



# Europa 2018 Postmediaevalis

Post-medieval pottery  
between (its) borders

edited by

Gabriela Blažková  
Kristýna Matějková





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## Preface

The popularity of post-medieval archaeology has not yet reached a level characterised by a regular stream of publications on this particular period. Checking the current offer of publishers that print archaeological literature, one would likely find only a handful of titles on the Early Modern period at the end of the list. Moreover, these works mostly focus on a relatively narrow range of topics or process just a single find assemblage. Only a few comprehensive studies on post-medieval archaeology have been published for individual countries in Europe, though the gaps are at least partially filled by journals. The research tradition understandably does not stretch as far back here as in the case of antiquity and prehistory, and in many countries post-medieval archaeology has established itself as a distinct subject in the discipline only recently.

The situation is no different in the Czech Republic. The absence of regular meetings or conferences with a post-medieval subject and the lack of publications in this field forced us to search – first and foremost for ourselves – for a solution to this problem. It cannot be said that Early Modern archaeology has been ignored entirely in academic studies. Quite the contrary: we can state with satisfaction that the number of such works has mostly increased in recent years. And yet, very few scholars devote themselves intensively to this subject in the Czech Republic. Influenced by these circumstances, issues are addressed by the same circle of researchers, and questions and their answers recently seem to be stuck in the same old cycle without any possibility for fresher impulses.

Of course, communication and shared experience within the field, even among just a small group of scholars, is always beneficial and helpful in many respects. However, this country was missing any type of regularity in the form of meetings that would build on the better research structure of the 1980s and the years 2006 to 2014. Repeated efforts

by existing groups focused traditionally on medieval archaeology to expand into the post-medieval period unfortunately missed the mark.

This situation was the initial impulse for creating a common professional platform that could serve to address issues related to post-medieval archaeology in Bohemia. But for this type of activity to have any meaning, it was necessary to expand beyond the country's borders, as this was the only way to broaden horizons previously concentrated mainly on domestic matters and launch a stimulating discussion. The first attempt at an informal meeting (more accurately a workshop) confirmed that personal contacts and communication are in fact the right path towards reducing our current frustration over the possible stagnation in the development of post-medieval archaeology in this country.

We therefore wanted to primarily conceive the first official working meeting planned for the spring of 2018 in Prague as a workshop in the broader sense of the word. The unanticipated interest, especially from foreign scholars, subsequently led to a four-day conference entitled EUROPA POSTMEDIAEVALIS and the creation of the coveted platform with the aim of bringing together people in the field and discussing approaches to various issues in Early Modern archaeology in Europe.

The conference with a planned biyearly periodicity set the goal of searching for topics in post-medieval archaeology that reflect their current situation while simultaneously being of interest to a broader group of scholars. Therefore, it is hardly surprising that the central theme pursued by generations of scholars across Europe proved to be Early Modern ceramics, the large assemblages of which are for many of us the bread and butter of our daily lives – a delight and often a headache resulting from their further processing. The overall satisfaction of participants with the results of the first conference then inspired us to publish the individual articles and make them available in this way to the broader



professional community. A great deal of work went into the creation of the first EUROPA POSTMEDIAEVALIS anthology and this undoubtedly had an impact on the resulting form of the publication.

To our surprise, we were able to gather articles from literally all corners of Europe. Their subject in particular reflects the current status of research on Early Modern pottery in individual countries, and as we expected, many of them proved to have much in common. As the first year of the conference was entitled 'Post-Medieval Pottery between (its) Borders', efforts were made to use this name as a criteria in selecting the presented articles. Their choice was to follow currently addressed issues in the broadest possible area of Europe, and the conference divided the works into four areas and poster sections. For the most part, we decided to maintain this division to ensure that the resulting image of post-medieval pottery research was as diverse as possible.

As such, anthology articles come from the Czech Republic, Croatia, Germany, Hungary, Italy, Norway, Poland, Portugal, Slovakia and Switzerland. The borders of Europe are then crossed by a single, though no less interesting, article from the islands of Cape Verde. And yet, the borders that to a certain extent determined the direction of the first year of the conference were meant to be more than just geographical or political. Our goal was to concentrate on the field and research approaches as such, and in this sense borders were intended as possibilities for or, on the other hand, limits to knowledge, be it as part of interdisciplinary cooperation (the application of natural science analyses), in determining the age of pottery assemblages (elaborating dating intervals), in investigating distribution networks of identified pottery products (the regional or superregional scope of products), and other related issues. The lone diversion from this theme is a text on the subject of Early Modern fortifications in Bohemia.

The preparation of the anthology and individual articles, including intensive communication with domestic and foreign researchers, became an important impulse for us to expand the borders of our own our research activities. We hope that the articles presented in this anthology inspire further work, thought and discussion. Last but not least,

the articles serve as study material for those who come into contact with Early Modern material culture in their work.

In addition to editors, graphic artists and proofreaders, this anthology is also the work of professional reviewers, whose helpfulness, thorough reading and comments often had a major impact on the final appearance of the text. We should also mention the responsible approach of the majority of authors, as without their cooperation the publication of this conference anthology would have simply remained on the theoretical level.

We would also like to thank all those who from the very beginning supported our efforts to organise an international conference, especially our home institutions – the Institute of Archaeology of the Czech Academy of Sciences, Prague, Czech Republic, and the Centre for Processing, Documentation and Recording of Archaeological Finds. Our gratitude also goes to all those who contributed to the preparation and the successful course of the conference. Finally, we would like to thank all of the archaeologists who placed their trust in us and attended the first year of the conference and those who believed that the conference anthology would see the light of day and that the efforts that went into its preparation would lead to the desired goal of its publication.

# 1 | Pottery Throughout Europe







# Pottery Use and Social Inequality in Mid-18th Century Lisbon. An Initial Approach

Tânia Manuel Casimiro – José Pedro Henriques – Vanessa Filipe – Dário Neves

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## Abstract

On the morning of 1 November 1755, a large portion of Lisbon was destroyed in an earthquake followed by a tsunami and a fire that lasted for several days. Several contexts destroyed on that peculiar morning reveal what type of pottery was being used in mid-18th century households. This paper focuses on discoveries from three different sites in Lisbon reflecting three different social environments in which pottery was used in the most basic activities: a poor house located close to the city wall, a 'middle class' dwelling and a palace belonging to an important noble family, all of which were destroyed on that day, reveal what people were using on a daily basis.

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🔑 *destruction context – Lisbon – social environments – consumption*

## 1. INTRODUCTION

Around 9:30 on the morning of 1 November 1755, almost the entire population of Lisbon was attending mass inside the city's churches when a huge earthquake shook the city, killing a large number of its citizens, a third of its population some say (PAICE 2008). Churches, palaces and houses fell to the ground on that particular day, and it took decades for the city to be rebuilt. What was a catastrophe at that time is today an extraordinary opportunity to learn about the daily lives of Lisbon inhabitants and their consumption habits.

This paper studies the ceramic collection associated with the excavation of three archaeological sites (**Fig. 1**) in Encosta de Santana (ES), Largo Duque de Cadaval (DC) and Praça D. Pedro IV, also known as Rossio (RO), and discusses their domestic ceramic uses and in what way can they reflect social inequalities, a subject often approached (BEAUDRY ET AL. 1991)

Although only ceramics are analysed in this paper, the collections of metal, glass, wood and bones are essential in the study of the daily lives of these populations. With the exception of DC, a palace built a few years after 1640, it is not possible to say when these domestic structures started to be used as homes, since, if no excavation was made below the ground at RO, in ES the construction was made over an agriculture area located close to the city walls and was thus a post-medieval, possibly an early 17th-century building (MURALHA ET AL. 2002, 245). However, all of them had the same fate and were destroyed on the same day. According to their location and cartographic documentation for Lisbon in the 17th and 18th century, as well as the material culture associated with the sites, it is possible to infer the social and economic base of the people living in those houses. While ES reveals what can be called a low-income family, the other two sites are associated with noble and possibly





culture found inside was very consistent, suggesting it belonged to the same house. The structures were well preserved on the level floor and while the yard, a private area with a direct exit to a main street and a water well, had a cobbled floor, the other two were covered with red floor tiles. One of these inner compartments seems to have been used as a kitchen. The typology of its construction with a well, a tank with the walls covered in tiles, and the material culture found inside, including a knife on the floor and a redware pot close to the well, used as a water container, suggests this use. Wells and cisterns are common features of 17th- and 18th-century kitchens, especially in wealthy homes (MARQUES/FERNANDES 2006). Although the stove area was not found<sup>1</sup> the cooking pots found in this area all had soot marks. While the other compartment has no especial feature that would help us recognize its use, the abundance of objects inside, some of them large storage vases *in situ*, may indicate its use as a pantry.

The DC excavation is the one we can relate to a specific family. This was one of the main palaces of the Duke of Cadaval, a noble title created in 1641 as a consequence of the Restauração, when the Portuguese monarch regained the throne from Spain after 60 years of the Iberian Union. This was one of the richest families in Lisbon. The architecture of this site suggests this wealth, since not only was this a huge building, it was also highly decorated (CASIMIRO/BARBOSA 2017). The number of tiles identified within the earthquake's rubble suggests that most of the walls were covered with this decorative solution not only on the ground level but on the first floor as well (CASIMIRO ET AL. 2018). On the other hand, columns and other architectural decorations also suggest a sumptuous environment. In the excavated area it was possible to recognize at least an outside area, once again with a cobbled floor, a main entrance or lobby that would give access to large stairs and other compartments with various functions. The ceramics presented in this paper were found inside one of the compartments with mid-18<sup>th</sup> century occupation. Although a large variety of objects were found inside, pottery

is not among the most abundant, since tiles and metal objects surpass it.

There is documented evidence that a large number of the buildings affected on that morning were visited by servants and slaves, who recovered all that could be saved from the rich houses. This may have happened to this palace, since only very fragmented artefacts were found (SOUSA 1955; PAICE 2008, 166).

These three locations reveal three different types of inhabitants. In ES this house was occupied by lower class people. The material culture inside suggests this since many artefacts were found broken yet complete, only locally produced items were recovered, things with a low market value. As for the other two sites, the house in RO reveals great wealth with the number of imports used as tableware surpassing the amount of local ware, and DC was the house of one of the richest families in the kingdom.

### 3. DOMESTIC CONSUMPTION

Discussing the domestic uses of pots is not a simple task considering that most of them did not have one single use or that similar shapes were used for different functions. While the study of 18th-century pottery and its use seems to have been on the mind of archaeologists in Europe and even in North and South America for decades (DAWSON/KENT 2012; MILLER 1991; PEARCE 2000; CESSFORD ET AL. 2017), in Portugal it is still inexistent and, in fact, except for a few papers, there is no research on the topic (CASIMIRO 2011). In fact, the majority of post-medieval pottery research stop in late 17th century and archaeological contexts relating to domestic use are rarely studied.

The ceramics found at these three different sites suggest that pottery was in fact a constant presence in the life of 18th-century Lisbon inhabitants, who used it to cook, to drink and eat from, as well as in other activities. It is not possible in this paper to perform a specific analysis of each ceramic type and shape, so a decision was made to approach the collections in a more general way. **Table 1** presents the MNV for each site, although one has to bear in mind the numbers reflect some different site-spe-

<sup>1</sup> The preservation of the site suggests it is still there, but the commercial nature of the excavation did not permit a further investigation.



	NMI		
	RO	ES	DC
Tin glaze ware	25	30	10
Redwares	36	68	22
Glazed wares	30	19	10
Porcelain	51	1	5
Stoneware	1		
Total	143	118	47

Table 1

cific formation. While RO is a context that was never disturbed after 1755 and ES seems to have suffered the same fate, DC may have in fact been disturbed and some objects recovered after the cataclysm. In this sense, although we believe that the amounts in RO and ES correspond to what was in use in those dwellings at the time, we are not sure for DC.

The majority of the artefacts found associated with these three production sites were produced locally, in Lisbon, using red clays. Varying from light red to dark brown in colour, the pots have a homogeneous fabric with small-medium quartz, lime and micaceous inclusions. The pots were all wheel-thrown. Most of the vessels have no surface treatment, although a few have a lead glaze, a mixture of sand and lead oxides covering the redware body, waterproofing their surface. Although some tableware, especially drinking cups, were made with this clay, the majority of these ceramics correspond to kitchen or storage ware. As for tableware the local production is essentially white tin glaze also produced in Lisbon, generally called faience. Their body was made with a soft, light, buff clay and the surface covered with a lead-tin glaze. In mid-18th century, these ceramics were essentially white or decorated with blue and purple (CASIMIRO 2013). The imports identified in these contexts are essentially Chinese porcelain with some occasional English or Dutch ware.

Kitchenware includes all objects used in the act of cooking food or in some related activity. After tableware, cooking pots and their lids are the second most frequent find in any of the three mentioned contexts, although in a higher amount in ES

(27%) and RO (25%), especially since these sites were not revisited after the catastrophic event. Portuguese 18th-century recipe books shed some light on what these cooking pots were used for. Stewing, boiling and frying are among the most recurrent actions. Different recipes may implicate a preparation of the pot prior to its use by letting it soak with water for a few days or just covering the walls with lard (CASIMIRO/GOMES, in press). Stewing and boiling pots (*panelas*) have flat bases and globular bodies with vertical or horizontal handles and semi-circular rims (Fig. 2). These could be glazed or unglazed. Through recipe books, it is possible to conclude that surface treatment was actually related to the type of food prepared inside a vessel. Frying pans (*frigideiras*) are hemispherical forms with a flat base, with or without handles (Fig. 3). Most of the food in 18th-century Lisbon was made inside ceramics cooking pots, since metal vessels, either from copper or iron, are rarely mentioned in documents.

In the RO excavation, fragments from three very distinct cooking pots were found and should be analysed carefully. Although specific studies, including archaeometric analysis, are being conducted on these pots, they have generally been assumed to be pots related to African populations (SIMÕES 2015; OLIVEIRA/BROCHADO 2016; Fig. 4). The type of house excavated in RO would have been occupied, based on the material culture and urban location, by a type of group that could in fact own African slaves, so this could actually be an indicator of different identities sharing the same domestic space.

Tableware is the most abundant type of pottery found in Lisbon households in this period used to individually eat and drink from. In RO, 47% of the total collection corresponds to plates and bowls, either porcelain or tin glazed, and in ES, 32% corresponds to tin glazed plates and bowls. Locally made objects were at the table of the people living in these houses, although in different amounts. While blue on white faience in ES made up the total amount of objects with plates (*pratos*) and bowls (*taças*) used for food consumption, in RO porcelain seems to have occupied the primary role. Portuguese faience was used at the daily table of Lisbon people at least since 1635/1640, although

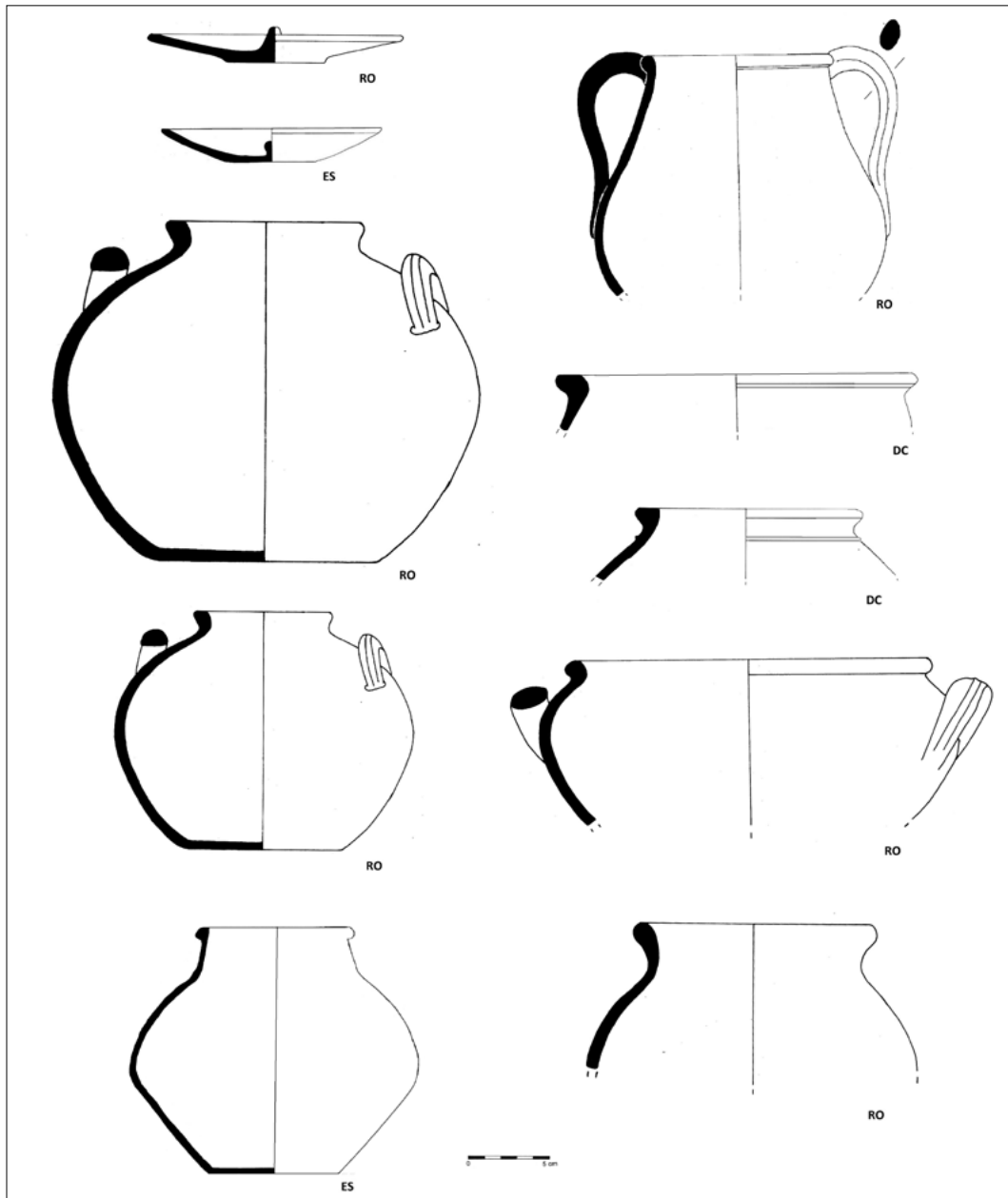


Fig. 2: Cooking pots (*panelas*) from the three sites.

we can trace the production of tin glaze ware in Lisbon at least to the first half of the 16th century. Initially, the forms produced followed Spanish production, though it rapidly started to reproduce the shapes and decorations of Chinese porcelain (CASIMIRO 2013). Though many types of objects were produced, plates and bowls are among the most frequent forms and were used mostly for consuming food (Fig. 5). A bowl found in ES was produced roughly 100 years earlier (CASIMIRO 2013, 358), which may indicate an object worth keeping.

While wine seems to have been consumed mostly from glass cups, water was drunk primarily from ceramic cups (*púcaros*). In fact, Portugal was internationally known for the quality of its cups, and they were widely exported to Europe and the New World (NEWSTEAD/CASIMIRO 2018). It is not possible to make a social distinction based on these particular cups since they were equally used by both rich and poor. A foreign visitor to King D. Sebastião was shocked when he saw the king drinking from one of these cups during a meal, surprised by the fact that the king was not drink-

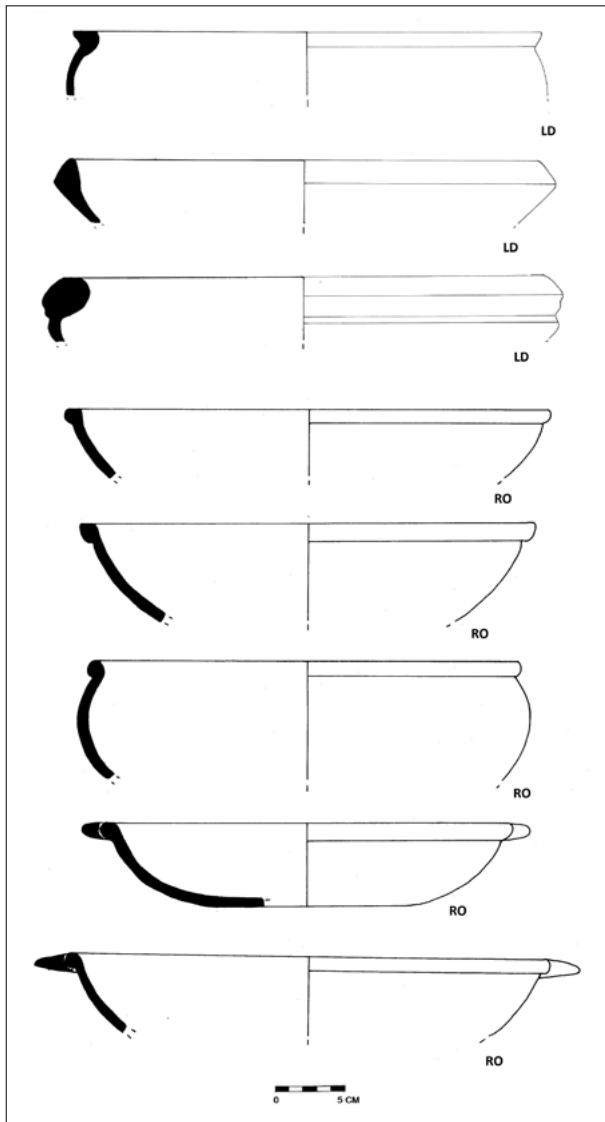


Fig. 3: Cooking pots (*frigideiras* and *tigelas de fogo*) from the three sites.

ing from a silver vessel (VASCONCELLOS 1921, 20). These could be plain or decorated with incised lines and flowers, which could in fact reveal differences in acquisition prices (Fig. 6).

As for imports, the aforementioned porcelain from China was on the top of the list in the mid-18th century. Porcelain imports into Lisbon started in the early 16th century after the first voyages to India, although they became abundant about a generation later. The desire for these products remained stable for more than 150 years, with a decrease in late 17th century possibly related to political and economic changes both in China and in Portugal. We would have to wait until the late

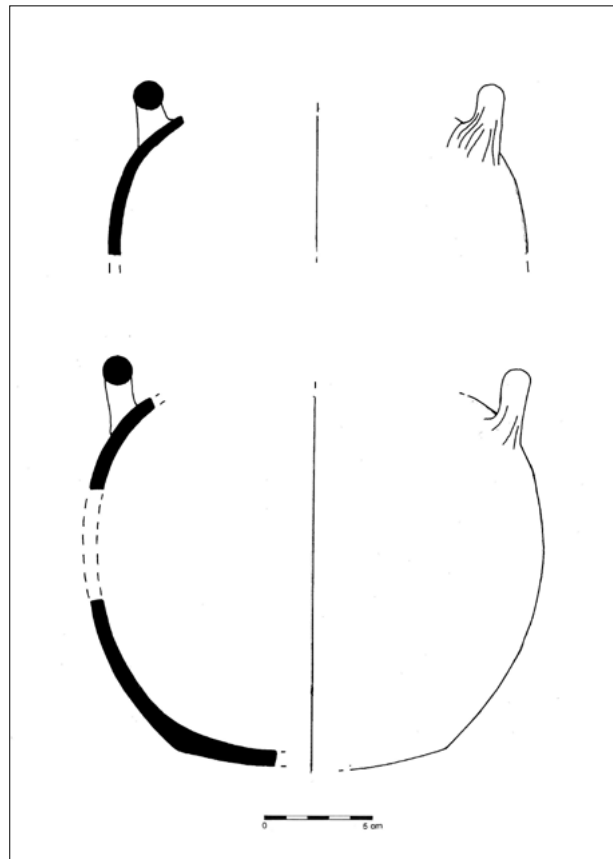


Fig. 4: Cooking pots usually related to African users.

17th century and the full establishment of the Qing dynasty to recover the trade and assist the constant growth in this type of ceramics in the archaeological record. Although six porcelain objects were recovered in the DC excavation and just one in ES, the RO house provided a large quantity, most of them found in the pantry compartment. In fact, porcelain represents 67% of all tableware, 85.7% in the case of this compartment. The majority of this porcelain was produced (Fig. 8) during the reign of the emperors Yongzheng (1723–1735) and Qianlong (1723–1795), with some occasional artefacts produced under Emperor Kangxi (1668–1722).

It is quite interesting that some of the objects found here and one of the plates in DC can be dated to the Ming dynasty during the late Jiajing (1522–1566) and Wanli (1573–1619) periods, revealing that these objects were highly appreciated and actually maintained for several generations instead of being discarded. While the reasons these items were kept are just theories, it is quite possible that they could

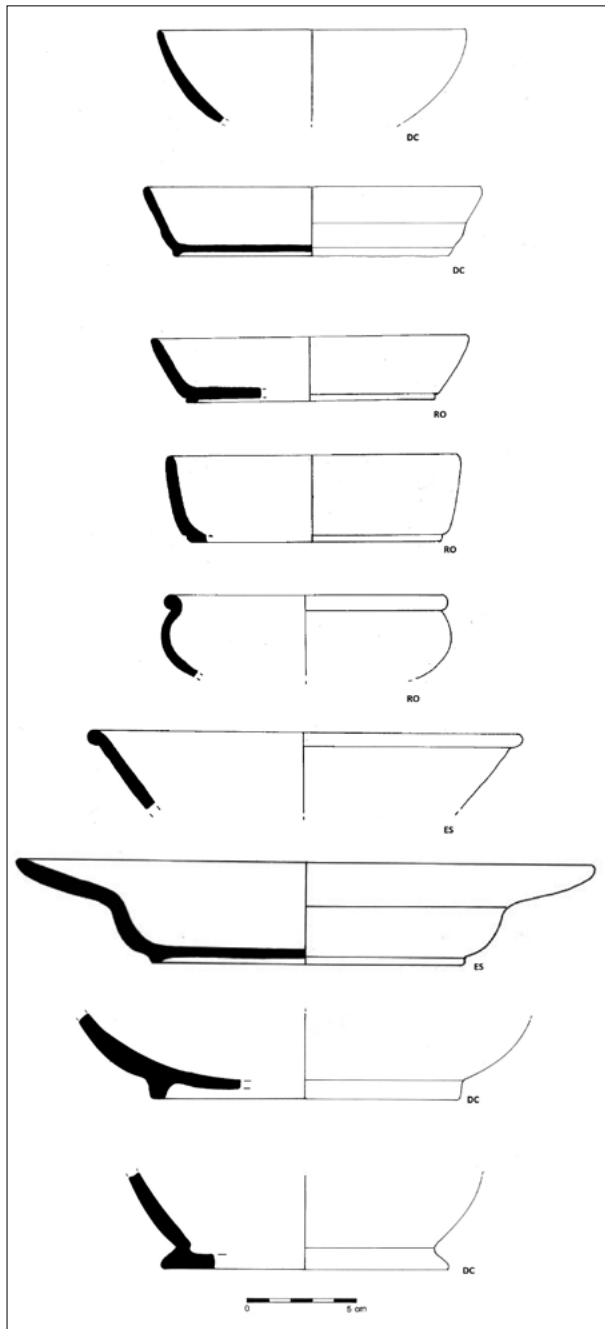


Fig. 5: Tin glaze ware.

have been seen as family heirlooms or kept for their economic value. The majority of the forms identified at the sites under analysis are plates, bowls, one teapot and cups for drinking this beverage, which in fact may indicate the social standing of this household in the mid-18th century.

Their decoration is essentially blue on white floral motifs with occasional human representations, although a few pink family objects and brown

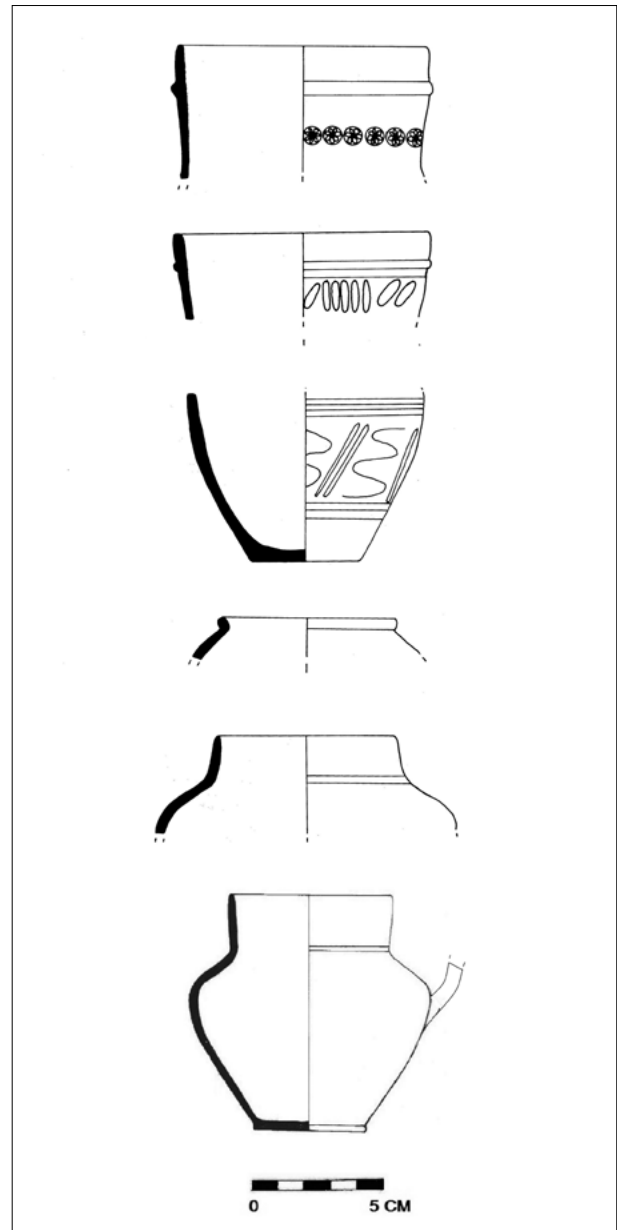


Fig. 6: Red ware drinking cups.

Batavian ware was also recovered. The absence of large tureens and platters intended for serving food indicates that these objects were essentially used to eat from and not for serving purposes. It is curious that none of the objects found at any of the three sites can be clearly identified with this function, though large flared bowls lead and tin glazed may have served such a function.

The analysis of porcelain collections in Portugal from a consumption and not an artistic point of view is rare, and none of the small number of sites that were actually studied had such an accu-



Fig. 7: Storage pots (RO).

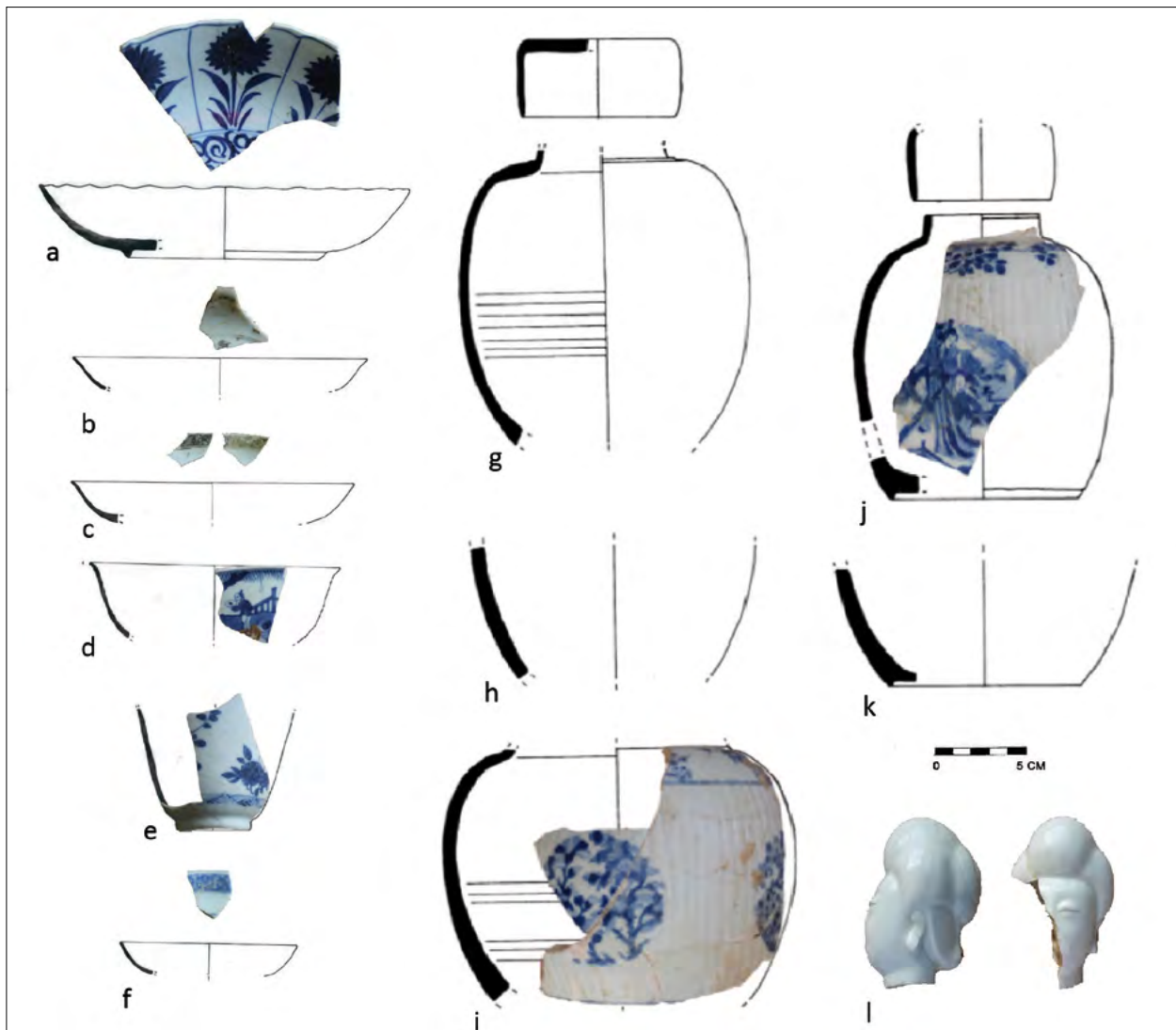


Fig. 8: Porcelain (RO).



rate chronology. However, it is possible to say that the objects found in RO make up one of the most consistent collections in Portugal with similar decorations, while the others have larger formal and decorative variety (FERREIRA ET. AL 2017; HENRIQUES 2012).

Minor imports also used at the table include one white undecorated salt-glazed stoneware bowl, possibly made in England, and the remains of one Delft plate.

Of all the sites, only RO and ES provided unglazed storage pots. What was actually stored inside is difficult to establish, though it is possible that a large portion of the costrels (*cântaros*) found in ES and the two large pots from RO were used to hold water (Fig. 7a). The shapes of these objects associated with its unglazed surface suggests such a use. In addition, one of the large pots found in RO was close to one of the wells, perhaps indicating its final use. A large lead glazed yellow pot has sparked debate among our team members (Fig. 7b). It has a shape similar to the 16th-17th-century chamber pots used

in Portugal. However, due to its large size and its location in the pantry area, we believe it was probably used to deposit some organic kitchen remains that would have been subsequently used to feed animals.

However, storage could also have been accomplished in delicate porcelain imports, possibly holding exotic commodities. In the house's yard, five pots and two lids of Kangxi porcelain produced around 1700 were found (Fig. 8g–k). These seem to have all belonged to the same collection and have similar decorations, all with circular medallions on their outer walls where either flowers or female figures are represented. Once again, we have a type of object that survived for at least two generations.

Although not corresponding to objects used to cook, eat or store, the head of a *Guanyin* statue, in *blanc de chine* and produced in the Dehua kilns, was found inside one of the wells in RO (Fig. 8l). This would have been a very expensive object related to a wealthy context, and it is therefore no surprise that it was found inside a household in downtown Lisbon.

## Conclusion

The purpose of this paper was to discuss the use of pottery in mid-18th-century Lisbon based on the information determined from three archaeological sites, all of them sharing their formation day, 1 November 1755. It is a difficult task to accomplish in such a short paper, and much more about the relationship between people and things and things and people, shape and function, the importance and significance of decoration and its semiotic implications, as well as the social base of consumption, social discourse, social differences, and how these ceramics reflect cultural identity, could have been said. In this sense, this paper is conceived as an introduction to more detailed studies planned for the future.

Nevertheless, it is safe to say that in the mid-18th century different social classes were using similar pots as unglazed cooking pots, which are a constant presence at all the sites. The type of food preparation could in fact have a shared cultural background independent of the social class. Nevertheless, lead glazed cooking pots were only observed in RO and DC, which may indicate that these were more expensive than non-glazed objects.

If cooking pots suggest a similar cultural taste in food, tableware indicates that the consumption of food was completely different. Most of the tableware and porcelain with forms such as cups and teapots to consume exotic beverages was retrieved from the wealthier sites, while in the ES only Lisbon ware was found. Faience plates were very inexpensive. In 1700, a convent in Évora bought 15 dozen white faience plates for 2,670 réis, and two years later, the price was maintained at 180 réis per dozen (MANGUCCI 2006, 3).



During this same period a chicken could be purchased for 180 *réis* (FAÍSCA 2012). Whether it was decorated or not, Portuguese faience was never so valuable to be mentioned in wills, in contrast to imported Chinese porcelain or Spanish and Italian ceramics. This seems to be another factor to consider that ES was not a rich home. There are no imports, and except for the faience plate produced in the mid-17th century, the quality of all the other ceramics is far from exceptional.

But how did people and pottery relate in Lisbon in the mid-18th century? That wealthy consumers preferred to eat from imports instead of locally made objects is an established fact. The type of decoration on faience, for example, is the result of at least two centuries of decorative evolution, a palimpsest of different influences and tastes, reflecting the global importance of Portuguese voyages, something that Lisbon residents were well aware of. On the other hand, while in ES we can find only one plate that may actually have been kept for a few generations, in RO and DC that preservation exists in porcelain with a few plates that originated in China in the 16th century. What can this tell us about how people connected and cared for these commodities? Although unpublished, several 16th-century Ming plates were found in the 18th-century layers of the archaeological excavation of the Marialva palace owned by one of the richest and most influent families in the country. Were they evidence of past relatives and thus a family memory? While we will probably never know, it should be mentioned that the preservation of older objects is at least frequent at other archaeological contexts resulting from the 1755 tragedy.

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# The Production and Export of Pisan Pottery in the 16th and 17th Centuries

Marcella Giorgio

## Abstract

The study of Pisan pottery production between the 16th and 17th centuries was the basis of my PhD research at the University of Pisa. This study, based on the analysis of kiln waste (revealed during excavations in the historic centre of Pisa), brought new results for a better understanding of the evolution and the change of urban pottery manufactories in the Late Middle Ages and the Early Modern period. The excavations, different in localization and scope, as well as in chronologies and data, offer a relatively complete image of the pottery produced in Pisan workshops: late archaic majolica and different types of sgraffito slipware. Therefore, it was possible to construct a sequence that allows us to follow the evolution of manufactories in a transition period. The revision of old contexts and new data from unpublished excavations conducted in other parts of the city have been included in this analysis. The study covered every aspect of production: the transition from tin glaze to slipware, production technologies, archival sources and the relationship with the other ceramics from the Florentine area, exports to the Mediterranean area, Northern Europe and the American countries, and the relationship with other Tuscan slipware production centres.

— Pisa - archaic majolica - slipware- production technology - exports

## 1. INTRODUCTION

Pisa is a city in Tuscany in north-central Italy, located close to the mouth of the Arno River (Fig. 1). The settlement has Etruscan and Roman origins, although in antiquity it was situated closer to the sea. Pisa's coastal location allowed the city to participate in long-range maritime commerce, enabling political and economic growth.

Pisa has produced pottery since Roman times (*terra sigillata*: SANGRISO 2018, MENCHELLI 2018), but we don't have data for late antiquity and the Early Middle Ages, while certainly there was unglazed fine ware ceramic production from the late 11th century (ALBERTI/GIORGIO 2018). At the beginning of the 13th century, Pisan ceramic workshops produced the first northern Italian majolica (so-called archaic majolica). Pisan ceramic production between the 13th and 15th centuries (archaic

majolica and fine glazed ware) is currently quite well known thanks to the studies of Graziella Berti (BERTI 1997) and, in recent years, thanks to the research I conducted for my first PhD at the University of Torino (GIORGIO 2009a; 2009b; 2011).<sup>1</sup>

During my second PhD at the University of Pisa (GIORGIO 2016), I focused my attention on chronological and typological definitions of Pisan late archaic majolica (from the chronological point of view) and Pisan slipware between the 15th and 17th centuries, while also conducting analyses of Pisan ceramic workshops; on historical, social and economic ceramic production dynamics in Pisa; on the Pisan pottery trade and circulation during the

<sup>1</sup> A recent summary on the history of ceramic production in Pisa is in Baldassarri 2018, related to the exhibition 'Pisa Città della Ceramica' held in Pisa from 5 May to 5 November 2018.



Fig. 1: Pisa's location.

Early Modern period; on the emergence of slipware technology and the replacement of glazed tin ware technology in Pisa and in northern Tuscany and on other Tuscan ceramic production centres between the 15th and 17th centuries. During this research, I analysed contexts with ceramic kiln waste (Fig. 2; ALBERTI/GIORGIO 2013; GIORGIO 2015; BERTI 1994; 2005; BERTI/TONGIORGI 1979; BERTI/TONGIORGI 1982) and I was able to better define the beginning of Pisan sgraffito slipware production in the 15th century and to solve the discordance between previous studies (BERTI 2005) and the chronologies of contexts with pottery sherds from urban excavations (GIORGIO 2015). In this paper I will try to summarise the most important results concerning Pisa, leaving out points concerning other Tuscan ceramic production centres.

## 2. RESEARCH RESULTS

### 2.1 PISAN POTTERS: WORKSHOP DISTRIBUTION AND CLAY QUARRIES

To have more information on ceramic workshops in Pisa I combined the archaeological data from kiln wastes (Fig. 2) to archival data of the 13th–15th centuries carried out by Liana Tongiorgi, Graziella Berti and Catia Renzi Rizzo (RENZI RIZZO 2004; TONGIORGI 1964; 1972; 1979; BERTI/RENZI RIZZO 1995; 2001) and the recent archival data on the

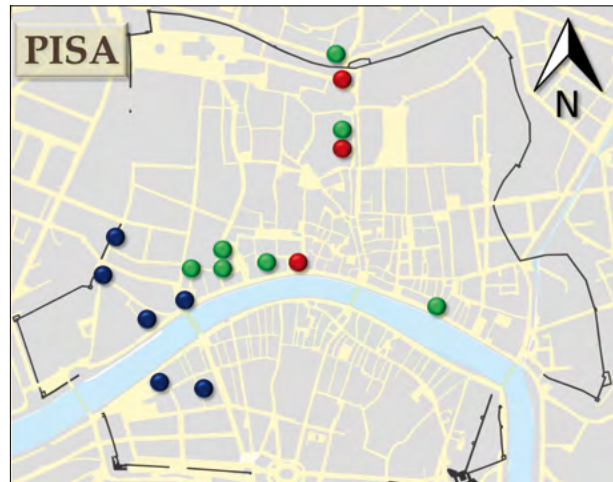


Fig. 2: Finds of ceramic kiln waste in the historic centre of Pisa; in red the archaeological contexts analysed in detail; in green the archaeological contexts partially analysed; in blue the non-stratigraphic contexts reviewed through bibliographic sources.

16th century carried out by Giuseppe Clemente (CLEMENTE 2013; 2015; 2017). The combination of archaeological and archival data has allowed the creation of distribution maps with concentrations of workshops, kilns and clay quarries.

The archival data show a growth of potters in Pisa until the beginning of the 15th century, when a crisis and a decline, due to the Florentine conquest, were the reasons that led potters to leave the city and to move to other Tuscan or Italian centres (Fig. 3). In the 15th century, the greatest concentration of workshops was in the east and the west of the city near or outside the walls. Between the 13th and the 15th centuries, the clay quarries were located to the north and south of the Arno River, also within the city walls.<sup>2</sup>

In the 16th century, the growth of the potters and the new increase of workshops were due to the Medici's economic investments in the city (Fig. 3): this led to a change both in the clay quarries, which were then concentrated in the east, a mile away from the walls, by Medicean edict (CLEMENTE 2013, 36), or much further north towards the Serchio River, and in the potters' workshops and kilns, which are concentrated in the west and north of the city, but within the walls.

<sup>2</sup> Especially in the 13th and 14th centuries; the clay quarries began to be moved outside the walls only in the 15th century: GIORGIO 2018, 36, 37.

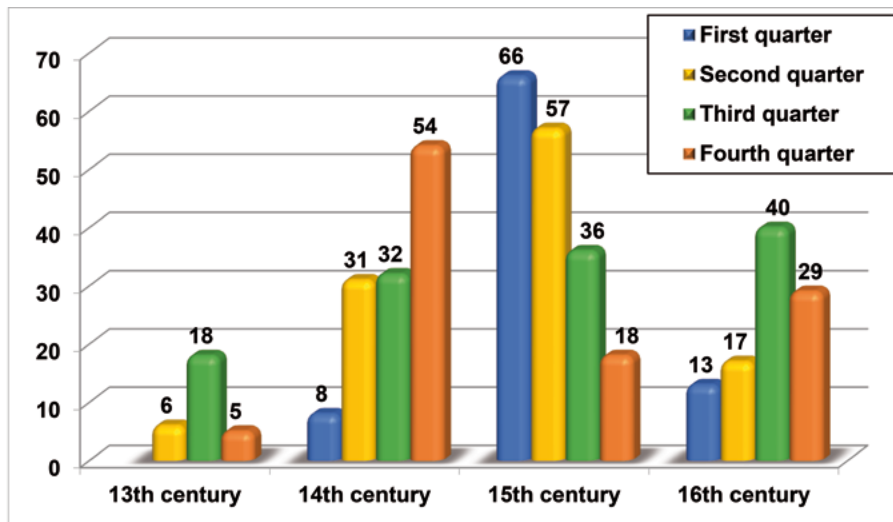


Fig. 3: Graph with documentation of potters in Pisa between the 13th and 16th centuries, through the written sources.

The presence of pottery kilns within the city walls was possible because there was a greater urban space due to the crisis of the 15th century, which led to a demographic decrease and the demolition of medieval production activities and buildings (GIORGIO 2018, 39, 40).

## 2.2 PISAN POTTERY: CHRONO-TYOLOGY (LATE 15TH–17TH CENTURY)

The study was carried out in detail on about 10,000 vessels (minimum number of vessels). The most documented types were archaic majolica (19%) and the sgraffito slipware ‘*a punta*’ (30%) and ‘*a stecca*’ (42%), which were produced the most by Pisan potters. The other types are in the minority (sgraffito slipware ‘*a fondo ribassato*’: 3%; marbled slipware: 1.5%; monochrome slipware: 4%; other slipware: 0.5%).

The sgraffito slipware types are distinct from decoration technologies created through the partial removal of the slip using a tool with a fine (‘*a punta*’ type) or wide tip (‘*a stecca*’ type) or with larger removals that created the impression of low-relief decoration (‘*a fondo ribassato*’ type).

The excavation chronologies have made it possible to construct 30/50-year phases from the late 15th to the 17th century. In this way, it was possible to compile the general chronology of medieval and modern Pisan pottery production (complete results are in GIORGIO 2016, 129–247).

Thanks to this research, it is now possible to affirm that archaic majolica was produced in Pisa from the beginning of the 13th century until the end of the 16th century. Compared to the production from the 13th to the 15th century, in the 16th century this majolica was no longer decorated in green and brown, but was only monochrome white (Fig. 4/1–4), and the only recorded shape is a bowl (Fig. 5).

All the sgraffito slipware types were produced with the same forms, but ‘*a punta*’ sgraffito, produced in 1430–1450 to the middle of the 19th century, is the only one with jugs (Fig. 6). Moreover, the decorations, generally very simple, include several geometric, animal and human elements (Fig. 4/5–10).

The ‘*a stecca*’ sgraffito slipware was produced in 1500–1510 and 1670–1700 and is the most documented type, particularly in 16th century contexts. The forms are the same as ‘*a punta*’ sgraffito, but without jugs (Fig. 7). The main decoration in the centre is made up of few variations, the secondary decoration (on rims and bodies) have many variations starting with common elements (Fig. 4/11–13).

The ‘*a fondo ribassato*’ sgraffito slipware was produced, from middle of the 16th to the end of the 17th century, essentially in two shapes: dishes and bowls with rim. Other types such as bowls, bowls on a foot (*coppe*) or jars (*orcioli*) are rarely documented (Fig. 7). Technically, the decoration is the most difficult to produce and is rich and complex,



Fig. 4: Table with a selection of 16th–17th-century Pisan pottery.



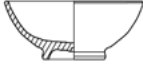
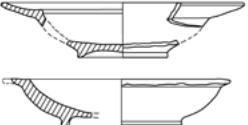
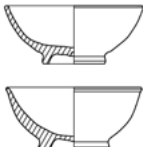
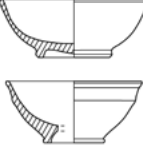
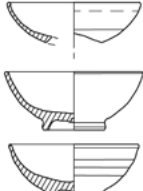
	BOWL	BOWL WITH RIM
1470-1500		
1500-1530		
1530-1560		
1560-1590		

Fig. 5: Shapes of archaic majolica between the end of the 15th century and the 16th century.

and this decoration made the vessels more expensive on the market (Fig. 4/14–16).

A small percentage of monochrome sgraffito is always present in all contexts since the beginning of the 16th century to the 18th century, but since the 18th century became more common and widespread, covering the 50–80% of the slipware types in the archaeological contexts. It is the only type that also has rare closed shapes such as jugs (Fig. 6), or small globular jars and a straight-sided jar (*albarello*) used for spices and ointments (Fig. 4/19).

Chronologically speaking, marbled slipware is the latest, from the end of the 16th century to the middle of the 18th century. It was produced less in Pisa but was very well known and traded outside the city. There are few form types: basins, bowls with a rim and dishes (Fig. 4/17, 18). The marbled decoration is polychrome in the initial phase (white, red, brown, green), while in the final phase it is bichrome (red, white).

### 2.3 PRODUCTION TECHNOLOGY

The study of ceramic kiln waste made it possible to collect some interesting data on production technology (complete results are in GIORGIO 2016, 82–128). Specifically, the use of ‘diluted’ slip and the use of clays extracted from different quarries and used simultaneously at the same workshop was observed in some cases.<sup>3</sup> However, the first and second firings were performed in one kiln, but, since the temperature required was different in these two firings, this created difficulty in regulating heat and the consequent fusion of the vessels (Fig. 4/1, 7). Other most common firing mistakes and problems that occurred are tin glaze crazing and crawling, surfaces deformations (plastic flow), gas bubbles, fusion between vessel and spacers and over-firing deformations. In some cases, I could observe mistakes or errors that are the result of potters’ experiments: double glazing and double incising the vessels, incising when slip was not yet dried or using tin glaze on sgraffito decoration.

I also noted a prolonged use of ceramic spacers, continuously cut out until they no longer had the tips (Fig. 4/20). In some cases, I could observe that the spacers were used even without the tips: in these cases, the result was the complete union with the vessels (Fig. 4/3). All these factors demonstrate the desire to accelerate the production process, perhaps due to a greater demand for products, which, however, did not always produce good results.

### 2.4 CERAMIC EXPORTS

To understand the success of Pisan pottery in other countries, I chose to make a survey of Pisan pottery exports: the research on one hand led to a definition of the commercial routes described by these objects; on the other, it has shown the broad distribution of Pisan slipware (GIORGIO 2016, 431–464).

Using sources available in libraries and online, I conducted a survey that I divided into sites, find types, ceramic types and the contexts in which these objects were found, from the end of the 15th century to the 17th century. The references did not always recognize the slipware as manufactured in

<sup>3</sup> Thanks to petrographic analyses: results presented in CAPELLI 2013 and commented on in GIORGIO 2018, 40–42.



Sgraffito slipware "a punta"

	BOWL	DISH	BASIN	BOWL WITH RIM	JUG
1470-1500					
1500-1530					
1530-1560					
1560-1590					
1590-1620					

Monochrome slipware

	BOWL	DISH	BASINS	BOWL WITH RIM	CLOSED SHAPES
1500-1530					
1530-1560					
1560-1590					
1590-1620					

Fig. 6: Shapes of 'a punta' sgraffito slipware and monochrome slipware between the end of the 15th century and the beginning of the 17th century.



Sgraffito slipware "a stecca"

	BOWL	DISH	BASIN	BOWL WITH RIM
1500-1530				
1530-1560				
1560-1590				
1590-1620				

Sgraffito slipware "a fondo ribassato"

	BOWL	DISH	BOWL ON FOOT	BOWL WITH RIM	CLOSED SHAPES
1500-1530					
1530-1560					
1560-1590					
1590-1620					

Fig. 7: Shapes of 'a stecca' and 'a fondo ribassato' sgraffito slipware of the 16th century and the beginning of the 17th century.

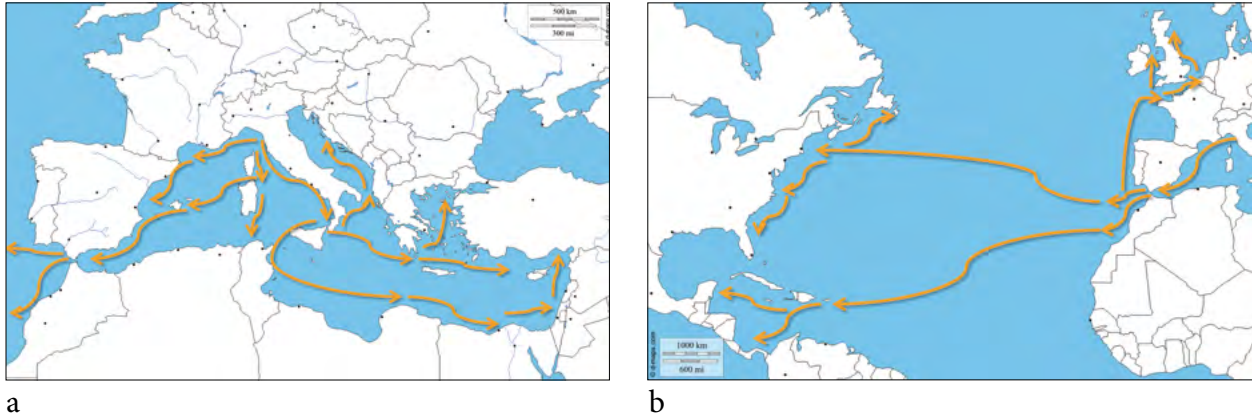


Fig. 8a, b: The sea routes through which Pisan pottery was traded, reconstructed through finds of Pisan pottery sherds.

Pisa (sometimes generally referring to it as Tuscan), but thanks to the descriptions of technological characteristics and fabrics, and the inclusion of drawings or photographs, I was able to make a correct identification.

The database has been organised in small tabs by nation, region, province and city, starting from the Mediterranean area and continuing towards Northern Europe and the Americas. The data was then included in a GIS, producing a large amount of information and making it possible to build thematic charts for classes, chronologies and types of finds.

Marbled slipware was the most exported Pisan type (39% of the total), despite being present only in 17th-century contexts, where it is always associated with late *'a punta'* sgraffito and the polychrome majolica from Montelupo fiorentino.<sup>4</sup> The other most exported types are *'a punta'* (35%) and *'a stecca'* (15%) sgraffito slipware; other types are less exported (monochrome slipware: 4%; *'a fondo ribassato'* sgraffito slipware: 3%; other slipware: 2%). Late archaic majolica is rarely exported (2%) and is only found along the northern Tuscan coast.

Most Pisan pottery exports are in Italy (43% of the total), especially along the entire Tyrrhenian coast. In the 16th century, only slipware is exported throughout the Mediterranean, to Northern Europe and in the Atlantic all the way to the Americas. In 21% of cases, the finds were in the western

Mediterranean (in France and Spain) and, again in 21% of cases, in Northern Europe (especially in England and Holland). Only 6% of the finds are in the eastern Mediterranean. Few but interesting discoveries (9%) document the export of *'a punta'* sgraffito and marbled slipware to the Americas and the Canarias and Azores islands.<sup>5</sup>

Thanks to the sites at which the pottery sherds were found and to historical sources that testify to commercial trade, it was possible to reconstruct the distribution routes through which Pisan pottery circulated. In the 16th–17th century, it is well known that Pisan merchants were present both in the Mediterranean and in the New World (MAZZEI 2003); also known is the presence of the English,<sup>6</sup> Dutch,<sup>7</sup> Spanish and Portuguese merchants in Pisa and Livorno.<sup>8</sup> This allowed the wide circulation of Tuscan goods both in the Mediterranean, in Northern Europe and in the Americas, and with them also the diffusion in the same areas of Pisan pottery and Montelupo's majolica.

Two possible distribution routes cover the Tyrrhenian down to Sicily (Fig. 8a). From Sicily they proceed separately, one to Tunisia, Egypt, Syria and Israel, the other through the Strait of Messina

5 Complete results are in GIORGIO 2016, 431–464.

6 On the presence of English merchants in the port of Livorno: PAGANO DE DIVITIIS 2017.

7 On the presence of Dutch merchants in the port of Livorno: BERTI 2014, 19.

8 Favoured by the Medici's laws: FRATTARELLI FISCHER 2003, 318.

4 For updated information on this majolica, see FORNACIARI 2016.



splits and goes on to the Greek islands up to Istanbul on one side and the Adriatic on the other.<sup>9</sup> Two further routes to the west cover the French and Spanish coasts, emerging in the Atlantic Sea.<sup>10</sup> The finds make it possible to follow the Northern Europe commercial distribution routes up to the Netherlands, England and Ireland (**Fig. 8b**), probably thanks to the trade conducted by the English and Dutch merchants who frequented the port of Livorno.

<sup>9</sup> There were political and commercial contacts between Tuscany and the eastern Mediterranean: GIORGIO 2016, 442.

<sup>10</sup> Between the 16th and 17th centuries, Pisan merchants were in Seville, from where they traded with Central America: MAZZEI 2003, 294, 295; LISTER/LISTER 1976, 30.

Finally, there were at least two routes (**Fig. 8b**) along which, thanks to English and Dutch merchants on one side and the Spanish and Portuguese on the other, Pisan pottery could spread to the Americas: one to the north through the Azores, up to the coasts of Canada and North America, where the Dutch and English settlements were, and one to the south through the Canary Islands, up to the Caribbean and Central America, where the Spanish and Portuguese colonies were (complete results are in GIORGIO 2016, 431–464).

## Conclusion

In conclusion, this research has allowed an expansion of the knowledge on Early Modern Pisan ceramic production, and has brought some order to the previous data. In this way, by combining bibliographic, archaeological and archival data, it was possible to understand how the changes that occurred at the end of the Middle Ages influenced Pisan ceramic production in the 16th century and beyond. Although Pisan pottery became a low-cost and large consumption product in the Early Modern period, it had such good success that it was traded over the long distance to the new American continent.

But research is not yet finished and indeed in the future will focus more specifically on ceramic production in the 18th and 19th centuries, where it is bookended by another important change, i.e. the Industrial Revolution. Furthermore, the study of archival data for the 17th century by my colleague Giuseppe Clemente begun just in the spring-summer of 2018. Finally, few archaeometric analyses have been performed on Pisan slipware (CAPELLI 2013; BLAKE/HUGHES 2017) and for the future I propose chemical analyses on glaze and slip to shed light on production technologies.

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# A Potter's Workshop from the Renaissance Period at Zug. Swiss Faience Production in the Second Half of the 16th Century

Eva Roth Heege

## Abstract

Archaeological excavations at nos. 1 and 3 Oberaltstadt in the historical town centre of Zug brought to light finds and features dating from the 13th century onwards. They included a potter's kiln that had been installed in the mid-16th century but was in use for only a few decades. The waste products that survived from the potter's workshop comprised a wide range of utility ware and stove tiles, bearing witness to the production of true faience (lead-tin glaze). Special forms such as bird and owl-shaped vessels, clay statuettes, appliqués, miniature vessels and children's toys were also manufactured at the potter's workshop in Zug. Archaeometric analyses allowed us to trace the entire chain of manufacture, from raw clay to half-finished and ultimately to finish objects. The fact that faience glaze and owl-shaped vessels were actually made in a small town like Zug, where they would previously have been classified as imports, enabled us to draw important conclusions with regard to cross-border technology transfer. With this in mind, we can probably assume that the proportion of 'innovative wares' manufactured even in towns of seemingly little importance was quite large in comparison with imported ceramic objects.

— workshop, pottery kiln, archaeometric analyses

## 1. INTRODUCTION

In 1993 and 1994, a 16th-century potter's workshop was excavated in the historical part of Zug (**Fig. 1**).<sup>1</sup> The features associated with the workshop came to light as soon as the concrete floor and the top-most layers had been removed. The house itself had been built in the 15th century and the potter's kiln in its southwest room was a later addition (ROTH HEEGE/THIERRIN-MICHAEL 2016, 35–40; **Fig. 2**). The kiln had an almost square stoking-pit (1.6 x 1.6 m), a fire-tunnel and a small firing chamber of

just 1.2 x 1.1 m in size (**Fig. 3**). The latter was made of (red) brick and had a clay tile floor. According to the finds, the kiln was constructed in the first quarter of the 16th century at the earliest. However, the walls of the stoking-pit were constructed in several phases and then rebuilt in the third quarter of the 16th century.

The kiln can be classified as a 'vertical updraught kiln'. The brick walls in the firing chamber make it a typical 'Piccolpasso' potter's kiln, a type used from the 16th to the 19th century in the German-speaking parts of Switzerland. Kilns of this type were most commonly used for the manufacture of stove tiles and crockery (ROTH HEEGE 2007, 296; HEEGE 2007, 57–67; HEEGE 2011, 218).

<sup>1</sup> Archaeologist in charge: Rüdiger Rothkegel, site technicians in charge: Markus Bolli and Peter Holzer. This paper is based on the overall publication of the excavations undertaken at nos. 1 and 3 Oberaltstadt; the potter's workshop and its associated finds were only one part of the features uncovered. Cf. ROTH HEEGE/THIERRIN-MICHAEL 2016 and ROTH HEEGE 2017.

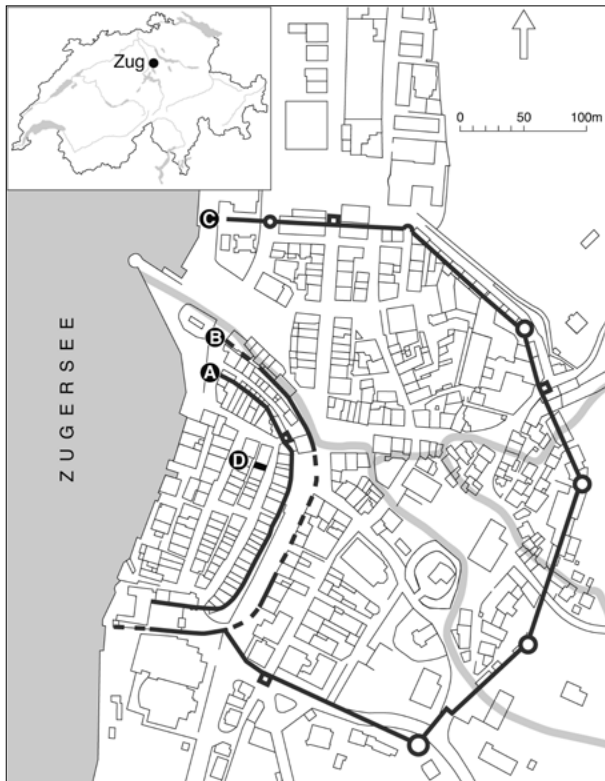


Fig. 1: Cadastral map of the city of Zug with its medieval fortifications (A, B), early post-medieval city wall (C) and the location of the plot at no. 3 Oberaltstadt in the historical part of the city (D). Amt für Denkmalpflege und Archäologie. Created by E. Kläui Sanfilippo.

## 2. OVERVIEW OF THE FINDS

The kiln at Zug was dismantled at some unknown point in the second half of the 16th century and filled with ceramic waste. The individual fills were no more than c. 20 cm or c. 40 cm thick. Layers of debris that had originally overlain the fills were later removed. The limited volume of the fills explains why the overall quantity of finds was relatively small, consisting of only 1,874 stratified fragments in total. Most of these were potsherds (48%) or stove tile sherds (23%). The fragments of burnt clay and architectural ceramics (c. 9% each) were originally part of the kiln. At around 3%, the proportion of greenware, finished but unfired pottery or stove tiles, was striking.

A total of 75% of the fragments were either unglazed, bore just a coating of slip or were burnt. This does not correspond with the average percentages that one would expect from an assem-

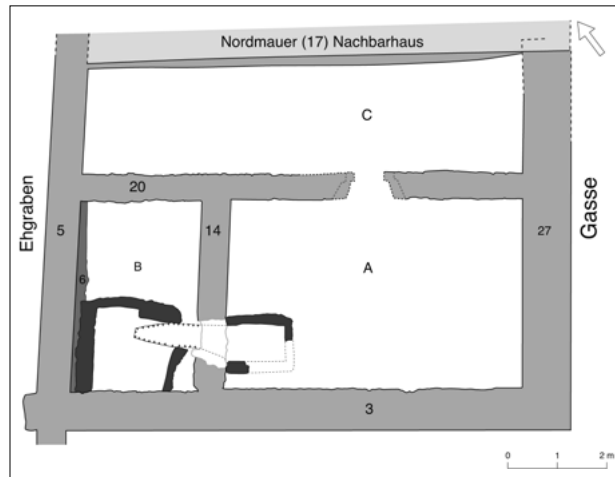


Fig. 2: Zug, Oberaltstadt 3. Overall view of the features. Dark grey: wall (6), construction phase V (13th/14th centuries). Grey: walls (3, 5, 14, 20, 27), construction phase VI (probably around 1400). Light grey: northern wall (17) of the adjacent house (around 1501). Dark grey: potter's kiln, construction phase VII (second half of the 16th century). Amt für Denkmalpflege und Archäologie. Created by E. Kläui Sanfilippo.

blage consisting of household waste and confirms the notion that it was waste from a potter's kiln. The group also included biscuit-fired stove tiles and unglazed figurines or toys that had probably been ready for cold painting (Fig. 4). The waste included misshaped objects and discoloured glazes and fragments and, remarkably, both blue-white and blue-yellow faience glaze (see below).

Unfired half-finished objects, so-called greenware, were a special group of finds. They included wheel-thrown utility ware, ceramic figurines as well as stove and floor tiles (ROTH HEEGE/THIERRIN-MICHAEL 2016, 70f). Greenware is relatively seldom found in archaeological excavations because unfired clay only survives in certain conditions. Comparable finds in present-day Switzerland are unfired fragments from the workshop of the Pfau family of potters (1526–1719) at Winterthur and from a potter's workshop at Büren an der Aare (19th century).<sup>2</sup>

Amongst the fragments from the Zug workshop, one particular faience test tile fragment is worth mentioning. In this case, the potter made incisions

<sup>2</sup> Winterthur Marktgasse 60: TIZIANI/WILD 1998, 234, Fig. 19. Büren an der Aare, Kreuzgasse 16: BOSCHETTI-MARADI 2006, 41.



Fig. 3: Zug, Oberaltstadt 3. The firing kiln under excavation. Overall view from the east. The rubble walls of the stoking-pit can be seen in the background. The wall in the middle has been knocked through and the fire-tunnel and below it the firing chamber with its brick walls and clay tile floor are also visible. Amt für Denkmalpflege und Archäologie. Photo by M. Bolli.

at the back of the tile before placing it in the kiln. This would allow him to break it in a controlled manner after it had been fired in order to test solidity and the firing atmosphere. Another interesting find is the ceramic container with two compartments in which the potter would keep water and slurry separately adjacent to his work bench (Fig. 5). Parallels for such objects are known from post-medieval iconographic sources and from 19th century potters' workshop inventories.<sup>3</sup> The Zug container appears to be the oldest example found so far and the only one that has come to light in an archaeological context.

<sup>3</sup> For a list see KALTENBERGER 2009, Vol. 1, 182, 183, Figs 14, 154, 155, 163, 273b, 679 and 680.



Fig. 4: Zug, Oberaltstadt 3. A selection of miniature vessels and toys from the workshop waste. Amt für Denkmalpflege und Archäologie. Photo by R. Eichenberger.

### 3. DATING OF THE FINDS

The dating of the assemblage could not be confirmed stratigraphically because the feature had later been dismantled. However, because the features from the phase of the rebuilding of the stoking-pit contained fragments with stencilled decoration, which can be relatively firmly dated, the kiln cannot have been infill any earlier than the third quarter of the 16th century and not later than the first half of the 17th century.

The finds from the fill itself also included some elements that can be dated, such as depictions of traditional costumes and certain decorative techniques. The figurative depictions, for instance, included a round appliqué with a male figure shown in profile wearing a cap, doublet and ruff typical of 16th century Spanish court dress. A ceramic figurine with a pleated dress, stomacher and puff sleeves also has close parallels among well-known Augsburg Renaissance figurines from the first half of the 16th century (ROTHKEGEL 2006, 148).

The stencilled decoration mentioned above appears on Swiss pottery and stove tiles from the 1560s onwards. It was made by tracing light-coloured slip motifs onto the pottery using parchment stencils and then covering them with a coat of glaze (ROTH HEEGE/THIERRIN-MICHAEL 2016, 64–66; Fig. 6). References with absolute dates include the famous tiled stove from Stans made in 1566 by the



Fig. 5: Zug, Oberaltstadt 3. Unglazed container for water and slurry with wheel-thrown and individually formed side panels. Amt für Denkmalpflege und Archäologie. Photo by R. Eichenberger.

Lucerne stove-fitter Markus Knüsel.<sup>4</sup> Firmly dated archaeological finds have come to light at Bundesplatz square in Bern (pre-1579) and at Willisau (pre-1594).<sup>5</sup> The Zug assemblage also included a number of fragments with slip-trailing, which was another, very popular type of decoration used in Switzerland. Slip-trailed decoration was in use in Winterthur from 1568 at the latest and prior to 1579 in Bern (Bundesplatz square).<sup>6</sup> Decorations consisting of fluid slip in the form of a star were identified on the inside of three fragments of straight-sided bowls from Zug. No similar examples were found in the fills from before 1579 at Bern, but they did exist prior to 1594 at Willisau (EGGENBERGER ET AL. 2005, 167). They may therefore have been the most recently dated decorative elements from the Zug assemblage.

The decorative techniques mentioned allow us to date the production period of the Zug potter to between the time of the kiln's construction in the

<sup>4</sup> The stove is now on display at the Swiss National Museum in Zurich.

<sup>5</sup> The Bern fragments have not yet been published, cf. ROTH HEEGE/THIERRIN-MICHAEL 2016, fn. 156, 157, 159. For the Willisau finds cf. EGGENBERGER ET AL. 2005, 50.

<sup>6</sup> ROTH HEEGE/THIERRIN-MICHAEL 2016, 66. Winterthur: SCHNYDER 1989, 84. Bern: BOSCHETTI-MARADI 2006, 124.



Fig. 6: Zug, Oberaltstadt 3. Fragment of a panel-tile with stencilled decoration, unglazed half-finished product. Amt für Denkmalpflege und Archäologie. Photo by R. Eichenberger.

first quarter of the 16th century to just before the beginning of the 17th century, based on the most recent features from a typochronological perspective. It appears that we can, in fact, consider the production waste that was found in the infills to have been the result of 'tidying up' the area when the kiln was abandoned.

#### 4. THE WORKSHOP OF HANS WECKERLI?

It has not been possible yet to positively confirm the identity of the Zug potter. The written records of Zug mention Hans Weckerli, among others, who is also known from a donor portrait on a stained-glass panel (c. 1585), where he is shown with his wife: 'Hans Weckerly from Zug and Raegula Koch, his spouse' (Fig. 7).<sup>7</sup> A group of panel-tiles with faience glaze in private ownership are known to have been made by him based on the inscription on one of the tiles. The lowest piece shows the inscription 'M(aster) Hans Weckerli' and the year 1588 (Fig. 8). According to research carried out by the Swiss pottery expert Karl Frei, the three tiles shown here came from an 'ancient farmhouse'

<sup>7</sup> The written records include family and residence registers of Zug, see FREI 1922, 105. For the stained-glass panel see BERGMANN 2004, 58.



Fig. 7: Historisches Museum Basel. Stained-glass panel with the coronation of the Virgin Mary and a depiction of the donors, Hans Weckerli and his wife Regula Koch. The inscription reads ‘Hans Weckerli von Zug, Ragely Koch sin ehgemächell’ and the piece also bears the Weckerli coat of arms with a potter’s rib and the Koch coat of arms with a three-legged pot, around 1585. Historisches Museum Basel, Inv. No. 1887.213, Amt für Denkmalpflege und Archäologie. Photo by R. Eichenberger.

near Zug (FREI 1922, 106). It would be tempting to suggest that the Zug potter in question, who worked at Oberaltstadt 1 and 3, was in fact Hans Weckerli. The confident manner in which Weckerli had himself depicted as the donor working on his potter’s wheel would, indeed, match the confident self-image of our craftsman, who was aware of his excellent technological and innovative skills! His products were highly fashionable and could compete with wares from outside the region.



Fig. 8: Three stove tiles bearing the signature ‘M(aster) Hans Weckerli’ with the year 1588. There is a combination of relief coats of arms and painted panel-tiles depicting Noah’s Ark and the signature as well as the coat of arms with the potter’s rib. Private ownership. Photo by M. Früh, Frauenfeld.

## 5. INTERNATIONAL WARES FROM PROVINCIAL SWITZERLAND

There is an international component to the excavated products from Oberaltstadt 1 and 3, represented, among other things, by eleven unassuming fragments of plumage and an appliqué depicting a coat of arms (Fig. 9). Though very small, the fragments of plumage are clearly the remnants of one or more owl-shaped vessels. Archaeometric analyses carried out on these pieces revealed the use of calcium-rich fineware, suggesting that the pot-



Fig. 9: Zug, Oberaltstadt 3. Moulded and stamped plumage which would have been applied to an eagle or owl-shaped vessel. Unglazed half-finished objects. Amt für Denkmalpflege und Archäologie. Photo by R. Eichenberger.

ter had planned to use a lead-tin glaze, or faience.<sup>8</sup> Owl-shaped faience vessels have been known for quite some time. A whole series of such vessels bear date inscriptions ranging from 1540 to 1561 and, following Walcher von Moltheim, were previously attributed to the Bolzano workshop of Bartolomäus Dill Riemenschneider (Fig. 10).<sup>9</sup> Besides faience fragments, however, there also exist in other places works by silversmiths, coconuts with silver mountings and other objects made of earthenware

<sup>8</sup> The archaeometric analysis included x-ray fluorescence analysis and powder x-ray diffractometry analysis, see ROTH HEEGE/THIERRIN-MICHAEL 2016, 106.

<sup>9</sup> FALKE 1928, 98; ENDRES 1981, 483 with a comprehensive overview.

and stoneware. These drinking vessels have traditionally been assumed to have originated from the large urban centres of the 16th century; gold and silver works are generally presumed to have been created in Nuremberg or Augsburg, stoneware is assumed to have come from the Rhineland and faience, as mentioned above, from South Tyrol.

The fact that these oversimplified attributions to Rhineland or South Tyrol can be questioned from an archaeological point of view and should be refined is borne out not only by the production waste from Zug but by other archaeological finds from Augsburg, Bern, Hallwyl Castle, the castle ruins of Rötteln near Lörrach, and from Stras-



bourg and Höxter in Westphalia.<sup>10</sup> Incidentally, another piece of an owl-shaped vessel from Bern, which dates from before 1579, is also an unglazed half-finished object. The vast area of distribution of the sites and the half-finished objects from Bern and Zug suggest that the places where such bird-shaped vessels were manufactured were probably spread far wider than had previously been believed. We can assume that they were produced throughout the German-speaking region, much like other types of elaborately decorated Renaissance pottery.

Similar conclusions can be drawn in relation to the distribution of faience technology in the 16th century. The fact that a lead-tin glaze has been archaeometrically identified on the Zug artefacts proves that faience utility ware and stove tiles were, indeed, manufactured there (ROTH HEEGE/THIERRIN-MICHAEL 2016, 99–102). The Zug finds are therefore part of a group of potters' workshop sites, which is still quite small internationally and is mainly located south of the Alps and in the Netherlands. While one 16th century potter's kiln has come to light in Zurich and workshop waste from another has been found in Winterthur, neither of these two Swiss assemblages included any faience waste (ROTH HEEGE/THIERRIN-MICHAEL 2016, 74f).

If we expand our perspective, however, to include the users of the pottery, the Zug production is no longer an isolated case. Numerous archaeological finds have by now come to light, which suggest that faience production in Switzerland began at an early stage.

The best known amongst these are stove tiles that bore Late Gothic imagery executed in lead-tin glaze from different sites in Swiss towns such as Berne, Basel, Zürich, etc., from as early as the mid-15th century onwards (ROTH HEEGE 2009, 294, 295). After the Reformation, the number of faience objects in Switzerland continued to rise. One of the most important early proponents was Markus Knüsel from Lucerne, who is mentioned above. Besides the stencilled decoration noted earlier, his well-known tiled stove dated 1566 from Rosenberg

<sup>10</sup> For a list see ROTH HEEGE/THIERRIN-MICHAEL 2016, 60–62; for the case of Augsburg in particular cf. Hermann 2015, 87.



Fig. 10: Kaufbeuren D, Stadtmuseum. Owl-shaped vessel with polychrome faience glazing, dated 1543. Stadtmuseum Kaufbeuren.

Castle in Stans also bears extremely high-quality faience painting on a green background. Evidence pointing to the production of tin-glazed vessels has also been found in the city of Zurich (SCHNYDER 2011, 140). Some of the earliest faience finds uncovered so far in Bern can partially be identified as Italian imports, whilst others can be attributed to local production (BOSCHETTI-MARADI 2006, 140). Though no archaeological evidence has yet been found to confirm when Winterthur faience production began, fragments in various museums suggest that they can be dated to the final quarter of the 16th century (SCHNYDER 1989, 27).



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## Conclusion

All of these finds shed light on the immediate environment in which the Zug potter would have operated. Faience glazing at that stage would indeed have been part of a talented potter's range of products. The fact that a workshop manufacturing faience existed in a small federal town with no more than 1,300 inhabitants means that the technology must have been widespread. We can assume that our limited knowledge of 16th century faience production is due to the fact that the state of research on potters' workshops is still rather sketchy. This has been voiced in archaeological research circles for quite some time. The fact that faience glazing and owl-shaped vessels were made in a small town like Zug, where they would previously have been seen as imports, allows us to draw important conclusions with regard to other minor urban centres. We can probably assume that local production was relatively closely interwoven with international trends and innovations, even in seemingly unimportant small towns. The crucial question of 'what was imported and what was made locally?' must be asked more frequently and the long-held conviction that 'special wares were definitely imported' must be much more closely scrutinised, even in small regional towns.

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# Changes in Pottery Production, Distribution and Consumption in the Post-medieval Period in South Bohemia\*

Ladislav Čapek – Michal Preusz

## Abstract

Pottery is an important indicator of certain social-economic changes in the sphere of production, distribution and consumption. The reflection of the broader cultural and historical changes at the turn of the 15th and 16th century is seen in the extension of Early Modern ceramics (kitchen and tableware), especially in the appearance of the new ceramic forms and in the expansion of ware with oxidation firing and inner lead glazes. However, this change affected the urban environment more significantly. In south Bohemia, thin-walled reduction fired 'grey ware' (based on the medieval tradition of production) prevailed in the inventory of rural households longer into the Early Modern period, and it represented a cheaper alternative to glazed ceramic ware. This paper deals with the continuity and discontinuity in pottery production in south Bohemia at the turn of the Late Middle Ages and the Early Modern period (15th/16th – 16th/17th century) based on the comparative study of selected ceramic assemblages from urban and rural households. The issues concerning the function of Early Modern pottery will be also discussed.

— Pottery production – typology of vessels – consumption – post-medieval – Early Modern period – South Bohemia

## 1. INTRODUCTION

The aim of the paper is to characterize the changes in the ceramic assemblages of urban and rural households in south Bohemia at the turn of the Late Middle Ages and Early Modern period, i.e. the period from the late 15th century and the 16th century onwards, when we can observe the gradual termination of the medieval tradition of production in the ceramic assemblages from south Bohemia in terms of technology, morphology and decoration of vessels and the beginning of the production of Early Modern lead-glazed ceramics. These transitions can be attributed to cultural and social changes or to higher demands on the formal, aesthetic and functional properties of ceramics in connection with the expansion of the Renaissance

style of living culture, which was reflected in new forms of kitchen and table ceramics corresponding to the requirements of better food preparation and dining (cf. KRAJÍČ 1998, 181; PAJER 1983, 147, 148). Our paper is based on the assessment of pottery assemblages from south Bohemia that are well elaborated and published or remain in the area of grey literature (MA, Ph.D. thesis).

## 2. CHARACTERISTICS OF LATE MEDIEVAL/EARLY MODERN POTTERY ASSEMBLAGES FROM SOUTH BOHEMIA

The pottery from south Bohemia considered here came from different types of contexts and differed in terms of deposition (site formational process) and biography, but also in the degree of fragmentation and completeness of pottery vessels (**Tab.1**,

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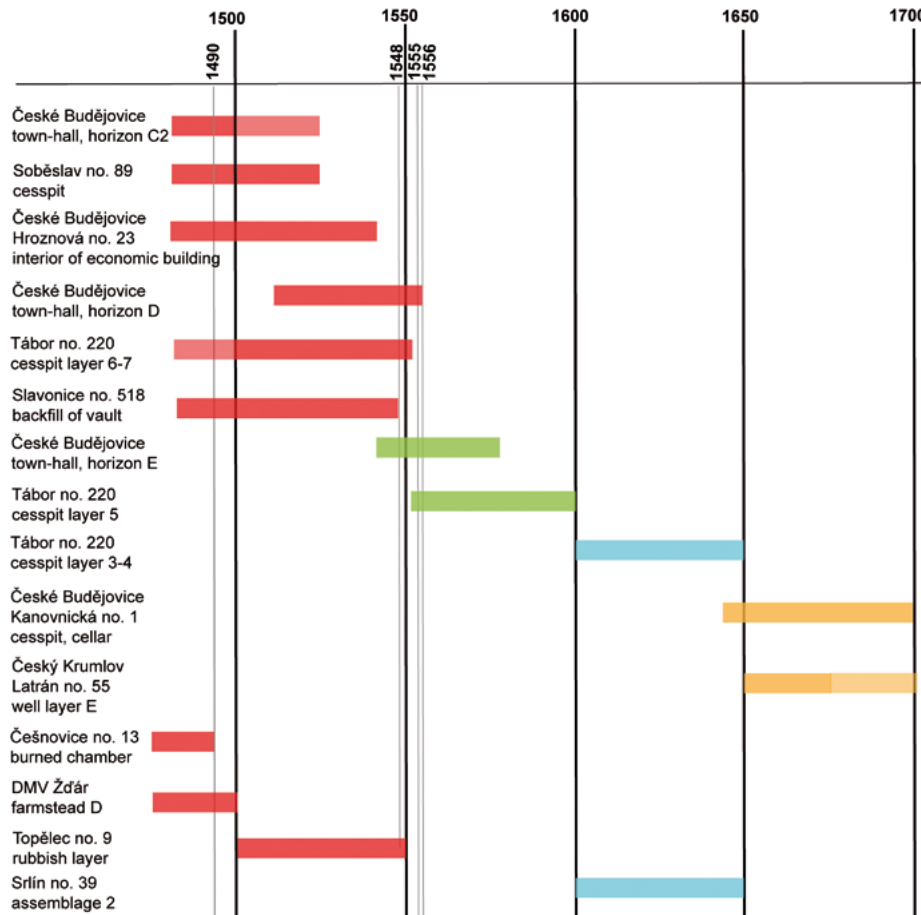


Fig. 1: Outline of the chronological order of the post-medieval/Early Modern pottery assemblages. Created by L. Čapek and M. Preusz.

**Fig. 2).** From the urban environment, the most valuable find assemblages come from the stratified fills (secondary contexts) of cesspits and wells, which often contain relatively large assemblages in which significantly complete or reconstructable pottery forms are available (KRAJÍČ 1990; 1998; 2006; KRAJÍČ/CHVOJKA 2007; PREUSZ ET AL. 2014; ČAPEK/PREUSZ 2016; PREUSZ 2017). In most cases, these were assemblages that belong to a short period of deposition, and therefore the morphology of vessels and the technology were unified.

Other contexts of pottery assemblages are the backfill of sunken features, vault backfill, buried ditches and destruction layers (KRAJÍČ 2007c; ČAPEK/PREUSZ 2016; PREUSZ 2017). In some cases, it was possible to refine the chronological interval of dating using written sources (such as rebuilding the structures) or other dated artefacts (e.g. coins). Different types of contexts such as destruction layers are inappropriate for the study of Early Modern

ceramics due to their frequent redeposition and contamination by intrusions (residual or infiltrated ceramics).

The situation is different in the rural environment. Many of the find assemblages come from the unstratified layers of small-scale test pits (e.g. dunghills) or surface artefact collections in the areas of deserted medieval villages or single farmsteads (DOHNAL/VAŘEKA 1997; ČAPEK/FRÖHLICH 2017; ČAPEK 2018, in preparation). A small exception is the assemblage of precisely dated late medieval ceramics in a chamber of a peasant house in the existing village of Češnovice; the house was destroyed by fire in the second half of the 15th century (VAŘEKA/MILITKÝ 1997).

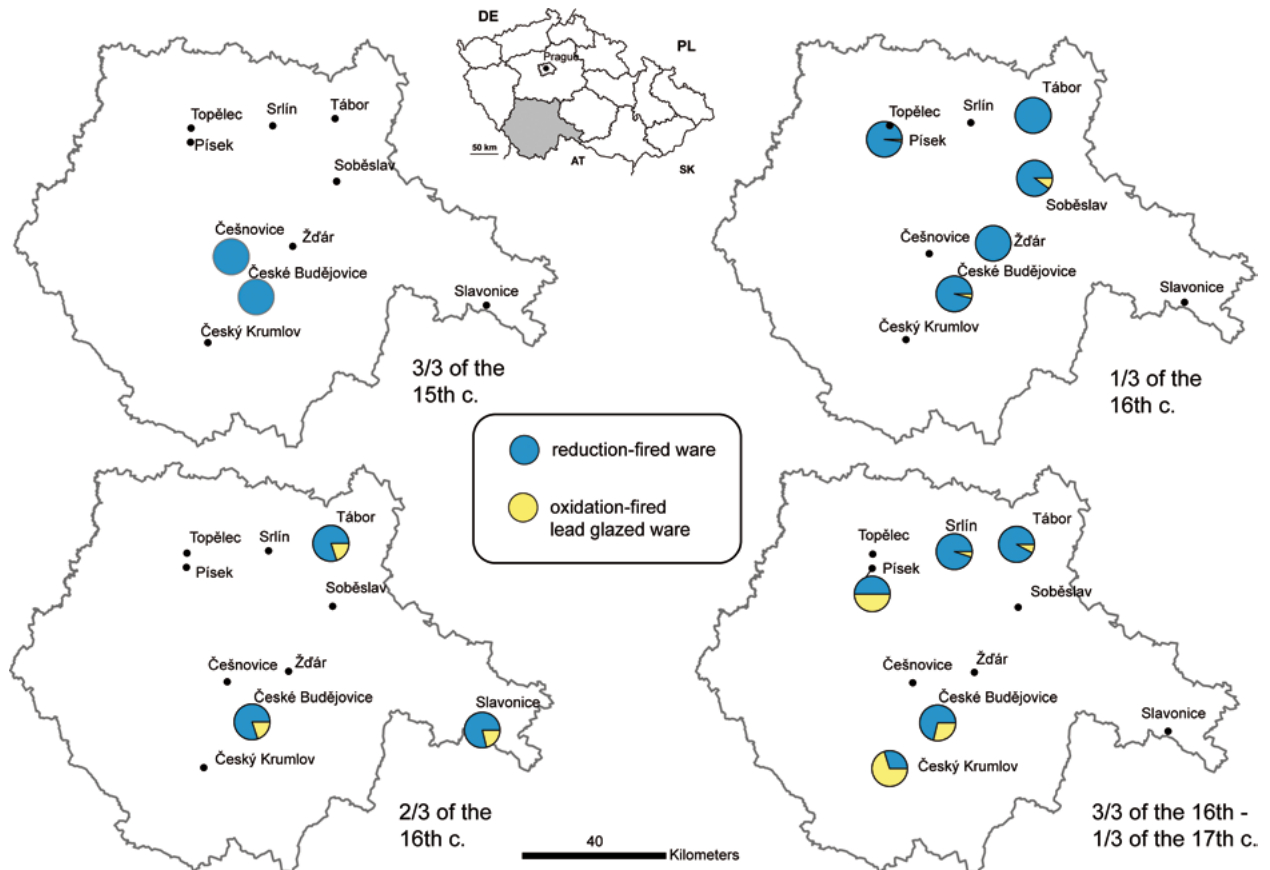


Fig. 2: The ratio of reduction-fired and oxidation-fired glazed ware in pottery assemblages from south Bohemia. Created by M. Preusz.

Urban			
Town	Context	Date	Published
České Budějovice, town-hall	2 wells, cesspit, brick features backfill	2/2 of the 15th – mid-16th c. (TAQ 1555)	Čapek et al. 2016
České Budějovice, Kanovnická street no. 1	cesspit, cellar	16th/17th c.	Preusz 2017 – PHD thesis
České Budějovice, Hroznová no. 23	interior of economic building	2/2 of the 15th – 1/3 of the 16th c.	Kocina 2017 – MA thesis
Soběslav, no. 89	well	15th/16th	Krajc 1990
Tábor, no. 220	cesspit	15th/16th – 16th/17th c.	Krajc et al. 1998
Slavonice no. 518	kiens, vault backfill, cellar	15th/16th c., TPQ 1546-1548	Preusz 2017 – PHD thesis
Český Krumlov, Latrán no. 55	well	mid-17th – 17th/18th c.	Preusz et al. 2014
Rural			
Village	Context	Date	Published
Češnovice, no. 13	fire-damaged chamber	3/3 of the 15th c. (TAQ 1490)	Vařeka – Militký 1996
DMV Žďár	test-pits of farmstead	TPQ 1490	Čapek 2018 in preparation
Topélec, no. 9	dunghill	15th/16th c.	Čapek – Fröhlich 2017
Srln, no. 39	test-pits of farmstead	16th – 17th/18th c.	Vařeka – Dohnal 1997

Tab. 1: The context of post-medieval/Early Modern pottery assemblages. Compiled by L. Čapek.



### 3. ANALYSIS OF POTTERY TECHNOLOGY

With some exceptions, we lack evidence for Early Modern pottery workshops and manufacture in south Bohemia. A potter's workshop that operated between the end of the Middle Ages up to the 17th century was discovered in the courtyard of the former Augustinian monastery in Tábor (today Mikuláše z Husi Square no. 44). A total of six kilns built of loam and brick, including pottery waste and a ceramic batch with glazed pots inside, were found here. Another pottery workshop was discovered on the square in Bechyně, where part of a pottery workshop from the early 17th century was discovered, including a cellar for maturing clay and a large number of utility ceramics, stove-tiles and moulds for their production (KRAJÍČ 2007a, 152–155; 2007b, 75).

The analysis of technology is therefore mainly based on the ceramics themselves. Currently, all the pottery finds from south Bohemia are usually evaluated using pottery fabrics defined by the macroscopically observable qualities of the pottery, formation techniques, production technology and firing (for a definition of pottery fabrics in Czech archaeology, see VAŘEKA 1998). Essentially, in terms of south Bohemian assemblages, we can distinguish the main technological groups of ceramics at the turn of the Late Middle Ages and Early Modern period – fine-grained and thin-walled ceramics fired in a reducing atmosphere in the shades of grey or blue-grey<sup>1</sup> and light oxidation-fired ceramics made with fine-clay with internal lead glaze<sup>2</sup> (most commonly in yellow, green, brown or a combination of those colours). Glazed oxidation-fired ceramics at the turn of the 16th century are less common (representing c. 1–3% of each pottery assemblage in south Bohemia; Fig. 2; cf. KRAJÍČ 1990, 106, 107). The use of the oxidation-fired ceramics begins to grow in the mid-16th century, especially in towns and cities (KRAJÍČ 1998, 175, 176), while in villages these remained rare (PREUSZ 2017, 175, 176). Up to the Early Modern period and onwards (until the 18th century),

reduction smoke-fired ceramics<sup>3</sup> predominate in south Bohemia<sup>4</sup> (SCHEUFLER 1961, 55).

To summarize this issue of pottery firing development, it is possible to conclude that in south Bohemia the production and use of reduction fired ware continued in the late medieval tradition (KRAJÍČ 1998, 181; VAŘEKA 1998, 128, 129).<sup>5</sup> The cause of this situation is not well understood. It was perhaps due to the lower price of the reduction fired ware versus lead-glazed ware on the market,<sup>6</sup> or would the lead-glazed ware have been more expensive because of the raw material (metal oxides) for the glaze? Reduction fired ware would also have better functional properties than glazed ware in terms of food preparation (ENDRES 2005, 41–43; PREUSZ 2017, 174–177). It should be remembered that reduction fired ceramics were very technologically advanced in the post-medieval period. There was already fine-grained, thin-walled ware fired at high temperatures; the smoke-firing atmosphere gave the vessels a steel gloss and polished surface that could aesthetically imitate shiny metal vessels, e.g. tinware (cf. KRAJÍČ 1990, 106, 107; 1998, 174; cf. JERVIS 2014, 66, 67).

Oxidised ceramics are most abundant in the second third of the 16th century when their share reach about 20% in most ceramic assemblages in south Bohemia.<sup>7</sup> Exceptions included the assemblages from Slavonice and České Budějovice, where oxidation-fired ceramics were significantly represented around the mid-16th century (e.g. ČAPEK/PREUSZ 2016, 146, 147; PREUSZ 2017, 110–114). In the assemblage from a well in Český Krumlov at the turn of the 17th century, oxidation-fired ceramics already substantially exceed reduction-fired ceramics 70:30 (Fig. 2).

3 The smoke-firing of ceramics was performed by closing and sealing the exhaust vent of the kiln after it was last filled with wood, branches or fresh leaves (SNÁŠIL 1970).

4 Even in pottery assemblages with a terminus ante quem of 1818 from the archaeological research of rural house No. 13 in Češnovice near České Budějovice, the proportion of glazed ceramics accounts for only 40% of ceramics fired in a reducing atmosphere (DOHNAL/VAŘEKA 1997, 88).

5 The tradition of production in the southeast German Danube region, from Passau to Regensburg, is similar (ENDRES 2005, 42).

6 It is mentioned in DOHNAL/KOUCKÝ 2000, 374.

7 Except for town Písek, where the proportion of oxidation/reduction is equal – PREUSZ 2017, 176.

1 Graphite ware bound to thin-walled storage vessels disappeared from pottery assemblages during the 15th century (KRAJÍČ 1998, 178).

2 Glaze helped prevent the absorption of liquids and made vessels more visually appealing (GREGEROVÁ et al. 2010, 24–26).

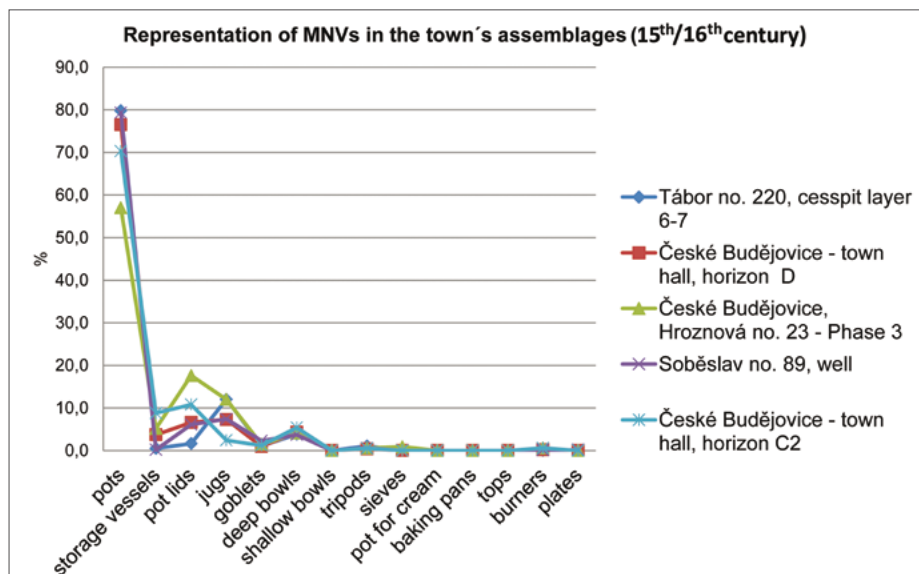


Fig. 3: Representation of the minimum number of vessels in the town's assemblages in the 15th/16th century. Created by L. Čapek.

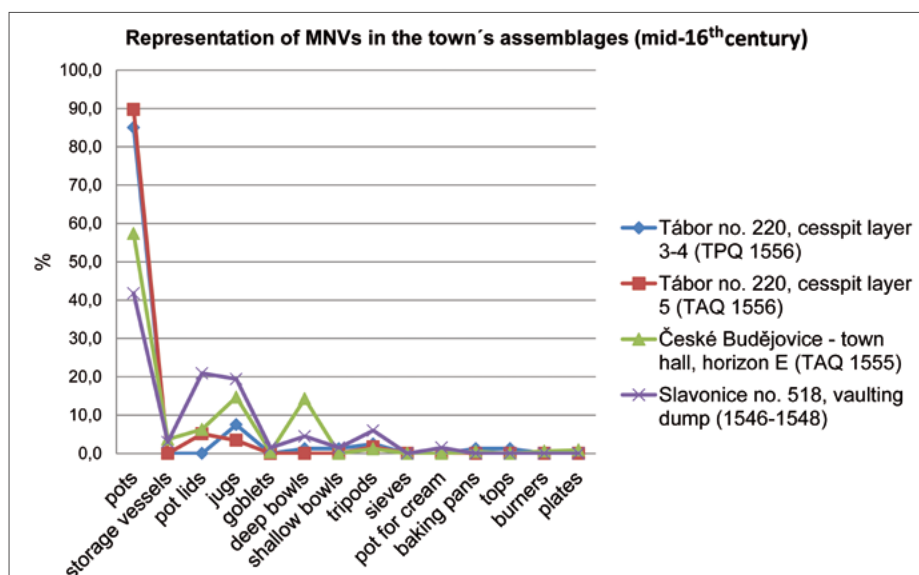


Fig. 4: Representation of the minimum number of vessels in the town's assemblages in the mid-16th century. Created by L. Čapek.

#### 4. REPRESENTATION OF POTTERY FORMS IN URBAN ASSEMBLAGES

In urban assemblages from the end of the 15th century and the turn of the 16th century, cooking pots completely dominate as the most widespread type of pottery vessel (70–80%; Fig. 3). Other types of vessels have a lower representation. Significant forms of cooking pots are complementary to the forms of lids and jugs in the range of 2–12%; deep bowls range from 3% to 5% in the analysed urban ceramic assemblages in south Bohemia. Graphite storage vessels still appear in all assemblages. Most of them were found in horizon C3 in the

town hall in České Budějovice – almost 9% (cf. ČAPEK/PREUSZ 2016, 144). Approximately only 0–1% of tripods and goblets were found in ceramic assemblages.

From the first third to the mid-16th century, significant differences appeared in the representation of forms of pots and small cooking pots – cups (which now constitute 40–90% of urban ceramic assemblages in south Bohemia in this period; Fig. 4). There are also differences in the occurrence of jugs in assemblages (3–19%) as well as deep bowls (1–14%, except layer 5 in the cesspit of house No. 220 in Tábor – cf. KRAJÍČ 1998, 166–169). Grad-

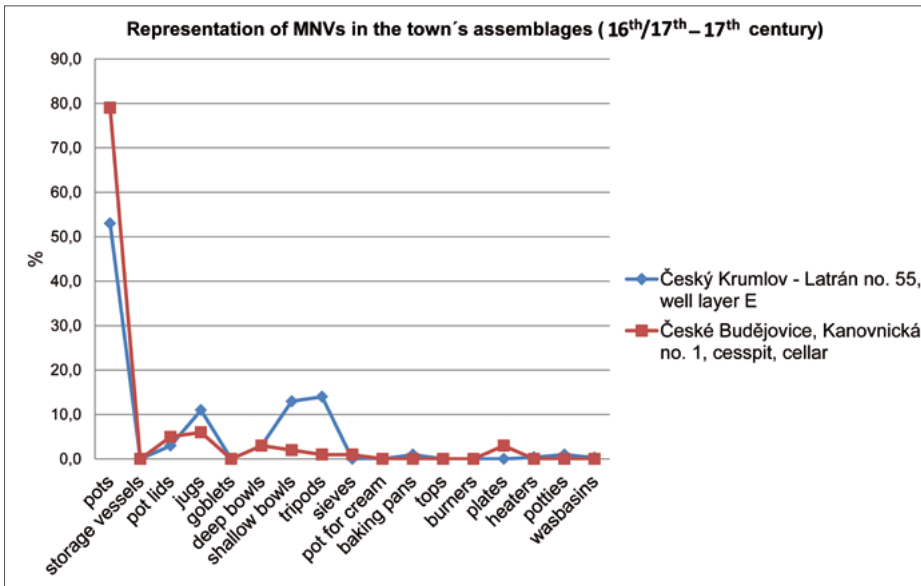


Fig. 5: Representation of the minimum number of vessels in the town's assemblages in the 16th/17th century. Created by L. Čapek.

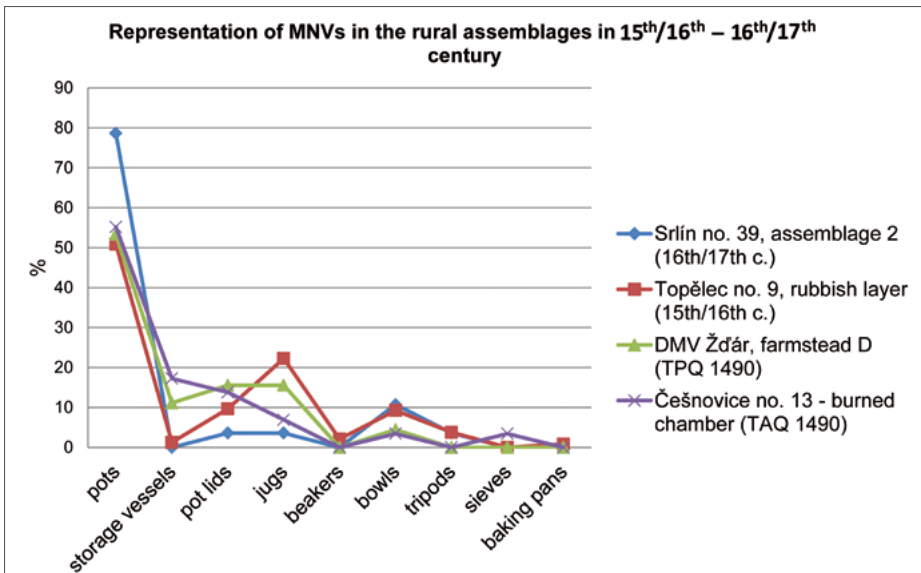


Fig. 6: Representation of the minimum number of vessels in rural assemblages in the 15th/16th–16th/17th century. Created by L. Čapek.

ually, more tripods (1–6%) appear in assemblages and new baking dishes – baking pans occur for the first time. The representation of plates is still low.

In the assemblages from the last third of the 16th century to the first third of the 17th century, significant differences are already evident (Fig. 5). While the assemblage from České Budějovice–Kanovnická Street corresponds in its composition to the previous period (cf. PREUSZ 2017, 78–83), the collection from the well in Český Krumlov has an entirely different composition typical for the 17th century. Jugs, shallow bowls and tripods appear in this assemblage. It turns out that this assemblage is much closer to Austrian production from the end of the 16th century (PREUSZ 2017, 107–108, 189–191; cf. KALTENBERGER 2009).

## 5. REPRESENTATION OF POTTERY FORMS IN RURAL ASSEMBLAGES

Differences in the representation of vessel forms were observed in assemblages from rural settlements (Fig. 6). In the village of Češnovice, cooking pots predominated in the last third of the 15th century (55% of total assemblages in this period) in the burned house chamber. The representation of jugs was low. Fragments of medieval storage vessels made up 17%, which also indicates the storage function of the chamber (MILITKÝ/VAŘEKA 1997, 60, 61). A similar composition is found in the assemblage from the deserted post-medieval village of Žďár, except for a higher number of jugs (ČAPEK 2018). In its composition, the assemblage from waste layers in Topělec was different – jugs,



deep and shallow bowls, and tripods were significantly represented (ČAPEK/FRÖHLICH 2017, 374). The latest assemblages from the turn of the 17th century in Srlín are characterized by a higher number of cooking pot forms. On the contrary, the share of tableware decreases and the representation of shallow bowls and tripods is similar (DOHNAL/VAŘEKA 1997, 86, 103, fig. 7). It became clear that there are considerable variations in the representation of ceramic forms among village assemblages, which may also reflect the social status of rural households.

## 6. DEVELOPMENT OF POTTERY FORMS – THE MAIN MORPHOLOGICAL CHANGES OF EARLY MODERN CERAMICS IN SOUTH BOHEMIA

The following part of the paper presents the main morphological changes of each type of vessel over time in pottery assemblages from south Bohemia, both in urban and rural households. The overview is focused primarily on utility kitchen and table ceramics.

### 6.1 COOKING POTS

Most morphological changes are reflected in cooking pot forms (Fig. 7). In the assemblages from the second half to the end of the 15th century, the dominant form are ovoid shaped cooking pots with an indented neck and a bulge that reaches its maximum diameter in the upper quarter or third of the vessel. In the assemblages, cooking pots with a strap handle attached to the rim are most frequent, but pots without handles also still appear (e.g. KRAJÍČ 1990, 99; MILITKÝ/VAŘEKA 1997, 60). The cooking pots have an oval or out-turned rim, and a minority have rims with a grooved collar (KRAJÍČ 1990, 100). The decoration is usually situated on the lower neck in the form of single or multiple horizontal grooves, grooved spirals or wheel-pressed decoration into the strap in many different geometrical motifs (KRAJÍČ 1990, 102, 103; 1998, 173, 174). All forms of cooking pots from south Bohemia were made of fine-grained unglazed earthenware fired in a reducing atmosphere into grey or greyish-brown colours.

In the assemblages from the turn of the 15th/16th century to the first third of the 16th century, the form of ovoid shaped cooking pots still dominated but generally appeared in thinner shapes and different size categories. Gradually, new forms of cooking pots such as cylindrically-shaped pots and barrel-shaped pots appear. Globular or small bulbous jars represent special forms (KRAJÍČ 1998, 167, 178, Fig. 25, 26). Small low pots (jars) with a side strap handle are typical; jars are more often decorated flat using wheel-pressed decoration. The rims of the jars are most commonly outward turned, oval or out-turned (sometimes quite distinctly), or S-shaped (KRAJÍČ 1998, 171, 178). Cooking pots fired in a reducing atmosphere with a polished and smoke-fired surface are still dominant. At the end of the 15th century and the beginning of the 16th century, we also encounter sieves (perforated pots), for example in Soběslav (KRAJÍČ 1989, 112, Fig. 16/53), Tábor (KRAJÍČ 1998, 167, Fig. 30), and Češnovice (MILITKÝ/VAŘEKA 1997, 60, 73, Fig. 7/4).

A fundamental change in cooking pot forms can be observed from the second third of the 16th century, when the dominant form became a slender barrel-shaped cooking pot (jar) with a maximum diameter of the bulge in the middle of the vessel (KRAJÍČ 1998, 167, 180). In comparison to chronologically earlier finds, these cooking pots do not have a highly profiled neck. On the lower neck, the pots are decorated with a simple groove or multiple grooves; the representation of wheel-pressed decoration gradually decreases at the expense of painted decoration (KRAJÍČ 1998, 173). A pot with green glazing on both sides and decorated on the outside wall with raspberry prunts was uncommon (KRAJÍČ 1998, 72, Fig. 17). The pots usually have outward-turned, oval, S-shaped<sup>8</sup> rims or grooved collars (KRAJÍČ 1998, 171). In the second third of the 16th century, small cinder cooking pots on the bottom heating of a spherical shape and flat bottom to be inserted directly into the fire began to appear more often; one find of a small cinder pot with double-sided glaze originated from Slavonice and had a terminus ante quem of 1548 (PREUSZ 2017, 110, Fig. 39/17). Other examples are documented in Český Krumlov (e.g. PREUSZ ET AL. 2014, 64).

<sup>8</sup> In the assemblages from the end of the 16th century, the S-shaped rim disappeared (KRAJÍČ 1998, 171, 172).

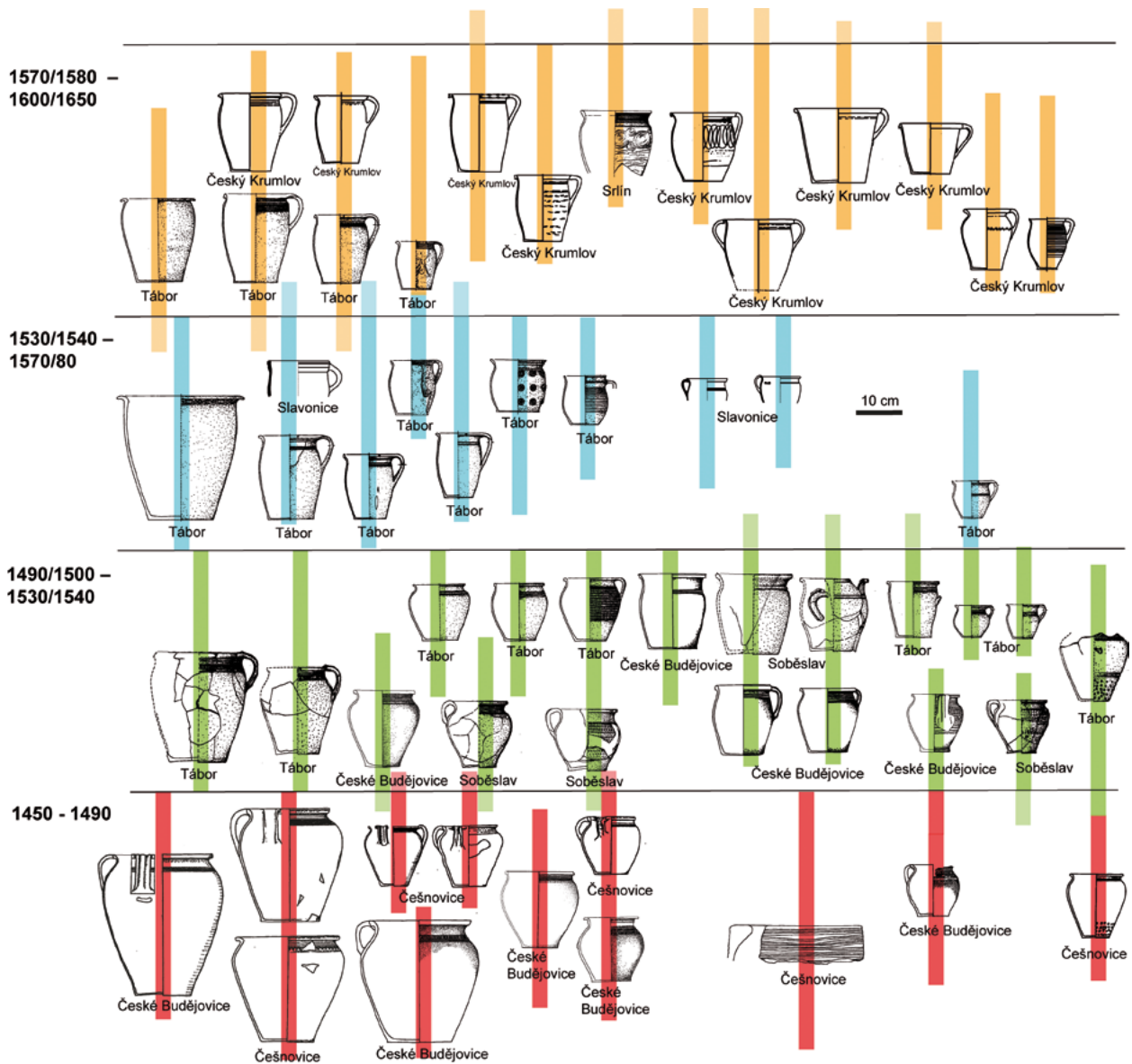


Fig. 7: An overview of the development of cooking pot forms in the 15th/16th–16th/17th century. Created by M. Preusz and L. Čapek.

Barrel-shaped cooking pots are still prevalent in the last third of the 16th century and at the beginning of the 17th century and are decorated with single grooves or segmented wavy lines. In this period, oxidation-fired pots with an internal glaze extending over the rim of the vessels are more common. On reduction-fired pots, decoration in the form of polishing also appears.<sup>9</sup> In addition to these pot forms, pots with straight, funnel-shaped walls occur at the beginning of the 17th century.

<sup>9</sup> Polishing appeared mostly at the end of the 17th century (DOHNAL/FRÖHLICH 2000, 166).

A particular cooking pot form is represented by chamber-pots with a barrel or spherical/globular shape and a wide horizontal rim (called 'Sitzrand' in German). The oldest examples were documented in Český Krumlov (PREUSZ 2017, 148, catalogue CK46).

## 6.2 JUGS AND GOBLETs

Table ceramics are represented by jugs and goblets (Fig. 8). While the jugs were widespread throughout the Middle Ages and Early Modern period, goblets of the Early Modern assemblages gradually disappeared.

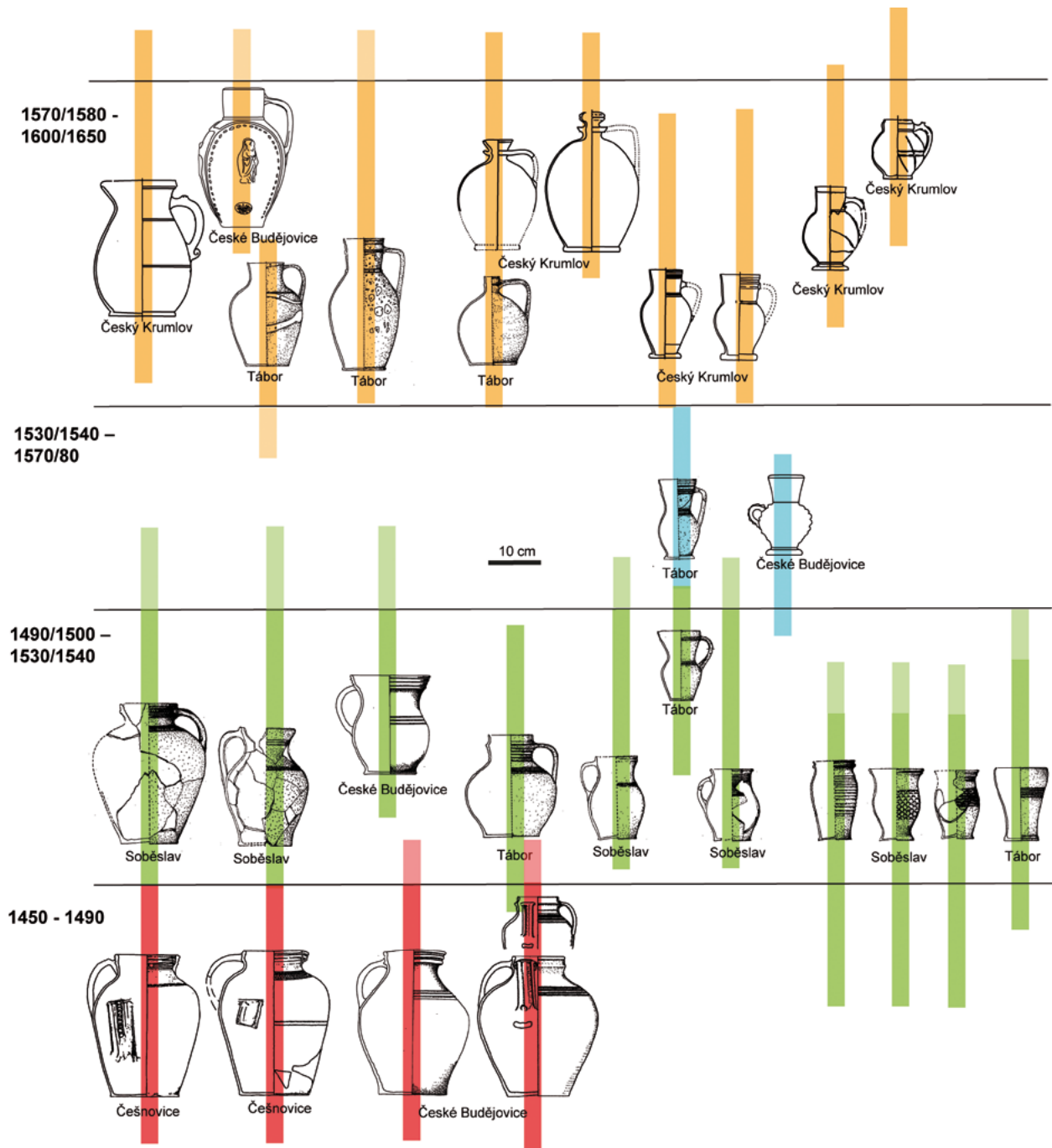


Fig. 8: An overview of the development of jug and goblet forms in 15th/16th–16th/17th century. Created by M. Preusz and L. Čapek.

In the assemblages from the end of the 15th century to the first quarter of the 16th century, a dominant form is the characteristic late medieval medium-sized ovoid-shaped jug with a slightly funnel-shaped or gently opening neck, often with a spout (KRAJÍČ 1990, 99). The rim of the jugs is pulled upward with the outer ribs (KRAJÍČ 1990, 100; 1998, 171). The upper neck is divided by grooved spirals; a strip of grooves or wheel-pressed

decoration on the lower neck appear. The handle is attached just below the rim to the maximum diameter of the vessel. These are fine-quality thin-walled reduction-fired vessels, sometimes with a steel-gloss surface achieved with a smoke-firing process and polishing. In this context, the question of the imitation of tinware or other metalware is apparent (cf. JERVIS 2014, 66, 67).

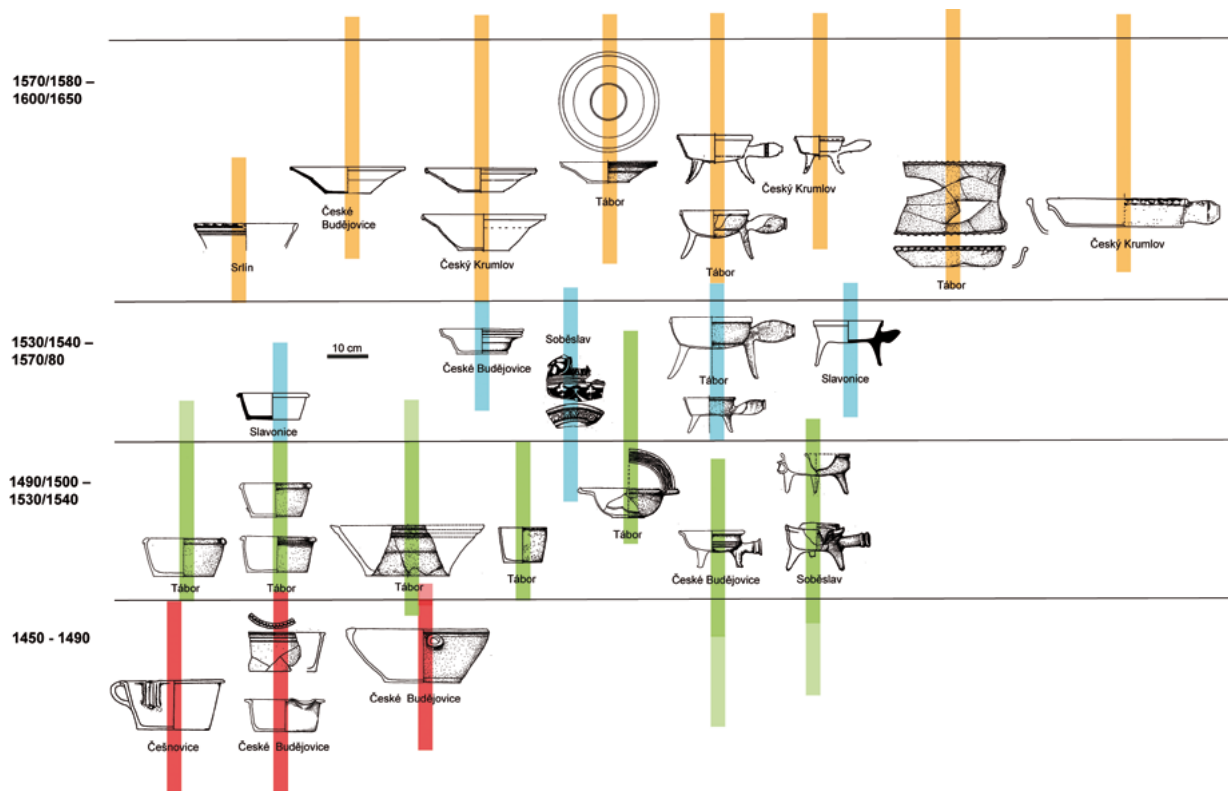


Fig. 9: An overview of the development of bowl, plate, and tripod pipkin forms in 15th/16th–16th/17th century. Created by M. Preusz and L. Čapek.

In the middle of the 16th century, apart from the larger shapes of jugs, small variations that were most often spherical with internal glaze appeared – e.g. Slavonice (PREUSZ 2017, 110–114, 145, Fig. 39/16, Fig. 53/20).

Until the last third of the 16th century, the slimmer and elongated forms of barrel-shaped jugs with a narrower, slightly funnel-shaped neck and sometimes with inner glaze appear more often (KRAJÍČ 1998, 182). In addition to them, there are forms of jugs with a bulbous body and narrow neck, as well as forms of smaller ovoid jugs with a funnel-shaped neck and a segmented bottom. Some types of jugs are glazed. The typical decoration is single grooves, and we also encounter paintings (Slavonice). Jugs with an embossed decoration – relief appliqués in České Budějovice – appear with the motif of Adam and Eve at the Tree of Knowledge and the Virgin Mary, found in Kanovnická Street No. 1 in České Budějovice (PREUSZ 2017, 19, catalogue CB 4).

In the first half of the 17th century, we encounter melon-shaped jugs, for example in Český Krumlov (PREUSZ 2017, 145). For carrying liquids, large bul-

bous jugs with a large handle or cooling jugs with a bulbous body and a very narrow neck and handle-rib that was glazed inside were used (PREUSZ 2017, 146).

The decline of late medieval goblets was recorded in the first third of the 16th century (KRAJÍČ 1998, 178). It is evident that they were gradually replaced by smaller shapes of jugs and globular cups, especially due to competition with the expanding range of glass beakers and goblets.

Late medieval goblets have a narrow cylindrical S-shaped body and a slightly open mouth, sometimes with a more profiled foot. A substantial part of the body is covered with wheel-pressed decoration (KRAJÍČ 1989, 84, 111, Fig. 15/40–42; 1998, Fig. 24, 28).

### 6.3 BOWLS, PLATES, TRIPOD PIPKINS

Alimentary bowls are widespread pottery forms that had more morphological variants but also multiple functions (Fig. 9; ŠTAJNOCHR 2006).



In the second half of the 15th century to the mid-16th century we encounter conical to funnel-shaped deep bowls made from coarse-grained reduction fired ware. They were documented in many urban assemblages in Soběslav (KRAJÍČ 1990, 109, fig. 10), Tábor (KRAJÍČ 1998, 167, Fig. 27), and České Budějovice (ČAPEK/PREUSZ 2016, 145, 146, Fig. 61/14).

The rim of the bowls was often horizontally outward turned or oval (KRAJÍČ 1998, 171). At the turn of the 15th/16th century they have two opposing handles, and at the end of the 16th century the bowls also have clamping handles. On rare occasions, deeper bowls with almost perpendicular walls appear in addition to relatively wide, significantly enlarged bowls (KRAJÍČ 1998, 49, Fig. 25).

Typical Early Modern forms are shallow or flanged bowls with a platter-shaped sub-rim<sup>10</sup> that appear in assemblages in the second third of the 16th century (KRAJÍČ 1998, 167, Fig. 10). The oldest documented example is a shallow bowl of brick-red fired ware with white fine-clay paintings, covered with a transparent glaze and dated around the mid-16th century (found in the town hall in České Budějovice – ČAPEK/PREUSZ 2016, 184, Fig. 59/1). Peculiarities of south Bohemia include the presence of reduction fired shallow bowls, which were documented, for instance, in Tábor and České Budějovice (KRAJÍČ 1998; ČAPEK/PREUSZ 2016, 145–146) and also in village households – in Topělec (ČAPEK/FRÖHLICH 2017, 374, 391, fig. 8). Shallow bowls from the late 16th century are usually oxidation fired and glazed.

Deeper bowls with a stirrup handle complemented by a spout occasionally appear in south Bohemia and are dated to the last third of the 16th century and the first half of the 17th century – e.g. České Budějovice, Český Krumlov (PREUSZ ET AL. 2014, 64; PREUSZ 2017, 138). In addition to large bowls, even smaller bowls of reduction or oxidation firing appear in the same horizon – e.g. Slavonice, Český Krumlov (PREUSZ 2017, 139).

The shape of an open-work perforated bowl (?) found in Český Krumlov is a peculiar form

(PREUSZ 2017, 140, 141, catalogue CK 122). This form is sometimes considered to be a bowl for fruit due to the glazed surface (BLAŽKOVÁ 2013, 212). The coarse forms show that bowls were used for heating food up rather than holding fruits.

In the last third of the 16th century, plates with wide, slightly slanted rims and horizontally outward turned rims were documented for the first time. Inside, they are glazed (most often in green, yellow, or yellow-green), and a plate or shallow bowl resembling 'Beroun malhornware'<sup>11</sup> appears on rare occasions (PREUSZ 2017, 139, 140, catalogue CK 88). Typical decoration includes grooving, paintings with plant motifs and decoration with polychrome glazes. The earliest find of a plate from the 15th/16th century with fine clay with internal glaze and a rim with the inscription of Maria + G comes from a well in Soběslav (KRAJÍČ 1989, 80, 108, Fig. 12/2; 1990, 109).<sup>12</sup>

The tripods (pans with three legs) used for food preparation in an open hearth (ŠTAJNOCHR 2006, 978–981) appear in assemblages at the end of the 15th century; the oldest examples come from Soběslav (KRAJÍČ 1989, 84, 112, Fig. 16/48, 49) or České Budějovice (ČAPEK/PREUSZ 2016, 146, 185, fig. 60/2, 3). Typical for them is an inner opaque lead-glazed surface, a flat bottom and a short tubular hollow grip with a circular orifice for an inserted wooden rod. Later, beginning in the mid-16th century, they are replaced by tripods with a concave body and lenticular bottom, reaching even larger shapes and for which the bulbous shape of the more extended grip with the narrowed collar at the end and longer lengths of legs is characteristic (e.g. KRAJÍČ 1998, 167, 168, 182, Fig. 13). The rim is usually oval (KRAJÍČ 1998, 171). Such shapes of tripods were observed in Český Krumlov, and on rare occasions are accompanied by their handles. The rim is generally oval, out-turned or S-shaped. They are mostly undecorated; in the later period they are decorated with simple grooves or segmented wavy lines.

<sup>10</sup> So-called soup bowls, according to ŠTAJNOCHR 2006, 961, 962.

<sup>11</sup> In detail, the issue of Beroun slipware and its occurrence in Bohemia with other similar groups of painted slipware was dealt with by BLAŽKOVÁ/ŽEGKLITZ (2016).

<sup>12</sup> However, a secondary origin of the plate cannot be ruled out (KRAJÍČ 1990, 106).

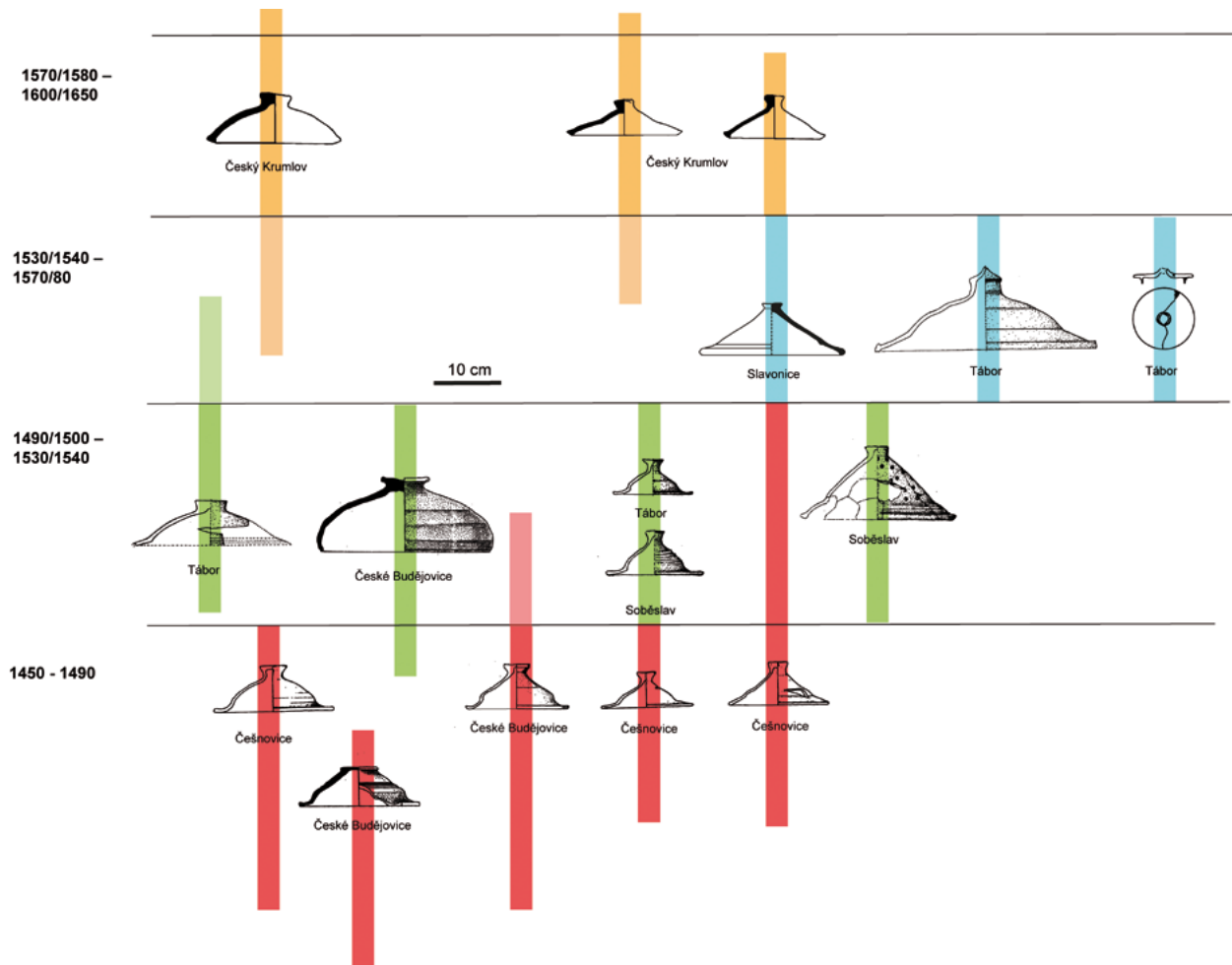


Fig. 10: An overview of the development of pot lid forms in the 15th/16th–16th/17th century. Created by M. Preusz and L. Čapek.

The first form of baking pans is documented before 1555 in České Budějovice (ČAPEK/PREUSZ 2016, 592, Tab. 148/6). In the last third of the 16th century, we encounter flat oblong baking pans with rims decorated with a finger-pressed strap, which also have the functional properties of body strengthening. The inside surface is glazed (PREUSZ 2017, 142, catalogue CK 101–103; KRAJÍČ 1998, 167, 174, fig. 11).

#### 6.4 POT LIDS AND STOPPERS

Pot lids long maintained an archaic medieval bell-shaped form into the Early Modern period with an inner rib, made of coarse-grain reduction fired ware (Fig. 10). They are documented both in urban (KRAJÍČ 1998, 168, fig. 27, 28) and village environments (MILITKÝ/VAŘEKA 1997, 61, 72, Fig.

6/2–5). A perforated lid from Soběslav is a unique form (KRAJÍČ 1989, 112, Fig. 16/50). Later, around the mid-16th century, flatter variants of lids with simply formed knobs appeared. Stoppers were used to close jars or bottles. A flat lid with a lower collar was discovered in Tábor (KRAJÍČ 1998, 182, 65, Fig. 10).

#### 7. THE RATIO OF KITCHENWARE/TABLEWARE AND THE ISSUE OF ITS FUNCTION

Cooking pots (jars) were the most common form of kitchenware. Cooking pots of different shapes functionally served for cooking on an open hearth and in an oven. Cooking pots were used for the heat processing of one type of dish by means of side or bottom heating, and the food prepared in them had a special designation, supported by eth-



nographic research (ŠTAJNOCHR 2004, 801–851). In the Early Modern period, we encounter cooking pots (jars) of various size categories – from large and medium-sized pots to small pots and cups. High pots had two attached handles and were used for storing products or transporting foodstuffs. In south Bohemia, we rarely encounter barrel-shaped pots intended for the production of cream or ovoid-shaped pots (sieves) with a perforated bottom (MILITKÝ/VAŘEKA 1997, 73, Fig. 7/4; KRAJÍČ 1990, 99, Fig. 5/A). Deep bowls were widespread Early Modern pottery forms and fulfilled multiple functions. They served for the preparation of soft dishes in the kitchen, or they were used for consumption (cf. ŠTAJNOCHR 2006).

In the Early Modern period, heat preparation of dishes improved. Tripods became more widespread and served to heat and fry food in hot ash. Baking pans appear as new forms serving to prepare dishes by baking and roasting in ovens (SCHEUFLER 1972, 42).

At the end of the Late Middle Ages and at the turn of the 15th/16th century, the ratio of tableware to kitchenware in urban assemblages is significantly lower at approximately 1:10 (Tab. 2; KRAJÍČ 1990, 98; 1998, 168). Only after the second half of the 16th century was there a gradual increase in the ratio of tableware, sometimes making up a third or a fifth of represented ware. The only exception is the assemblage of later layers from the cesspit in Tábor, no. 220, where kitchenware predominates (KRAJÍČ 1998, 168). In the village environment, the larger amount of tableware documented at the farmstead in Topělec near Písek is quite surprising (cf. ČAPEK/FRÖHLICH 2017, 374, 378).

Jugs were a typical part of household tableware. Drinking jugs (c. 0.3 to 0.5 litres), which have a spherical body and topped and pulled neck and cut-out rim that allowed the drinker to comfortably pour the liquids into his mouth served for wine-pouring and drinking; water or beer was served in large cooling jugs with a bulbous body and a narrow neck keeping liquids cold longer (cf. ŠTAJNOCHR 2005; PREUSZ ET AL. 2014, 65).

Expanding Renaissance culture brought a higher living standard, which was also reflected in a new way of dining associated with a broader range of

tableware, in which new forms of shallow/flanged bowls and plates appeared (cf. ŠTAJNOCHR 2006).

Shallow bowls with a plate-shaped body become the typical form of the Early Modern period in south Bohemia in the second half of the 16th century. From a functional point of view, they are bowls for serving soup with rims with a sharp edge used for wiping off the spoon. In traditional rural households, it was long a custom to consume food together from one large bowl (ŠTAJNOCHR 2006, 961, 962). Plates with a horizontal rim were an absolute novelty in households associated with the individualisation of dining (PREUSZ ET AL. 2014, 64). Decorative painted or engraved plates have long been considered to be more aesthetically pleasing tableware for representative purposes that serve especially for feasting and initiation rituals – weddings, baptisms, etc. (ŠTAJNOCHR 2006, 986–988). Thus, we first encounter them in burghers' households and appear in rural households much later.

Proof of the living standard can be seen in finds of pottery forms that functionally included open-work perforated bowls for heating up food, chamber-pots and washbasins. A unique washbasin with embedded religious motifs of the crucifixion of Jesus Christ, the Virgin Mary, the Infant Jesus with the imperial apple, and John the Evangelist was discovered in Český Krumlov and is dated to the turn of the 17th century (PREUSZ 2013, 287, 292–297; PREUSZ 2017, 103, 147, catalogue CK 123).

## 8. CERAMIC IMPORTS

Assemblages from the end of the 15th century and the beginning of the 16th century still show local differences following the medieval tradition of production. Assemblages from the second half of the 16th century to the first half of the 17th century are unified regarding technology, morphology and decoration. Potters had to respond to ceramic production in competitive emulation with other producers of glass or metalware (pewterware), as well as rapidly changing consumer demands for better goods. In south Bohemia, production centres of Early Modern ceramics have not been found (with the exception of an unpublished find of pottery kilns in Tábor and Bechyně – see KRAJÍČ 2007a,



Urban				
Assemblages	Date	Kitchenware	Tableware	Ratio
České Budějovice - town hall, horizon C2	3/3 of 16th c.	91,70%	8,30%	11:1
Soběslav no. 89	15th/16th c.	90,00%	10,00%	9:1
České Budějovice, Hroznová no. 23, Phase 3	2/2 of the 15th – 1/3 of the 16th c.	85,60%	14,40%	6:1
České Budějovice - town hall, horizon D	15th/16th c.	89,70%	10,30%	9:1
Tábor no. 220, cesspit layer 6-7	15th/16th – 1/3 of 16th c.	86,80%	13,20%	7:1
Slavonice no. 518	15th/16th c., TPQ 1546-1548	76,90%	23,10%	3:1
Budweis - town hall, horizon E	1/2 of the 16th c. (TAQ 1555)	81,80%	18,20%	5:1
Tábor no. 220, cesspit layer 5	TAQ 1556	96,60%	3,40%	28:1
Tábor no. 220, cesspit layer 3-4	2/2 of the 16th c. – 1/2 of the 17th c. (TPQ 1556)	91,30%	8,80%	10:1
České Budějovice, Kanovnická no. 1	16th/17th c.	89,20%	10,80%	8:1
Český Krumlov - Latrán no. 55, well layer E	2/2 of the 17th c. – 17th/18th c.	74,70%	25,30%	3:1
Rural				
Assemblages	Date	Kitchenware	Tableware	Ratio
Češnovice no. 13	3/3 of the 15th c. (TAQ 1490)	91,70%	8,30%	11:1
DMV Žďár	TPQ 1490	82,50%	17,50%	5:1
Topělec no. 9	15th/16th	75,30%	24,70%	3:1
Topělec no. 39, assemblage 2	16th/17th c.	85,70%	14,30%	6:1

Tab. 2: Representation of kitchenware and tableware in urban/rural assemblages. Compiled by L. Čapek.

152–155). Written sources of concentrated pottery production associated with guilds are documented in the 16th century in the feudal towns of Český Krumlov, Třeboň, Soběslav, Veselí nad Lužnicí, Lomnice nad Lužnicí, and Jindřichův Hradec. In royal towns, potters are documented at the end of the 15th century in České Budějovice and Písek (PREUSZ 2017, 182).

The presence of imports points to other production centres outside south Bohemia, but they are usually individual specimens documented exclusively in the urban environment (Fig. 11).

Late medieval imported ceramics at the turn of the 16th century include goblets from Loštice in north Moravia which were found, for example, in České Budějovice, Písek, and Tábor (ČAPEK/PREUSZ 2016,

219, 220, Fig. 87/3, 4; PREUSZ 2017, 187, 188). In the second half of the 16th century and the beginning of the 17th century, trade with Anabaptist ('Habaner') faience from south Moravia production centres was developing (PAJER 1983; 2011). The origin of faience in south Bohemia can be found more in production centres in Austria than in south Moravia, e.g. Wels, Gmundem, and Wagram (DOHNAL/FRÖHLICH 2000, 170). Fragments of unspecified faience shards were found in České Budějovice and Český Krumlov (ČAPEK/PREUSZ 2016, 220, 221, Fig. 87/8, 9; PREUSZ 2017, 191).

South Bohemia was a semi-peripheral region in the 16th and 17th centuries, where products were imported mainly from neighbouring countries over shorter distances – local consumers primarily focused on luxury goods that came from Upper

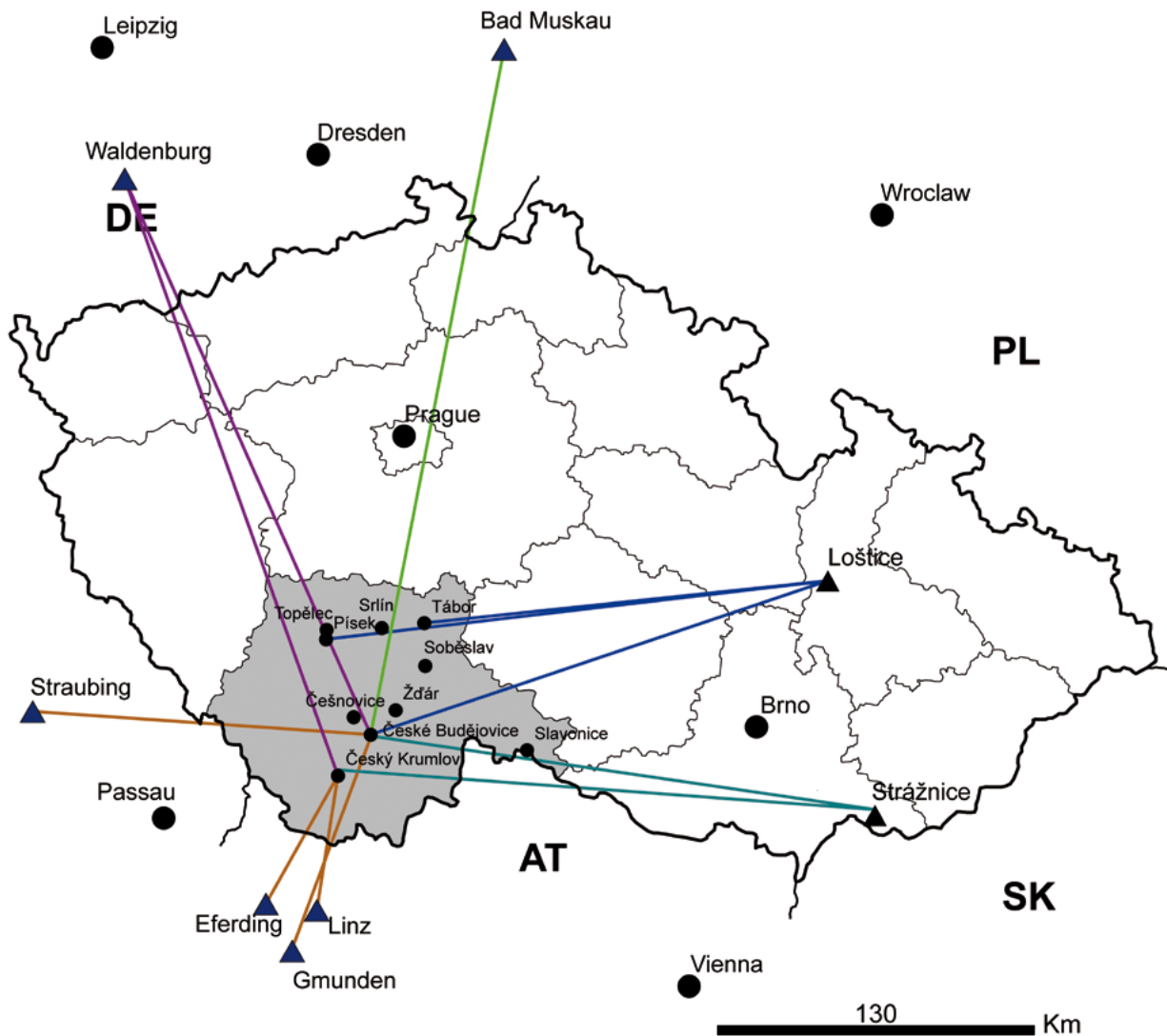


Fig. 11: A distribution network of pottery imports in south Bohemian assemblages. Created by M. Preusz.

Austria, southeast Bavaria, Upper Franconia and Saxony (e.g. painted ceramics, German stoneware). Italian maiolica came to south Bohemia through Austria (PREUSZ 2017, 191).

In south Bohemia, imports of German stoneware from Saxony and Lusatia were recorded in the second half of the 16th century and the beginning of the 17th century – mainly Waldenburg and Muskau/Triebel stoneware.<sup>13</sup> Finds of German stoneware were made at the town hall in České Budějovice (ČAPEK/PREUSZ 2016, 219–221, Fig. 87).

<sup>13</sup> Thanks to prof. H.-G. Stephan for help with the determination.

In the 16th and 17th centuries, cross-border contact with the Danube region played a significant role (especially with centres in Linz, Passau, Regensburg, and Nuremberg). In the second quarter of 16th century, slipware had already entered south Bohemia.<sup>14</sup> In recent years, the assemblages of Early Modern pottery from Upper Austria from Linz and Eferding have been processed by A. Kaltenberger (KALTENBERGER 2009, 364–495). In terms of representation, we find many morphological and decorative analogies of the products from

<sup>14</sup> A painted fragment of a pitcher with geometrical motifs from Slavonice (before 1548) and a shallow bowl from České Budějovice belonged to the same group – PREUSZ 2017, 139; ČAPEK/PREUSZ 2016, 184, Fig. 59/1.



this area (identical rims with an outward turned collar, decorative motifs such as relief embellishment, paintings), especially between the assemblages from České Krumlov and Eferding.<sup>15</sup>

Consistent with south Bohemia and southeast Bavaria (from Passau to Regensburg), there is a long tradition of the production of reduc-

tion-fired ceramics until the 18th–19th century (ENDRES 2005, 42). The excavation of the pottery workshop in Straubing produced some finds that show striking unanimity with assemblages from České Budějovice – plates with engraved decoration on the bottom (ENDRES 2005, 23, 104, Taf. 8).

<sup>15</sup> E.g. smaller globular or ovoid pitchers with a cylindrical neck or cooling jars with a narrow neck, open-work perforated bowls on a foot and a washbasin with embossed decoration – relief appliquéés – PREUSZ 2017, 190.

## Conclusion

In conclusion, we can summarise the main trends in the development of south Bohemian late medieval and Early Modern ceramics. In south Bohemia, there was a long tradition and continuity in the production of late medieval reduction fired ceramics through the Early Modern period. From the mid-16th century, oxidation-fired glazed ware appear more often, first in urban households. Glazed ware entered rural households later, and reduction-fired ceramics prevailed until the 18th/19th century. From the mid-16th century, significant changes are observed in the forms of vessels (most apparently in the forms of cooking pots and bowls) and the range of tableware ceramics (jugs, plates) grows. The influence of the Renaissance style of living culture with improvements in culinary practices (frying, baking) and higher demands on the aesthetic and functional properties of ceramics had an impact on the expansion of new ceramic forms. During the 16th century in south Bohemia, especially in the urban context, we encounter a small representation of ceramic imports, mostly in individual fragments of stoneware, slipware, faience, etc., whereas imports are still quite exceptional in rural households.

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# Post-medieval Pottery from Small Townships of Gdańsk Pomerania. A Preliminary Evaluation

Michał Starski

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## Abstract

The issue of pottery production in small townships of Gdańsk Pomerania in the Modern times has been highlighted in a few publications only. This problem can now be analyzed owing to new findings from excavations conducted recently in Chojnice, Debrzno, Człuchów, Lębork, Puck and Skarszewy as well as based on existing numerous and so far unpublished sources. This paper shall characterize principal production trends of the 16th to 18th century including the adoption of technical and stylistic novelties. An attempt to identifying local production traditions and influence of Gdańsk and other towns will be done. The external impact of local pottery production will be also discussed.

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🔗 townships – production – novelties – Gdańsk

## 1. INTRODUCTION

### 1.1 STATE OF RESEARCH AND PURPOSE OF THE PAPER

The manufacturing and spectrum of ceramic vessels used in smaller townships of Gdańsk Pomerania in the post-medieval period continues to be just superficially assessed, even though archaeological research has been quite intensive (STARSKI 2016a). This is because only a few authors have discussed the type differentiation of ceramic products between the 16th and 18th centuries and the subject matter of pottery production has not been addressed at all. Even in Gdańsk the situation is better, with single publications devoted to ceramic vessels (KOŚCIŃSKI 2000; 2003; ONISZCZUK-RAKOWSKA 2002; KILARSKA 2003; DĄBAL 2013; 2015, 221–264), whereas publications relating to smaller townships include just Chojnice (GARAS/TRZCIŃSKI 2010), Lębork (STARSKI 2017) and Puck

(STARSKI 2015). This list is supplemented by single unpublished papers relating to the above townships, and to Człuchów, Gniew and Skarszewy.<sup>1</sup> Much more extensive information is available for studies of late medieval pottery related to this subject matter (STARSKI 2010, with refs.), and significant input has been made in a paper devoted to contemporary Kashubian folk pottery production dated from the 18th to 20th century (KWAŚNIEWSKA 2006).

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<sup>1</sup> A significant contribution to research of ceramic products was made as a result of excavations in Gniew and the results of excavations performed by E. Choińska-Bochdan in the 1970s and 1980s. This paper also includes an analysis of finds from my excavations in Człuchów and on the Skarszewy town square, and also papers by Ł. Trzeciński (University of Łódź) on Chojnice and M. Marczewski on Lębork.

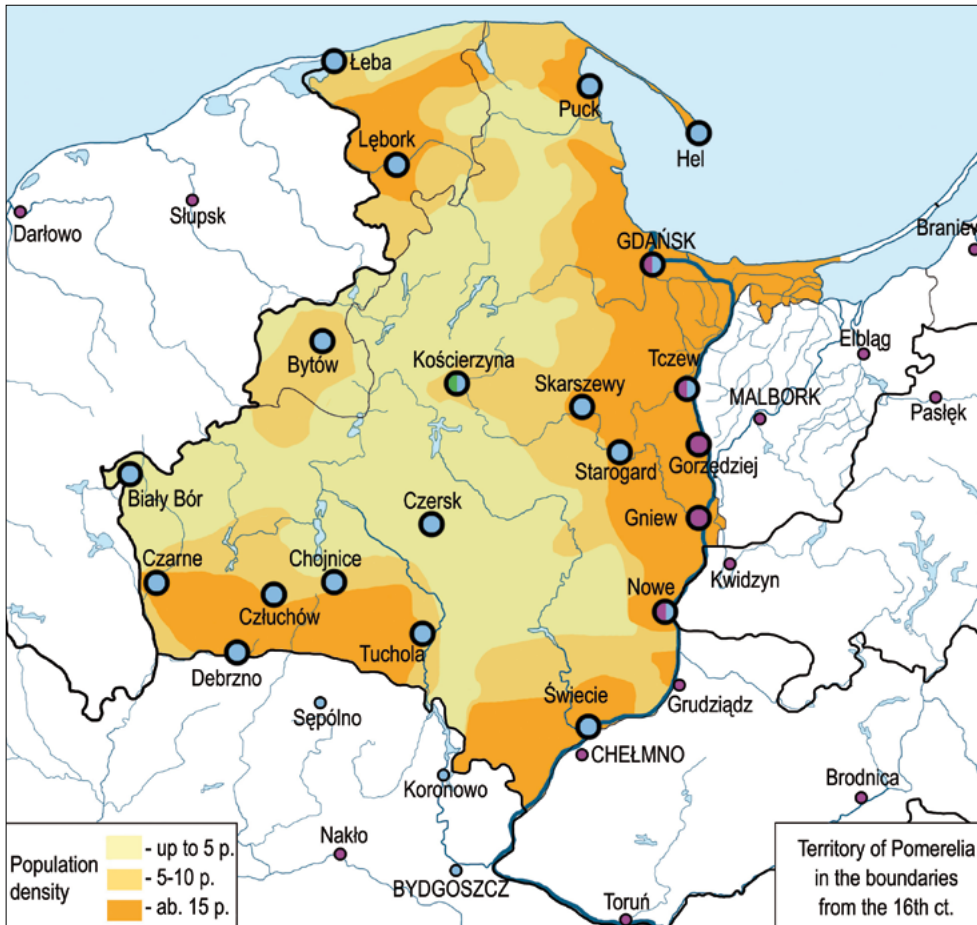


Fig. 1: Urban network of Gdańsk Pomerania at the beginning of post-medieval period with towns and population density in the second half of the 16th century.

It is beyond doubt that current progress in research into post-medieval ceramics in smaller townships of Gdańsk Pomerania allows only a preliminary evaluation of this subject matter. The purpose of this paper is to present pottery usage in the post-medieval period with differentiation into types of vessels (according to technological groups) and changes in type structures occurring in the 16th, 17th and 18th centuries. The observation of such changes is quite a formidable task and, moreover, the identification of manufacturing sites turns out to be even more troublesome.

## 1.2 TERRITORY

The economic situation and characteristics of the relevant territory are of paramount importance for addressing this subject matter. From the end of the Late Middle Ages, Gdańsk Pomerania, also called

Pomerelia, was part of the Kingdom of Poland, with Gdańsk as a principal town of this region. The 16th century and the first half of the 17th century – the first period of development of post-medieval pottery – were also times of economic growth and cultural changes, not only for the Pomerelian towns, but also for other Polish lands. Demand for Polish grain resulted in a positive trade balance and stimulated the development of other crafts. Eighteen small towns existed within the borders of the discussed region at that time, which functioned as local markets and production centres (Fig. 1), having populations from several hundred to about 2,000 people, dominated by craftsmen with an insignificant contribution to growth by local burghers connected with agriculture or fisheries (GIERSZEWSKI 1966, 15–25; BISKUP/LABUDA 1986, 318–332; BOGUCKA/SAMSONOWICZ 1986, 116; GRZEGORZ 1988; 2007, 120–125). The population

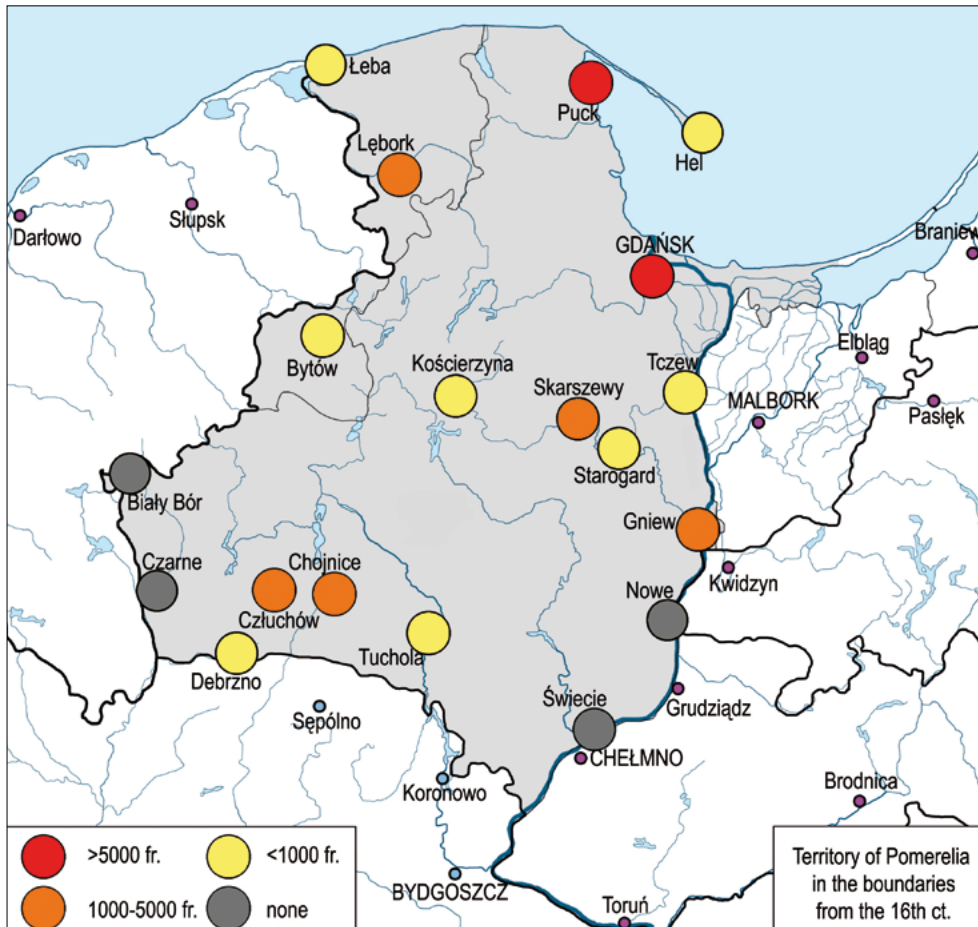


Fig. 2: Size of post-medieval pottery assemblages from small towns of Gdańsk Pomerania.

and the number of craftsmen could be reconstructed using written sources dating back to the third quarter of the 16th century (ŹRÓDŁA DZIEJOWE 1911, 98–288; GIERSEWSKI 1966, 15–25). The population register also gives us the number of potters active in almost all of discussed towns (GIERSEWSKI 1966, 202, 203). Most of these towns had 1–4 potters each, and only in several were 6–9 noted, thus proving that previously undisclosed pottery workshops existed in these towns.

After the second Polish-Swedish War in the mid-17th century, the then prevailing positive internal situation underwent dramatic changes. The depopulation of Polish towns and villages reached 50–70%, which was devastating both to Polish markets and trade. Notwithstanding these changes occurring in the second half of the 17th and 18th centuries, the position of Gdańsk in Baltic trade remained stable throughout the downturn. The

increasing assortment of products on the market led to growth of trade confirming Gdańsk's dominant role in this part of Europe (GIERSEWSKI 1982, 22–28; BOGUĆKA 1962, 9–15; DOLLINGER 1975, 325–340). The conclusion, already suggested in former historical research (GIERSEWSKI 1966, 184), was that this growth influenced the entire Pomerelian region, and disasters in the mid-17th century demoting other Polish lands left Pomerelia economically unaffected. This situation can be observed in the majority of small Pomerelian townships, while in others, demographical and environmental problems hampered their developmental opportunities. This issue is reflected in demographics documented in the second half of the 17th century (GIERSEWSKI 1966, 15–25). But even if such changes were observed, demand for craft products – including ceramics – coming from Gdańsk helped those towns in rebuilding their potential and, thus, their population. All of these



Fig. 3: Selection of post-medieval grey ware from small towns of Gdańsk Pomerania. 1–3, 5 – Puck, 16th century, 4 – Lębork first half of the 17th century.

transformations enabled the small townships to thrive as local centres up until the end of the 18th century.

## 2. DISCUSSION

### 2.1 SOURCE BASIS FOR THE RESEARCH

Post-medieval pottery finds from archaeological investigations in small Pomeranian townships (Fig. 2) enabled the recovery of large collections from Puck, and smaller but significant ones from Lębork, Chojnice, Człuchów, Gniew and Skarszewy (STARSKI 2016a). Gdańsk is treated here just as the hinterland, but of course the largest data set has been found at many sites in that

town. Sets from other townships are too small to be treated as a meaningful basis for these kinds of studies. One of the most important discoveries is a 16th century pottery kiln from Puck with an assemblage of finds dated to the second half of the 16th century (STARSKI 2018); objects explored on the market squares and plots in Skarszewy, Gniew and Lębork are dated to the 16th and the first half of the 17th centuries (STARSKI 2017). Later deposits dated to the 18th century were reconstructed in Chojnice (GARAS/TRZCIŃSKI 2010), Puck (STARSKI 2015, 114–127) and Człuchów.<sup>2</sup> These finds will be discussed herein by product type, defined by the

<sup>2</sup> Information about finds originates from the unpublished work of this author.



technology of production process (i.e. grey ware, red-glazed ware, etc.) and chronology. Production process alterations over time in the post-medieval period will then be summarised, permitting a formulation of preliminary conclusions.

## 2.2 OVERVIEW OF POTTERY TYPES

*Grey ware* made from ferruginous clay and fired in a reducing atmosphere is the first group of products that can be observed in the assortment of post-medieval vessels. Separating finds found at secondary deposits, it was quite a substantial group of products, which the percentage share in the total set (about 50% of used products in whole assortment of vessels) decreasing over time. In the 16th century, grey ware continued older traditions, with some small changes in the shape of vessels. For example, pots from Puck had a slightly slimmer shape, with linear grooves (Fig. 3). A new category of vessels included high bowls as well as wide pots with a comparable height and diameter (STARSKI 2016b, 190–193, 201–203). The production of vessels at that time was based on the slip band technique, but potters introduced turning as the basic forming process technique before the end of the 16th century. Pots found in Lębork, Skarszewy and Puck from that time and the first half of the 17th century display new features and are slenderer, with the maximum diameter of their bellies being shifted upward compared to late medieval vessels (Fig. 3). Also, the handle has a different shape and the rims are everted. From the 17th century onwards, the production of grey ware diminished to just a small percentage of the total (10–20%), and their shapes show that such ware was used primarily for the storage of products within the kitchen, no longer for cooking.

The percentage of *red ware* made from ferruginous clay and fired in an oxidising atmosphere increased over time in the 16th century and represented one-third of products used in households owing to the widespread introduction of oxidising firing techniques (STARSKI 2016b, 203, 204). Also, these products were cheaper and very common, therefore, like grey ware, these were used in kitchen facilities to store products or as subsidiary vessels serving many functions. The changes in shape and

varieties of vessels are also similar to those of grey ware. Pots from the second half of the 16th century were represented by examples discovered in the pottery workshop from Puck, being ordinary products with a standardised shape and rim (Fig. 4; STARSKI 2018). Vessels were formed using the slip band technique. As with grey ware, products made after 1600 have new features in shape; these are also present in product finds from Człuchów, Lębork, Puck and Skarszewy (Fig. 4). The popularity of these products is manifested in a variety of functions as pots, bowls, lids and jugs. New kinds of dishes and plates were also produced, which can be observed in finds from Skarszewy;<sup>3</sup> however, an analysis of this product group does not lead to final conclusions as to whether this was just the local assortment, and it is likely that such products were in the cheapest category to make, so their sale had to be limited to local markets.

*Red glazed ware*, made in the same manner as red ware but covered with a lead glaze before firing, became undoubtedly the most popular category of products. During the 16th century, these constitute the largest percentage in the assortment of finds (about 40%). The popularisation of this technology resulted in most diverse vessel forms and shapes. Initially, the changes run parallel to red ware, but more varieties of pots, such as tripods and small flat-bottomed pots were used (Fig. 5). The ceramic mass used for their production was prepared with more care and with an admixture of fine-grained sand. Only pots made from red-glazed ceramic show progressive attributes. This transformation process, observed in finds from Człuchów, Chojnice, Lębork, Puck and Skarszewy, must have been invoked by the potters in an effort to retain customers. Production became even further diversified at the end of the 16th century. The newest categories in use were dishes and plates (STARSKI 2017) that became popular as a result of general changes in eating styles, with the consumption of foodstuffs being transformed into a more individual than collective activity. At the same time, features of vessels

<sup>3</sup> Information based on finds from Zduńska Street (Potter Street) in Skarszewy and a larger but undated collection from the Museum Room in Skarszewy. This variety of products is characterised by red ware painted with white clay, without glazing. At this moment of research, that production cannot be given a time stamp.



Fig. 4: Selection of post-medieval red ware from small towns of Gdańsk Pomerania. 1, 2, 4–6 – Puck, 16th century, 3 – Lębork first half of the 17th century, 7 – Puck, first half of the 17th century.



Fig. 5: Selection of post-medieval red-glazed ware from small towns of Gdańsk Pomerania. 1, 2, 4, 6 – Puck, 16th century; 3 – Skarszewy, 16th century; 5 – Lębork, 16th century; 7 – Człuchów, 17th century; 8 – Lębork, 17th century; 9, 10 Puck, 17th century.



such as painted decoration (Fig. 5) suggest local production alluding to North European trends. Vessel varieties now also included cups and jugs. That situation changes in the 18th century when red-glazed ware became more common vessels in the household assortment (Fig. 6). Their popularity decreased slightly because of new products introduced at that time.

Foreign products can be also reconstructed in an assortment of vessels used by burghers of small Pomeranian townships. Demand for *stoneware* remained constant, but its percentage is marginal in the structure of ware types (Lębork and Puck – STARSKI 2016a, 198; 2017, 265). These products were still attractive in the discussed period, but other groups such as some glazed ware gained popularity (GAIMSTER 1999, 104–108). Among vessels we note products from Cologne, Raeren, Siegburg, Frechen and Westerwald (Fig. 7/1–5). Usually these were jugs, but also pitchers, bottles and other shapes.

Just a small percentage of *white-grey ware* was reported in small Pomerelian town finds. Their share in the assortment of products varies between 1% and 10% in analysed towns and only in the 16th and 17th centuries (STARSKI 2013). Chemical analysis shows that such ware was made of ferruginous loam characterised by lower content of iron compounds. The presence of mainly large flat-bottomed pots and bowls was documented, and these products also differed by rim shape and have a deeper notch for the lid, and are therefore quite specific in comparison with other types of vessels (Fig. 7/6, 7). These products were certainly of foreign origin, as pottery workshops manufacturing similar ware have been reported in Bydgoszcz (SULKOWSKA-TUSZYŃSKA 2008; 2009) and Płock (TRZECIECKI 2016); these sites are still awaiting chemical analyses, though some resemblance is visible. Most probably, this ware was imported along the Vistula River trading route to Pomerelian towns along with the gradually developing trading relationships with the Kingdom of Poland (GIERSZEWSKI 1982).

From 17th century onwards, the use of *white-glazed ware* became the major novelty along with the development of Polish pottery centres in Minor

Poland (Kielce Land – DĄBROWSKA/GAJEWSKA/KRUPPÉ 1993; 1996; BIS 2014). These vessels gained popularity both in Pomerelia and other regions of the Polish-Lithuanian Commonwealth, but similar finds have also been confirmed in the Baltic states.<sup>4</sup> It should be noted that their percentage share is much higher in Gdańsk (ONISZCZUK-RAKOWSKA 2002) as compared with the smaller Pomerelian townships, where it reaches single percent figures at most (STARSKI 2015, 118). These vessels were turned on a pottery wheel, made from kaolinite clay and fired in an oxidising atmosphere. The shape of pots is similar to more recent red ware, i.e., the products were taller in shape with the maximum diameter of their bodies located in the upper part of vessel (Fig. 7/8). Rims were everted using a bar pressing on the interior. The upper part the bellies of vessels were decorated with stamps or many variants of linear ornaments. The products included mainly pots, bowls and also dishes, plates and pans.

Finds dated to the 17th century include originals and imitations of noble ceramics. Majolica is quite infrequent and just single finds can be interpreted as Dutch majolica (GAWRONSKI 2012, 203/503; Fig. 8/1–3). Imitations are most often denoted in Polish literature as pseudo-majolica. Vessels were manufactured from ferruginous loam, slipware lined and lead glazed, thus resembling classic slipware features. The popularity of such products – especially dishes and plates – can also be associated with pottery centres in Minor Poland.

The use of luxury faience and porcelain products leading to the development of *Pomeranian faience* in local Pomeranian workshops became prominent in the 18th century (MARCINKOWSKI 2007; 2011). These products also imitated noble ceramics (as so-called tin-glazed earthenware), but gained extreme popularity elsewhere in the Polish lands and Baltic countries. The spectrum of products in this period also greatly expanded in pottery workshops of small townships and the trend continued through to the 19th century (KWAŚNIEWSKA 2006, 61–89). Vessels were made from ferruginous clay, sludged and without any visible sand admixture. Their surface was covered

<sup>4</sup> See paper by M. Bis in this volume.

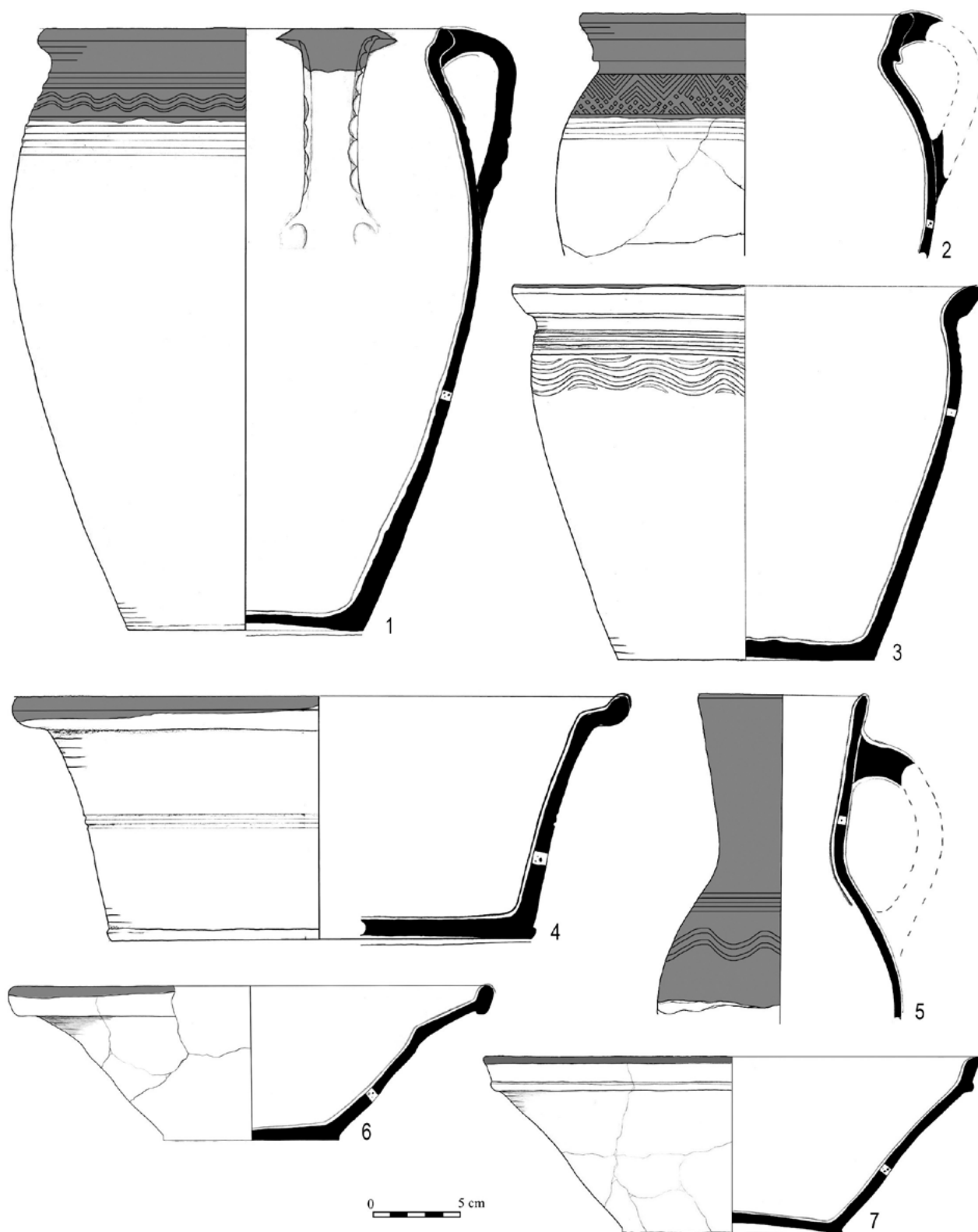


Fig. 6: Selection of red-glazed ware dated to the 18th century from Puck (market square).



Fig. 7: Selection of post-medieval stoneware (1-5), white-grey (6-7) and white-glazed ware (8) from small towns of Gdańsk Pomerania. 1-8 – Puck, second half of the 16th century – 17th century.



Fig. 8: Selection of post-medieval imported faience (1–3) and local pseudo-faience ware (4–7) from small towns of Gdańsk Pomerania. 1–3 – Puck second half of the 17th century – first half of the 18th century; 4–7 Puck, 18th century.



by tin white glaze painted in floral or geometrical ornament. The assortment of these products includes mainly dishes and plates, but cups, small pots and jugs were also made (Fig. 8/4–7). The percentage of those vessels noted in Puck in finds from the end of the 18th and first half of the 19th century reaches 30–40% (STARSKI 2015, 126–128). At the same time, Dutch faience finds become very scarce and could be viewed as sporadic luxury goods imported to local centres of Pomerelia.

### 2.3 CHANGES IN THE STRUCTURE AND ASSORTMENT OF POTTERY VESSELS

The three hundred years of pottery development in the region was initiated by the move away from and the disappearance of late medieval models of consumption in the 16th century. Product assortment gradually became more diversified and the prevailing domination of grey ware with pots and a small share of jugs and bowls, as the three most popular varieties of vessels, changed with the increase in the use of red ware and red-glazed ware. These transformations undoubtedly reflected the improvement of living standards and new consumption trends, such as higher share of meat in the diet of burghers, and style changes resulting in higher demand for vessels designed for individualised consumption purposes. The emergence of red-glazed ware production must have been an effort undertaken by the potters to survive on the changing local markets. Percentage estimates from Lębork, Puck and Skarszewy confirm the transformations taking place, with a decrease in grey ware by 70–80% at the end of the Late Middle Ages to 50–70% in the first half of the 16th century and 20–40% at the beginning of the 17th century (Tab. 1). At the same time, vessels fired in an oxidising atmosphere gain popularity, with about a 30% share of red ware and 40% share of red-glazed vessels at the end of the 16th century. Similar estimates were reported in Gdańsk, with a more differentiated structure of vessel varieties (STARSKI 2016b, 198; 2017, 239; 2018).

Further development of pottery production documents the assimilation of new trends such as the production of plates with painted ornament designed for individual consumption, or as deco-

ration in houses. Initially, such vessels were made as grey ware, being large deep dishes with polished decoration dated to the end of the 15th century. In the 16th century, such products were made as glazed vessels in line with changing trends in pottery production observed in the Northern European cultural area (STEPHAN 1993).

The Polish lands assimilated changed living styles with the associated transformation in production in response to the inflow of majolica imitations (pseudo-majolica plates), as well as glazed vessels, with white-glazed vessels being the most dominant group. Finds reflecting the more recent technological transformations of that period can be interpreted as an import from Polish lands (e.g. Płock, TRZECIECKI 2016). Thus, pottery centres within Pomerania continued to operate, with the 18th century witnessing much higher differentiation in products made locally, along with the diversification of imports. However, assigning a percentage number to those finds is quite difficult because many of the vessels are found in secondary deposits. Some meaningful data were obtained just from the Puck town hall (Tab. 1), where grey ware amounted to 12%, red ware 21%, red-glazed ware 39%, white-glazed ware 5% and faience 19% (STARSKI 2015, 114).

All this reflects the changes in the way of life in the 18th century, with clay-based products being replaced by metal and glass vessels. As a result, the share of jugs and bowls decreases in the 18th century, with pots remaining as kitchen vessels, though no longer used for cooking meals. This situation was observed in Indagandas<sup>5</sup> of pottery handicraft in Major Poland at the end of the 18th century (KRUPPÉ 1983, 133). The trend also manifested itself in the higher share of noble ceramic products and its imitations used as table services. Sometimes, though quite infrequently, these were made of so-called, pseudo-majolica, but the share of tin-glazed earthenware referred to as Pomeranian faience increases in the 18th century.

<sup>5</sup> Indagandas it means the statistical register for potters and pottery production.



Site	Grey ware	Red ware	Red glazed ware	White-grey ware	Stone-ware	Faience	Pseudo- faience (Pomeranian faience)
<b>Puck</b> , town hall, beginning of 16th century	49.7	11.9	25.9	10.8	1.7	0.0	0.0
<b>Puck</b> , pottery kiln half of 16th century	36.3	52.2	5.4	6.0 <sup>1</sup>	0.1	0.0	0.0
<b>Lębork</b> , latrine beginning of 17th century	12.8	41.6	45.4	0.0	0.0	0.1	0.1
<b>Skarszewy</b> , market square	6.5	35.5	46.2	2.1	1.2	0.0	8.5
<b>Puck</b> , cellars of town hall, 18th century	12.5	21.0	39.2	5.2	0.8	0.3	21.0

1 Secondary deposit.

Tab. 1: Percentage differentiation by type of selected sets of ceramic vessels from small towns of Gdańsk Pomerania in the post-medieval period.

## Conclusion

Notwithstanding the sparse data available on the use of ceramic vessels in the post-medieval period, certain valuable information about their use in smaller townships of Gdańsk Pomerania can still be elucidated. Transformations in the assortment of ceramic vessels used during that period is documented quite well by finds. Thus, the use of grey ware gradually disappears and is replaced by red ware and glazed red ware. Vessel varieties in household use greatly increase in the 18th century, highlighting the end of the post-medieval period. Tableware, often decorated with symbolic or floral ornaments typical for folk art, increases in importance, with the use of ceramic vessels for the thermal processing of food gradually coming to an end. Widespread changes in everyday life and cultural transformations observed in smaller Pomeranian townships altered consumption styles and, thus, ceramic manufacturing technologies, resulting in Pomeranian faience products beginning to dominate the market along with glazed red ware. The style of treating guests and serving dishes changes. Elites now rely on imported products, with small town burghers buying local production imitating the 'real thing'. Such products gradually gain wide recognition among domestic buyers, marginalising and eliminating local pottery handicrafts. Hence, the production of local potters is now focused on the small town and rural population (GAJEWSKA 1978; KRUPPÉ 1983; KWAŚNIEWSKA 2006, 61–89; KOWECKA 2008, 174–178).

This picture of diversified pottery production in small townships of Gdańsk Pomerania in the post-medieval period is just the first effort in evaluating these abundant finds. Research and analysis are continuing to characterise the then existing production centres and more thoroughly defining the changes taking place over time.

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# Post-medieval Pottery in Norway – an International Affair

Volker Demuth

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## Abstract

From the 10th to the 17th century, there was no pottery production in Norway, and all pottery used in the country in c. 1000–1650 was imported. This fact is little known outside of Norway, despite the impact the import of pottery would have had on the study of trading patterns throughout this period. Archaeological heritage legislation in Norway leaves all archaeological finds and features dating from after 1537 without legal protection. This has led to the comparably poor state of research and publication of post-medieval pottery in Norway. This paper presents a broad overview of pottery finds from the 16th and 17th centuries in Bergen, which was the largest and most economically important town in the country during this period.

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## 1. HISTORICAL SETTING

From the late 14th century, Norway was part of the Danish-dominated Nordic union. King Christian III strengthened Danish rule over Norway with the implementation of the Protestant Reformation in 1537 (ERSLAND/SANDVIK 1999, 164). In the late medieval period, the Hanseatic League was the most powerful economic actor in Norway, ensuring the supply of grain products to the country (NEDKVITNE 2014, 584). The main export product of Norway was dried fish. During the 16th century, the Royal Danish Crown and its governors gradually restricted the influence and privileges of the Hanseatic League. Independent merchants, predominantly from the Netherlands but also from other regions, took over more and more of the economic activities previously dominated by the Hanseatic League. The 16th century saw also the rise of a burgher class in cities such as Bergen, with the so-called ‘Bergen humanists’ as promi-

nent examples. During the reign of King Christian IV (1588–1648) Denmark-Norway was involved in European struggles such as the Thirty Years War, which resulted in an influx of immigrants, especially from northern Germany. With the rise of water-driven sawmills in the 16th and early 17th centuries, an extensive timber trade developed along coastal Norway with its vast wood resources (RIAN 1995, 92).

## 2. A BRIEF HISTORY OF RESEARCH

When Norway gained national independence in 1905, a relatively strict heritage law was enacted, protecting all archaeological finds and features older than 1537. This law is still in effect today, which means that archaeology of the Early Modern period is under-researched in Norway. Nevertheless, a very early monograph on medieval finds



from Norway by S. Grieg also gives an overview of post-medieval pottery in the country (GRIEG 1933). From 1950 onwards, urban archaeology became significantly more common, which produced many ceramic finds from the Early Modern period. These finds are also included in the few scientific studies on archaeological pottery from Norway (MOLAUG 1975; REED 1990). A number of articles concerning shipwrecks provide insight into pottery finds from the specific ships (MOLAUG 1970; BANG-ANDERSEN 1975), and some specific ceramic ware from Bergen has been the subject of detailed studies (DEMUTH 2001; TØSSEBRO 2011). The earliest documented pottery in Norway from the late 17th century is presented in a monograph (REED 2009), but otherwise Early Modern archaeology in general, and especially ceramic studies, is an oft-neglected topic in modern Norwegian archaeology. Of course, there have been attempts to change this situation and academic discussions regarding perspectives on historical archaeology are not completely absent (ELIASSEN ET AL. 2017; FASTELAND/MYHRE 1983; PAASCHE 2016).

### 3. EARLY MODERN POTTERY IN BERGEN

The Bergen pottery assemblage can be considered as a proxy for the situation in other Norwegian towns. In connection with a detailed study of some specific Early Modern pottery in Bergen (DEMUTH 2001), I had the possibility to examine most of the post-medieval ceramics found in Bergen prior to the year 2000. The presented overview is based on my studies in the archives of the Bryggen Museum and the medieval collections of the University Museum in Bergen. Most of the material is accessible by numbers via a database, which was used for the quantitative analysis in this paper.

#### 3.1 WESERWARE

Weserware is a very distinctive slipware that was produced in a number of villages in South Lower Saxony/Germany, close to the River Weser (STEPHAN 2012). It is characterised by a fine, light, buff to white or pink fabric that is hard-fired and

without tempering. The vessels feature painted ornament in yellow, reddish-brown and green, and a clear lead-glaze. The decoration is applied with a horn directly on the surface, and the colour of the surface acts as a contrast to the geometrical or figurative ornament. Thus, vessels with reddish fabric show decorations in yellow and green, while those with yellow fabric have decorations in reddish-brown and green. A decoration of zig-zag lines in alternating colours is very typical.

Weserware appears in a variety of forms: plates and bowls are typical, but pots and occasional drinking vessels such as jugs and tankards were also produced. The Bergen finds are predominantly plates or bowls, which represent 90% of all finds of Weserware in Bergen (Fig. 1). The remaining 10% of Weserware vessels are mainly small, decorated tripod-pipkins or pots, which can occasionally show notch rouletting as decoration (Fig. 2). In Bergen, Weserware pipkins are predominantly found in areas that were inhabited by ethnic Germans, e.g., the wharf and buildings comprising the Hanseatic kontor at *Bryggen*. This fact may reflect the popularity of pot-roast dishes in the Hanseatic regions in North Germany during the 16th and 17th centuries (WIEGELMANN 1996, 10). It is likely that the German immigrants maintained their food preferences in Norway.

Weserware was mainly produced in the period between c. 1570 and 1630. In Bergen, all Weserware also dates to this period (DEMUTH 2001, 93). The ware is therefore a very good chronological indicator. Weserware is by far the most common type of decorated pottery in Bergen in this period. In absolute numbers, approximately 2,300 fragments of Weserware were accessible in museum archives in Bergen prior to 1995 (DEMUTH 2001, 78). Weserware represents approximately 5–10% of all Early Modern pottery in Bergen and appears frequently in other Norwegian towns and rural sites (REED 1990, 69).

#### 3.2 WERRAWARE

Werraware is another very specific highly-decorated earthenware of the late 16th and early 17th centuries. It is characterised by elaborate, often



Fig. 1: Weserware plate. Excavated in Bergen, Strandgate 55.



Fig. 2: Weserware pot. Excavated in Bergen, Bryggen.

figurative decoration that was both painted and incised using the *sgraffito* technique. Production sites are found in several small towns, mainly along the River Werra. The trade in Werraware was dominated by Dutch merchants (STEPHAN 1990/91, 598).

Werraware is present in Bergen and other towns in Norway, but only in limited quantities. In Bergen, not more than 160 fragments of Werraware were recorded prior to the year 2000 (DEMUTH 2001, 109).

Yet, despite the small numbers, there are severe indications of trade with this pottery in Bergen (DEMUTH 2015, 349). The various figurative motives on the vessels are inspired by contemporary print art and show a familiarity with sophisticated Renaissance ideas. Several vessels display painted dates, which makes them highly suitable as chronological indicators (Fig. 3). In Bergen, the painted dates on Werraware range from 1586 to 1621.

### 3.3 OTHER DECORATED EARTHENWARE

There is a considerable (though hitherto unquantified) amount of other decorated Early Modern earthenware in Bergen. The majority of these are plates and bowls of slipware with a red fabric and coarse painting in yellow, brown and green. The origin of most of this horn-painted redware is probably in the Northern Netherlands, or possibly in North Germany or Denmark. Small in numbers, but of high cultural-historical interest are rare yet very distinct fragments of French Beauvais-sgraffito ware (HURST 1986, 110).

### 3.4 TIN-GLAZED WARE

A variety of tin-glazed ware appears at different sites in Bergen in significant quantities. A rough estimation based on the number of storage trays in the archives of the Bryggen Museum in Bergen indicates that as much tin-glazed ware as Weserware is present in the assemblages from *Bryggen* (LÜDTKE 1989, 22). At other sites in Bergen, tin-glazed ware is about half as frequent as Weserware. While no systematic quantification of the tin-glazed ware from Bergen has yet been conducted, observations can be made regarding the presence and frequency of certain styles of pottery within this category. Most tin-glazed ware in Bergen comes from the Netherlands. Both polychrome majolica, presumably from Northern Holland (BAART 1999) and blue-white Delftware (BARTELS 1999, 121 f.) is present. Aside from the dominant Dutch tin-glazed ware, Mediterranean faience and majolica are also found in Bergen. Blue glazed *Berettino* faience from Liguria in Northern Italy appears regularly in small quantities, which may have been obtained



Fig. 3: Werraware plate showing St. Laurentius. Dated 1621. Found on the seabed in the harbour of Bergen.

from the Netherlands, where this ware was quite frequent (JASPERS 2012, 12).

### 3.5 GLAZED EARTHENWARE

The most common types of cooking vessels found in Bergen from the 16th and 17th centuries are of predominantly red, but occasionally also yellow or white earthenware. Unfortunately, during older excavations in Bergen these finds were not considered valuable, and they were not kept in large numbers. Database calculations of fragments from excavations in the 1980s and 1990s at the sites of Halfdan Kjerulvsgate, Nygate and particularly Strandgate show that redware cooking vessels account for at least 50% of the Early Modern pottery. Cooking vessels in white-, buff- or yellow-fired earthenware also appear regularly, but are much less frequent. The most common cooking-vessels are tripod-pipkins with hollow handles or vertical loop handles. Yet, there is also an abundance of other lead-glazed vessels used in the kitchen, like skillets or pans, drip pans, colanders and many more. These demonstrate the increased variety of kitchen techniques employed in the Early Modern period. Most of the mentioned redware cooking



Fig. 4: Köln stoneware Bellarmine jug. Found at the royal fortress in Bergen.

vessels are probably from the southern shores of the North Sea and Baltic Sea, such as the Netherlands (BARTELS 1999, 121 f.), Northern Germany (DRENCKHAHN 2015, 191 f.) and Denmark (LINAA 1995, 139 f.).

### 3.6 STONEWARE

A significant portion of Early Modern pottery in Norway is stoneware, which appears on most sites with finds from this period in varying quantities. Even though the following remarks largely focus on highly-decorated vessels, one should bear in mind that the majority of stoneware vessels were simple and undecorated. Most of the stoneware is products from the Rhine and Meuse area, especially the towns of Siegburg, Raeren and Frechen. The stoneware in Bergen and elsewhere in Norway follows a pattern typical for the region around the North Sea and Baltic Sea (GAIMSTER 1997, 64 ff.). In the



Fig. 5: Fragment of a Duingen stoneware tankard showing the coat of arms of the Saxon electorate. Excavated in Bergen, Strandgate 55.



Fig. 6: Siegburg funnel-necked jug. Excavated in Bergen, Bryggen.

16th century, the most common stoneware vessels are tableware from Siegburg and Raeren: both simple jugs and beakers, and elaborate relief-ornamented vessels. Decorated stoneware from other production areas also appears regularly. There are a considerable number of Bellarmine jugs with intricate mould-decoration from Cologne (Fig. 4) that can be dated to the early 16th century, but also some examples of Duingen ‘beehive’ tankards from the late 16th/early 17th century (Fig. 5). In Bergen, my examinations of Early Modern pottery showed that excavations in all parts of the town provided archaeological proof of the prominent Siegburg and Raeren vessels. Concerning Siegburg stoneware, large *Schnellen* tankards were typical for the consumption of beer, while the smaller funnel-neck jugs probably reflect the drinking of wine (Fig. 6). Several of these latter vessels were recovered in the Bergen wine cellar, but also in the Hanseatic quarter and in other neighbourhoods. Likewise, in several areas of the town, fragments of Raeren-stoneware appear frequently, often as

baluster jugs with rich moulded friezes on body and neck.

### 3.7 STOVE TILES

Taking the northern latitude and consequent cold climate of Norway into account, it is remarkable that stove tiles are not found in large quantities in the country. The relatively few examples originate almost exclusively from cities, such as Bergen, Trondheim, Stavanger and Oslo. They were probably in use solely in the residences of individuals of higher socio-economic status (GRIEG 1933, 64). A solitary find of green glazed relief-decorated stove tiles in the remote inland of Telemark in southern Norway relates to an early 16th-century mining site, run by immigrant miners from the Ore Mountains. It is striking that the use of tiled stoves here was clearly restricted to the immigrant community and did not spread to the indigenous Norwegian farming population.

#### 4. EARLY MODERN POTTERY IN RURAL AREAS IN NORWAY

As mentioned above, the use of pottery in Norway during the medieval period is predominantly an urban phenomenon. In the 16th and 17th centuries, there are some indications of an increasing utilisation of imported pottery in rural environments. An investigation of an abandoned small peasant farm in Telemark revealed a varied collection of pottery from the 17th century (SETHRE 2017, 261). The oldest vessel is a Raeren baluster jug with a frieze depicting the electors of the Holy Roman Empire dating to around 1600 (Fig. 7). Other pottery finds include a Frechen Bellarmine jug from the late 17th century and various specimens of earthenware from the late 17th and early 18th centuries. This assemblage provides an example of the potential of Early Modern archaeology in Norway, which is all too seldom realized.

Fig. 7: Fragments of a Raeren baluster jug, showing the electors of the Holy Roman Empire. Found at Kjer-ringåsen, Porsgrunn, Telemark.



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#### Conclusion

This preliminary overview of Early Modern pottery was intended to provide insight into the particular perspectives in Norway. The fact that all pottery prior to c. 1700 is imported makes pottery from Norway an excellent avenue for exploring trade connections in Early Modern Europe. Detailed studies incorporating both archaeological and historical sources from various locations in the trade networks, such as pottery workshops, trade ports and consumer places, have great potential for increasing our understanding of economic and cultural interdependencies during the Early Modern period (e.g. MÖLLER 2008).

Early Modern pottery in Norway is in many ways a valuable source for questions regarding economic networks, cultural exchange and migration in this period. It offers valuable information complementing historical research with elements that are missing in most written sources.

The statutory situation in Norway, which leaves archaeological heritage of the Early Modern period without legal protection, was outlined above. This may be linked to a nationalist conception of heritage, which looks to an imagined glorious past to confirm a nation's uniqueness while neglecting the historical significance of international interactions. I hope that future research based on increased international cooperation will help to address the need for greater understanding of international trade networks.



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# The Pottery Assemblage from the Trindade Archaeological Site, Santiago Island, Cabo Verde

Mariana Almeida – Jaylson Monteiro

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## Abstract

The Trindade archaeological site is located in the interior of Santiago Island, approximately 13 km away from Praia, the present capital, and roughly halfway between Praia and Cidade Velha, the first capital of the archipelago. The site has an important groundwater reserve, so much so that today it is the location of the country's main water factory, with highly fertile soil. It was a fazenda, a farm estate, originally belonging to Fernão Fiel de Lugo in the 16th century, where he built an octagonal chapel that is still standing today. Later on, in a troubled period in the Cape Verdean history, it became the property of the Bishopric of Cabo Verde and the residence of Bishop Fr. Francisco de Santo Agostinho (1709–1719), where he was also buried.

The area underwent an intervention in 2011 in which the main focus was the rehabilitation of the chapel itself and the tomb, with a small archaeological excavation. The materials found are far from what could be expected of a bishop's dwelling, since the vast majority of the pottery is either functional or connected to the production of sugar or other products from sugar cane.

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📍 Cabo Verde – chapel – sugar cane – Bishop

## 1. GEOGRAPHIC AND HISTORICAL CONTEXT

Cabo Verde was part of the Portuguese Empire since its discovery in 1460 and remained so until 1975, when the archipelago gained independence. The Trindade historical and archaeological site is located 13 km from Praia, near the village with the same name, in the municipality of Praia, the capital. It is characterised by its relative abundance of water coming from mountains to the north, which allowed it to be one of the most prosperous estates in Santiago Island early in the 16th century (Fig. 1).

The first historical reference tells us that at the beginning of the 16th century, the lands of Trindade belonged to wealthy residents of Ribeira Grande. A letter from 1540 states that Fernão Fiel de Lugo, a rich merchant and former *almoxarife* (an administration officer) of Praia, purchased the

land from those wealthy men and built the farm estate. The same letter also confirms the institution of a *morgadio* with two farmsteads on the outskirts of Praia, Trindade and Santa Cruz; they were certainly profitable, since, combined, they amounted to approximately 600\$000 réis a year, a substantial sum at the time (CABRAL 2015, 195).

The Trindade estate was two leagues long by half a league wide, according to the last will of Fernão Fiel de Lugo in 1540, and it comprised a chapel, two sugar mills, with all necessary equipment, houses and other structures to purge and distil the sugar, three large water tanks, cattle sheds for two hundred cows, goats, fifty mares, and fifty slaves, both males and females. Beside the sugar cane fields, there were also orchards and vegetable gardens (BRÁSIO 1958, 328; SILVA 2001a, 196).



The chapel, with an original octagonal shape, was built during Lugo's administration of the estate and bears his coat of arms. It underwent a conservation and restoration project in 2010.

Lugo determined that all heirs of the *morgadio* must bear his last name. However, this was soon undone, since his only daughter, Ana de Lugo, and her husband, Filipe Aguiar, both living in Portugal, asked the king for permission to sell the Trindade estate, claiming the loss of revenue due to their distance from the farmstead. Thus, in 1565, Trindade was sold and was no longer subject to the juridical rules of the *morgadios*, becoming a rural property free of any bonds (BRÁSIO 1958, 329).

A century later, in 1665, Jerónimo Alves Freire transformed the property once again into a *morgadio*, founding a chapel and instructing in his will that after the death of his son, João Freire de Andrade, and the master surgeon, Dionísio da Lomba, the estate was to become the property of the bishops of Cabo Verde (CABRAL 2015, 206).

In May 1712, Bishop Fr. Francisco de Santo Agostinho set up residence in Trindade during the attack of the French pirate Jacques Cassard to Ribeira Grande,<sup>1</sup> and he lived on the estate due to conflicts with the clergy in Cidade Velha and the civil authorities in Praia until his death in 1719. During his stay, he commissioned the construction of a chapel where he prayed and, later on, where he asked to be buried (CABRAL 2015, 207).

The property became the home of the governor António Machado de Faria in 1785, and at the beginning of the 19th century, Bishop Silvestre de Maria Santíssima rented it for three years from the colonel Guilherme Cardoso Pereira and his wife, the *mulata*<sup>2</sup> Catarina de Sousa Barradas, daughter of one of the wealthiest families in Santiago (CABRAL 2015, 207).

Until the mid-20th century, Trindade was a space of leisure and entertainment for the richest inhabitants of Praia on the weekends and holidays, and these activities were halted due to access difficulties. In the 1950's the Portuguese government

carried out a large water supply program in Cabo Verde, which included Trindade, comprising the construction of several irrigation canals and a large pool-like structure. More recently, a company with the same name as the site, Trindade, began the production of bottled water, juices and sodas, using the underground water.

## 2. ARCHAEOLOGICAL CAMPAIGN

The first archaeological campaign in Trindade took place in 2010 and was financed by the Spanish Cooperation and the Cape Verdean Institute for Cultural Heritage, in a partnership with the Spanish Association of Restorers Without Borders.

The excavation lasted three months and had two main goals. The first was to reveal any structures surrounding the octagonal chapel, in order to understand if the chapel itself was original or if there were traces of any older building. The second goal was to excavate the ruins of the funerary chapel to the north, where elements of the engraved tomb of Bishop Fr. Francisco de Santo Agostinho could be seen (Fig. 2).

Unfortunately, only the second goal was carried out, with the excavation of the funerary chapel, since it was only partly visible. The excavation unearthed the entire structure, allowing a clear reading of the building and its surroundings. The first action at the site was a general cleaning because the whole area was covered by dense vegetation, comprised mainly of acacias. After that, the site underwent a topographical survey and the digging of four 5 x 5 m trenches. The excavation employed the artificial strata method, with each layer measuring 10 cm.

## 3. THE MATERIALS

A total of 728 potsherds were found in the archaeological excavation. Of these, only 336 (approximately half) are recognizable (Tab. 1). The remainder corresponds to body sherds too small to classify. In fact, all the materials in this assemblage are highly fractured, and we were unable to find any complete profiles.

1 Now known as Cidade Velha.

2 A designation given to the children of a Portuguese father and African mother.

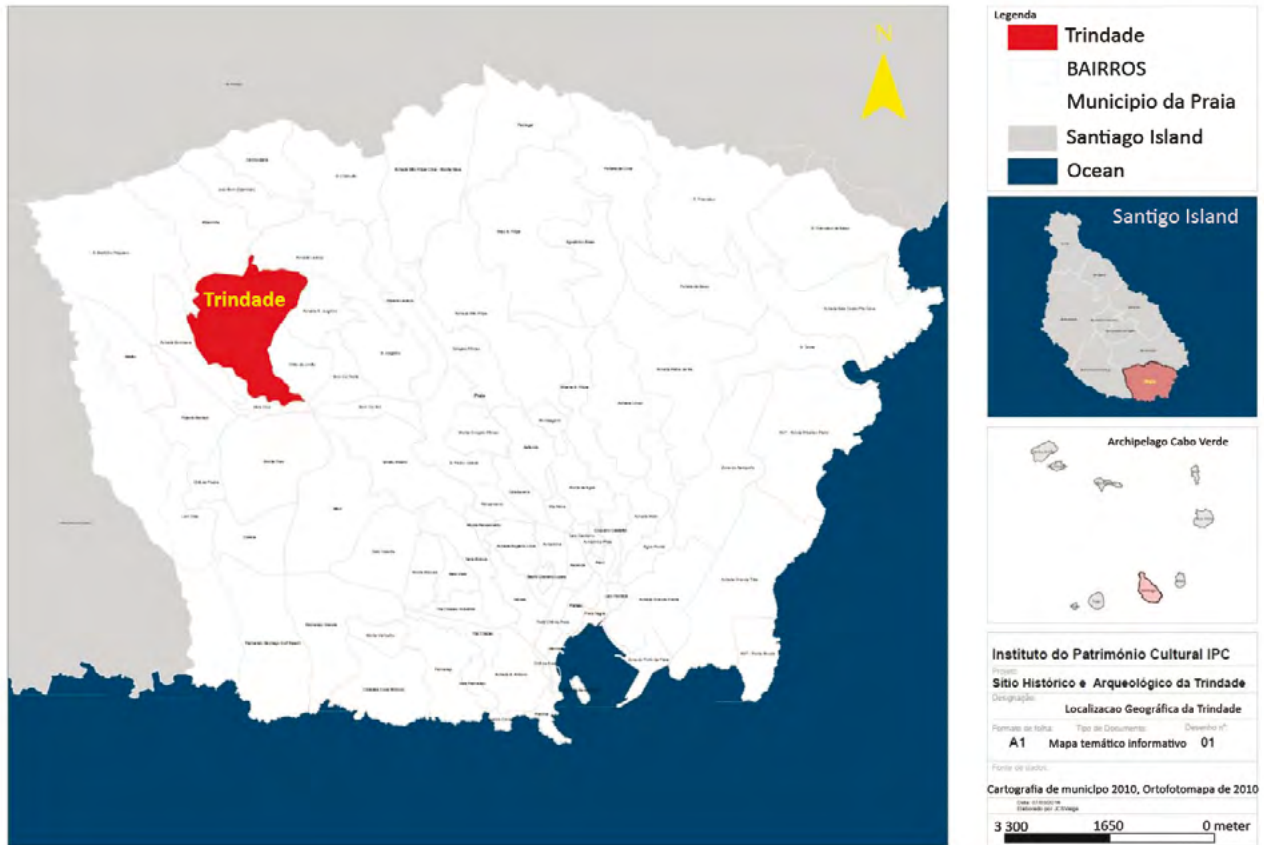


Fig. 1: Location of the Trindade estate on Santiago Island.

Although we provide an English name to the forms in the assemblage, some names in Portuguese will also be given, since there is not a literal translation and the forms are only found in Portuguese productions. Furthermore, the terms given are the ones found both in Portuguese and international references on the subject.

We have divided the assemblage into the following 13 different categories (presented by the ascending order of number of sherds), mainly connected to domestic life and industrial production: sugarloaf mould, African pottery, cooking pot, olive jar, plate, basin, pot, modelled cup, frying pan, lid, large storage vessel, carinated bowl, and jar.

Although African pottery is a somewhat vague description, we have chosen to use it to identify all forms with this provenance as a whole because we do not have intact forms, nor is it possible to certainly attribute most sherds to shapes. However, the African pottery sherds, even the smaller ones, are identifiable as such, and we felt that the distinction was necessary from the rest of the assemblage, which is entirely produced in Europe.

Regarding the European provenance of some materials, Portugal is not the only point of origin. Italy, the Netherlands and possibly Spain are also featured, the first two with plates and the third, possibly, with a carinated bowl. They all share one important feature: they all are fine wares, and will be regarded in the same section, along with the two different Portuguese fine wares found in Trindade.

The vast majority of the materials were found in the water collection pool. It is very likely that the objects were found in a secondary deposition, since that area underwent construction work for moving and storing water in the 1950s. Only 69 sherds (c. 9% of the total amount) were found in the excavation inside the funerary chapel. Despite this panorama, there was not a significant difference between the two groups, both in forms and chronologies, so they were studied as a whole.

There is a great amount of pottery directly connected to food storage, cooking and dining (cooking pots, frying pans, olive jars, lids, etc.), comprising 23.19%, and that number reaches 37.77% if one adds the African pottery, which also relates to the same activities, with different forms.

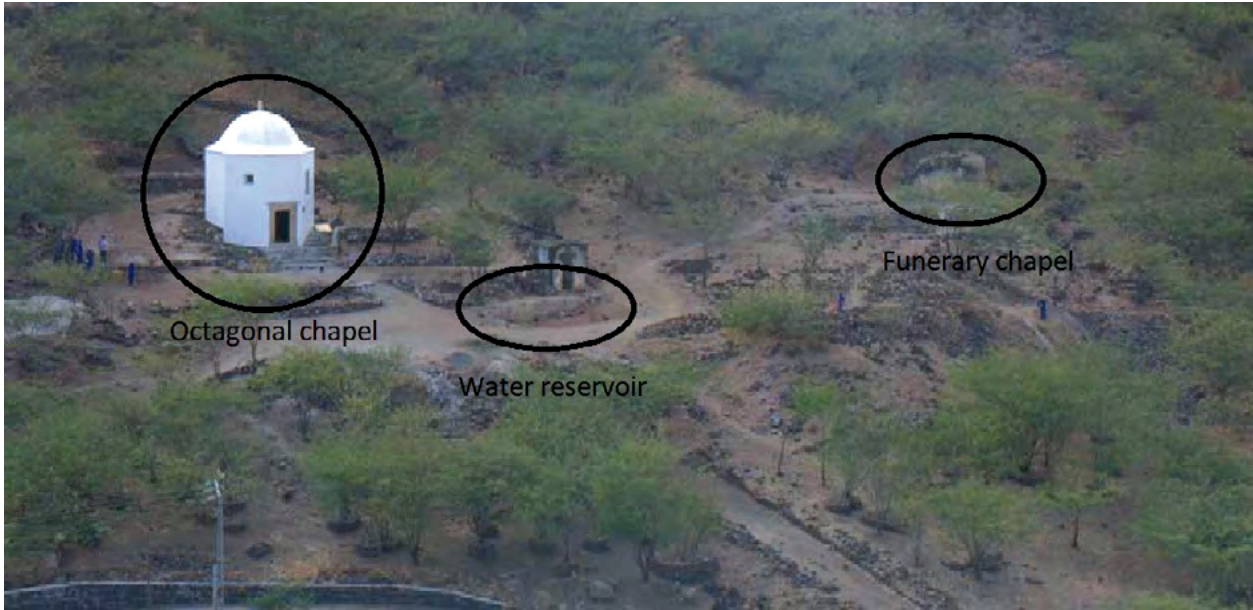


Fig. 2: Location of the three main locations at the Trindade site.

### 3.1 COARSE WARE

The red coarse ware in this assemblage, 62 specimens in total, all find close parallels in Early Modern archaeological contexts from Portugal, where they were most certainly produced. Cooking pots, frying pans, pots and their lids like those in this assemblage are common and have parallels in Carnide (Lisbon), in a context with a chronological period of 1550–1650 (CASIMIRO ET AL. 2017). The materials in the Trindade assemblage are too fractured for us to estimate the size of the vessels. The red fabric is consistent with the coarse ware produced in Lisbon (CASTRO ET AL. 2017, 1737), as well as the forms that can be recognized in Lisbon in the Early Modern Period (BUGALHÃO/COELHO 2017) or Setúbal in contexts from the 16th and 17th century (DUARTE ET AL. 2014). The same forms can also be found in Cidade Velha, where they are also believed to be imported from Lisbon (SORENSEN ET AL. 2012, 814; **Figs 3, 4**).

### 3.2 LEAD GLAZED POTTERY

The lead glazed pottery in this assemblage (14 vessels) is very fragmented and, thus, it is difficult to be sure of the exact shape of some of them. However, they can mainly be attributed to two main categories, bowls and basins, the first with green and brown glazes on both sides and the latter

with green glaze on both sides. There is also one green glazed jar and three frying pans with a honey-coloured glaze on the inside.

Bowls were mainly used to serve food at the table. The ones from Trindade find a good parallel in Praça da Figueira (Lisbon), in a context dated from the late 15th to the early 16th century, although these forms are long-lasting and remain fairly untouched through the Early Modern period (BARRADAS/SILVA 2017, 1700). Similar bowls can also be found on Madeira Island, roughly with the same chronologies (SOUSA 2006b, 136, 137).

Basins were truly multifunctional, as they could be used to knead bread or dough, wash dishes, clothes or other items, or even for ablutions (OLIVEIRA 2010, 29, 37).

### 3.3 EUROPEAN FINE WARE: PORTUGUESE FAIENCE, PORTUGUESE FINE CERAMICS, DUTCH AND ITALIAN POTTERY.

Five sherds of Portuguese faience from five different vessels were unearthed in Trindade. This production is characterized by its lead-tin glaze, light buff calcareous fabric, mainly with blue or blue and manganese painted decoration (GOMES ET AL. 2013, 7). Despite their small size, it is possible to say that three of the sherds come from deep plates.



Type	Number of sherds	%
Sugar loaf moulds	209	60.58%
African pottery	49	14.20%
Cooking pot	24	6.96%
Olive jar	17	4.93%
Plate	9	2.61%
Basin	8	2.32%
Pot	8	2.32%
Modelled cup	7	2.03%
Frying pan	7	2.03%
Lid	3	0.87%
Large storage vessel	2	0.58%
Carinated bowl	1	0.29%
Jar	1	0.29%

Tab. 1: Table showing the amount of each material class.

Their chronology is somewhat hard to determine, but they present just enough decoration on the rim and base, consistent with the large petal theme, for us to classify them as being produced between 1635 and 1660 (CASIMIRO 2013, 361). This large petal decoration has numerous parallels in Portuguese and international contexts, usually associated with less wealthy social groups (GOMES ET AL. 2013 25; CLAYS ET AL. 2010, 332). They also appear in Cidade Velha, where Portuguese faience is, in fact, one of the main pottery types found (SORENSEN ET AL. 2012, 815).

The tin-glazed carinated bowl is the oldest vessel in the assemblage, with a chronology dating back to the 16th century. As for provenance, it is almost impossible to establish, since these carinated bowls were originally produced in Seville (Spain), but by the mid-16th-century they were also made in Mata da Machada (Barreiro, Portugal), on the left bank of the Tagus River, and in Lisbon. This type of bowl was produced up to the beginning of the 17th century (ALMEIDA ET AL. 2016, 152; CARDOSO/BATALHA 2017, 148, 149).

As for Dutch faience, the excavation yielded three sherds, two walls and one rim. These have a lighter fabric, homogeneous and with less noticeable inclusions, and the tin glaze is slightly detachable. The overall lack of tin glaze on the rim makes it harder to determine its chronology. However, we believe we can place it within a time frame of 1625–1700

through decorative parallels with specimens found in Amsterdam, due to the large amount of white and only a note of blue near the end of the ledge (GAWRONSKI 2012, 241–245).

Regarding Italian faience, there is only one sherd in this collection consistent with the production of Pisa and the Arno River valley, a wall from a polychromous marbled (*marmorizzata* decoration) plate. Other Italian workshops produced this type of pottery, but apparently only those from Pisa and the Arno valley found their way onto international commercial routes (BELTRÁN DE HEREDIA/MIRÓ 2010, 14). This type of pottery can be found in Barcelona and dates from the end of the 16th to the beginning of the 17th century (BELTRÁN DE HEREDIA/MIRÓ 2010, 14). The same chronology is also presented for other contexts, but the end date is pushed to the mid-17th century (CARTA 2008, 739).

This assemblage comprises seven sherds of a Portuguese production known as Early Modern fine earthenware, which some English-speaking researchers still call Mérida type ware (NEWSTEAD 2014, 77). These vessels have a red or orange-red homogeneous, fine-grained fabric and thin walls of 2–4 mm thick. The characteristic decoration of this production was modelled by hand or with a sharp tool, creating patterns with ridges, humps and edges, more or less complex, which would certainly be reflected in the price of each piece (RODRIGUES 2017, 98–103). These vessels were used in common domestic settings from the 16th and 17th centuries (SANTOS 2008, 327). As happens with the other materials, the sherds are small and there are only two rims. Nevertheless, we believe that all sherds are drinking cups or *púcaros*, as they are called in Portuguese since this particular shape is exclusive to this production and calling them merely ‘drinking cup’ would be a reductionist approach; the rim sherds are consistent with this form, even though there is a fair amount of differences between individual specimens. The cup is the most common form of this production, both in Portuguese (RODRIGUES 2017, 103) and international contexts such as Barcelona (BELTRÁN DE HEREDIA/MIRÓ 2010, 62, 63), or Spanish sites in the New World or Newfoundland (NEWSTEAD 2014, 83). It is also found in archaeological contexts from Cidade Velha (SORENSEN ET AL. 2012, 817).

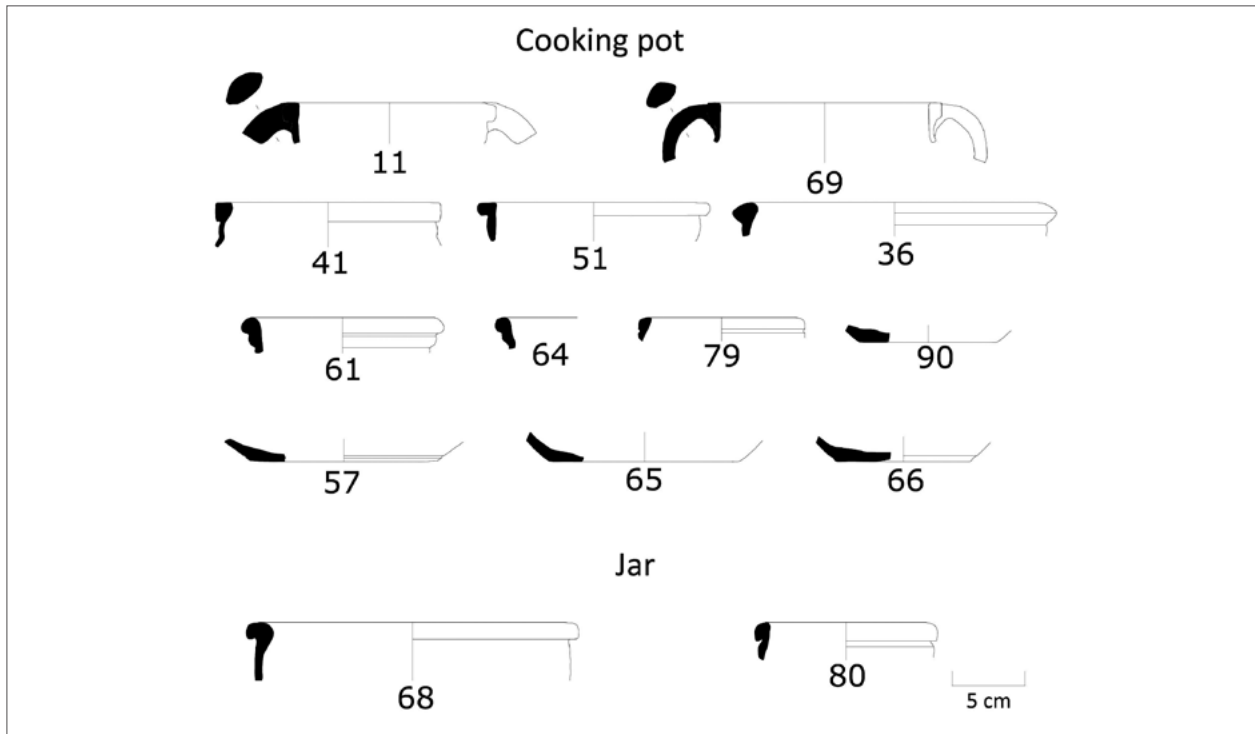


Fig. 3: Cooking pots.

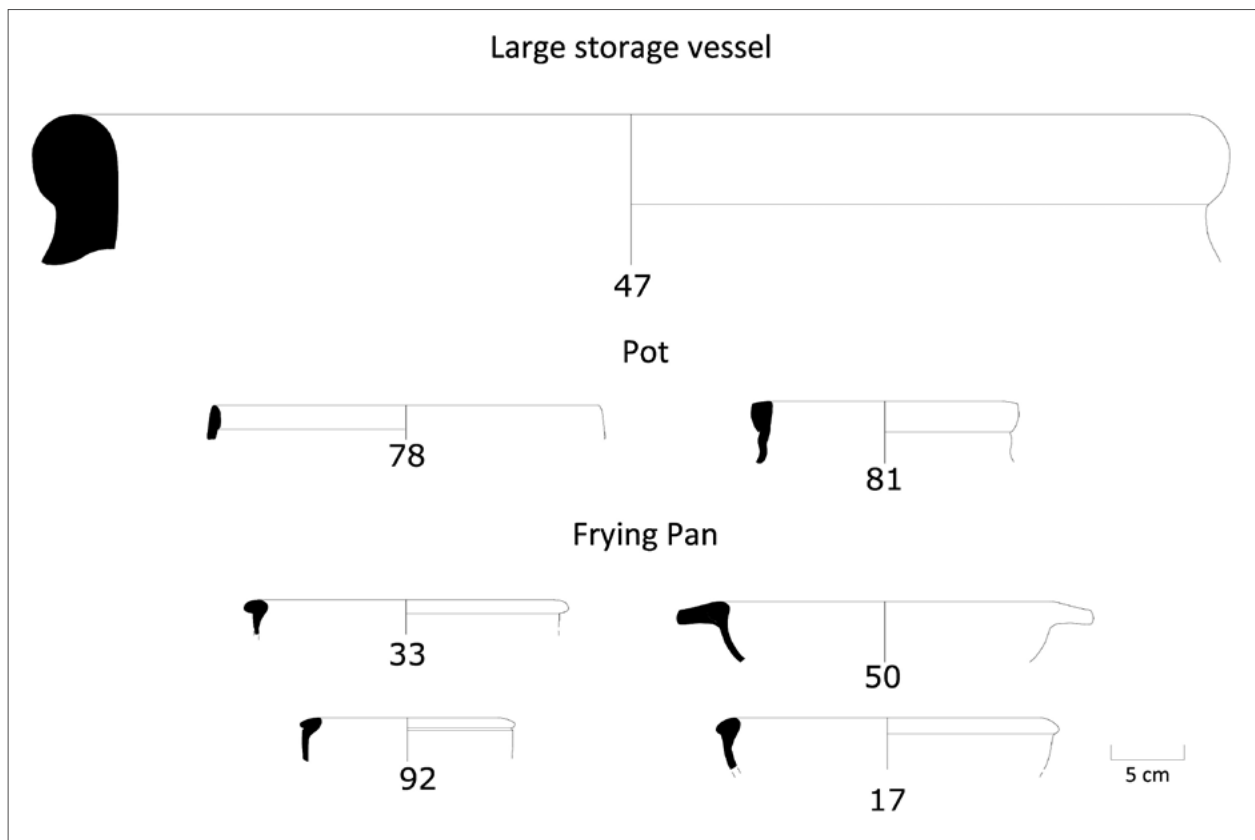


Fig. 4: Pots and frying pans.



### 3.4 OLIVE JARS

There are 17 sherds of olive jars, or *anforetas* as they are called in specialized references, in the assemblage. These were storage vessels used for the transport of various products other than olives and olive oil, like wine and fruits (NEWSTEAD 2014, 80). Although there are no rims, the walls have the characteristic grooves, thickness and overall shape of an olive jar. There are two types of fabric, each comprising approximately half the sherds, which can indicate two distinct geographic origins, Portugal and Spain. One type is light red or red, homogeneous and hard, with a lighter surface wash. The other fabric is lighter, pinkish or orange, soft, powdery, and with a whiter wash. This last type of fabric has been associated with Spanish production from Seville (OLIVEIRA 2010, 39). Without chemical fabric analysis, it is very difficult to tell them apart, an issue faced by other archaeologists studying olive jars in Cidade Velha, where they were identified in 17th-century contexts (SORENSEN ET AL. 2012, 815; Fig. 5)

### 3.5 AFRICAN POTTERY

The set of African pottery comprises different forms for food storage, cooking and serving, such as pots, pans and bowls, but given the size of the sherds they are very difficult to tell apart and count unequivocally (Figs 6, 7). Many of them show signs of firing, indicating a pot-like function. Much like the vessels found in Cidade Velha (SORENSEN ET AL. 2012, 818; AMARO 2012, 463), they were made by hand and fired with an open fire technique, creating an uneven fabric with medium and large inclusions. The decorations are mainly incised and burnished, scarce in this particular case, attesting to the functional aspect of this set.

The African pottery from Cidade Velha can be sorted into two groups, perhaps indicating a distinct origin. One group shows bag-like shapes, brown fabrics and incise decoration made to resemble cloth bags or baskets, while the other shows more globular shapes, a more reddish fabric, red slip, burnished surfaces and no decoration. The first group would be locally made, while the second would come from Western Africa (SORENSEN ET AL. 2012, 818). We do not have enough specimens

or large and substantial vessels to discern significant differences in our assemblage. Nonetheless, it is highly likely that both provenances are present.

The vessels in our study were produced either locally or on the western African shores where the Portuguese developed commercial interactions, a point of origin of many slaves taken to Santiago. Indeed, there are numerous formal and decorative parallels for traditional pottery still produced in the 20th century in Guinea and Angola (SORENSEN ET AL. 2012, 818).

These vessels clearly show the presence of an African population in Trindade, probably slaves working in the sugar mill. The approximate equivalent proportion of African and European utilitarian vessels indicates a deep cultural separation between both communities, which even included a difference in eating habits. This cultural divide can also be seen in the food imports from Portugal from very early on (TORRÃO 1995).

African pottery such as that present in this assemblage also occurs in Portugal; there is a greater incidence of this type of pottery around Lisbon, but it is found all over the country (BARROS/CARDOSO 2008, 350; OLIVEIRA/BROCHADO 2017, 256).

### 3.6 SUGAR LOAF MOULDS

By far, the dominant form in this assemblage is the sugar loaf mould, with 209 sherds, amounting to 60% of the total (Tab. 1). Unfortunately, we were not able to determine the exact shape and size of any vessel, nor were we able to determine the minimum number of vessels due to the amount of small walls and the reduced size of the rims.

Sugar loaf moulds are conical vessels with a hole at the end used to purge the sugar of liquids (molasses). They were used with a high-neck ceramic pot called *porrão* underneath them to collect the sugar liquids. This latter form has not been identified yet at the Trindade archaeological site, probably due to the secondary nature of the deposit, and the fact that sometimes, if the sherds are small, it is difficult to recognize them.

It is impossible to establish the capacity and volume of the moulds and the differences in that parameter

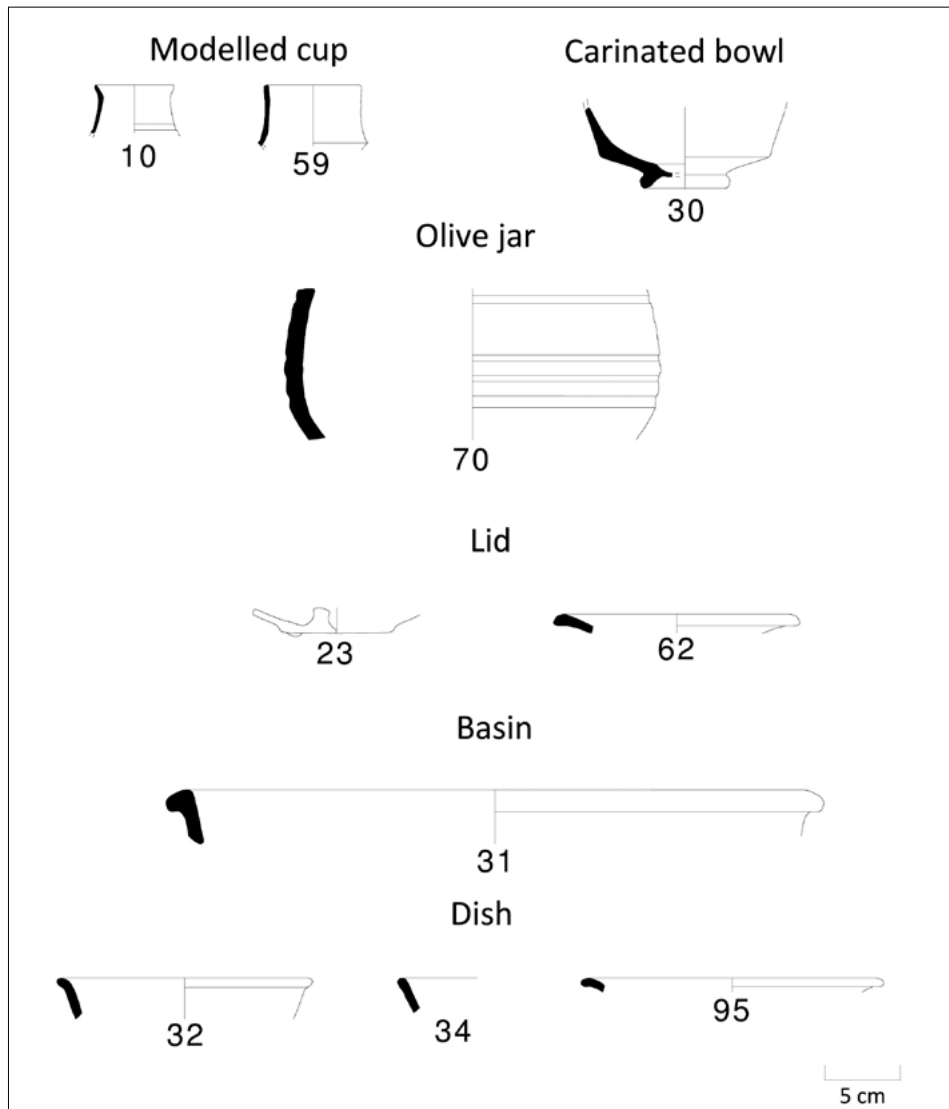


Fig. 5: Imported European vessels.

within the Trindade set. This was possible to do at the Mata da Machada kiln site, where three sizes were identified (SILVA 2012, 712). Despite this, we have roughly recognised three main rim shapes: framed (Fig. 8/3, 18, 43, 49, 71, 73), with an external thickening (Fig. 8/2, 5, 6, 7, 9, 22, 28, 35, 42, 58, 84, 86, 93, 94), and straight (Fig. 8/1, 4, 7, 20, 72, 73). Given the slightly larger diameter, the first seems to correspond to larger vessels, but the sample is not large enough for this comparison. The other two shapes seem to have the same amount of sherds between them. All of them find parallels in Portuguese contexts such as the Santo António da Charneca kiln, near Barreiro (BARROS ET AL. 2006, 41-44), Aveiro (COELHO 2012, 761), and Machico, in Madeira (SOUSA 2003, 414-420).

As for provenance, we know of two main production centres, Aveiro and the south bank of the Tagus River (SOUSA 2006a, 152, 153), but there were surely more. Through macroscopical comparisons of the fabrics, the specimens from Machico were attributed to Aveiro production (SOUSA 2003, 187), and documents indicate that production centre sending moulds to Madeira, Azores, Canary Islands, Brazil, and Cuba (COELHO 2012, 762), so why not to Cabo Verde as well?

This assemblage features four potters' marks, all different from each other. Three are stylized crosses, one of which is only made of two crossed incised lines, while the others were clearly made with a stamp. The other mark is a succession of oval

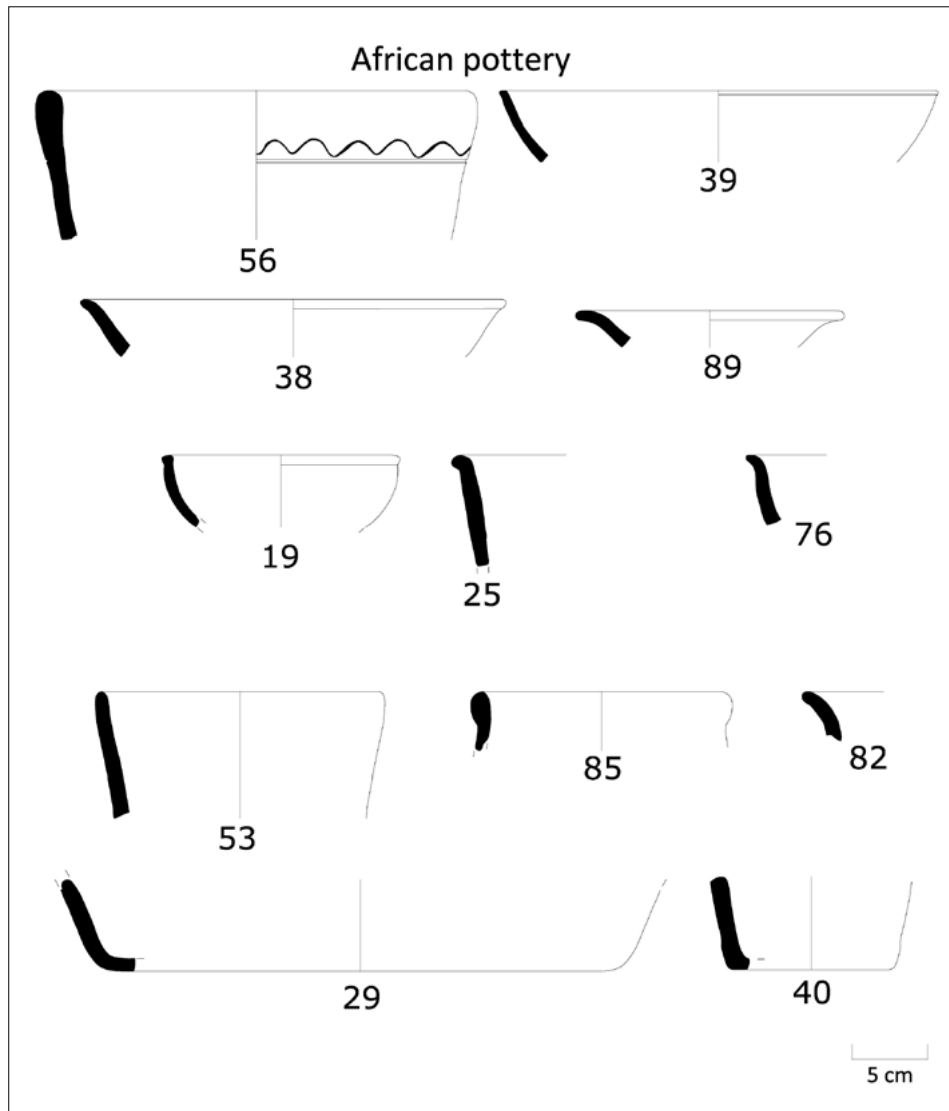


Fig. 6: African pottery.

and circular shapes forming a circle, also made by a stamp (Fig. 9).

Potters' marks can also be found in other Portuguese contexts, such as the set from the Mata da Machada kiln, which presents three different marks: crow's feet, circles and crosses. These are believed to identify the different potters in a communal kiln, or to quantify the vessels (SILVA 2012, 717).

As for chronologies, the sugar loaf moulds appear in Madeira in archaeological contexts from the 16th and 17th centuries and only appear in 18th-century waste disposal contexts (SOUSA 2003, 177). That chronology also fits the overall range of our assemblage.

#### 4. SUGAR PRODUCTION IN CABO VERDE AND IN TRINDADE

The Portuguese took sugar cane and the production of sugar to their colonies in the 15th and 16th centuries, much like the Spanish did (AMORES/CHISVERT 1990, 170). The island of Madeira was the first settlement to receive it (SOUSA 2006a, 12), and sugar production was rapidly spread to other territories, such as the island of São Tomé (PINHEIRO 2012) and, most famously, Brazil, in the early 16th century (CARITA 2013, 168–170).

The production of sugar in Cabo Verde was not as prominent as in other Portuguese colonies, and while sugar was not a main export product or of great economic value to the authorities, it has

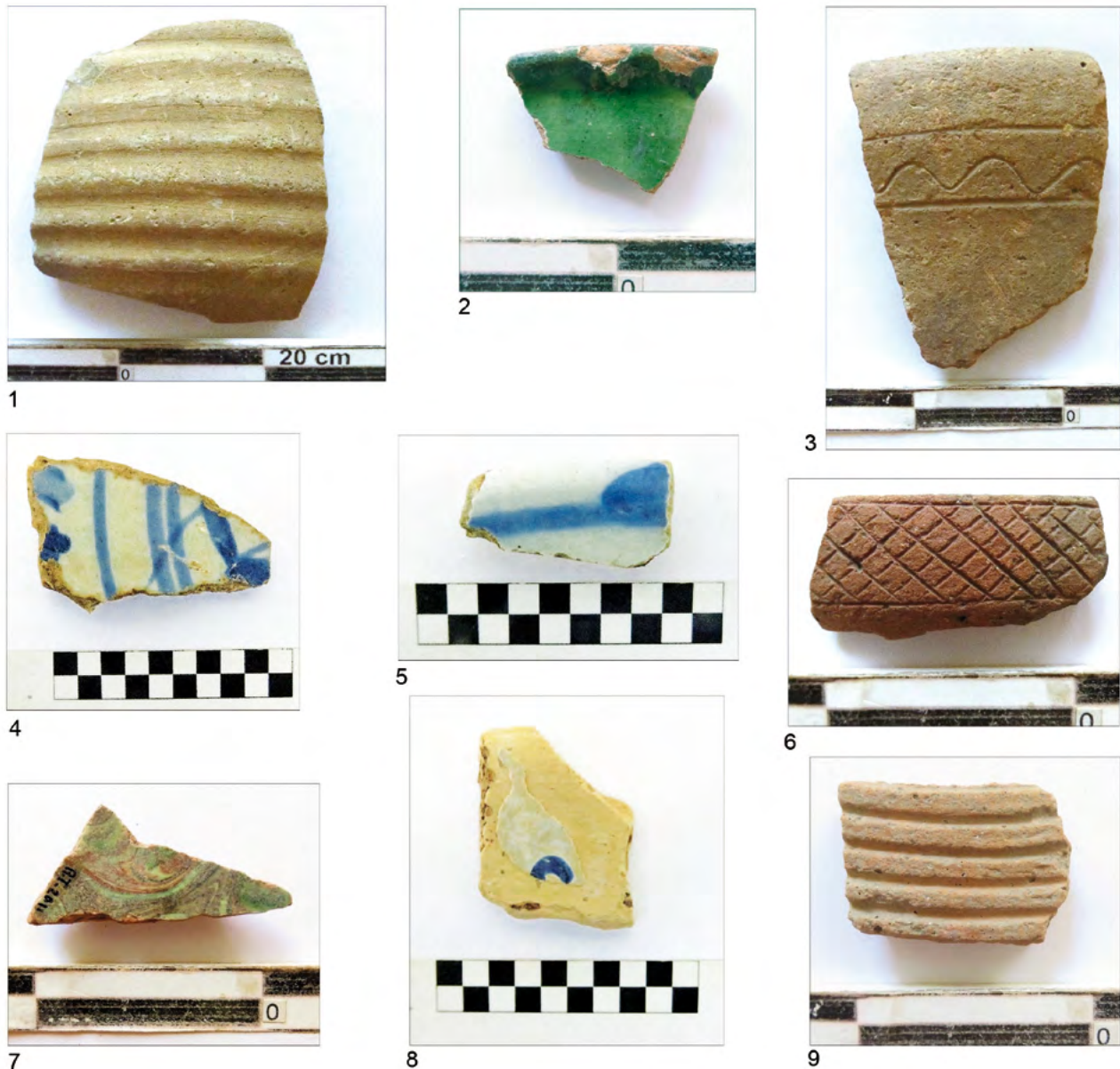


Fig. 7: 1 – wall of an olive jar; 2 – rim of a green glazed bowl; 3 – rim of an African pottery decorated vessel; 4 – foot of a Portuguese faience plate; 5 – rim of a Portuguese faience deep plate; 6 – rim of an African pottery decorated plate; 7 – wall of an Italian marbled plate; 8 – rim of a Dutch faience plate; 9 – wall of an African pottery vessel.

always been mentioned as being produced on the islands. In fact, Cape Verdean sugar was regarded as having poor quality and was mainly used for fruit preserves and spirits, so much so that sugar for other purposes was continuously imported to Cabo Verde (TORRÃO 2012, 3). The cultivation of sugar cane was not intensive, but had a local importance, and spirits, most famously *grogue*, were highly appreciated by the slave and freed African population, and they were even used as payment (TORRÃO 2012, 4). Sugar and its derivatives were important enough to justify their pro-

duction up until the 19th century (TORRÃO 2012, 4). The 20th century saw a governmental attempt to regulate and even stop the growth of sugar cane and the production of *grogue* not only to order to control its effect on alcoholism, but also to encourage locals to produce other more profitable crops (AMARAL 1964, 283).

Through historical documents we know of some areas with sugar cane fields and sugar mills in some areas of Santiago. There is a region in the island's northwest called *Ribeira dos Engenhos* (Stream of Mills), where sugar mills were located in the 16th

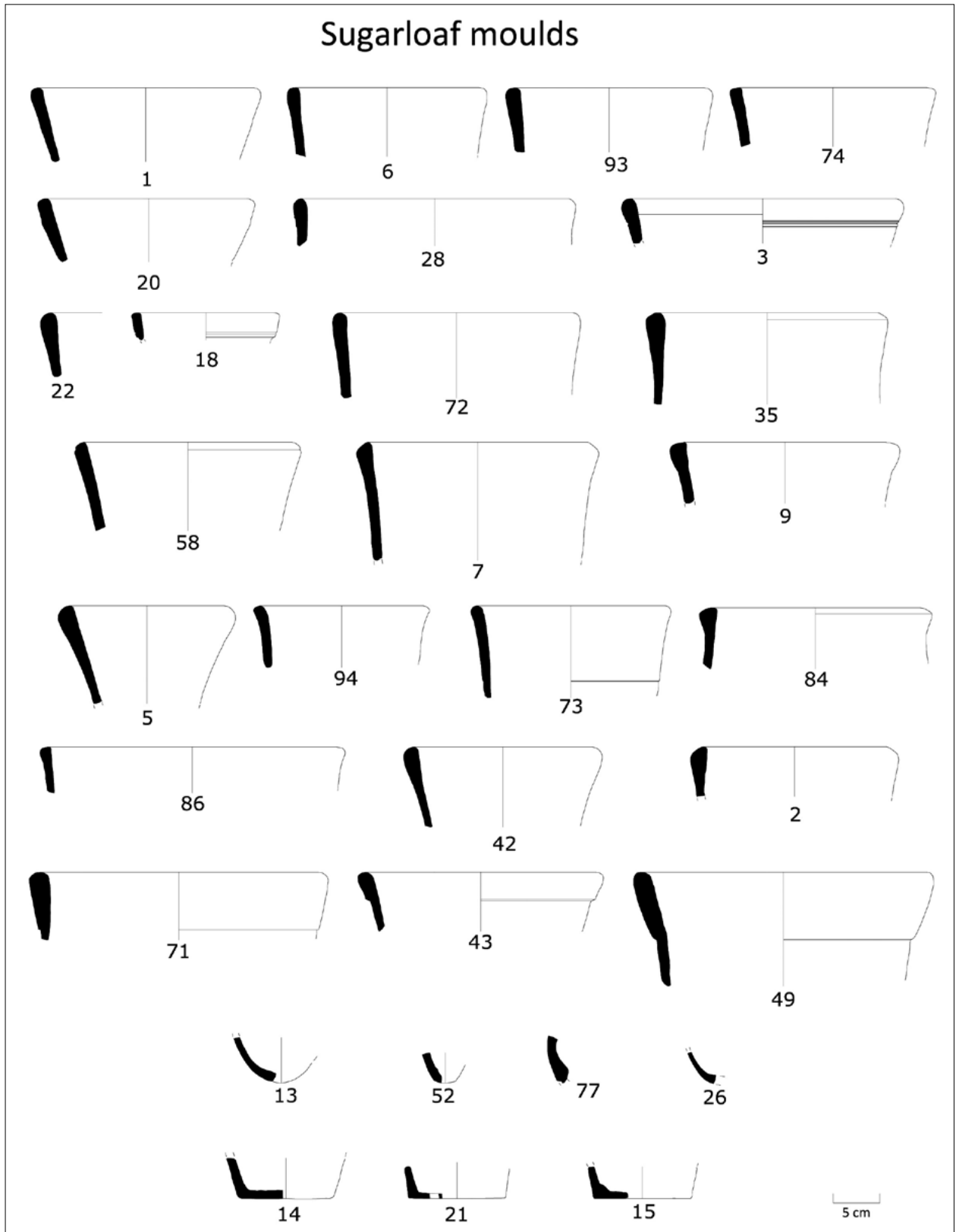


Fig. 8: Sugar loaf moulds.



century (TORRÃO 2012, 11; SILVA 2001b, 303). A document from 1592 states that a man called Rui Baraça had a *fazenda de assucares* (sugar producing estate) near the São Domingos Stream, and the last will of Gomes da Noya declares that he had a *canavial de assucar* (sugar cane field) in the Orgãos region. In 1609, Baltasar Barreira describes the waterworks that irrigated sugar cane fields near the São Martinho Stream (SILVA 2001b, 300–302). The same owner of the Trindade estate in the 16th century, Fernão Fiel de Lugo, also had another sugar producing estate in Santa Cruz.

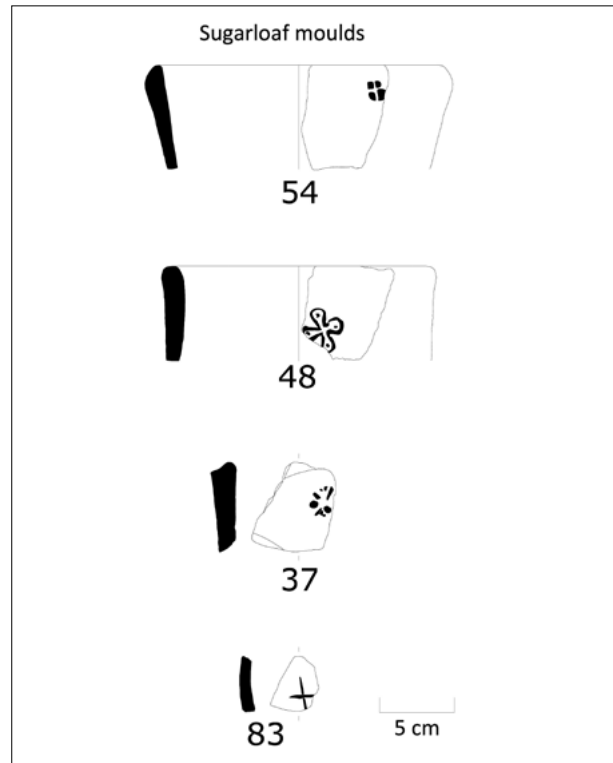


Fig. 9: Pottery marks on sugar loaf moulds.

## Conclusion

Two important structures remain to be found at the Trindade archaeological site. One is the sugar mill, where the sugar loaf moulds were used, established in the 16th century and lasting until a later date, perhaps in the 18th century, after changing ownership several times. The entire estate eventually became property of the church, which led to it becoming the official residence of the bishop. We do not know if the mill was still in operation at that point, and only the excavation of the structure would provide answers.

This leads us to the second as yet unfound structure, the bishop's residence. Even if it was a rushed decision with not much time to prepare the building beforehand, there is an expectation of finding more lavish and luxurious items, such as the ones from the bishop's palace in Cidade Velha for previous times, but also some from the 18th century (AMARO 2012, 461). Is it possible that the bishop did not take any items along from the palace when he moved? This seems strange, even if he moved hastily, there would have been plenty of time after the pirate attack, which only lasted for approximately one month, to retrieve household items.

The materials that have been found are far from what could have been expected from a bishop's dwelling, since the vast majority of the pottery is either functional or connected to the production of sugar or other sugar cane products. The materials show an industrial inclination, much more suitable for business than the home of an important clergyman. The absence of high-end productions, such as large decorated Chinese porcelain vessels or finely decorated European faience, is also noteworthy. The Italian marbled sherd is probably the most expensive vessel among the archaeological materials of the Trindade site.

This may be due to the area where the archaeological excavation was conducted at the Trindade site. Given the pottery collection, most of it related to food storage, preparation and table service, and the excavation is most likely the result of a dumping ground of waste from the sugar mill and/or other industrial facilities, and possibly also from the workers' dwellings, both the European keepers and foremen



and the African slave workers. The chronology of the finds also points to this scenario, since none are positively from the 18th century, when Bishop Fr. Francisco de Santo Agostinho moved to the Trindade estate and lived there until his death, in 1719.

Other archaeological surveys and digs would be necessary to be sure of the internal workings of the Trindade estate, and actually find the sugar mill and other buildings, including the one in which the bishop lived from 1712 to 1719. We hope to be able to continue our research of the site in the near future.

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# 2 | Pottery Production and Decoration







# Springfederdekor – Chattering – Décor guilloché – Hemrad dekor

## The History and Development of a Decorative Technique Found on 17th- to 19th- Century Earthenware Ceramics from Scandinavia, Poland, Germany, Switzerland, Austria and Liechtenstein

Andreas Heege

### Abstract

Chattered decoration is a decoration technique for earthenware, which has found widespread use in Modern times in Central Europe. The technology spread in Scandinavia, the Baltic States, parts of Eastern Europe, Germany and Switzerland. It is missing in the Netherlands, France, Italy and the eastern parts of Austria. Until we can prove its presence in older excavation layers, we can assume that the chattered decoration does not represent a local invention for the ‚Preetzer ceramics‘ in Schleswig-Holstein, the ‚Langnauer ceramics‘ in the German speaking part of Switzerland and certainly for the ceramics with this decor in southern Germany, Liechtenstein and Vorarlberg. Rather, we have to assume, that this decorating technique was brought to the respective places by wandering journeymen. There, it was then integrated into the local standards of ceramic decoration. The centre of the origin of the chattered decoration seems to lie in Mecklenburg-Vorpommern / West Poland or in Sweden. Clearly dated finds from the period before 1600 are still missing today. The oldest findings come from Stralsund (wasters around 1620/30), Pasewalk (1630) and from the warship Vasa (sunk 1628). The most important production wasters come from Myślíbórz (Soldin), Poland (around 1600 and younger). Ceramic from Myślíbórz was part of the Baltic trade and was found in Riga and Stralsund as well.

— decoration technique – earthenware – production places

### 1. HOW CHATTERING IS CREATED

‘Chattering’ is one of a range of decorative techniques used on pottery in which clay is removed or displaced from the surface of the vessel.<sup>1</sup> This technique was widely used throughout northwest Germany, e.g. on ‘Preetz or Probstei pottery’ (Fig. 1), in the German-speaking part of Switzerland and in Liechtenstein (Fig. 2).<sup>2</sup> The technically unfortunate and imprecise term *Kerbstichdekor* was intro-

duced to describe the technique used on *Preetz ware* (KRUSE 1987, 21). Apparently, neither the technological know-how nor the actual tools have survived at Preetz or Plön. On the basis of the technique used in its manufacture, the decoration can also be called ‘pecking’; the English term ‘chattering’ obviously derives from the noise the tool makes during the manufacturing process (REED 2013; MCKENZIE-CLARK 2015). In the context of Swiss ‘Heimberg-type pottery’, the decoration was and still is called *Hämmerband*.<sup>3</sup> The term *hemrad dekor* or

1 On the technique, see: STORR-BRITZ 1982, 20 Fig. 15; BAUER/ENDRES/KERKHOFF-HADER ET AL. 1993, 91; cf. also BLONDEL 2001, 203, 204.

2 GROHNE 1940; 80 Fig. 48; KRUSE 1987. For basic information, see: THIER 1994, 78–80, 258. I would like to thank Bernd Thier, Münster, for references and information.

3 Personal communication from Margret Loder, Embrach, Ulrich Kohler, Schüpbach, Ernst Hänni, Heimberg.



*hemring* is used throughout Scandinavia (WALERIUS 1973; OPSTAD 1990; REED 2009; JOHANSSON 2007, 49). There is no specific term for it in Estonia, however, and the Polish expression *pasma punktów*, or ‘dotted band’, is quite unspecific.<sup>4</sup> The lack of a technically accurate, distinct French term is possibly due to the fact that the technique never really took hold in French-speaking areas. Expressions used include *décor guilloché* and *guillochée à la roulette dentelée* (KLEIN 1989, Pl. 34; EVÉQUOZ/BABEY 2013, 328, Cat. 43). Chattering is still used in Japan, where the tools and the technique itself are known as *tobikanna* (MATTHES 2006, 203).

The technique can be used on the interior or exterior of vessels with or without slip, often in combination with other techniques such as slip-trailing, and incised or combed decoration (cf. Figs 1, 2). A pattern that has the appearance of chattering can be created in at least two ways by using either a chattering tool or a roulette. The former involves the use of a springy metal blade with a bent, sharp-edged end that can be pointed or can vary in width. The tool is pressed lightly against the ceramic object placed on a rotating potter’s wheel, with the rotation causing the blade to shudder over the surface of the vessel in a repetitive springy motion (Fig. 3/1). Depending on the dryness of the clay or slip, round to oval depressions of different sizes are made in the slip or vessel surface, which tend to appear darker beneath the glaze.<sup>5</sup> Circles or spirals of notches are thus formed, which are set closer together or further apart, depending on the angle and oscillation frequency of the tool and on the rotation speed of the potter’s wheel. The same variables lead to the notches near the centre of the vessel being closer together than those near the edge of the vessel (Fig. 2/7). The use of a roulette to create the pattern (Fig. 3/2), on the other hand, results in regular distances between notches, corresponding to the distances between the teeth on the wheel. In reality, however, my own experiments have shown that it is practically impossible to measure the differences.

A search for preserved chattering tools amongst

4 Personal communication from Marcin Majewski, Szczecin.

5 HACKSPIEL 1988, 263–265. A modern film showing the process can be found at POTTERIET-ROROS [online].

potter’s utensils in museums in the German-speaking region of Switzerland has thus far remained fruitless. The only published example (Fig. 4) is a so-called hemmerkrok from Falkenberg in Sweden (WALERIUS 1973, 99). The potters I spoke to throughout the German-speaking part of Switzerland no longer use the technique. Ernst Hänni from Heimberg, now 85 years of age, learned how to create chattered decoration on ‘Heimberg’ pottery in his father’s workshop in the 1960s. He remembers having a chattering tool made by a friend who was a toolmaker (HEEGE/KISTLER 2017, 73, Fig. 26).

At Ulrich Kohler’s potter’s workshop in Schüpbach in the Emmental Valley in Canton Bern, on the other hand, the pattern has been created with the use of a metal roulette since the early 20th century; that particular roulette was made by a local metal workshop (Fig. 3/2). The tool in question does not appear to have a specific name in the Bernese vernacular but is called a rouleau.<sup>6</sup> Once the vessel has been glazed, it is impossible to tell the difference between the pieces produced today and the original 18th- and 19th- century fragments.

## 2. DATE AND ORIGIN OF CHATTERING

A search for the regions of production of chattered decorations quickly leads to two distant German-speaking areas, the Probstei region in Schleswig-Holstein (Fig. 1) and the German-speaking part of Switzerland. It was not known, up to now, however, where the decorative technique was in fact developed. The earliest examples of chattered patterns in the German-speaking part of Switzerland date from shortly before 1700 (Fig. 2/3–7). It continued to be used throughout the entire production period of the so-called ‘Langnau’ (Fig. 5/1)<sup>7</sup> and ‘Heimberg type’ ceramics (Fig. 5/2),<sup>8</sup> and even beyond that into the 20th century (BOSCHETTI-MARADI 2006, Pl. 30, E46.E48;

6 ENGELBRECHT/GANTNER/SCHUSTER 1990, 35 and 112, also known as *Redli* (small wheel).

7 The oldest firmly dated example of Langnau pottery with chattering dates from 1727: HEEGE/KISTLER 2017, 216, 217.

8 The oldest piece dates from 1804: Bernisches Historisches Museum Inv. 7273 and in private ownership in Switzerland. Remarkably, the earlier ‘Heimberg type’ vessels from the period between 1780 and 1803 do not exhibit any chattering.



Fig. 1: Preetz or Probstei pottery exhibiting decorative techniques typical of the 18th and 19th centuries: incised, slip-trailed and chattered decorations. Not to scale. Photo by A. Heege.

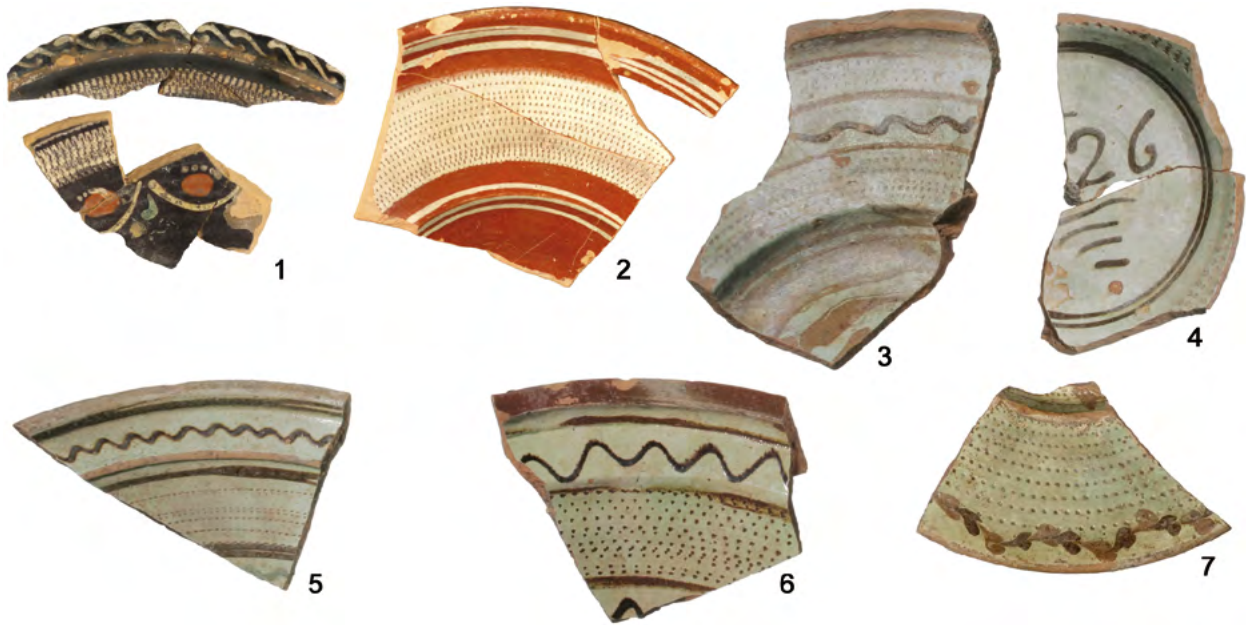


Fig. 2: Chattered decoration from the Principality of Liechtenstein and from Switzerland. 1, 2 – Finds from the church hill at Gamprin-Bendern FL; 3–6 – Finds from Bern, Waisenhausplatz (c. 1700–1740); 7 – Find from burnt rubble after a fire in the Unterstadt area of Burgdorf (1715). Sc.1:3. 1, 2 Archaeology Department of Liechtenstein. Photo by A. Heege; 3–7 Archaeological Service of Canton Bern. Photo by B. Redha.



Fig. 3: How chattered decoration is created. 1 – Potter using a modern chattering tool at a workshop at Røros in Norway in 2014. 2 – Potter using a roulette at Ulrich Kohler's workshop at Schüpbach, Canton Bern, also in 2014. Photo by potter's workshop at Røros and A. Heege.

GLATZ/BOSCHETTI-MARADI/FREY-KUPPER 2004, Fig. 66).

Having travelled to various regions, including perhaps Germany, the potter Jakob Vögeli settled in Burgdorf in 1706. His workshop, however, was destroyed during the town fire of 1715. In addition to other types of pottery, the burnt rubble also yielded sherds with chattering that had been

made in his workshop, and these pieces are among the earliest examples found on Swiss soil (Fig. 6; HEEGE 2015). The finds from the glassworks at Court-Chaluet, Pâturage de l'Envers, in the Bernese Jura region, which was in operation from 1699 to 1714, contained only a single plate with chattering (FREY 2015, Pl. 75,509).

A bowl with chattered decoration (Fig. 7) was found



Fig. 4: Slip trailer and chattering tool, 11 cm in length, from Falkenberg in Sweden, late 19th or early 20th century (after WALTERIUS 1973, 99).

in a cesspit at Winterthur in Canton Zurich, which ceased to be used shortly after 1700 (FRASCOLI 1997, Pl. 33,379 and 34,390; TIZIANI/WILD 1998, Pl. 11,147). Other fragments were found in Zurich, but contribute little to the dating of the technique.<sup>9</sup>

A small number of vessels that exhibited chattered decoration but which differ stylistically from *Langnau type* pottery were also found in the moat at Hallwil Castle in Canton Aargau (LITHBERG 1932, Pl. 319, A–C.F.G). Chattering was obviously not very popular with potters from around Stein am Rhein, Canton Schaffhausen, and their customers, given its relative scarcity in the ruins of Hohenklingen Castle and Steins ‘citizens’ hospital’ (HEEGE 2010, 53, 66; HOMBERGER/ZUBLER 2006, 76, Fig. 141). In the Bregenz Forest in the Austrian State of Vorarlberg and in the Principality of Liechtenstein, chattered decoration has only been found on vessels in the ‘*Heimberg type*’ tradition that date from the late 18th and 19th centuries (cf. Fig. 2/1, 2; RHOMBERG 2010; HEEGE 2016, Chap. 4.1.). In other German-speaking regions (e.g. Baden, Franconia, Upper Austria, Alsace) chattering is rare-

<sup>9</sup> Personal communication from Lotti Frascoli, Archaeology Department of the City of Zurich. Sites: object 21 (St. Peterhofstatt 1) FK 187; object 194 (Gässli 4), FK 24; object 357 (Napfgasse 8), FK 82 (*Heimberg type*’ pottery); object 581 (Augustinergasse 44), FK 108; object 645 (Augustinerhof 2 and 8, Münsterplatz 1–3), FK 1; object 608 (Culmannstr. 27–29), FK 2; object 943 (Schipfe 24/26), FK 5 and 6.



Fig. 5: Bernese pottery with chattered decoration. 1 – Langnau plate dated 1727. 2 – ‘Heimberg type’ plate, dated 1804. Not to scale. Photo by A. Heege.

ly, if ever, found.<sup>10</sup> The decoration does, however, occur on Bavarian and Saxony-Silesian stoneware (ENDRES/GRASMANN/ALBRECHT 2005, 88, 89; HEINZE/KLEIN/KRABATH 2012, Figs 2, 6). It is

<sup>10</sup> Austria: personal communication from Alice Kaltenberger, Vienna. Franconia: BAUER/WIEGEL 2004. Kröning: GRASMANN 2010. Rarely in the Alsace: KLEIN 1989, Pls. 34, 77. Freiburg i. Br.: KALTWASSER 1995, Pl. 9. Odenwald: STOLLE 1981, Cat. 179.



Fig. 6: Burgdorf, Switzerland. Scorched pottery from the burnt rubble in the area of Jakob Vögeli's workshop, 1715. Sc. 1:3. Archaeological Service of Canton Bern. Photo by B. Redha.



Fig. 7: Winterthur, Marktgasse 45–47, bowl with chattered decoration from a cesspit. Sc. 1:1. Archaeology Department of Canton Zurich. Photo by M. Bachmann.



Fig. 8: Giessen, wasters from the rubble of a potter's workshop. Sc. 1:1. Photo by K. Engelbach, Braunfels.



Fig. 9: Blerick, Netherlands, Lower Rhine earthenware plate with chattered decoration, dated 1703. Not to scale. Kempen-Tönisberg. Photo by L. Weynans, Kempen-Tönisberg..

also found on earthenware from Hesse (BAUER/WIEGEL 2004, 379–381, Cat. 254, 255), e.g. at a potter's workshop in Giessen, whose main period of operation dates from the second half of the 17th to the early 18th centuries (Fig. 8).<sup>11</sup> Pottery with chattered decoration dated to 1664 and 1699 has been found on the Lower Rhine in Germany (MEYER-HEISIG 1955, Figs 5, 12; SCHOLTEN-NEESS/JÜTNER 1971, Fig. 65; HACKSPIEL 1993, 47 Fig. 25, Pls. 1, 2, 4, 12–14; PAUSE/SAUER 2004, 68 Fig. 7). An example bearing the date of 1702 from London has been identified as an import from the Lower Rhine region (GAIMSTER 1988, Figs 4,1). A plate dated to 1703 (Fig. 9) came from a farmstead at Blerick in the Netherlands close to the German border (WEYNANS 2009). These dates all fall into the same time frame as Swiss chattered decoration. Remarkably, the technique was not used by potters' workshops in the neighbouring Netherlands (Frisia, Gouda, Bergen op Zoom).<sup>12</sup> On the other hand, chattering is found in western Westphalia, a Ger-

11 Personal communication from Klaus Engelbach, Wetzlar: ENGELBACH 1994, however, without mention of the sherds presented here.

12 Personal communication from Michiel Bartels, Hoorn.

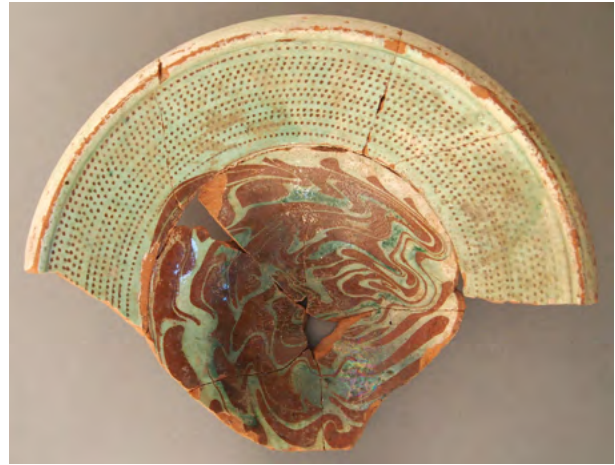


Fig. 10: Höxter, Weserstr. 10, site no. 222, cellar fill, assemblage no. 503. Sc. 1:3. Höxter City Archaeology Department. Photo by R. Schlotthauber.



Fig. 11: Nordhausen, Tabakspeicher Museum, late Werra ware plate with chattered decoration, dated 1651. Not to scale. Nordhausen. Photo by N. Holesch.

man region that borders the Netherlands, and also in the area of Osnabrück (SEGSCHNEIDER 2005, Figs 86, 90), Lemgo and Wildeshausen in Oldenburg. It is not possible, however, to obtain any firm evidence attesting to the production of chattered ware before 1700 at Ochtrup (LEHNEMANN 1978, Fig. 81; ELLING 1998, 150, 154, 155, 158, 166, 168, 182, 183), Lemgo (HALLE/RINKE 1991, 185 Cat. 95, 96) or Wildeshausen (VOSGERAU 1993, frontispiece, Figs 19, 36, 39, 47, 50, 55, 62–64, 66, 67, 70, 73, Pls. 1, 4, 6, 7, 22–26). A well shaft at Höxter in eastern Westphalia yielded bowls with chattered



Fig. 12: Chattered decoration on plates from Saxony. 1, 2 – Dresden, 3 – Kamenz. Not to scale. Saxony State Department of Archaeology, Dresden. Photo by S. Krabath.

decoration. Because the finds included stems from tobacco pipes with diagonal fluting, the final infill of the shaft can be dated to around 1700 or shortly thereafter (STEPHAN 1980, Figs 12,6.8 and 26,1; KÖNIG/STEPHAN 1991). Such stems are a *'type fossil'* for the period between 1700 and 1730 (HEEGE 2003, 34). Chattering has otherwise rarely been found at Hörter and all finds thus far date from the second half of the 17th century and more often from the 18th century (Fig. 10).<sup>13</sup>

With regard to the central German region directly to the east, an important find from Nordhausen

in Thuringia is worth mentioning. Dated 1651, it exhibited stylistic elements that point to the slightly earlier Werra ware (Fig. 11).<sup>14</sup> A review of several finds assemblages containing typical Weser ware from the second half of the 16th and first half of the 17th centuries in Einbeck (HEEGE 2002, 268–278) and inventories that included Weser and Werra ware from the tradesman's quarter prior to 1650, however, shows that chattering was not amongst the techniques used at the workshops

<sup>13</sup> I would like to thank Andreas König, Hörter, for references.

<sup>14</sup> Tabakspeicher Museum Nordhausen, recovered during excavations in the town centre prior to 2007. I would like to thank Markus Wehmer, Einbeck, for the reference. On the decoration see KÖNIG 2015, Fig. 4.7 (Werra ware bowl from Hörter dated 1623).



Fig. 13: Chattered decoration beneath a monochrome lead glaze on plates from Leipzig (site L 22). Not to scale. Saxony State Department of Archaeology, Dresden. Photo by S. Krabath.

there (DEMUTH 2001; LEIBER 2012; LEINWEBER 1982; NAUMANN 1974; STEPHAN 1979; 1981; 1983; 1992; 2003;). The same can be said for similar potters workshops in the Netherlands, at Minden, Bad Münden, Lüneburg, Heide and Husum (ARNOLD/GIETZELT 1992; BRUIJN 1992; KRÖLL 2012; MIELKE 1981; MEIER 2012; STEPHAN 1987; WITTE 2014).

Chattered patterns combined with slip trailing can be found in various towns and cities throughout Saxony, albeit not in large quantities, given the number of vessels that exhibit different decoration techniques. A plate from Kamenz probably dates from the early to the mid-18th century (Fig. 12/3). The combination of chattering and slip trailing has been found in contexts that are also likely to date from the mid-17th to the mid-18th centuries (Fig. 12/1–2).<sup>15</sup> The technique has also been found at Leipzig (Fig. 13), where it has been tentatively dated to the period just prior to the Thirty Years' War (KLUTTIG-ALTMANN 2006, 166; Pl. 1,118.5; Pl. 9,1300.2). Interestingly, chattering there was found on a sherd without slip but with lead glazing on a light-coloured fabric. Judging by biscuit-fired

<sup>15</sup> KRABATH 2012, 110 Fig. 115,7 (DD-10, mid-18th century), also the site DD-01. I am grateful to Stefan Krabath for pictures and information. I would like to thank Helga Heinze, Krauschwitz, for information on chattered pottery from the Lausitz region, although unfortunately it cannot be dated (Muskau, Daubitz).



Fig. 14: Biscuit-fired plates with chattered decoration from Bad Schmiedeberg, Saxony-Anhalt. Not to scale. Photo by A. Heege.



Fig. 15: Carlsburg Castle near Bremerhaven (1672 to c. 1700), sherds bearing chattered decoration. Not to scale. Historisches Museum Bremerhaven. Photo by J. Drabek-Hasselmann.

fragments from Bad Schmiedeberg in Saxony-Anhalt (Fig. 14), chattering of this type may represent the earliest form of a regional variant of the technique (KLUTTIG-ALTMANN 2015, Fig. 9c).<sup>16</sup> More attention should be paid to this subject in the future.

For northern Lower Saxony and in the region around Bremen, it is worth mentioning finds with chattered decoration from Swedish Carlsburg Castle near Bremerhaven (1672 to c. 1700; Fig. 15). Numerous other sites on the coast have also yielded pottery with chattering (THIER 1994, 78–80, 258, Pls. 44–47; BISCHOP 2014). Vessels with chattered

<sup>16</sup> Unfortunately, a review of the context and its associated finds did not yield any further evidence with regard to dating the material. I would like to thank Ralf Kluttig-Altmann for his efforts.



Fig. 16: Lüneburg, bei der St. Johanniskirche 19, sewer 2 (site no. 57:2), plate with chattered decoration. Sc. 1:3. Lüneburg City Archaeology Department. Photo by E. Ring.



Fig. 17: Denmark, fish plate with chattered decoration, dated 1725. Sc. 1:3. Haderslev. Photo by F. Witte.

decoration predating the year 1700 have been found at Bremen.<sup>17</sup> The sewers of Lüneburg have also yielded plates with chattered decoration (Fig. 16), which can be dated to the 17th and perhaps 18th centuries, however, purely by stylistic means (BOYSEN 2011, 83, Inv. 57:2/2, Pl. 30,1; KÜHLBORN 1995, 26 Fig. 16,1. I., erroneously termed combed decoration).<sup>18</sup>

Chattering was particularly popular at Preetz, a potters' town in Schleswig-Holstein (HEINTZEN 1986; 1989; 1992; KRUSE 1987). A special feature there were the numerous wasters which prove that such pottery was produced locally. The earliest piece bears the date of 1706 and the technique continued to be used on dated plates into the 19th century (cf. Fig. 1). A large number of vessels with chattered decorations can also be found in museums throughout Denmark, Schleswig-Holstein's neighbour to the north. The earliest piece, however, is a fish plate dated by inscription to 1725 (Fig. 17;



Fig. 18: Oldest dated plate with chattered decoration from Norway, found at Trondheim. Sc. 1:3 (after REED 2009, Cat. 79).

EHLERS 1967, 82).<sup>19</sup> So far, none of the firmly dated archaeological finds with chattered decoration from Denmark predate the mid-17th century.<sup>20</sup>

17 Personal communication from Dieter Bischof, Bremen State Archaeology Office: The finds were recovered from the 'Pipe', a link between the Rivers Weser and Kleine Weser at Teerhof, which had been filled in 1714.

18 I would like to thank Edgar Ring, Lüneburg, for the information.

19 I am grateful to Frauke Witte, Haderslev, for information and pictures.

20 I would like to thank Jette Linaa, Moesgaard Museum, for the information.



Fig. 19: Assemblage with chattering from Pasewalk, site 188, Marktplatz, deposited in 1630. Not to scale (after JÖNS/LÜTH/SCHÄFER 2005, 313 Fig. 1).

There are archaeological finds, however, which show that this type of decoration continued to be produced locally until the late 19th century (THIER 1994, 80 fn. 708).

A vessel with chattered decoration dated 1693 from Trondheim in Norway is worth mentioning (Fig. 18). It could be earthenware imported from the Lower Rhine region. It is also possible, however, that it may have come from local production, which, based on historical sources, began around 1600. At that time, potters from Denmark and Sweden began to settle in Norway.<sup>21</sup> Archaeological finds dated by stratigraphic means to the 17th century have come to light in Oslo (MOLAUG 1981, Fig. 37/3). Chattered decoration is still in use today at Røros in Norway (POTTERIET-ROROS [online]).

<sup>21</sup> REED 2009, 105; other, later examples: Cat. 11, 12, 22, 26, 28, 29, 35–43, 71, 72, 74, 80, 86, 106–113, 157–162.

Mecklenburg-West Pomerania has yielded significantly older finds. An assemblage of crockery (Fig. 19), which included plates with chattered decorations, was deposited in the ground during the siege of Pasewalk by imperial troops in 1630 (JÖNS/LÜTH/SCHÄFER 2005, 313 Fig. 1). Waste with chattered decorations from a potter's workshop at Langenstraße 23 in Stralsund (find site 231) was probably slightly older and was dated by the excavators to the period around 1620/1630 (KONZE/SCHÄFER/SCHÄFER 2007, 119, 125).<sup>22</sup>

Matching finds, both from a chronological and stylistic point of view, came to light at Myslibórz (Soldin) and Stargard in Poland (Fig. 20). The Myslibórz finds are of particular importance, since they represent waste from a potter's workshop

<sup>22</sup> Unfortunately, the original material from the assemblage was not accessible at the time this paper was written.



Fig. 20: Plates and bowls with chattered decoration from Myslibórz (Soldin) and Stargard in Poland. Not to scale. Photo by M. Majewski.

that produced earthenware with incised, chattered and slip-trailed decoration that can be dated stylistically to the late 16th or early 17th century (KAŁAGATE/KOŚCIUKIEWICZ 2004).<sup>23</sup> As part of

the Baltic trade, these wares were also shipped to Riga in Latvia, which was under Swedish rule from 1621, and more specifically to Turaida Castle near Sigulda (destroyed by fire in 1776) and a castle near Bauska, not far from the Lithuanian border, which was blown up in the early 18th century (Fig. 21;

<sup>23</sup> I would like to thank Marcin Majewski, Szczecin, for references to the sites mentioned and for providing me with pictures.



Fig. 21: Pottery with chattered decoration from Riga and from Turaida in Latvia. Not to scale. Photo by Turaida muzejs, Latvia.



STRAUSS 1969, Pl. 27,2.).<sup>24</sup> Chattered decorations have also been found at various sites in Estonia, e.g. at Pärnu.<sup>25</sup>

Given the early date for chattered decoration in Mecklenburg-West Pomerania and the former Prussian New March, and in view of the many German potters who settled in Sweden, it is no surprise that the historical city centres of Malmö and Stockholm have also yielded pottery decorated with this technique (Fig. 23; BILLBERG 1987, Cat. 184, 217–219, 241, 244, 248).<sup>26</sup> The oldest ceramics dated by absolute means in Sweden, however, were found on the *Vasa*, a battleship that sank off Stockholm in 1628 (Fig. 22; CEDERLUND 2006, Figs 13–17, Inv. 17347, Inv. 9963, 9987, 36127).

<sup>24</sup> The material from Riga also includes finds from excavations, personal communication from Erki Russow, Tallinn. Turaida: turaida-muzejs [online]. On the stove tiles from Turaida and the historical background, see Ose 2013. Bauska: Latvijas NACIONĀLAIS VĒSTURES MUZEJS 2016, 68 Fig. 25.2.

<sup>25</sup> Personal communication Erki Russow, Tallinn.

<sup>26</sup> Stockholm: references and photographs from Mikael Johansson, Skogås. Other finds have come to light at Jönköping (JÖNKÖPINGS LÄNS MUSEUM 2012, 41, Fig. 7), Nyköping Kvarteret Biografen (numerous finds at the Statens Historiska Museet, Stockholm) and Uppsala (DIGITALTMUSEUM [online]).



Fig. 22: Oldest plate with chattered decoration from Sweden dated by absolute means. It was recovered from the *Vasa*, a ship that sank in 1628. Sc. 1:3. Photo by Sjöhistoriska museet / National Maritime Museum, Stockholm.



Fig. 23: Pottery with chattered decoration from the old port of Malmö. Not to scale. Malmö Museer. Photo by M. Thulin.

## Conclusion

Based on the evidence listed above and until such time as earlier, firmly dated examples come to light, we must assume that the chattered decoration on ‘*Preetz*’ pottery from Schleswig-Holstein, on ‘*Langnau*’ pottery from the German-speaking part of Switzerland and on pottery from south Germany, Liechtenstein and Vorarlberg was not conceived locally. The more likely scenario is that the technique was brought to these places by journeymen and then incorporated into the local range of decorative techniques. At this point in time, either Mecklenburg-West Pomerania/western Poland or Sweden appears to have been the centre of the technique’s origin.<sup>27</sup> So far, no finds have come to light that can be firmly dated to before 1600.

<sup>27</sup> The chattered decoration was produced in Northern Bohemia, in village Levín, in the 18th or 19th centuries as well. The exact timeframe still has to be established. The knowledge of this decoration technique is possibly due to influences from Saxony. After completion of the manuscript Kristýna Matějková kindly informed me.



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# Painted Pottery in Bohemia. Slipware of the 16th and the 17th Centuries\*

Gabriela Blažková

## Abstract

Slipware, which reached its peak in the post-medieval period, was produced in France, the Netherlands, central Europe, the Balkans and in Scandinavia. Several regions saw the rise of their own production centres, often with a specific style. A comparison between archaeological and written sources helps map not only the assortment of the pottery workshops but also the rivalry between individual centres. An individual painted pottery style also developed – in accordance with European trends – in Bohemia. Bohemian slipware has traditionally been related to the town of Beroun, which is situated west of Prague. The aim of this article is to present the morphology, decorative elements and the correlation between vessel shape and decorative motif of Bohemian painted pottery. We will further focus on a comparison of Bohemian and European production and their mutual influences.

 *slipware – Beroun – decoration – workshop*

## 1. INTRODUCTION

Painted pottery appeared in various stages of pre-history and Roman antiquity. Parallel to advancements in pottery production, the technique of pottery painting underwent complicated development; finally, glazing spread all over the Old World. The high point of painted pottery falls into the Renaissance period after having become a pan-European fashion trend.

If painted decoration is applied on the wheel, it is called pottery decoration, because the decorative programme then follows the natural rhythm of the

item and its shape. Mostly it consists of horizontal lines, geometric and floral motifs. On the other hand, patterns derived from human and animal representations often negate the rhythm of the vessel and its creation, and, in the end, the vessel serves only as a surface to express the painters' intentions. Inscriptions, marks and signs play a specific role in the decoration. Their function can be protective, informative or memorial. These elements can also fulfil a function within the decorative programme; they can, however, act independently of the decoration. In all cases, they contribute to the overall artistic rendering of the vessel.

One of the most prominent groups of painted Early Modern pottery is slipware, known under its German designation as *Malhornware*. This decorative technique is usually connected with a dou-

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ble firing.<sup>1</sup> The coarse body or body with engobe is painted with coloured slips using a (horn) slip trailer; the finished vessel is then covered with a transparent glaze.

## 2. SLIPWARE IN THE TERRITORY OF THE CZECH REPUBLIC

Slipware appeared in the territory of the Czech Republic around 1550. The archaeological excavations in the former military barracks on George of Poděbrady Square in Prague New Town in 2003–2005 provided evidence of the production of painted pottery in Prague. The layers of ceramic waste from Adam Špaček's workshop (operated from 1531 to 1572) contained five ceramic fragments decorated with painting. All of these examples were unglazed semi-finished goods. All fragments belong to wide forms, such as shallow bowls or small bowls or plates. The painting is carried out with uncertain strokes; sometimes it appears even unskilful or primitive. Therefore, we assume that the potters were not highly trained in this technique. The low number of fragments suggests that these could have been some of the first attempts at painted pottery and not yet production on a larger scale for the market. The local potters were possibly attempting to imitate Beroun ware, which may have already been known in Prague. On the other hand, it could also be an example of autochthonous development in painted pottery production under the influence of German products, since contacts between Adam Špaček and German potters are also documented. This could be the first evidence of red painted pottery in Bohemian territory (ŽEGKLITZ 2015, 449–451, Fig. 8).

## 3. BEROUN WARE

Around 1550, written accounts describe the town of Beroun west of Prague as the production centre of local slipware (Fig. 1). The first mention dating back to 1541 appears in a treaty after some sort of

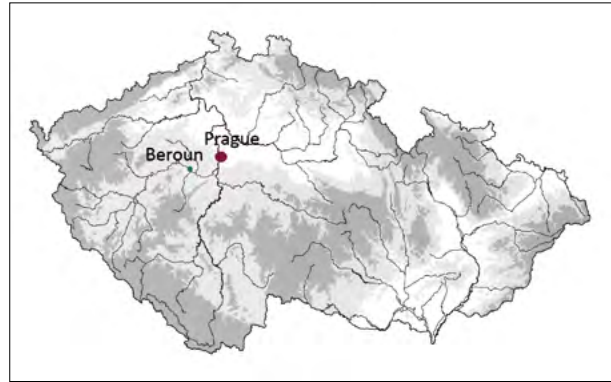


Fig. 1: Czech Republic – Prague, Beroun.

dispute between the potters of the Old and New Towns of Prague and the potters of Beroun (WINTER 1911, 376). According to this treaty, the potters of Beroun were granted the exclusive privilege to sell their products on market days (apparently held weekly) in the Old and New Town of Prague. At the market held on St. Wenceslas Day, the potters of Beroun were allowed to sell only two wagons of their slipware. The import of Beroun ware is also described in the toll regulations for Charles Bridge. The potters of Beroun appear in the written sources for the last time in 1606, when twenty of them together with Germans sold their goods at the St. Martin fair on Kampa in Prague's Lesser Town (BLAŽKOVÁ/ŽEGKLITZ 2016, 149).

Under the influence of these written records, certain finds of material culture were connected with Beroun by amateur archaeologist and architect Jan Koula as early as the beginning of the 20th century (KOULA 1917–1919, 250–257). The most comprehensive collection of Beroun ware, comprised of several dozen reconstructed vessels, is currently held by the Institute of Archaeology in their Department of Medieval Archaeology at Prague Castle. Some of the finds come from Early Modern waste pits and from an excavation of the White Tower. The finds from waste pits were in use in the timespan from the end of the 16th to the beginning of the 17th century (BLAŽKOVÁ/VEPŘEKOVÁ 2015), which means during the reign of Emperor Rudolf II. These waste pits belonged either to high-ranking Church officials or servants at the imperial court (BLAŽKOVÁ 2016). Another part of the assemblage of Beroun ware comes from the collections of

<sup>1</sup> Double firing is used for *Werraware* (STEPHAN 1987, 101) or *Beroun ware* (ŽEGKLITZ 2015, 44), but *Weserware*, the finds from Lüneburg and pottery from Husum (North Germany), was only fired once (KRÖLL 2012, 22; WITTE 2014, 31, 32).



Fig. 2: Formal range of Beroun tableware. Prague Castle. 1, 5 – waste pit No. 37/IV Vikářská Street, Inv. No. 21, 44; 2, 3, 7 – waste pit 1680, Inv. No. 944, 618, 942; 4 – White tower, Inv. No. 787; 6 – waste pit C (1447), Inv. No. 301. Photo by G. Blažková, J. Gloc.

architect Karl Fiala, who in 1920–1936 served as a builder at Prague Castle. However, the find contexts are not known for these finds. Such generalised conclusions can be made thanks to the find units from Prague Castle.

### 3.1 BEROUN WARE, RED GROUP

At the beginning of the 20th century, architect Jan Koula (KOULA 1917–1919, 250–257) defined two basic groups of painted Bohemian pottery. The first is the red group, the shape range of which is incomparably richer and includes typical tableware

such as shallow bowls, bowls, deep bowls without handles and those with two basket handles, as well as jugs of various shapes and sizes (Figs 2, 3). Common tableware is supplemented by other forms, typically by a number of specimens. There are pots and cups of various forms, bowls on an open-work foot (Fig. 3/3),<sup>2</sup> multiple vessels (Fig. 4/1, 2), etc. Miniatures of some shapes may have been used as children's toys. The assemblage also includes a flat travel flask (Fig. 4/3) that was found during an archaeological excavation of Salm

<sup>2</sup> The designation *chafing dish* is often used (HURST/NEAL/BEUNINGEN 1986, 72, 81, 93, 107).



Palace in Prague's Hradčany quarter (KŘÍŽOVÁ/BLAŽKOVÁ/SKÁLA 2018, 185–188).

The body colour shows various shades of red-brown. The white painting, often applied in heavy, relief layers, and green painting, occasionally also dark-brown slip, are applied directly onto the body or slip (less common). The surface of vessels is covered with a transparent glaze which, as a result of its high lead content and original white colour, sometimes creates a yellowish tint (ŽEGKLITZ 2015, 444). Larger surfaces of painted motifs are filled with green glaze, and the high flux content causes the glaze to bleed over edges in some cases (ŽEGKLITZ 2015, 445). Incisions into coloured surfaces are used to highlight certain details. A broad range of decorative motifs was in use, including floral motifs, animals, geometric and anthropomorphic motifs. However, there are some basic rules for the decoration of individual shapes. In the case of jugs, it is generally true that one-third to two-thirds of the funnel-shaped neck is covered with green or white colour. The upper part of the high forms of pots and jugs often display the main decorative motif in the upper part of their body, whether it is a figural scene, an alternating zoomorphic and plant motif or a stylised vine. The lower part of the vessel is divided by horizontal beige lines (Figs 2/3, 4, 6, 7; 5). On lower pots and on multiple vessels, the main motif covers most of the surface of the body (Figs 2/5; 4). The decoration of painted cups and small cups consisted of vertical lines dividing the surface into panels that are filled with oblique lines or hooks (Fig. 2/1, 2). All hollow forms have painting on the handles. The second group of ceramic vessels is deep bowls on which the central painted motif is positioned on the inner bottom (Fig. 3/2, 4). Most frequent are floral motifs. Apart from the inner surface, the exterior of deep bowls can also be painted. Most often, they show horizontally flaring rims that tend to be decorated with simple painting. If there are handles, they are decorated as well. The last category is shallow bowls with the same basic scheme of decoration as deep bowls. The central motif is placed on the inner bottom followed by concentric rings and again figurative decoration on the flaring rim. In this case, vines occur most often or birds interchange with sche-

matic plants (Fig. 3/1). The only known find of a plate/platter is decorated with a female figure in a Renaissance dress with carved details (Fig. 3/5). A lone specimen of an open-work bowl<sup>3</sup> very likely belongs to Beroun ware. Given the limited space for decoration, the outer side of the bowl is decorated with a simple geometric motif and surfaces coloured with green (Fig. 3/3). The lone flat travel flask known thus far is decorated with a stylised plant motif (Fig. 4/3).<sup>4</sup>

Geometric decorative motifs clearly dominate. Floral decoration is represented by flowers and often schematic leaves, pomegranates, acorns, bells or lilies of the valley. The most common zoomorphic motifs are birds and stags. The rare anthropomorphic motifs usually occur on the bodies of jugs. An interesting example is a large jug from a waste pit at Prague Castle showing two pairs of human figures. With some caution, we may assume that this was a wedding jug (Fig. 5/1). A second large jug from Prague Castle shows six male figures, five of which are dressed in Renaissance attire, while the sixth is naked, with intimate parts concealed by a strip of cloth. The naked man is holding a cup in his right hand and could represent the Greek god of wine and festivity Bacchus (Dionysus). Another interesting anthropomorphic motif is found on the jug of Simon Nemazal,<sup>5</sup> one of the few finds bearing the year 1577 (ŽEGKLITZ 2015, Fig. 5). This jug has long been considered one of the oldest products of Beroun ware. The archaeologist Jaromír Žegklitz recently analysed this painted motif and expressed the idea that it could be a masterpiece by Simon Nemazal. If there really were masterpieces in Beroun, this would be a strong argument that there was already a longer tradition of painted pottery in Beroun at that time (ŽEGKLITZ 2015).

The assemblage of pottery finds from the collection of architect Karl Fiala also contains an inscribed

<sup>3</sup> Bowls with an open-work body (and often even a foot) served as decorative fruit bowls. This use is depicted on numerous Renaissance still lifes (e.g. Fede Galizia (1578–1630): *Majolica bowls with fruit*, after 1610 (from the WEB GALLERY OF ART [online]). In the Netherlands, these vessels were used to heat plates (BLAŽKOVÁ 2018, 260, 261).

<sup>4</sup> Stoneware flat travel flasks are known in particular, e.g. KÖNIG 2015, Abb. 16, SCHEIDEMANTEL/SCHIFER 2005, 113–118, Taf. 19–22.

<sup>5</sup> Held at the Museum of Decorative Arts in Prague, Inv. No. 2333.



Fig. 3: Formal range of Beroun tableware. Prague Castle. 1, 2, 4, 5 – waste pit 1680, Inv. No. 638, 650, 642, 644; 3 – waste pit No. 37/IV Vikářská Street, Inv. No. 33; Photo by G. Blažková, J. Gloc. Drawing by V. Pincová.



Fig. 4: Multiple vessels. Prague Castle. 1, 2 – collection of K. Fiala, Inv. No. 381, 382. Travel flask. Prague, Salm Palace, Inv. No. Photo by G. Blažková, J. Maštera. Drawing by V. Pincová.

mug, the fabric and glaze of which likewise suggest that it belongs to Beroun ware (Fig. 8). Although the entire text has not been preserved, individual words indicate that it was a welcoming cup (*vilcum*) intended for drinking at feasts.<sup>6</sup>

At the beginning of the 20th century, Karel Koula defined Beroun ware purely on the basis of specific finds of painted ceramic vessels, though it would be nearly 80 years before the subject of Beroun production would be addressed again in connection with the rescue excavations conducted in

<sup>6</sup> Drinking parties ranked among the favourite pastimes of Renaissance nobles, as commemorative books (*Trinkbücher*) with the signatures of participants document. The customary events included an 'entrance fee' in the form of a toast in which the guest had to drink a certain volume of wine from a special tall glass goblet (BŮŽEK 2000, 137–162).

Beroun in the 'Hrnčířské' (Pottery) suburb, which first provided fragments of semi-finished specimens of Beroun ware directly from the city (MATOUŠEK/SCHUEFLER 1980, 55; 1983; ŽEGKLITZ/ZAVŘEL 1990). Beroun ware has currently been documented in a number of pottery workshops, with a number of firing kilns containing production waste with painted and unglazed semi-finished specimens from the excavations in Hrnčířská (Pottery) Street (VYŠOHLÍD 2015) and at Česká Street No. 56 (Bohemian; VAŘEKA 2003). The assertion that painted pottery from Prague Castle is Beroun ware is supported by specific finds with the same motif and which were found as final products at Prague Castle and as semi-finished products in Beroun (Fig. 6). Semi-finished forms depicting the female figure in Renaissance attire and the surface of a shallow bowl below the rim with a stylised motif and a bird come from at least two Beroun pottery workshops (VAŘEKA 2003, Fig. 8; VAŘEKA 2003, Fig. 17). These particular finds demonstrate trade relations between Beroun and Prague Castle, but we cannot automatically ascribe all painted ware from Prague Castle to the production centre of Beroun.

### 3.2 WHITE GROUP OF BEROUN WARE?

The so-called white group of Beroun ware defined by Karel Koula is much poorer than the red group; there are fewer finds and the formal range is poorer as well. The colour of the break is mostly dirty white. The white underground is decorated with shades of red-brown and green and also blue painting, which is characteristic of this group. The decoration consists exclusively of geometric and floral motifs. The forms are shallow bowls, small bowls, and a small number of jugs (Fig. 7).

The central painted motif, most often a highly stylised plant motif, is located on the inner bottom of the bowl; this motif is typically followed by a pair or groups of three to four concentric circles, sometimes with the space between them filled with wavy lines. The curved shoulder (banner) features a painted motif (most often a vine), or the banner is decorated with a group of concentric circles. Neither zoomorphic and anthropomorphic motifs nor dating were found.



1



2

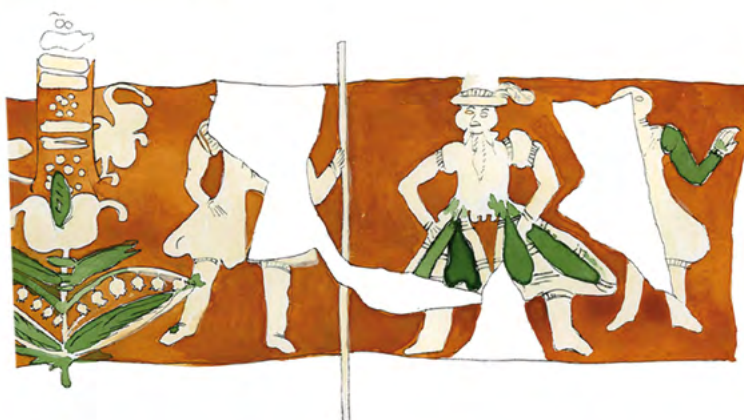


Fig. 5: Large jugs with anthropomorphic motif. Prague Castle. 1 – waste pit No. 37/IV Vikářská Street, Inv. No. 39; 2 – collection of K. Fiala, Inv. No. 1449. Photo by G. Blažková, J. Gloc. Drawing by V. Pincová.



Fig. 6: Comparison of ceramic vessels. Beroun ware from waste pits at Prague Castle and shards found as waste at pottery workshops in Beroun, Hrnčířská (Pottery) Street. 1, 3, 5 – waste pit No. 37/IV Vikářská Street, Inv. No. 42; 2, 6, 9 – pottery waste, No. 296 Hrnčířská Street, Beroun; 4, 7 – waste pit 1680, Inv. No. 644; 8, 10 – waste pit S (2328), Inv. No. 472. Photo by G. Blažková, J. Gloc, M. Vyšohlíd.<sup>7</sup>

<sup>7</sup> I would like to thank Martin Vyšohlíd, Archaia Praha, z.ú. Prague.



Fig. 7: Formal range of light-fired painted ceramics. Prague Castle. 1 – waste pit No. 37/IV Vikářská Street, Inv. No. 46; 2 – collection of K. Fiala; 3 – waste pit C (1447), Inv. No. 218; waste pit 1680, Inv. No. 639. Photo by G. Blažková, J. Gloc. Drawing by V. Pincová.



Fig. 8: An inscribed mug. Prague Castle. Collection of K. Fiala, Inv. No. 14621. Photo by G. Blažková. Drawing by V. Pincová.

Since we have not yet discovered any pottery workshop that would have produced this ware, we currently have no unequivocal proof of a connection with the Beroun production centre (ŽEGKLITZ 2015, 446, 447). Two shallow bowls with red-brown and green painting from the excavation in Modlibohov in north Bohemia are held in the Museum of North Bohemia in Liberec (ESBÍRKY – KULTURNÍ DĚDICTVÍ ON-LINE [online], Inv. No. P18022, Inv. No. P18029). Finds from Upper Lusatia in Germany (KRABATH/VON RICHTHOFEN 2007, 81; KRABATH 2012, Fig. 61, 62) cast doubts on the provenance and point to a foreign origin of

this painted ware. Semi-finished goods of slipware with red-brown and blue decoration were found in Zittau and Bantzen (KRABATH 2012, 76, 77). Generally, minor differences can be traced between pottery production in Upper Lusatia and Saxony, and on the contrary, the relation to Bohemian production. Based on the historical fact that Upper Lusatia was a part of the Lands of the Bohemian Crown by 1635, it is suggested that white ware with shades of red-brown and green and also blue painting could be produced in Upper Lusatia from the later third of the 16th to beginning of the 17th century and exported to the Bohemian lands.



## Conclusion

Beroun ware is a representative of Bohemian painted production. The presented data shows that painted Renaissance pottery from Bohemia corresponds to the European standards of this time, both from the perspective of ceramic forms and the method of decoration. The ware is characterised by double firing and a not very hard-fired thicker body of red colour, as seen with German *Werraware* (STEPHAN 1987, 101; 1992; 2012). The painting is applied in white and green and is sometimes supplemented with incisions. Pottery forms include common kitchen ceramics and tableware, miniature vessels (toys) and objects primarily serving as decoration, such as bowls on an open-work foot. Beroun ware is similar to finds of the north Germany style of slipware (GAIMSTER 2006; WITTE 2014), from Straubing in Bavaria (ENDERS 1982, 23, Taf. 17/32; 1990, Taf. 15–17; 2005, 32, 33, Taf. 2.1, 2.2, 7.1) and from Saxony (KRABATH 2012, 75–79). In contrast, slipware from Upper Austria produced in the first half of the 17th century is different (KALTENBERGER 2009, Taf. 184–193). The ‘golden age’ of Beroun ware was the period around 1600. Its end can most probably be related to the capture of Beroun by Swedish soldiers during the Thirty Years’ War in 1639. It remains unclear whether this Early Modern ware was also manufactured in Prague. The discovery of Adam Špaček’s workshop in Prague’s New Town is the first actual evidence that painted pottery was at least tested in Prague. The finds of the so-called white group most likely could be produced in the region of Upper Lusatia.

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# Bohemian Slipware from the Second Half of the 17th Century until the End of the 18th Century – a Lost Tradition?

Notes on the topic of Bohemian pottery of later post-medieval periods from an archaeological perspective

Kristýna Matějková

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## Abstract

Although pottery from the 16th century and the first half of the 17th century has been at the centre of archaeological interest in recent years, knowledge of later periods is vague from an archaeological perspective. The article attempts to revive the forgotten tradition of researching Late Early Modern period pottery with new archaeological information while also considering the further possible development of decorative elements combining slip or glazes of various colours. The main objective of this work is to raise interest and encourage a broader discussion on this subject.

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— slipware – tradition – decoration style – Bohemia

## 1. INTRODUCTION

From an archaeological perspective, our level of understanding of the pottery assortment in Bohemia from the second half of the 17th century and the 18th century is essentially made up of individual pieces of knowledge that are highly fragmented. The majority of works published to date are either older or focussed on specific production or regional characteristics. Despite the fact that Late Early Modern material has increased substantially in recent years, more up-to-date analyses are still missing, making it relatively difficult to define certain trends or speak in greater detail on the dating of this pottery.

In light of these facts, it is not very surprising that an older work by ethnographer Vladimír Scheufler (SCHEUFLER 1972) is heavily used and cited. Scheufler's study draws mainly on collection arte-

facts and museum exhibits (i.e., mainly on information obtained on the basis of an ethnographic study of intact pottery vessels) and their comparison with available archive sources.<sup>1</sup> In contrast, the pottery material we encounter in archaeology is, in the vast majority of cases, fragmentary and has been, it should be noted, treated mostly with disdain until recently. The current situation offers a large number of comparative assemblages, though since Scheufler's time it's as if there was no one who would undertake their study in a more systematic manner. At this moment, it can be stated that com-

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<sup>1</sup> Unlike Scheufler's definition of the groups of the Prague production sphere (SCHEUFLER 1972, 132), certain types are missing entirely or haven't been recognised yet in the archaeologically-collected material. Some types of decoration are also difficult to identify on the fragmented material (cf. BLAŽKOVÁ/MATĚJKOVÁ 2016, 189 Graph 27 and 190 Graph 28).



pared to pottery from the beginning of the Early Modern period (BLAŽKOVÁ/VEPŘEKOVÁ 2015), the state of knowledge of pottery production in the Late Early Modern period is significantly weaker.

It is common to evaluate such assemblages in a general manner as ‘late’, often intuitively and without a more detailed determination with vague dating. Apart from the smaller number of assemblages processed thus far, this is also the result of our ignorance of period production centres. If we compare archaeologically proven pottery workshops to a map created on the basis of the ethnographic knowledge from the aforementioned V. Scheufler in the 1970s (SCHEUFLER 1972, map 2 and 3), it is apparent that this lack of information is considerable. Only some sites documented with material from pottery workshops are known (e.g., Levín – LANDSFELD 1978, Beroun – MATOUŠEK/SCHEUFLER/ŠTAJNOCHR 1985, and possibly also Nové Strašecí – HAZLBAUER/VOLF 1993).

Beroun is in fact the eponymous site where the well-known ‘Beroun ware’ – Bohemian Renaissance slip-painted ware – was made. Although the local production is not perfectly understood (most recently, e.g., ŽEGKLITZ 2015b), these aesthetically impressive vessels are a relatively valuable dating guide<sup>2</sup> for Early Modern assemblages as well as material that permits the comparison of Bohemian Renaissance production on a European-wide basis. However, Beroun slip-painted ware declined after the Thirty Years’ War and its production was not continued here (SCHEUFLER 1972, 111; MATOUŠEK/SCHEUFLER/ŠTAJNOCHR 1985, 137). Does this type of decoration disappear in general in the second half of the 17th century or is it possible in the archaeological material to follow its continuation or transformation into different more popular forms of decoration? And if yes, does it continue to belong among sought-after representative pieces? Can certain decorative trends be characterised in connection with this type of decoration in the studied period? These are the questions that this article will attempt to answer on the basis of newly acquired information.<sup>3</sup>

2 Unfortunately, its ‘easy’ recognition sometimes leads to the overuse of the given term, even in cases that demonstrably do not involve Beroun ware (SEDLÁČKOVÁ 1997, Fig. 25).

## 2. PROBLEMS OF SLIPWARE AND OTHER DECORATED POTTERY OF THE LATE EARLY MODERN PERIOD IN BOHEMIA

Although the initial number of finds was not exactly small (see note 3), it has proven relatively difficult at this time to present more than just a very general description of the decorative elements appearing most often in Prague in the second half of the 17th century and in the 18th century. It can be said that if we have the opportunity to work with intact specimens, they are always original pieces without any further relationship with other similarly decorated vessels and that in the rest of the acquired fragments it is only possible to observe remnants of the original decoration without any greater testimonial value. This fact, along with our lack of knowledge of production workshops, complicates the situation even further.<sup>4</sup> Despite these outlined circumstances, I will attempt to outline several possible trends, though the legitimacy of these preliminary conclusions will be confirmed only in time.

### 2.1 IN THE TRADITION OF ‘BEROUN WARE’

The term ‘slip-painted ware’ used in Bohemia is essentially the equivalent of the German ‘Malhornware’, or ‘Malhorndekorierte Irdenware’. This term here describes decoration in which slip is painted on a vessel with a point or trailer to create a certain pattern or motif (ŽEGKLITZ 2015a, 110), unlike foreign work (KRABATH 2012, 93–95; MANN ET AL.

3 This new information comes primarily from Prague finds, specifically from three archaeologically documented and processed cesspits from different social environments: pit H from Prague Castle (BLAŽKOVÁ/MATĚJKOVÁ 2016, 185–204), a latrine from the Theatine residence hall in Thunovská St. in the Lesser Town (MATĚJKOVÁ 2019, 273–288) and a pit in Národní St. in Prague New Town. Their final processing is the subject of a prepared dissertation. At the same time, assemblages from archaeological excavations conducted in Prague over the past decade by the National Heritage Institute in Prague were also used. Published assemblages of collection artefacts, finds from archaeological excavations and an as yet unpublished assemblage of pottery from Levín in north Bohemia made up the main comparative material.

As such, I would like to take this opportunity to thank my colleagues from the National Heritage Institute in Prague for their kind assistance.

4 Understandably, certain products from workshops outside of Prague needn’t be highly discernible in the Prague archaeological material, and those from Prague likely remain unrecognised for now.



2008, Fig. 22/88; BOSCHETTI-MARADI 2006, 24), where the term also includes ware on which the resulting combination of colours is partially random, i.e., not technically painted but pottery on which the slip was applied by dripping glazes of various colours. If we remain within the narrower limits of the given term (as it is typically perceived by archaeologists in Bohemia), the following can be roughly characterised from the existing knowledge of products decorated with coloured slip and dated tentatively to the late 17th century and the 18th century:

The largest group is composed of pottery painted with a white (or yellowish)<sup>5</sup> slip applied on the pre-fired vessels with a red engobe, which were then covered with a transparent (or yellow) glaze before the final firing (Figs 1; 3/1a – in detail 3/1b). If we exclude miniature forms (Fig. 2), which have only very limited decorative motifs, we can state that the vessels found thus far have highly simplified painted elements that can even appear as hyper-stylised plant motifs. The fact that vessels of the same shape and decoration or at the very least with a very similar style appear repeatedly in certain assemblages can suggest the existence of dining or drinking services (Fig. 1/2a, 2b, 4a, 4b). Forms mainly include smaller pots (or jugs), bowls or plates of larger dimensions (Fig. 3/2), small bowls (Fig. 1/1a–c, 3) and miniature vessels.

Less often, Prague finds from this period include vessels combining additional coloured slips – red/dark brown and green are commonly added to white (Figs 3/3; 4/2), or vessels on which a light slip is applied on a brown base glaze (Fig. 4/1, 3a–c). Only smaller pots have been documented thus far and due to their exclusivity, it is not possible to define them as a group or determine their provenance.<sup>6</sup>

## 2.2 OTHER TYPES OF (SLIPWARE) DECORATION

If we expand the narrowly defined term of slip-painted ware to include decorative motifs created

by dipping or splashing, the resulting assortment of vessels acquired in archaeological excavations is somewhat broader. A very simple application with two colours is also seen on kitchenware. Apparently during the course of the 17th century it had already become the rule that the inner glaze of utility ware changed at the rim to a different shade (Fig. 5),<sup>7</sup> which undoubtedly increased the aesthetic effect of the vessels.

In the case of vessels probably used as tableware, the different glaze was then often used on the entire outer surface (Fig. 6/2, 3). This simplest decoration variant combining glazes of multiple colours is often supported by relief elements or vessel profiling (Fig. 6/1a, b, 3).<sup>8</sup> Of course, more formal types of vessels were decorated with additional decorative techniques that were also developed during the course of the 17th century. These include splashing, dripping, dipping, marbling (Figs 6/4a, b; 5a, b, 6–8; cf. BLAŽKOVÁ/MATĚJKOVÁ 2016, 141 Fig. 87, 192 Fig. 92; TURNSKÝ 1990) and the less terminologically-established ‘shrouding’ or ‘clouds’.

At this time, the fragmented nature of existing knowledge does not permit their more precise classification, not to mention further contemplation of the connection of forms to various types of decoration.<sup>9</sup> The only group standing out more clearly in this sense is composed of vessels with so-called marbled decoration. One of the typical representatives of this decorative technique is jugs with a cylindrical neck, a globular body and a bottom set on a foot (Fig. 7), which are found in various places in Prague. Deep bowls with horizontal handles are less common (MATĚJKOVÁ 2019, 278 Abb. 7). These vessels date mostly to the 17th century

7 Following preliminary observations, it can be stated that in several cases different shades were achieved using engobe applied only on the rim (Fig. 5/4) or, more frequently, by soaking the rim with a different and darker glaze (Fig. 5/1, 2, 3).

8 It is not even unusual to observe their combination with decorative pressing in moulds, which is also typical for this period, despite being poorly represented among the Prague finds. Engraved decoration has an even weaker representation in this regard, be it by combining or another tool (e.g., chattering). However, these are mostly dated to the later 18th or 19th century.

9 While this type of decoration was applied more often on flat forms, it is not unusual to find it on hollow forms such as pots and jugs (Figs 6; 7). This apparently depended on the overall focus of the given workshop.

5 The resulting colouring of the decorative motif could have been influenced by the colour of the glaze applied prior to the final firing (ŽEGKLITZ 2015a, 444).

6 Their production was documented by V. Scheufler directly for the Prague production sphere (SCHEUFLER 1972, 132).

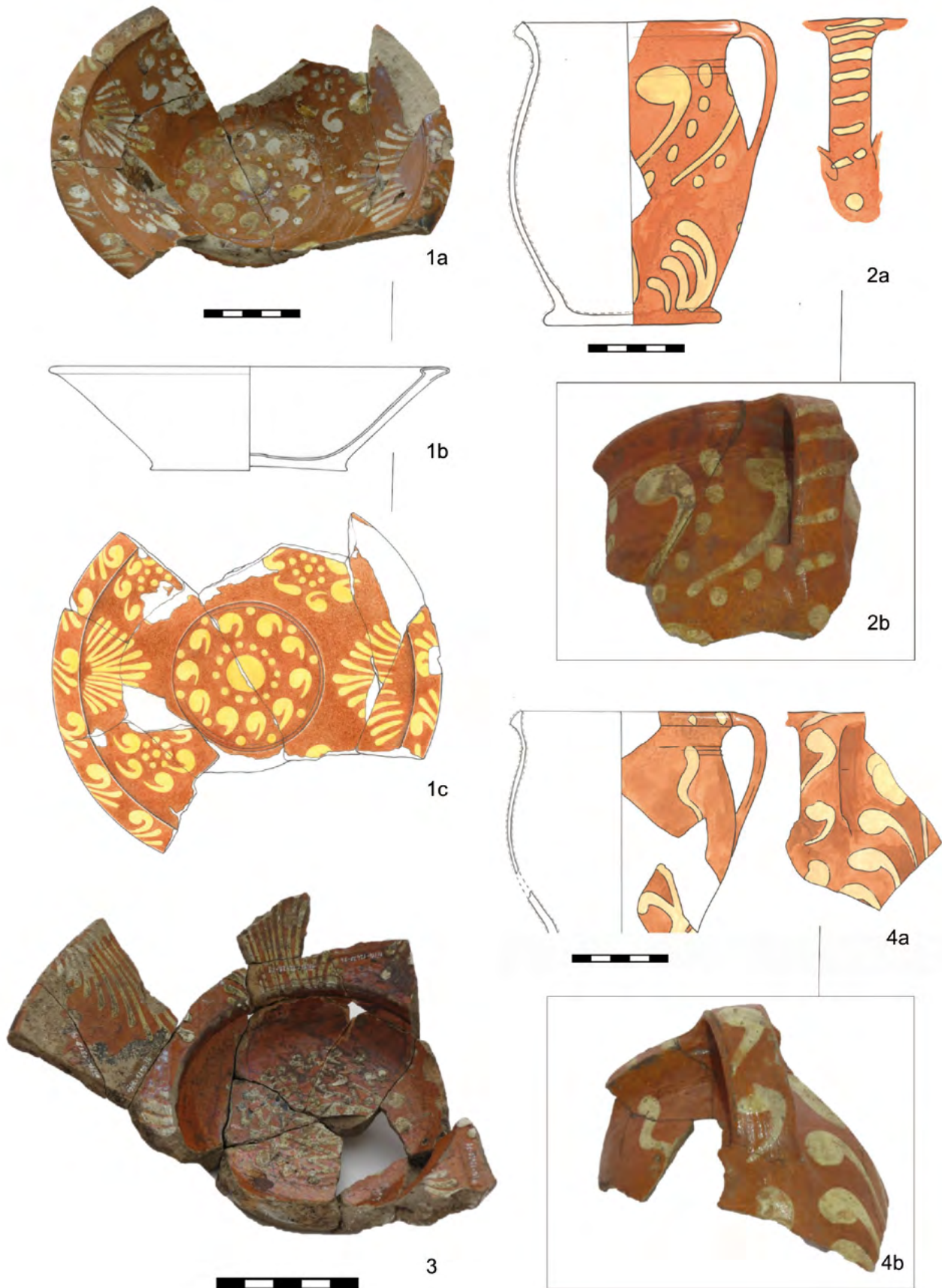


Fig. 1: Slip decorated vessels from Prague Castle and its surroundings. 1a, 1b, 1c – Prague Lesser Town, cesspit in Thunovská Street; 2a, 2b, 4a, 4b – Prague Castle cesspit H; 3 – Prague New Town, cesspit in Národní Street. Photo by author, drawn by V. Čermák and V. Pincová.

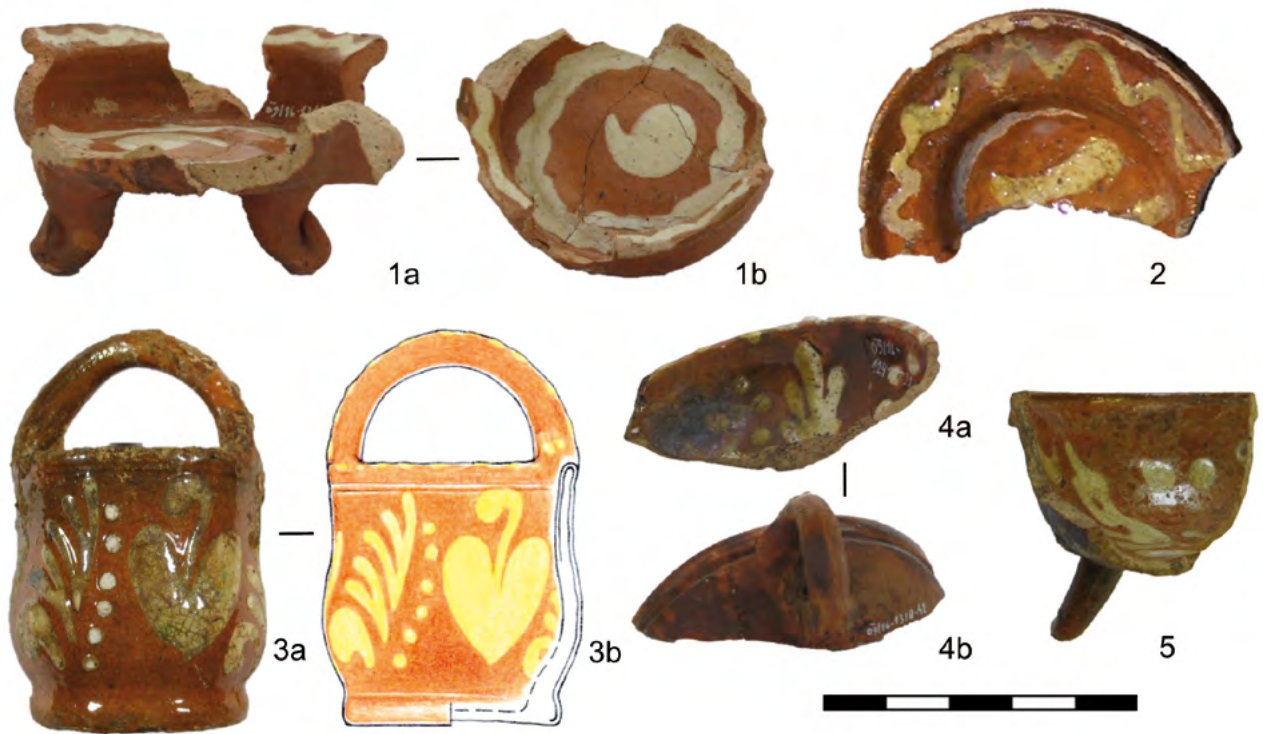


Fig. 2: Selected types of miniature vessels with slip decoration from Prague. 1a, b, 4a, 4b, 5 – Prague New Town, cesspit in Národní Street; 2 – Prague Old Town, cesspit at Dlouhá Street; 3a, 3b – Prague Lesser Town, cesspit in Thunovská Street. Photo by author, drawn by V. Čermák.



Fig. 3: Slip decorated vessels from Prague New Town, cesspit in Národní Street. Photo by author.



Fig. 4: Small pots with patterned slip decoration from Prague. 1, 2 – Prague New Town, cesspit in Národní Street; 3a, 3b, 3c – Prague Lesser Town, cesspit in Thunovská Street. Photo by author, drawn by V. Čermák.



Fig. 5: Kitchen pots with a different rim colour from Prague. 1 – Prague, Prague Castle cesspit H; 2 – Prague Lesser Town, cesspit in Thunovská Street; 3, 4 – Prague New Town, cesspit in Národní Street. Photo by author.

(BLAŽKOVÁ/VEPŘEKOVÁ 2015, 429; BLAŽKOVÁ/MATIÁŠEK 2015, 98 Fig. 3/1; HUML 1995, Fig. 12; MATĚJKOVÁ 2019, 279 Abb. 9), though the latest information suggests that their production may have extended into the 18th century. Since their forms and range of colours is relatively uniform, it is possible to consider a single production centre. And while its location remains unknown, the products are most likely Bohemian.<sup>10</sup>

### 3. IDENTIFICATION OF FINDS

The problem of an unclear origin is common to all of the presented finds. While most of the finds were undoubtedly produced in Bohemia, archaeologically investigated workshops dated to the 17th and

18th centuries are missing directly in Prague and it has also not been possible yet to discern in the archaeological material distribution centres that could have supplied their goods here. We know with certainty that Beroun potters<sup>11</sup> continued to supply the Prague market, as perhaps did, according to the latest information,<sup>12</sup> potters from the north Bohemian town of Levín.<sup>13</sup>

11 As previously stated, slip-painted ware was no longer produced in Beroun and existing research indicates that potters focused their attention in a different direction. However, they continued to supply their goods to the Prague market and were undoubtedly the source of twisted pots and jugs labelled as 'Beroun majolica' (ZAVŘEL/ŽEGKLITZ 1990).

12 The personal and unpublished findings of the article's author.

13 Written sources confirm that both locations were already distribution centres for Prague in earlier times (ŽEGKLITZ 2002, 97).

10 Perhaps comparable with Scheufler's Prague group with 'blue-brown-green-white' (or other) marbling (SCHEUFLER 1972, 132).



Fig. 6: Other types of decoration from Prague. 1a, 1b, 4a, 4b, 5a, 5b, 7 – Prague Castle cesspit H; 2, 3, 6, 8 – Prague New Town, cesspit in Národní Street. Photo by author, drawn by V. Pincová.

In light of works published to date, it is not even possible to rule out trade routes arriving from Upper Austria (TURNŠKÝ 1990, 63 Fig. 19; BLAŽKOVÁ/VEPŘEKOVÁ 2015, 520; 522; 535; 549), Bavaria (BLAŽKOVÁ/MATĚJKOVÁ 2016, 202–204) and perhaps even Italy (BLAŽKOVÁ/VEPŘEKOVÁ 2015, 557–559). Certain vessels (Fig. 6/5a, b) could show a certain affinity with the Saxon-Lusatian area, which has already been noted (cf. KRABATH 2012, 77, 79). Remaining unexplained, however, is the direction from which their distribution occurred.<sup>14</sup> We can only hope that in the future it will be possible to more precisely identify the individual points in the distribution network of pottery in the 17th and 18th centuries – both domestic and foreign.

<sup>14</sup> The finds from Prague Castle (Fig. 6/5a, b) are similar in both form and decoration to certain German finds (KRABATH 2012, 95 Abb. 92). Analogically, unpublished vessels are also found, for example, in the museum in Litoměřice (personal communication from museum employees) and, according to several sources, similar production can also be found in Haban pottery (HIMMELOVÁ/PROCHÁZKA 1990, 138 Fig. 8/3).

#### 4. THE ISSUE OF DATING

Since the vessels with slip-painted decoration are only individual specimens in the studied assemblages<sup>15</sup> and in the majority of cases they cannot be assigned to a specific workshop, a more precise dating is difficult. The simplified style of their decoration can definitely not be considered as decisive in this regard, despite the fact that their simplification occurred in the studied period in certain regions throughout Europe (FRASCOLI 1997, 72; KRENN ET AL. 2007, 27–29; ONISZCZUK-RAKOWSKA 2002, 235; WITTE 2016, 243). Unfortunately, the situation is also similar with other decorative techniques (dripping, dipping, splashing, marbling), the chronological sensitivity of which appears thus far to be low and whose occurrence seems to be regular during the 17th and 18th centuries. Com-

<sup>15</sup> Only two to five specimens of these occurred in the three investigated cesspits. Utility pottery – kitchenware – is clearly predominant in these assemblages.



Fig. 7: Jugs with marbling. 1, 2, 3, 5a, 5b – Prague Lesser Town, cesspit in Thunovská Street; 4 – Prague Lesser Town, Maltézské Square. Photo by author, drawn by V. Čermák.

pared to utility ware, these are not overly abundant, not even in a hypothetically higher social environment (see BLAŽKOVÁ/MATĚJKOVÁ 2016, 202). Therefore, how should the dating of the presented vessels be approached given the fragmented state of our knowledge?

The dating of the presented finds is influenced by several factors. If the possibility of using archive materials or chronologically sensitive finds (coins, pipes, seals, etc.) is ignored in certain cases, we work primarily with the study of Early Modern pottery. Decisive, therefore, is mainly the absence of Renaissance elements, which roughly establish the lower time limit of their dating. The actual content of these later assemblages is then enriched with both new forms – small bowls/cups, new forms of pot-shaped vessels with an acorn handle (Fig. 6/1a, b, 2, 3), smaller (table) mugs (Fig. 6/4a, 4b, 5a, 5b) or even smaller mugs (Fig. 4), etc., as well as contemporary imports.<sup>16</sup> The upper dating limit is then demarcated by the presence of indus-

trial refined earthenware ('Steingut') along with stoneware healing water bottles dating to the second half or end of the 18th century. While even this presents a major advance in our archaeological research, we are still unable to make a more informed dating. And yet, even in this simplified form this knowledge leads us to the conclusion that slipware was still used, and while it does not have a major presence in later assemblages, we must assume its presence on burgher tables (according to preliminary findings most common here and extending into the late 18th century and the 19th century) as well as at monasteries and within the walls of Prague Castle.

<sup>16</sup> Possibly assisting with a more precise dating is the presence of a small number of stoneware vessels from the Triebel-Muskau sphere, four-sided stoneware flasks and, for a closer identification, certain faience vessels (e.g., with a recognisable mark; see BLAŽKOVÁ/MATĚJKOVÁ 2016, 196 Fig. 100), and possibly even other ceramic (e.g., porcelain) finds.



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## Conclusion

Returning to the questions posed above, it can be confirmed that slip-painted ware is also represented in the Prague archaeological material of the second half of the 17th and 18th centuries. However, it has mostly remained (like the majority of pottery from this period, and unlike ethnographic studies) outside the research interests of archaeologists. Whereas in Renaissance assemblages it represented along with standard glazed and unglazed pottery a distinct element with a superregional scope, assemblages from the later periods suggest that in Bohemia slipware could have moved to a more regional level of products. Next to other types of tableware decoration combining slips and glazes of different colours (dipping, dripping, splashing, marbling), it also no longer stands out for its variety. It can be stated that Prague finds of slip-painted vessels rank among less decorated and this decoration is also far simpler than on its Renaissance predecessors.

It is also possible from the perspective of archaeology to follow a boom in majolica, faience and porcelain products and their influence on the broader layers of the population. The increasing affordability of these previously luxury types of ware changed the contemporary taste of the majority of urban consumers. Although slip-painted ware appears much less frequently in Prague assemblages than before, the continuation of its production should not be underestimated. As it appears, smaller pottery centres or workshops in particular could have produced this ware with the same intensity up until the 19th century to satisfy demand mostly from non-urban consumers.

As the unpublished finds from Levín suggest, even though Beroun production of slip-painted ware did not continue, other prominent pottery centres could have produced these goods with unchanged intensity. For the future, this information indicates that even earlier assemblages unprocessed thus far could in conjunction with an analysis of written sources provide additional unexpected information. We can only hope that it will be possible in the future to better process and connect this information and that the research tradition as well as the forgotten pottery tradition will receive the attention they deserve.

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# White Pottery in Early Modern Poland: Local Production or Regional Fashion?

Magdalena Bis

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## Abstract

The main aim of this paper is to draw attention to the most important research issues associated with so-called white pottery from the Early Modern period, which comes from archaeological excavations carried out in Poland. This type of earthenware was very popular, particularly in the 16th century and in the first half of the 17th century. It was produced mainly in southeast and central Poland, and vessels (predominantly pots) made of this material were characterised by good quality, a bright surface colour (white, beige, yellowish), the use of lead glaze (especially green, brown and yellow), as well as decoration that usually took the form of incised grooves and painted patterns (mainly lines).

One of the most important questions associated with the analysed pottery is the cause of its popularity. Where did this phenomenon come from? Is it possible to identify the provenance of the white wares and to recognise the features that characterize products from individual pottery production centres? Another issue is defining the market for the white pottery and trade routes for its distribution.

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🔑 *white pottery – modern pottery – earthenware – Poland – provenance*

## 1. INTRODUCTION

While the term ‘white pottery’ is used in Polish archaeological publications for both late medieval/post-medieval and early medieval vessels made of white clays. Early medieval pottery varies from later specimens based on the composition of the raw material and the manufacturing technique (see BUKO 2009). This paper refers specifically to earthenware made from white clays fired to a white, beige and yellowish colour of the surface and/or section of walls, so-called white pottery, found during archaeological excavations in the territory of modern-day Poland. The analysed pottery is dated from the Early Modern period – from the period between the 16th century and the mid-17th century (Figs 1, 2).

## 2. MAIN FEATURES OF EARLY MODERN WHITE POTTERY

Based on archaeological finds from numerous sites in Poland, we can identify several common features of Early Modern white pottery, as well as two different trends in pottery making at that time – conservative and more modern, which also indicates the presence of diverse workshop traditions. While pottery production techniques and style developed in the Late Middle Ages were still employed (especially during the first half of the 16th century), progressive features gradually began to prevail, together with the improving quality of the earthenware, and finally they dominated in the production of white pottery in the second half of the 16th and in the first half of the 17th century.



Fig. 1: White pottery from Solec nad Wisłą from the end of the 15th century – first half of the 17th century. Photo by W. Bis.



Fig. 2: White pottery from Płock from the 16th century (after TRZECIECKI 2016, 41, Fig. 9).

In the Early Modern period there were many functional types of pottery in use: pots, lids, jugs, bowls, frying pans, plates, mugs-beakers, and other vessels (bowl-shaped storage vessels, miniature dishes). However, in the case of white wares, the dominating type of vessels were pots. Not only they were the most mass-produced pottery wares, but also those with the most universal functions in everyday life. Pots usually had a maximum body diameter between the middle and two-thirds of

the height of the vessel and typically were medium-sized (with a rim diameter less than 20 cm), and the shape of the vessels (mainly pots and jugs) was rather slender. Some of them had handles (Figs 3, 4).

White pottery was probably manufactured from local clay deposits characterised by suitable physical properties – kaolinite clays or clays containing a small amount of ferrous oxides (colouring ingredient).

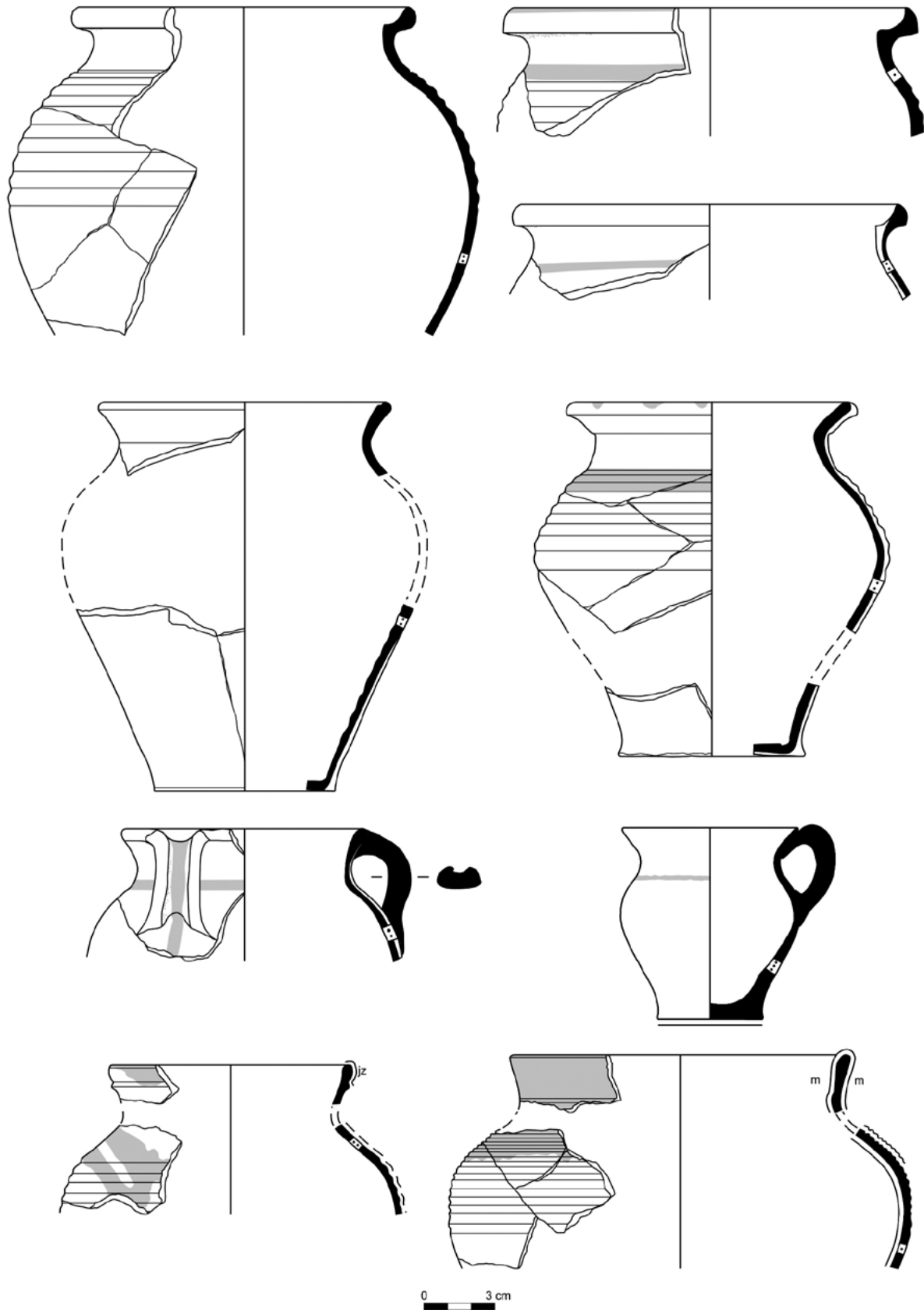


Fig. 3: White pottery from Solec nad Wisłą – examples of pots from the first half of the 16th century – first half of the 17th century. Drawing by M. Bis.

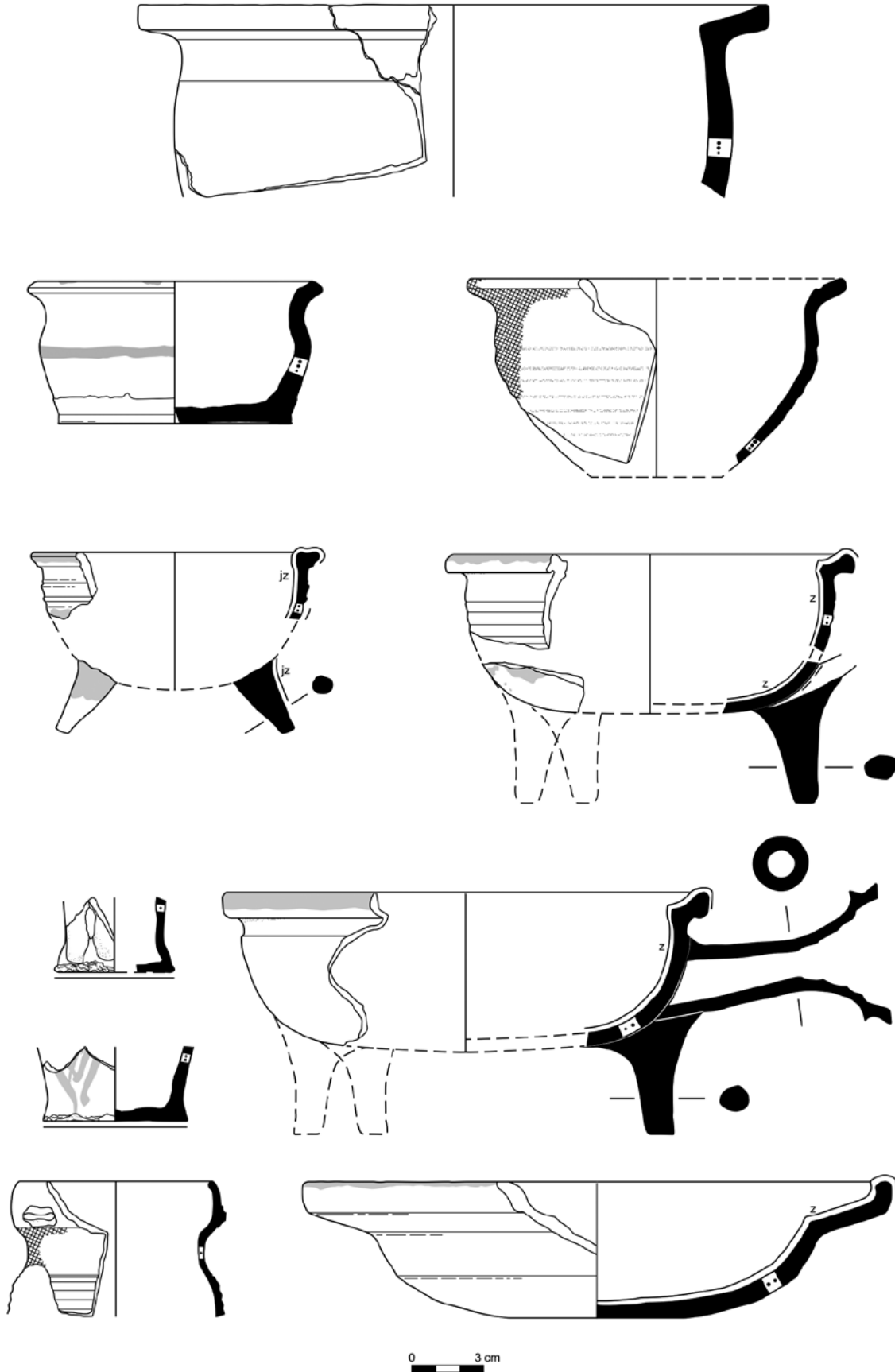


Fig. 4: White pottery from Solec nad Wisłą – examples of bowls, frying pans, mugs-beakers and plates from the first half of the 16th century – first half of the 17th century. Drawing by M. Bis.



Fig. 5: Painted ornaments and incised grooves on white pottery – examples of wares from Solec nad Wisłą from the end of 15th century – first half of the 17th century. Photo by W. Bis.

Sand was the main non-plastic temper in the ceramic pastes of all analysed vessels. Fine-grain and medium-size sand was the factor that facilitated the use of the coiling technique with which some of the vessels were manufactured. The percentage of coiled vessels was initially higher than wheel-thrown, but in the 17th century there was a clear growing trend to move production towards the latter technique.

Most of this category of finds are specimens fired in an oxidising atmosphere, although white pottery fired in a reductive atmosphere was also recorded.

The former method resulted in the production of bright white pottery, while the latter produced vessels of various shades of grey. The majority of earthenware is characterized by good firing.

The percentage of finds was usually smaller for decorated vessels than for undecorated items. In general, decorative motifs tend to concentrate in the upper part of the vessels (above their maximum body diameter). The largest group consists of vessels (mostly fired in an oxidising atmosphere) with painted ornaments (especially circumferential lines), rarely with other motifs (e.g. wavy lines,



slanting lines, plants). Mineral paints (composition of clay and compounds of iron) in orange, reddish, brown and grey colour were used for this purpose. Incised decorations were primarily represented by surrounding grooves of various forms and density (Fig. 5). The use of a roulette and a stamp on the surface of white vessels was also identified (particularly in combination with glaze). Another method of decoration, limited to vessels fired in a reductive atmosphere, was surface polishing.

Glaze was applied only on vessels fired in an oxidising atmosphere. The glaze was a lead type, in a whole range of colours: different shades of green, brown, and yellow. It was made from easily accessible colorants – compounds of copper and iron. The purpose of using glaze was twofold: as decoration and to make their walls less coarse and permeable. White pottery vessels were usually glazed on one side or on both sides, but in most cases the coating did not cover the whole vessel (except pans and plates, whose entire inner surface was glazed).

Only a small part of white pottery was used for the thermal processing of food (cooking, frying, roasting) or its preparation in a way that would leave permanent evidence visible during macroscopic analysis. Most wares were probably used as supplementary vessels and containers for the processing and storage of food or for serving and consuming meals and drinks.

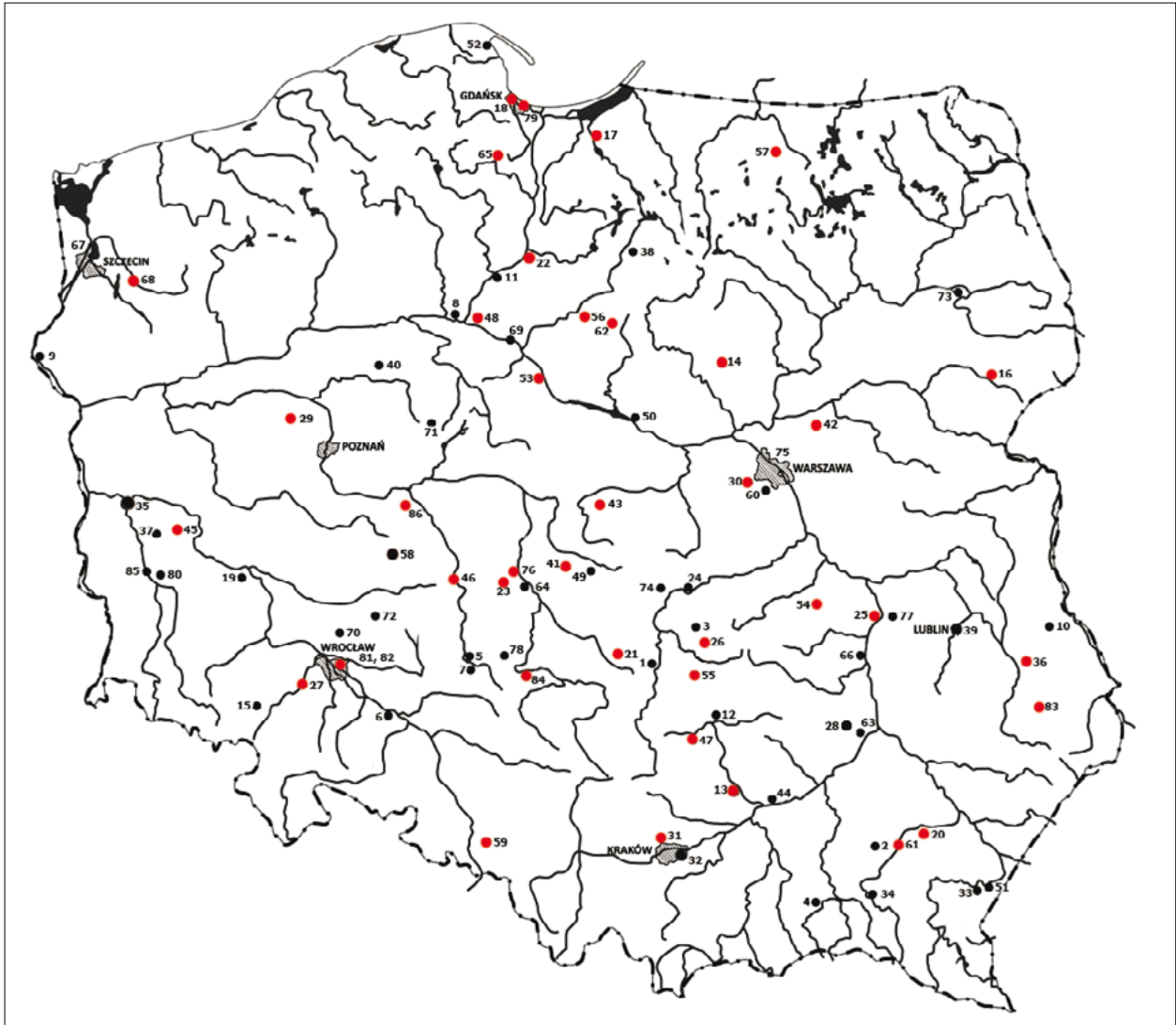
### 3. EXPANSION OF WHITE POTTERY

On the basis of archaeological publications, it has been established that white pottery from the Modern period was found in 86 towns, villages or settlements located in the territory of contemporary Poland. White vessels dating exclusively to the period from the 16th to the 19th century (but mainly from the 16th and 17th centuries) have been recorded in 38 cases. At the remaining 48 sites, archaeologists discovered both late medieval and post-medieval earthenware (dated between the 13th and 19th century, see Bis 2014, 59, fig. 27; CD, Table 4; these data were supplemented by the author on the basis of archaeological publications from 2013–2017; Fig. 6). In terms of the geographical distribution of white pottery, there is a noticeable trend – most of

the analysed finds were discovered in towns located in the territory of southwest, southeast and central Poland, while they were much less numerous in the north and northeast. In particular, they are concentrated in areas associated with known white pottery production centres from the Modern period and their surroundings: primarily in the former Sandomierz voivodeship (the most famous centres were Iłża, Ćmielów and Tarłów), in Sieradz and nearby Wieluń and Warta, in Lublin, and in Płock. This indicates that although pottery analysed in this paper was bought primarily in regions of their production by local inhabitants, these vessels were also widely distributed, probably transported overland, along trade routes and trails that functioned at that time. Possibly, white earthenware, together with other cargo, was transported down the Vistula River, as the presence of white wares in the towns along this most important Modern period water route is also clear.

The above data, as well as the percentage of white vessels recorded in pottery assemblages from various archaeological sites from the 16th and mid-17th century (around 20–90%), combined with evidence obtained from written sources, which mention that these products were transported in different directions and sold on various markets (collected e.g. in Bis 2014, 56–63, 170, 171), give us information about a significant increase in the number of white vessels in that period compared to the Late Middle Ages. Furthermore, there are some features that indicate imperfections in the white ware from Solec nad Wisłą (Bis 2014, 122, 123) and from Płock (TRZECIECKI 2000, 99, 100), which possibly resulted from the acceleration of the manufacturing process in order to increase the amount of products at the expense of their quality, which may be additional evidence of the growing demand for these wares.

Key features that are the basis for distinguishing white earthenware from other commonly found types of early Modern Period pottery, i.e. red ware, brown ware and grey ware, are: a bright surface colour, simple but characteristic ornamentation and good quality. These could be key factors that made white pottery so popular and created demand for these vessels, and thus made white pottery the subject of intensive trade not only locally



- |                           |                       |                  |                     |                     |
|---------------------------|-----------------------|------------------|---------------------|---------------------|
| 1. Bąkowa Góra            | 19. Głogów            | 36. Krupie       | 53. Raciążek        | 70. Trzebnica       |
| 2. Będziemyśl             | 20. Głuchów           | 37. Letnica      | 54. Radom           | 71. Trzemeszno      |
| 3. Białaczów              | 21. Gorzkowice        | 38. Lubawa       | 55. Radoszyce       | 72. Twardogóra      |
| 4. Biecz                  | 22. Grudziądz         | 39. Lublin       | 56. Radziki Duże    | 73. Tykocin         |
| 5. Bolesławiec nad Prosną | 23. Gruszczycy        | 40. Łekno        | 57. Reszel          | 74. Ujazd           |
| 6. Brzeg                  | 24. Inowłódz          | 41. Mikołajewice | 58. Rozdrażew       | 75. Warszawa        |
| 7. Byczyna                | 25. Janowiec          | 42. Niegów       | 59. Rudy            | 76. Warta           |
| 8. Bydgoszcz              | 26. Kazanów Stary     | 43. Nowy Gaj     | 60. Rusiec          | 77. Wąwolnica       |
| 9. Cedynia                | 27. Kąty Wrocławskie  | 44. Nowy Korczyn | 61. Rzeszów         | 78. Wieluń          |
| 10. Chełm                 | 28. Kleczanów         | 45. Ochla        | 62. Sadłowo         | 79. Wisłoujście     |
| 11. Chełmno               | 29. Komorowo          | 46. Ołobok       | 63. Sandomierz      | 80. Witków          |
| 12. Chęciny               | 30. Komorów           | 47. Oksa         | 64. Sieradz         | 81. Wrocław         |
| 13. Chroberz              | 31. Korzkiew          | 48. Ostromecko   | 65. Skarszewy       | 82. Wrocław-Zakrzów |
| 14. Ciechanów             | 32. Kraków            | 49. Pabianice    | 66. Solec nad Wisłą | 83. Zamość          |
| 15. Czechy                | 33. Krasiczyn         | 50. Płock        | 67. Szczecin        | 84. Zamłynie        |
| 16. Dubno                 | 34. Krosno            | 51. Przemyśl     | 68. Stargard        | 85. Żagań           |
| 17. Elbląg                | 35. Krosno Odrzańskie | 52. Puck         | 69. Toruń           | 86. Żółków          |

Fig. 6: Sites in Polish territories with recorded finds of white pottery from the Early Modern period (red dots) as well as from late medieval and modern times (black dots). Prepared by M. Bis on the basis of archaeological publications.



but also on superregional markets. For this reason, the growing demand for such products led to the increase in the number of the manufactured goods and pottery workshops, and the production of white pottery was also picked up quickly by other craftsmen in regions where this custom did not previously exist, probably in Krakow, Bydgoszcz, Malbork and Strzegom (Bis 2014, 54). The sudden increase in demand for this type of pottery is evidence of a fashion for such products at that time (e.g. KRUPPÉ 1973, 68–74; GAJEWSKA 1989–1990, 163, 164; KAJZER 2005, 10, 11; Bis 2014, 63, 64).

Consequently, the phenomenon of the growing popularity of white wares must have led to changes on the pottery market – competing against other traditional ceramic vessels and their manufacturers. It is even possible that in some cases white pottery could have posed a threat to local pottery workshops. For that reason, some potters started to copy features characteristic for white pottery and used them in more traditional wares, particularly in the case of pots. They primarily imitated shapes of vessels, their size and the type of decoration. This phenomenon has been confirmed in Płock (TRZECIECKI 2000, 96, 97, 99, 100) and Krakow (WAŁOWY 1979, 106) in the 16th century. In the case of Krakow, it was even possible to prove, on the basis of archaeological finds, that there was intentional production of counterfeits. In general, we can talk about ‘wandering ideas’ of specific patterns of forms and ways of producing white pottery in a wider area (GAJEWSKA 1989–1990, 164, 165; KAJZER 2005, 10, 11; Bis 2014, 60–64).

However, the situation rapidly changed in the second half of the 17th century, when we start to observe a much smaller percentage of white vessels among archaeological finds at various sites. This was a complex process presumably caused by unfavourable economic conditions and changes in Poland following the so-called Swedish Deluge (1655–1660) – which resulted in an economic crisis and sudden market changes. Another important factor was the decreasing role of ordinary clay vessels as ‘staple’ household items, as at that time they were systematically replaced by metal products and began to have only a limited use. Furthermore, in this period, i.e. from the second half of the 17th century, we notice changes in the fashion

(or ‘taste’) associated with pottery – another type of clay vessel, similar to the earthenware from the Werra region but manufactured in Poland – referred to in Polish literature as ‘pseudo-majolica’ – quickly gained popularity. This was also the time when the use of faience began to spread in Poland. It is possible that after a period of intense exploitation, some of the shallow deposits of the raw material necessary for the white pottery production were exhausted (e.g. KRUPPÉ 1973, 67, 72, 73; GAJEWSKA 1989–1990, 166; Bis 2014, 53–55). However, white vessels were still in use until the end of the 18th century, and white pottery is present in archaeological assemblages from that period. Its production continued locally until the 20th century, although on a much smaller scale, and in some regions (especially near Ostrowiec Świętokrzyski) has continued into the 21st century as ‘folk pottery’ (e.g. SKOTNICKA 2005).

#### 4. RESEARCH PROBLEMS

In Poland, white pottery from the Modern period and from the Late Middle Ages has not been a subject of archaeological interest or a topic of separate studies for many years. This situation has begun to change, especially in the last two decades, which resulted in several publications dedicated to these vessels (e.g. Bis 2005; 2008; 2014; BUKO/KAJZER 2005; TRZECIECKI 2000; 2016). One of the reasons for the existing research gap is the lack of archaeological excavations in centres of pottery production in which the so-called white pottery was manufactured (Płock being the only exception; TRZECIECKI 2000; 2017; Fig. 7). Currently, the only known (published) and discussed finds dated to the Modern period are those collected from towns that were only the recipients of such wares, mostly from Gdansk (ONISZCZUK-RAKOWSKA 2002; ONISZCZUK 2013), Janowiec (GAJEWSKA/KRUPPÉ 2017), Sandomierz (DĄBROWSKA ET AL. 1993; 1996), Solec nad Wisłą (Bis 2014), and Warsaw (STARSKI 2013; TRZECIECKI 2017).

Although there are many research questions that have been raised over the years, most of them are still far from being resolved – it is safe to say that our knowledge about white pottery finds is still insufficient and the list of questions associated with

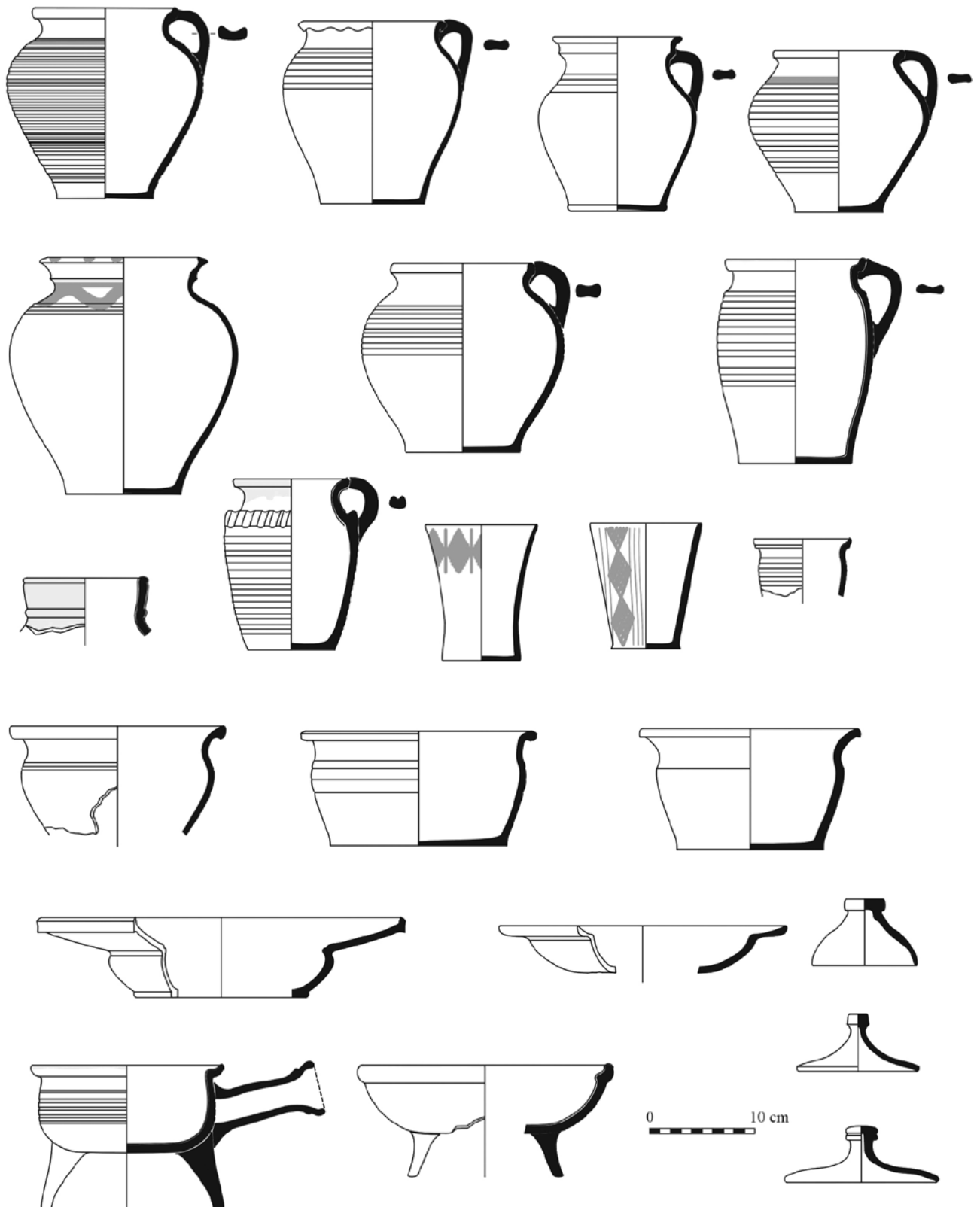


Fig. 7: White pottery from Płock – examples of pots, mugs-beakers, bowls, plates, frying pans, and lids from the mid-16th c. – mid-17th c. (after Trzeciecki 2016, 206, Fig. 87).



the pottery group discussed here is quite long. For instance, we do not know what exactly started the fashion for the discussed products in the Modern era. Whether we should associate their origin with foreign influences or whether the discussed white pottery was an independent product of craftsmen working in Polish lands are questions that remain unanswered. What was the significance of early medieval products in this process? Did Early Modern white pottery appear and conquer the markets

only after the appropriate technological level had been achieved? How can we thoroughly identify the provenance of white ware? Are there any features that characterise earthenware from each pottery production centre and how can we distinguish them from vessels produced in other areas of Poland? Another issue is the possibility of reconstructing the market for the white pottery and the trade routes for its distribution (KRUPPÉ 1973; KAJZER 2005; BUKO 2009).

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## Conclusion

White pottery was an important part of kitchen equipment as well as an attractive and desirable element of tableware in most households in the territory of Poland in the period from the 16th to the middle of the 17th century. It was one of the products offered by local craftsmen at nearby markets as well as one of the commodities of long-distance trade, transported to further centres especially by water routes. Earthenware possibly reached towns in large quantities at that time and constituted cheap and common enough items to be available to a wide group of buyers. The size, shape, proportions and technological properties of the most common wares seem to be optimal and provide for versatile functions.

Many research problems indicated in this paper may only be explained by further archaeological excavations, including the undoubtedly essential work to be carried out in areas associated with historic pottery making, as well as historical studies on this branch of craftsmanship and on the trade in ceramic goods. In order to indicate the specific character of the local white pottery production and establish its distinctive properties, white vessels from different sites in Poland should be studied more thoroughly. In order to do so, it is necessary to carry out a precise analysis of these finds, including their morphological attributes and technological features as well as a comparison of results of such research. Establishing whether finds from different sites may come from one or many production centres may also be made possible on the basis of physical and chemical tests on the wares. Laboratory tests could supplement macroscopic observations (see BIS 2005; 2008; 2014).

The remarkable character of the white pottery from the Early Modern period means that this is undoubtedly a phenomenon worthy of meticulous analysis and further research.

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# 'Medieval' Greyware in Post-medieval Northeast Poland. Backwardness or *Genius Loci*?

Maciej Trzeciecki

## Abstract

The appearance of greyware vessels is a material constituent of profound civilization changes that took place in central and Eastern Europe on the eve of the Late Middle Ages. Successively, their decline symbolically closes the medieval period. Pottery assemblages from the border zone between Poland and Grand Duchy of Lithuania do not correspond to this image. Although greyware vessels appear here even in the Late Middle Ages, they become commonplace in the 16th–18th century. New technical qualities from the Late Middle Ages forms a distinct stylistic field, with grey tableware decorated with burnishing being one of the most characteristic attributes. Despite the Industrial Revolution in the 19th century, the tradition of the production and use of vessels fired in a reducing atmosphere has survived up to the present day.

— post-medieval pottery – greyware – Polish lands – pottery stylistics – technology transfer

## 1. INTRODUCTION

The dawn of the Late Middle Ages in the vast territories east of the Elbe River is associated with the process known as *melioratio terrae*, stimulated by the mass migration of settlers from the German Empire upon invitation by the rulers of central European lands. The newcomers introduced their own legal norms, ways of economic activity, and overall patterns of culture and social life, which they reproduced in colonised areas and successively transmitted to the local populations (GAWLAS 2005; PIEKALSKI 2007; with refs.). Known as 'greyware',<sup>1</sup> ceramic vessels fired in a reducing atmosphere are among the most prominent material constituents of such a profound civilisational change (KRUPPÉ 1981, 51ff; DZIEDUSZYCKI 1997; RĘBKOWSKI 2001, 197–212).

1 Definitions of the ware groups mentioned in the text – see: ERDMANN ET AL. 1984; ONISZCZUK 2013, 22–27; TRZECIECKI 2016a, 39–42; with refs.

Medieval pottery fired in a reducing atmosphere found in the Polish lands was recognised quite early as an indicator of the Late Middle Ages. After the Second World War, along with large excavations in historical towns, greyware gained the status of a 'type fossil' of late medieval layers (KRUPPÉ 1981, 84ff; KAJZER 1994). Until recently, pottery sets with a relatively high share of greyware vessels have been referred, in some way automatically, to the 14th–15th century. Thus, the presence of greyware among post-medieval pottery assemblages was considered a factor of technological and/or economic 'backwardness', apart from local cultural contexts (HOŁUBOWICZ 1950, 74ff; GAJEWSKA 1990, 166–169). A 'paradigm shift' began with large-scale rescue excavations carried out in the last two decades in the centres of historical towns, on motorways and pipelines that yielded enormous quantities of finds and forced archaeologists to undertake

in-depth studies on the post-medieval or even recent past. Today, leaving aside ‘big narratives’ on linear development of pottery-making techniques, we place emphasis on local stylistic patterns and their bonds with local identities (ONISZCZUK 2013; POLAK/TRZECIECKI 2016; TRZECIECKI 2016b).

Adaptation and the broad spread of reducing firing in the territory of the former Duchy of Mazovia (independent until 1526) and neighbouring parts of Black Ruthenia, today known as Podlachia, can serve here as an example of connections between large-scale stylistic phenomena and local social or cultural discourses. In the 16th–18th century, the aforementioned provinces formed a border zone between the Kingdom of Poland and Grand Duchy of Lithuania – two states forming the Polish-Lithuanian Commonwealth. It was also – and still is – a meeting point of Western (Latin) and Eastern (Orthodox) civilizational circles, which exerted a strong influence on both local identities and local patterns of material culture (BARFORD ET AL. 1991, 148–152; BARWIŃSKI 2014, 287ff). Surprisingly, the multifaceted cultural and ethnic landscape of Mazovia and Podlachia in the mainstream historical discourse has long been adduced as an example of the backward peripheries, where archaic social and economic structures have survived untouched up to the present time (BARFORD ET AL. 1991, 152–159; SAMSONOWICZ 2006). Only recent excavations, bringing to light the richness and complexity of medieval and post-medieval material culture of Mazovian towns and manors, have led to a rethinking of this assertion. Hence, the investigation on the archaeologically detectable process of adaptation and the spread of a particular craft technique regarded either as a factor of civilizational advancement (in the late medieval context) or backwardness (in the post-medieval period) challenges hitherto definitions of ‘progress’ and ‘retardation’.

## 2. GREYWARE IN THE NORTHEAST POLAND

Given the current state of knowledge, particularly the limited number of publications from recent excavations, the comprehensive characteristics of pottery manufactured and used in Mazovia and

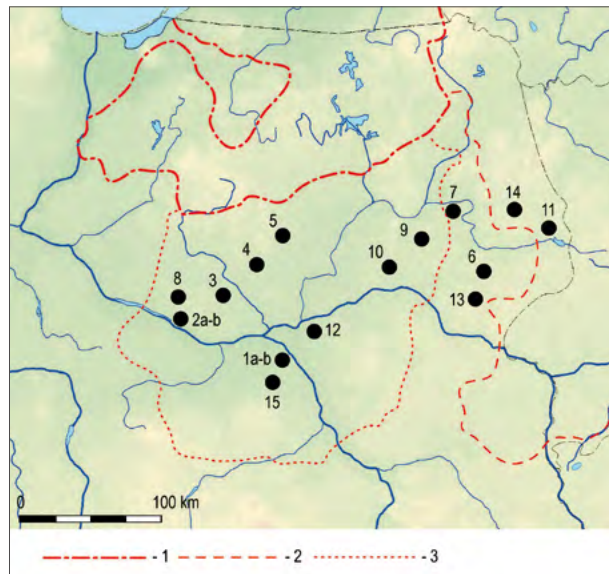


Fig. 1: Location of the archaeological sites included in the analysis. Numbers on the map refer to Table 1 and 2. 1 – frontier of the Polish-Lithuanian Commonwealth in the 16th–18th century; 2 – internal frontier between Poland and the Grand Duchy of Lithuania after 1569; 3 – Duchy of Mazovia in the 15th century.

Podlachia between the 16th and late 18th century remain unattainable (BIS/BIS 2012).

The following text is focused on assemblages from 14 archaeological sites investigated over the last 40 years, the majority of them published in quality form (Fig. 1). Of fundamental importance are sets of post-medieval pottery from two main towns of Mazovia – Warsaw (TRZECIECKI 2017a) and Płock (TRZECIECKI 2016a) – chartered around the year 1300. Assemblages from local towns established in the early 15th century, i.e. Płońsk (SMOLIŃSKI ET AL. 2010), Ciechanów (TRZECIECKI/AFFELSKI 2016, 173–182), Przasnysz (SMOLIŃSKI/TRZECIECKI 2010), along with Bielsk Podlaski (PAWLATA 2015, 248–256), located on the eastern border of Mazovia and chartered in the early 16th century, form a significant group. Rural manors – seats of the gentry – and the palatial residences of the aristocracy were among the crucial elements shaping the cultural landscape of the post-medieval Polish-Lithuanian borderland. Pottery sets from manors are represented here by finds from Proboszczewice near Płock (MARCINIAK-KAJZER 1994), and gentry residences in eastern Mazovia: Niegów (TRZECIECKI 2017b), Zambrzyce



No. (Fig. 1)	Site name	Site type	Pottery assemblage				Total
			traditional ware	grey-ware	red- and white-ware	other ware-groups	
1a	Warszawa	town	1.1	17.92	76.56	4.42	100
2a	Płock	town	1.77	39.16	59.01	0.06	100
2b	Płock	castle	13.44	37.42	48.71	0.43	100
3	Płońsk	town	0.44	79.37	20.12	0.07	100
4	Ciechanów	town	2.39	68.07	27.89	1.65	100
5	Przasnysz	town	0.65	57.68	41.45	0.22	100
6	Bielsk	town	10.28	82.14	7.01	0.57	100
7	Tykocin	castle	44.63	37.48	17.89		100
8	Proboszczewice	manor	8.02	51.52	38.55	1.91	100
9	Zambrzyce	manor	82.08	12.91	5.01		100
10	Brulino-Koski	manor	73.52	26.48			100
11	Leonowicze	village	92.15	7.31	0.54		100

Table 1:

Percentage of ware groups in the assemblages from chosen post-medieval archaeological sites in Mazovia and Podlachia, mid-16th–early 17th century.

No. (Fig. 1)	Site name	Site type	Pottery assemblage				Total
			traditional ware	grey-ware	red- and white-ware	other ware-groups	
1a	Warszawa	town		9	84.93	6.07	100
1b	Warszawa	castle		3.49	72.68	23.83	100
2a	Płock	town		22.58	74.24	3.18	100
5	Przasnysz	town		38.24	61.6	0.16	100
8	Proboszczewice	manor		50.91	44.75	4.34	100
12	Niegów	manor	0.54	54.04	44.77	0.65	100
13	Dubno	manor	0.16	85.61	9.64	4.59	100
14	Białystok	manor	6.73	62.67	15.67	14.93	100
15	Rusiec	village		41.2	58.8		100

Table 2:

Percentage of ware groups in the assemblages from chosen post-medieval archaeological sites in Mazovia and Podlachia, late 17th–18th century.

(TRZECIECKI/AFFELSKI 2017, 178–192), Brulino-Koski (MUSIANOWICZ 1975). Assemblages from the farmsteads accompanying aristocratic residences in Białystok (PAWLATA 2013, 130–154) and Dubno (GARAS/KARWOWSKA 2013) have also been included. The next group consists of pottery sets from castles – royal residences and centres of the state administrative structure, among them vessels from Płock (TRZECIECKI 2016a), Tykocin (AUCH/TRZECIECKI 2015) and Warsaw (SEKUŁA 2004). Regarding the relatively poor state of investigation of post-medieval peasant villages, pottery sets from only two sites – Rusiec in Mazovia (MORYSIŃSKI 2005) and Leonowicze in Podlachia (GOŁEMBNIK

ET AL., in press) – are discussed here.

The analysis presented here is limited to a comparison of the percentage of greyware vessels in the chosen assemblages, in two chronological horizons encompassing the second half of the 16th–early 17th century (**Table 1**) and the late 17th–18th c. (**Table 2**). The scores also include the percentages of two other ware groups present in the assemblages: so-called traditional ware (or brownware) representing local early medieval pottery-making traditions, and post-medieval vessels fired in an oxidizing atmosphere (red- and whiteware). The group labelled as ‘others’ comprises fine pottery (stoneware, slipware, faience, and porcelain),



which appear in relatively small amounts in the assemblages discussed here. Data on the local production of greyware in the 19th and 20th centuries taken from ethnographic sources serve as an indispensable supplement to the archaeological analysis (HOŁUBOWICZ 1950; CIEŚLA-REINFUSOWA 1954; GŁOWA 1955; CIESIELSKI 2004).

The introduction of greyware is inextricably tied to the urbanisation of Mazovia that began around 1300 and reached its apex in the following century. Pottery assemblages from all the towns established by the dukes of Mazovia are characterised by a considerably high share of greyware, in particular cases reaching almost 100% (TRZECIECKI/POLAK 2017, 212–219). In contrast, greyware can hardly be found in the rural area in either villages or ducal residences, where vessels inheriting local early medieval traditions predominate, at least up to the 16th century (GOŁEMBNIK 1978, 288–290; MORYSIŃSKI 2004; TRZECIECKI 2016a, 138, 198–201). In the second half of the 16th century, the share of grey vessels in Mazovian towns remains on a very high level (Table 1). It varies between 87% for assemblages from Płońsk and 49% for pottery sets from Płock. Vessels fired in a reducing atmosphere represent all of the categories of kitchen- and tableware, although they dominate in the latter group, particularly among jugs, drinking cups and plates (Figs 2, 3/1–12). The share of grey vessels is also significantly high in new towns founded in the 16th century by Polish-Lithuanian kings, e.g. Bielsk Podlaski (82%). The data from towns located eastwards in the territory of today's Belarus are in relatively short supply, though given the information published we can assess that in the course of the 16th century greyware vessels also appear in old local centres inheriting traditions of Kievan Rus, e.g. Grodno, Pinsk and Brest'. Noticeably, their share is relatively small, and the set of forms is limited to tableware (TRUSAU ET AL. 1993; GANECKA 2004; with refs.).

The composition of pottery sets from Warsaw stands out in the entire area discussed here (Fig. 2/12–17). Although up to the mid-16th century the share of grey vessels reached 80%, it rapidly decreased down to 17% in the second half of the century, probably as a result of the radical economic and demographic changes in the new capital

city of the Polish-Lithuanian Commonwealth that attracted new settlers from the entire kingdom. Population growth was accompanied by increasing demand for cooking and table vessels, which was met by imports, primarily of glazed white pottery from Lesser Poland via the trade route of the Vistula River (Bis 2014, 55–66).

The volume of data on the pottery assemblages in the rural interior of Mazovia is relatively small. Nonetheless, we can ascertain with a high degree of probability that the appearance of greyware is associated with the intense colonisation of rural areas carried out by the Mazovian gentry in the 15th–16th century. However, it must be stated that at least in the 16th century the share of grey pottery was relatively small, as evidenced by the assemblages from manors in Zambrzyce and Brulino-Koski. Vessels fired in a reducing atmosphere also appear in peasant villages established in the 16th century in the royal estates in the territory of Podlachia but in very small quantities (Table 1). Greyware sets from the hinterland are predominated by table vessels – jugs and drinking cups – forms alien to local pottery-making traditions. The basic volume of finds from the aforementioned manors and villages still consists of 'traditional' brownware pots, sometimes imitating forms of 'urban' grey vessels. A slightly different share was registered in the pottery set from the manor house in Probo-szczewice near Płock, with the share of greyware reaching almost 50%. The most probable explanation is the proximity of Płock, where the large-scale manufacture of greyware vessels had been carried out since the 14th century.

Percentages of pottery fired in a reducing atmosphere from assemblages obtained in royal castles are between proportions established for towns and rural areas. The castle in Płock, the capital of the province in the 16th century, with pottery sets comprising 37% greyware, mostly jugs and drinking cups, can serve as an example. The share of greyware from the royal castle in Tykocin, located on the border between Poland and Grand Duchy of Lithuania, is approximate (Fig. 3/13–16). Given the specificity of pottery assemblages, the case of Tykocin merits particular attention, as it encompasses a mixture of local 'Ruthenian' traditional pots and 'Mazovian' grey jugs and drinking cups

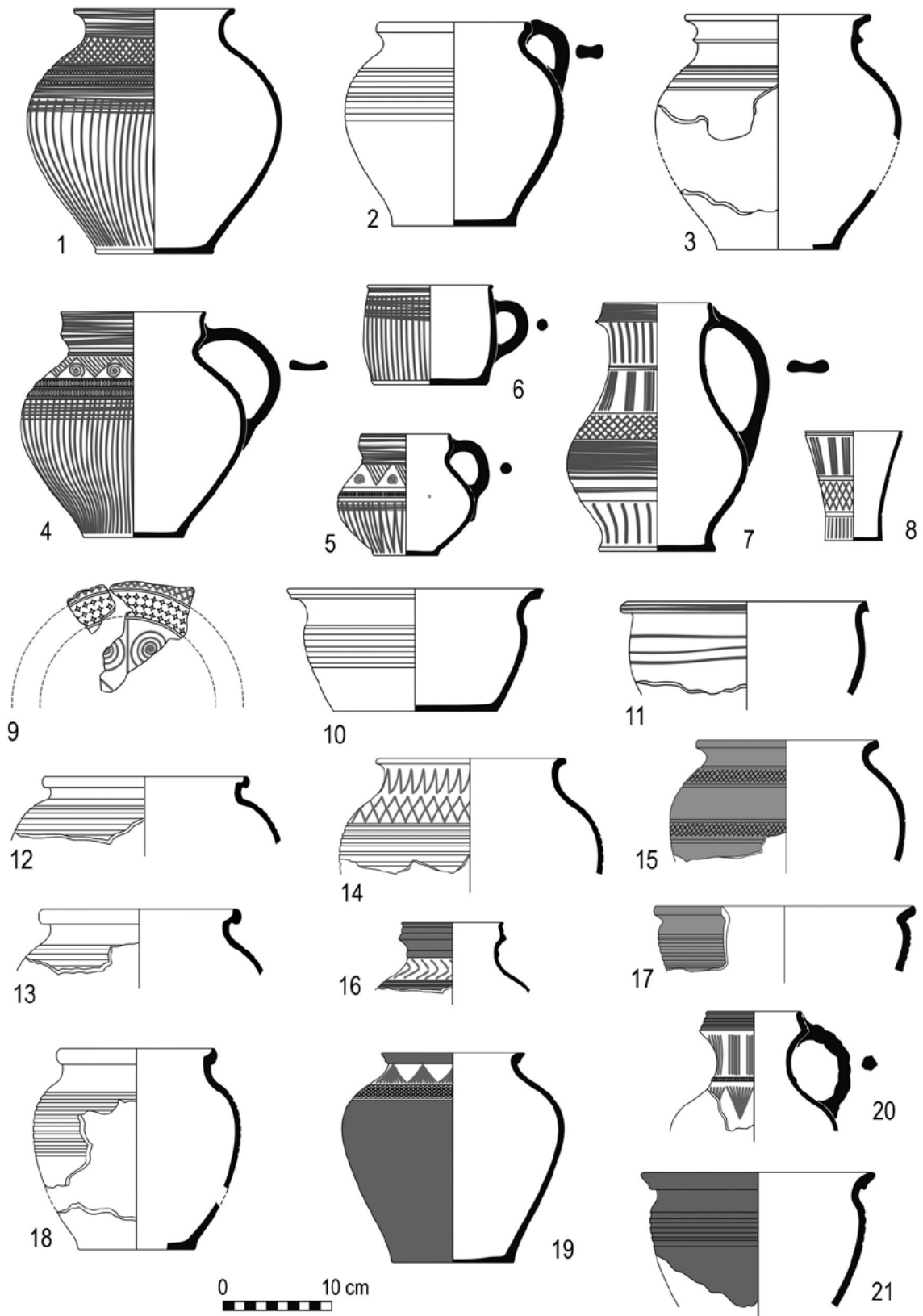


Fig. 2: Selection of greyware vessels from the second half of the 16th–early 17th century: Płock (1–11), Warsaw (12–17), Ciechanów (18–21).

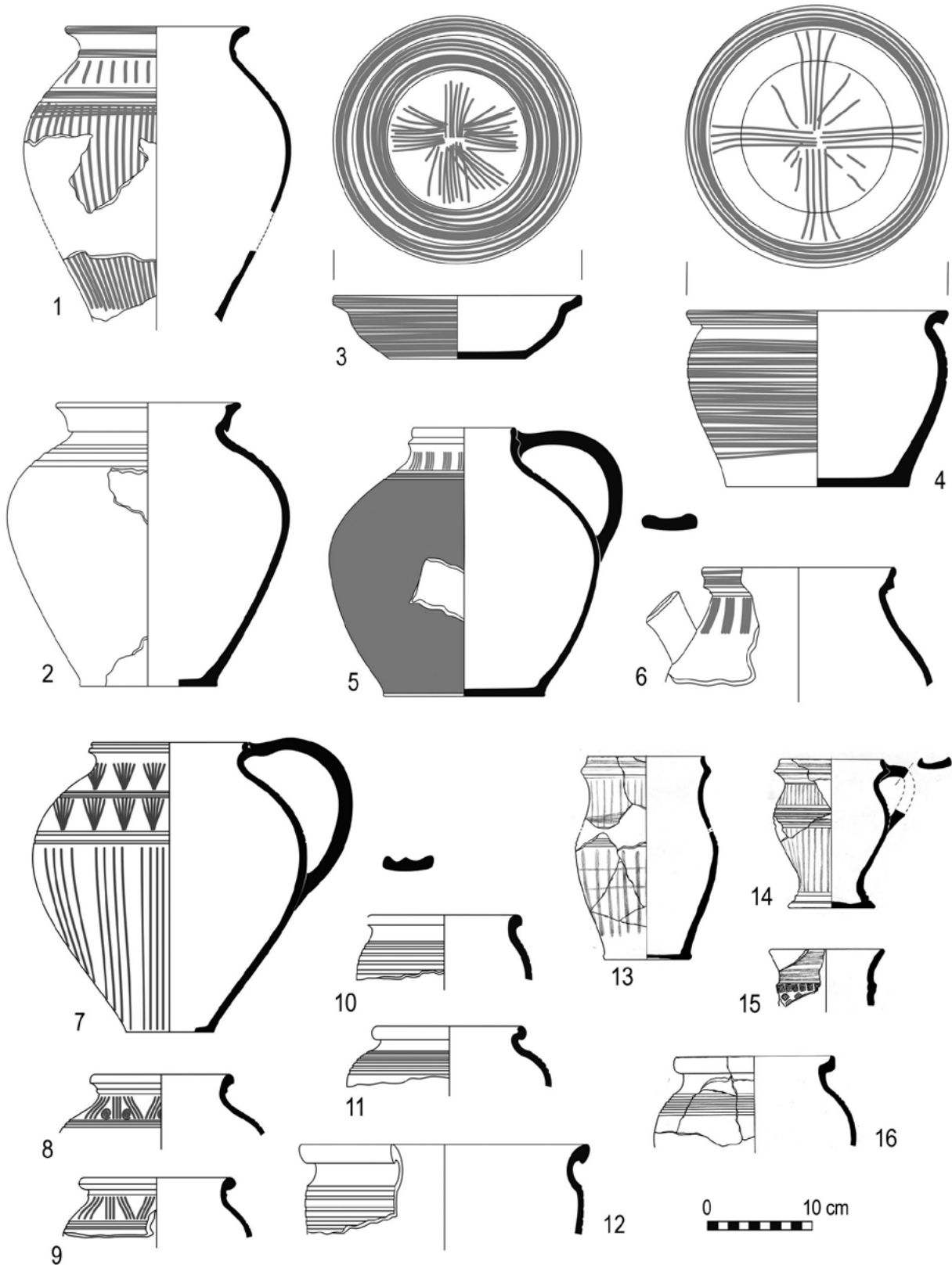


Fig. 3: Selection of greyware vessels from the second half of the 16th–early 17th century: Płońsk (1–6), Przasnysz (7–12), Tykocin (13–16).



Fig. 4: Greyware drinking cups decorated with stamped ornament, second half of the 16th–early 17th century: Płock (1–4), Tykocin (5–8), Warsaw (9–12).

(AUCH/TRZECIECKI 2015, 218–225).

It should be stressed here that 16th century greyware vessels, despite their original contexts (town, castle, village, manor), form a highly uniform group in terms of technology, the formal variation of vessel shapes and decorative patterns. A vast majority of them were manufactured with the help of the slip-band technique, and the share of fully thrown vessels is marginal, even in the prominent centres. The most popular decorative technique is

burnishing, with a discernible tendency to create complex patterns arranged in horizontal zones (Figs 2/1, 4–9, 11, 14–17, 19–21; 3/1, 3–9, 13–15). It should also be noted that, despite conservative ‘medieval’ techniques of forming and firing, the range of forms corresponds to most popular types of post-medieval red- and whiteware or even imitate fine pottery. Noticeably, there are certain groups of vessels that seem to be specific both to particular production centres and to the entire region. Among them, highly decorated jugs man-



ufactured in Płock (**Fig. 2/4–8**; TRZECIECKI 2016a, 158–159; 203–209), bowls with the cross motif from Płońsk (**Figs 3/3, 4**), and drinking cups decorated with stamp ornament inspired by so-called ‘Falke group’ stoneware vessels (**Fig. 4**; PELA 1997; STEPHAN/GAIMSTER 2002, 140–150; TRZECIECKI 2016a, 211; AUCH/TRZECIECKI 2015, 213), draw particular attention.

In the course of the 17th and 18th centuries, the share of grey vessels in Mazovian towns decreased, though our reference inventory is limited to a few assemblages, mostly due to the state of publication. The ratio of greyware and other groups of ware varies from 38% in Przasnysz to 9% in Warsaw (**Table 2**; **Figs 5**; **6/1–5**). It seems that the smaller the town, the higher the share of greyware vessels. Interestingly, the decrease of greyware pottery in towns is accompanied by its growth in rural areas (**Table 2**). The pottery set from the manor house in Niegów (**Fig. 6/6–11**), with a share of greyware reaching 54%, along with assemblages from aristocracy residences in Białystok (63%) and Dubno (85%; **Fig. 6/12–15**) in Podlachia, can serve as an example. The structure of pottery in use in 18th-century peasant villages is relatively poorly recognised. However, we can mention the assemblage from Rusiec (western Mazovia) with a share of greyware equal to 41%. Analysing the variety of forms dated to this period, we can discern a gradual limitation of the array to three main types – jug, pot and plate. Burnishing remained the most popular decorative technique, though patterns are evidently simplified, with a prevalence of vertical and slanted lines or bands covering the entire vessel body (**Figs 5/6, 11, 14, 15, 17**; **6/2, 6, 7, 10–15**).

On the eve of the 19th century, greyware comprised merely a fraction of pottery assemblages in Mazovian towns – 4% in Płock and less than 3% in Warsaw (TRZECIECKI 2016a, 222, 223; 2017a, 281, 282). The sudden revival took place on the eastern fringe of Podlachia, with the opening of several pottery workshops manufacturing greyware in peasant villages located in the upper Narew River basin. The workshops focused on the mass production of specialised forms for the storage and transportation of milk. Potters worked mainly for numerous dairy farms emerging at the beginning of the 19th century in the territory of the semi-in-

dependent Kingdom of Poland, supplying milk and other dairy products to developing towns in the era of the Industrial Revolution. Such vessels remained in use up to the early 20th century, when they were gradually replaced by factory-made metal milk containers (CIEŚLA-REINFUSSOWA 1954, 274–282; FRYŚ-PIETRASZKOWA 1994, 16, 17). Apart from vessels for storing milk, potters active in villages and small towns of Podlachia manufactured certain amounts of cooking vessels, among them specialised forms designed to prepare dishes for various religious feasts of the local Jewish population (FRYŚ-PIETRASZKOWA 1989, 161–163; GOLDBERG/MULKIEWICZ 1989).

Greyware manufacturing collapsed after the Second World War, mostly due to the annihilation of the two main groups of customers, i.e. owners of private dairy farms and the entire Jewish population. But a few of workshops survived, and their products found their way to Polish towns thanks to the fashion for ‘folk art’. Greyware flower pots manufactured in Podlasie and repeating forms of traditional pots and jugs became popular both as an element of apartment décor and a specific form of funeral pottery, still present at Polish cemeteries (FRYŚ-PIETRASZKOWA 1994, 17, 18). After a temporary collapse in the early 1990s, a couple of potters are still in operation, supported by the growing demand for ‘localness’ and ‘authenticity’, a bond with the reconstruction of local identities destroyed by social experiments in the communist era. Today, the oldest greyware manufacturing centre, in operation continuously since the late 18th century, is Czarna Wieś Kościelna near Białystok, with three workshops receiving support both from heritage institutions, local government and non-governmental organizations. In recent years, the production of grey pottery has become not only a tourist attraction but also an important element constituting the local ‘Podlachian’ identity (CIESIELSKI 2004, 35ff; GAWĘŁ 2014).

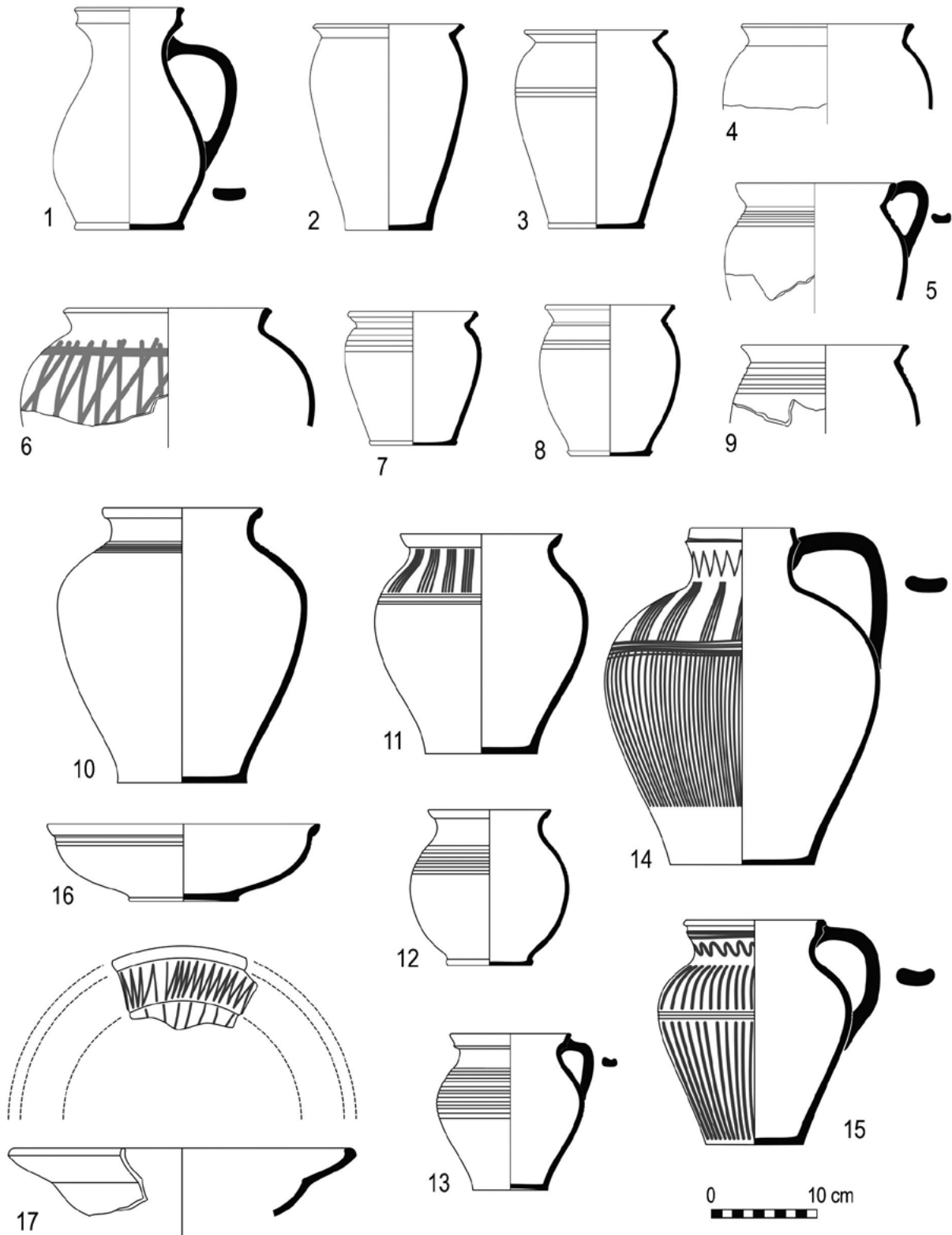


Fig. 5: Selection of greyware vessels from the late 17th–18th century: Warsaw (1–9), Płock (10–15).

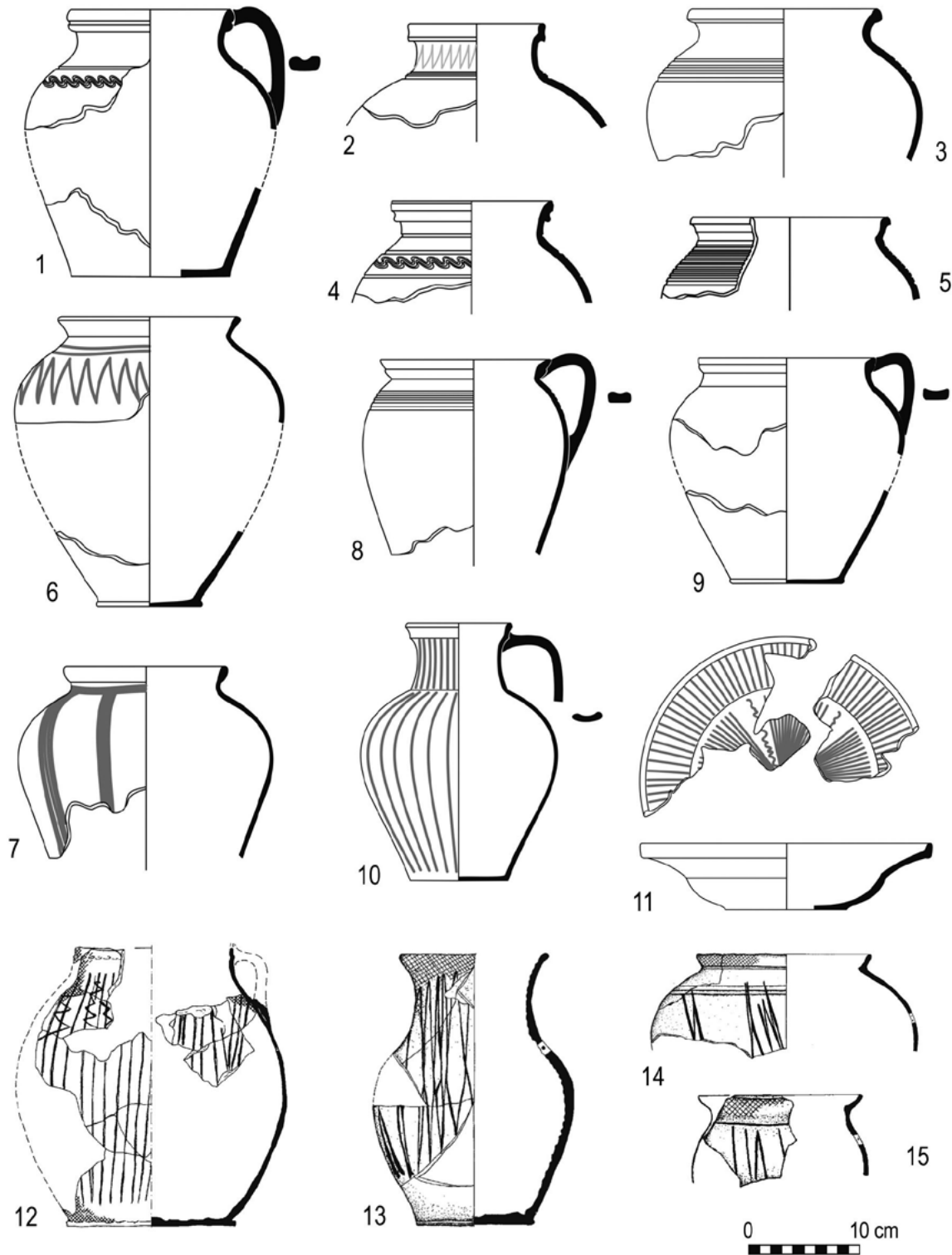


Fig. 6: Selection of greyware vessels from the late 17th–18th century: Przasnysz (1–5), Niegów (6–11), Dubno (12–15).



## Conclusion

Finally, some basic conclusions drawn from the data sets discussed here should be highlighted. First and foremost, there is a clear relationship between the mass production of greyware and the emergence of towns chartered on the so-called German Law. The percentage of grey vessels in Mazovian towns remained at a very high level, particularly compared to neighbouring territories. The spread of this ware group in the rural area is, in contrast, very slow, irrespective of the character of the particular site – royal castle, manor, or peasant village. When considering the dissemination of greyware in the Mazovian hinterland, the distance between the given site and the nearest town seems to be of key importance. Differences between shares of grey vessels in assemblages from the 16th to 18th century indicate that the decline of reducing firing progressed gradually from the west, along with – paradoxically – the spread of greyware production and use in the eastern parts of the area discussed here.

Vessels fired in a reducing atmosphere appeared in the area east of the Vistula River in the Late Middle Ages along with the urbanisation process, as it was one of the essential elements of new, ‘urban’ (or ‘colonial’) material culture. In the course of the 16th century, ‘Mazovian’ greyware acquired the characteristics of a separate stylistic group distinguishing the entire region (burnished patterns on jugs and bowls, stamped motifs on drinking cups). For a long time, reducing firing remained an ‘urban’ phenomenon, which may indicate the existence of technological, social and cultural barriers hindering its spread (TRZECIECKI 2016a, 199ff). Mass production of greyware vessels in the hinterland began on the eve of the 19th century. Surprisingly, it survived up to the present time, despite the collapse of traditional crafts, to become a local attraction and integral part of Podlachian cultural landscape.

The phenomenon discussed here eludes simple interpretations that focus on a gradual technology transfer from civilization centres to the backward peripheries. Specific features of pottery assemblages from the studied area refer to interactions that emerged in the contact zones of different social and cultural discourses. Such questions undoubtedly deserve a comprehensive research program that tracks down technological, stylistic and cultural connections of pottery production from the long-term perspective.

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# The Topographical Distribution of Chinese Porcelain Sherds in Ottoman Buda and Eger Castle and its Implications

Tünde Komori

## Abstract

The Ottoman occupation of Hungary (1526–1699) resulted in changes to the urban topographies of the occupied area. Chinese porcelain, unquestionably a luxury product connected to the upper layers of Ottoman society, can be used as the basis for examining the new material culture brought by the Ottomans in the occupied towns. As Hungary was a remote and peripheral yet strategically crucial part of the Ottoman Empire, the presence of Chinese porcelain in such a military-based region provides an opportunity to study the social group with which this type of material culture is connected. The archaeological distribution of Chinese porcelain could possibly be used to reconstruct the connections of this remote province to the centre of the Empire, along with the possible trading routes and distribution patterns of the goods traveling from Anatolia to Buda and Eger. The comprehensive examination of the porcelain assemblages of Ottoman Buda and the Castle of Eger showed intriguing patterns in the distribution of the sherds, implying that this type of material culture might serve as an indicator for detecting their users, identifying their origin and following their route of movement from their production site to the point of disposal.

— Ottoman Hungary – Chinese porcelain – archaeology – trade networks – object movements

## 1. INTRODUCTION

Chinese porcelain today is a less-known part of the material culture of the Ottoman period in Hungary. After the Second World War, overall excavations of the Buda Royal Palace took place between 1948 and 1964, during which more than 500 Chinese porcelain fragments were unearthed. While some of these finds have been published in Imre Holl's summaries on imported ceramics in Hungary during the Middle Ages and Early Modern period (HOLL 2005; 2006), no comprehensive study of assemblages has been attempted. After the excavations in Buda, porcelain was unearthed at several other sites, including Eger Castle, which produced the second largest assemblage known to date in Hungary. One of the earliest publications of Chinese porcelain was in the context of the exca-

vations at Eger Castle in the 1960s (KOZÁK 1963). This publication already recognized Chinese porcelain as part of Hungarian material culture. Starting in the second half of the 1980s, the newly unearthed Chinese porcelain pieces were published with increasing frequency, but in general only with short descriptions and a broad dating.<sup>1</sup> Besides clarifying their identification and dating, the comprehensive analysis of the Chinese porcelain finds from Ottoman Buda and Eger Castle, the two largest assemblages in Hungary, also raised further research questions, some of which are explored in the present paper.

<sup>1</sup> For a detailed bibliography of Chinese porcelain finds in Hungary, see: KOMORI 2014.

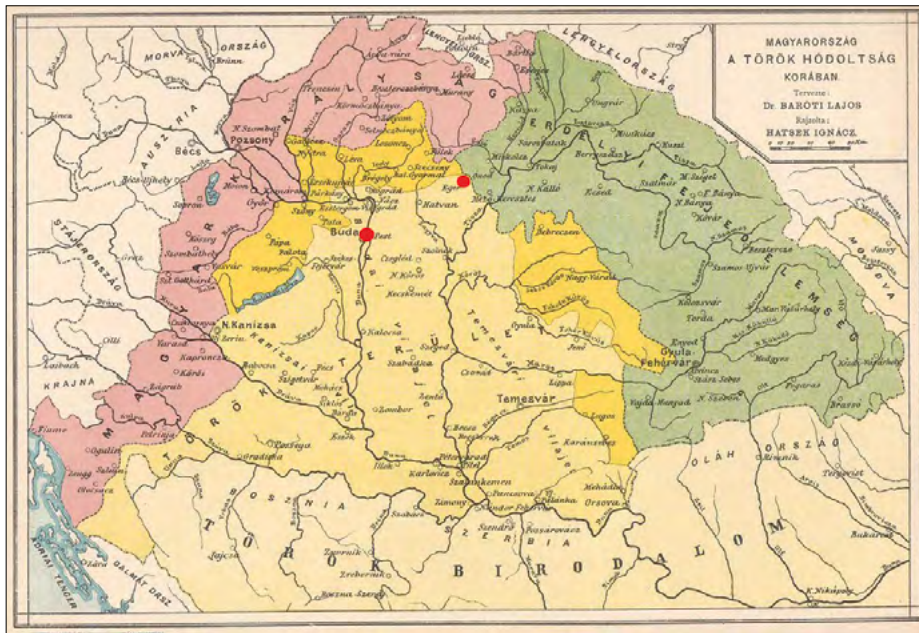


Fig. 1: Hungary during the Ottoman period. Map designed by Lajos Baróti PhD, drawn by Ignác Hátsek (after SZALAY 2002).

## 2. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The Ottoman occupation in Hungary lasted from 1526 to 1699 and meant constant battles between the Ottoman troops and the Hungarian and Habsburg forces as they struggled for control of fortresses and towns within the territory of historical Hungary. The map below (Fig. 1) depicts the territory of the medieval Hungarian Kingdom during the Ottoman occupation, demonstrating the border position of Hungary within the Ottoman Empire, representing its western- and northernmost territory. This geographical position defined the military role of Hungary as a borderline of the empire as well as a starting point for further westward campaigns, especially aiming at occupying Vienna. Buda and Eger, the two most important administrative towns and *vilayet* centres in Ottoman Hungary, had a strategically central role, which is reflected in the historical and archaeological data regarding the two settlements.

### 2.1 BUDA DURING THE OTTOMAN PERIOD

The Ottoman expansion was already a threat for the Hungarian Kingdom during the reign of King Matthias (1458–1490), but it became reality after the Battle of Mohács in 1526, when the Ottoman troops overthrew the Hungarian army of Louis II Jagello, who also died during the battle. After Mohács, Sul-

tan Suleiman only occupied Buda in 1541. After the occupation, the town became the centre of the Buda *vilayet*, the northernmost administrative division of the Ottoman Empire, therefore its primary function was military, and everything was subordinated to this role (ÁGOSTON/SUDÁR 2002, 6). Gradually the topography of the Castle Hill was transformed. The medieval royal palace and its surroundings were inhabited by the soldiers of the garrison, and in 1598 the pasha moved up to the Castle Hill from the banks of the Danube, next to the former royal palace (ÁGOSTON/SUDÁR 2002, 7). The janissary agha resided at the northern end of the Castle Hill, in the vicinity of today's Bécsi Kapu Square (Fig. 2). Excavations on a larger scale were carried out in the Buda Royal Palace right after the Second World War by László Gerevich and Imre Holl between 1958 and 1961 (GEREVICH 1966). After this major project, smaller excavations occurred throughout the present-day Castle District and in the Víziváros, which still continue. The latest up-to-date summary of the archaeological and historical data was published by András Vég (VÉGH 2015).

### 2.2 EGER CASTLE IN THE OTTOMAN PERIOD

Eger Castle was strategically and administratively important for the Ottomans during their occupation between 1596 and 1687 and was also a *vilayet*

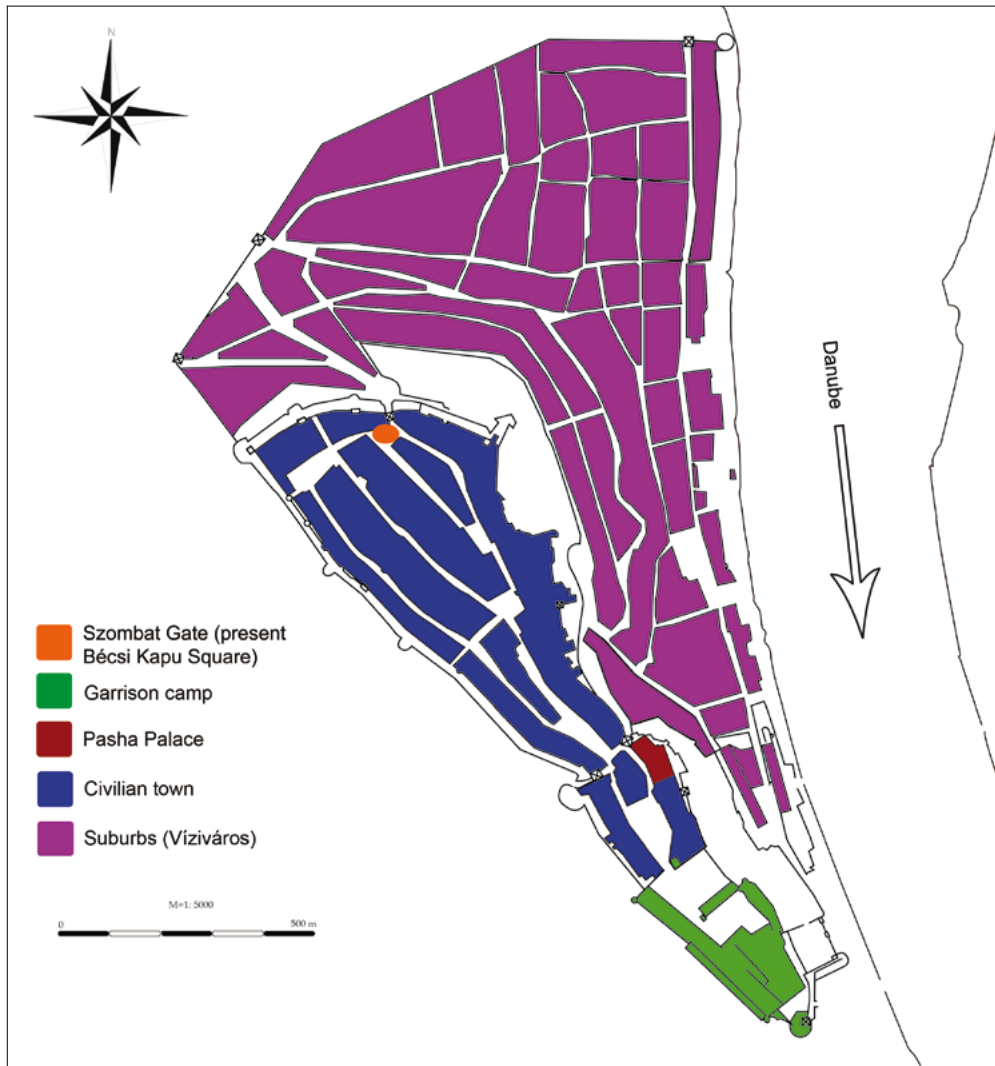


Fig. 2: Topography of Buda during the Ottoman period.

centre. Based on written sources,<sup>2</sup> the castle during the Ottoman period was separated into two parts: the so called ‘Hungarian castle’, which was the inner castle (northern part), and the ‘German’ or outer castle (southern part – south of the medieval cathedral); each part had their own separate commander (SUGÁR 1992, 21). The medieval episcopal palace was used by the pashas as a residence, and according to written sources, the pasha’s *cami* was standing in its vicinity with a *minaret* built of brick. The medieval cathedral was used as a storage building for weaponry (SUGÁR 1992, 22). These buildings belonged to the inner castle, while the janissary barracks were situated in the outer castle, where no women and children were allowed (Fig. 3).

<sup>2</sup> In most details: EVLIYA 1908, 110–120; DANKOFF ET AL. 2003, 62–70.

### 2.3 ARCHAEOLOGICAL CONTEXT OF THE FINDS

The main body of the assemblage of Buda originates from the excavations in the territory of the medieval royal palace between 1948 and 1960. Altogether, the fragments number 538 sherds, more than a quarter of which come from an unidentified part of the territory. Regarding the layer contexts, two kinds of circumstances occurred: 1. Modern, mixed layers of construction or levelling debris, and 2. Clearly Ottoman layers or pits, dated to the sixteenth and seventeenth centuries; objects that could precisely date Ottoman layers or pits occurred in only a few cases. The distribution of the finds indicates that they were used as filling material during the post-recapture levelling after 1686. Exceptions are the finds of those wells and pits that seem to have been filled by the end of the

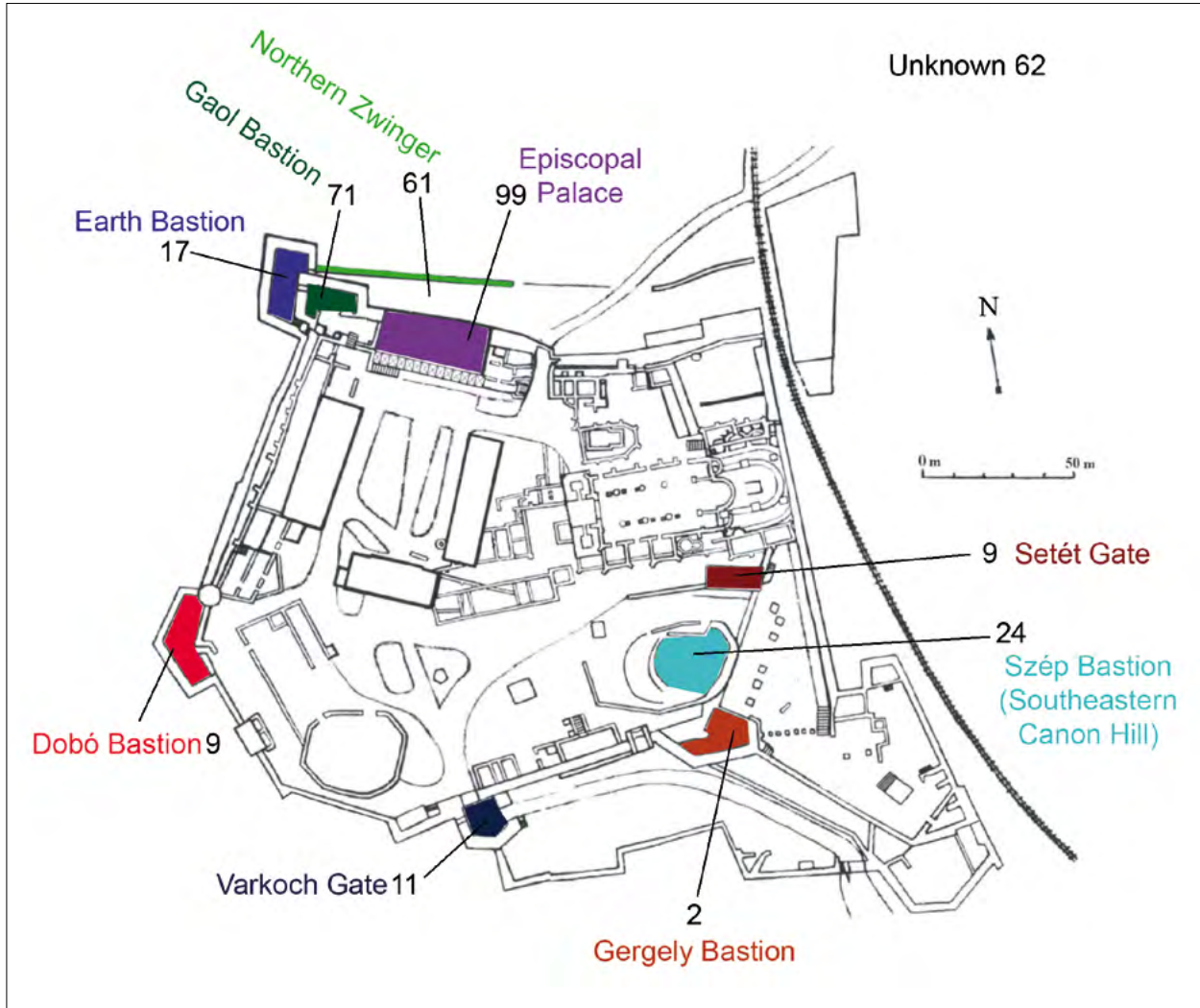


Fig. 3: Medieval topography of Eger Castle with the sites and quantity of Chinese porcelain finds.

Ottoman period. In general, the pieces originated from Ottoman, Baroque or modern layers, which cannot be closely dated.

The assemblage unearthed at Eger Castle discussed here was collected during the excavations of Károly Kozák conducted between 1957 and 1988.<sup>3</sup> More than half of the finds come from the northern part of the castle, i.e. the medieval Episcopal Palace (later pasha palace) and its surroundings (Earth Bastion and Gaol Bastion). Two other main sites yielding the most Chinese porcelain fragments are the Dobó Bastion and the Szép Bastion (Fig. 3). Regarding the layer contexts, roughly one-third of the finds can be connected to a well-defined archaeological context (ZAY 2013, 61). In general,

<sup>3</sup> Excavation reports: Kozák 1989–1990.

most contexts yielding porcelain fragments seem to be confidently dated to the Ottoman period of the castle (1596–1687), and only some of the Baroque levelling layers yielded Chinese porcelain. Similar to Buda, the sherds partly derive from mixed modern and Early Modern debris or levelling layers, or from clearly Ottoman contexts.

### 3. CHINESE PORCELAIN TYPES

Roughly half of the entire Buda assemblage can be dated to the Wanli period (1573–1620), the other half to the Kangxi period (1662–1722). The assemblage can be separated into two areas: the medieval royal palace and the civilian town. Fig. 4 shows the most important types of the royal palace assem-



Fig. 4: Most common types of Chinese porcelain unearthed in the area of the medieval royal palace. Types: 1 – abstract peach (Wanli); 2 – lotus (Kangxi); 3 – brown glaze (Kangxi); 4 – celadon glaze (Kangxi); 5, 6 foliated rim with bird on rock in the well (Wanli); 7 – *anhua* 暗花 decoration (16th century).



Fig. 5: Outstanding types unearthed in the civilian town of Buda, not present in the royal palace. Types: 1 – *anhua* 暗花 decoration (second half of the 16th century); 2 – wine cup with overglaze yellow painting (probably early 17th century); 3 – unpainted winecup with reign mark (Jiajing 嘉靖, 1521–1566?); 4, 5 – rosette decoration (probably late 16th century); 6 – camellia decoration (probably Wanli); 7 – brown glaze with landscape in the well (probably Kangxi); 8 – cup or lid (16th century).

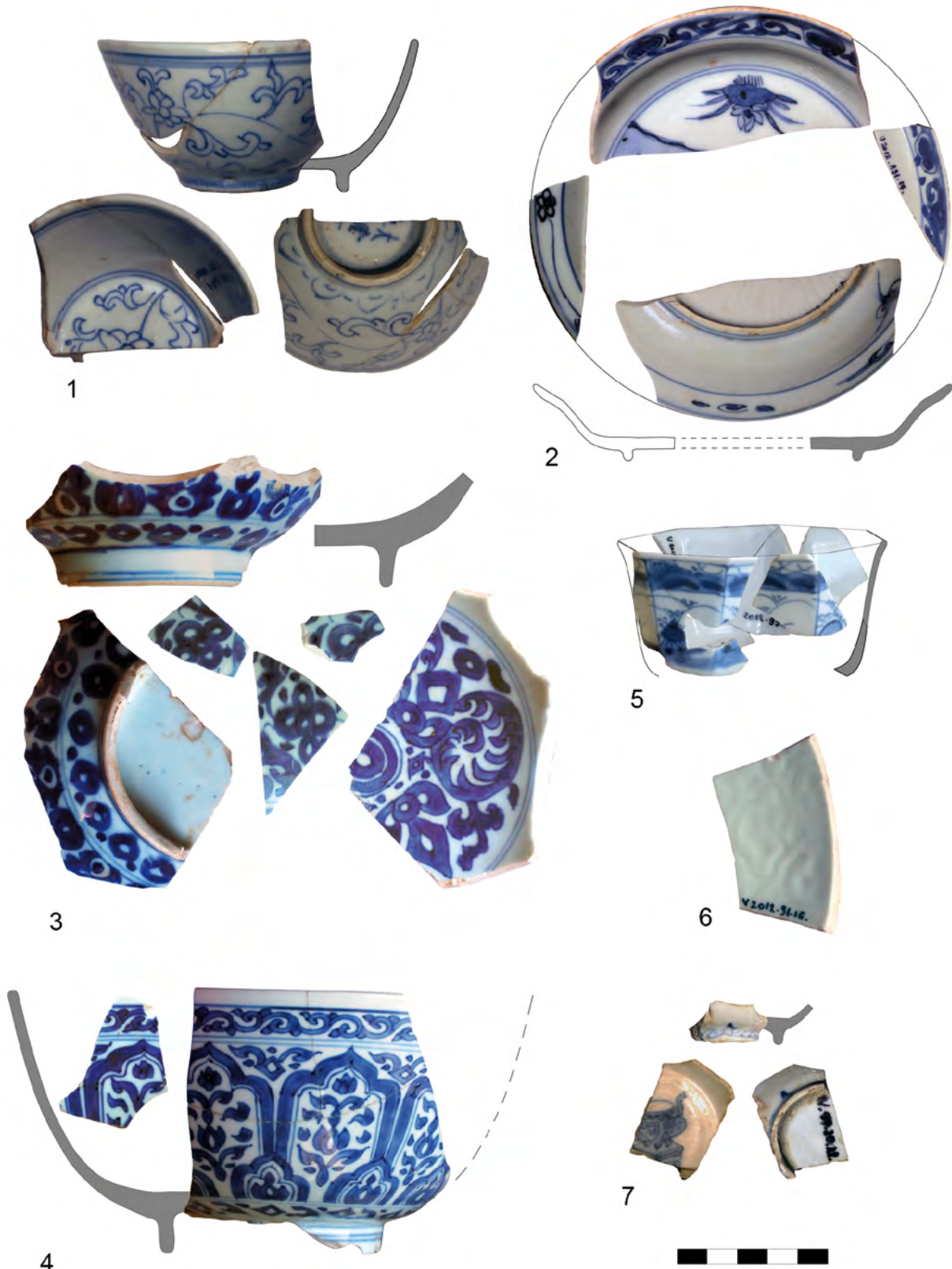


Fig. 6: Examples of remarkable pieces from Eger, not present in Buda. Types: 1 – ‘not filled in’ lotus decoration (1647 or 1667); 2 – small plate with lotus and *lingzhi* 灵芝 decoration (probably Wanli); 3, 4 – large bowls (c. 1600); 5 – octagonal cup with landscape decoration (Wanli, early 17th century); 6 – bowl fragment with *anhua* 暗花 decoration featuring *ruyi* 如意 symbols (17th century?); 7 – cup featuring ceremonial metal vessel in the well (17th century?).



blage. Two types are represented in a significantly high number: the type with abstract peach decoration (15.7%; **Fig. 4/1**) and the type with lotus and *lingzhi* decoration (15.9%; **Fig. 4/2**). The ratio compared to the whole assemblage is similar in the case of the Royal Palace and the civilian town, and these two types are in the majority in both areas. The abstract peach type can be identified as a product of a private kiln in Jingdezhen, which indicates that the value and prestige of these vessels was less than those of the imperial kilns. It is still probable that in Ottoman Buda any type of Chinese porcelain held a high social value and represented some level of wealth and higher social status. **Figs 4/3, 4** belong to the so-called monochrome type, with celadon and brown glaze. This type is also represented by a significant number of sherds and can be dated to the Kangxi period. **Figs 4/5, 6** represent the type, which can be connected to the foliated rim type also produced in private kilns of Jingdezhen in the Wanli period.

The civilian town of Buda shows a difference in types (**Fig. 5**), an outstanding example of which is the piece with *anhua* (underglaze carved) decoration (**Fig. 5/1**), and it is probably telling that this is one of the two examples found in Buda (**Fig. 4/7**). The other pieces demonstrated on **Fig. 5** are unique types that are only represented by these sherds in the Buda and Eger assemblage. **Figs 5/3, 8** are only painted on their foot ring, thus they might be categorized as monochrome white types. Their archaeological context and style suggests a 16th-century dating, but no exact analogies have been discovered to date. **Figs 5/4, 5** feature a rosette in their well and can probably be dated to the 16th century as well. **Fig. 5/6** is decorated with a camellia in its well and also shows stylistic features of the 16th century; it was probably made during the Wanli period (1573–1620). **Fig. 5/2** is a small wine cup decorated with underglaze blue painting and overglaze yellow enamel; based on its style, it was probably made in the second half of the 17th century. **Fig. 5/7** is a larger bowl with a brown glaze on the outside and underglaze blue on the inside, featuring a scene with a pagoda and nature in the well. Based on its colours and decoration, it could have been made in the early 18th century, but at the end of the 17th century at the earliest.

Considering that the dating of the two areas (royal palace and civilian town) correspond to each other, the difference might lie in the identification of the origin and absolute value of the pieces. The exact identification requires material tests and analogies from Chinese kilns, the archaeological survey of which is still a developing discipline, as the 2005 excavation of the Guanying private kiln in Jingdezhen demonstrates (LIU ET AL. 2009). Therefore, the identification of the objects is based on a stylistic evaluation, which shows that the most common types are most likely products of private kilns, with some imitations of imperial ware. Furthermore, there is no information regarding the price of these vessels in the Ottoman context, thus the absolute value of the vessels is difficult to address.

The Eger assemblage shows similarities and differences with the assemblages of the royal palace and the civilian town of Buda. Similarities include the most common types that can confidently be dated to the Wanli period (1573–1620), and partly to the Kangxi period (1662–1722). However, several other types unearthed in Eger do not appear in the Buda assemblages (**Fig. 6**). The identification of these types is yet to be resolved, but they indicate that the majority of these vessels were made in the 17th century, possibly in private kilns of Jingdezhen, such as the Wanli types discussed above. A few outstanding pieces, however, suggest imperial kilns or more sophisticated imitations of imperial ware.

#### 4. TOPOGRAPHICAL DISTRIBUTION

The topographical distribution of the Buda assemblage is demonstrated in **Fig. 7**, which shows the most common types and their number of sherds from the Royal Palace, as well as the outstanding pieces of each civilian town site. Most of the assemblage was collected from levelling layers of debris and waste connected to the Baroque-period reconstruction of the town and the Royal Palace. Certain patterns, however, cannot be ignored, as they do not correspond to the chronological development of Buda or the topographical reconstruction of the town. This reconstruction was primarily made by historians after evaluating the available

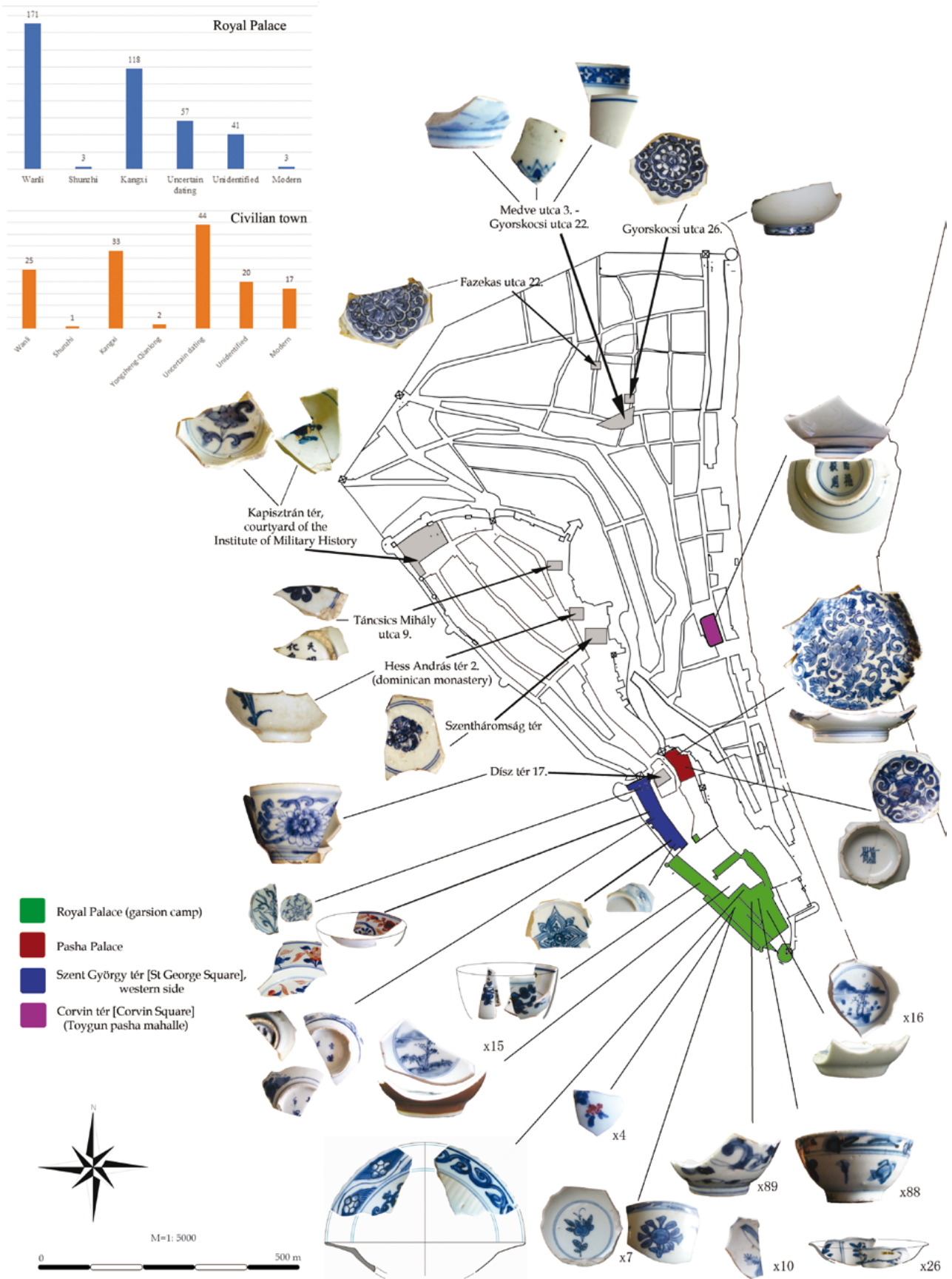


Fig. 7: Topographical distribution of the Chinese porcelain sherds in Buda.

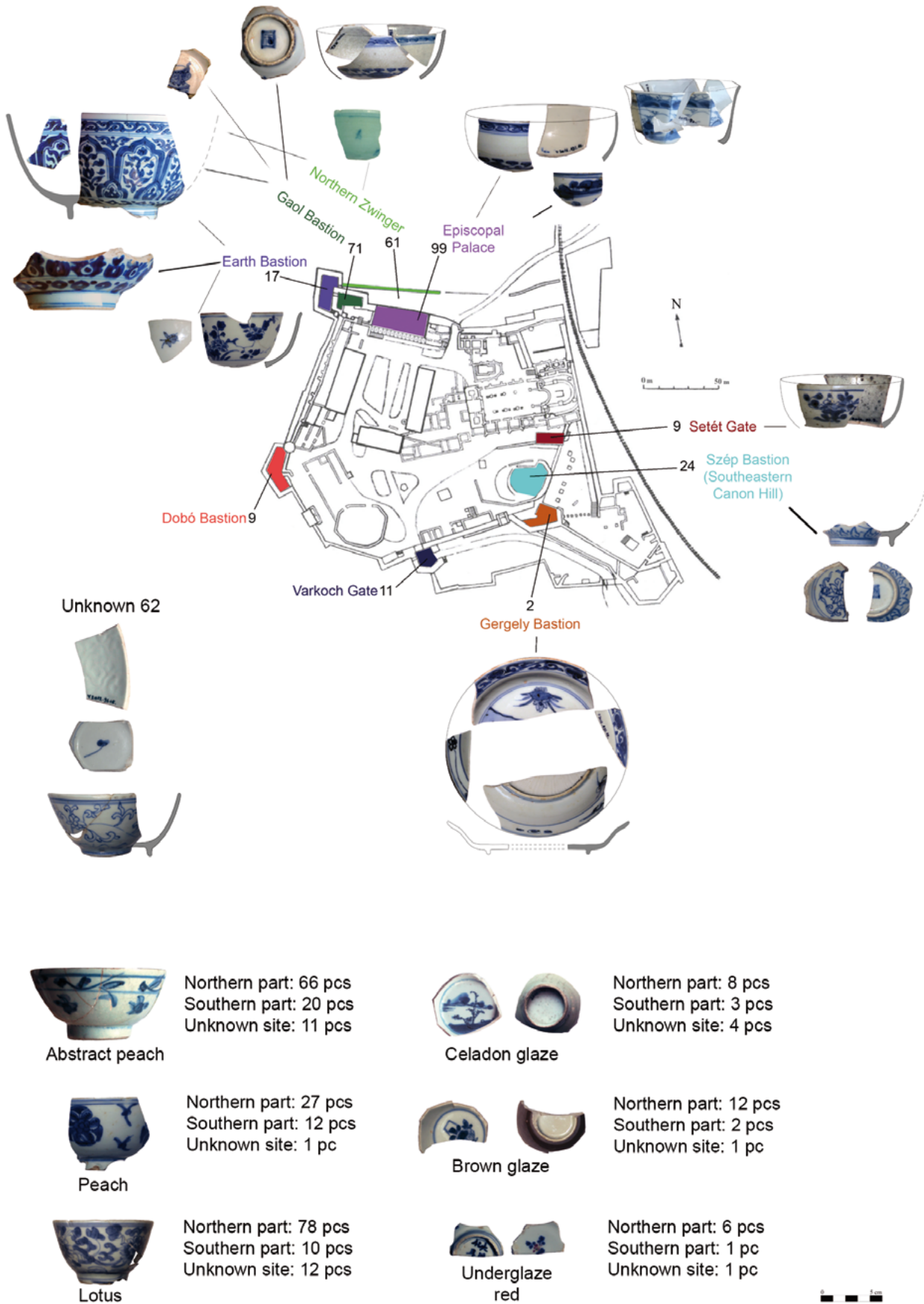


Fig. 8: Topographical distribution of the Chinese porcelain sherds in Eger Castle.



written sources, but remains mostly hypothetical as the sources do not provide sufficient information for the precise reconstruction of the *mahalles* (quarters). However, the archaeological surveys supported this hypothesis, which also seems to be traceable in the typology, chronology and distribution of the Chinese porcelain finds.

Interestingly, the number of the Wanli abstract peach and the Kangxi lotus type sherds is almost exactly the same, and these two types occur in an overwhelming majority in the royal palace, but not in the civilian town (Fig. 7). This suggests that these pieces might be connected to the garrison inhabiting the palace. It is known that the Ottoman military stationed in the Hungarian fortresses was mostly of southern Slavic origin (HEGYI 2007, vol. 2, 423–480; vol. 3, 1503–1509), and most likely they did not use the same material culture as the Ottomans. Therefore, the pieces can be connected to the military, as they were found in the territory in which the garrison was stationed and were more likely used by the high-ranking officials living with or near the garrison than by the mercenaries.

The distribution of the types in the civilian town corresponds to the known social tendencies in topography. Two parts of the town should be emphasized: the present day Szent György tér and Corvin tér. Both of these areas can be considered as administrative centres, as the pasha's palace was located consecutively in both areas (GERŐ 1968; 1999; 2003; PAPP 2013). This central location is reflected in the Chinese porcelain material of the sites excavated, which is supported by the two sherds from the Pasha Palace in Szent György tér and the outstanding sherd with the *anhua* decoration from Corvin tér (Fig. 7). The large number (95 sherds) and higher quality of the pieces collected from the western side of Szent György tér suggest two different interpretations: the pieces were either brought to this part of the square from the Pasha Palace's waste and debris during the Baroque reconstructions or they belonged to high-ranking members of the society who lived in a frequented part of town, indicating wealth and a taste for oriental luxurious pottery. The latter hypothesis is supported by the fact that this part of town already had a central function at the end of the Middle Ages (MAGYAR 2003), and the construction of the

Pasha Palace complex at the beginning of the 17th century must have reinstated this function.

The analysis of the topographical distribution raises the question as to whom these objects might be connected. This question is difficult to answer, but one aspect of porcelain research might bring us closer to the solution: private and museum collections, which are the basis of all Chinese porcelain studies today. The importance of collections for the interpretation of archaeological assemblages is demonstrated by the fact that the unearthed sherds are not direct analogies of the pieces in the collections and therefore they are probably connected to a lower layer of society (KRISTENSEN 2004). In the Hungarian context, it might still be connected to Ottoman officials and pashas. This notion is supported by the fact that it is not known what is missing from the unearthed assemblages, as the Ottomans could have taken their most precious belongings with them, only leaving behind the less valuable objects such as a relatively cheap ceramic cups or small bowls, either made of porcelain or faience.

The topographical situation of Eger is somewhat different from that of Buda, as the pasha's residence was within the fortress. As described above, Eger Castle was divided into two parts: the northern part inhabited by the pashas and the southern part settled by the janissary. The majority of the assemblage was collected from the territory of the inner castle (Fig. 8), indicating that Chinese porcelain was primarily used by the pasha and his court. The archaeological context of the assemblage is not precise enough to draw many conclusions regarding the typological distribution. After the re-occupation of the castle from the Ottomans in 1687, the debris was spread around the territory of the castle. A concentration of finds can be observed in the northern part of the castle, i.e. the vicinity of the pasha palace (medieval episcopal palace). This indicates that the debris found in this area might belong to the pasha palace, but sherds in other locations, such as the southern parts of the castle, could also have been used in the northern area. It is also possible that those pieces found in the northern areas were used in, for example, the houses of the Szép Bastion. Taking waste management patterns into consideration, it is difficult to connect



certain sherds to certain locations of use, but the assemblage shows some tendencies regarding the concentration of porcelain finds.

Further aspects of spatial analysis cannot be applied in this case (along with Buda), as the buildings

used by the Ottomans are either destroyed with no assessable archaeological data or reconstructed in the period directly after the Ottomans left, so the material left behind was cleared out and was probably not buried in the original place of use.

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## Conclusion

Despite the above uncertainties, the results of the analysis of the topographical distribution of the finds in Buda and Eger Castle suggest that the use of Chinese porcelain can primarily be connected to the pasha and the Ottoman-cultured officials surrounding him and less to the soldiers mainly consisting of a southern Slavic origin or any other social group present in either of these sites. The connection of Chinese porcelain to the aforementioned social group with an Ottoman cultural background may serve as a basis for identifying the routes through which these objects reached the point of disposal. Presently, it is unknown how exactly prestigious ceramic tableware moved within the Ottoman Empire, and further research needs to be conducted regarding the distribution of these objects in order to draw any conclusions. But possible routes concerning Chinese porcelain include seaborne distribution from China to the centre of the Ottoman Empire (Istanbul, via port cities such as Izmir or Bodrum); and from there or the ports directly to remote provinces such as Hungary via land trade. It is unclear whether Chinese porcelain was part of the everyday merchandise traded by regular merchants or were distributed in more private ways (e.g. private orders or personal belongings). A more thorough examination of the distribution of porcelain within the empire might shed more light on the question of the movement of these objects, thus contributing to the history of trade and material culture of the Early Modern Ottoman Empire.

The examination of the topographical distribution of the finds resulted in the hypothesis that these objects were mostly used by Ottoman officials, and less by soldiers of other social groups. This topographical approach raises the question as to whether an outstanding type of object can be used to detect certain social groups, reconstruct social identities or follow trade and distribution routes. This notion in the context of occupied towns in Ottoman Hungary can be inserted into the global research of the trade and distribution of Chinese porcelain. The question regarding how such luxury products as Chinese porcelain reached the most remote province of the Empire is whether it was a conscious trading choice or the result of private belongings moving along with their owners as well as on what level the arrival of these new objects influenced the taste and markets of the local citizens of the occupied towns.

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# Lead-Glazed Ware from Coimbra: 1550–1600

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## Abstract

This text presents a collection of mid to late 16th century lead-glazed ware gathered during recent archaeological excavations at the old Episcopal Palace of Coimbra (Portugal). It briefly describes morphological, typological and production characteristics of this important local ware (from Coimbra), and is supplemented with information from written historical sources.

— Portuguese pottery – Coimbra pottery production – 16th century – lead-glazed pottery – formal typologies

## 1. INTRODUCTION

The first written reference to lead glazed ware in Coimbra comes from the 1556 Regulation of ‘Malegueiros’. The name ‘Malegueiros’ refers to a class of potters that would double fire pottery – pots were bisque fired, then glazed, and finally fired again. The Regulations distinguish ‘Malegueiros’ from ‘potters’ that would not make and could not sell glazed ware. In other words, both ‘potters’ and ‘Malegueiros’ could collect and work with red clay to produce pottery to be used over the fire, but only the latter were allowed to glaze it. The document from 1556 and ensuing Regulations dating from 1569 and 1571 (CARVALHO 1921, 20–22) reveal that the main concern for ‘Malegueiros’ was the poor quality of wares, which broke very easily due to the low quality of clay and imperfect firing. Thus, the Regulations specify the composition of glazed pottery and identify primary clay source deposits and the proportions used, thereby confirming, without a doubt, their local production.

Coimbra’s written documents, cited above, distinguish pottery intended for use over the fire, or cooking ware, made in a red-fabric (glazed), from a whitish-fabric ware that was preferably used for table service (SILVA 2018). This paper only discusses the first type through the analysis of a specific case study comprised by the assemblage of

lead-glazed pottery found at the archaeological excavations made in the old Episcopal Palace of Coimbra (Portugal), where the Machado de Castro National Museum is housed today.

Concerning red-fabric glazed ware raw materials, 1556 Regulation indicates that ‘all ware destined to be used over the fire should be made using a two-part mixture of red clay and a part of harsh (white) clay’. The latter document, dated from 1569, specifies the locations where raw materials were collected, indicating that this ware should be produced using ‘a mixture containing two parts of red clay from *Alcarraques* or *Antuzede* and a part of white clay from *Adémia*’ (our translation).

In these documents, Malegueiros’ production is always mentioned as a whole, comprising all ware that was glazed. Therefore, there is no information about particular glaze characteristics or about the formal types that integrated and distinguished cooking and table sets. Such lack of written discrimination now triggers discussions, particularly amongst researchers that look to these documents in search of indicators to the beginning of tin-glaze production in Coimbra. Such a distinction was not made clear at the time since, as explained, ‘Malegueiro’ was a person that produced glazed ware,



irrespective of whether the glaze was leaded or tinned (SEBASTIAN 2011, 49–90).

Accordingly to latter observations made by Charles Lepierre (1899, 37) about Coimbra's production, it is possible to conclude that, at that time, glazed ware destined for use over the fire was made with a ferruginous reddish clay, while tableware was made with a whitish marl clay. Concerning the ware that would be used over the fire and in order for it to endure fire stresses, vessels were usually glazed only on the inner walls and rims, parts that would have no direct contact with flames. In fact, although most lead-glazed forms could be used either for cooking or for food intake, two different fabrics can be distinguished (having a dissimilar quality and nature) and ascribed to each one of these functions. In this case, one should conclude that the red-fabric (ferruginous and not calcareous) of the pottery group here discussed is exclusively related to the cooking ware set.

## 2. THE ARCHAEOLOGICAL CONTEXT

The building in which the Machado de Castro National Museum was installed in 1912 is located in the centre of Coimbra's old town (coastal centre of Portugal – Fig. 1), an area having a long and permanent diachronic occupation. Its archaeological characteristics were recently discussed in a work specifically devoted to this monumental complex (SILVA 2015). The site was once occupied by the *forum* of the Roman city of *Aeminium* and subsequently by the Episcopal Palace of Coimbra (ALARCÃO ET AL. 2009; ALARCÃO ET AL. 2017). Recent archaeological interventions, carried out during renovations to this museum, allowed the identification of a set of Modern era materials. The materials were diverse but mainly composed of pottery (SILVA 2013; 2015) and were found on the southern side of the building (in the Roman *cryptoporticus*). The placement of such materials resulted from discharges made by the old Episcopal Palace inside one of the cells of the building's lower floor, thus producing well stratified layers. These layers allow an easy and reliable interpretation, as well as the distinction of four different depositional phases (between the 15th and 16th centuries).



Fig. 1: Location of Coimbra on the Iberian Peninsula.

The last dumping layer was thoroughly analysed because it offered a well-preserved and abundant variety of pottery, clearly portraying the palace's pottery collection. The total assemblage from that layer reflected the whole range of ware in use at the Episcopal Palace at that time, namely unglazed red pottery, a white-fabric glazed ware, faience (SILVA 2016) and some imported ceramics of different origin (vessels from southern Spain, Chinese porcelain, Italian majolica, etc.) in addition to lead-glazed ware. This particular set was used after the mid-16th century and was deposited at an undetermined moment, which the *terminus ante quem* and *post quem* of the layer allow established between 1578 and 1592 (SILVA 2015, 175–177).

In this layer the amount of forms and production related to cooking activities is 23.4% of the layer's assemblage (205 MNV). Within this group, lead glazed pottery equals 32% of the cooking ware and the red-fabric glazed pottery represents 7% of the total vessels found.

Concerning this last group's fabric, the matrix isn't very fine and the inner walls and rim surfaces are covered with lead glaze (Fig. 2) that is predominantly brown-honey coloured, suggesting the addition of iron oxide. The glaze depicts varied hues that range from light brown to greenish brown, in lighter or darker shades, with a more opaque or transparent appearance.



Fig. 2: Lead-glazed pottery collection: A: Part of the cooking set to show size differences; B: cooking pots (*panelas*); C: skillets/frying pans (*sertãs/frigideiras*); D: double-handle saucepans (*tachos*); E: jugs (*púcaros*).

### 3. THE LEAD-GLAZED POTTERY COLLECTION

The study of this group established the minimum number of vessels (MNV) as 65. Formal variety is quite small but completely cohesive with a cooking set (Figs 2, 3). The shapes identified were: cooking pots (*panelas*) with one handle (24 MNV) or two handles (6 MNV); jugs (*púcaros*; 8 MNV); double-handle saucepans (*caçoilas/tachos*; 16 MNV); and skillets or frying-pans (*sertãs/frigideiras*; 11 MNV).

Cooking pots (*panelas*) with one handle correspond to a single shape characterized by having rounded rims and globular bodies (Fig. 4). They can be divided in two variants according to their size: the smaller ones range from 13.0 to 14.5 cm high, while the taller ones vary from 17.0 to 20.0 cm high.

Cooking pots with two handles present two different shapes (Fig. 5). One of the types shows vessels with an overhanging rim, globular body and a rounded base, or a more elongated profile and a flat base. The second type is composed of a group of larger vessels. They have externally thickened rims with rounded lips and ovoid bodies. The group includes vessels up to 37.0 cm tall, and the larger ones feature vertically applied cordons, fingertip impressed, partially overlaying the rim and the upper part of the body.

Jugs (*púcaros*) have profiles that are very similar to single-handle cooking pots (with everted and thickened rims – Fig. 6). They were set apart as a group due to their small size of around 10.0/11.0 cm high. Two of these vessels stand out by their even smaller

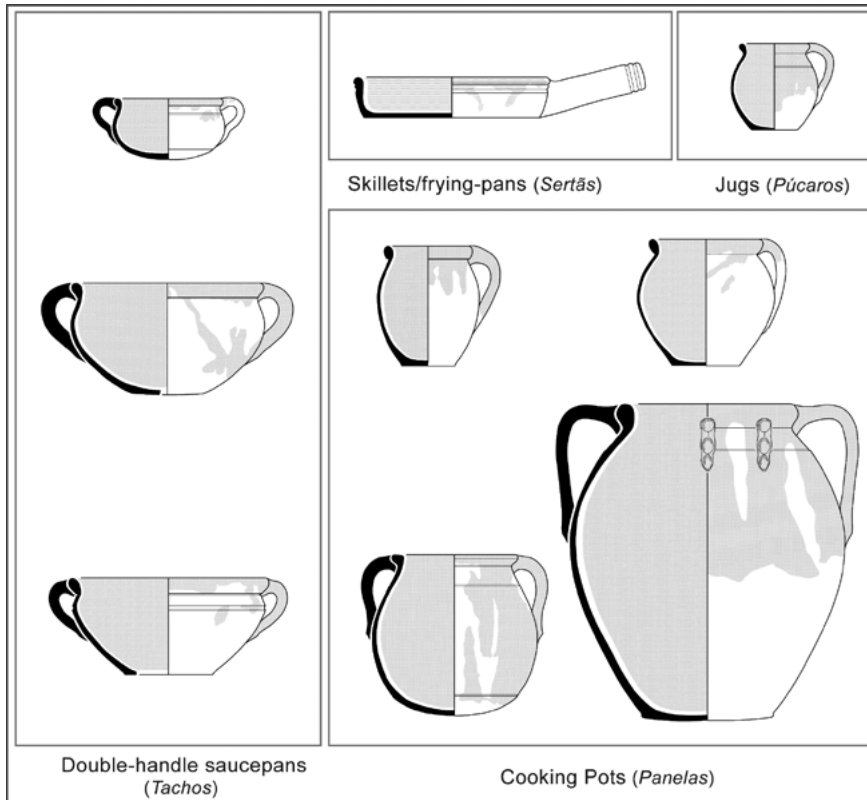


Fig. 3: Formal typology summary table of cooking set.

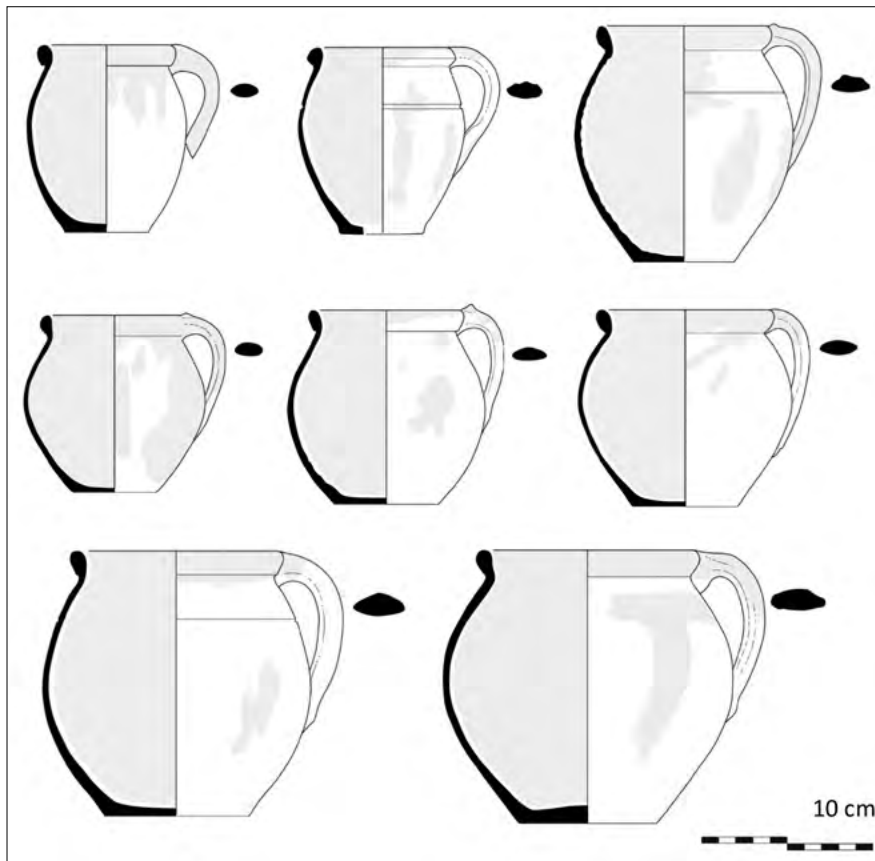


Fig. 4: Cooking pots (*panelas*) with one handle.

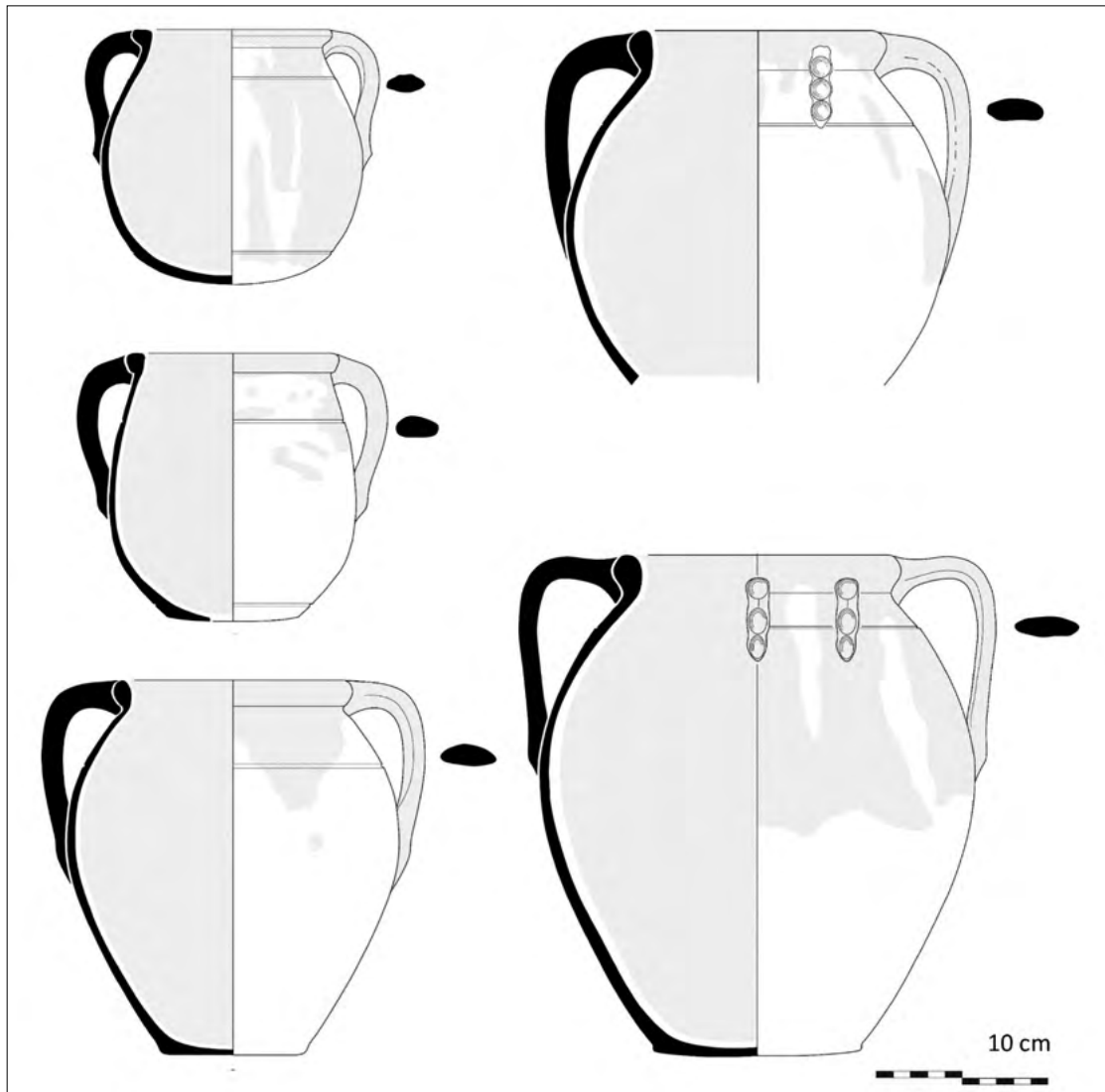


Fig. 5: Cooking pots (*panelas*) with two handles.

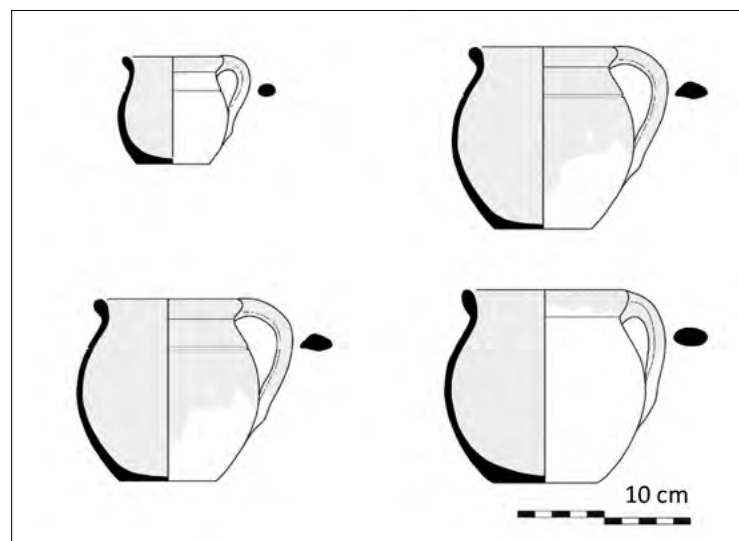


Fig. 6: Jugs (*púcaros*).

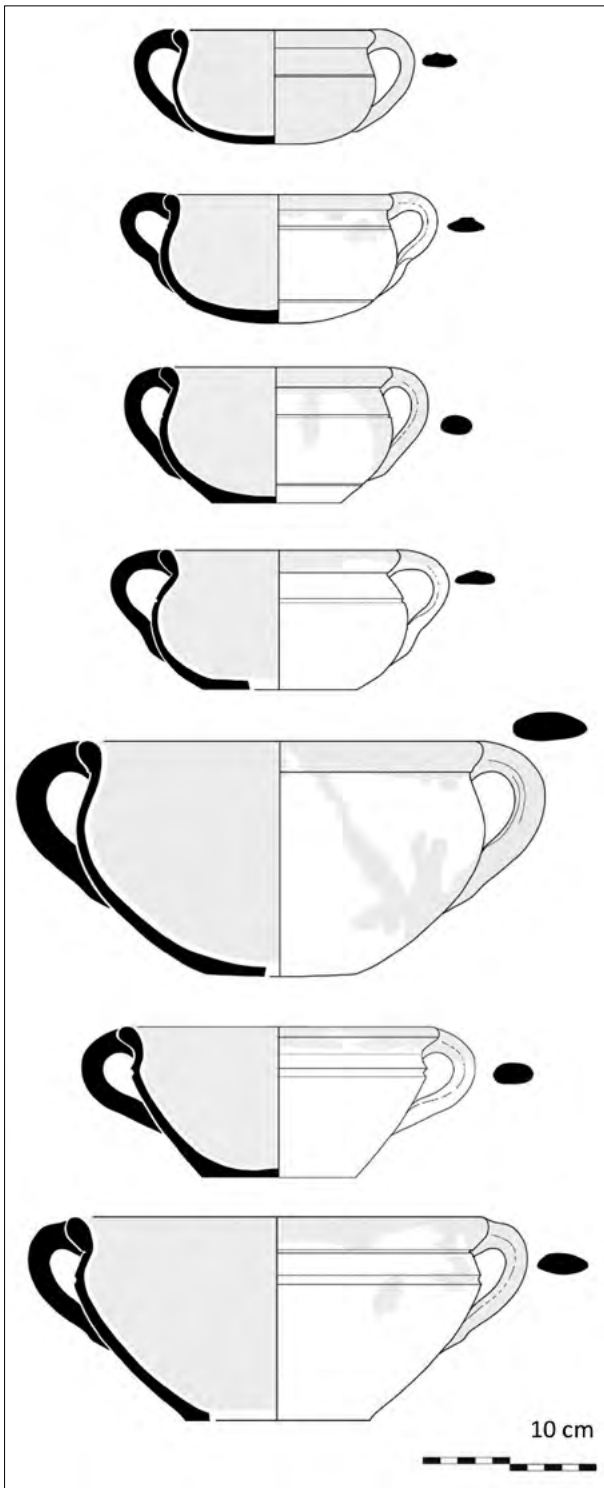


Fig. 7: Double-handle saucepans (*caçoilas/tachos*).

size (6.0 cm of diameter and 6.0 to 7.0 cm high). It is possible that they are smaller copies of larger shapes intended for use by children. In fact, unlike all other specimens, they don't bear external soot marks.

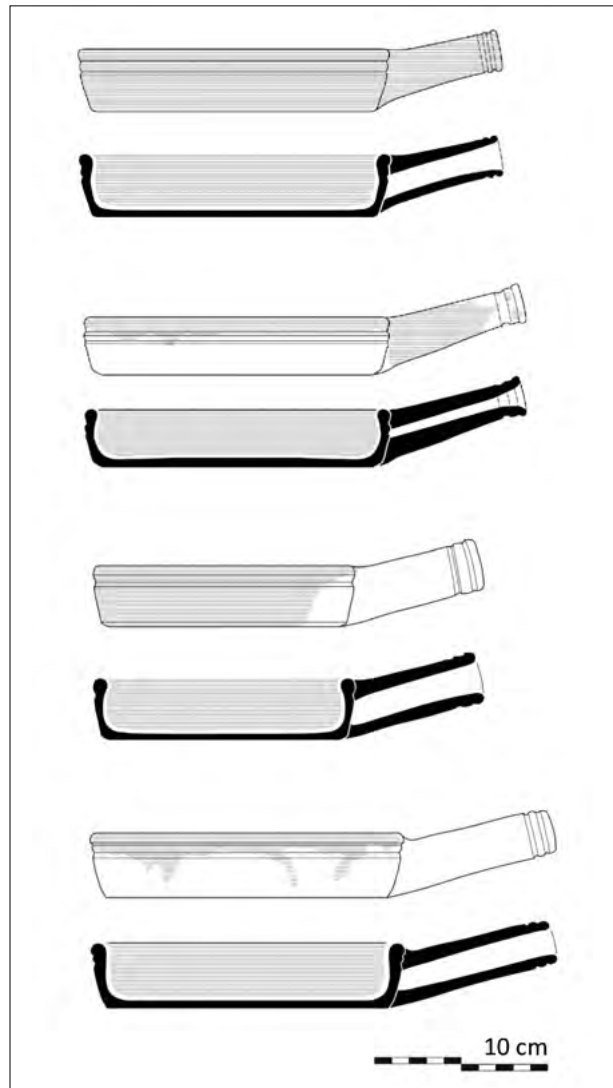


Fig. 8: Skillets/frying pans (*sertãs/frigideiras*).

There are two different shapes of double-handle saucepans (*caçoilas/tachos*; Fig. 7). The most frequent (10 MNV) comprises vessels with almond-shaped rims, curvilinear profiles and bases that can be convex or flat. The other variant is characterized by having a more pronounced neck and a small carination on the shoulder, highlighted by a groove.

Finally, it is necessary to mention the presence of 11 skillets or frying-pans (*sertãs/frigideiras*). This shape has a hollow cylindrical handle, a flat base and low vertical walls marked with a groove delimiting the rim (Fig. 8).




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## Conclusion

All of these production, common in Portuguese Early Modern period domestic contexts, seem to have been well accepted in Coimbra after the mid-16th century. Therefore, this assemblage's data is in accordance with the date of Coimbra's first Regulation of Malegueiros (1556). This document is a milestone that marks the introduction of an important technical transformation in cooking sets. Furthermore, in this particular case there is conformity between the written documents and the archaeological record, since this type of lead-glazed ware first appeared in Coimbra in connection with contexts dated to the second half of the 16th century (SILVA 2015, 259–291).

In fact, it was possible for the first time to relate a defined set of shapes to a specific production fabric mentioned in written sources. Red-fabric glazed pottery is quite common in other contemporary contexts (ALMEIDA ET AL. 2013, 487, fig. 7, n.º 6 and 10) and materials having visually similar fabrics are known in many Portuguese locations such as Porto (BARREIRA ET AL. 1998, 163–166), Silves (GOMES/GOMES 1996, 152, fig. 8 and 9), Cascais (CARDOSO/RODRIGUES 1999) and Lisboa (BUGALHÃO/COELHO 2017, 106–145). Despite fabric resemblance, these places do not show formal parallels to the vessels presented here. Therefore, given present knowledge, it is reasonable to infer that the formal types described here are characteristic of Coimbra's local workshops. Such inference will be challenged by future excavation finds, but for now it is the most relevant aspect of this study and is helpful in providing provenance information for such formal types.

The conformity between written and archaeological data also reinforces the existence of clear contacts and technical knowledge exchanges between production centres (in this case between southern Spain and the centre of Portugal (CALADO 1993, 76), and possibly also points towards food recipe changes and new consumer habits, which could be further explored in future research.

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# 3 | About Stove Tiles Around Europe







# Heraldic Stove Tiles from Gdansk

Olga Krukowska

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## Abstract

Gdansk was located in Royal Prussia on the south coast of the Baltic Sea and was one of the most important trade centres in the 16th and the 17th centuries. A Gdansk stove tile collection with heraldic motifs is especially interesting. It includes, among other things, tiles from the main stove bodies featuring the Gdansk coat of arms surrounded by mythological figures and a small heraldic tile supported by two lions. One of the most unique artefacts is the tile presenting the coat of arms of the Sforza family. Also identified is, a tile with the Royal Prussia coat of arms and the Kingdom of Poland, tiles with a double-headed eagle motif and with the shield bearer motif. These tiles types demonstrate the strong connections that existed between Gdansk and other trade centres of Northern and Western Europe.

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🔑 Gdansk – stove tiles – heraldic motifs

## 1. INTRODUCTION

In the 16th and the beginning of the 17th centuries, Gdansk was the most populous and one of the most significant cities in the Kingdom of Poland. At the time it belonged along with Elbląg (Elbing) and Torun among the most important centres of the Royal Prussia province. Gdansk as one of the Hanseatic centres of the southern Baltic region was part of West European culture. The towns of the former Hansa were connected by a tradition of cooperation and commercial and cultural contacts that continued into the following centuries. It was a multinational and multiconfessional town, and its inhabitants shared culture and common interests with each other. They had much more in common with the citizens of Bremen, Hamburg and Amsterdam than with the inhabitants of Polish cities – Warsaw and Krakow (KILARSKA/KILARSKI 2009, 35; KIZIK 2012, 466, 467; **Fig. 1**).

## 2. HAETING DEVICE

Tiled stove heating has traditionally been associated with the colder climates of transalpine central Europe, the Baltic region and Scandinavia. Archaeological discoveries, however, have shown that the use of closed stoves spread far beyond this core area to the more temperate regions of Europe such as the Low Countries, France and Britain, where the open hearth was the more established method of domestic heating (GAMSTER ET AL. 1990, 8). Tiled stoves were built in Poland from around the 14th century. Stove makers used vessel-shaped tiles. Panel tiles appear in the mid-15th century (KWAPIENIOWA 1976, 30–39). Unfortunately, from this period we know very few examples from the area of Gdańsk (KOWALSKA 2001). During the 16th century, tiled stoves with vessel tiles were less fashionable than the new type of flat panel tiles. In the



Fig. 1: Gdansk in the 17th century, ELOBLOG [online].

burgher houses, the heating devices were a stove and a fireplace. These devices were used together during the winter time to increase the possibility to heat the room. In warmer months fireplaces were widely used. Such solutions were employed as early as the mid-17th century (DĄBROWSKA 2008, 306). There was a hierarchy of heated rooms: on the ground floor and first floor, stoves with fireplaces were used for this purpose, above these floors only stoves. The full heating system was placed in the most formal room located on the first floor and in several living rooms. The remaining rooms had only furnaces or spaces, such as hall, had no heating at all (GARAS/PIETRZAK 2014, 145; SØRENSEN 2017, 74, 75). The shape of the stove and the manner of its decoration changed depending on the prevailing trends in art. Style, theme and colour of decoration, in addition to the aesthetic value, also have research value. Thanks to the stylistic distinctions of the ornament, the chronology of the examined device can be determined. The representative nature of certain objects could have been used to convey specific symbolism that would relate to the particular ideas of certain historical periods (KRUKOWSKA 2016, 102).

In the urban environment, changes in housing culture also started to occur with the rise of a new social class in the form of rich merchants, craftsmen and the bourgeois. More luxurious living was desired and possessing a tiled stove was a symbol of a high position in European society.

People wished to present themselves to their family from the best side, and this was reflected in the reconstruction of their residence. This concerned both external changes and the modernisation of interiors and the installation of fashionable heating devices (SØRENSEN 2017, 10). The stoves were the fixed elements that enriched the rooms' interior design. Panel tiles used on the stoves made it possible to expand the structures and at the same time were the carriers of various iconographic programs.

Heraldic motifs were seen on Gothic tiles from Silesia and the Czech Lands (BUŚKO 2007, 39). The design varied from state symbols to the coats of arms belonging to the landed gentry such as Tykocin Castle, the Church (the bishop's palace in Wrocław), Szczecin, Kołobrzeg, Kamień Pomorski (MAJEWSKI 2015, 101, 162, 238 Fig. V 115, 239 Fig. V 116), knights (Żary, Jarocin, Inowłódz Castles), (KAJZER 2007, 23; DĄBROWSKA 2013, 218, 227–229) and from Vilnius (RACKEVIČUS 2012, 40, 50). In some case, the more significant burgher families placed their coats of arms on the tiles. The symbols on the tiles expressed family connections, religious and lifestyle attitudes, reflecting the political sympathies of the owner (DĄBROWSKA 2013, 212, 218). Richer stoves were installed in the representative halls of public buildings. A unique phenomenon was a 12-meter stove in the interior of the Artus Court in Gdansk. This Renaissance tiled stove was the work of Georg Stelzener from the mid-16th century. It is decorated with tiles painted by master



Fig. 2: a – Fragment of the coat of arms with the winged angel, Gdansk, the Shakespeare Theatre site; b – Fragment of the coat of arms with the shield bearer, Toruńska 10a site. Photo by K. Wiącek.

Jost. Portraits of prominent contemporary European rulers, personifications of virtues and planets as well as coats of arms are presented. The coats of arms of the Polish Kingdom, Royal Prussia, the city of Gdansk, and the Loitz patrician family, probably the co-founder of the stove, are present. Burgers wanted to emphasize Gdansk's status with the construction of the largest tiled stove ever built (KILARSKA 1989, 12; KILARSKA 1992, 158; KILARSKA 2006, 122, 126, 127; KILARSKA 2007, 137–140).

### 3. STOVE TILES WITH HERALDIC MOTIFS

The stove tiles presented in this article come from excavations in different districts of Gdansk. From the beginning of the 16th century, the coat of arms was often associated with the shield bearer, or a figure that supported it. In the early Renaissance it was usually embodied by a winged angel (ROTH 1999, 30; KAJZER 2007, 22; GRUIA 2012, 131. Fig. 8; ROTH HEGGE 2012, 46, Abb. 30, 136, Abb. 230), later (in the second half of the 16th century) replaced by the figure of a young man or woman.



Fig. 3: Stove tile with the white eagle motif, Gdansk, Podwale Staromiejske site. Photo by A. Kurzyńska.



The heraldic tiles with shield bearer from Poland come mainly from the castles and chateaux located in Jarocin, Raciążek (Kujawy), Bolesławiec, Wawel, Ostrów Tumski w Poznaniu, Gniezno, Jankowo and are dated to period between the 15th and 16th century (ANTOWSKA-GORĄCZNIK ET AL. 2012, 42, 44 Fig. 2.1, 45 Fig. 3.2) or from the 17th–18th century (STANKIEWICZ 2009, 214).

Two artefacts of this type were found in Gdansk. One of them with a winged angel was found at the Shakespeare Theatre site. Another tile with the shield bearer was found at the Toruńska 10a site (Fig. 2). The figure is dressed in a long coat with a wide round collar. The shield probably depicts the coat of arms of a bourgeois family or a guild coat of arms. There are two pieces of fruit with a spreading clump of leaves. Below them we can see the corner facing the edge of the shield. It is worth noting that the shape of the shield is similar to those used in the 16th century, which may be helpful in determining the chronology of the artefact (SZCZEPANOWSKA 2009, 16). These tiles were placed in the corners of the stove chests or were part of the friezes or finials of the entire structure. The shield bearer could add splendour to the coat of arms.

Ever since the advent of heraldry, animals have often been used in the composition of coats of arms, especially those associated with the values, personified by knights at that time: strength, courage, loyalty, devotion and piety. At the top of these preferences were obviously the kings of the animal world, namely the lion and the eagle. The latter appeared on the coats of arms of the ruling dynasties: the Andegavins, the Houses of Luxembourg, Jagiellon and Habsburg. The motif was used in Transylvania, Moldavia, and Wallachia and on the coats of arms of cities and the nobility. They are common from the mid-16<sup>th</sup> century, especially during the next century, and well after 1700 (GRUIA 2012, 122). The white eagle motif with raised wings emphasized the connection of the city with the Kingdom of Poland (Fig. 3). Proof of this is a plaque with the coats of arms of the Kingdom of Poland, Royal Prussia and the city of Gdansk placed on one of the Gdansk gates. The eagle's image on the tile found at the Podwale Staromiejskie site is in the style of the early Baroque. It is very similar to the

crowned eagle located on the floor tile from the private chapel of Elizabeth Lyucrecia from Cieszyn in Silesia (GRYC/JAGOSZ-ZARZYCKA 2012, 636, Fig. 7). Another example is a tile from Piotrków Trybunalski (DŁUGOSZEWSKA/PIETRZAK 2010, 144 Fig. 12), Ujazd Castle (KAJZER 2007, 22, 23) and Lublin (DĄBROWSKA 1987, Fig. 159).

Another motif is the black eagle of Royal Prussia with a crown around its chest and an arm holding a sword. The shield is supported by two unicorns (Fig. 4). The unicorn symbolised knighthood, courage, power, virtue and purity. The coat of arms was established by Polish King Casimir IV Jagiellon. Between the 15th to 18th centuries, the image of the black sword eagle is commonly found in source documents, on physical monuments and on the most important buildings of Royal Prussia, especially in Gdansk, Elbląg and Torun (KILARSKA/KILARSKI 2009, 43 Fig. 26; DĄBROWSKA 1987, Fig. 160). This tile found at the Shakespeare Theatre site was probably set on a corner ledge, between the chests of the stove. Similar tiles were found in Lidzbark Warmiński (MIRKOWSKA 1994, 272 Fig. 13) and Malbork (POSPIESZNA 1994, Fig. 11).

Tiles with a double-headed eagle motif took various forms. They are known in two colours: green glazed and white-blue glazed. Identical examples of these types of heraldic tiles were found during excavations at many sites in Gdansk: the Hala Targowa 5 site (KOWALSKA 2007, 28 Fig. 1), the Shakespeare Theatre site (CZONSTKE 2013, 186), the Szafarnia site (SZCZEPANOWSKA 2010, 128 Fig. 3e), the Penitary Complex site (KRUKOWSKA 2016, 105 Fig. 5) and the Kładki site, the Toruńska 10a site (Fig. 5). The same coats of arms with white-blue and green glaze are in the collection of the National Museum in Gdansk (KILARSKA 1989, 11 Fig. 9). We can find tiles with the double-headed eagle motif in Frombork (DĄBROWSKA 1987, Fig. 233), Elbląg (KILARSKA/KILARSKI 2009, 59 Fig. 39), Malbork (KILARSKA 2006, 127; POSPIESZNA 2005, 19) and Kołobrzeg (MAJEWSKI 2015, 237 Fig. V. 114). This symbol is already known from mythology and was associated with Janus, the god of agreements and alliances. It was also a symbol of the Byzantine Empire and the German emperors of the Holy Roman Empire of the German Nation in the period from the 10th to the beginning of the 19th century.

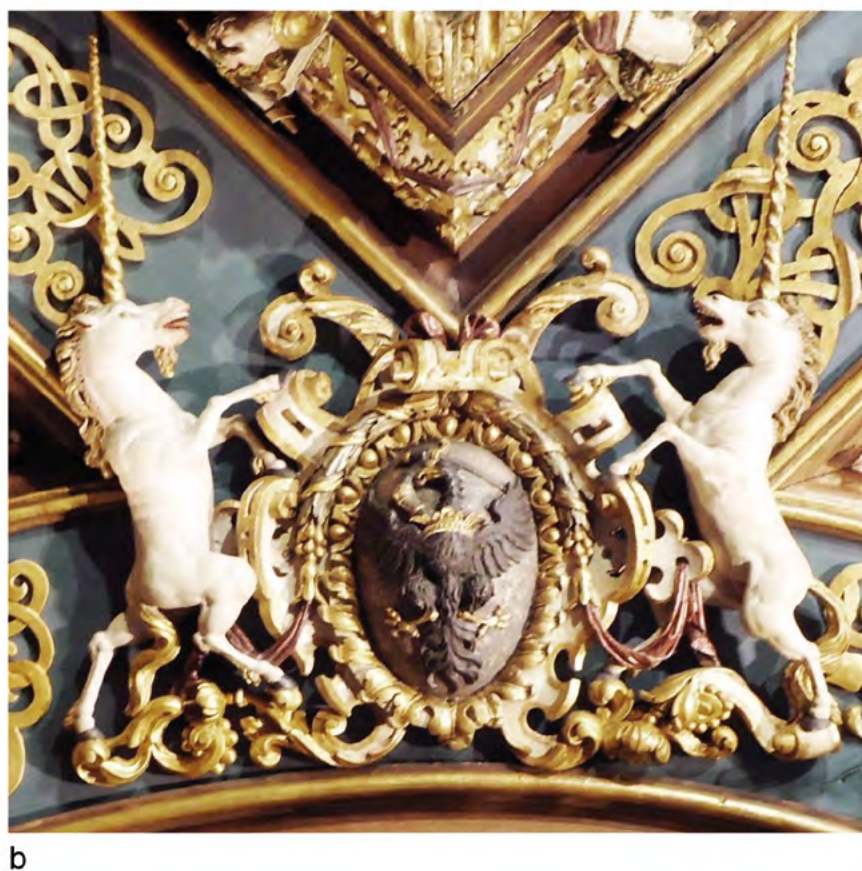


Fig. 4: a – Stove tile with the black eagle of Royal Prussia, Gdansk, the Shakespeare Theatre site. Photo by K. Wiącek; b – Royal Prussia coat of arms (CZAJKOWSKA [online]).

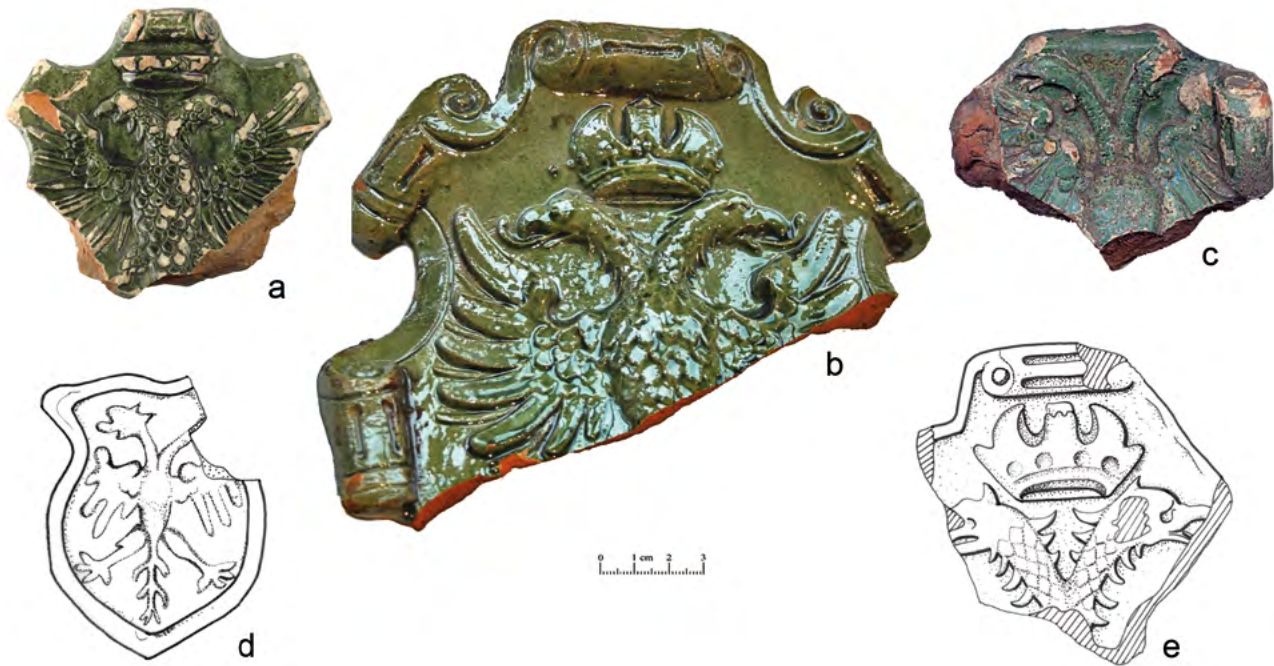


Fig. 5: Stove tiles with a double-headed eagle motif on the cartouche: a – Gdansk, Baszta Łabędź site. Photo by R. Janczukowicz; b – Gdansk, Penitentiary Complex site (KRUKOWSKA 2016, 101–119); c – Gdansk, Hala Targowa 5 site (KOWALSKA 2007, 25–33); d, e – Gdansk, Kładki site. Drawing by J. Szmit.

At that time, the Habsburgs made it the coat of arms of Austria. Lübeck still retains that symbol. There is a corner tile with the Lübeck coat of arms from mid- 16th century in the *Museen für Kunst und Kulturgeschichte der Hansestadt* (MAJANTIE/MUHONEN 2007, 195 Fig. 70).

Some artefacts from Gdansk were found in fragments, so we could not be sure if we were dealing with a two-headed or a one-headed eagle (SZCZEPANOWSKA 2010, 114). Another was found in the Radunia River Canal, at the Shakespeare Theatre site and at the Rajska, Heweliusza site. A similar artefact found in a patrician house in Wrocław, *Przedmieście Świdnickie*. Is dated to the second half of the 16th century to the 17th century (MACKIEWICZ 2013, 443, Fig. 2g, 447).

Images of the Reich coat of arms, the German princes' and other coats of arms are a frequent motif on drinking vessels, especially those used to raise toasts: on welcoming glasses (*wilkom*) and beakers (DRAHOTOVÁ 1984, 41 Fig. 15, 50 Fig. 24; BLAŽKOVÁ/VEPŘEKOVÁ 2015, 342) and on stoneware mugs (BLAŽKOVÁ/VEPŘEKOVÁ 2015, 326, 403; MAJEWSKI 2015, 103). From Gdansk, we have

examples of vessels with heraldic motifs; however, these have not been interpreted, yet (Fig. 6).

One of the most unique artefacts in the Gdansk collection is a tile presenting the coat of arms of the Sforza family found at the Heweliusza, Rajska site (Fig. 7). The appearance of this symbol can be associated with the reign of the Polish King Sigismund the Old from the Jagiellon dynasty. At the beginning of the 16th century he married Bona Sforza d'Aragona. As the queen and the mother of the last king from the Jagiellon dynasty, she had a great influence on politics. The National Museum in Gdańsk is the owner of a similar artefact (KILARSKA 2007, 141; KILARSKA/KILARSKI 2009, 43 Fig. 27). Stove tiles with that coat of arms were found in Jagiellon-Wawel Castle (Kraków) and in the city of Kraków (MAZUR 2014, 190; MOSKAL 2012, 152, 153).

We have different types of tiles with the Gdansk coat of arms (Fig. 8). Most of them are white-blue and yellow glazed. One of the examples is a tile with the image of two lions standing on two paws supporting the Gdansk coat of arms with two crosses and the crown above them. A chessboard is



Fig. 6: Heraldic motifs on glass and ceramic vessels: a – Reconstruction of cylindrical glass beaker with enamel decoration, Wislouchcie Fortress. Photo by E. Grela, drawing by E. Nowicka; b – Fragments of stoneware vessels from the Shakespeare Theatre site. Photo by K. Wiącek.

found on the bottom part of the tile. Another one shows the lion standing on two paws with a crown on its head. It is difficult to say clearly if this is part of the Gdansk coat of arms and if the coat of arms existed alone or as part of a larger heraldic representation (BABIŃSKA 2009, 396 Fig. 19). We can see the same image of the lion on the Czech coat of arms. Small tiles were probably placed on a corner ledge, between the first and second chest of the stove or on the top of the stove (MAJANTIE/MUHONEN 2007, 194 Fig. 66, 195 Fig. 71). It cannot be ruled out that it was inserted among the flat panel tiles. There is a small, unglazed cartouche with the Gdansk coat of arms in the Archaeological Museum in the Gdansk collection (MAJANTIE/MUHONEN 2007, 194 Fig. 65).

The collection of the fragmentarily preserved flat panel tiles with the motif of the coat of arms of Gdansk with mythological elements is particularly interesting. In the central part of the filling plates was a cartouche with the coat of arms of Gdansk. In the lower corners are busts of a woman and a bearded man presented in profile. The same motif can be

found in one of the halls of the Old Town Hall on the portal adorning the fireplace and on the portal of a tenement house in the Main Town in Gdansk. Heraldic elements from the area of Royal Prussia were known mainly from tiles placed on the top of the stove or in its corners. The types of flat panel tiles with heraldic motifs were rarely found, which is why they are so exceptional in Gdansk. Most of them were discovered at a single archaeological site – the courtroom located in Prison Tower at the Penitentiary Complex site (KRUKOWSKA 2016, 104, 106). The town coat of arms motif was popular in the decorative patterns of 17th and 18th century stove tiles. There is an image of the Warmia coat of arms covered with a brownish glaze in the collection of the National Museum in Gdansk (KILARSKA 1989, 11 Figs 9, 10). Another artefact with the Warmia coat of arms but green glazed was found at the Shakespeare Theatre site (CZONSTKE 2013, 187 Fig. 10). We have examples from Transylvania as well. This motif existed in Bohemia, Moravia, Silesia and Hungary, two centuries earlier (GRUIA 2012, 107).



Fig. 7: a – Cartouche with the Sforza family coat of arms, Heweliusza, Rajska site. Photo by K. Wiącek; b – Codex desphaera 1469. Allegory of the Sforza family coat of arms. Bibliotheca Estense on Modena, Italy, (WIKIWAND [online]).

#### 4. ‚GDANSK TYPE‘ STOVE

Baroque stoves popular from the 17th to the end of the 18th century were called the Gdansk type of stove, despite being built in various Pomeranian centres. They consisted of two or three chests. They were set on an embellished base. A richly profiled crown was placed on the top. There was an arcade or only niches in the upper parts. The tiles of these stoves had a white coating. The decoration was painted with cobalt blue, copper green or manganese violet. Templates were used for decoration drawing mainly on German prints depicting biblical, genre, allegorical scenes and landscapes (POSPIESZNA 2009, Fig. II.I.c.). This change was caused by the fashion for Chinese porcelain emerging in Europe. White tile stoves were about three times more expensive than ‘ordinary green’ (KILARSKA/KILARSKI 1991, 136; ŚWIECHOWSKA 1955, 171, 172). From the end of the 16th century, increasing number of goods was being imported from Gdansk to the territory of the Kingdom of Poland. In the

inventories and diaries belonging to nobles and the middle class are many objects are referred to as the ‘Gdansk style’. These were both low-cost craft products and all tile stoves, and they became the amenities of houses and residences. Proof of this is a document saying that in one of the palaces of Polish King Jan Sobieski in Jaworów a white stove of the ‘Gdansk type’ was decorated in the Dutch style. This style was typical for Gdansk manufacturers. Great demand, prestige and above all, the price of Gdansk goods contributed to their copying. This also applies to stove tiles. Tiles produced in Royal Prussia were also referred to as ‘Gdansk’, despite the fact that they did not originate from Gdansk itself, but only imitated the style of Gdansk manufacturers, thus adding to their prestige. Potters competed with each other in faithfully reproducing the Gdansk form and painting decoration. That is why it is so difficult to distinguish the origin of tiles today. In time, the local potters who



Fig. 8: Tiles with the Gdansk coat of arms: a – Shield corner tile, Penitary Complex site (KRUKOWSKA 2016, 101–119); b – Shield tile with crowned lion, Gdansk, Lastadia site (BABIŃSKA 2009, 385–402); c – Flat panel tile with the Gdansk coat of arms and with anthropomorphic mythological motifs (KRUKOWSKA 2016, 101–119); d – Anthropomorphic mythological motifs on a house portal (Gdansk 43/44 Długa Street). Photo by Ł. Dziadkowiak and J. Freza.

worked in magnate estates produced local tiles in the 'Gdansk style', which were not as good as the originals, making them much less expensive (POSPIESZNA 2009, 62, 65).

Wars with Sweden in the middle of the 17th century were the cause of the economic destruction of Royal Prussia. An examination of stoves from the Skokloster Palace near Uppsala show similarities to those found in Gdansk, Elbląg, Olsztyn and Malbork. This may indicate that Swedish manufacturers used the same moulds or ready-made tiles coming from the Pomerania region which

might have been stolen from Poland (POSPIESZNA 2009, 63). On the other hand, the study of moulds of the 17th century from an excavation in Lund, southern Sweden, might suggest that they were imported from Germany for use by local potters who did not possess the necessary skills to cut their own moulds. The artefacts discovered in the Baltic region document that the trade in stove tile moulds across Europe during the post-medieval period was possible (GAMSTER ET AL. 1990, 11, 12; MAJANTIE 2007a, 44, 45; MAJANTIE 2007b, 96; MAJEWSKI 2015, 74–77).



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## Conclusion

When analysing heraldic tiles from different parts of the town, we can notice that some motifs dominate over others. The most common was a two-headed eagle motif. On these grounds we can draw a conclusion about the political and economic relations between Gdansk and Western European countries, especially Germany. Likewise significant was the fact that a large part of the population was of German nationality (BOGUĆKA 1962, 154; WIJACZKA 2012, 150, 151, 157, 161).

The second most commonly used motif was the coat of arms of Gdansk, which showed the town's strong position. It was so recognisable because the importance of the town was growing, as it had been granted much autonomy and many privileges by the Polish King Casimir IV Jagiellon in the mid-15th century as a reward for its loyalty in the war with the Teutonic Order (KILARSKA 2007, 139). One of the honours was adding a crown to the coat of arms of the city.

The motif of the Royal Prussia coat of arms which we can find on the stove tiles and on many public buildings in the town shows the strong position and independence that Gdansk had as the main port of the province and of the Kingdom of Poland as well.

However, few finds with the motif of the white eagle, symbol of the Polish Kingdom can be carefully interpreted as a desire to underline the autonomy of the town in mutual relations. This would confirm the history of the centuries-old relationship between Gdansk and the Polish Kingdom. We can reach a similar conclusion about the heraldic motif of the Sforza coat of arms. Through the marriage of an Italian princess to the Polish king, it became a symbol of the powerful Jagiellon dynasty.

The quality of the tiles evident in the clear drawing, the deep relief and precision of the production process indicates that they must have been manufactured in the best local workshops. The decorations combined elements from ready-made graphic patterns, most often Italian, German (Nuremberg, Augsburg, Westphalia, Hesse), Dutch, for example Willem van de Velde the Elder and the Younger, Cornelius van de Velde, Rainier Nooms, Raphael Sadeler, Hendrik Goltzius, Maarten de Voss and with eastern motifs (SAMEK 1984, 195; KILARSKA 1989, 24; KILARSKA 2007, 141; KILARSKA/KILARSKI 2009, 35; POSPIESZNA 2009, 68; MAJEWSKI 2007, 418, 419, 427; MAJEWSKI 2015, 127, 128, 164–167). Gdansk stove tiles production at the end of the 16th century and in the 17th century was connected to the trends prevailing in the art of tiling in the Baltic Sea centres mainly in Germany (KILARSKA/KILARSKI 2009, 35).\*

\* Translated by M. Grabarska.

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# Saxon Stove Tiles Among the Priorities of 3D Scanning and Bohemian Portraits

Martina Wegner

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## Abstract

During a rescue excavation on the Wilhelm-Leuschner-Platz in Leipzig in 2004/05, waste pits with different pottery of the 16th/17th century were discovered. Besides the vessels, large quantities of moulded stove pottery, i.e. models (patrices) and moulds (matrixes), as well as stove tiles as semi-finished, finished, and even used products were found. The Early Modern stove pottery will be evaluated in a thesis (which is now being prepared at Otto-Friedrich-Universität, Bamberg) in the terms of the production technology and image motifs. At the same time, it forms the basis for the second part of a project of the Archaeological Heritage Office of Saxony on Saxon stove pottery, which also includes subprojects for Late Gothic stove tiles and upright tiled stoves up to the time of industrialisation. Attention is paid to the 3D scanning technique, which is applied at the Archaeological Heritage Office of Saxony in Dresden and optimally serves for the evaluation of the research issues. Selected examples with Bohemian portraits illustrate this innovative recording method.

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🔗 Saxon stove tiles – Leipzig – 3D scanning – Jagiellons – Habsburg dynasty – Stefan Schlik – Jan Hus

## 1. INTRODUCTION

The following article presents a methodical issue of a thesis on Early Modern stove pottery (Otto-Friedrich-Universität Bamberg, Germany), which is still in preparation.<sup>1</sup>

First, the thesis is one part of a project of the Archaeological Heritage Office of Saxony on Saxon stove pottery. The project consists of three parts. Stefanie Müller is conducting research on Late Gothic stove tiles, the author is examining stove tiles of the Early Modern period and Stefan Krabath and Rainer G. Richter are researching still existing tiled stoves until the period of industrialisation.

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The relevant subproject is on a specific find complex from Leipzig, Wilhelm-Leuschner-Platz. The site is located south of the city walls, and an archaeological rescue excavation conducted here from 2004 to 2005 uncovered several waste pits from different pottery workshops of the 16th and 17th centuries (HIPTMAIR 2005; 2007; WESTPHALEN 2008, 16, 17). These pits included dishes, technical ceramics, as well as very high-quality stove pottery, e.g., ceramic patrices, matrixes or moulds and tiles. The tiles were both semi-finished and finished products, but also wasters. They came with and without traces of soot on their back surfaces. In the thesis, this stove pottery is examined in terms of its production technology, reliefs and image motifs. For the evaluation, 3D scans of the pieces are generated in the Archaeological Heritage Office of Saxony in Dresden (cf. WEGNER/KRABATH 2016).



Below, the procedure and the advantages of the 3D scanning are illustrated with selected examples from the Wilhelm-Leuschner-Platz in Leipzig, in particular those with a Bohemian reference as an acknowledgement of Prague as the historical capital of Bohemia and the venue of the ‘Europa Postmediaevalis 2018’ conference.

## 2. 3D SCANNING

Since 2005, 3D object documentation has been an important element in scientific research at the Archaeological Heritage Office of Saxony, where close-range scanners for digitising archaeological finds are used. Until 2012, scans were made with a 3D Laserscanner Konica Minolta, which was then replaced by a scanner with a fringe projection system, namely Aicon smartSCAN (SCHMIDT-REIMANN/REUTER 2015, 126). The smartSCAN is equipped with two camera sensors on its left and right side and a central projector that shines fringed light on the object. The stripes move in one direction and are distorted by the curvature of the object. The distortions are registered by the two cameras so that 3D coordinates and colour information can be calculated (REUTER 2009, 13). The scanner also has five different measuring fields. The choice of the right measuring field depends directly on the archaeological question. Usually a ‘normal’ tile is scanned and processed within approximately 30 minutes. All scanned stove tiles have an average resolution between 0.1 and 0.2 mm, which is well-suited for 3D comparisons, scaled standardised images and other analyses. The finished 3D models have a resolution of up to 20 µm and colour information of 2.5 megapixels.

The further processing of the 3D data is carried out with the software package TroveSketch, which has been developed in cooperation between the Archaeological Heritage Office of Saxony and the Chemnitz University of Technology since 2006 (REUTER ET AL. 2014, 128; SCHMIDT-REIMANN/REUTER 2015, 126). With the various 3D shaders of this software, any representation of the 3D models can be called up, e.g. the rear or side view (Fig. 2b–c) or any oblique view. Profiles can also be created with the software in just a few steps.

## 3. BOHEMIAN PORTRAITS

### 3.1 ROYAL HOUSE

The first example from the Wilhelm-Leuschner-Platz in Leipzig is a polychrome glazed tile showing the full figure of a male monarch in a niche with a round arch (Fig. 1). He wears half-length hair, a long coat and a pleated shirt underneath, as well as cow-mouth shoes, as was fashionable in the early 16th century. The crown on his head and the sceptre in his left hand indicate that he is a ruler. Furthermore, the cup in his right hand and the coat of arms at his feet with the Bohemian lion prove that he is a Bohemian ruler, namely the king. By the way, one must note that the coat of arms was glazed incorrectly by the potter, as it shows the coat of arms of the Thuringian landgrave with a red-silver lion against a blue background instead of the Bohemian king with a silver lion against a red background. Nevertheless, the cup points to his function as the Arch-Cupbearer and Arch-Butler, respectively, of the Holy Roman Empire as one of the seven electors who chose the Roman-German king since the 13th century. The office of the Arch-Cupbearer is traditionally occupied by the King of Bohemia. Here it may be either Vladislaus II (1456–1516) of the Jagiellon dynasty or his son and successor, Louis II (1506–1526).

As on the scan or in a photograph, or even on the object itself, a thick glaze covers the fine relief details that can be seen on the clothing. These, e.g. the ornaments on the coat, become much more visible with the 3D scan in the greyscale mode (Fig. 2a), although in general the quality of the relief is not very good. But at least these details can be visualised by means of the 3D scanning technique. It is also worth having a look on the back, where soot traces on the surface can be seen. On the greyscale representation, the fine textile impressions and clay spots the potter had left on the tile during its production become visible (Fig. 2b).

The Jagiellon dynasty, which Vladislaus and Louis belonged to, existed since the 14th century. As a result of tactically wise marriage strategies, they created connections with important rulers of the Holy Roman Empire and beyond, so that by 1500 the Jagiellons were the most powerful dynasty in



Fig. 1: The Bohemian king as the Arch-Butler of the Holy Roman Empire on a stove tile from Leipzig, Wilhelm-Leuschner-Platz, preserved height 27.2 cm, width 18.4 cm, photorealistic 3D scan. Archaeological Heritage Office of Saxony, ID 00134007.

Europe with a vast territory. After their defeat by the Ottoman Sultan at the Battle of Mohács in Hungary (29 August 1526), the Jagiellons no longer held the Bohemian Crown, which then passed to the Habsburgs (FAJT 2003, 21, 75). The Habsburgs were an equally powerful ruling house, which also enlarged its sphere of influence by clever marriage politics (FAJT 2003, 137). Furthermore, the Habsburgs supplied several emperors to the Holy Roman Empire, including Maximilian I (1459–1519), his grandson Charles V (1500–1558) and Charles' brother Ferdinand I (1503–1564).

Ferdinand is also portrayed on tiles from Wilhelm-Leuschner-Platz, e.g. on a green glazed, used tile as a bust, again under a round niche. Here, too, the relief can be better understood in the greyscale mode (Fig. 3).

Ferdinand comes together with his wife, Anna Jagiełło (1503–1547; Fig. 4). The two are shown facing one another as the Bohemian ruling couple adorned with their coats of arms. The reliefs adapt a woodcut by Erhard Schoen (c. 1491–1542) from 1526, the year of Ferdinand's accession to the

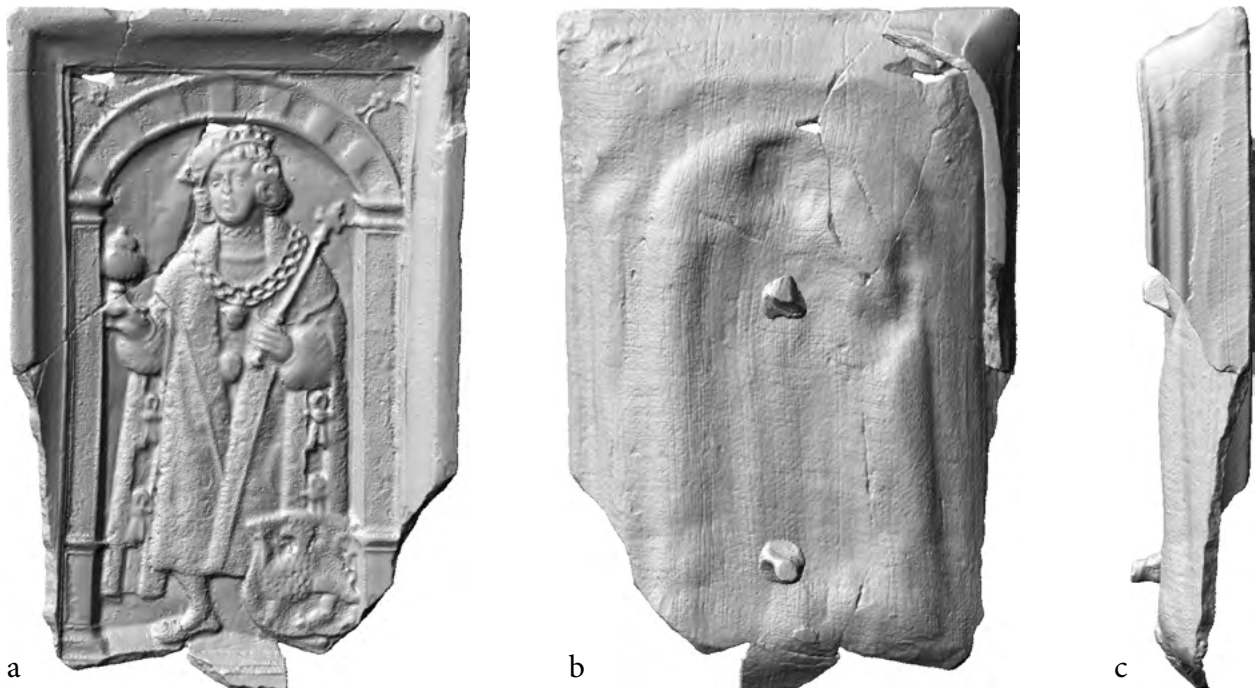


Fig. 2: a – The Bohemian king as the Arch-Butler of the Holy Roman Empire on a stove tile from Leipzig, Wilhelm-Leuschner-Platz, preserved height 27.2 cm, width 18.4 cm, 3D scan in greyscale mode; b – rear view; c – side view. Archaeological Heritage Office of Saxony, ID 00134007.



Fig. 3: Ferdinand I (1503–1564) as the Bohemian king on a stove tile from Leipzig, Wilhelm-Leuschner-Platz, height 21.8 cm, width 19.0 cm, 3D scan in greyscale mode. Archaeological Heritage Office of Saxony, ID 00262093.



Fig. 4: Anna Jagiełło (1503–1547) as the Bohemian queen on a stove tile from Leipzig, Wilhelm-Leuschner-Platz, height 21.8 cm, width 19.5 cm, 3D scan in greyscale mode. Archaeological Heritage Office of Saxony, ID 00134005.



Fig. 5: Count Stefan Schlik (1487–1526) on two stove tiles from Leipzig, Wilhelm-Leuschner-Platz, preserved height 19.7 cm, width 19.4 cm, photomontage and 3D scan in greyscale mode. Archaeological Heritage Office of Saxony, ID 00325337, 00325338.



Fig. 6: Reformer Jan Hus (c. 1369–1415) on a mould from Leipzig, Wilhelm-Leuschner-Platz, height 20.6 cm, width 20.8 cm, 3D scan in greyscale mode, Archaeological Heritage Office of Saxony, ID 00264828.



throne (cf. WEGNER/ KRABATH 2016, 244, 245, Figs 9–11). Hence, the tiles and also their patrices could not have been created until then.

### 3.2 ARISTOCRACY

Another true Bohemian portrait that appears under the corresponding architectural framework is that of Count Stefan Schlik (1487–1526) as a bust on green glazed, used tiles. Again, all details are highlighted in greyscale mode regardless of the glaze layer (Fig. 5). The coat of arms with two oppositely arranged lions on a column or little tower next to his face suggests his identity.

Stefan Schlik's portrait is rendered similarly on a commemorative medal (cf. BESCHREIBUNG 1852, L,424) commissioned by his family after he went missing or even died in the Battle of Mohács, during which he had accompanied King Louis II.

Stefan Schlik was the head of the Schlik family. Rich silver deposits were discovered in his territory on the southern slopes of the Ore Mountains in 1516. A settlement was established, and in 1517 the place became known as St. Joachimsthal, the most significant mining and mint town in the first half of the 16th century (BESCHREIBUNG 1852, 514–516; SIEGL 1911, 201–208; JÄGER 1954, 1–5).

Stefan Schlik was so rich and well-known throughout Europe that his portrait even appeared on stove tiles.

### 3.3 REFORMER

An equally significant Bohemian, the reformer Jan Hus (c. 1369–1415), who was already 'historical' in the 16th century, is shown on a mould (Fig. 6). A better-preserved bust can be seen on a polychrome glazed tile from Oelsnitz in the Saxon Vogtland (cf. WEGNER/KRABATH 2016, 243, Fig. 7a, b). Both objects are given a name inscription that proves his identity. The portrait can be traced back to a woodcut from the 1530s (cf. ŽEGKLITZ/ZAVŘEL 2004, 598, 599, Figs 8, 9).

In his criticism of the Catholic Church, Jan Hus was the precursor of Martin Luther (1483–1546). He worked in Prague as a university teacher and as a preacher. Because of his teachings, he was first excommunicated and finally burned to death as a heretic at the Council of Constance (1414–1418) in 1415. As a result of his execution, there was an uprising in Bohemia of the Hussites, named after Hus, against the Roman Catholic Church, leading to the bloody Hussite Wars of 1419–1436 (TREU 2016, 41, 42, 66).

## Conclusion

First, the relief tiles from Wilhelm-Leuschner-Platz in Leipzig reflect a very broad spectrum of Early Modern motifs for model portraits. These include both Saxon and Bohemian, meaning transnationally important personalities. Hence, on illustrated stove pottery, the transborder mercantile, political, and religious relations and power structures, as well as artistic interactions can be visualised.

An outstanding documentation and evaluation method of illustrated stove pottery is delivered by the 3D scanning technique, which offers several advantages (REUTER 2009; REUTER ET AL. 2014). To begin with, enormous time savings shall be pointed out, as several complete tiles can be scanned per day, including the processing of their data. Furthermore, the 3D scanning enables a high precision of details of production, material and motifs. In contrast to a manual drawing, which is always the interpretation of its author, the reliefs are provided objectively. Thus, a close comparison of objects with identical motifs but of different provenance can be achieved. It can be determined whether identical objects had the same mould or whether they had different moulds based merely on the same patrix (WEGNER/KRABATH 2016, 241). In addition, the TroveSketch software provides several easy features such as alignment, measurement, rendering and intersecting. Standardised true-to-scale or any scaled images can be generated, as can photorealistic renderings and virtual reconstructions. And finally, the inventory of the objects is safeguarded, albeit in a digital version. In this way, it is possible to work anywhere, even in 3D mode, without having the originals on hand.



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# Replication of Renaissance Motifs: from Aristocratic Terracotta to Burgher House Stove Tiles

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## Abstract

This paper concerns the replication of Renaissance decorative motifs between terracotta detailing and stove tiles in the town of Chomutov in north-western Bohemia. Renaissance terracotta segments decorated with stylized plant and geometrical motifs, now in the collections of the Regional Museum of Chomutov (Oblastní muzeum v Chomutově), were originally part of window and door surrounds at the castle of Chomutov in north-western Bohemia. A strikingly similar decorative pattern was identified on stove tiles, some of them of local stove-tile production. This paper addresses the appearance of the same decorative motifs on different types of building material and in different types of social milieu, pointing out how the decorative motifs used in higher social environments were passed on to the material culture of the lower classes.

— Renaissance – architectural terracotta – stove tiles – decorative motifs

## 1. INTRODUCTION

Decorative motifs have been reproduced since the beginning of fine arts – either as exact copies, their more or less accurate imitations or as mere inspiration from the original motif and its adaptation to the means and abilities of the makers. Analogous decorative motifs are found within the same social milieu, as well as between milieus of different social status (ŽEGKLITZ 2012a; ŽEGKLITZ 2012b).

The process of how the individual decorative motifs were reproduced was described as early as the beginning of the 20th century, regarding art drawings as the principal means of their distribution during the Renaissance. Thanks to new printing technologies, printed patterns could have been arranged into books and used by various craft workshops. At the same time, they could have spread very quickly (WINTER 1909, 3). This paper addresses the replication of Renaissance decorative motifs between terracotta detailing and stove tiles in the town of Chomutov in north-western Bohemia (Fig. 1).

## 2. RENAISSANCE STOVE TILES IN CHOMUTOV

In 2008–2009, a rescue excavation was carried out in the area of a former historical suburb of the town of Chomutov, the so-called Upper Suburb, today's Farského Street (by the Institute of Archaeological Heritage of Northwest Bohemia, Most, further referred to as UAPP Most; Fig. 2). The excavation uncovered the remains of a pottery workshop, including the remnants of a potter's kiln and potter's debris dated approximately to the 16th and early 17th centuries. The potter's debris included a ceramic tile mould and fragments of a corresponding green-glazed stove tile decorated with the motif of a vase and pomegranate with foliage (DERNER/VOLF 2009; DERNER /CRKAL 2016; the finds are deposited in the Regional Museum of Chomutov; Figs 3a, b).

A find of a green-glazed cornice tile fragment bearing similar foliage decoration comes from the former village of Horní Ves/Oberdorf, today a western part of Chomutov (Figs 2, 3c; deposited in

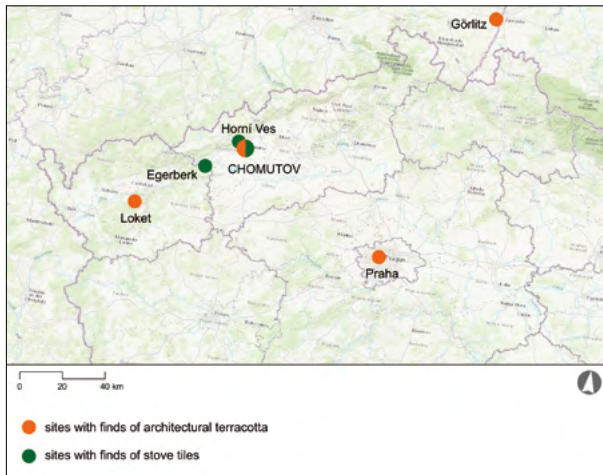


Fig. 1: An overview map of sites with finds of stove tiles and architectural terracotta mentioned in the text. Underlay: World Topo Map.

the Regional Museum of Chomutov). It was found as an isolated find in a trench at the intersection of Bezručova and Husova streets. While the tile above was undoubtedly produced locally, in the case of the Horní Ves tile, local production is only hypothetical. There are no records of local ceramic production in the 16th century, and a large and well-established potters' community isn't documented in Horní Ves until the early 17th century. At that time, however, the village no longer belonged to the Chomutov domain (BALÁŠOVÁ 2006, 48, 49, 53, 54, 69).

Analogous decoration was identified only on two other tiles outside Chomutov and its immediate vicinity, with both tiles, or rather their fragments, coming from Egerberk Castle, about 20 km southwest of Chomutov (Fig. 4; today deposited in the Regional Museum of Chomutov).<sup>1</sup> Fragments of one polychrome-glazed and one green-glazed tile come from several surface surveys with no find context and can be dated only on the evidence of scarce written sources, possibly to before 1557, when the castle is regarded as dilapidated and unsuitable for living (SEDLÁČEK 1923, 75; ŽEGKLITZ 2014, 540, 541).

The relief decoration on all of the aforementioned tiles bears, however, a striking resemblance to the relief decoration on architectural terracotta blocks deposited today in the lapidary of the Regional Museum of Chomutov.

1 We thank Milan Sýkora, UAPP Most, for information on the stove tiles' existence and for allowing us to use the find documentation.

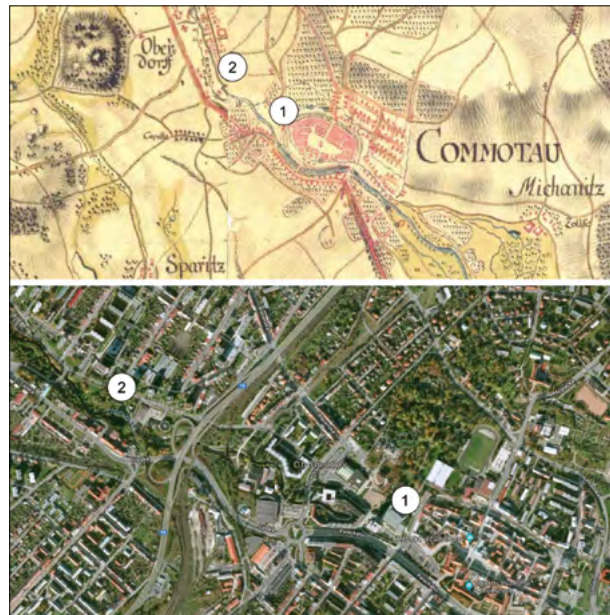


Fig. 2: The town of Chomutov (Komotau) and the former village of Horní Ves (Oberdorf) on an 18th century map (above) and in a recent aerial photograph (below). 1 – Farského St., the area of the 2008–2009 excavation; 2 – intersection of Bezručova and Husova streets (once the area of Horní Ves). Underlays: 1st Military Survey, Section No. 52–53, Austrian State Archive/Military Archive, Vienna, Geoinformatics Laboratory at the University of J. E. Purkyně; Czech Ministry of the Environment (above); Google Maps 2018 (below).

### 3. RENAISSANCE ARCHITECTURAL TERRACOTTA ASSEMBLAGE FROM CHOMUTOV

The assemblage of Renaissance architectural terracotta from Chomutov was described in detail in 2009 (BALÁŠOVÁ 2009). Most pieces come from the old museum collection, though with no information on their origin. One piece was uncovered during renovation work in the 1990s as re-used building material, while six other pieces were found during an archaeological rescue excavation in 2007–2008 in the area of the former castle of Chomutov, albeit in a secondary context (excavation by UAPP Most<sup>2</sup>). It was possible to single out two groups defined by uniform colour and technique, one of them consisting of window jambs and segments of a door portal. The coat of arms depict-

2 We thank Milan Sýkora, UAPP Most, for information on the find context. A full published report of the excavation isn't available yet; for partial results, see SÝKORA 2016, 65–74, 81–85.



Fig. 3: a – a green-glazed Renaissance stove tile from Chomutov, Farského Street, 16th – early 17th centuries. Regional Museum of Chomutov, archaeology collection, ser. no. 437/09-525-19. Photo by M. Soukupová, drawing by M. Balášová; b – a ceramic stove-tile mould from Chomutov, Farského Street, 16th – early 17th centuries. Regional Museum of Chomutov, archaeology collection, ser. no. 437/09-525. Photo by M. Soukupová, drawing reproduced from DERNER/VOLF 2009, 179, Fig. 10; c – a green-glazed cornice stove tile from Chomutov, Bezručova/Husova streets, 16th century. Regional Museum of Chomutov, archaeology collection, ser. no. 33/73. Photo and drawing by M. Balášová.

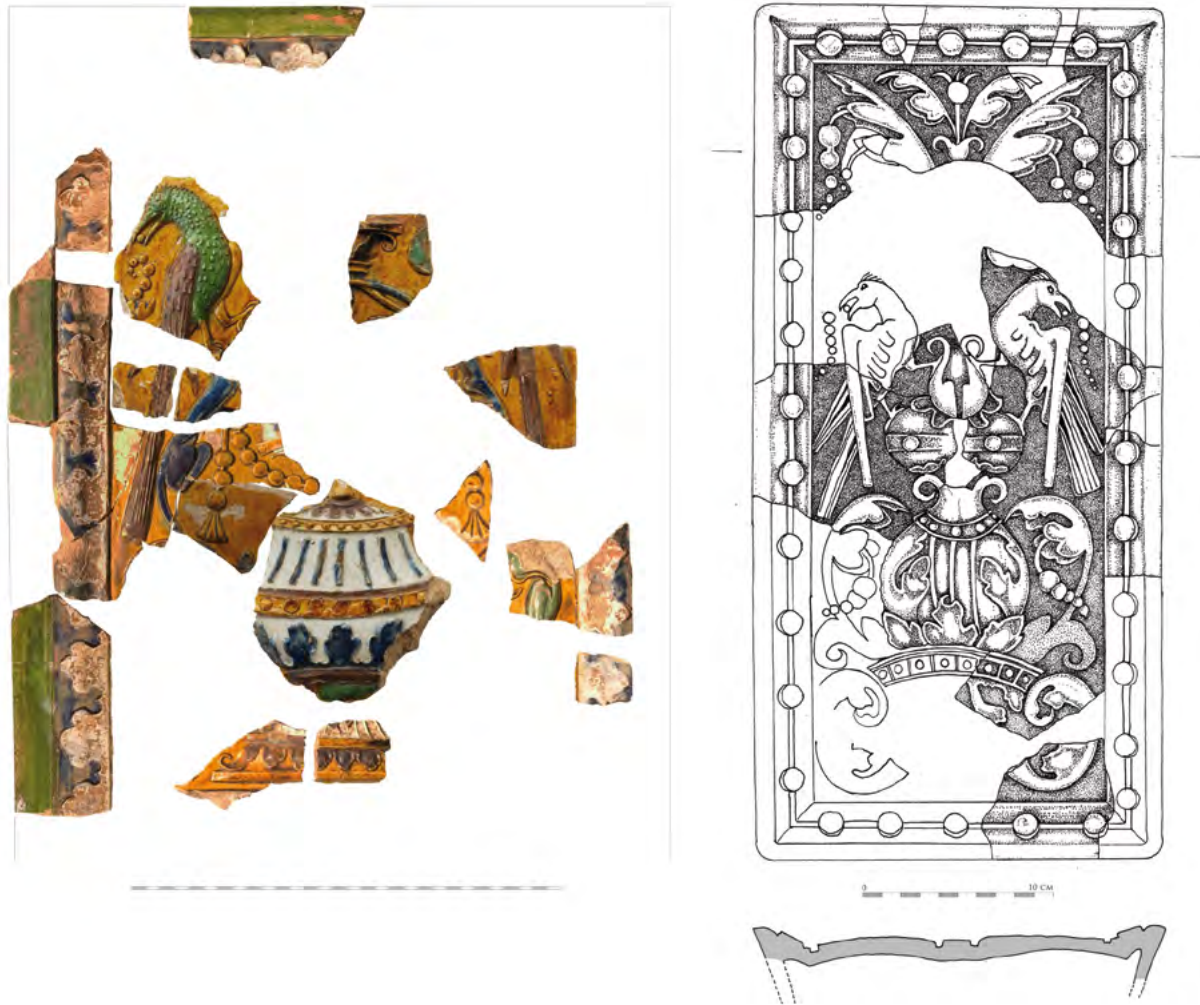


Fig. 4: Stove tiles from Egerberk Castle, before 1557 (?). Regional Museum of Chomutov, archaeology collection, ser. no. 4/82, 10/83. Photo collage by M. Sýkora, drawing by J. Langhamer.

ed on each segment of the portal's semi-circular top arch (a millstone) permitted its attribution to the noble family of Weitmühl, lords of Chomutov in the second half of the 15th century and the first half of the 16th century (Figs 5, 6).

#### 4. THE TOWN AND DOMAIN OF CHOMUTOV UNDER THE LORDS OF WEITMÜHL AND LOBKOWICZ

The Weitmühls resided in Chomutov beginning in the second half of the 15th century, first in the person of Benesch of Weitmühl, who held the highest offices of the land and the royal court under King George of Poděbrady and later Vladislaus II. After Benesch died in 1496, the domain remained for some time in the joint ownership of his sons and

the sons of his brother. In the early 16th century, only two owners of Chomutov are recorded – the brothers Johann and Sebastian, the former being replaced by his son Peter around 1514. After Peter died in 1534, Sebastian became the only lord of the town of Chomutov (until his death in 1549). He was in many aspects a truly Renaissance man – a successful entrepreneur who had considerable profits from silver mining in the Ore Mountains; a prudent urbanist, who founded the mining towns of Hora Sv. Šebestiána and Hora Sv. Kateřiny, but also a new large suburb of Chomutov; a capable official and manager, who, like his father, held a series of important offices (WEIZSÄCKER 1935, 48, 49; ŠTOREK 2003; RAK 2014; GUBÍKOVÁ 2014).

The lords of Weitmühl had the original castle of the Teutonic Order in Chomutov converted to a repre-

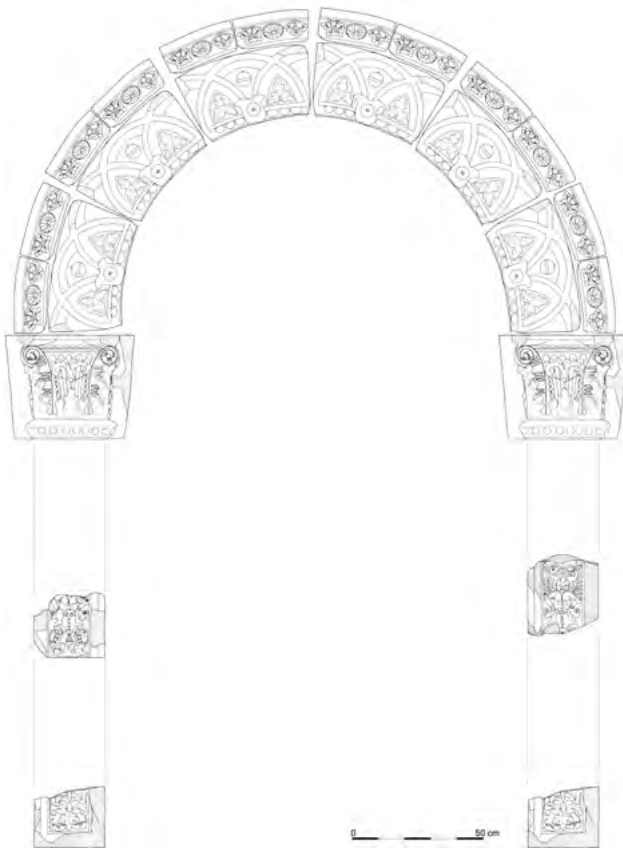


Fig. 5: The terracotta door portal from the former castle in Chomutov, second quarter of the 16th century. Reconstruction drawing by M. Balášová.

sentative aristocratic residence in the Late Gothic and Early Renaissance style. To this day, the large square mullioned windows, analogous to Ludwig wing of Prague Castle, show the opulence of the Weitmühl residence. The rebuilding was begun by Benesch and continued by his sons, especially Sebastian. The completion in 1520 is documented by a decorative stone emblem on the corner of the north-eastern wing. Only five years later the residence and a large part of the town were destroyed by fire, which was immediately followed by extensive rebuilding. Two apprentices of architect Benedikt Ried – Jörg Schremmler and Peter Heilmann – and possibly also Andreas Günther, a native of Chomutov after all – are documented as having worked in Chomutov during the first half of the 16th century. Having become the only master of the town in 1534, Sebastian had the castle's main entrance adorned with a highly representative marlstone portal, unfortunately pulled down shortly before the mid-19th century (NEUGEBAUER

2011, 205–207, 215–218; GUBÍKOVÁ 2014; as far as the portal is concerned see DÁŇOVÁ – GUBÍKOVÁ 2014, 265–271).

Another generation of the Weitmühls sold the town and the domain in 1560 to Archduke Ferdinand of Austria, the governor of Bohemia at the time. Ferdinand held the office of governor until 1566, at which point he assumed rule of his inherited lands in Tirol and Further Austria. It's hardly surprising then that he proceeded to sell the Chomutov domain in 1571 to Bohuslav Felix of Hasištejn and Lobkowitz, the north Bohemian land magnate. After Bohuslav Felix died in 1583, the domain passed to his younger son, Bohuslav Jáchym, who exchanged it shortly thereafter with Jiří Popel of Lobkowitz, one of the most powerful men in the Kingdom of Bohemia at the time, for the Mladá Boleslav domain. The vast estate of Jiří Popel, however, was confiscated in 1594 and for the next 10 years the town of Chomutov became a chamber town in the direct possession of the Crown. In 1605, the Chomutov burghers succeeded in buying the town out of subjection and Chomutov became a free town (SEDLÁČEK 1923, 320–322; WEIZSÄCKER 1935, 49; BOBKOVÁ 2003).

Chomutov was also the capital of the domain under the House of Lobkowitz. The Hassensteins of Lobkowitz moved their residence from nearby Hassenstein Castle and built a family tomb in St. Catherine's Church. The still surviving decoration of the so-called Treasury Hall documents the beauty of the Lobkowitz residence. Little is known about the period between 1594 and 1605, when the town belonged to the royal chamber, except the tragic year of 1598, when the castle almost burnt to the ground. This was followed by partial reconstruction and building modifications for the purposes of the town council, residing in the building since 1605 (e.g. OPITZ 1932, 6, 7, 12–15). The Late Gothic and Renaissance residence was highly altered by various rebuilding works in the following centuries. The residential building complex with a church have survived until today but nearly the whole rest of the compound, i.e. its former utility premises with outbuildings, was damaged heavily in the bombarding of Chomutov at the end of the Second World War and consequently torn down.



Fig. 6: Units of terracotta window/door jambs from the former castle in Chomutov, second quarter of the 16th century. Regional Museum of Chomutov, a – inv. no. La 79 and La 117; b – La 119; c – La 166. Photo and drawing by M. Balášová.



## 5. RENAISSANCE ARCHITECTURAL TERRACOTTA FROM CHOMUTOV AND ITS ANALOGIES

Not only were none of the terracotta blocks in Chomutov preserved in their original context, there is also no written evidence of their production or existence. There are, however, several analogous terracotta assemblages, especially as far as the style of their relief decoration is concerned, dated approximately to the second quarter of the 16th century (Fig. 1). One assemblage comes from the so-called ‘house in the castle of Prague, lying in the corner’ (today the site of house no. 34), where they were used under Vojtěch of Pernstein sometime between 1526 and 1534 (VILÍMKOVÁ 1974, 153–155; CHOTĚBOR 1995). The Pernstein assemblage is highly similar to the architectural terracotta found in the Upper Lusatian town of Görlitz, where it was used for door and window surrounds during the town renewal after the great fire of 1525. The local town council invited an unnamed master brickmaker from Prague, who then trained a local burgher and brickmaker, Ambrosius Lose, in the skill of producing terracotta units with relief decoration (WENZEL 2005, 378–383; 2007). The master brickmaker from Prague is also mentioned briefly by Jan Muk Jr. (1973, 132; see also BÁRTA 1973, 84) who calls him Klaus, the brickmaker from Prague, and gives him credit for taking part in rebuilding the town hall in Bunzlau in Lower Silesia (unfortunately he doesn’t cite any source for this information). The terracotta blocks from Görlitz are dated by written evidence to between 1525 and 1545 at

the latest. The mention of 1545, however, says that no brickmaker skilled in the technique was living in Görlitz at that time, so the *ante quem* date could be considerably earlier. The last analogous assemblage of architectural terracotta comes from Loket Castle in western Bohemia. The terracotta pieces found either during renovation work or during archaeological excavations are associated with the representative eastern wing erected by Albrecht Schlik in 1528–1533/1535 (KAŠIČKA/NECHVÁTAL 1983a, 503–511; KAŠIČKA/NECHVÁTAL 1983b, 48, 49).

The already mentioned lords of Pernstein have long been considered as promoters of using architectural terracotta in Bohemia – they had it applied on their residences and introduced the technique on their east Bohemian estates as well. Especially well-known are the ornate terracotta window surrounds in burgher houses in Pardubice applied after the fire in 1538, but there are terracotta details in Bohdaneč, Chlumec nad Cidlinou, Chrudim, Velké Meziříčí and others. Apart from the Pernstein ‘house in the corner’ in Prague, terracotta blocks with elaborate relief decoration were widely used during the reconstruction of the Pernstein Palace at Prague Castle (later the Lobkowitz Palace) that began in 1554/1555. Production of highly artistically fabricated terracotta in the latter is associated directly with Italian artisans (VILÍMKOVÁ 1974, 155; CHOTĚBOR 1989; HRUBÝ 2003, 158–164; CHLÍBEC 2009). However, the relief decoration on the architectural terracotta from Chomutov and the analogous assemblages is completely different from that applied on the terracotta from Pardubice or from



Fig. 7: A frieze with the city of Nuremberg’s coat of arms, by Hans Sebald Beham, woodcut, around 1520, the Graphic Art Collection of the Albertina Museum in Vienna. Reproduced from ZENO [online].



east Bohemia in general. It also does not reach the fineness of relief decoration achieved on the terracotta from the Pernstein (Lobkowitz) Palace.

Considering all of the aforementioned data, the analogous terracotta assemblages from Prague, Görlitz and Loket seem to have originated between the mid-1520s and late 1530s. Fabrication of the terracotta pieces in Chomutov can thus most likely be connected with castle renewal after the fire in 1525. The terracotta pieces from Prague and Görlitz are the work of a single workshop or possibly a single person – the master brickmaker from Prague. He undoubtedly used, if not the same moulds, the same patterns. However, the producer (or producers) of the terracotta from Loket and Chomutov remains unidentified and that it was the same master brickmaker or his apprentice from the Prague or Görlitz brickyards is merely conjecture.

The circle of apprentices and co-workers of architect and stonemason Benedikt Ried could be the connecting factor here. Wendel Roskopf the Elder, who had worked for Benedikt Ried in Kutná Hora, was employed as a municipal stonemason master in Görlitz in 1517. Ried's other apprentices, Jörg Schremmler and Peter Heilmann, are, on the other hand, documented as having lived and worked in Chomutov in the first half of the 16th century. In general, it can be said that north-western Bohemia, Upper Lusatia and Saxony formed an interconnected cultural region in the Late Gothic and Early Renaissance periods, where stonemasons and other building workers and artisans moved freely across borders, being hired for various building projects (NEUGEBAUER 2011, 205–218; WENZEL 2005).

## 6. SIMILARITIES IN DECORATION OF STOVE TILES AND ARCHITECTURAL TERRACOTTA

Both terracotta blocks and stove tiles from Chomutov bear Renaissance-style relief decoration based on a grotesque ornament consisting mainly of a vertical candelabra motif with foliage. Identical or nearly identical motifs were identified on both types of material – especially the motif of a vase and pomegranate (the tile from Farského St., a tile from Egerberk Castle and a terracotta block; **Figs**

**3a, 4, 6c**), but also individual patterns combined in various ways – a suspended row of beads with a tasselled end (a tile from Egerberk Castle, terracotta blocks; **Figs 4a, 5, 6a**) or identically depicted motifs of stylized blossoms (a tile from Farského St., a tile from Egerberk Castle, terracotta blocks; **Figs 3a, 4b, 5, 6c**) and leaves – the latter with an arched cut-out at the top and slight oval protuberance in the middle (a tile from Horní Ves, a tile from Egerberk Castle, terracotta blocks; **Figs 3c, 5, 6**). A bead moulding along the rim is present on both the stove tiles and terracotta (a tile from Farského St., a tile from Egerberk Castle, a terracotta block; **Figs 3a, 4b, 6b**). A motif of two birds flanking a vase in a candelabra ornament that is depicted on tiles from Egerberk Castle (**Fig. 4**) was identified only on a terracotta block from Görlitz (WENZEL 2007, 58).

## 7. SPREAD OF DECORATIVE MOTIFS

As mentioned above, the principal means of spreading and copying decorative motifs in the Renaissance were art drawings. Thanks to the new technology of book printing, prints could have been assembled into books but also effectively distributed and used in various artisan workshops. At the same time, adopted decorative motifs could go through various modifications. Printed patterns are assumed to have reached north-western Bohemia mainly from neighbouring Saxony. Relief decoration on the architectural terracotta and stove tiles in Chomutov reflects the decorative style and employed decorative elements of Hans Brosamer, Hans Sebald Beham, Daniel Hopfer, Heinrich Aldegrever or Peter Flötner – mostly the so-called 'Little Masters' (*Kleinmeister*), a loose group of German printmakers working in the first half of the 16th century (for the specific shape of leaves see **Fig. 7**).

The question is whether local potters were inspired by motifs they could see at the noble residence, or possibly in the brickyard where terracotta blocks were being produced, or if they got their inspiration from the same decorative patterns as the terracotta makers. Due to the fact that similarities in decoration were identified within one locality, the former seems more probable.



To strengthen the argument, it would be necessary to look for analogies in other places as well, comparing the architectural terracotta decoration with the contemporary stove tile production. Jan Muk Jr. noticed that *'a stove tile from Prague Castle, which was recently found, had decoration similar to the Pernstein terracotta'*, unfortunately without providing any further information on the find context or its picture (MUK 1973, 133).

Undoubtedly produced in a less demanding and quicker way than stonemason products, the architectural terracotta (as well as stove tiles) enabled

the quick adoption of fashionable Renaissance patterns, also in the form that was accessible to an ordinary townhouse owner – both in the interior (tile stoves) and on the exterior (the terracotta door and window surrounds). Cheaper and more accessible material (brick and pottery clays) enabled production on a larger scale, though only its fragment has survived until today. The burghers could thus more easily afford splendour reserved until then for the higher classes or the wealthier of their kin.

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## Conclusion

The paper points out analogies between decoration on architectural terracotta and stove tiles in the north Bohemian town of Chomutov. In the case of terracotta, its fabrication can be ascribed to a professional brickmaker who was likely to come from the brickyard at Prague Castle, or his apprentice. In the case of stove tiles, their production can be at least partly ascribed to the local pottery workshop. The stove tiles from Chomutov were undoubtedly made in the local pottery workshop, due to the presence of the corresponding stove tile mould (we can only speculate as to where the tile from Horní Ves was made). The mould itself though could have been fabricated somewhere outside Chomutov, and even in the event of its local production, its maker (or the maker of the primal model) could have been inspired by a printed pattern. And yet, no corresponding printed motif has been satisfactorily identified thus far, only matching decorative details in the engravings of the German artists of the time. Considering that both architectural terracotta and stove tiles with analogous decoration were made within a single town, the potter could very likely have been inspired by the decoration on the terracotta blocks. There is of course the possibility that the primal (wooden) patris from which the ceramic mould (matrix) was fabricated was made in the brickyard working on the commission for the Weitmühl residence in Chomutov after 1525.

On the other hand, the stove tiles from Egerberk Castle were by all means luxury goods, very likely of foreign origin (there is no evidence of who their maker was). Still, their decoration could derive from the same prints that served as the inspiration for the architectural terracotta.

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# Early Modern Period Stove Tiles from Slavonia

Ivana Škiljan

## Abstract

This article presents a comprehensive overview of 16th and 17<sup>th</sup> century stove tile production in the historical province of Slavonia. The stoves are multicoloured or dark-brownish and 'dark blue' glazed, consisting of panel tiles with depictions of allegorical images, enriched with putti, architectural and floral elements. Their themes, models and layouts fit perfectly within the 16th and 17<sup>th</sup> century Central European fashion of stove designs. Still, the majority of stoves consisted of simple and cheap green glazed tiles that often resemble contemporary tapestry designs, which reflects the economic and social situation in Slavonia at that time. Connections of local craftsmen from northwest Croatia with Styrian local workshops and the cultural centres from abroad can be seen both in the use of the imported matrices and in the adoption of widespread samples to domestic possibilities and requirements.

🗝️ Croatia – Early Modern period – stove tiles – Slavonia – Veliki Tabor Castle – Fortuna Velata – Ninus Maior – tapestry designs

## 1. INTRODUCTION

Stove tile production in the territory of Slavonia<sup>1</sup> – a province that occupies the Sava and Drava basin of present-day Croatia – begins in the Late Middle Ages. During this period, these tiles, produced at the very border of European stove tile production, show direct and indirect influences and connections mainly with products from the territory of present-day Hungary and Hungarian Royal workshops. High-quality products of the tiled stove craft were mainly ordered by feudal magnates and the Church, while archaeological investigations confirm the use of simple beaker-tiles with circular openings and vessel-shaped tiles with triangular and quatrefoil openings, as well as inverted

beaker-tiles, in more simple households in rural areas.<sup>2</sup>

During the late medieval period, only two sites are interpreted as possible workshops – Zagreb–Nova Ves (MAŠIĆ 2002) and Gudovec (JAKOVLJEVIĆ/TKALČEĆ 2004, 149, 150). Archaeological excavations unearthed the workshop in Zagreb–Nova Ves, and its activity was divided into three main phases (MAŠIĆ 2002, 20–35). Products from the first phase

1 Until 1699 the term Slavonia was, unlike today, used for the territory of approximately the whole present-day north-western Croatia.

2 Remains of a collapsed stove found in situ consisted of simple tiles in a settlement near Sisak (site named AS 9 Burdelj) abandoned due to Ottoman raids at the end of 16th century confirm that assumption (RADMAN LIVAJA 2010, 302), while the remains of simple dish-shaped vessel tiles with rectangular openings are found at the rural settlement of Ciglenice near Varaždin, which was abandoned roughly in the mid-16th century for the same reason (BEKIĆ 2006, 43).

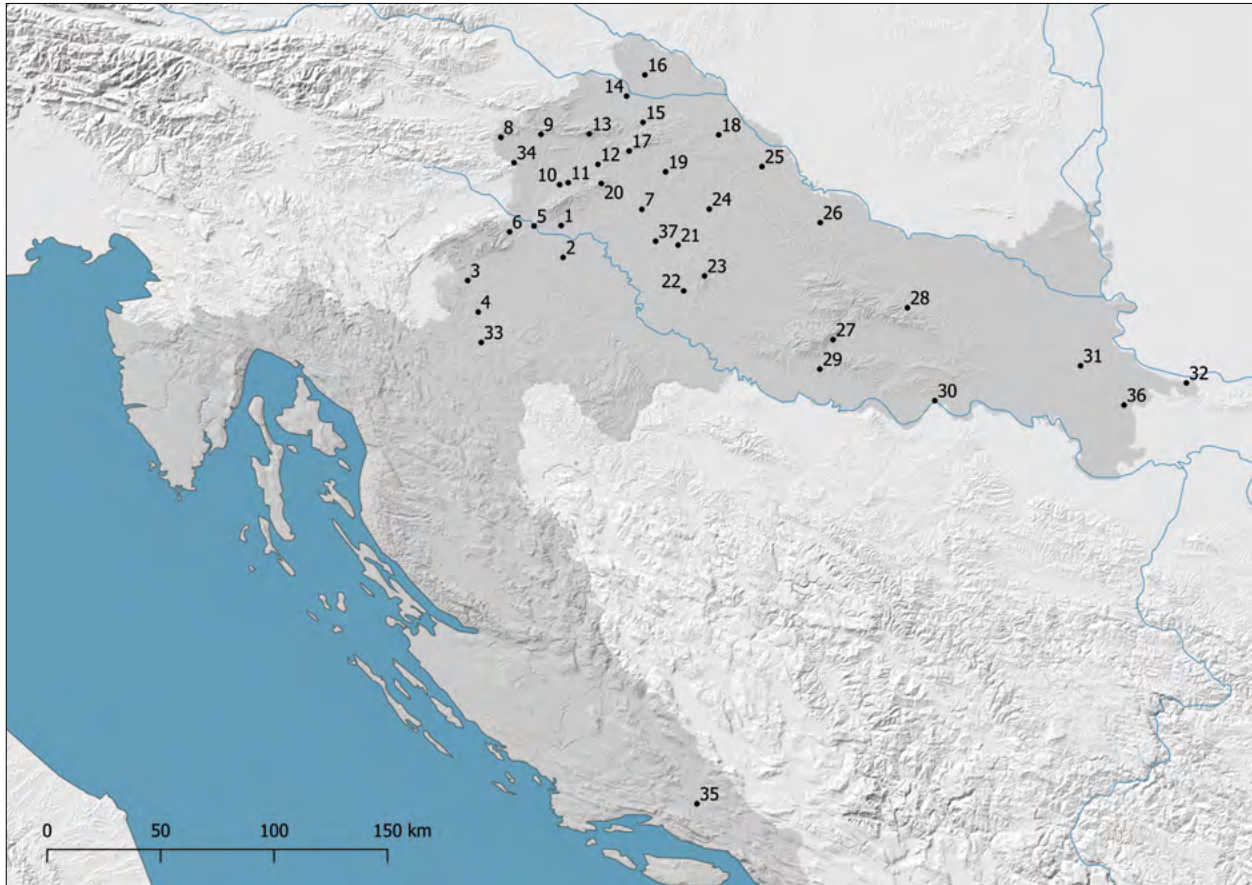


Fig. 1: Map with the display of analysed sites: 1. Zagreb–Nova Ves; 2. Velika Gorica–Lukavec; 3. Ozalj; 4. Dubovec; 5. Susedgrad; 6. Samobor; 7. Vrbovec; 8. Dvorac Veliki Tabor; 9. Krapina; 10. Donja Stubica; 11. Samci; 12. Konjščina; 13. Židovina; 14. Varaždin; 15. Varaždinske Toplice–Ciglenica; 16. Čakovec; 17. Čanjevo; 18. Koprivnica; 19. Križevci; 20. Zelingrad; 21. Čazma; 22. Popovača–Moslavina-grad; 23. Garić-grad; 24. Gudovac; 25. Đurđevac–Stari grad; 26. Virovitica; 27. Požega–Rudine; 28. Ružica-grad; 29. Nova Gradiška; 30. Slavonski Brod; 31. Vinkovci; 32. Ilok; 33. Barilović; 34. Cesargrad; 35. Nutjak; 36. Nijemci; 37. Marča.

of production at Zagreb–Nova Ves workshop were manufactured in a period in which the whole settlement was in the ownership of the Zagreb archbishop from the Alben family who came to the court of King Sigismund von Luxembourg from the territory of today's Czech Republic.<sup>3</sup> However, when Croatia found itself in a new political union with the Habsburgs in 1527, products of tiled stove craftsmen from Slavonia in many cases show similarities with the material from the present-day Slovenian and Austrian territories. Still, comparisons of Slavonian material with the material from the

<sup>3</sup> We know about many activities of the architects from Parlers school in Zagreb, on the products from the first phase of the Zagreb workshop we can recognise influences from the Czech Lands as well as from the Royal workshops in Buda Castle from the Luxembourg period (MAŠIĆ 2002, 38).

Hungarian Early Modern period craft centres and other interesting sites are almost fully unknown and further publications will surely provide ample information regarding these potential connections.

## 2. CURRENT STATE OF RESEARCH

Although the study of post-medieval stove tiles from archaeological contexts is developing rapidly, a detailed and systematic study of stove tile ceramics from either the medieval or post-medieval period in Croatia has not been conducted to date.<sup>4</sup> Taking that into account, analyses must be focused mainly on unpublished tiles from museum

<sup>4</sup> For more about the first attempt at the systematisation of stove tile production in Croatia, see: ŠKILJAN 2015.



Fig. 2: Veliki Tabor Castle. Reconstruction of a tiled stove, c. 1600.



Fig. 3: Veliki Tabor Castle. Reconstruction of a tiled stove, c. 1600.

deposits (Fig. 1), which can, together with published material (STAHULJAK/KLOBUČAR 1958; MAŠIĆ 2002; RADIĆ/BOJČIĆ 2004), provide basic information about stove tile production in Croatia. Several thousand unpublished tile sherds have been analysed, but this article focuses only on the most common motifs and types of Early Modern tiles with relief decoration. The presented map indicates that even in the southern regions of present-day Croatia, stove tile products were apparently in use. Fortress Nutjak in Dalmatia (Fig. 1/ No. 35), set in the high mountains near the Cetina River, where winters are very harsh, was evidently furnished with post medieval stoves composed of simple beaker-tiles with circular openings. Dated (according to stratigraphic data) to the period between the end of the 15th/ beginning of the 16th and the 17th century (TABAK ET AL. 2010, 425–439), these fins could represent the southernmost find-spot of Early Modern period tiles in Europe.<sup>5</sup>

<sup>5</sup> Istria is also a Croatian region with interesting stove-tile findings, but the investigations are still in progress (VIŠNJIĆ 2012, 146).



Fig. 4: Veliki Tabor Castle. Reconstruction of a tiled stove, c. 1600.



## 2.1 VELIKI TABOR CASTLE TILE-STOVES

### 2.1.1 Three tiled stoves reconstructed *in situ*

More than a thousand tile fragments found at Veliki Tabor Castle (Fig. 1/No. 8, Fig. 2) can serve as a representative example of the Modern Age repertoire of stoves typical for the northwest part of present-day Croatia. All the stove fragments were found in the debris layer and therefore an archaeological dating based on the find-spot and cultural layer horizon was not applicable (ŠKILJAN 2007, 98–116). The age of the stove tile fragments was evaluated by their visual appearance (ŠKILJAN 2015, 178–184; ŠKILJAN/ANTONY ČEKALOVÁ 2018, 40–57). It is, however, important to single out the three largest groups of finds that provided elements for a reconstruction of stoves *in situ* (Figs 2, 3, 4). All three stoves can be dated to around 1600 (ŠKILJAN/ANTONY ČEKALOVÁ 2018, 45). Except for the multi-coloured glazed tiles ornamented with a relief depicting a two-tailed fantastic creature (siren or Melusine, Figs 2; 7/7, 8; 8/5, 12), which stand out from the usual repertoire of Late Renaissance motifs and the quality of tiled stoves characteristic of the territory of present-day Croatia (ŠKILJAN 2007, 35–74), other groups that have been singled out can be described as representative and very common examples of tiled stove production in the mentioned territory, especially the stove represented in Fig. 4. The stove has relief ornament that imitates wallpaper (Fig. 5/1), in the shape of an uninterrupted motif of a rosette on a channelled surface that belongs to one of the most frequently-used ornaments on tiled stoves from the Croatian Early Modern period (ŠKILJAN 2015, 203; ŠKILJAN/ANTONY ČEKALOVÁ 2018, 44). It is an example of a monochrome, lead glazed, so-called tapestry ornamented tiled stoves of a simple production that were popular throughout Europe probably due to their price that was affordable for a larger number of clients.<sup>6</sup> This type of tapestry ornament is documented on tiles from Croa-

6 Apart from numerous Croatian examples, if we focus on the closest analogies, we must point out finds from Pišće Fortress, Celje Castle, Slovenske Konjice Castle (STOPAR 1977, 73, 93), Ljubljana Castle (GUŠTIN/HORVAT 1994, 130–133), Planina Pri Sevnici Castle (STOPAR 1977, 79), as well as examples from Graz (see picture 630 in: FRANZ 1981) and Upper Austria (KALTENBERGER 2009, 511).

tia very frequently and in many variations green<sup>7</sup> (Fig. 6/1) or dark glazed<sup>8</sup> (Fig. 6/2) and, occasionally without glaze<sup>9</sup> (Fig. 6/3).

The reconstructed multi-coloured glazed tiled stove (Fig. 3)<sup>10</sup> consisted of tiles with a relief decoration with a floral-vegetative ornament of a rosette<sup>11</sup> in a rhombus (Fig. 5/8, 10) which, without any doubt, represents the most popular decoration on Croatian tiles from the second half of 16th and 17th centuries (Fig. 5/7). Such a design can be found in different combinations and with differently combined glazes throughout Europe.<sup>12</sup> Veliki Tabor Castle undoubtedly had at least four different tiled stoves ornamented with this motif. Panel-tiles with a flat-convex panel (medallion) and floral motifs in the corners, which are also presented on the reconstructed stove (Fig. 5/9), are very frequent at numerous sites in Early Modern Croatia, such as Dubovac Old Town (ŠKILJAN 2015, 102), Čanjevo Fortress (ČIMIN 2008, 187), Samci Fortress (Fig. 5/6) and Donja Stubica Fortress (Fig. 5/5).

7 Samobor and Susedgrad fortresses (STAHULJAK/KLOBUČAR 1958, 217), Čanjevo Fortress (ČIMIN 2008, 188), Cesargrad Fortress (ŠKILJAN 2018, 155), Križevci Old Town (ŠKILJAN 2015, 110).

8 Cesargrad Fortress (ŠKILJAN 2018, 116, 117), Donja Stubica Fortress (ŠKILJAN 2011, 112), Konjščina Castle and also Veliki Tabor Castle (see Fig. 6).

9 Čazma Old Town (see Fig. 6) and Veliki Tabor Castle (ŠKILJAN 2015, 395).

10 This stove is particularly interesting because the same fragments made of the same clay and glazes are held at the Celje Regional Museum (STOPAR 1977, 78; BREGANT 1997, 35). Identical fragments can be recognised in the published material from Slovenske Konjice Castle (STOPAR 1977, 80). For more, see ŠKILJAN/ANTONY ČEKALOVÁ 2018.

11 Identical fragments can be recognised in the published material from Slovenian Konjice Castle (STOPAR 1977, 80). For more, see ŠKILJAN/ANTONY ČEKALOVÁ 2018.

12 It has many known parallels from the neighbouring Austrian and Slovenian territories, for example Slovenske Konjice (STOPAR 1977, 69), Celje Old Town (STOPAR 1977, 71) and other Slovenian sites (STOPAR 1977, 76, 79, 85, 87). Similar findings from various sites in Croatia also testify of the popularity of the motif: Samci Fortress, Čanjevo Fortress, Cesargrad Fortress, Dubovac Old Town, Veliki Tabor Castle, Ozalj Castle, Koprivnica Old Town, Susedgrad Fortress (ŠKILJAN 2015, 248–260).



Fig. 5: 1, 8 – Panel-tile, green-glazed earthenware, c. 1600, Veliki Tabor Castle; 2 – Corner-tile, dark blackish-glazed earthenware, second half of the 16th century – 17th century, Veliki Tabor Castle; 3 – Panel-tile, unglazed earthenware, 16th century, Čazma Old Town; 4, 5 – Panel-tiles, green-glazed earthenware, second half of 16th century – 17th century, Donja Stubica Fortress; 6 – Panel-tiles, green-glazed earthenware, late 16th/early 17th century, Samci Fortress; 7 – Panel-tiles, green-glazed earthenware, second half of 16th/17th century, Cesargrad Fortress; 8–10 – Panel-tiles, multi-coloured-glazed earthenware, c. 1600, Veliki Tabor Castle.



Fig. 6: 1–3 – Panel-tiles, green-glazed earthenware, 17th century, Veliki Tabor Castle; 4 – Cornice-corner-tile, green-glazed earthenware, 17th century, Veliki Tabor Castle; 5 – Panel-tile, multi-coloured-glazed earthenware, late 17th century, Donja Stubica Fortress; 6 – Panel-tile, multi-coloured-glazed earthenware, late 17th century, Ozalj Castle; 7 – Dish-shaped vessel tile with rectangular opening, dark bluish-glazed earthenware, 16th century, Veliki Tabor Castle; 8 – Cornice-tile, dark bluish-glazed earthenware, 16th century, Veliki Tabor Castle.; 9 – Dish-shaped vessel-tile with square opening, dark bluish-glazed earthenware, 16th century, Veliki Tabor Castle; 10 – Corner-tile, dark green-glazed earthenware, 16th/17th century, Čakovec Old Town; 11 – Panel-tile fragment, multicoloured-glazed earthenware, 17th century, Veliki Tabor Castle; 12 – Panel-tile fragment, multi-coloured-glazed earthenware, 17th century, Veliki Tabor Castle; 13, 14 – Panel-tiles fragment, dark bluish-glazed earthenware, 17th century, Veliki Tabor Castle.



### 2.1.2 Other groups of tiles

As mentioned above, tapestry designs were the most common, and the Veliki Tabor material reveals several different types of designs. A continuous pattern is found on groups of tiles glazed in dark ('dark blue') glaze or in combination with light blue segments and ornamented in an uninterrupted tapestry floral-curlly ornament (**Fig. 6/11–14**). This design also has several known parallels in Croatia (STAHULJAK/KLOBUČAR 1958, 217) and, again, in Styria.<sup>13</sup> Other groups of tiles were also distinguished, such as the group of tiles with the prevailing basic tapestry ornament featuring a stylized lily motif in a rhombus (**Fig. 6/1**). This design popular in the 17th century can be found at many sites in Croatia in green or a multi-coloured glazed version (**Fig. 6/6**; ŠKILJAN 2015). Tiles decorated with *masceron* (**Fig. 6/2**) and balustrades (**Fig. 6/3**), as well as cornice corner-tiles with an attached round panel with a heraldic depiction of a two-headed eagle (**Fig. 6/4**) are made of the very similar clay and glaze. All three motives have many known parallels from the neighbouring Slovenian and Austrian territories, but are also recognized in Croatian material,<sup>14</sup> which only confirms their popularity. Uninterrupted curly tapestry ornament can also be recognised on a small number of 17th century fragments from the Veliki Tabor Castle glazed in dark brown or ochre, very similar to the design presented in **Fig. 6/5**.<sup>15</sup> At Veliki Tabor Castle, numerous groups of dark-blue coloured fragments (the tiles were decorated with a dark-brown or dark-green lead glaze, which gave the stove a black appearance) belonged to one separate stove. This stove consisted of half-cylinder-tiles, dish-shaped vessel-tiles with a rectangular opening and cornice-tiles with plain surface panels without decoration (**Fig. 6/7–9**), maybe similar to certain stoves from the first half of the 16th century presented in art (HENKEL 2012, 161, fig. 269).

13 Reconstruction of this tapestry motif is known from a drawing from Slovenske Konjice Fortress (STOPAR 1977, 73).

14 See more in: ŠKILJAN 2015.

15 This design reassembles to fragments of tiles from Ljubljana Castle, which are interpreted as a continuous pattern motif of pierced heart similar to patterns on stoves from central Germany (GUŠTIN ET AL. 1994, 77, 137), but Veliki Tabor fragments represent a more simplified version of this motif.

### 2.1.3 Group of tiles decorated with allegorical scenes below arcades

Another group of fragments made of clay with similar characteristics and finished with a green lead glaze could have constituted a Renaissance tile stove from the first third of the 17th century with allegorical depictions below arcades, one of which is a depiction of *Fortuna Velata* (**Fig. 7/1**). The iconography is similar to a sketching by Hans Friedrich Schorer from 1585 (KRISTIANSEN 2011, 13–20). The opportunity to copy motifs on woodcuts and engravings, like this motif of clearly central European fashion,<sup>16</sup> has made it easier for the mould makers to use more intricate compositions and tell more complex stories. Illustrations for the most widely read religious and profane prints of the era obviously also made an impact on stoves from the Drava – Sava basin. This stove also constituted another type of tile: panel-tiles decorated with a floral motif with a veil below the arcade, present on Styrian material from Celje Old Town (GUŠTIN ET AL. 2001, 236, cat. unit 228) and Slovenske Konjice Castle (STOPAR 1977, 74, fig. 9). This design is very similar to panel-tiles ornamented with a veil and rosette with *putti* heads under an arch recorded at Slovenian (Slovenske Konjice Castle: STOPAR 1977, 97, cat. units 1–3) and Croatian sites (**Fig. 7/5**). Veliki Tabor Castle material once again shows that motifs from Early Modern Croatia became increasingly allegorical in nature. Summarising this brief insight into a very rich collection of stove-tiles from Veliki Tabor Castle, located on the very border between the territories of present-day Slovenia and Croatia, most detailed parallels with Styrian material are not surprising. It is quite obvious that the motifs travelled from central European towns with high quality workshops through Austria and Slovenia to Croatia.

16 Two examples from Frankfurt am Main that can be compared to a tile with *Fortuna Velata* from Veliki Tabor Castle come from the atelier of Johannes Vest from Frankfurt (1610–1630). I am very grateful to Mr. H. Rosmanitz for introducing me to these examples from FurnArch.



### 3. ABOUT THE MAIN CHARACTERISTICS OF 16TH AND 17TH CENTURY SLAVONIAN TILED STOVES

The tiles from the territory of Early Modern Slavonia show elements of the Renaissance and Early Baroque art style: they gain a rectangular shape, they are richer in ornament and more diverse. Still, compared to the centres of European stove-tile production, Renaissance panel-tiles from Croatia were not decorated with a particularly wide range of images. In the search of ornaments with allegorical scenes, portraits of secular and clerical rulers, heroes from antiquity, etc., framed in almost architectural decorations, we must point out that the scenes from the Old and New Testaments were (at this state of research) the most common. Several examples of this series of images with Passion of Christ scenes (especially the motif of the Crucifixion of Christ shown in **Fig. 7/4**) confirm that they were quite widespread during the second half of 17th century.<sup>17</sup> Although this motif has many known parallels, one relevant connection is a stove from Schönberg near Oberwöltz (GUŠTIN/HORVAT 1994, 81) with relief allegories of the planets and the *artes liberales*. The allegory of the planet Mars is recognised on panel-tiles from Celje Castle (STOPAR 1977, 66, fig. 1) and Donja Stubica Fortress (ŠKILJAN 2015, 412, cat. unit. 149). On the afore-mentioned stove from Schönberg, R. Franz notes the influence of Salzburg, the stove-making of Upper Austria and the Early Renaissance art of Nuremberg (FRANZ 1981, 114, fig. 364).

Another group of motifs inspired by antiquity, and obviously also quite popular, were the Series of Muses and Series of Great Soldiers. From the Series of Muses according to Philip Galle, only two examples (until now) have been recognised: Terpsichore (UNGER 1988, 208), the Muse of Dance from Čanjevo (ČIMIN 2008, 189) and Samci Fortress represented in **Fig. 7/3**, and Urania (UNGER 1988, 212), the Muse of Astronomy, from the

17 Croatian examples have been excavated at Samci Fortress, Donja Stubica Fortress, Konjščina Castle (ŠKILJAN 2015, 347), Veliki Kalnik Fortress (OKROŠA ROŽIĆ 2007, 98), and in Slovenia at Ptuj Castle, Smednik Castle, Celje Old Town and Ljubljana Castle (GUŠTIN/HORVAT 1994, 113, cat. units 64–70). Panel tiles with architectural framing depicting scenes of Jesus Christ's life are also recognised on Hungarian material from Esztergom, Visegrád, Sopron, Eger and Pápa (KOLLÁTH 2015, 242).

same site (**Fig. 7/2**). Tiles from Samci Fortress can be dated archaeologically very well based on the find-spot and cultural layer horizon in late 16th/early 17th century. The same two Muses appear on Slovenian tiles from Ljubljana Castle (GUŠTIN/HORVAT 1994, 35; 113, cat. units 71, 72) and Kozlov Rob Castle near Tolmin (GUŠTIN/HORVAT 1994, 78). A panel-tile from Susedgrad Fortress (**Fig. 7/6**) depicting a rider with a helmet decorated with feathers and carrying a flag with a crushed enemy under the horse within an architectural frame is without any doubt NINVUS (the king of Assyria and the founder of Niniva).<sup>18</sup> Tiles that create an iconographic unit with relief ornaments below the arcades with historical-allegorical, mythological and religious scenes, forming groups of related tiles made on the basis of a graphic template, are less represented than the tiles that paid off better in economic terms, because they were more easily made and ornamented with tapestry patterns. Repeated patterns, which formed a wall-paper like ornamentation when placed side by side, were trend-setting for that time, and examples from Veliki Tabor Castle are by no means the only ones known. Geometric patterns are also used,<sup>19</sup> like a reticular motif on green-glazed panel-tiles from Donja Stubica Fortress (**Fig. 5/4**). Geometric patterns like the so-called *Kasettendeckendekor* (as the one represented on the corner-tile (**Fig. 6/10**)) are also rather typical.<sup>20</sup> Different types of cornice-tiles are most usually decorated with stylised *acantus* leaves, while on the pedestal elements we can find floral-vegetable motifs (**Fig. 8/11, 12**). On the moulded panel-crown-tiles, as well as on horizontal overhanging separator-tiles, the most popular documented designs are two opposite oriented dolphins or fish, two-tailed mermaids, winged *putti*

18 The iconography maybe could be compared to a sketching from Matthäus Merian 1593; Peter II Aubry (1596–1666/68; publisher); from 1615–1617 (VIRTUELLES KUPFERSTICHKABINETT [online]). The depiction on the tile is very similar to a panel-tile from Baden-Württemberg dated at the beginning of the 17th century (Furnologia [online]).

19 This motif is known from Ozalj Castle, Cesargrad Fortress (ŠKILJAN 2018, 116), Susedgrad Castle and Samci Fortress (ŠKILJAN 2015, 112), as well as from Possert Castle (VIŠNJIĆ 2012, 146, T. 14, fig. 21).

20 It can be found at several sites in Croatia: Čakovec Old Town, Krapina Old Town, Konjščina Castle and Varaždin Old Town (ŠKILJAN 2015, 110, 118).



Fig. 7: 1 – Panel-tile, green-glazed earthenware, first half of 17th century, Veliki Tabor Castle; 2, 3 – Panel-tiles, green-glazed earthenware, late 16th/first half of 17th century, Samci Fortress; 4 – Panel-tile, green-glazed earthenware, second half of 16th/early 17th century, Donja Stubička Fortress; 5 – Panel-tile, green-glazed earthenware, first half of 17th century, Ozalj Castle; 6 – Panel-tile, dark brownish-glazed earthenware, 17th century, Susegrad Fortress; 7 – Panel-tile, multi-coloured-glazed earthenware, c. 1600, Veliki Tabor Castle; 8 – Corner-tile, multi-coloured-glazed earthenware, c. 1600, Veliki Tabor Castle.



Fig. 8: 1 – Panel-tile fragment, earthenware decorated with *sgraffito* ornament in combination with brush painting on a light ochre engobe, 16th century, Samobor Castle; 2 – Corner-tile fragment, earthenware decorated with brush painting on a light ochre engobe (imitation of faience technique?), 16th century, Samobor Castle; 3 – Tile-fragment, earthenware decorated with *sgraffito* ornament in combination with brush painting on a light ochre engobe, 16th century, Samobor Castle; 4 – Crown-tile, dark bluish-glazed earthenware, 17th century, Smobor Castle; 5 – Crown-tile, multi-coloured-glazed earthenware, c. 1600, Veliki Tabor Castle; 6 – Crown-tile, green-glazed earthenware, c. 1600, Veliki Tabor Castle; 7 – Crown-tile, green-glazed earthenware, second half of 16th/first half of 17th century, Donja Stubica Fortress; 8 – Crown-tile, green-glazed earthenware, 16th century, Varaždin Old Town; 9 – Horizontal overhanging separator-tile, green-glazed earthenware, second half of 16th/17th century, Cesargrad Fortress; 10 – Horizontal overhanging separator-tile, green-glazed earthenware, second half of 16th/17th century, Ozalj Castle; 11 – Pedestal element, multi-coloured-glazed earthenware, 17th century, Samobor Castle; 12 – Pedestal element, multi-coloured-glazed earthenware, c. 1600, Veliki Tabor Castle.

heads and geometric and floral perforated patterns (Fig. 8). Occasionally, *putti* on the opposite sides of the *amfora italica* and heraldic motives<sup>21</sup> are also documented.

The use of green-glazed pattern repeats can indeed be considered the 'mainstream' style in the Sava – Drava basin in the second half of the 16th century and during the 17th century. Besides the green

21 The stove-tile in Fig. 8/8 represents a coat of arms with a shield divided into two sides; the coat of arms of Austria placed on the heraldic right side and the coat of arms of Burgundy placed on the heraldic left side. This stove-tile could represent the coat of arms of a descendant of Maximilian I from the Habsburg dynasty and Mary of Burgundy, most probably their son Phillip I (1478–1506).



stoves, however, there was still parallel development with polychrome and blackish-brown tiles, as Veliki Tabor Castle stoves have shown us. Fragments with faience glazing have not yet been documented in Croatia. A few tiles from Samobor Castle dated to the 16th century are also interesting, (Fig. 8/1–3). Fragments on Fig. 8/1, 3 are ornamented with *sgraffito* ornament in combination with brush

painting (painting on a non-baked surface of a light ochre engobe). A fragment of a panel-tile (Fig. 8/3) bears the inscription 'respice finem' and the year ..56 (probably 1556). These words most likely represent the last words of a familiar saying 'quidquid agis, prudenter agas et respice finem' (MILETIĆ 2001, 107). The fragment in Fig. 8/2 represents an imitation of the faience technique.

## Conclusion

At the turn of the Middle Ages and the Early Modern period, the Ottoman conquests temporarily stopped tiled-stove production in a large part of medieval Slavonia. Still, in the small territory of the so-called 'remains of the remains' of civilian Croatia, stove tile production continued to flourish. The history of Croatian tiled stoves from the 15th to 17th century was characterised by various traditions and technical innovations. The technique of moulding used in the production of relief tiles as well as the use of green glaze can be mentioned as unbroken traditions from the Late Middle Ages. Although, in terms of the choice of motif, repeated patterns were the most popular, pillars and arcades also appear and usually form the framework of figural central motifs with Biblical-religious scenes (most popular are scenes from the life of Christ), portraits and depictions of historical persons and events (antique heroes) and allegorical motifs (antique gods and muses). Various floral-vegetative motives, *puttis* with wings, mythological creatures from the antique period like sirens and grotesque motifs such as *mascarons*, appear as common ornamental decoration. The chosen examples of stoves, tiles and fragments of tiles presented in this article give only brief insight into tiled stove production in Croatia, which makes up a small, but also (hopefully) very interesting part of the European tiled stove post medieval production. At this point in the state of research, we can point to similarities between the tiled stove craft in the territory of Austrian successor states (the territory of present-day Slovenia) and former so-called 'civilian' Croatia.

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# A Multi-Analytical Comparative Examination of 18th-Century Dutch Tiles and Russian Imitations. Preliminary Results

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## Abstract

The paper is dedicated to the Dutch tiles from the Winter Palace of Peter the Great and from the Menshikov Palace. We studied tiles that had been typologically attributed to several production centres. These centres were several Dutch cities (Amsterdam, Rotterdam, Utrecht and Harlingen) as well as Russian tile factories (located in the suburbs of St. Petersburg).

The aim of this study was to determine certain differences in the production technologies. For this purpose, the materials of the ceramic body, white glaze and colouring agents were analysed using the OM, XRF, XRD, SEM-EDS and RS methods. Distinctive features differentiating the Dutch tiles from those of Russian manufactures were found.

— Dutch tiles – archaeometric analyses – manufactory – Saint Petersburg

## 1. INTRODUCTION

Dutch tiles owe their popularity to the European fashion for Chinese porcelain. Imports of blue Chinese porcelain to Europe led to the fact that polychrome tiles were almost entirely replaced by blue tiles in the European interior. Beginning in the 18th century, thousands of Dutch tiles were exported abroad, and not only to Europe: Dutch tiles are found in Turkey and even in Brazil (HANS/TISKAYA 2005, 1). This fashion also reached Russia. Dutch tiles were delivered to St. Petersburg in the period between 1714 and 1724, during the active construction of the new capital. The cargo was assembled in large ports, such as Amsterdam and Rotterdam, but this fact cannot be used as a starting point for the attribution of the tiles' production.

The analysed tiles are 55 fragments from various centres of production (Fig. 1). Samples of tiles from the Winter Palace of Peter the Great and

the Menshikov Palace were made in Amsterdam (22 pieces), Rotterdam (12 pieces), Harlingen (2 pieces) and Utrecht (3 pieces). Characteristics of the tiles such as the type of corner decoration, the size of the circle with the picture and the picture on the tile itself allowed us to determine the cities in which the tiles were manufactured.

The decision to turn to archaeometry was made based on the questions remaining in the attribution of the tiles, as the iconographic analysis is sometimes inaccurate. Thus, the 'ox head' type of corner decoration was extremely popular and was used very often by various tile manufactories in the Netherlands. There is also the problem of passing stencils of tile drawings from one manufacturer to another, or simply moving workshops and masters from town to town. All of these factors raise questions about the accuracy of attribution.



Fig. 1: Examples of analysed tiles. 1 – corner decoration ‘fleur-de-lis’, Utrecht; 2 – corner decoration ‘carnation’, Amsterdam; 3 – corner decoration ‘ox head’, Rotterdam; 4 – Harlingen; 5 – Strelna.

In addition to comparing different Dutch tiles with each other, the task was to compare imported tiles with the locally produced specimens. We selected for analysis museum exhibits – samples of Russian tiles with a composition of the ceramic body, glaze, and painting visually similar to the Dutch tiles.

The Russians tried to open their own tile production at tile and brick factories (Баженова 2002, 187), and even endeavoured to have clay imported from Holland (Сергиенко 2014, 112). We have conventionally named the series of local tiles after one of the possible local production centres: ‘Strelna’ (16 pieces).

## 2. METHODS

An integrated approach is always preferable in any study. All analytical tests for the present research have been conducted at the Department of Scientific Examination of Works of Art at the State Hermitage Museum.

The following research methods were used:

- optical microscopy (OM, Leica M60; Leica polarizing microscope; Stemi 508, Zeiss)
- scanning electron microscopy (SEM, LEO 1420VP, EVO-MA-25, Zeiss) used in combination with energy dispersive X-ray spectroscopy (SEM-EDX analysers RÖNTEC (Brunker) and Oxford Instruments X-Max<sup>N</sup> 80);
- X-ray diffraction (XRD, Diffray-401, Rigaku D/max RAPID II);
- X-ray fluorescence (XRF,  $\mu$ XRF-spectrometer ArtTAX (RÖNTEC, Bruker);

- Raman spectroscopy (RS, confocal Raman microscope Senterra, Bruker).

## 3. RESULTS AND DISCUSSION

### 3.1. CERAMIC BODY

The composition of the ceramic body is important for many reasons: it determines the future condition of the tile during drying and consequent firing and also determines the bonding between ceramics and glazing. To avoid demonstrating the chemical composition of all analysed tiles, for illustration purposes we provide average numbers by series<sup>1</sup> (Table 1). In addition to the main components, quartz and alumina, the high concentration of calcium in the ceramic body is noteworthy. For Dutch tiles, it slightly exceeds 20%, while it is somewhat lower for the *Strelna* series (Table 1). This figure is in good agreement with the few existing literary sources (BENTZ/DUFOURNIER 1998, 25–28) and makes it possible to identify the ceramic body as so-called ‘lime’ or ‘soft’ faience.

While not all of the selected samples were analysed with energy dispersive spectroscopy (SEM-EDS, 11 pieces), all were analysed with X-ray fluorescence analysis (55 pieces). The XRF signal of the intensity of potassium and calcium are plotted along the axes of the graph (Fig. 2). The entire data set (with rare exceptions) was divided into two separate areas corresponding to Dutch and Russian tiles. In other words, the amount of calcium in relation to potassium in the Dutch tiles is higher than in the Russian specimens. At this stage of our research, it

<sup>1</sup> Four pieces were studied in the *Amsterdam* series, seven pieces in the *Strelna* series.



Analysis	Series	Wght % oxides															
		Na <sub>2</sub> O	MgO	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	TiO <sub>2</sub>	MnO	FeO	CoO	NiO	CuO	As <sub>2</sub> O <sub>3</sub>	SnO <sub>2</sub>	PbO
Ceramic body	Amsterdam	0.95	6.67	11.49	48.83	0.21	2.04	20.78	0.60	0.10	6.00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Strelna	1.16	2.27	12.16	53.85	0.61	3.24	17.77	0.77	0.11	5.95	<0.01	<0.01	<0.01	<0.01	0.02	0.05
White glaze	Amsterdam	1.68	1.19	2.73	53.64	0.27	5.93	3.47	0.06	0.06	0.59	<0.01	<0.01	0.09	0.06	9.76	20.26
	Strelna	2.03	0.34	3.48	45.36	0.14	1.98	0.74	0.14	0.01	0.50	<0.01	<0.01	0.18	0.02	11.01	32.13
Blue glaze	Amsterdam	1.88	1.03	3.58	50.00	0.15	5.53	4.35	0.06	0.08	1.41	0.67	0.40	0.09	2.19	5.56	22.82
	Strelna	1.80	0.53	6.36	41.41	1.05	2.41	3.45	0.17	0.02	0.82	0.27	0.09	0.19	0.17	10.75	30.10

Table 1: Chemical composition (SEM-EDX) for ceramic body, white and blue glaze of tiles, average values by series.

is not possible to mark out individual production centres within the Dutch tile area. The *Amsterdam* series covers areas of *Rotterdam*, *Utrecht* and *Harlingen* (Fig. 2).

One of the most informative and frequently used methods in the study of ceramics is X-ray diffraction analysis (XRD). We analysed eight pieces from the *Amsterdam* series and five from the *Strelna* series. The diffraction patterns of the ceramic body for *Amsterdam* and *Strelna* tiles are identical. When overlaying diffraction patterns of the ceramic body for two series, *Strelna* and *Amsterdam* show complete agreement between all of the most intense peaks (Fig. 3).

Today we present the preliminary results of our research. The decoding of diffractograms is still being performed. At this stage, we can confidently speak of three phases. The strongest lines are *quartz*, the second significant phase is *gehlenite*, and a silicate from the group of pyroxenes, apparently, is *diopside* (Fig. 3). In general, the phase composition of the ceramic body allows us to assume that the firing temperature for the tiles was roughly in the range of 1000–1200 °C.

### 3.2 WHITE GLAZE

The analysed tiles are covered with a white, opaque, 'milky', glaze. The main glass formers in the glaze are quartz and lead oxide (Table 1). The third most significant component is an opacifier – tin oxide.

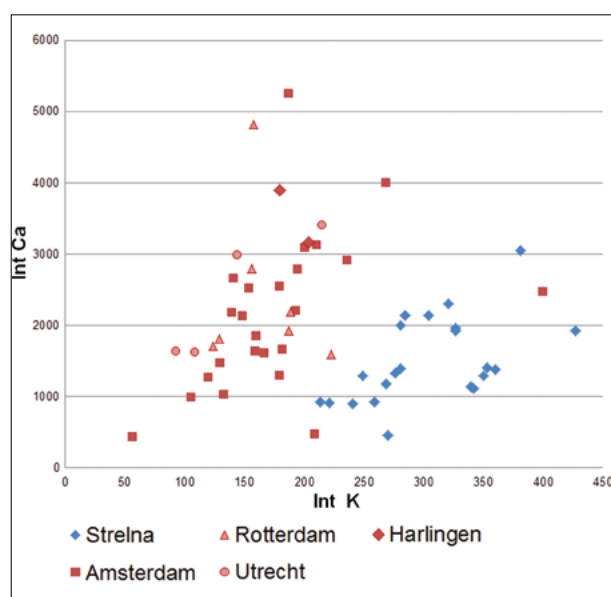


Fig. 2: Ceramic body. Intensity ratio for K and Ca (X-ray fluorescence analysis).

The chemical composition of the glaze is important primarily for strong adhesion to the tile surface. The melting temperature of the glaze should also be lower than that of the ceramic body. All this is determined by the composition.

In scientific publications we have repeatedly seen the successful identification of ceramic groups with rubidium and strontium (Френкель/Хаврин 2012; 166, 168, илл. 6). In our case, there is an overlapping area between Dutch and Russian tiles, but there is potential for strontium/rubidium correlation.

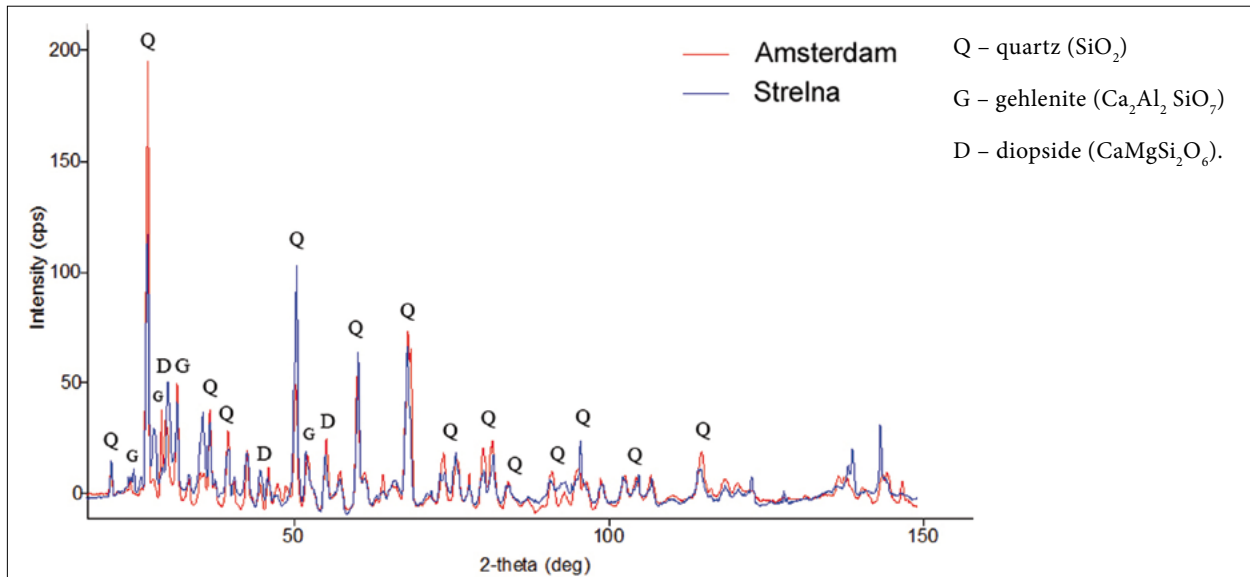


Fig. 3: X-Ray diffraction patterns of ceramic body of Strelna and Amsterdam series.

As we already mentioned quartz sand and lead oxide are the two major glass formers for the white glaze (**Table 1**). Quartz ( $\text{SiO}_2$ ) adds refractoriness, while lead oxide ( $\text{PbO}$ ), on the contrary, is a flux and significantly lowers the melting temperature of the glaze. The intensity ratio Si/Pb (XRF) clearly demonstrates that the content of low-melting lead relative to quartz is higher in Russian tiles than in the Dutch specimens (**Fig. 4/1**). Thus, the melting temperature of the Russian tiles' glaze was lower. But, again, this characteristic does not allow us to identify individual production centres within the Dutch group. The widest dispersion is among the largest group, the *Amsterdam* series. The *Rotterdam* data is much more concentrated, but lies within the *Amsterdam* data area, thereby preventing the possibility of separating them from each other.

The best result is the Sn/Pb ratio, which shows the obvious difference in the white glaze recipes for the Dutch and Russian tiles (**Fig. 4/2**). Lead is glass former, while tin is an opacifier. As a result, we have two completely separate clusters. In this regard we can recall that the difference exists even in the applied terms. In the Russian tradition, this glaze is referred to as 'lead glaze', while in the Dutch tradition it is a 'tin glaze'. In any case, the XRF becomes a nearly error-free method for distinguishing the local tiles from imported ones by white glaze.

### 3.3. PIGMENTS ON TILES

XRF and SEM-EDX analysis confirmed the commonly known fact that the colouring agent of the colour purple (in the *Utrecht* series) is manganese, while cobalt acts as the blue colouring element for all series of tiles. Let us take a closer look at the cobalt pigment.

Ceramic paint, like the ceramic body or white glaze, needs to be prepared in a special way. It is usually a mixture of at least three components: pigment, glass-forming flux and colorant additive. The painting on the analysed tiles is a so-called 'in-glaze design' – decoration typical for Delft faience. The colouring capacity of cobalt is very high. The concentration of cobalt in the blue glaze in our tiles is in tenths of a percent. The average value for the *Strelna* series approaches 0.3%, while for the *Amsterdam* series it is about 0.7% (**Table 1**). Obviously, the Russians used a smaller amount of expensive pigment for economic reasons.

Based on the results of XRF analysis, it was determined that cobalt ceramic pigment for all series of cities is a Co-Fe-Ni-As association. The ratio of arsenic-cobalt, nickel-cobalt and iron-cobalt intensities for all series has generally close values (**Fig. 5**). Judging by the existing correlation between cobalt and the three elements (iron, nickel and arsenic), one and the same mineral is the source of pigment

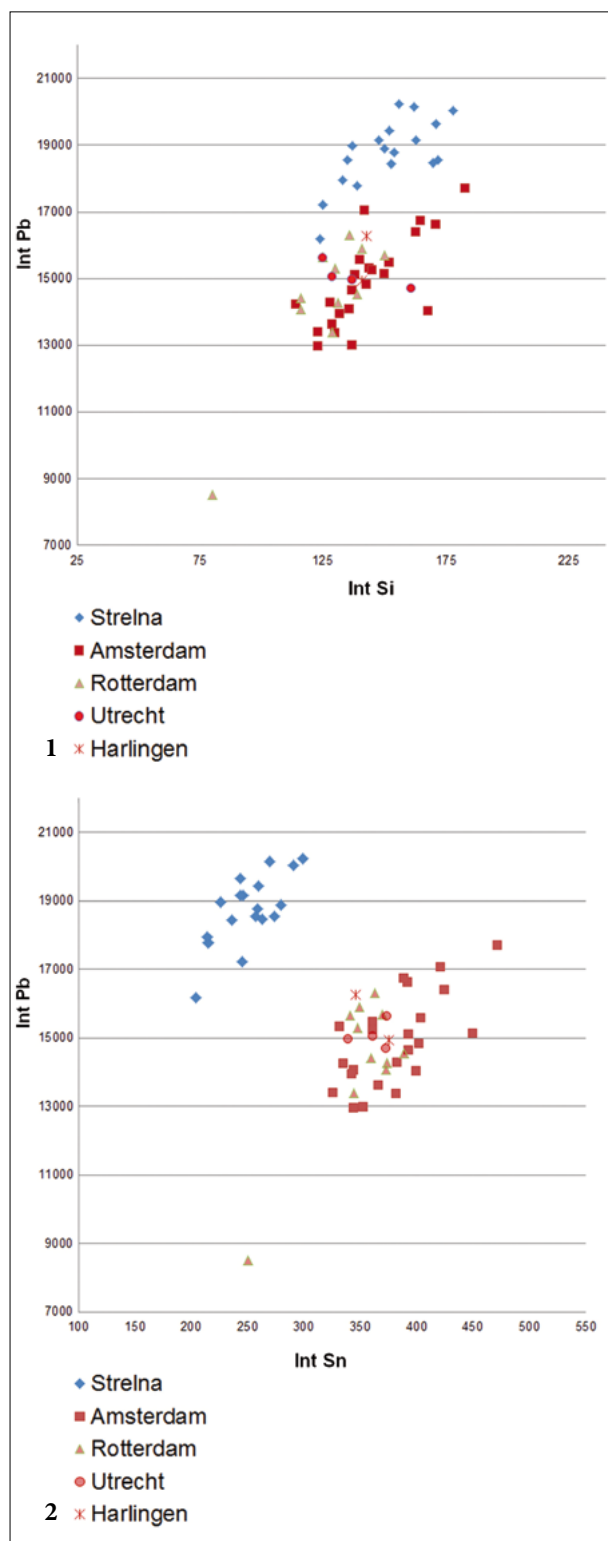


Fig. 4: White glaze. Intensity ratio (X-ray fluorescence analysis) for: 1 – Si and Pb; 2 – Sn and Pb.

for both local and Dutch dyes – a mineral from which arsenic, nickel and iron inherit the blue pigment. Apparently, this mineral is of the cobaltine – smaltine series. The association of Co-Fe-Ni-As

that we have traced is confidently associated with *zaffre* in scientific literature (ROLDAN ET AL. 2006, 136; COENTRO ET AL. 2012, 40). The word ‘zaffre’ was used for cobalt oxide (CoO) obtained from the firing of minerals such as cobaltine (CoAs) and/or smaltine (CoAs<sub>2</sub>) (Косолапов 2015, 128).

White glaze and blue glaze were analysed separately. The superposition of the diffractograms for the white and blue glazes of the *Strelna* series<sup>2</sup> show complete congruity among all peaks (Fig. 6/1). The superposition of the diffractograms for the white and blue glazes of the *Amsterdam* series<sup>3</sup> reveals the phase in the blue glaze that is absent in the white glaze (Fig. 6/2).

The interpretation of the diffraction patterns for the white glaze (both in the *Strelna* and *Amsterdam* series) shows us the reference card of *cassiterite* (Fig. 6/1, 2), tin oxide (SnO<sub>2</sub>) that acts as an opacifier. In addition to the main phase of cassiterite, *quartz* lines are also present in the white glaze (Fig. 6/1, 2).

Raman spectroscopy confirms and refines the results of X-ray diffraction. The spectrum of the Raman scattering for the inclusion in the blue glaze of the *Amsterdam* tile corresponds to mineral *cassiterite* (Fig. 7). The interpretation of the diffraction pattern for the blue glaze of the *Amsterdam* series is not yet complete. Apart from cassiterite and quartz inherited from the white glaze, the main task is to determine the phase that appears only in the blue glaze. From the related scientific publications, we know a number of compounds that have been registered in lead cobalt glaze (JONYNATE ET AL. 2009, 11–17), but none of them reliably fits our spectrum. Our decoding gives the best match for some *lead silicate*, perhaps Pb<sub>2</sub>SiO<sub>4</sub>. The formation of this phase may be associated with the conditions of the tiles’ cooling. We know one case mentioned in the scientific literature in which researchers managed to identify the initial mineral source of cobalt by Raman spectroscopy (COENTRO ET AL. 2012, 41). In the Portuguese Azulejo tiles of the 17th century, cobalt and nickel olivines (α-Co<sub>2</sub>SiO<sub>4</sub>, α-Ni<sub>2</sub>SiO<sub>4</sub>) were found in the dark blue areas. We also analysed

2 Five tiles of the *Strelna* series have been analysed by XRD.

3 Seven tiles of the *Amsterdam* series have been analysed by XRD.



the blue glaze by Raman scattering spectroscopy and found that these are not olivines. Nevertheless, the work continues. In any case, we already have a reliable and reproducible marker separating the

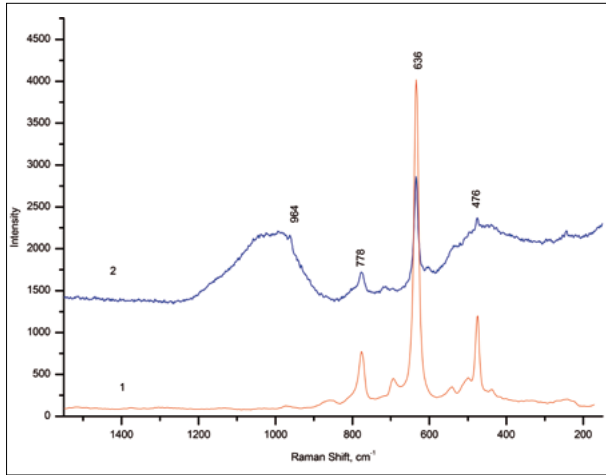


Fig. 7: Raman spectra: 1 – mineral cassiterite (RRUFF Database, R040017); 2 – the inclusions in blue glaze, Amsterdam series.

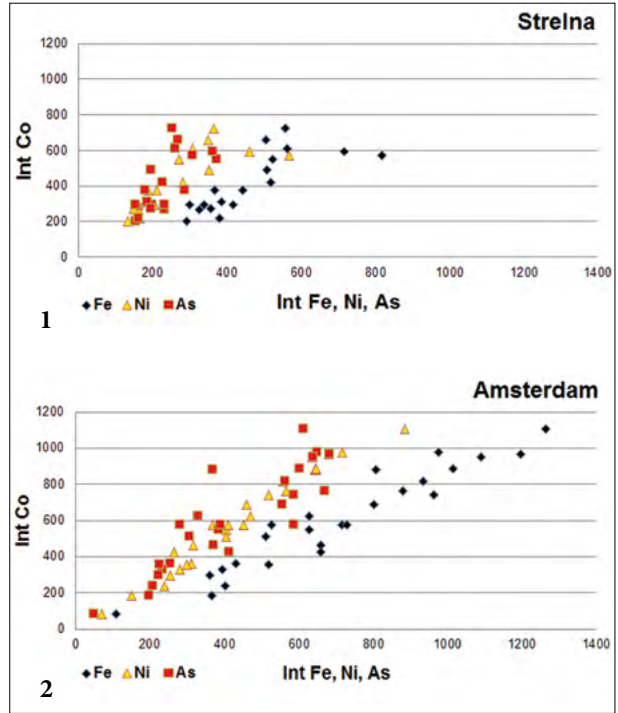
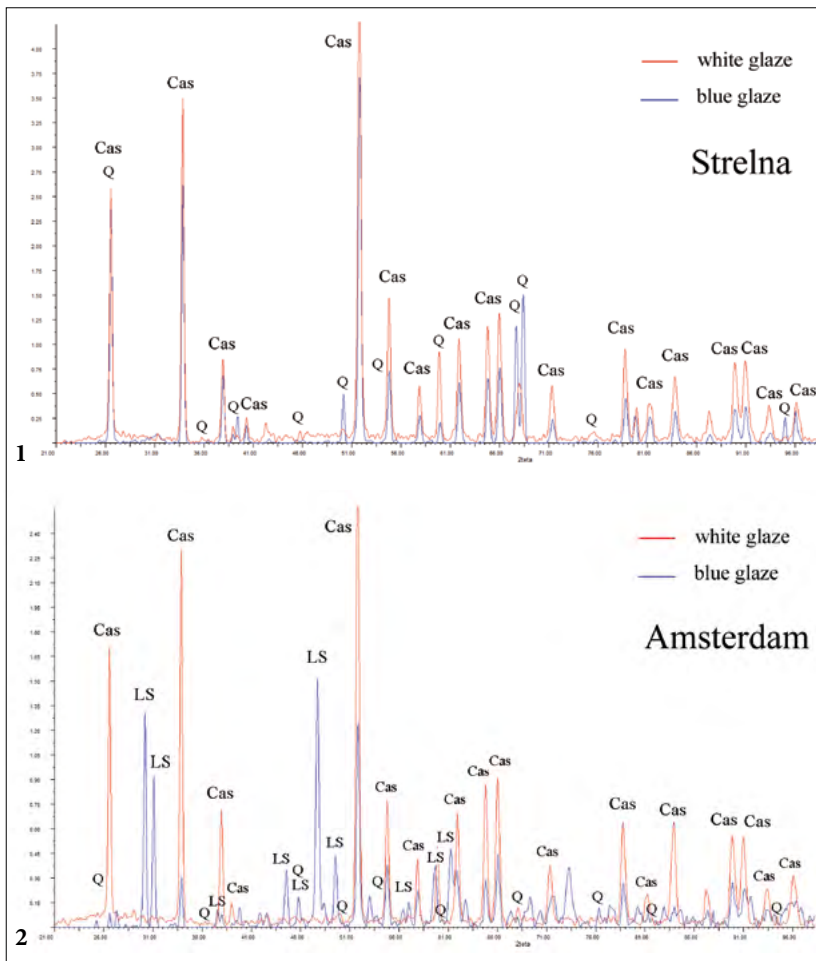


Fig. 5: Blue glaze. Intensity ratio for Co and Fe, Ni, As (X-ray fluorescence analysis) in: 1 – Strelna; 2 – Amsterdam.



Cas – cassiterite ( $\text{SnO}_2$ )  
Q – quartz ( $\text{SiO}_2$ )  
LS – lead silicate ( $\text{Pb}_2\text{SiO}_4$ ).

Fig. 6: X-Ray diffraction patterns of white and blue glaze in: 1 – Strelna; 2 – Amsterdam.




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## Conclusion

With increased statistical data, by using different methods of analysis and employing a more serious mathematical apparatus, it may be possible in the future to identify individual production centres in the Netherlands. At the present stage of the study, this does not seem to be possible. As of now, we can conclude that Dutch workshops in different cities apparently used the same raw materials and employed the same technology for the production of tiles.

However, we have a number of reliable markers that allow us to distinguish local imitations from the imported Dutch tiles. These are:

- potassium/calcium factor in the ceramic body;
- the ratio of lead and silicon, lead and tin in the white glaze;
- the content of cobalt and diffraction patterns in the blue glaze.

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blue cobalt glaze of imported Dutch tiles from the blue glaze of Russian imitations.

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# Typology of 18th-Century Stove Tiles from the Historical Centre of St. Petersburg

Roxana V. Rebrova

## Abstract

The production of stove tiles in St. Petersburg began in the 18th century. St. Petersburg stove tiles are different from stove tiles of other Russian regions, which are usually called 'old Russian'. The Petersburg stove tiles differ from traditional Russian specimens in their style of painting, in their shape and the size of the 'rumpa' (back rim); moreover, they usually don't have any relief on the front side. The motifs of the St. Petersburg stove tiles were taken from Western European artwork models. There were some temporal forms between the 'old Russian' and the St. Petersburg stove tiles with a flat/low relief and high back rim. Most of the stove tiles of the 18th century were lost as result of reconstruction work in the buildings of St. Petersburg. But many of them were saved thanks to the careful approach of archaeologists. Today we have many different types of St. Petersburg stove tiles.

🔗 stove tiles – production – typology – St. Petersburg

## 1. INTRODUCTION

The history of stove tile production in St. Petersburg goes back to the early 18th century. The first factories were established in the 1710s, together with brick and roof tile manufacturing (Смирнов/Ёлшин 2017, 9).

The city developed very quickly. Because of intensive city development, there was a lack of building materials, and they were therefore brought from other cities, including Moscow (Баранова 2011, 245, 247). Therefore, the stove tiles discovered in the archaeological sites of early St. Petersburg (the first quarter of the 18th century) differ from locally made stove tiles. They show the transitional forms, preserving features from the 'old Russian' to St. Petersburg samples such as a small relief and a high back rim. The height of the back rim of the transitional shape from 'old Russian' to St. Petersburg

stove tile types was in the range of 7–10 cm. The relief was decorated with either dark paint or polychrome. The background of the relief is made of white enamel. The first stove tile found in the excavations at Dvortsovaya Embankment 30 can be considered as a transitional shape of the 'old Russian' style (Fig. 1). The second stove tile with a background of blue glaze and white relief was found in the Great Courtyard of the state Hermitage Museum during the excavation in 1999 (Fig. 2). Stove tiles of the same type were found during excavations in the Donskoy Monastery in Moscow.

St. Petersburg stove tiles differ strikingly from stove tiles of the other Russian provinces by their style of decoration, lack of relief on the front surface, and shape and size of the back rim (Fig. 4).



Fig. 1: Transitional shape and design of 'old Russian' stove tile found during the excavations at Dvortsovaya Embankment 30, end of the 17th century, early 18th century.



Fig. 2: Stove tile with a background of blue glaze and white relief found in the Great Courtyard of the state Hermitage Museum during the excavation in 1999, end of the 17th century, early 18th century.



Fig. 3: Stove from Menshikov Palace, first half of the 18th century.

Unfortunately, most of the 18th-century stoves were lost due to the reconstruction or alteration of buildings. Only a few authentic pieces of the stove from the Peter the Great period were preserved in the Menshikov and Summer Palaces. However, they have undergone several restorations over the last three centuries (Fig. 3).

Archaeological work is constantly being carried out on land dating back to the early St. Petersburg period. Between 1990 and 2017, many stove tiles and their typological diversity were identified from 110 excavations sites. We can divide St. Petersburg stove tiles of the early first half of the 18th century into several types.



Fig. 4: Comparison of the size of the back rim of the 'old Russian' tile and stove tile from St. Petersburg.



## 2. TYPES OF ST. PETERSBURG STOVE TILE

### 2.1 SMOOTH GREEN MONOCHROME

Smooth and relief green tiles were common in Russia in the 17th century. They were made for stoves and used for the decoration of walls. This type of tile was the most popular. The smooth green tiles were later used for furnaces mainly in the first half of the 18th century in St. Petersburg (Fig. 5).

### 2.2 SMOOTH WHITE

White stove tiles were common for stove production in St. Petersburg from the moment of the establishment of the city because of their low cost and entrenchment on the market as the most popular colour. On average, there are ten white tiles found for each cobalt or green one. This refers to the first quarter of the 18th century. At the beginning of the first half of the 18th century, the glaze of the white stove tiles was matte (Fig. 6). This stove tile was found in the Winter Palace of Peter the Great. White glaze made at the end of the 18th century was more brilliant and vitreous. Such stove tiles were found in large numbers during excavations in almost all of St. Petersburg, for example, in the building of the General Staff (2010).

Throughout the 18th century, the size of the face plate on white stove tiles increased. The size of the front plate of the stove tiles was 18 x 10 cm in the early 18th century, in the second half and the end of the 18th century 28–29 x 22 cm, at the beginning of the 19th century 43 x 24 cm (Дутов 2015, 176). Green stove tiles were gradually squeezed out of the market and their production was reduced to the end of the 18th century.

### 2.3 SMOOTH COBALT

Smooth cobalt painted with white glaze stove tiles are also divided into several large groups. Within these groups, they are also divided into drawing types:

#### 2.3.1 Smooth cobalt with scenes

They are divided by the quality and style of the painting, plots, types of patterns in the corners.

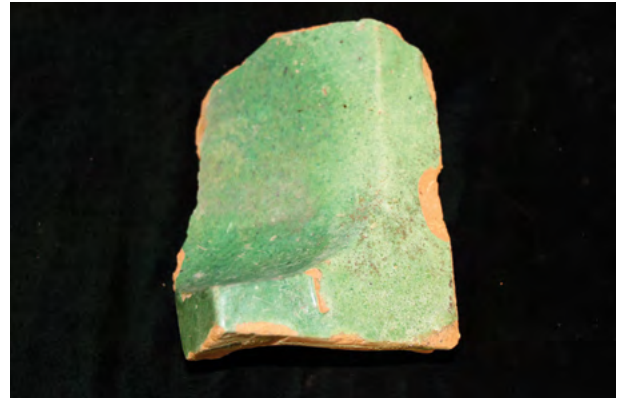


Fig. 5: Smooth green tiles with an angular profile from the Winter Palace of Peter the Great, first quarter of the 18th century.



Fig. 6: Smooth white matte tile from the Winter Palace of Peter the Great, first quarter of the 18th century.

The scenes of paintings on St. Petersburg stove tiles were often borrowed from Western European works of art, namely Dutch tiles, engravings with biblical scenes from the Bible of Piscator (Claes Jansz Visscher, 1614), the book *Symbols and Emblemata* (1705) and, to a lesser degree, easel paintings.

Images on Dutch tiles depicting the lives living of the townspeople were transformed into mainly urban landscapes with schematic, European-looking houses. A complicated scene with many people was simplified to one or two characters or animals and birds in the foreground. The figure itself was painted in a somewhat primitive manner in the first half of the 18th century, with wide lines and large strokes, but became more concise by the mid-18th century; dry, with more subtle lines, technically more accurate and professional (Fig. 7). The



Fig. 7: Smooth cobalt painted with white glaze from the Winter Palace of Peter the Great, first quarter of the 18th century.

simplification of the landscapes may be illustrated by comparisons of a Dutch tile and a Russian stove tile from the Winter Palace of Peter the Great.

The stove tiles of furnaces in the Summer Palace of Peter the Great were made by European masters, judging by the quality of painting and subjects (Лансепе 1929, 39). It is clearly visible on the stove tile from this palace, on which an antique scene was painted (Реброва 2016, 349). Obviously, some stove tiles were painted by foreigners at local factories, some were ordered in Germany or Poland, for example, a stove tile in the coffee room of the Summer Palace of Peter the Great (first quarter of XVIII; Fig. 9).

It is interesting that most types of St. Petersburg stove tiles made in the St. Petersburg ceramic factory and painted with cobalt have parallels in decorated stove tiles from the city of Narva (Реброва 2016, 293). Apparently, the stove tiles found during the excavation of the house of Peter the Great in Narva originated from St. Petersburg (STRAUS 1969, 163).

### 2.3.2 Smooth cobalt with floral patterns

Floral design on stove tiles changed during the course of the 18th century. In the first quarter, there was a transition from the Moscow style to the St. Petersburg floral pattern that began in the first quarter of the 18th century.

Floral patterns and geometric designs combine on the front plate of the stove tiles originating from St. Petersburg: 1) framing the central image on the front plate; 2) wrapping around vases; 3) continuing the frame line; 4) filling the centre of a framed face plate with a bouquet. The last three types were popular from the mid-18th century until its end (Fig. 10).

### 2.3.3 Smooth cobalt with geometric patterns

With geometric patterns, of which it is possible to single out a sub-group – a trellis grid pattern, five types of which can be found at the present time.

The earliest type of this pattern refers to the 1720s–1750s. It is found on stove tiles from the Winter Palace of Peter the Great (St. Petersburg) and from the house of Peter the Great in Narva. The last four types of this pattern were found in excavations conducted throughout the territory of St. Petersburg. These tiles were common in the second half of the 18th century (Fig. 8).



Fig. 8: Stove tile with geometric patterns from the Winter Palace of Peter the Great, second half of 18th century.



Fig. 9: Stove tile in the coffee room the Summer Palace of Peter the Great, first quarter of 18th century.



Fig. 10: Stove tile with floral design, from the mid-18th century until its end, from the General Staff Building.



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## Conclusion

Although most of the early St. Petersburg stove tiles have been lost, systemic archaeological studies, conservation and methodical accumulation of material launched in the 1990s have brought some results. We can identify the early forms of the transition from 'old Russian' to St. Petersburg stove tile types. It is possible to specify the typology of St. Petersburg stove tiles and trace their development in the course of the 18th century. It was found the types of stove tiles that spread in the 18th century from St. Petersburg to Estland (today's Estonia). We can demonstrate the impact of Dutch tiles and stove makers and designers of Polish and German descent on the evolution of the stove tile painting style.

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# 4 | Varia







# Size Does Matter. Early Modern Measuring Cups from Lisbon

Tânia Manuel Casimiro – António Valongo

## Abstract

Pottery measuring cups of different shapes and sizes are frequently found in Early Modern archaeological contexts in Portugal. In the early 16th century, King Manuel I standardised all measures and weights throughout the kingdom, and thus all measuring cups used in trade were calibrated and dated by local authorities every year, a system that was only revised in the second half of the 19th century. Over two dozen measuring cups were found in Rua do Arsenal in Lisbon. They reveal how different measures were used on a daily basis in a riverfront commercial area of the city.

🔑 *measuring cups – mercantile area – sizes – Lisbon*

## 1. INTRODUCTION

During the Middle Ages there was no standardisation of measures in Portugal and although they sometimes had the same name throughout the kingdom, for example one *vara*, one *almude* or one *alqueire*, they could have different lengths and weights varying from southern to northern Portugal. Usually a region would follow the measures and weights used in a major city such as Lisbon, Coimbra, Santarém or Porto (LOPES 2003, 125). It was King João II who attempted for the first time to standardise measurements. However, it was his successor, King Manuel I who made a clear effort to create uniform measures, not only in the country, but also in the colonies and everywhere the Portuguese were settled. Until that moment, every major city had its own measuring system. King Manuel followed the Lisbon system while attempting to generalise measures, publishing a law stating that these should all have ‘*tamanhos como os da cidade de Lisboa, e não sejam maiores, nem menores...*’ [sizes as the ones from Lisbon, no more, no less...] (ORDENAÇÕES MANUELINAS 1984, Livro I, título XV).

The local authorities of each city were obliged to use these measures, as was everyone who needed them to accomplish their job, including craftsman and merchants.

The 1521 law established that people who needed measures to do their work should check their calibration several times during the year. This inspection was made by local authorities, and while some jobs such as butchers, fishmongers or people selling spices, among many others things, had to calibrate every two months, other professions would have to do so twice a year, in January and July, while still others only once a year (ORDENAÇÕES MANUELINAS 1984, Livro I, título XV).

This was not a straightforward process and it took some years from the first efforts until the publication of a final law in 1521 encoding all of these transformations. In spite of this general and national law, every city had its own charter in which measures were also mentioned.



However, the publication of a law does not make it immediately available to the entire population, and the best way the king found to standardise measures was to cast sets of weights and distribute them throughout all Portuguese cities, in Portugal and abroad. These were also used by Portuguese merchants sailing with a Portuguese flag, which explains why they are found on shipwrecks (CASIMIRO 2018, 17). Although initial plans also called for measurement receptacles to be distributed, it seems that this never occurred during the reign of Manuel I. It would take several decades until the reign of Sebastião I before the king published a new law in 1575 and distributed measures for liquids and solids (LOPES 2003, 155).

Since metal measuring cups were never cast in the early 16th century, these were made, based on the new law, of wood or pottery. The survival of wood in Portuguese archaeological contexts is scarce, thus pottery seems to be the perfect item to study the everyday use of these measures in different contexts.

These cups were mostly used to measure liquids. In fact, their size is organized according to the *almude* as a reference measure. The different size of the cups reveals the division of this reference measure. The major measures were the aforementioned *almude* (c. 16.8 litres), the  $\frac{1}{2}$  *almude*,  $\frac{1}{4}$  *almude*, *canada* (c. 1.2 litres),  $\frac{1}{2}$  *canada*,  $\frac{1}{4}$  *canada*, *quartilho* (c. 0.350 litres),  $\frac{1}{2}$  *quartilho* and  $\frac{1}{4}$  *quartilho*, and even smaller.

## 2. THE SITE

The excavation of the building at 134–148 Rua do Arsenal, the site of a future hotel, was conducted in 2015/2016 on the Lisbon waterfront and led to the discovery of several contexts which can be dated to the period from the 14th to the 20th century (VALONGO 2017; Fig. 1).

The artefacts analysed here were obtained from different contexts. The oldest one corresponds to a landfill ordered by King Manuel I in 1502, which possibly finished about two decades later, when some documents testify to the presence of blacksmith workshops in the area in a document in 1517 (VIEIRA DA SILVA 1987, 103). Another archaeological excavation conducted a few years ago just a few metres away found evidence of iron smelting activity (SABROSA 2008, 111). It is highly probable that the artefacts found associated with this layer were deposited in the first decades of the 16th century and were thus a reflection of a period in which efforts were made to establish of the measuring system. The landfill was made using local garbage and sand. Thousands of artefacts were recovered in these archaeological layers indicating an early 16th century chronology. The landfill was not completed during the reign of Manuel I and continued during the reign of his son, King João III. It was possible to identify this layer formed somewhere between 1530 and 1560.



Fig. 1: Site location in Lisbon.



A palace was built on top of the landfill during the second half of the 16th century by the Corte Real family and was later owned by the royal family and used until the 18th century. A few compartments of the service areas of this palace were also discovered in this excavation. It was possible to excavate half a dozen deposits associated with the occupation of this noble house in the second half of the 17th century (CASIMIRO/VALONGO 2017). Two measuring cups identified inside one of the waste pits in compartment eight were also associated with other material culture elements testifying to the daily life of the people who used this space on a daily basis.

### 3. ARTEFACTS

Twenty two objects interpreted as measuring cups were found in this excavation, and unless another major collection has been found recently, this is the largest assemblage found and published in Lisbon to date (Figs 2, 3, 4). All of the cups were wheel-thrown and made with local clays. Their surface is a light red colour, with a homogenous fabric with small-medium quartz, lime and micaceous inclusions. However, these are just pottery cups. How do we distinguish them from all the other vessels?

Most of them are similar shapes in different sizes. All of their bases are flat and their bodies are either cylindrical or slightly flared. The rim has a flat top. In fact, only one small cup with a tall foot does

not correspond to this shape (Fig. 3/Inv. No. 124). Their size, as expected, varies greatly. The largest measuring cup found corresponds to a *canada* (c. 1.2 litres) while the smallest one, although broken, appears to have been a  $1/8$  *quartilho* (c. 0.05 litres).

What differentiates them from all the other pots used in everyday activities are the marks scratched in their outer surfaces after firing.

Most of the times these correspond to what we believe to be measure marks: XIII; III; XII; VIII, just to provide a few examples (Fig. 6). These marks are more common in the older cups, the ones found in early and mid-16th century contexts. The number of published measuring cups does not allow, for the moment, the establishment of a correlation between size and mark, thus it is impossible to know the quantity of liquids these cups measured. These marks could not even correspond to a number and were scratched by their owners to remember quantity without a specific code. However, it is impossible not to notice that all three measuring cups presenting the marks XIII have similar diameters at the base, which may indicate the same standardisation.

However, two later specimens have different marks. These have not been marked on the body but very close to the edge of the pot, almost on top of the rim (Fig. 5). These marks correspond to an inscription.

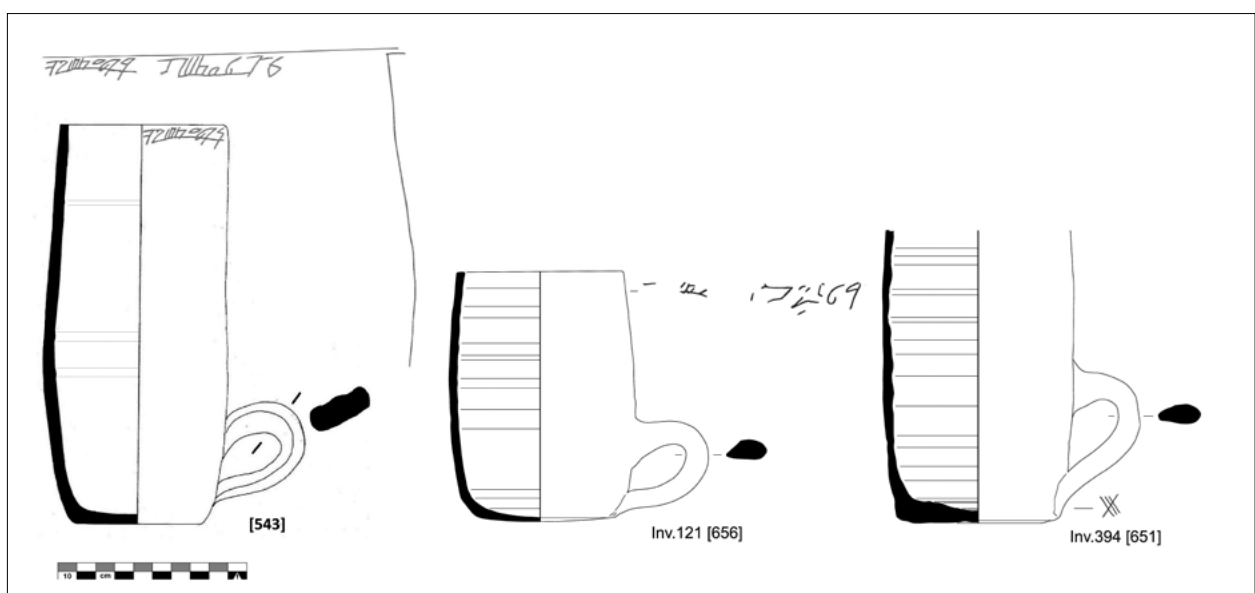


Fig. 2: Measuring cups found in Rua do Arsenal.

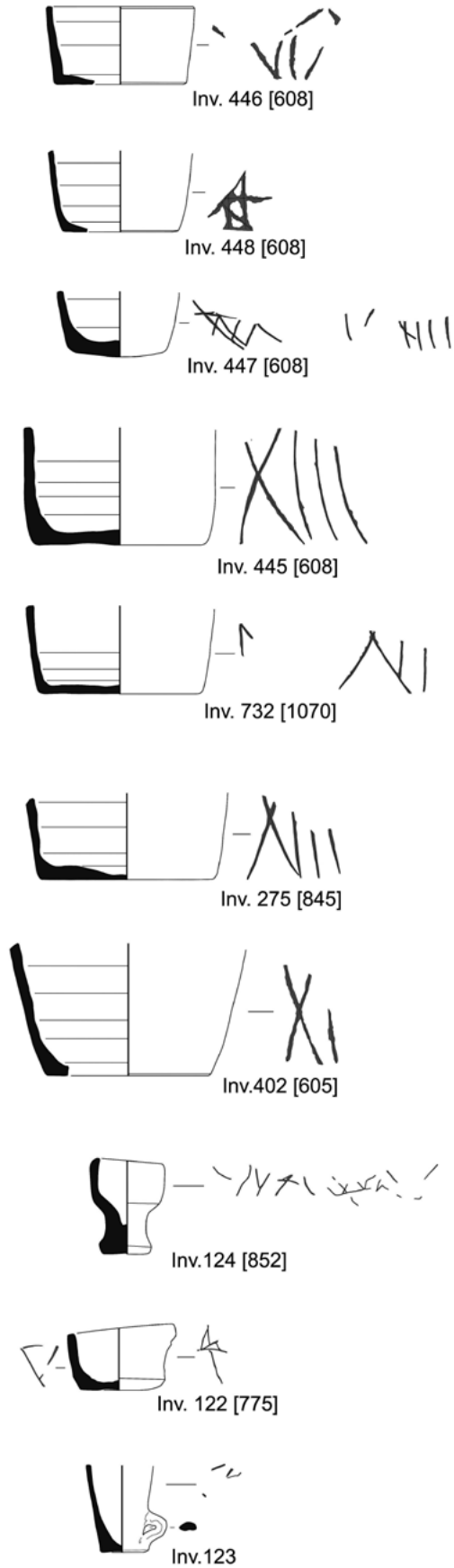


Fig. 3: Measuring cups found in Rua do Arsenal.

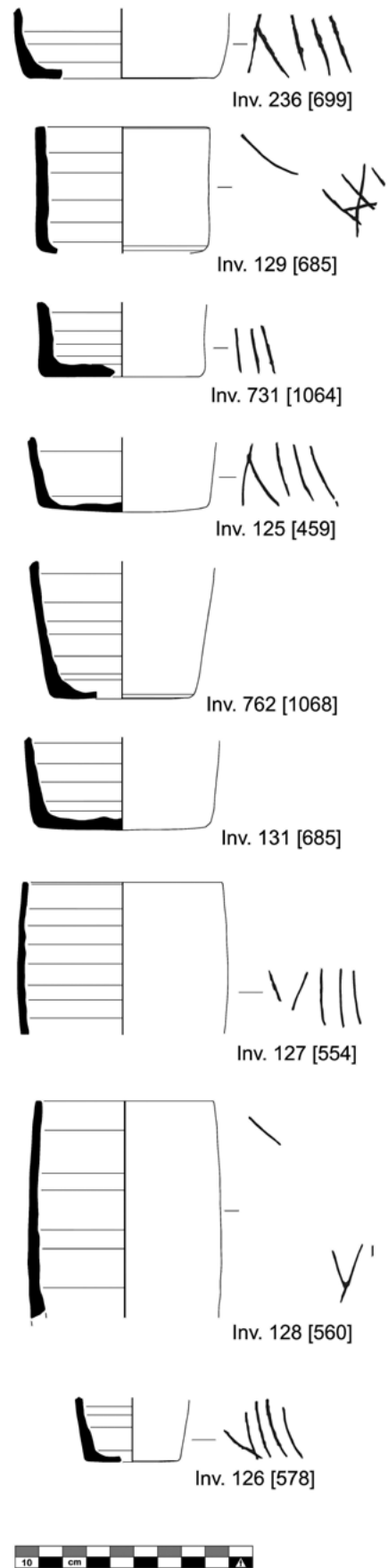


Fig. 4: Measuring cups found in Rua do Arsenal.



Fig. 5: Date scratched close to the rim of a measuring cup.



Fig. 6: Set of measuring cups from the early 16th century.



Fig. 7: *Canada* and  $\frac{1}{2}$  *Canada* from the late 17th century.



Fig. 8: Pottery from domestic contexts in which a *Canada* was recovered.

In two most complete examples found in this excavation (Fig. 7) and corresponding to one *canada* and  $\frac{1}{2}$  *canada*, one can read *Jaº Julho 676* [January July 1676]. In 1521, the law compelled some people to take the measuring cups used in their work to check their calibration twice a year by the local authorities. Those pots were measured and when approved, they were marked close to the rim, so the ones who used them could not remove parts of the pots and make a profit by selling less of what they should. The  $\frac{1}{2}$  *canada* has a similar mark, though dated a few years later from 1697 (Fig. 2).

Although this collection has more than twenty artefacts, it is not uncommon to find such receptacles in Early Modern archaeological excavations in smaller numbers. Several artefacts have been found in Lisbon, though only a few have been published. Similar artefacts were found in Carnide, dated 1625 (CAESSA/MOTA 2016), in Alcântara (BATALHA/CARDOSO 2013) and in Rua dos Correeiros (VIANA 2015), though no date was recognized on some of them.

No dated 16th-century or earlier measuring cup has ever been published, and although we are tempted to see the [15]41 date on that very small measuring cup (Fig. 3/Inv. No. 124), this may just be a misreading from something someone wrote on the small cup.

The artefacts found in this excavation, twenty of them identified in 16th century contexts, were made at a different time than the ones found in late 17th-century contexts and have to be interpreted differently. While the older ones (Figs 3, 4) were manufactured and used at a time the king was trying to establish a general system following the Lisbon measures, the two earlier ones are already from a period when, at least in Lisbon, everything was already standardised. That is possibly why they don't need a mark on their body mentioning the amount, but just the inspection mark near the rim. The standardisation of measures was already so widespread that everyone would recognize their size.



## Conclusion

When describing these objects archaeologists tend to call them commercial items. In fact, this is the most logical attribution, since most of them are found in locations associated with different activities, such as the waterfront contexts, where trading was constantly occurring. On the other hand, the 1521 law by King Manuel and the 1565 law of King Sebastião reveal that these were mostly used in trading, which is one of the reasons these should be calibrated and checked several times a year, with a clear indication of the year of that inspection. It is impossible to know what type of commodities were sold using such measures, though their different sizes suggest a wide range of goods.

Nevertheless, it is quite common for measuring cups to be found in domestic environments where no trading activity seems to have been taking place. Therefore, what were measuring cups that had been validated by the local authorities doing in a household (Fig. 8)? Could people have sold things to their neighbours or were they using them in other functions? The answer may be in recipe books, since these documents constantly mention the use of measures. The *canada* or  $\frac{1}{2}$  *canada*, and the *quartilho* with all its subdivisions, among other references, are constantly present as instructions for cooks. These are exactly the objects found in domestic sites associated with everyday objects used to cook and to eat from (CASIMIRO/GOMES, in press).

The artefacts found in these contexts on this Lisbon waterfront site reflect the daily life of Lisbon not only from an economical point of view but also with respect to domestic life style. They also reflect how measuring was important in this city and the evolution of measuring receptacles during the 16th and 17th centuries, always with an effort from Portuguese monarchs to standardise these objects.

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# Ceramic Toys and Miniatures from the 16th–18th Century Found in Lisbon

Mário Varela Gomes – Rosa Varela Gomes – Tânia Manuel Casimiro

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## Abstract

Archaeological excavations in various medieval and Early Modern sites in Lisbon have re-vealed several artefacts interpreted as children's toys, such as whistles, marbles and fragments of anthropomorphic and zoomorphic figurines. The same contexts have also yielded other artefacts of very small proportions. These are exact imitations of larger cooking pots, chaffing dishes, jars, bowls and cups and are usually classified as toys. Miniatures could have played an important role in child's play and may have been used to teach them certain cultural habits (such as cooking for little girls). But they could have fulfilled other functions as well. Small vessels may have contained rare or valuable goods. This paper presents the artefacts found in the Santana Convent and the Carnide storage pits in Lisbon and from Rua da Judiaria in Almada.

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📍 Lisbon – toys – miniatures

## 1. INTRODUCTION

The children's world, together with its physical growth, is a social construction, most of the time parallel to the adult world. Regardless of time and space, there are determinant factors in the recognition of childhood as a time of learning, experimenting, creativity and cognitive development connected with certain types of conceptualisation, fundamental in the creation of a personal identity.

Child play is considered by today's child psychology and other sciences studying formation and cognition as fundamental for the physical and intellectual growth of people. Toys are more than just fun artefacts able to produce a type of self-satisfaction. They are educational artefacts connected to human motricity and the development of brain functions, permitting the expansion of knowledge. Even the relationships between different toys lead to an increase in action planning and to recogniz-

ing, creating and manipulating symbols, an intrinsic human characteristic.

At least until the 19th century, there is no news in Portugal that toys were directly related to economic activities. These are cultural symbols and are considered *ideo-technic* artefacts, according to Lewis Binford's functional classification (BINFORD 1971, 45, 46), a reflection of the ideological component of society. Most of them seem to have been made by craftsman and were used by children in the technical formation of their personalities.

In Portugal, there are several publications referring to the existence of toys since the Roman period. Dice, game pieces and their associated board games, as well as terracotta *coroplast* figurines together with other bone reduced-size figures representing female figurines. However, it is during the Islamic period that the quantity of these artefacts would



increase. Miniatures of ceramic vessels, whistles, anthropomorphic and zoomorphic figurines, and dice and game pieces reveal some of the activities pursued by children and teenagers (GOMES 2003; 2004; CARVALHO 2005).

These types of artefacts increase even more, in number and variety, during the Early Modern period in association with different social and economic contexts from noble to common households, convents and monasteries, and especially in urban areas.

In this paper we approach these childhood experiences specifically for Lisbon, though some of the finds in Almada, on the opposite side of the Tagus River, were also considered. This inclusion relates to the fact that the inhabitants of this village lived a direct relation with Lisbon. In fact, this was an area where several noble Lisbon families had secondary homes, which they occupied when Lisbon was struck by the plague. In this sense, all the contexts share a similar background.

Although common in many archaeological contexts from the 16th to 18th century, these ceramic toys are only occasionally mentioned in site monographs and Portuguese archaeologists have not yet dedicated an exclusive study to such artefacts. The few studies of historical toys in Portugal were made back in the early 20th century and were developed based on ethnographic theoretical frameworks (CORREIA 1916; PESSANHA 1916).

The classification of the artefacts presented in this paper is based on today's understanding of toys 'as instruments of enculturation and of cultural change, revealing and concealing relations of technology, social roles, statuses, and important cultural values, themes and symbols' (INGERSOLL ET AL. 1992, 428). In this sense, marbles, small anthropomorphic and zoomorphic figurines and animal shaped whistles are still used today for children's entertainment. As for small ceramic vessels or little pots, exactly imitating the same forms and decorations of larger objects such as cooking pots, chaffing dishes and cups, among others, their interpretation is not always straightforward and they could just be miniatures. 'A miniature is a representation of any object – natural, human-made or imaginary – that is deliberately made smaller than its life-sized,



Fig. 1: Map with the places mentioned in the text. 1 – Campo de Santana; 2 – Carnide; 3 – Rua da Judiaria; 4 – São Vicente de Fora.

full-scale original' (MILLS 2015, 248). Nevertheless these are frequently classified as toys in many post-medieval contexts around the world (LUCY 2005, 45).

## 2. THE CONTEXTS

The toys and miniatures presented in this paper were found in Convento de Santana and Carnide in Lisbon and in Rua da Judiaria in Almada (Fig. 1). Although only these sites are presented in this paper, the discovery of miniatures is frequent in Lisbon archaeological contexts, with several of these finds identified in Early Modern chronologies. One of the sites that provided a large collection of toys and other objects related to entertainment such as musical instruments was the Mosteiro de São Vicente de Fora, a religious house for men founded in the Middle Ages and occupied throughout the Early Modern period. This collection, although not yet published, may in fact provide interesting answers about the daily life of monks inside the many religious houses in Lisbon.



## 2.1 CONVENTO DE SANTANA

The Convento de Santana was founded in 1562 and remained active, with nuns living inside until 1884. Archaeological layers were found associated with the more than three centuries the convent was in operation. The archaeological excavations at this site took place between 2002 and 2012 and led to the discovery, among other things, of a few cesspits and three wells which, once deactivated, were also used to dump domestic garbage (GOMES/GOMES 2007). Thousands of artefacts were recovered from these contexts, pottery being the most abundant. The finds also included a large collection of miniature vessels. These can be classified as redware (bowls, cooking pots and chaffing dishes) and other finer vessels, some of them decorated with quartz inlaid stones, white ware and tin-glazed objects (Fig. 2A, C). An anthropomorphic whistle, green lead glazed, has a grotesque appearance and possibly represented some sort of mythological being, the ones that could appear in children's tales (Fig. 2B). Terracotta images represent two female figures (possibly dolls?) and a zoomorphic image resembling a dog (Fig. 2D, E).

Some of the most frequent entertaining objects found in Early Modern archaeological contexts are identified as game pieces. These are shaped in a circle and usually reused sherds from broken pots. They were found in contexts from the 16th to the 18th century, thus overlapping well with the convent's occupation, though it is difficult to determine if they were used exclusively by children.

The presence of all these toys in a female convent can be explained by the fact that nuns were not the only people living there. Servants living inside the convent's walls had their children with them. However, we should not overlook the possibility that some of these nuns may have had children of their own, conceived before entering the convent, or even once inside. The life without rules of the Santana Convent nuns and their relationship with the outside world has been well documented (GOMES R. V. ET AL. 2013; GOMES M. V. ET AL. 2015; GOMES M. V. ET AL. 2016).

## 2.2 CARNIDE

Carnide is located in a suburban Lisbon area and a zone dedicated mostly to agriculture in the Early Modern period. Hundreds of underground storage pits to store cereals were found in an excavation conducted in 2012 (CAESSA/MOTA 2014); these were subsequently transformed into waste pits between 1550 and 1650. Hence, they contained all the remains of the domestic activities of that community, with thousands of ceramics objects (CASIMIRO ET AL. 2017). Among the objects used in daily domestic activities, several artefacts that can be identified as toys were also discovered, although, once again, the uses of such items is open to discussion.

Reduced-sized redware chaffing dishes and cooking pots, painted with white lines on their exterior walls, may have been used by girls as part of sets in the process of learning their social role as future women (Fig. 3B). Despite the lack of secure proof of this use, it does not seem unlikely. There are other objects exclusively dedicated to entertainment such as a dozen whistles shaped as horses (Fig. 3A), one of them with the remains of the legs of the man riding it. Although not appearing in this collection, there are ceramic whistles with different shapes such as birds and even lizards. Although these have enough space inside to contain water, there is no evidence they were used with it inside, though it seems they must have been played with by children. The small objects found in this context were not only made in Portugal, as some European imports were also recovered that may in fact indicate some sort of social distinction in their users, since imports were often given prominence (Fig. 3B).

## 2.3 ALMADA

The archaeological contexts excavated in the city of Almada, at a site known as Rua da Judiaria, correspond to an urban waste pit filled with garbage originating in domestic activities during the 17th century, thus once again the majority of the artefacts correspond to vessels used in daily household activities. Small ceramic objects were also found at this site which could also be interpreted as chil-



Fig. 2: Convento de Santana de Lisboa. A – Redware miniatures; B – glazed whistle; C – tin glaze ware miniatures; D, E – Redware objects of different sizes.



Fig. 3: Carnide: A – whistles; B – European imports; C – redware; Almada; D – pottery miniatures; E – zoomorphic representation and dice.



dren's toys. The similarity of shapes between large and small objects may in fact have a relationship between infants and their parents in a process of social learning (Fig. 3D). Other entertaining objects were also found, such as a small representa-

tion of what appears to be a cat. Once again, dice and game pieces are associated with this collection, although it is difficult to understand if these were used by adults or children in spite of their reduced size (Fig. 3E).

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## Conclusion

Small ceramic objects, when found in archaeological excavations, are usually associated with toys and consequently to the presence of children. Although only three archaeological sites are mentioned in this paper, several of these small objects have been found at many other sites, although still unpublished. Their widespread use may indicate that a specific children's identity was shared by different people in the Lisbon area in the 17th century connected with a distinct social backgrounds.

There is no doubt that animal-shaped whistles and zoomorphic figurines may have been used as toys. The same certainty cannot be attributed to ceramic vessel miniatures. Although this is always the main explanation for these discoveries, one cannot ignore their use simply as decorative objects such as the small chaffing dishes painted in white. In other cases, they could also have been used as containers for rare and expensive substances, such as oils and perfumes. Convents had their own pharmacies, where these small containers would have been necessary to keep products used in medical care. Or they could just be display miniatures revealing the craftsmanship of potters to the delight of their owners, who would take joy in owning such small objects. The ownership of miniatures and their meaning has often been discussed, and it seems to give satisfaction to the people who own these objects, almost recreating life in a smaller and perfect way, though most of the archaeological studies about miniatures correspond to 19th-century objects, thus a different social, cultural and economic world than the 16th to 18th century contexts presented in this paper (MILLS 2010, 14).

While boys and girls played with different toys, it is not yet possible to make an accurate gender separation of such activities, although it is possible that by trying to imitate the adult world, girls were given small objects similar to artefacts used in daily household activities, something that persists to this day, while boys would receive toys that would enhance their abilities as warriors or future craftsmen. Children were in fact social agents of these Early Modern societies and the use of small vessels as learning tools of cultural and social behaviour is still practiced today.



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# Lids Made of Brick Clay from Wittenberg and Central Europe – a Mysterious Type of Archaeological Artefact from the Late Middle Ages and Early Modern Period

Ralf Kluttig-Altman

## Abstract

Lids made of brick clay exist as archaeological finds for instance in some regions of Germany, the Netherlands, Switzerland, and Austria from the 12th until the 17th century. They were not produced by potters, but by brickmakers as a supplemental product that differs from ceramic lids in terms of manufacturing technology, shape, weight, decoration and function. They are solid and heavy objects, with large handles and very plain undersides; they are mostly richly ornamented.

Until recently, the function of these objects remained unclear; as far as we know there are no historical paintings or prints showing them in use. Addressing these lids in the context of underfloor heating, as some published sources present, is neither useful nor possible. This paper presents some well-studied examples from Germany with all their special attributes and proposes a hypothesis for their original function.

— brickware lid – brickyard – cooking – underfloor heating – supplemental product – Early Modern period

## 1. WITTENBERG

Wittenberg is a small town in Saxony-Anhalt in Germany, where Martin Luther developed his ideas of the reformation of the church at the beginning of the 16th century. There are a great number of finds from many excavations in the centre of the old town, including many lids made of brick clay that differ from common ceramic lids in many ways.

Like candle holders, spit supports, toys, and others, brickware lids can be identified as supplemental products of brickyards. They resemble real ceramic building material (e.g. bricks, roof and floor tiles) and were made from the same clay. Compared to the millions of bricks and tiles produced in many places, the number of lids is quite small, which is why they are considered supplemental products.

According to current knowledge, lids are not mentioned in written sources like orders and bills from brickyards – they appear to have been too trivial for the ‘main business’.

In Wittenberg, brickmakers mostly worked outside the town due to the danger of fire and space requirements (KLUTTIG-ALTMANN 2013a; 2013b). In late medieval times and later, sometimes up to three or four brickyards coexisted together in Wittenberg; some were owned by the city, some by the elector. They each mainly produced for their owners, but sold the surplus to anyone who wished to purchase bricks and tiles. Especially in the 15th and 16th centuries, a great volume of bricks was necessary for building the elector’s new castle, the city walls, and many houses in town.



Fig. 1: Fragment of a brickware lid from Wittenberg, Pfaffengasse 28, painted geometrically with white engobe; diameter: 14 cm, The State Office for Heritage Management and Archaeology Saxony-Anhalt, Halle (Saale). Photo by A. Hörentrup.



Fig. 3: The underside of a brickware lid from Wittenberg, Schlossplatz 5, with typical traces of burning and smoke from original use; diameter: 15.2 cm, The State Office for Heritage Management and Archaeology Saxony-Anhalt, Halle (Saale). Photo by A. Hörentrup.

What exactly is a brickware lid (Fig. 1)? Due to the manufacturing of brick clay, the lids are heavy and solid. General manufacturing traces like the brickmaker's fingerprints or knife marks indicate that they were not made on a potter's wheel. They were not produced in series, and every lid seems to be a unique item. In general, the diameters of the lids range from 10 to 20 cm. They have a very plain and smooth underside and usually a slanting rim, which at times can also be rounded off or vertical (Fig. 2). This is very important, because a diagonal rim indicates a special function (see below). The decoration techniques are simple and typical for brickmakers: chip-carving, ordinary painting, markings or carvings with knives. Sometimes the

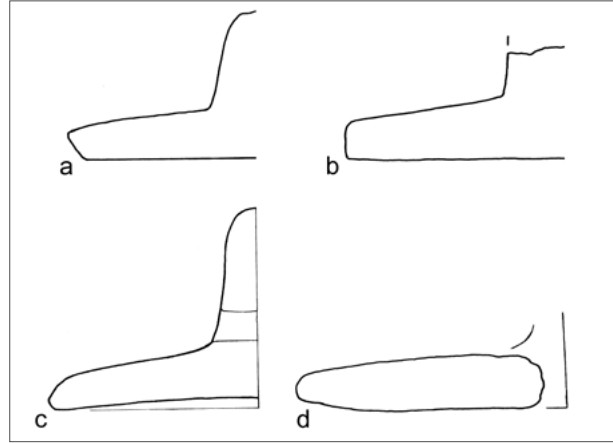


Fig. 2: Varieties of brickware lid rims from Wittenberg. a – type 1 with a distinct slanting rim; b–d – type 2 with vertical, rounded or other non-slanting rims. Drawing by R. Kluttig-Altman.

handles of the lids are very large – they can be shaped like a ring, a disk with a hole, a mushroom or a crown.

Most of the lids from Wittenberg – more precisely about 95% – show traces of smoke and fire on the bottom sides, sometimes also on the upper sides and the handles. From time to time the underside is completely blackened, but mostly the discoloration is more like a ring around the edges or just on one side (Fig. 3). Often the underside shows traces of intensive abrasion (about 40%), sometimes with burn marks, other times without them. Only a couple of brickware lids show no traces of fire and smoke, but they were in use, too, just in another way.

The period of using brickware lids in Germany is quite long, from the 12th until the 17th century, with a significant peak in the 15th and 16th centuries (KLUTTIG-ALTMANN 2015, 49). Because of their simple production, they seem to be older than they are. What further complicates a chronology is the plain decoration, due to which it is actually not possible to show any stylistic development over the centuries.

The lids spread across different parts of Wittenberg, which has several main areas, for instance the house where Luther lived, houses near the castle or the town hall (KLUTTIG-ALTMANN 2015, 52, Fig. 24). Many of the rooms of the richer households were most likely furnished with tiled stoves, while

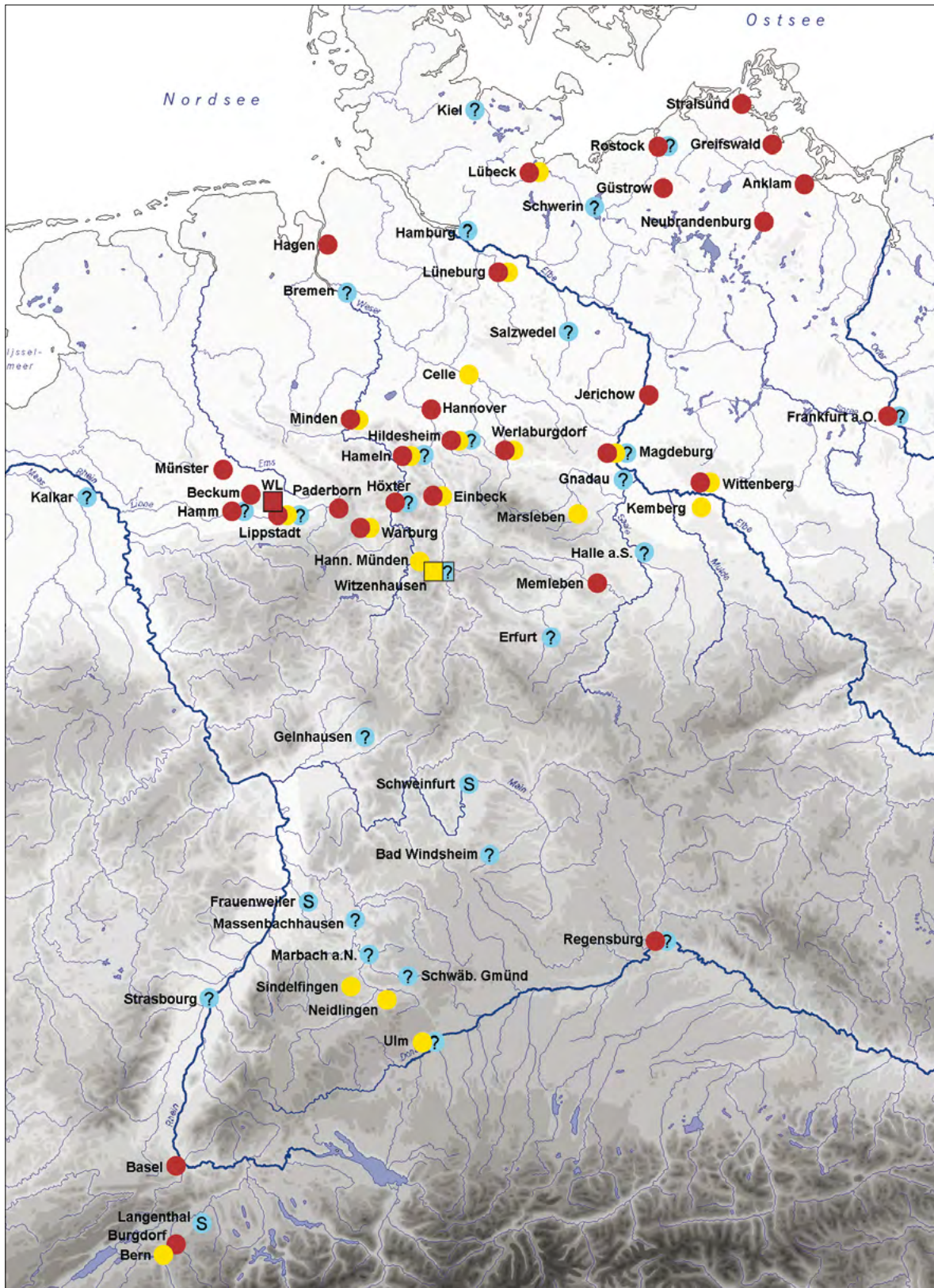


Fig. 4: Map of Germany with find locations of brickware lids recorded by the author (June 2018). The red symbols indicate lid-type 1 with a diagonal rim, the yellow circles indicate type 2 with differently shaped rims. The blue symbols with the question marks indicate fragments that cannot really be assigned to one or the other type. Three find sites from brickyards are known today (the square symbols: Wittenhausen, Wadersloh-Liesborn and Warburg). Produced by R. Kluttig-Altman, map by The State Office for Heritage Management and Archaeology Saxony-Anhalt, Halle (Saale).

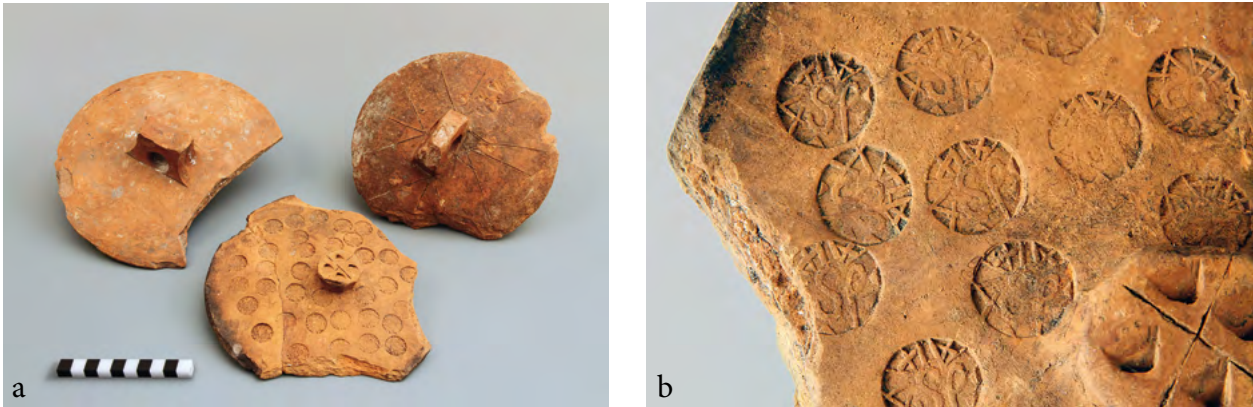


Fig. 5 a–b: Three brickware lids from Lübeck, the one at the front showing incised ‘SP’ markings (see detail), Department of Archaeology and Heritage Management of the Hansestadt Lübeck. Photo by D. Braca.

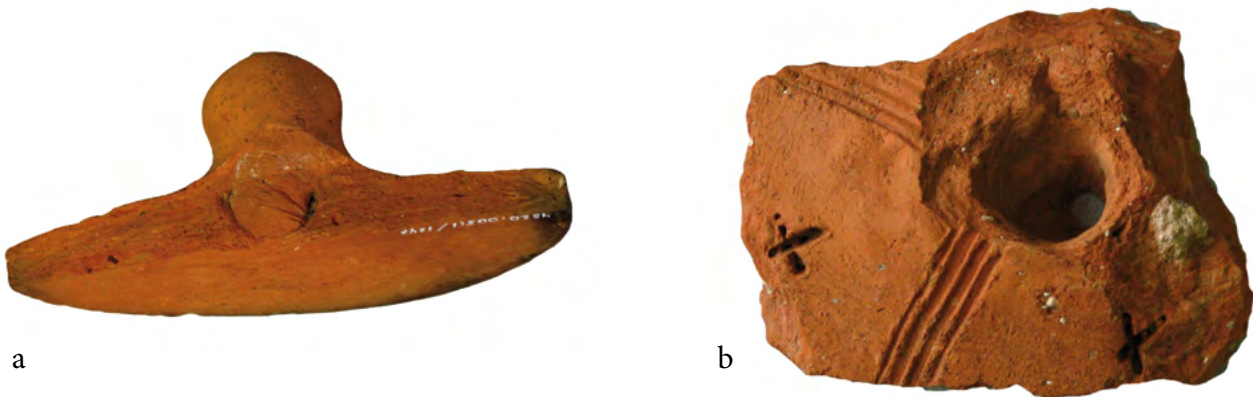


Fig. 6 a–b: Two characteristic brickware lid fragments from Warburg in Westphalia. The crude handles of these lids were manufactured separately and thus easily broke off, LWL-Archäologie für Westfalen. Photo by R. Kluttig-Altman.

heating chambers and large kitchens were located in the basements. Nevertheless, some lids were also found in smaller, ‘ordinary’ households. We do, however, need to keep in mind that the concentration of these finds reflects the frequency of where excavations were conducted in Wittenberg and thus this pattern of distribution should not be overinterpreted at the moment.

## 2. BRICKWARE LIDS IN GERMANY

On the one hand, lids from different find locations in Germany have common features, while on the other hand, they vary widely in particular features. Examples from some important sites give an impression of the possible varieties (Fig. 4). Lids from Einbeck, a small town in Lower Saxony, for example, are especially richly ornamented

with chip-carvings and various markings and often appear with differently shaped handles, which are also decorated. These lids are similar to those from Wittenberg in many ways (KLUTTIG-ALTMANN 2015, 53–57).<sup>1</sup> One of the lids shows engraved Gothic letters, which unfortunately are illegible due to the fragmentary condition of the artefact. Most of the lids from Einbeck can be dated to the second half of the 15th and the first half of the 16th century and were in all probability manufactured at a contemporary local brickyard, even if production waste to definitely verify this is lacking.

Lids from Lübeck on the Baltic Sea are often undecorated and much larger than others (KLUTTIG-ALTMANN 2015, 58): diameters up to 30 cm are possible. Geological tests have shown that

<sup>1</sup> Special thanks to Andreas Heege for providing access to his informative results.



the brickmakers here used yellow clay (WEHNER 2016, 234). Decorated pieces feature large marks or simple carved lines. The only example bearing markings with two letters, namely 'SP', as well as a carved 'W' at the top of the handle, was found in Lübeck (Fig. 5). The 'SP' mark can be identified as the St. Petri brickyard, one of a number of brickyards in Lübeck, because brickmakers there signed all bricks and tiles with similar marks beginning in the late 17th century (WEHNER 2016, Fig. 1/6, 7). Thus, the brickware lid incised with 'SP' represents one of the later examples compared to those from many other places in Germany mentioned here. While bricks and tiles were probably marked to control the output of each brickmaker, the markings on the lids are mere decoration, since they cover the entire surface.

Westphalia is a famous brick region and therefore brickware lids have been found in many places. In the following text I present examples from Hamm, Warburg, and Wadersloh-Liesborn. Lids from Hamm are made of pale-coloured clay. They are incised and chip-carved too, but a number of them show some kind of simple signature on their underside. A few of the signatures were applied before firing the lid, some afterwards. These signatures are possible personal signs or visual features for taking the right lid for each particular purpose in everyday use (BIRKER 2018).

In Warburg we have lids from the site of a brickyard. The production technology of lids was a little peculiar here, because the handle was made separately and inserted into a small hollow in the lid. The handle itself consists of two parts, an inner pin and an enlarged part around it. This technique was not very successful and today most of the lids' handles are broken off (Fig. 6a/b). Production here as a whole was on a low level. Wave patterns dominate in Warburg, and sometimes the brickmaker used what he found in his pockets as decoration, e.g. his keys.

Many lids and other supplemental brickmaker products were found at the site of a former brickyard in Wadersloh-Liesborn in Westphalia. Here the clay was mixed from red and white and the lids were predominately decorated with a circle pattern, in some cases quite carefully made and very complex.



Fig. 7: 14th-century bronze tripod from Jessen Castle in Saxony-Anhalt; height: 15.2 cm, The State Office for Heritage Management and Archaeology Saxony-Anhalt, Halle (Saale). Photo by A. Hörentrup.

### 3. FUNCTION

The typological differences of rims – they are either mostly diagonal and accurate or nondiagonal and rough – are important when it comes to thinking about the original functions of these lids. A diagonal or slanting rim suggests that these lids were put on a vessel or something else with the same dimensions, which the lids were supposed to close very tightly. What could this be?

Especially in older literature, authors hold the view that the lids were used for underfloor heating systems (heating chambers). However, I do not think that this is their function for the following reasons:

1. There is not a single find situation with heating in combination with brickware lids.
2. When covering the heating vents of an underfloor heating system below the living room floor with such a lid, you will always trip over the large handles. Covers for heating vents are usually made of metal and are very flat, like at the Town Hall of Lüneburg (RING 2001, 29; 35–36, Fig. 3–5) or in Malbork Castle in Poland.
3. The shapes of the known examples of heating vent covers made of stone do not correspond to the usual shapes of brickware lids (e.g. Oybin Monastery in southeast Saxony; OETTEL 2008, 29, Fig. 5).



The most conclusive theory for using these lids is as covers for bronze vessels/tripods.<sup>2</sup> Upon closer consideration, in this context you cannot employ lids made from other materials in everyday use. Thin ceramic lids or those made of cast metal are fragile and would soon break. The slanting rim of lid type 1 fits perfectly onto the rim of such vessels (Fig. 7). And perhaps, since the metal vessels were not manufactured by potters, there was the possibility of acquiring the lids from another source, e.g. from brickmakers. You can use both components quickly and roughly together in your daily cooking routine. It is not easy to destroy a lid made of brick clay.

In more recent times, the kitchen stove is no longer an open hearth, but a closed stove. In this context we know of ceramic lids from the 18th and 19th

centuries that covered these openings when the stove was not in use. But this period is too late for most of the lid finds, which date to earlier centuries. There are some single examples of ceramic vent covers from the Netherlands.

The following list shows other possible functions of brickware lids:

1. For cooking with upper heat: the lids were simply heated and put on a vessel filled with food.
2. For crushing burnt coal on the kitchen stove to make ash for soap production (as mentioned in some Dutch written sources).
3. As weights on barrel lids – plausible for lids without traces of fire (as can be read in mid-15th century sources from Wittenberg [KLUTTIG-ALTMANN 2015, 71]).

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<sup>2</sup> Many thanks to Bern Thier from Münster, Germany, for his original ideas and very friendly scientific exchange.

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## Conclusion

This work has presented some thoughts about a peculiar and mysterious archaeological artefact from Central Europe. Brickware lids also exist from other countries not mentioned in this paper, for instance Austria, Denmark, Poland and Sweden. Research will be continued and we might soon know more about the distribution and original function of brickware lids from Central and Northern Europe.

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# The Bohemian Bitter Water Trade, 1721–1763\*

Patrick Schlarb

## Abstract

After a short explanation about the difference between healing water (medicine) and mineral water (food), a condensed view shows the trademark history and the first phase of the economic development in the trade with Bohemian bitter water. Bitter water was discovered in 1717 by Friedrich Hoffmann in a fountain in Sedlitz, Bohemia. The Order of the Knights of the Cross with the Red Star as the owner, sold it from 1722 on, but incorporated no professional business and only served the incoming demand from Regensburg, Leipzig, Prague, Vienna, Nuremberg and Nancy. The initial promoter of the trade with Bohemian bitter water was Johann Gottfried Müller resident in Teplitz. In 1725 he launched a large-scale advertising campaign, asserting that Friedrich Hoffmann judged the unknown bitter water from the neighbour village Sajschitz (Zaječická) as stronger – in some of his ads he also made it look as if he sold Sedlitzer Bitter Water, neither of which were true (misleading advertising). He worked together with partners in Dresden (Georg Krüger), Leipzig, Berlin, Prague and Vienna. Soon new competitors emerged, and from 1731 on only Krüger, in Dresden, and Hochheimer in Leipzig dominated the whole Bohemian bitter water trade (Sajschitzer Bitter Water) to northern and western Europe. Economic history makes it possible to identify and date the seals and (trade) marks of the bitter-water entrepreneurs in this early period.

🔑 *healing water – stoneware bottles – Saxony – trade*

## 1. HEALING WATER AND MINERAL WATER – NOT THE SAME

At least since the late medieval period, natural science divided waters containing gas and dissolved minerals into hot water (thermae) and cold water (healthy water = Gesundbrunnen) – which included only the medically effective ones. Healthy water mostly comprised Sauerwässer (acidulae), but also bitter waters (HOFFMANN 1723, 327), sulphurous waters, etc. The commercial healing-water trade that began in the early 17th century was a part of the trade with medical products, what means, a part of early pharmacy trade – a trade with pure drinking water did not exist. Today, the generic term ‘Gesundbrunnen’ no longer exists. Mean-

while, the term was renamed twice: healthy water – mineral water (emerging in the 18th century) and healing water (since 1953; SCHLARB 2016).

The water we know today as ‘mineral water’ – a drinking water, not a medicine (!) – was invented by Georg Kreuzberg in Ahrweiler near Bonn, Germany, in 1867. He developed his ‘food mineral water’ and peddled it successfully with predominantly misleading advertising. It was the start of a new industry – the ‘food mineral-water’ industry (SCHLARB 2016; 2017). Crucial in ‘food mineral water’ is, unlike healing water, it is processed by machines, adding chemicals and flavours to meet the consumers’ tastes and preferences. At the same time, spring owners captured control over the term – from then on, the term ‘mineral water’ was no longer a scientific term, but an economic one. From

\* Very condensed excerpt from a research project ‘The Bohemian Bitter Water Trade 1717–1945’ (not yet published).



1867 to 1953 the term ‘mineral water’ existed for the old famous medicine as well as for the new industrial food product. With this item equality, the spring owners of ‘food mineral water’ aimed to transfer the image of a medicine to their food drink. This development is specific for Germany in the territory defined by its borders today, not for other European countries. Moreover, the term problem was greater than expected. In 1881 the Austrian government enacted a law that resulted in Bohemia having no ‘food mineral water’ industry until World War II. The fact that healing water is still called by its old name ‘mineral water’ today is negative for the whole research because of the calamitous intermixture of two totally different goods, markets and consumer groups.<sup>1</sup>

## 2. INTRODUCTION TO THE HISTORY OF THE HEALING WATER TRADEMARK

Labels on healing water bottles, as evidence of their true and original content, emerged in the first half of the 17th century and were applied as seals at the bottle stopper or bottleneck. As the next step, the bottles were supplied with a national or institutional emblem. They had neither the name of the spring nor any contents of the bottle. The third step finally led to the marketing instrument ‘trademark’. With the start of writing the spring’s name or village on the bottle, it is possible to say that a ‘trademark’ was developed. Selters and Schwalbach seem to have started their campaigns using their own trademarks between 1780 and 1800 (EISENBACH 1982, 110–114; 2004, 64–66; BRINKMANN 1992, 270, 271). After several trademark acts, since 1 January 1995 in pursuit of the unification of European law, the current term is ‘Marke’ (trademark; BRUHN 2004, 12, 13).<sup>2</sup> According

1 The worst example is presented by TEUTEBERG 2004. The difference between pharmaceutical and food market is not recognised. Mixtures of natural and artificial mineral water as well as soft drinks are made. A problem is the incorrect reproduction of a major sales statistic by mixing up healing water and mineral water (136) and the mixing up of the two totally different mineral water firms of Selters at the Lahn and Selters near Weilburg (127).

2 For the (modern) evaluation of pharmaceutical trademarks, see, among others in general: MEISSNER 2003; SATTLER 2015.

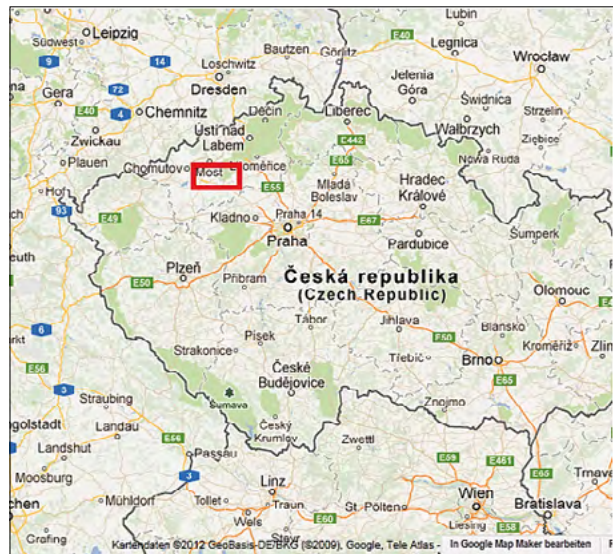


Fig. 1: Bitter water area. Created by P. Schlarb.

to the current state of knowledge, Johann Georg Krüger, Dresden, Saxony, invented the brand policy for healing waters – for the Bohemian bitter water he sold.

## 3. THE BOHEMIAN BITTER WATER TRADE 1721–1763 (PHASE 1)

### 3.1 DISCOVERY OF BOHEMIAN BITTER WATER

In 1717, the prominent physician Friedrich Hoffmann discovered bitter water in Bohemia during his visit to Teplitz (HOFFMANN 1724, 327–329).<sup>3</sup> He named the new healing water after its nearby village of origin (Sedlitz) and its taste (bitter)<sup>4</sup> ‘Sedlitzer Bitter Water’, a highly effective purgative. Hoffmann’s recommendations and publications made the water commonly known throughout Europe.<sup>5</sup>

3 It is not a discovery in the strict sense, because bitter water was generally known in the local area. Crucial is the promotion of its existence and healing possibilities by publishing to a wide audience.

4 ‘zu Sedlitz befindlichen bitteren Brunnen’s (HOFFMANN 1723, 329).

5 It is important to have knowledge of the medical understanding in those times, which was dominated by the four-sap-doctrine (Vier-Säfte-Lehre). If the saps in the human body were unbalanced, they would have to be balanced out again, primarily by purgative measures – and bitter water was, among others – a very effective purgative.

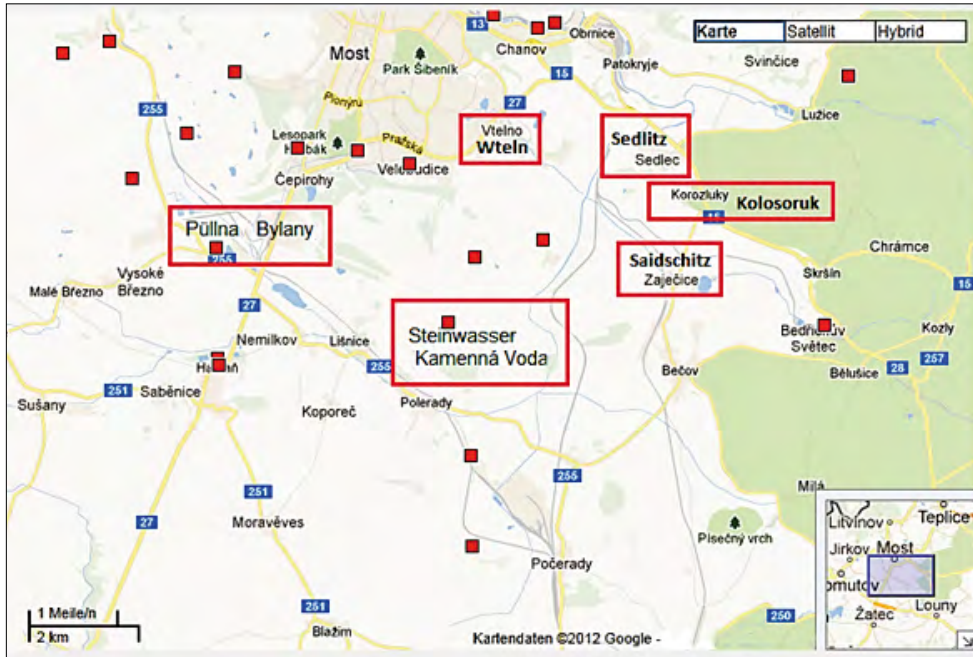


Fig. 2: Bitter water area, detail. Püllna and Steinwasser no longer exist (as a result of coal mining). Created by P. Schlarb.

The great success of the ‘bitter water’ medicine began when Empress Elisabeth Christine, née Brunswick-Wolfenbüttel, wife of Emperor Charles VI of Austria, became familiar with this new medicine in 1721 (HOFFMANN 1724, 329, 330; 1725, 13). The empress and her entourage were convinced of its special effect. In the second half of 1721 demand rose (HOFFMANN 1724, 330; 1725, 13) and persisted until World War II. Its first phase of trade lasted from 1721 to 1763. All Bohemian bitter waters ever sold came from seven small villages, all situated in one area in northwest Bohemia (Figs 1, 2).

### 3.2 SEDLITZ (SEDLÉC)

Two contracts (1724 with the municipality Sedlitz and 1725 with the Sedlitz peasant Mathes Wunsch) enabled the landlords ‘Order of the Knights of the Cross with the Red Star’ to buy all the bitter water fountains in Sedlitz. But the landlords did not establish any special division to merchandise the water, and they sold it among their regular work. One box, holding 18 bottles with tin caps, cost 5 fl.<sup>6</sup> A tin foundry man bought the stoneware bottles, fixed the tin caps and took them to Sedlitz. Filling was performed by two unsupervised peas-

<sup>6</sup> NAP, ŘKŘ, archival box no. 1298, inv. no. 794, ‘Auß dem in Latein den 30. Marty Ao. 1726. An Ihre Wohl Ehrwürden H.: P. Hesler überschriebenen Briefs’, not dated.

ants. There was no advertising. No wonder the sales figures were low, for example in 1755, just 2,000 bottles. In general, they only exported in two directions (Fig. 3), i.e. to the west via Nuremberg to Nancy and Regensburg. The trade to Nancy was organised by Christoph Nöthel, who sold to Messieurs Mandel(l), Beaulieu und G. Vierion.<sup>7</sup> Credit for distribution to Regensburg belongs to the physician and publisher Johann Adam Göritz. First the pharmacists Johann Christoph Schwendner, Johann Wilhelm Weinmann and Georg Sigmund Stolle had the exclusive rights to sell Sedlitzer Bitter Water in Regensburg.<sup>8</sup> In the years 1750/60, the trading house Allius & Barenfeld<sup>9</sup> and from 1757 on the court and town pharmacist ‘Zum Elephanten’, Johann Conrad Gladbach<sup>10</sup> occurred in

<sup>7</sup> NAP, ŘKŘ, archival box no. 1298, inv. no. 794, letter from April 12, 1756. The company’s name was ‘Monsieur Mandel, Maitre Apothicaire et Compagnie Directeur du Bureau Exclusif des Eaux minerales de Lorraine a Nancy’.

<sup>8</sup> NAP, ŘKŘ, archival box no. 1298, inv. no. 794, letter from June 1727 (copy); from June 1727; Göritz, 1727 last page at back (after the index).

<sup>9</sup> NAP, ŘKŘ, archival box no. 1299, inv. no. 794, letter from February 19, 1761; NAP, R. Kr, archival box no. 1300, inv. no. 795–797, bills 1719–1779, Register über Einnahmb und Außgaab Sedlitzer Bitter=Waßer und Saltz, dann Wallenburger Flaschen, Kästen, Waßer= Saltz= Geväß, und Geldt. Bey der Löbl. Ritterl: Creutz= Ordens- Commenda S: Wenceslai nechst Brüx à 1mo April bies [ultimo August] Ao. 1755.

<sup>10</sup> For example, NAP, ŘKŘ, archival box no. 1299, inv. no. 794, letter from Mai 24, 1757.

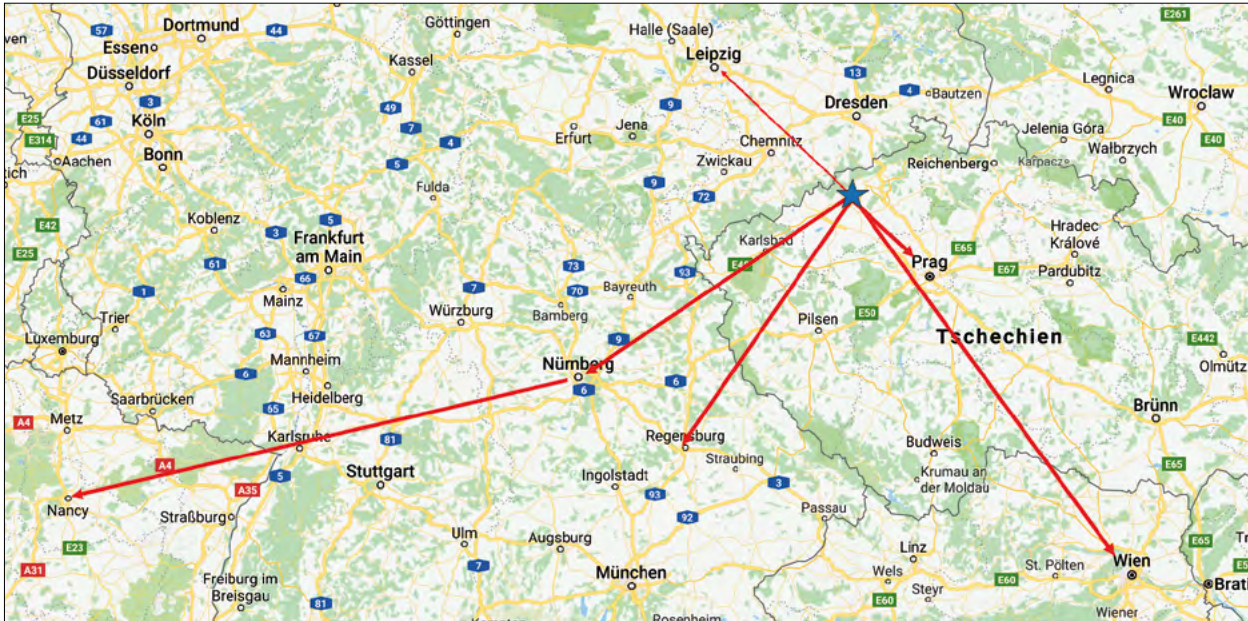


Fig. 3: Distribution of Sedlitzer Bitter Water around 1760. Distribution to Leipzig is not entirely certain. Created by P. Schlarb.

sales. In 1729/30, Sedlitzer Bitter Water was offered by Andreas Ruhland in Waldsassen.<sup>11</sup>

In Prague, the Order first distributed their water (in small quantities) through the merchant Johann Carl Pöschl, from 1729/30 in their own hospital,<sup>12</sup> and around 1750 for a short time merchant Wentzel Feyler sold it.<sup>13</sup> Only in Vienna, where the Vienna Pharmacy Council ('Wiener Apothekerkollegium') dealt with it exclusively, it seems that only Sedlitzer and no other bitter water was sold (probably only delivered in wooden barrels).

That there was a market for Sedlitzer Bitter Water at all was only the result of the publications of Hoffmann and Göritz as well as some merchants who attached importance to dealing with the 'real thing'. The unsupervised filling, the abysmal deliveries with many broken bottles, spoiled water and no advertising at all, makes the existence of a merchandising of Sedlitzer Bitter Water a miracle. Economically, it is not explainable.

'Sedlitzer' Bitter Water could be obtained throughout Europe, for example in Zurich, Basle and

Frankfurt/Main. But in most of these places it is quite certain that patients received fake bitter water,<sup>14</sup> and if they were lucky, Saidschitzer Bitter Water. It was common that many sold their bitter water under the name 'Sedlitzer Bitterwasser' due to the high reputation of this water.

### 3.3 SAIDSCHITZ (ZAJEČICKÁ)

Inspired by the demand for Sedlitzer Bitter Water and potential profits, people in the area searched for further springs and indeed found some in the neighbouring village of Saidschitz (belonging to the landlords of Lobkowitz). They were all located on peasant grounds (Rustikalgrund) and belonged to them. Unlike the Order, the House of Lobkowitz under Philipp Hyacinth, Duke of Sagan and Prince of Lobkowitz, had no interest in this bitter water, but the peasants. On 3 July 1727, Mathes Kohl senior<sup>15</sup> received exclusive permission to sell Saidschitzer Bitter Water.<sup>16</sup> But he could not enforce this

14 Already in 1727, fake bitter water and fraud with bitter water was widespread, see: NAP, ŘKŘ, archival box no. 1298, inv. no. 794, letter from June 1727 (copy); June 1727.

15 TROSCHEL 1761. no pagination, sheet binding section B4, backside.

16 SOAL, inv. no. 127, sing. OS Most 969, the land register of Zaječice – contract from July 12, 1780.

11 BERICHT, VON DEN GEBRAUCH

12 BERICHT, VON DEN GEBRAUCH

13 BERICHT 1753, no pagination, second last leaf, backside, last leaf, front side.



right, because all peasants sold their Saischitzer Bitter Water.<sup>17</sup> The Sedlitz water was well known in Europe through the publications of Hoffmann and Göritz, while the Saischitzer was totally unknown – no good conditions for a start-up, but things took an unexpected path.

To this day, Johann Gottfried Müller from Teplitz is unknown, but he was the man who triggered the Bohemian Saischitzer Bitter Water trade in 1725. He was an acquaintance of Friedrich Hoffmann, who mentioned him in some of his publications, even with his address. He organized a sophisticated large-scale international marketing campaign that covered Berlin, Leipzig, Dresden, Prague and Vienna. Müller's campaign was venturesome and economically successful, not to mention deceptive. First he manipulated a sequence in Hoffmann's text translated from Latin into German about the Sedlitzer Bitter Water. In this German publication about the Sedlitzer (!) Bitter Water, it was now claimed that Hoffmann had examined the Saischitzer Bitter Water and that it was stronger than the Sedlitzer – neither statement was true. As a crowning finish, he placed an advertisement in which he offered Saischitzer Bitter Water – and all this in an act about Sedlitzer Bitter Water, which he did not sell (HOFFMANN 1725, 15, 56).<sup>18</sup>

As a second promotion, measure booklets with excerpts from the act described above were printed, called 'Extracte'. They suggested that they were created by Hoffmann, too. With always the same content, they differ by their title pages. The major reason for this was Müller's marketing policy. He did not only sell Saischitzer Bitter Water out of his principal office in Teplitz, but cooperated cross-border with foreign distribution partners in distinguished emporiums such as Berlin (EXTRACT BERLIN 1725), Leipzig (EXTRACT LEIPZIG 1725), Dresden (EXTRACT DRESDEN 1725), Prague and Vienna. In Berlin, Dresden and Leipzig, the title pages promised that Sedlitzer Bitter Water could

be bought from the named merchants, which was not true. Patients had no chance to recognize that they could only get Saischitzer Bitter Water there.

Müller and his business partners deployed even a third promotional measure: newspaper advertising (not entirely truthful). Today it must be acknowledged that special literature and advertising in bitter (and healing) water are tricky grounds in the search for answers to historical questions.

Müller had the closest contact with Johann Georg Krüger in Dresden, with whom he had a contract of association. But already in 1726, Henrico de Vignet in Teplitz, personal physician of Count Clary, joined with the merchant Christoph Zimmermann in Dresden, and in 1727 the famous merchant Johann Georg Hochheimer in Leipzig captured an essential part of the Bohemian – Saischitzer (!) – bitter water trade. All the merchants received the bitter water in wooden barrels and filled it in stoneware bottles at their local operations (except de Vignet and Zimmermann). For this, they did not act as normal merchants but as entrepreneurs (Verleger). They organised the whole business operations and administration – but had no ownership in any bitter water. Müller's successful promotional triad was copied by his greatest competitors, Zimmermann and Hochheimer. All reference books were used from Hoffmann or Göritz about Sedlitzer (!) Bitter Water for their Saischitzer (!) Bitter Water. While leaving the medical content untouched, they moved all the information around.

The reason all the entrepreneurs and merchants preferred Saischitzer was the profit. In Dresden, where one bottle was sold for 30 xr., the entrepreneurs had a cost price for Sedlitzer of 21 xr., for Saischitzer 9 xr. This had a major impact: The trade in Sedlitzer Bitter Water from Bohemia to the north was unprofitable. The total bitter water trade to the north (transit trade) was in the hands of three Saxon entrepreneurs – and this was trade with Saischitzer, not Sedlitzer Bitter Water (Fig. 4).

Per 100 bottles:

- entrepreneurs in Dresden earned 35 fl. with Saischitzer;
- the Knights of the Cross with the Red Star earned 9 ½ fl. with Sedlitzer; and
- peasants in Saischitz earned 1 fl. 15 xr.

<sup>17</sup> LR-RA, O. 13./24., Entwurf über die Entstehung und Erträge des fürstlichen Biliner Industrialamts vom 20/7/1795 (2nd report).

<sup>18</sup> The publication suggested that it was created by Friedrich Hoffmann, but was not. In this point every bibliography is wrong. The financier and publisher was Johann Gottfried Müller from Teplitz. See also: HOFFMANN 1726, 327-382.

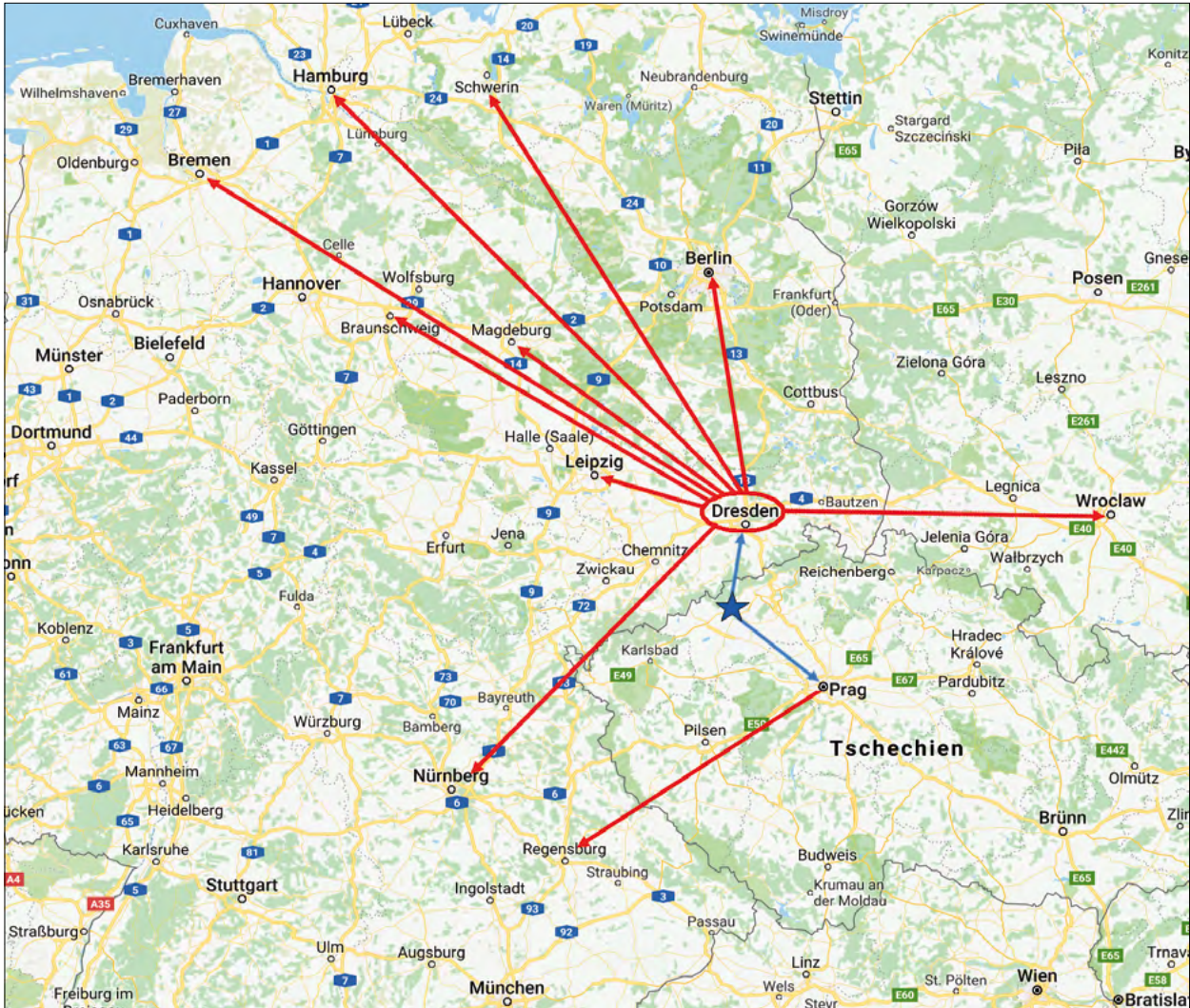


Fig. 4: Distribution of Saidstitzer Bitter Water around 1727. Blue arrows – transport in barrels. Red arrows – transport in stoneware bottles. Created by P. Schlarb.

As a result, nearly all the European bitter water was trade with Saidstitzer or with a fake product. The peasants were the losers in this business, despite the fact that it was their bitter water from their fields that supplied central European demand.

In 1727, Krüger and Zimmermann, acrimonious competitors, sold, among others, to Nuremberg, Bremen, Hamburg, Schwerin, Berlin and Wrocław (Breslau)<sup>19</sup> – and Hochheimer surely had the same radius. To the south, Saidstitzer went to Prague, among others, Müller supplied it to Joh. Staudigl. A transit trade existed from Prague, too, but obviously not in a 'Saxon dimension' (Fig. 4). A shipment to Regensburg is documented, but the

<sup>19</sup> As DocMorris wrote that on the 8 June 2000, the first dispatch pharmacy opened, the pharmacist Krüger would have known that this was not the truth DOCMORRIS [online].

entrepreneur is unknown. The transport never was a problem, even in wartime – only the higher costs for transport increased the price (Fig. 5).

After 1731, the dynamic in the trade with Saidstitzer Bitter Water raised. After the business relationship between Krüger and Müller fell apart in 1731, Müller teamed up with Zimmermann. From this moment onwards, Zimmermann disappeared completely from every promotion and vanished from the area. Beginning in 1732, the whole transit trade of Saidstitzer Bitter Water was in the hands of Krüger, Dresden, and Hochheimer, Leipzig. At the same time, Müller was cut off the lucrative north trade (no cooperation partner could be found) – although he was its founding 6½ years earlier. Krüger and Hochheimer and their following generation were steadily successful.

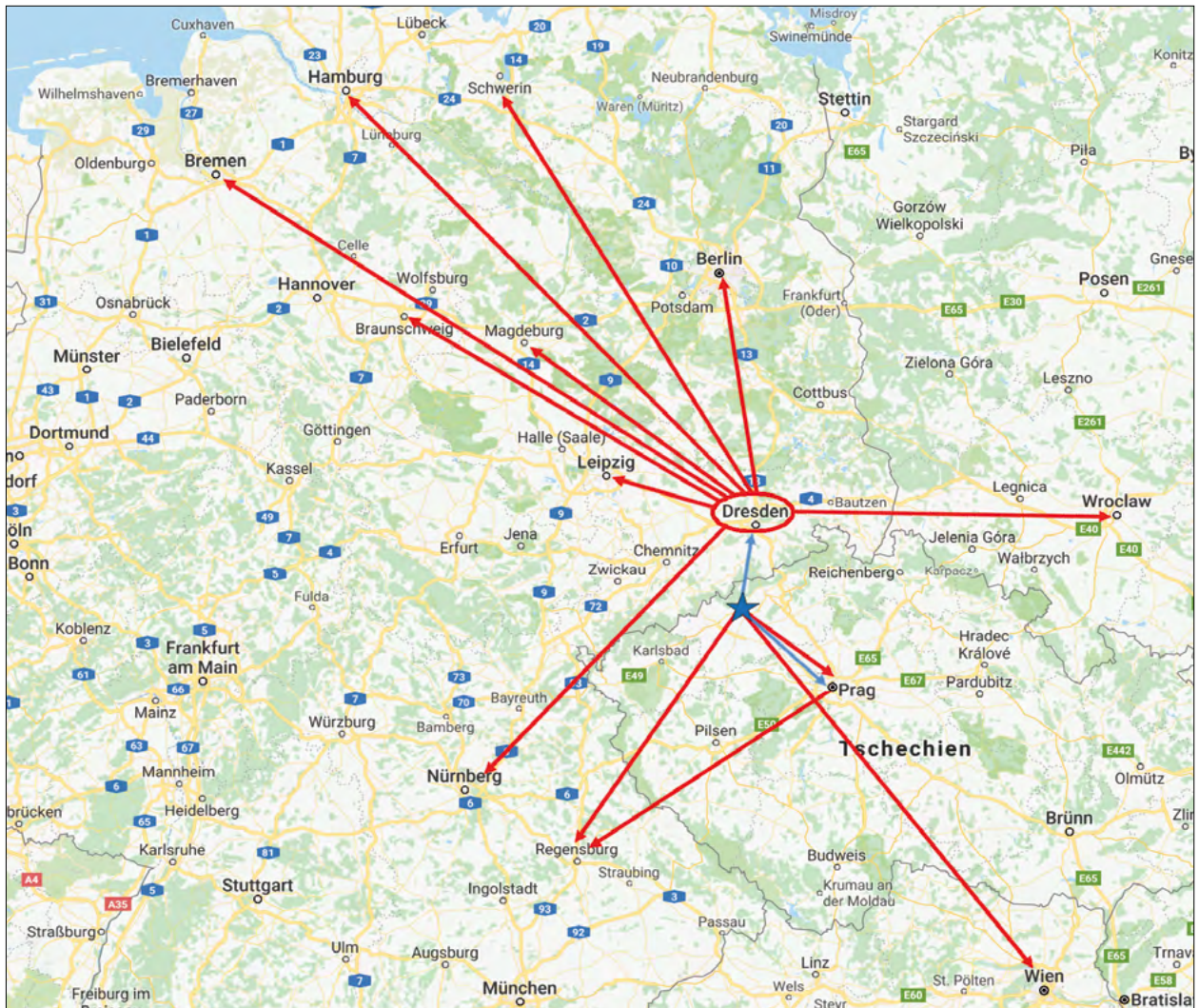


Fig. 5: Extension of Bohemia's (Sedlitzer and Saidschitzer) bitter water around 1727. Blue arrows – transport in barrels. Red arrows – transport in stoneware bottles. Created by P. Schlarb.

After 1731, several more 'entrepreneur-merchants' found their way to the Saidschitz fountains and set up their own trades beside the two bitter water tycoons without ever achieving any significant market share. The strongest of them were the Thierbach brothers in Lobeda near Jena, Friedrich Gottfried Gerber in Dresden, Emanuel Groß in Leipzig, Gottfried Chr. Steinbrecher in Leipzig, and Christian Bernhard Jampert in Berlin. Only the Krügers, father and son, practiced a separate and stand-alone trademark policy.

In 1743, the slow rise of Mathias Lose from Saidschitz began, a peasant and subject of Prince of Lobkowitz, who later became one of the important Saidschitzer Bitter Water suppliers. In 1760 the Teplitz physician H.G.N. Troschel met the chief officials of the ministry of economic affairs

(Wirtschaftsamt/economic office) of Prince of Lobkowitz, economic inspector Simon Thadäus Sturm and collector of duties, Johann Georg Kählig (KNOCHENWEBELL1762, 24). Encouraged by Troschel, Kählig began to supply water from Biliner Sauerbrunnen (acidulous spring) in 1760/61, which was owned by Lobkowitz.<sup>20</sup> Kählig was responsible for establishing, and developing the successful supply of Lobkowitz healing waters. On the other hand, Lobkowitz did not own one Bitter Water fountain. After negotiations and secret agreements, Troschel

<sup>20</sup> The founding year of Biliner Sauerbrunnen is stated as 1664 on this page (BILINSKA [online]). This date could not be verified as of the writing of this article. In addition, the amount of 42,000 supplied bottles of Biliner Sauerbrunn in the year 1786 can be 'read' in a book by Reuß 1801, 12. But Reuß described it in a sophisticated manner. This number is nearly the total for the bitter water bottles supplied.




started to supply Saischitzer Bitter Water in 1761 and was even allowed to seal the bottles with the Lobkowitz emblem. In 1763, Lobkowitz began to sell Saischitzer Bitter Water, which represented the end of phase 1. At this time, Bohemia had four internationally supplied healing waters: Eger Sauerbrunn (acidulous spring), since about 1600; Sedlitzer Bitter Water, since 1721/22; Saischitzer Bitter Water, since about 1724 and Biliner Sauerbrunn (acidulous spring), since 1760/61. Half of them, with surely the highest quantity in sale, was bitter water. Phase 2 of the Bohemian bitter water trade began in 1763 and ended in 1818 with the start of Adalbert Ulbrich's Püllnaer Bitter Water supply.

#### 4. TRADEMARKS AND THEIR DETERMINATION OF AGE



Below, the signs and seals used in the period from 1721 to 1763 in the bitter water trade are presented. Most marks are known only from literature or archives.

##### 4.1 SEDLITZ

Entrepreneur	Mark and/or Seal	Date	Note
Order of the Knights of the Cross with the Red Star	Cross (of the lilies?) <sup>21</sup> with a star containing of six rays beneath it	1722/1723–1724	Stamped in bluish ('blauligten') bottles. The kind of bottle that is meant is unknown.
	Cross (of the lilies?) with a six-pointed star below  Emblem of the 'Knights of the Cross with the Red Star'	1724–1739	Stamped in bottles produced in Waldenburg/Saxony


<sup>21</sup> The primary shape of the cross in the Order's symbol (pictured in the next line) was called a 'Lilienkreuz' (cross of lilies) by LORENZ 1964, 74. However, it looks more like a 'Ankerkreuz' (cross moline). Neither the accurate German nor English word for the kind of cross was clarified. During the first half of the 18th century, the cross was changed to a 'Maltese cross'



Entrepreneur	Mark and/or seal	Date	Note
<p>Order of the Knights of the Cross with the Red Star</p>	<p>Maltese cross with a star underneath, flanked by the letters P W. It is possible that this mark also exists with other capital letters in the mentioned period.</p> <p>The only known piece thus far:</p>  <p>Stoneware bottle for Sedlitzer Bitter Water. Collection of B. Brinkmann, Mülheim an der Ruhr, Germany.</p>  <p>Detail of emblem of the 'Knights of the Cross with the Red Star'.</p>	<p>1740–c. 1768</p> <p>(1750–1754)?</p>	<p>Stamped in bottles produced in Waldenburg/Saxony</p> <p>'P W' = Pater Waha? Father (Julius Franz) Waha was grandmaster of the Order in 1750–1754.<sup>22</sup></p> <p>Height of the bottle: 27.8 cm. The tin cap is missing and the screw thread was removed by a previous owner.</p> <p>Collection: Bernd Brinkmann, Mülheim an der Ruhr, Germany</p>

22 LORENZ 1964, 134.

## 4.2 SAIDSCHITZ

Entrepreneur	Mark and/or Seal	Date	Note
Mathäus Kohl, peasant in Saidschitz	Seal of Mathäus Kohl 	1727–1730	Seal on the mouth of the bottles.  The meaning of the letters 'A K' is not yet known.
Johann Gottfried Müller, Teplitz, and Johann Georg Krüger, Dresden	Uniform brand:  ,Müller in Töplitz, Krüger in Dresden'	1727– March 1731	Marked on the bottles.  Identical seal on the mouth of the bottles.
Johann Georg Krüger, Dresden	Around: ',Seydschützer Bitter = Wasser'; in the middle: ',bey Johann Georg Krügern in Drefßden zu haben'.  With an identical seal.	1732–1740	Signed by entrepreneur's mark and identical seal.  Slightly different descriptions over the years, but supposedly one and the same mark.
	In the middle of the mark a blackamoor head and around 'Seydschützer Bitter = Wasser bey Johann George Krügern in Dresden'	1741– c. 1760	Slightly different descriptions over the years, but supposedly one and the same mark.
Friedrich Gottfried Gerber, Dresden	,F. G. G' and around ',Seydschützer=Bitter Wasser'	Assured for 1744 and 1745	
Dr. Troschel, Teplitz	Bottles containing bitter water from the higher situated fountains (Oberwasser) have an 'O' in red on the bottle.	1761–1763	Mark existed in the third quarter of 1763, because at this time Troschel was no longer in Bohemia but in Poland.
	Bottles containing bitter water from the lower situated fountains (Unterwasser) have a 'U' on the bottle.	1761–1763	See above




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## Conclusion

Located near Brüx (today Most), Bohemia, discovered in 1717, the new medicine 'bitter water' successfully emerged on the pharmacy market in 1721. But the big business did not make the owners (the Order of the Knights of the Cross with the Red Star as well as several peasants), but merchants from Saxony. At first all the bitter water fountains belonged to peasants, even they laid on the ground of two different Landlords. The Order of the Knights of the Cross was one of the Landlords. He bought all bitter water fountains from the peasants. High cost in botteling the water was one thing. But the main reason for their low selling and low profit was because they made no advertising. The second Landlord was the House of Lobkowitz under Philipp Hyacinth. His economic department did not realize the economic potential of the new medicine and gave the farmers a free hand to act with it. The farmers had no experience in long-distance trading with medicine and were happy to get little money extra by selling it in barrels. From the farmers, not from the Order of the Knights of the Cross, Entrepreneurs from Saxony bought huge amount of bitter water for a low price. Bottled in stoneware bottles, a few of them dominated the total sale to the north, probably also west and east. The reason for their success were foreign trading connections, market overview and in first place massive (also misleading) advertising. Looking into the history of advertising, Georg Krüger in Dresden can be seen (until now) as the Entrepreneur who was the earliest in establishing branding and a branding policy in the international healing water trade.

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# Field Fortifications from the Thirty Years' War in the Czech Lands in the Field and in Period Engravings

Václav Matoušek

## Abstract

Engravings depicting the events of the Thirty Years' War represent a complex source. Using artistic and verbal means of expression, they provide information on particular events and the broader context. The authors and publishers of these engravings stressed their accuracy and objectivity. While the lengthy interval between then and now greatly restricts the possibilities of their verification, surveys of battlefields provide at least a partial opportunity to gain a more comprehensive understanding. Six examples of battlefields in the Czech Lands offer a detailed comparison between the relics of the fortifications and their representation in iconographic sources.

📍 *Thirty Years' War – Czech Lands – battlefields – engravings – terrain research*

## 1. INTRODUCTION

One of the most striking archaeological sources of modern-era military history is the preserved relics of field fortifications on historic battlefields. Sophisticated methods of remote sensing of the Earth's surface – aerial imaging and LIDAR technology – have contributed significantly to finding and documenting these relics in recent decades. It is beneficial to supplement methods of destructive and non-destructive archaeological research with the study of written, cartographic and iconographic sources. In my paper, I will focus on a comparison of field studies of field fortifications from the Thirty Years' War and period iconographic sources.

## 2. EXAMPLES

### 2.1 BATTLE BETWEEN ROZVADOV AND W Aidhaus, 1621

The first example is the area between Rozvadov and Waidhaus, where the troops of General Peter Mansfeld and General Tilly fought from June to September 1621 (MATOUŠEK ET AL. 2018a; Fig. 1/1). A leaflet from Rafael Sadeler's workshop depicts a large system of fortifications on the battlefield (Fig. 2), of which seven individual fortifications or groups of fortifications have been verified in the field (Fig. 3). However, only two fortifications actually have the same ground plan in the field as on the engraving (Figs 4, 5). In other cases, only the position in the field corresponds to reality, not the ground plan.



## 2.2 SIEGE OF TÁBOR, 1621

Another example includes sources of the Siege of Tábor in 1621 by the troops of General Marradas (BLAŽKOVÁ/MATOUŠEK 2008; Fig. 1/2). An anonymous 17th-century engraving depicts a square fortification southwest of the town on the top of Pintovka Hill. In reality, an open semi-circular fortification is preserved in the field.

## 2.3 SWEDISH CAMP IN STARÁ BOLESLAV, 1639–1640 (Fig. 1/3)

On the other hand, conformity between the terrain situation and an iconographic source can be observed in the case of the Swedish camp from 1639–1640 in Stará Boleslav (MATOUŠEK ET AL. 2007). The engraving of the camp was published in 1643 in volume IV of *Theatrum Europaeum*. The underlying drawing for the engraving was made by imperial military engineer Carlo Cappel, probably after the Swedes abandoned their camp at the end of January 1640. Five square redoubts are depicted in the northern line of the fortification of the Swedish camp, one of which remained intact until the 20th century. This was a square fortification with 32-metre sides. An archaeological investigation of the fortifications was conducted in 1931, but thirty years later, the redoubt was completely destroyed.

## 2.4 BATTLE OF PŘÍSEČNICE, 1641

A remarkable contribution to the criticism of iconographic sources on battlefields of the Thirty Years' War can be found in the engraving of the Battle of Přísečnice in 1641 (MATOUŠEK/KLEČKOVÁ 2009; Fig. 1/4). The engraving was printed in 1643 in volume IV of the work *Theatrum Europaeum*. The author of the underlying terrain drawing was again imperial military engineer Carlo Cappel. The marked areas approximately show the remnants of field fortifications, which, according to testimonies in written sources, protected the access road to Přísečnice between 1639 and 1645. Carlo Cappel did not record a fortification with an area of approximately 40 x 40m on the engraving. The dating of the fortification to the Thirty Years' War was confirmed between 2015 and 2017 by archaeological research (CRKAL/SÝKORA, in press).

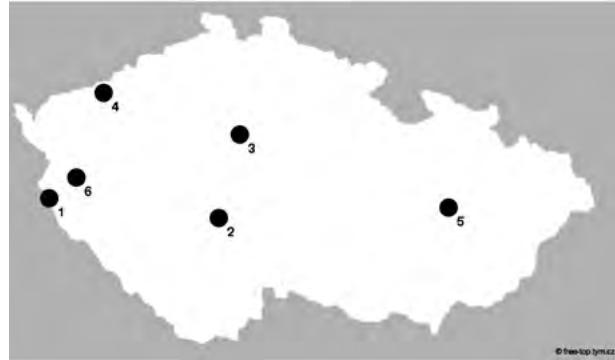


Fig. 1: Map of localities. 1 – Battle between Rozvadov and Waidhaus, 1621; 2 – Siege of Tábor, 1621; 3 – Swedish camp in Stará Boleslav, 1639–1640; 4 – Battle of Přísečnice, 1641; 5 – Swedish camp in Horní Moštěnice, 1643; 6 – Battle at Třebel, 1647. Graphic by J. Matoušek.

## 2.5 SWEDISH CAMP IN HORNÍ MOŠTĚNICE, 1643

Volume IV of *Theatrum Europaeum* also contains a very detailed plan of the Swedish camp in Horní Moštěnice from 1643 (LOTICHIUS 1651, 206, 207; Fig. 1/5). The background for the engraving was created by Swedish military engineer Conrad Mardfeldt. The plan captures the landscape with the Swedish camp in surprising accuracy. From the fortifications of the camp, only one outlying square redoubt of 30 x 30 m is preserved in the terrain. The building is located north of the former ridge (Fig. 6). During World War II, the fortification was damaged by the construction of underground concrete fortifications. In 2015, the relicts of the fortifications were geodetically measured (Fig. 7).

## 2.6 BATTLE AT TŘEBEL, 1647

The greatest conformity between archaeological field sources and iconographic sources has been observed on the battlefield at Třebel (Fig. 1/6). The confrontation between the Swedish and the Imperial Army took place over the course of three weeks at the end of August and September of 1647. Two anonymous engravings of the battlefield were published in volume VI of the work *Theatrum Europaeum*. Between 1988 and 2017, seven remains of

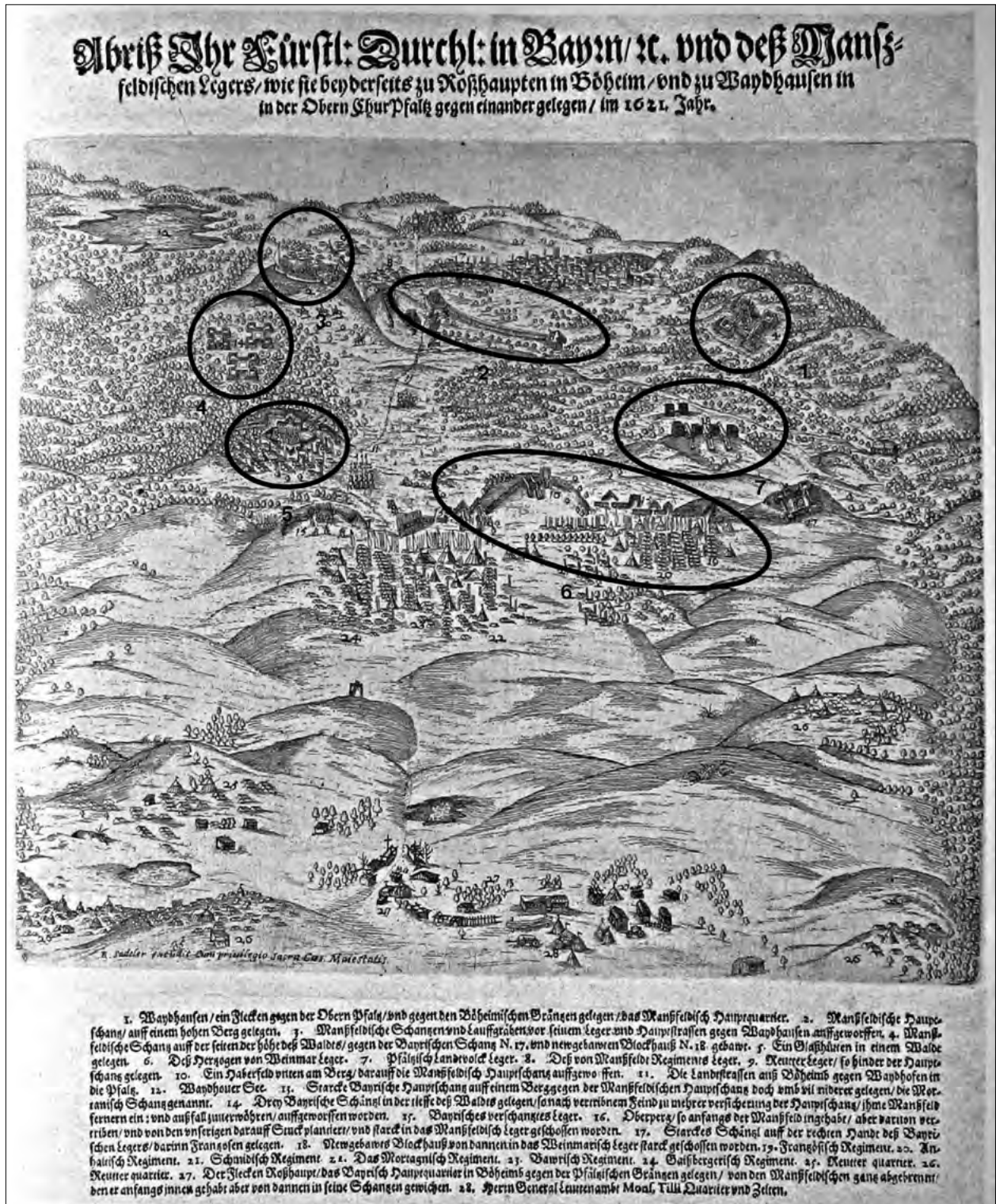


Fig. 2: The leaflet with the Battle between Rozvadov and Waidhaus. 1–7 individual fortifications or groups of fortifications verified in the field (after HARMS/SCHILLING/WANG 1997, 291). Graphic by J. Matoušek.

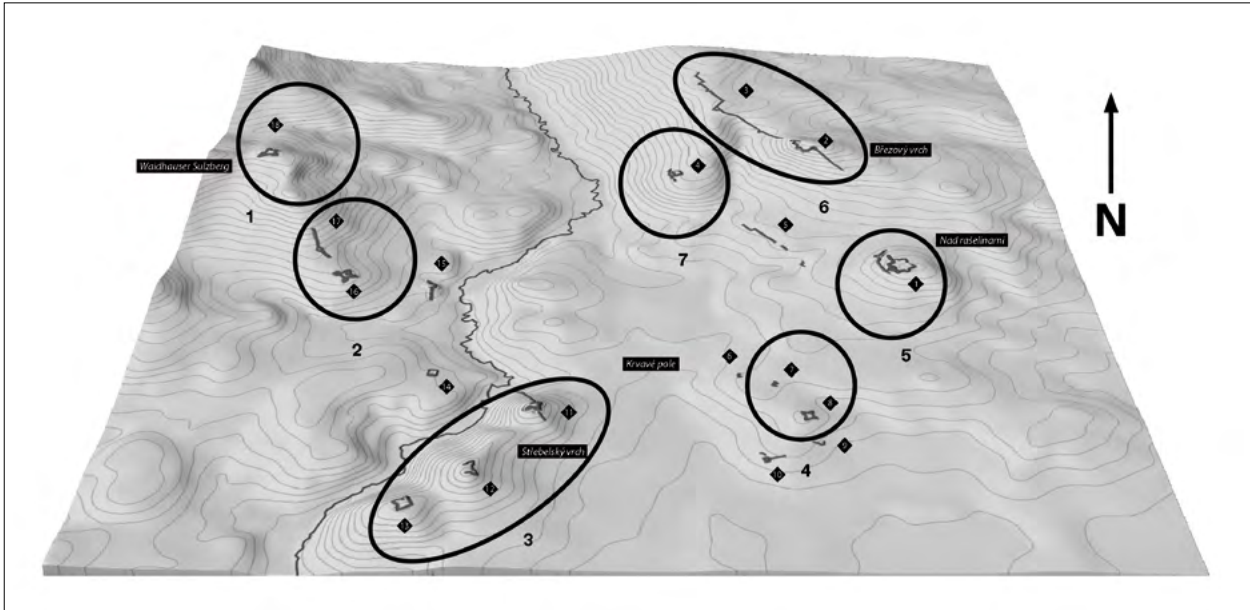


Fig. 3: Present reality of the Battle between Rozvadov and Waidhaus. 1–7 individual fortifications or groups of fortifications verified in the field. Graphic by P. Hrnčířík and J. Matoušek.

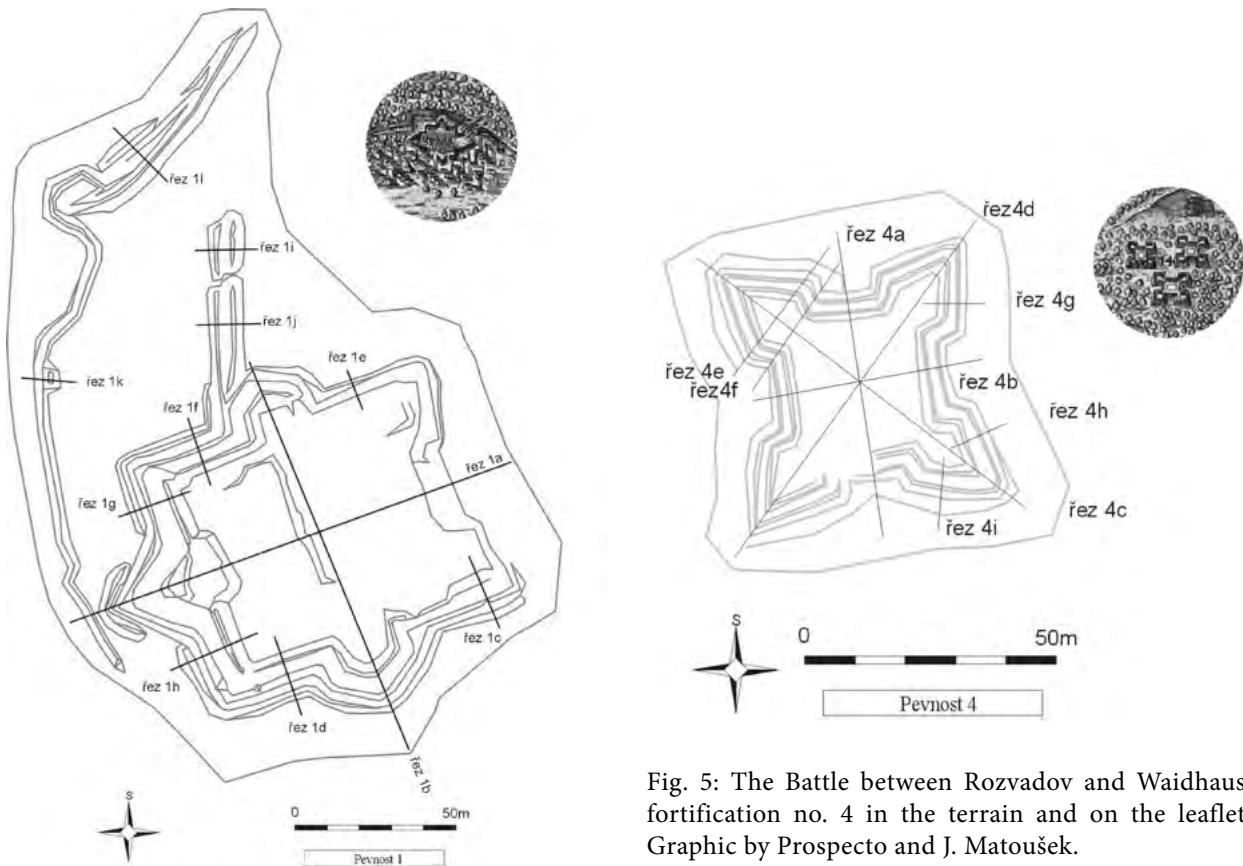


Fig. 4: The Battle between Rozvadov and Waidhaus, fortification no. 5 in the terrain and on the leaflet. Graphic by Prospecto and J. Matoušek.

Fig. 5: The Battle between Rozvadov and Waidhaus, fortification no. 4 in the terrain and on the leaflet. Graphic by Prospecto and J. Matoušek.

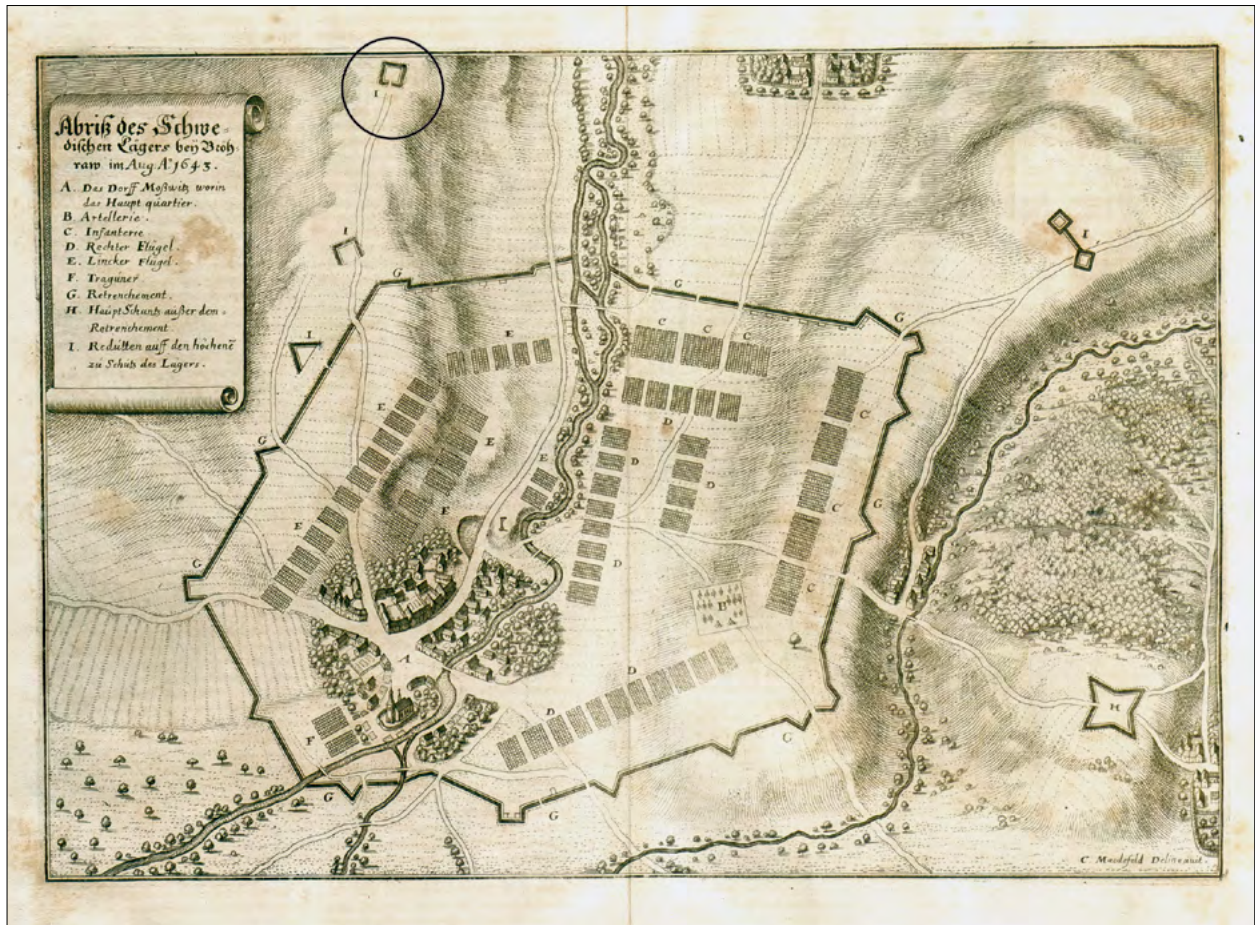


Fig. 6: Swedish camp in Horní Moštěnice. Above is the 30 m x 30 m square redoubt. Credit: Augsburg, University Library, Sign. 02/IV.13.2.26-5.

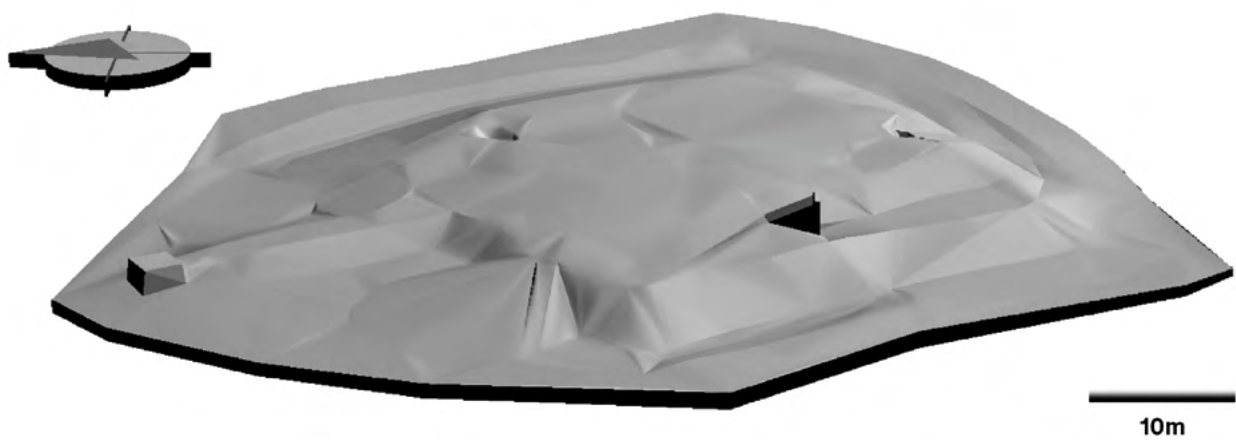


Fig. 7: The square redoubt of the Swedish camp in Horní Moštěnice. Graphic by Intecom GEO s.r.o. and J. Matoušek.



the fortifications of the Swedish and Imperial Army were gradually identified, measured, and archaeologically investigated on the battlefield (MATOUŠEK ET AL. 2017). The position of the sites in all cases corresponded to the depiction on the engravings. In five cases, the actual and illustrated floor plans of the fortifications also coincided. The difference between the southeast corner of the Swedish camp

and the actual terrain can be considered negligible. The only major difference is between the depiction of the artillery fortress at the head of the Swedish camp and the reality of the terrain. While the semi-circular fortification is clearly preserved in the terrain, both engravings consistently display the fortifications as polygonal.

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## Conclusion

These examples make up too small a set for the findings gained to become the basis for a generalising theoretical construction. Therefore, in conclusion, I will make only a few separate comments. The period engravings of the Thirty Years' War in many cases can be a suitable source to complement archaeological field study. Verified examples suggest that engravings can often contain important information about the geographic location of individual sites. The example of the engraving of the Battle of Přisečnice in 1641, however, shows that even in this sense, iconographic sources must be approached critically. This is not only because the engravings do not achieve such precision of landscape depiction as the military mapping from the second half of the 18th century and the 19th century, it is also because the creators of the engraving always concentrated on providing a relatively accurate representation of a particular war event or military site. They failed to depict exact knowledge and landscape features in the broader surrounding area. Engravings that were created on the basis of field drawings by imperial engineer Carlo Cappelletti in particular require great discretion, as Cappelletti did not hesitate to fully fictionalise the broader landscape that he was actually observing.

The engravings do not allow for a detailed study of field fortifications. Only depicted floor plans and the reality preserved in the field can be compared. The depiction of larger systems of fortifications from battlefields in Rozvadov and Třebel points to the fact that the credibility of the engravings is imperfect in this sense as well. However, it is not possible today to ascertain whether the differences found were due to the inconsistent work of a field observer in the 17th century or if they came about due to negligent production of the final engraving in the artistic workshop.

It is therefore possible to conclude that period engravings were not just simple illustrations. And while their documentary aspect is unquestionable, it is necessary to approach this aspect critically, using all the possibilities of source criticism (More in MATOUŠEK ET AL. 2018b).



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# Posters





## A Pottery Assemblage from the Trinitarian Monastery of Zašová (Czech Republic)

**Samuel Španihel – Museum of the Moravian Wallachia region, Vsetín, Czech Republic**

The Trinitarian monastery in the village of Zašová was located in vicinity of the pilgrimage Church of the Visitation of the Virgin Mary. The monastery existed only for a short period of time between 1725 and 1783 and was inhabited by 12 monks while it remained opened. Subsequently, the buildings served as a dye manufactory and were never used for ecclesiastical purposes again.

During the archaeological excavation of the monastery cloister in 2016–2017, two pavements made from flat river stones were found. The older layer was from the time of the monastery's founding, while the second was either laid in the last years of its existence, or, more likely, when the facility was being converted into a factory, as the geometrical motifs from reddish-brown sandstone were missing and the overall quality was lower than in the first case. Trench no. 1 contained a waste pit full of ceramics, animal bones and glass shards.

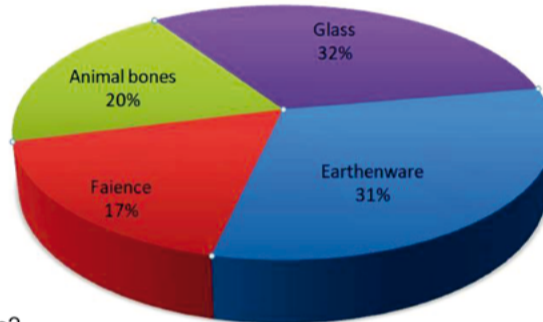
The pottery assemblage consists mostly of simple glazed and decorated earthenware, while also containing luxury faience from the workshops in the town of Valašské Meziříčí. Two-thirds of the ceramics are earthenware, mostly pots, plates and bowls. Tripods, cups and probably jugs appear only in small numbers. Pots are amphoral in shape, with one handle and a simple beaded rim; the only type of decoration on the body of the vessel is engraved fluting. The lead transparent glaze, most commonly in a green or yellow shade, is applied mainly on both sides of rim or inside the vessel. Deep kitchen bowls used in the preparation of food are the largest vessels in the assemblage. Inside, they are decorated with simple wheel decoration in combination with a wavy line. The inner side is also glazed with transparent lead. The wide-open plates and bowls are decorated with a combination of coloured slip and a transparent lead glaze, often in green or yellow. They have the best decoration of all earthenware and are also the only ones without black smoke marks from open-fire cooking. Tripods are without decoration and all have a lead transparent glaze inside. Only a small number of shards can be connected with jugs and cups; the assemblage contains cylindrical rims, which are typical for jugs in this region.

The faience ceramics are typologically very homogeneous. All fragments, save two, are parts of eating bowls and plates. The last ones are albarellos (or barrel-shaped pots). Plates are without any decoration. Bowls often have different curved rims and as well as a foot. Relief decoration such as ribbons or non-functional handles does not appear frequently on the vessels. Painted decoration is not very common, and a clean white surface dominates. However, some vessels have painted motifs with symbolical value, such as the Trinitarian cross or symbols of Mary - star and rose (other flowers are painted in much less in detail). Faience ceramics are similar to products from "tufar" workshops in Valašské Meziříčí. Based on the symbolic decoration, it seems that individual monks chose the motifs on their own.

### CONCLUSION

The ceramics from the waste pit found in the cloister of Zašová Monastery represented a very specific collection absolutely dated between the years 1725 and 1783. It shows differences between kitchen and table ceramics. On the one hand, common lead-glazed earthenware had simple mechanical decoration, while subtle tin-glazed bowls had extra selected painted decoration.

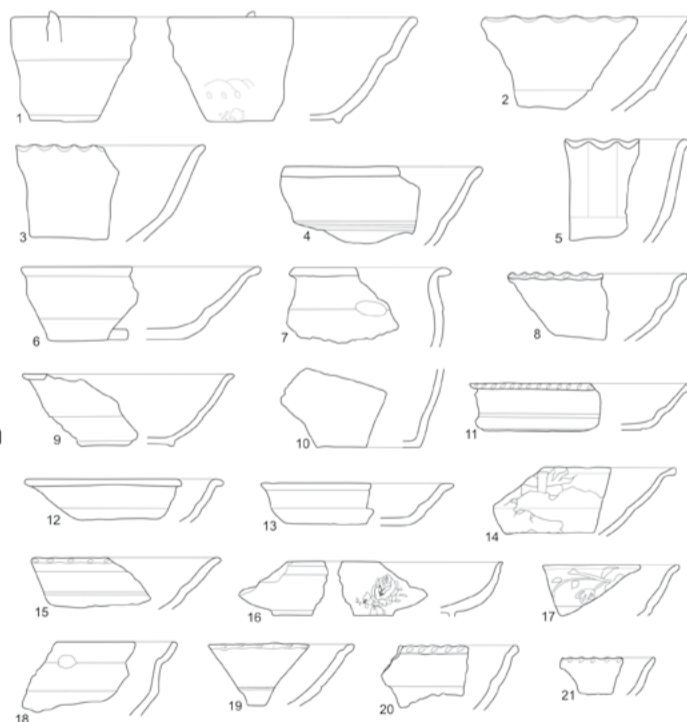
The question remains as to what was actually the purpose of earthenware plates and bowls. Were they made for secular servants or for monks as dishes for the period of lent? Were everyday dishes and faience bowls used only for festive events?



Composition of the waste pit assemblage



The Faience of Valašské Meziříčí workshops.

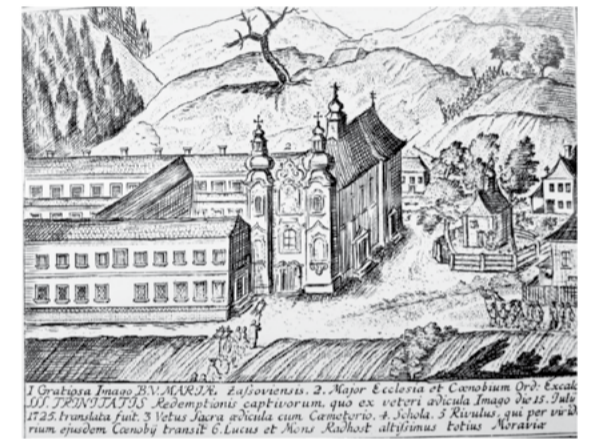


The common lead-glazed earthenware.



The monastery of Zašová is the only Trinitarian cloister situated in Moravia (formerly the Margraviate of Moravia) and is one of three in the Lands of the Bohemian Crown.

Saint John of Matha (1160–1213), cofounder and first minister general of the Order of the Most Holy Trinity and of the Captives (Trinitarians). The symbol of the Order – a blue and red cross is placed on his breast.



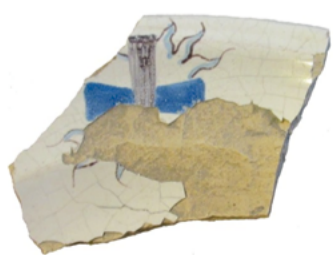
The monastery and church on a copperplate print from 1768.



Trench no. 1. Waste pit (no. 103) visibly breaks the second pavement.



Trench no. 1. Plan and cross-section view of waste pit (no. 103).



Shard of faience bowl with Trinitarian cross and star – symbols of Mary.



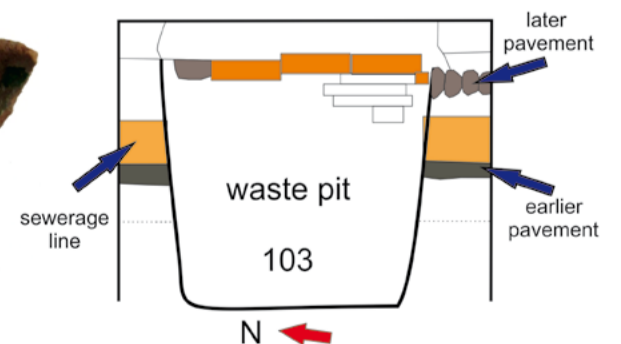
Shard of faience bowl with rose, another symbol of Mary.



Shard of kitchen pot with lead-glazed rim and crude engraving.



Shard of bowl decorated with combination of slip and lead glaze.



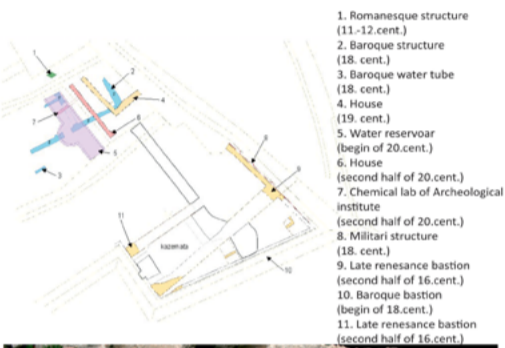
Trench no. 1. Cross-section drawing of waste pit (no. 103).



## The post-medieval pottery from the Nitra Castle (the archaeological excavation in 2010 and 2013)



The aim of the poster is to present results from two archaeological excavations that took place at the Nitra Castle in 2010 and 2013. The subject of the research was the Gothic ditch and the reservoir water tank situated in the palace courtyard. The ditch was originally dug up in the second half of the 15<sup>th</sup> century, but soon lost its primary function and was gradually filled up. A renaissance bastion was built south-eastwards from the ditch. The pottery found in the infill dates from the end of the 16<sup>th</sup> to 18<sup>th</sup> century. Most represented are pots, jugs, tripods, lids and bowls. Other artefacts include various small items made of iron, bronze, antlers and glass. In 2013, the layers in the reservoir water tank situated in the courtyard of the Bishop's Palace has been documented. The previous research (undertaken in 1996) examined the first 460 cm of its backfill, while our research examined the tank up to the depth of 850 cm. The material is represented mostly by tableware pottery including plates, and dishes. Discovered stove tiles represent are of chamber type. The most common themes are geometric and botanical related to the Ottoman Empire influences. The waterlogged deposit of the water tank enabled also the preservation of wood, leather and animal bones. Collected artefacts came from the late renaissance and are dated to the second half of the 17<sup>th</sup> and to the beginning of the 18<sup>th</sup> century.



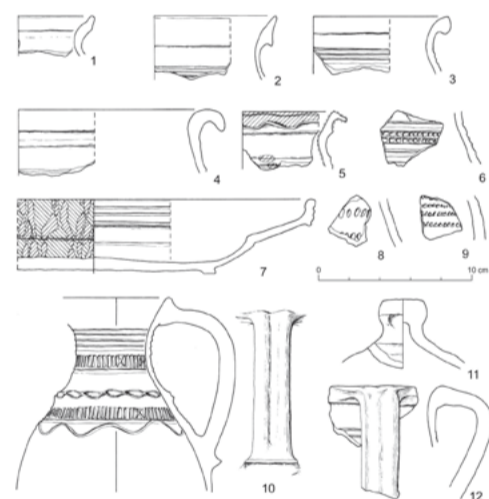
1. Romanesque structure (11.-12.cent.)
2. Baroque structure (18. cent.)
3. Baroque water tube (18. cent.)
4. House (19. cent.)
5. Water reservoir (begin of 20.cent.)
6. House (second half of 20.cent.)
7. Chemical lab of Archeological institute (second half of 20.cent.)
8. Military structure (18. cent.)
9. Late renaissance bastion (second half of 16.cent.)
10. Baroque bastion (begin of 18.cent.)
11. Late renaissance bastion (second half of 16.cent.)



We have analyzed 2771 post-medieval fragments in the studied aggregate of pottery from the Nitriansky hrad castle. The collection was divided into two chronological periods. The older collection of pottery comes from the backfill of a Gothic ditch from the second half of the 16th and the beginning of the 17th century; the younger collection comes from the backfill of a water tank in the courtyard of the Bishop's Palace and is dated from the last decades of the 17th century to the 1730s. The collection of pottery vessels consists of kitchenware and tableware. There are vessels of tall (pots, jugs, cups) as well as wide shapes (bowls, plates, lids, tripods). All evaluated pottery exemplars had been thrown on a fast rotating pottery wheel. It is documented also by their thin walls. Most of the vessels were burned in an oxidation environment. From the aspect of used clay, engobe and glaze, the pottery finds are various. Pottery made of common ferric clay of terracotta colour is very numerous. Ochre clays are less frequent. Opaque green, yellow, brown and blue glazes were used. Glaze covered the whole inner part of vessels of all wide shapes (bowls, plates, tripods), all pots and some jugs. Most jugs were glazed on the outside as well. The discovered fragments of cups were not glazed. In the older Renaissance pottery collection from the Nitriansky hrad castle, vessels of tall shapes dominate. Their bottoms are slightly concave, with suggested indentation. They often bear visible traces of pottery wheel. All types of vessels (pots, jugs and jars) had strap handles with oblong oval or ellipse cross-section. As for wide shapes, we come across wide bowls and bell-shaped lids. The bowls are mostly glazed with glazes of various colours. Wide shapes were represented, mainly in the younger aggregates of finds, by plate-shaped bowls, plates, cups and lids. Rims of wide-shaped vessels were simply semi-globular and inverted. Slightly suggested collars occur rarely. We can see plastic floral decoration typical of the following Baroque and Rococo periods on the youngest fragments of cups. Letter H is inscribed on the bottoms of the plates. Technical pottery is represented by and Late Renaissance stove tiles of vessel and chamber types. In the older horizon, vessel type stove tiles with square mouth and chamber type stove tiles with wallpaper-like decoration occur. All the fragments are unglazed. Only chamber-shaped stove tiles with smooth glazed surface finish occur in the younger Baroque horizon. Clay burners and fragments of clay flowerpots can be classified as technical pottery of the younger horizon.



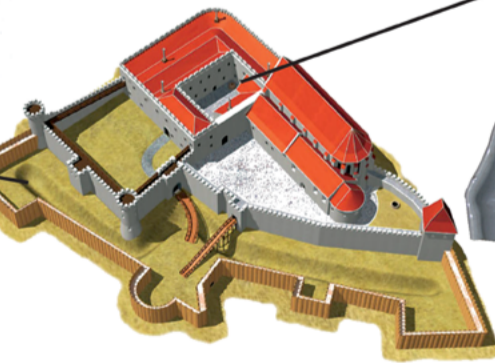
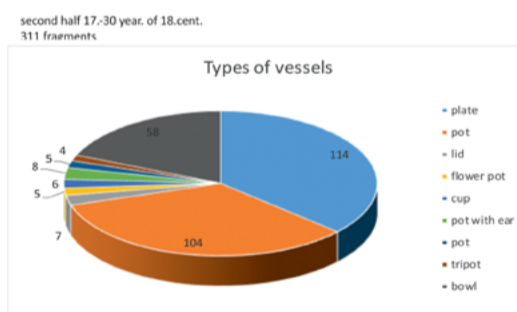
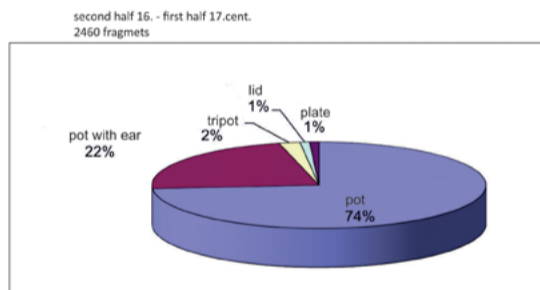
Water tank situated in the courtyard of the Bishop's Palace (by Arpáš-Balžán)



Silver coin of Sigismund I of Tyrol (1446-1490)



Stove tiles (second half of 16. cent.)



Renaissance phase of Nitra castle 1562 (by A. Arpáša)



Poster vznikol v rámci projektu: APVV-16-0449, Stredoveká Nitra v hmotných prameňoch



# Analysis of the Production Processes of Late Gothic Stove Tiles from Dresden, Saxony

In 2008, waste from a potter's workshop containing about 30,000 potsherds and 4,800 stove-tile fragment from the Late Gothic period was discovered in the Dresdner Frauenvorstadt.

Among these fragments, the panel-tiles were the most valuable source for the reconstruction of the late medieval stove-tile production in Dresden.

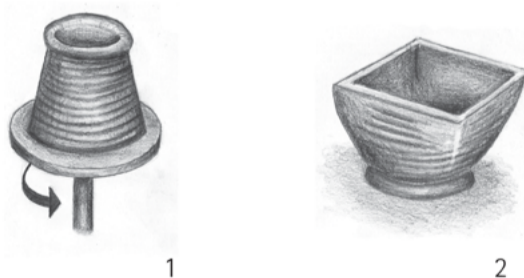


## Reconstruction of production processes

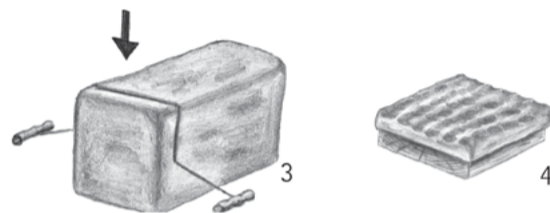
1 Fabrication of the body by forming a conical vessel with turned down rim; in case of this special assemblage the potter used a clay, that fired to the colour red for this purpose.



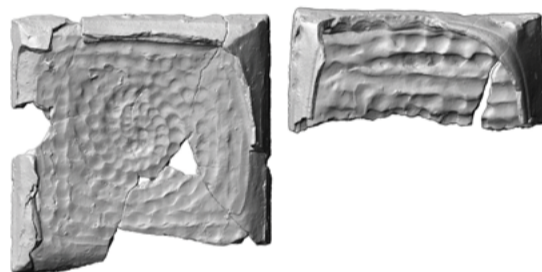
2 Removing of the base and pulling of this second opening into a rectangular shape. Before joining to the panel, it had to become semi-hard.



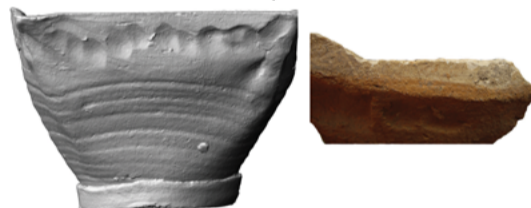
3 The required panel was probably cut from a block made of bright bright burning clay.



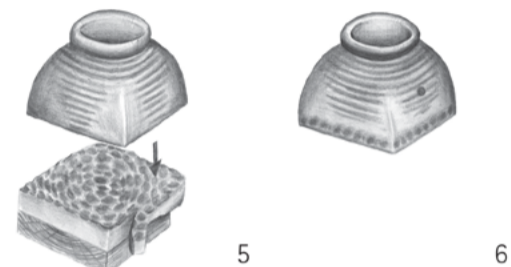
4 For decoration purposes, the panel was formed by pressing it with the fingertips into the mould. The potter worked from the inside to the outside to avoid air bubbles and surface defects.



5 Excess material was trimmed. The body was connected to the panel, while it was still in the mould. After that the two parts were connected, the rim was cut straight and a hole was drilled into the body.



6 Support posts were added to prevent panel shrinkage. Afterwards, the mould was removed and the tile was put on its backside opening for drying.



## Challenges:

Reconstructing fabrication techniques requires a great deal of guesswork on acts and tools which did not leave any, or not recognizable traces on the objects and are even unknown in archaeological context.

Until now, no moulds were known in Saxony for these specific panel-tiles with high similarities to Bohemian material. Therefore, it can only be guessed whether the moulds were fabricated out of wood, clay or maybe gypsum.

## Iconography

The motifs show a very high similarity to Bohemian material. Most common motives are the lion (as symbol for Dresden, the magraviat of Meissen, strength...), Agnus Dei and the fable of the donkey in the lion's fur.



## For further information see:

St. Müller, Ofenkeramik der Spätgotik aus einem Töpfereibewurf aus der Dresdner Frauenvorstadt. In: H.-G. Stephan (Hrsg.) Keramik und Töpferei im 15./16. Jahrhundert. (Langenweissbach 2016) 126-133.  
Z. Smetánka, Technologie výroby českých kachlí od počátku 16. století. Pam. Arch 59, 1968, 543-578.

© Photos: Landesamt für Archäologie Sachsen, U. Wohmann, St. Müller, 3D scans: Landesamt für Archäologie Sachsen, T. Reuter  
Drawings: M. Bilz.





# Early majolica production in Switzerland: A stove dated 1518 from Holligen castle in Bern

In the loft of the Holligen Castle in Bern, around 192 old stove tiles, all covered with a white tin / lead glazing, i.e. a majolica glazing, have been stored for quite a long time. The pieces are individually painted with fire resistant blue, violet, yellow and green colors. Unlike contemporary Italian majolica, these pieces have a slip under the glazing in order to prevent the brick-red shards from showing through.

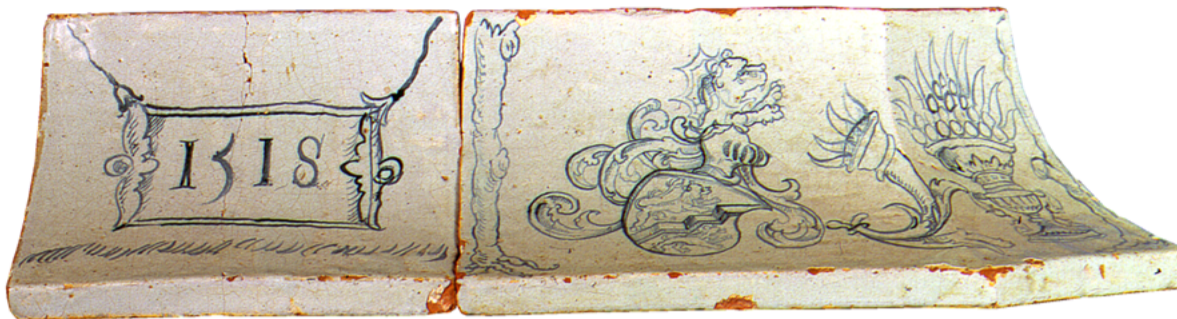
Most of the pieces are square flat tiles, decorated with four relief motifs, namely with two picture pairs - one of facing mermaids and one of a mermaid facing a centaur. The corner tiles form an angle of 135° and are composed of blue glazed diamond bosses and half mermaid motifs. The tile and corner tile mouldings have all been painted with figures. Outstanding are the coats of arms of the founder Wilhelm I von Diesbach (1450 - 1517), as well as those of his wives Helena von Freiberg (1500) and Anastasia Schwend (1518).

Holligen Castle was built around 1510 by Wilhelm I von Diesbach, one of the most important diplomats of the Swiss Confederation. He belonged to the governing Bern families and as federal envoy was, after the Burgundy wars (1476), in personal contact with the king of France, Ludovico il Moro in Milan, as well as the German emperor Maximilian. The city-state of Bern was at that time the largest north of the Alps. In 1494, Wilhelm I von Diesbach was the richest burgher in Bern, and invested large sums of money in renovating his castles.

His boast of having all that was best at the time shows not only in the picture programme of the tiles, but also in the choice of the artist: first of all, with inscriptions such as "Venus", "Diana", "Mars", as well as "Dares"

[Dares Phrygius], "Hanibal von Troy", "Cipius von Cartago" [Scipio Africanus the Elder] and "Mer" [sea], presumably invoking a popular late middle-age historical portrayal, namely the Trojan war by the author Dares Phrygius. Secondly, the artistic style of the figured representations is closely related with the works of Niklaus Manuel, Bern's most famous artist of that time (Fig. 4). Did a graphic designer or draughtsman from Manuel's workshop paint the motifs?

Fig. 1: Two bottom moulded tiles. Left the date "1518" inside a right-angled cartouche. Right the coat of arms of the von Diesbach family with helmet and its decoration. Scale 1:1.



The exact situation of the stove in the castle is unknown. Based on its volume, it is however very likely that it was located in the magnificent reception room on the first floor. This room is approx. 63m2 in size and about 4m 10cm high. The reconstruction proposal integrates all the shapes and number of the existing tiles. Approximately 30% of the tiles have been lost in the path of time. This gives it an eight-cornered, two-part stove, as known from other stoves of the 16th and 17th centuries. On the ground plan, it is up to 1m 40cm wide. It is 2m 90cm high and protrudes about 1m 80cm into the room.

The dating and glazing make the stove a unique and important object. Up till now, the stove dated 1534 from Spiez in the Bernese Oberland has generally been considered as the oldest surviving majolica stove. In addition, the material and technical characteristics confirm that the tiles were made in Bern. This majolica production is therefore one of the earliest north of the Alps. The normal range of late gothic relief tiles mostly show a green lead glazing and occasionally a combination of green with brown and yellow. There exist though odd pieces with late gothic relief motifs and the first tin / lead glazings - rare evidence of the innovative Bernese tile makers? It bears out the speculation that the tile makers north of the Alps were definitely influenced by Italian majolica production. They obviously went to a lot of trouble to combine their talent of relief art with the new types of glazings and paintings.

Translation: Terence Blackburn, Route du Bugnon 31, CH - 1752 Villars-sur-Glâne.  
Illustrations: Archaeological Department, Canton of Bern.  
References: Eva Roth, Ein bernischer Fayence - Kachelofen aus dem Jahr 1518, in: Kunst & Architektur, 2 / 1999, S. 22-32.  
Eva Roth Kaufmann, René Buschor, Daniel Gutscher, Spätmittelalterliche reliefierte Ofenkeramik in Bern, Herstellung und Motive, Bern 1994.  
Address: Eva Roth, Archäologischer Dienst des Kantons Bern, Thunstrasse 18, CH - 3005 Bern. eva.roth@zg.ch

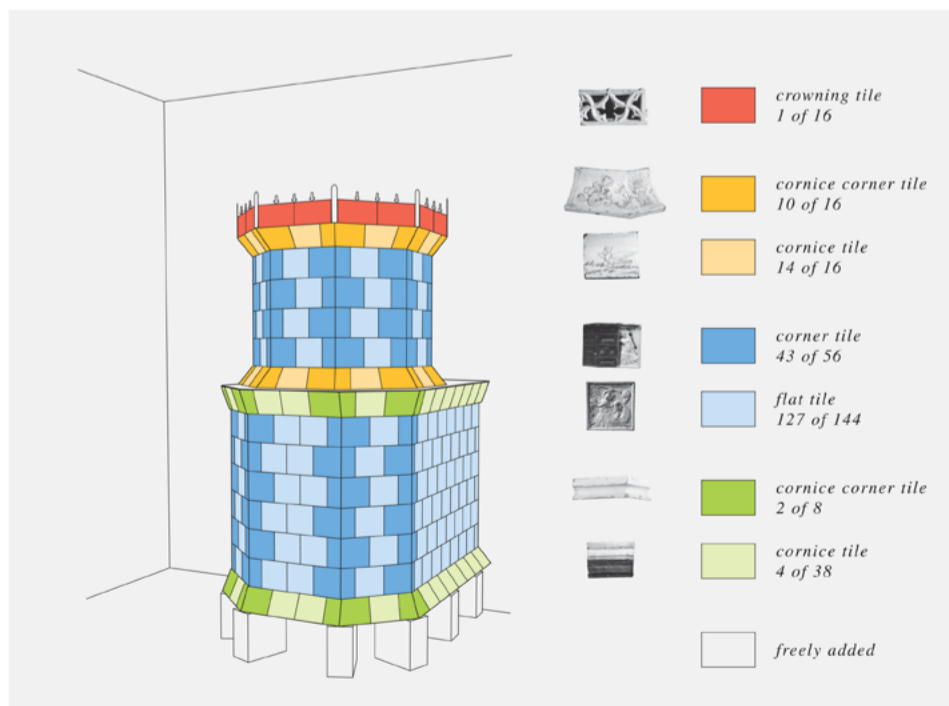
Fig. 2 a, b, c, d: Two picture pairs, one with facing mermaids and one with a mermaid facing a centaur. These square flat tiles form the main part of the stove body. Scale 1:1.



Fig. 3: Moulded cornice tile. Coats of arms of the wives of Wilhelm von Diesbach: left Anastasia Schwend and right Helena von Freiburg. Scale 1:1.



Fig. 4: Reconstruction of the 1518 stove. The stove had 294 tiles, of which 192 pieces remain. All tile types are made with their actual preserved fragments.





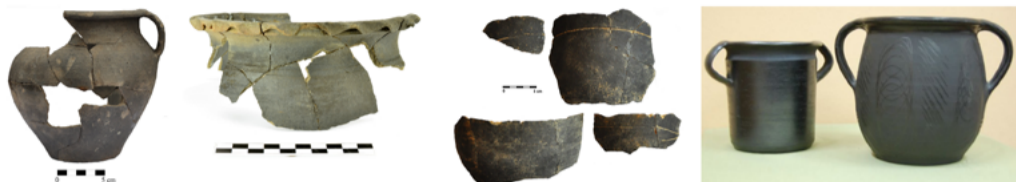
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## BLACK POTTERY - EXPERIMENT

Karel Slavíček | Kateřina Těsnohlídková



Lichnice Castle Pot (first half of the 15<sup>th</sup> century)  
Town of Počátky Pot - rim is not fully smoked (16<sup>th</sup>-17<sup>th</sup> century)  
Kněžves (Vysočina Region) Fragments of pots (18<sup>th</sup>-19<sup>th</sup> century)  
Replicas of Modern age black pottery made by I. Chrástek (Tupešy by Staré Město u Uherského Hradiště). The longest tradition in Slovákco area.



The production of black pottery began in the Czech Lands in the Late Middle Ages and remained a significant category of ceramic ware produced here for centuries. The last workshops were closed in the middle of the 20<sup>th</sup> century. The dark surface was achieved by a special step in the firing process, so-called smoking, and gives the pot lower water absorption.

Black pottery was fired with wood in a ceramic kiln in an oxidising or mixed atmosphere at temperatures c. 800–1000 °C. At the end of the firing, the firebox was filled completely with wood, sealed thoroughly and the kiln was left to cool down for a day or two. The burning wood inside, with no access to oxygen, formed strongly reducing atmosphere that turned the surface of pots dark. The kind of wood used for smoking differed from region to region, even from workshop to workshop. Some potters preferred fresh branches with leaves, pitchy pine branches or wet birch wood. The choice of wood used for the final stage of firing affected the resulting colour and lustre of the pots.



A significant feature of black or smoked pottery is a dark colour with a metallic shine. Black pottery archaeological finds often have a polished surface. The polishing could appear in stripes or various patterns or even on the whole surface of a pot. The function of the polishing was not only decorative, it was also practical – the polished surface has lower porosity.

Cross-section:  
– Core: light grey colour (also beige, ocher, red);  
– Surface: medium to dark grey, black, eventually metallic shine;  
– Sharp boundary between core and surface colours

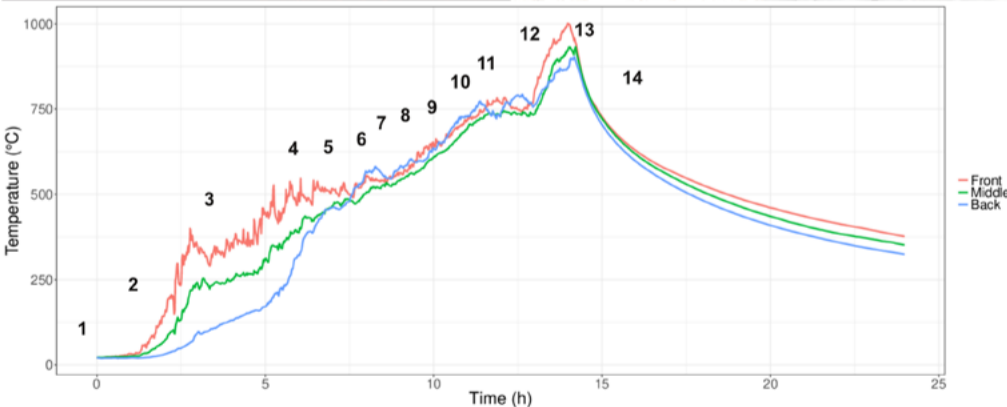


**Defects** occurred during the experiment (with analogies in archaeological finds)

**Pots surface carry flame shaped features**  
– Causes:  
– due to the air flow and flame path in the furnace  
– Recommendations:  
– thorough consideration of the air flow during kiln filling

**Parts of surface are not smoked dark**  
– Causes:  
– positioning of the pot in the kiln  
– part of the pot was covered with neighbouring pot  
– part of the pot was in contact with the inner wall  
– pot was standing directly in the embers  
– experience of the person who is filling the kiln  
– Recommendations:  
– minimize the area where the pots overlap  
– keep the neck of the pot at least partially open to allow smoke get inside

**Pots are cracked**  
– Causes:  
– wrong layout of the pots in the kiln  
– thermal shock – sudden temperature changes, rapid increase of temperature in general  
– low durability of the ceramic body to thermal shocks  
– Recommendations:  
– careful approach during pottery firing  
– appropriate choice of clay and preparation of ceramic mixture



- 1 – loading pots into the ware chamber of the kiln (110 pots total)
- 2 – 0–200 °C, initial part of the firing (slow temperature increase, pots losing physically bound water, wet smoke coming out of the flue opening)
- 3 – 300–400 °C, 4 hours, pots have dark coating
- 4 – 400–500 °C, 5 hours, temperature compensation between front and back parts of the ware chamber
- 5 – ~500 °C, 7 hours, significant improve of the air draft
- 6 – wood addition slowed down, careful transition of 573 °C (quartz inversion)
- 7 – 8 hours, flames appear in between the pots, partially coming out of the flue
- 8 – 9 hours, "red fox" flame coming out of the flue
- 9 – ~700 °C, 10 hours, pots start to glow
- 10 – ~700 °C, flames coming off the flue
- 11 – ~750 °C, 12 hours, pots glow in orange colour
- 12 – 800 °C, 13 hours, pots almost glow white, soaking time of one hour at 800 °C in the whole ware chamber
- 13 – 14 hours, filling the firebox with beech wood with subsequent sealing of the firebox and the flue opening
- 14 – cooling down
- 15 – opening of the kiln two days after firing
- 16 – unloading of the kiln



Even though the technological process did not change through the centuries, kilns did. Black, or smoked surface pottery can be fired in every kind of firing device that allows the potter to close the ware chamber and the firebox. The general assumption is that different kinds of single- or two-chamber kilns were used during the mediaeval and modern times. Ethnographical research described the design of the simple **single-chamber kilns** used in Moravian Slovakian region and in the Slovak village of Pozdišovice.

Two kinds of kiln reconstructions were used for experimental purposes.

**The single-chamber** type of kiln was built according to ethnographical literature about modern times black pottery from the Moravian Slovakian area. The firebox and the ware chamber form a single space. The base level of pots is formed by the biggest pots, which serve as a type of kiln furniture. The experimental kiln was built on a smaller scale than the original one.



Use the link to watch video from the experimental firing.

**The two-chamber** kiln was built according to an archaeological find of a mediaeval kiln in the city of Jihlava. The ware chamber and the two firebox channels were, for the experimental purpose, separated by a grate made of fireclay plates. Mediaeval potter might have used bigger pots to cover the firebox channels.



Use the link to watch video from the experimental firing.

**References**  
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Snášil, R. 1970. Příspěvek k technologii pálení černé hrčiny na Slovákco. Český Lid 57, 328–335.  
Těsnohlídková, K., Slavíček, K., & Mazáčková, J. 2017. Experimental production of high and late mediaeval pottery at the scientific research centre in Panská Lhota. EXARC Journal 2017, 2, not paged. [https://goo.gl/wWCHM4]

EXPERIMENT

TRADITION

TECHNOLOGY

*Post-medieval pottery between (its) borders* is a collection of papers from the EUROPA POSTMEDIAEVALIS conference held in Prague in the spring of 2018. As the name of the conference suggests, the subject of interest was the Early Modern period (15th to 18th centuries) and the manner in which this relatively young discipline in the field of archaeology is approached in Europe.

The first conference has set the goal of searching for topics in post-medieval archaeology which reflect the current state of research, while simultaneously addressing a broader group of scholars. Therefore, it is hardly surprising that the central theme pursued by generations across Europe proved to be Early Modern ceramics. The large ceramic assemblages, which for many of medievalists are their daily bread and butter, are a delight but often also a headache when faced with the processing of such large collections. Since this issue is the one perceived most acutely in the Czech Republic, we decided to share our current quandaries in the field with both domestic and foreign colleagues.

The long-term objective of the conference is to create a professional platform with a uniform communication language (English) and a biennial periodicity allowing scholars to meet regularly to exchange experience gained in the study and work in post-medieval archaeology.

The articles published in this book reflect the current state of research of Early Modern pottery in individual European countries (the Czech Republic, Croatia, Italy, Hungary, Germany, Norway, Poland, Portugal, Slovakia and Switzerland), including both successes and possible shortcomings. The individual studies should serve as impulses for further study, ideas for thought and discussion and, last but not least, as study material for those who come into contact with Early Modern material culture as part of their work.



*Gabriela Blažková* studied archaeology and history in the Faculty of Arts of Charles University in Prague, where she earned her PhD in 2011. She works as an archaeologist at the Institute of Archaeology of the Czech Academy of Sciences in Prague, Department of Medieval Archaeology, Prague Castle. She is an expert in Late Medieval and Early Modern Archaeology (second half of the 15th century – first half of 17th century) with an emphasis on material culture. She has been involved in rescue archaeological research in Prague – Hradčany.



*Kristýna Matějková* studied archaeology at Masaryk University in Brno and entered the doctoral programme at Charles University in Prague. Her main interest is the issue of processing medieval and Early Modern assemblages from Czech towns. She is currently writing her PhD dissertation on the issue of assemblages from Prague cesspits dating to the end of the 17th century and the 18th century. Her research interest is currently focussed on the popularisation of archaeology and interactive childhood education as part of the HistoryPark project.

