim-fragment; fabric type PSS; context unknown; **w.** – 1.7 cm, **h.** – 3.2 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 201.

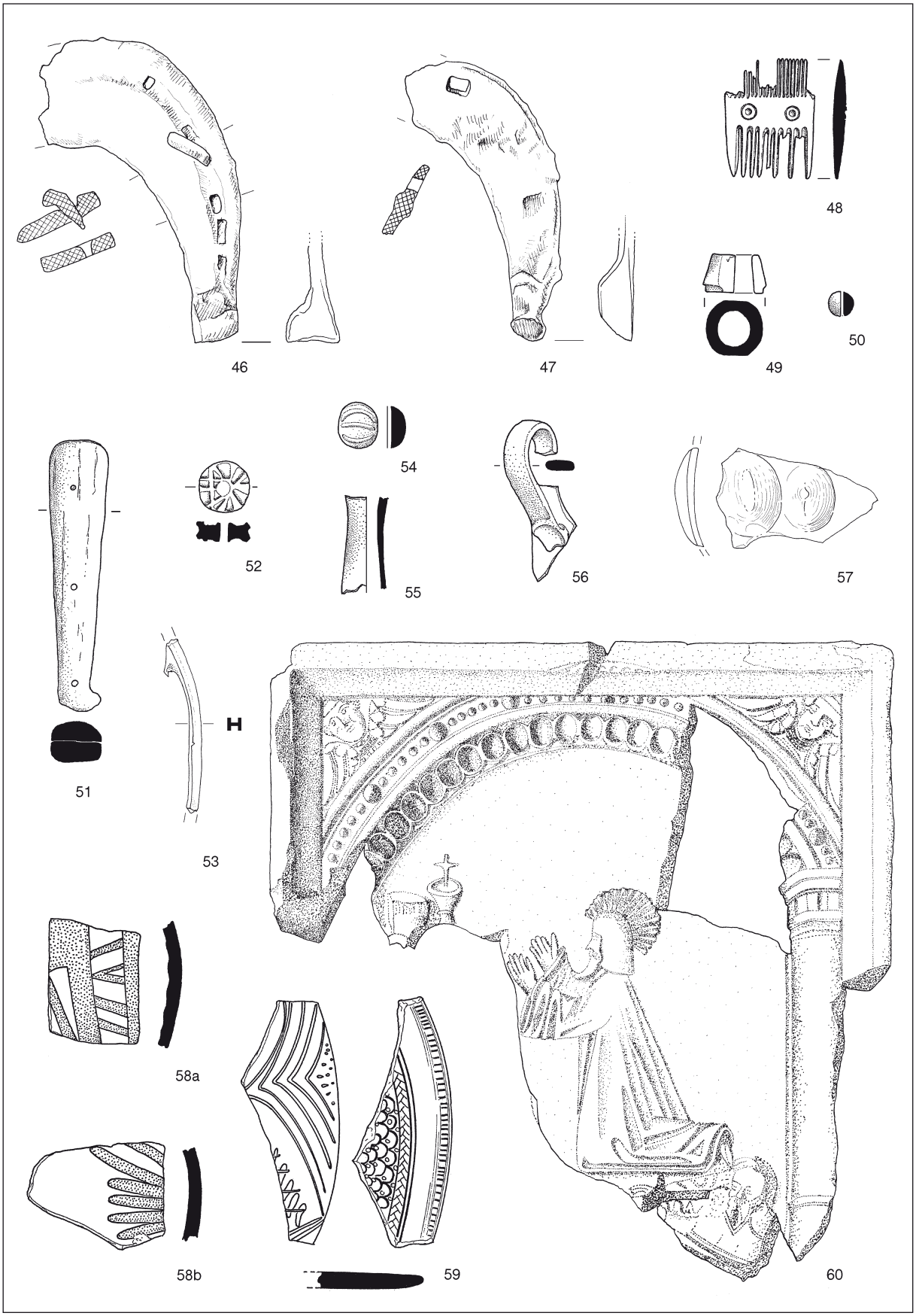
122. Bowl, a rim-fragment; fabric type PSS; context unknown; **w.** – 2.6 cm, **h.** – 1.9 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 258.

123. Pot, a rim-fragment; fabric type PSL; SU 77; **w.** – 2.7 cm, **h.** – 1.7 cm. Temporary curated by IZA ZRC SAZU, SSG12-PN 237.

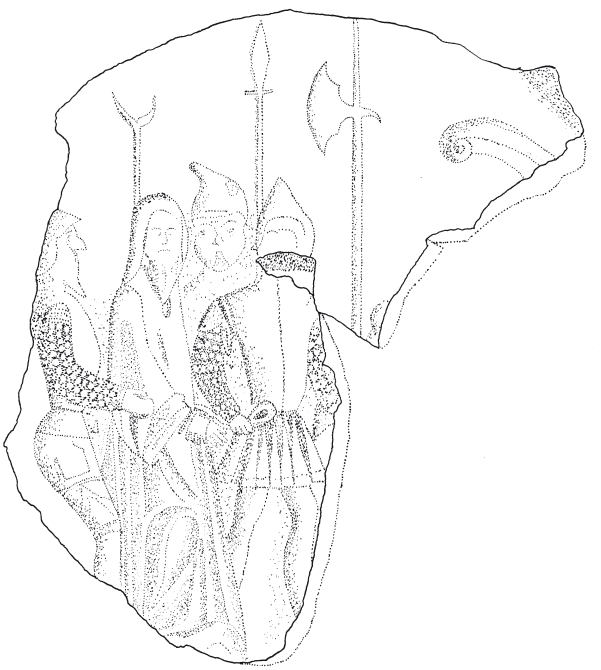
124. Pot, a fragment of the bottom; fabric type PSL; SU 68; **w.** – 6.1 cm, **h.** – 2.0 cm. Temporary curated by IZA ZRC SAZU.



Pl. 1: Smlednik castle. 1, 4-11, 15-16, 20 copper alloy; 2-3, 12 gilded copper alloy; 13 gilded bronze; 14 bronze; 17, 21-44 iron; 18-19 zinc alloy; 45 lead. Scale 1:2.



Pl. 2: Smlednik castle. 46, 47 iron; 48-51 bone; 52, 53 lead; 54-57 glass; 58-60 ceramics. Scale 1:3.



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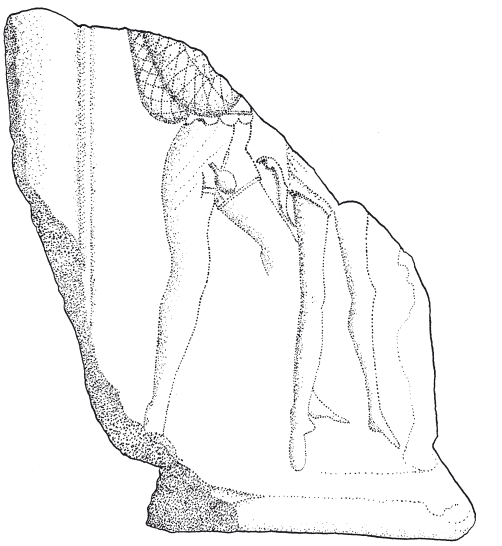

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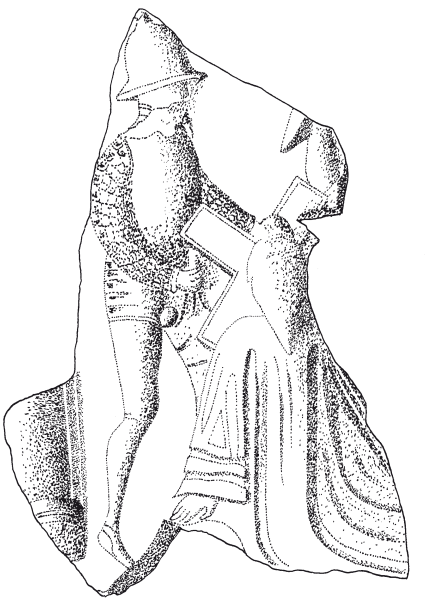

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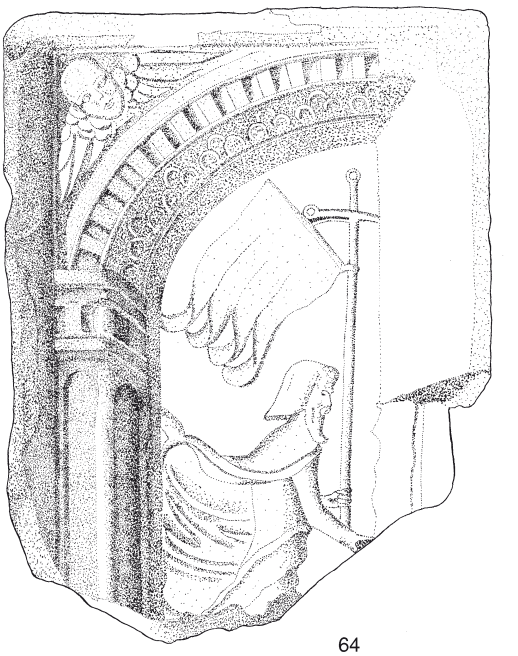
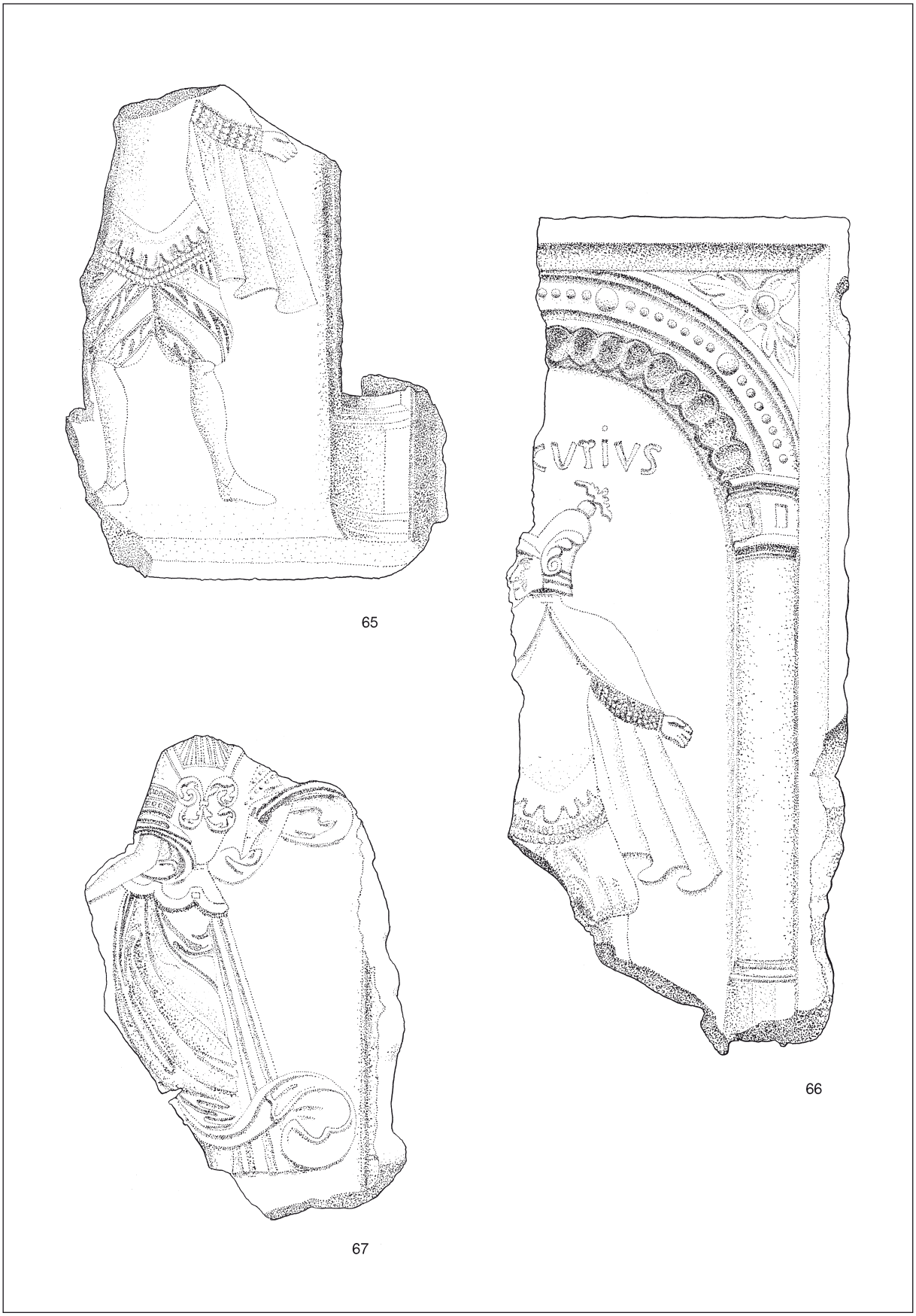


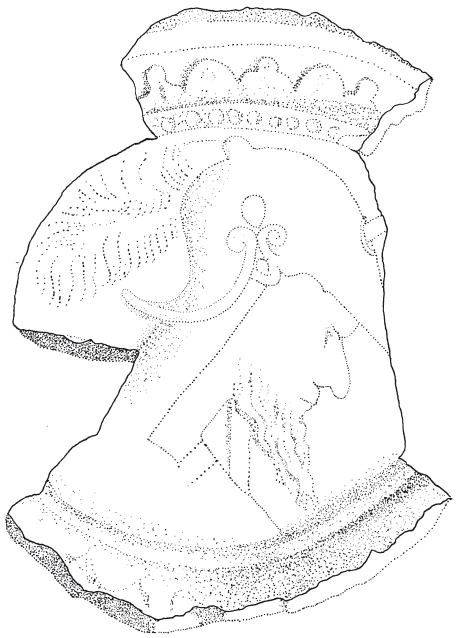
64

Pl. 3: Smlednik castle. Ceramics. Scale 1:2.



Pl. 4: Smlednik castle. Ceramics. Scale 1:2.

68



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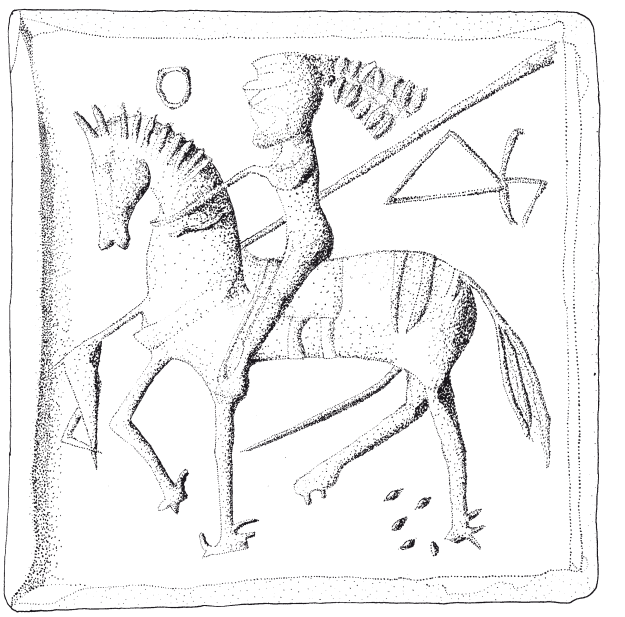

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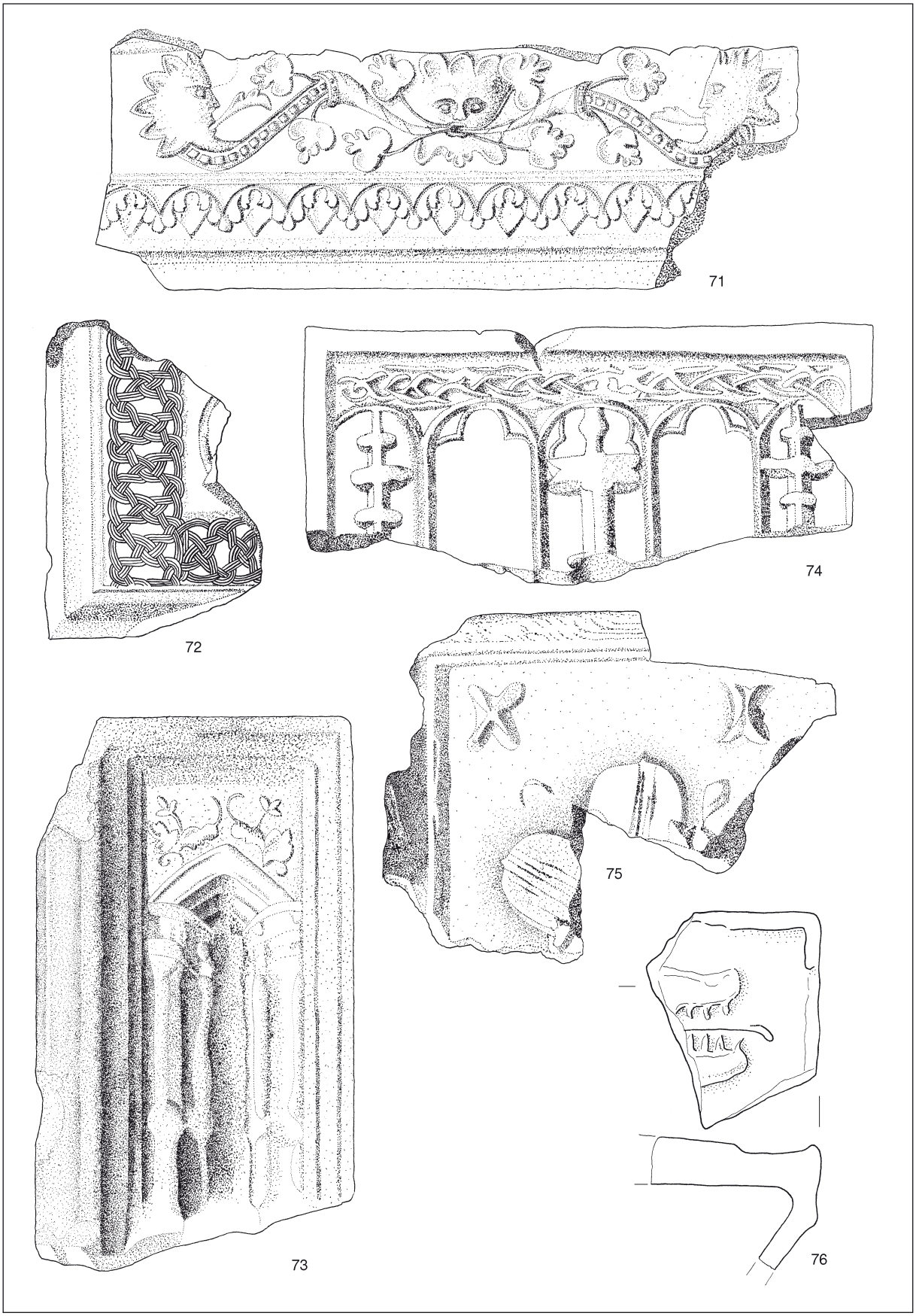
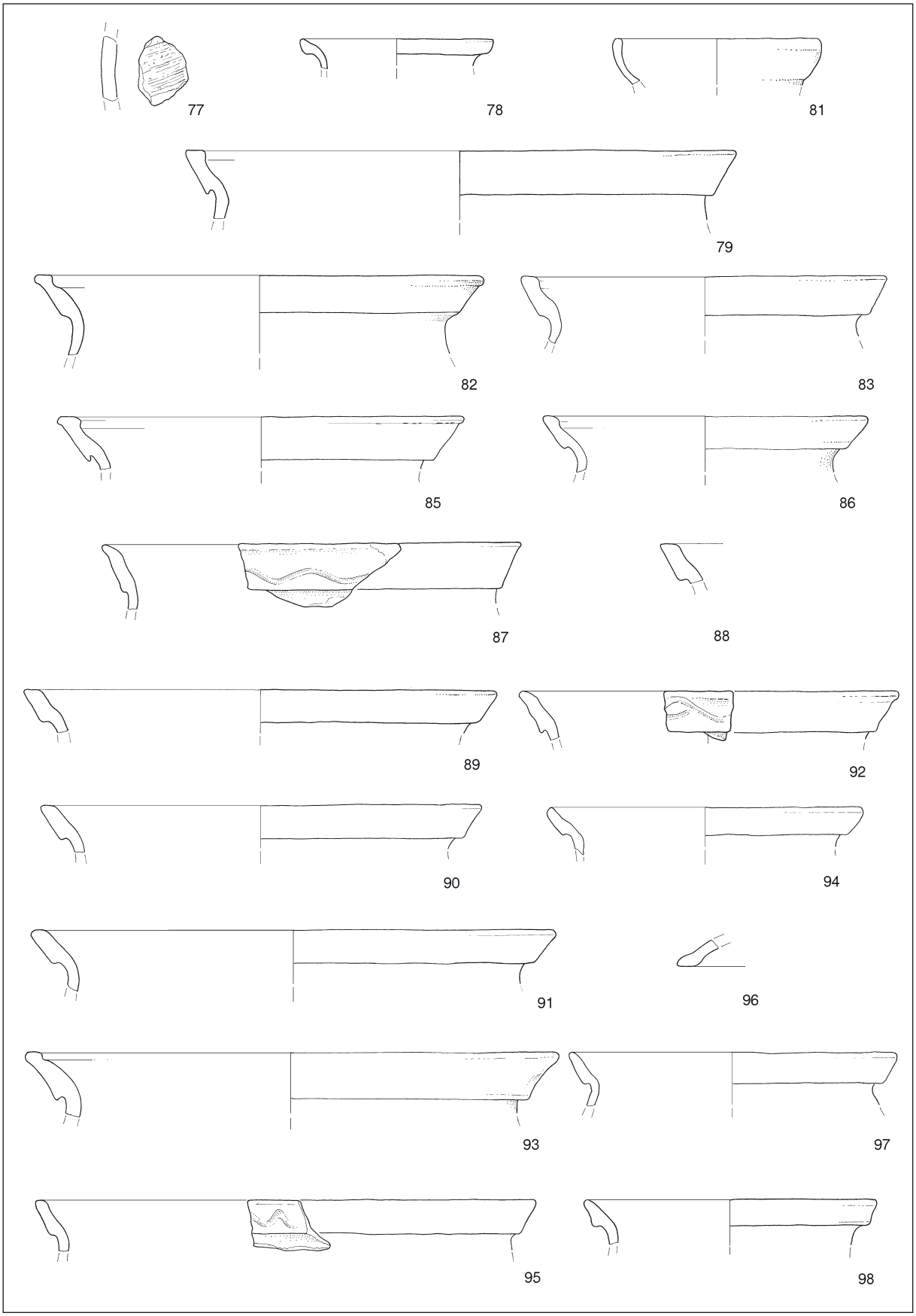
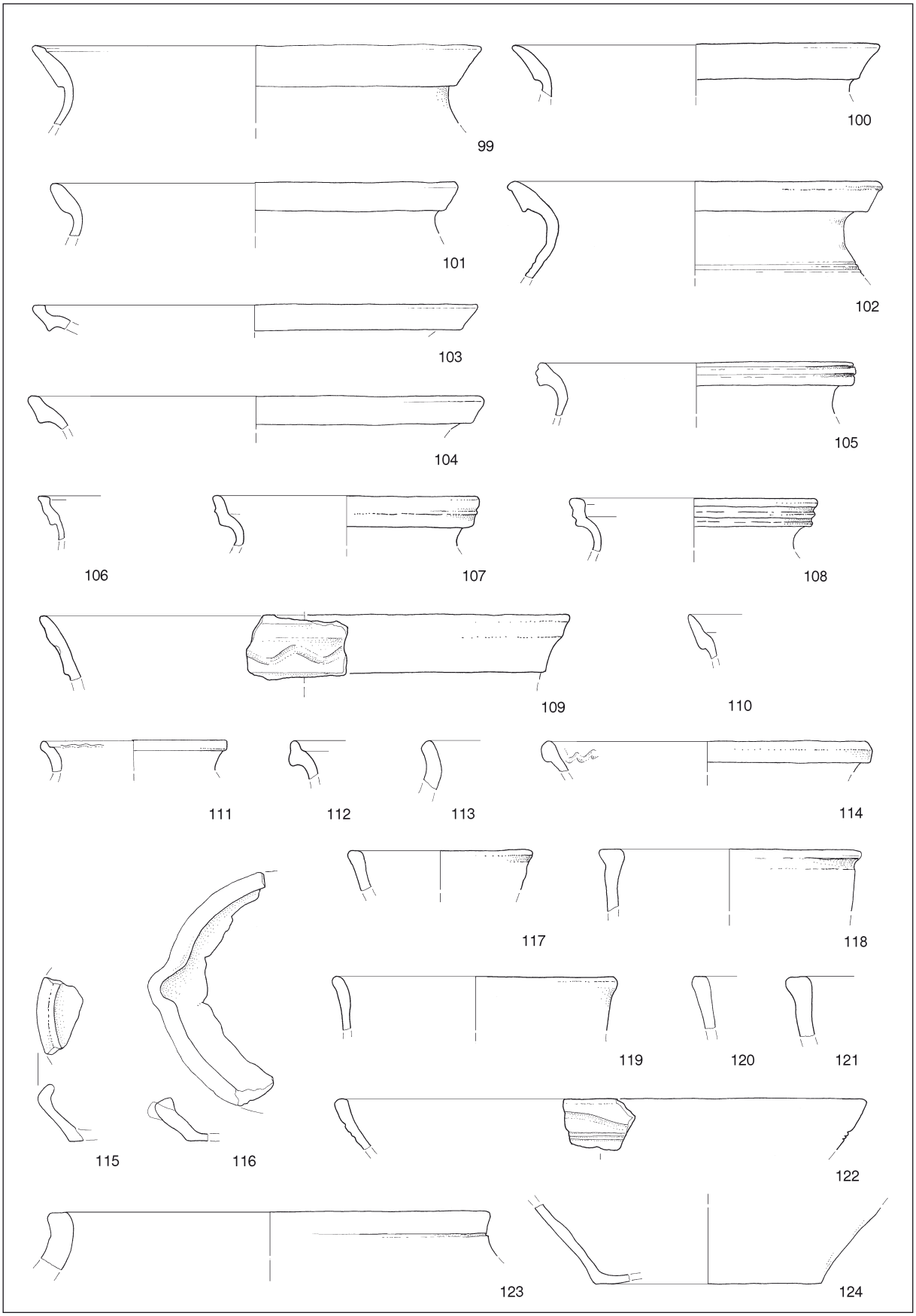
Pl. 5: Smlednik castle. Ceramics. Scale 1:2.



Pl. 6: Smlednik castle. Ceramics. Scale 1:2.



Pl. 7: Smlednik castle. Ceramics. Scale 1:3.



Pl. 8: Smlednik castle. Ceramics. Scale 1:3.

Založba ZRC / ZRC Publishing
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ISBN 978-961-254-798-1