
PROBLEMS IN THE ARCHAEOLOGICAL STUDY OF MEDIEVAL BILHOROD AND ITS CERAMICS (BASED ON THE EXCAVATIONS OF ONE OF THE POTTERY WORKSHOP)

IRYNA TESLENKO
LIUDMYLA MYRONENKO

ABSTRACT:

The medieval city and fortress built on the ruins of ancient Tyras at the mouth of the Dniester (the territory of modern Bilhorod-Dnistrovskyi, Ukraine) are among the key archaeological sites of the Northern Black Sea region of the late Byzantine and Ottoman times. Despite the long term of excavation in the site and the large explored area, the chronology of its cultural layers and ceramics from them, as well as the declared origin of some groups of the pottery cause reasonable doubts. That is why the re-examination of 'old' excavation data from the perspective of new achievements of medieval archaeology and ceramology in the Northern Black Sea region is the focus of our study. The article analyses in detail the excavation materials in the area of one of the pottery workshops, which from 1970s were considered as a reference for dating the construction periods of a medieval settlement outside the fortress walls. The study of the archival documentation and ceramic collections allowed us to find out that the cessation of the activity of the pottery workshop dates back to the second half of the 15th century and not to the beginning of the 14th century as has been regarded before. So subsequent dwellings and other constructions were built, accordingly, more than 100 years later than previously thought. Hence we have obtained a strong case for significantly correcting the chronology of the cultural horizons of medieval Bilhorod. Moreover, it become possible to clarify ideas about ceramic production and the historical topography of the city, as well as to outline the topical questions for future research.

RÉSUMÉ: PROBLÈMES DANS L'ÉTUDE ARCHÉOLOGIQUE DU BILHOROD MÉDIÉVAL ET DE SA CÉRAMIQUE (SUR LA BASE DES FOUILLES D'UN ATELIER DE POTERIE)

La ville et la forteresse médiévales construites sur les ruines de l'ancienne Tyras à l'embouchure du Dniestr (territoire de l'actuelle Bilhorod-Dnistrovskyi, Ukraine) comptent parmi les sites archéologiques clés de la région nord de la mer Noire de la fin de l'époque byzantine et de l'époque ottomane. Malgré la longue durée des fouilles et la grande superficie explorée du site, la chronologie de ses couches culturelles et les céramiques ainsi que l'origine de certains groupes de poteries restent discutables. Par conséquent, notre étude s'est concentrée sur la révision des données obtenues par les fouilles précédentes dans la perspective de nouvelles recherches en archéologie et céramologie médiévales dans la région du nord de la mer Noire. L'article analyse en détail les résultats de fouilles dans la zone des ateliers de poterie, qui depuis les années 1970 sont considérés comme des références pour la chronologie des périodes de construction du quartier médiéval hors des murs de la forteresse. L'étude de la documentation d'archives et des collections de céramiques nous permet de constater que l'atelier de poterie ainsi que des bâtiments résidentiels situés dans la même zone sont apparus 100 ans plus tard qu'on ne le croyait auparavant, c'est-à-dire non pas au début du 14^{ème}, mais dans la seconde moitié du 15^{ème} siècle. Nous avons donc obtenu des arguments solides pour corriger la chronologie des horizons culturels du Bilhorod médiéval. De plus, il devient possible de clarifier les idées sur la production de céramique et la topographie historique de la ville, et également de définir les questions d'actualité pour les recherches futures.

KEYWORDS: North-western Black Sea Region, medieval Bilhorod, chronology, pottery, ceramics workshop

MOTS CLEFS : Région nord-ouest de la mer Noire, Bilhorod médiéval, chronologie, poterie, atelier de céramique

Introduction

Medieval Bilhorod also known as Akja-Kermen, Maurokastro, Moncastro, Mokastro, Asprokastron, Akkerman, Cetatea Albă, was one of the largest trade centres of the North-western Black Sea coast in the late Byzantine and Ottoman times. The site is located on the estuary of the Dniester River leading to the Black Sea, in the modern

Bilhorod-Dnistrovskiy (Odesa region) in South-Western Ukraine. It is situated on top of the remains of ancient Tyras and is known as one of the largest surviving late medieval fortresses in Eastern Europe (Fig. 1).

The history of medieval Bilhorod has been studied in details thanks to the historical records, epigraphic and cartographic sources¹. It is traditionally divided into three main stages with rather conventional titles, which, however, took root in Soviet, and post-Soviet historiography² and have been in use in archaeological practice also³.

1. 1290–1370ss – the ‘Golden Hordes period’. This is the time of the foundation and the growth of the urban settlement with the Genoese trading post under the protection of Ulug Ulus⁴.
2. 1380s–1484 – the ‘Moldavian period’. The site gradually came under the control of the Moldavian princes, who built the fortress during the early – third quarter of the 15th century. It was well known as a centre of international transit trade connecting Central European countries with the Black Sea and the Mediterranean.
3. 1484–1806 – the ‘Ottoman stage’. Asprokastron was conquered by the troops of Sultan Bayezid II and renamed Akkerman. After reconstruction, the city became the best-fortified and largest commercial port of the Ottomans in the North-Western Black Sea region until the Russians captured it in 1806⁵.

On the contrary, there are still many questions related to the results of the archaeological study of the medieval site and its material culture despite more than 120 years of excavations and the quite big researched area (more than 4000 m²)⁶. The chronology of the cultural layers and attribution of the ceramics are among the main ones⁷. Ceramic finds are represented in publications mainly out of the connection to their precise archaeological contexts⁸ with rare exceptions⁹. So it is rather difficult to get reliable information about the composition of certain ceramics assemblages even having abundant published materials. For the same reason, it is also difficult to clarify the chronology of the archaeological context based on ceramic data. Furthermore, the basic characteristic features of the local pottery (specificity of the raw material, manufacturing technology, decoration, etc.), especially glazed ones, are also not coherent yet, despite the discovery of the ceramics workshops with kilns¹⁰. The researchers have been able to identify only several of the most recognized groups of imported vessels – Byzantine glazed ware¹¹, Spanish Lustreware¹², Miletus Ware¹³, Golden Hordes Soft-Paste Ware, some Moulded Ware, Chinese Celadon¹⁴. Other pottery of different origins that could not be determined well, usually was grouped under the title ‘local wares’¹⁵. I. Căndea indicates an abundance of coarse limestone sand in the composition of the clay of local pottery, but refrains from its more detailed descriptions¹⁶. In addition, ceramics finds were dated quite wide – 13–14th, 14–15th, or even 13–15th, 14–16th centuries and not always correct¹⁷.

At the same time, the new effective approach for processing plentiful ceramics material, together with detailed typology and chronology for the late of the 13th to the 16th centuries from the Northern Black Sea region has been

¹ Historiographical overview see e.g.: Căndea 2001; 2003; 2016, 183-242; Shlapak 2001; Krasnozhon 2012, 23-58, etc.

² More details about this problem see: Russev 2015.

³ Kleiman 1979; Kravchenko 1986; Boguslavskii 2013.

⁴ According to some researchers, in the first decades of the 14th century, during the reign of the Bulgarian Tsar Teodor Svetoslav (1300–1322), Bilhorod was probably under the dual subordination of the Bulgarians and the Horde, see: Konovalova and Russev 1988, 38-40; Russev 1999, 88-90.

⁵ Krasnozhon 2012; Russev 2015; Ostapchuk and Biliaeva 2009.

⁶ More details about the history of archaeological study of Bilhorod, see: Kleiman 1979; Shlapak 2021; Krasnozhon 2012; Teslenko and Myronenko 2022b.

⁷ Teslenko and Myronenko 2022a; 2022b.

⁸ Slătineanu 1937; Constantinescu 1959; Kravchenko 1986, 46-114; Boguslavskii 2002; 2005; 2007; 2010a; 2010b; 2013, 779-787, Fig. 188-191; Căndea 2016, 261-265, 275.

⁹ Avakian 1931.

¹⁰ Kravchenko 1969; 1979; 1986, 38-44.

¹¹ Constantinescu 1959, Fig. 777; Kravchenko, Stoliarik 1983; Kravchenko 1986, 102-113; Boguslavskii 2013, 784-785. It is worth noting the widespread tendency among Romanian researchers to associate almost all glazed red clay sgraffito ceramics with the Byzantine tradition, see: Constantinescu 1959, Fig. 2/1-3, 4, Pl. II, III; Spinei 1994, Fig. 4, 5; Căndea 2016, 263-264, Fig. 10, 12-14, 46-49. As a result, not only really Byzantine vessels were included in this group but also the wares of another origin. More detail see: Teslenko and Myronenko 2022b.

¹² Kravchenko 1986, 99-102; Boguslavskii 2010a, 176, Fig. 1; 2013, 785.

¹³ Boguslavskii 2010b; 2013, 785, 790.

¹⁴ Kravchenko 1986, 95-97; Boguslavskii 2013, 785. G. Boguslavskiy and A. Kravchenko also mention ceramics of the ‘Crimean-Transcaucasian’ or ‘Transcaucasian’ origin. But they proposed quite vague criteria for this definition, see: Boguslavskiy 2013, 785.

¹⁵ Kravchenko 1986, 46-81; Boguslavskii 2013, 779, 785.

¹⁶ Căndea 2016, 264.

¹⁷ Kravchenko 1986, 46-114; Boguslavskii 2002; 2005; 2007; 2013, 779-781; Biliaeva and Fialko 2008; Căndea 2016, Fig. 10, 12-14, 46-49; Karashevych 2010.

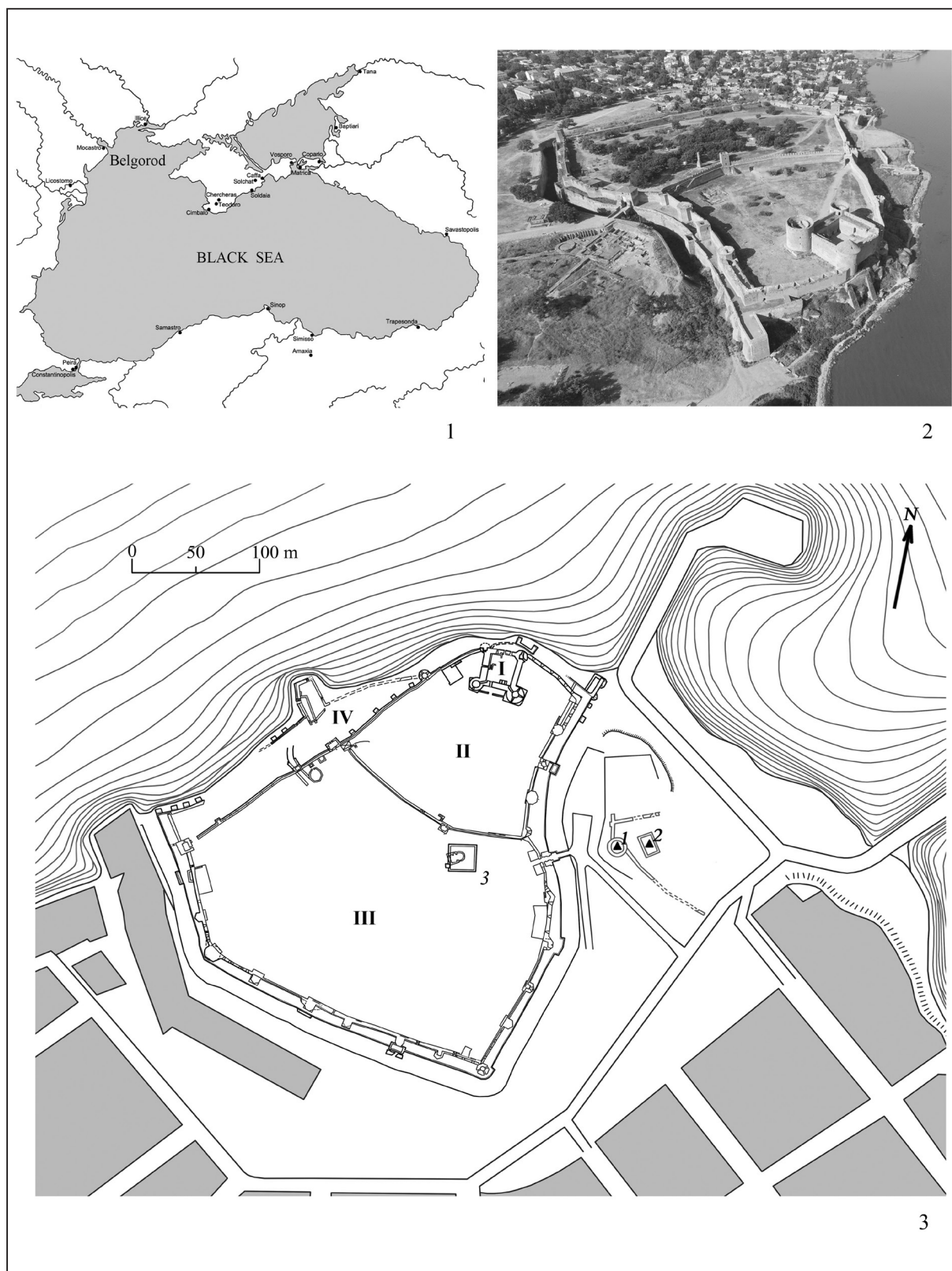


Fig. 1. Bilhorod-Dnistrovskiy fortress and ancient Tyras, Bilhorod-Dnistrovskiy, Odesa region, Ukraine. Location, general view, plan: 1 - map of the Black Sea basin with the names of settlements according to Genoese and Venetian sources of the middle of the 15th century (after Dzhanov 2019, Fig. 6); 2 – general view from the northeast, a fragment of the photo from the site <https://commons.wikimedia.org/wiki/File:Akkerman-fortress-aerial-3.jpg> access date 25/08/2022; 3 – plan of the fortress and the settled area outside the walls: I - Citadel; II - Military Court; III - Civil Court; IV - Trading Court (adapted after Krasnozhon 2012, Fig. 77); 1-2 - location of ancient constructions with the medieval pottery kilns inside; 3 - Christian church, 15th century and Sultan Bayezid Mosque built on its ruins, late 15-18th centuries.

already proposed in recent decades. They are based on the materials from the excavation in Crimea and the Azov region¹⁸. Taking into account the close parallels of their ceramics assemblages with the ones in Bilhorod, returning to the materials from previous excavation there could be quite promising. That's why the re-examination of 'old' data from the perspective of new knowledge is the focus of our study. To begin this great work, we concentrate on the materials from the excavations in the area of one of the ceramic workshops with the evidences of glazed pottery manufacturing. There are two main reasons for this. Firstly, the results of the excavation on the area have already become classical in Soviet and then Ukrainian archaeology for demonstrating the chronology of the medieval deposits outside the fortress and migrated over the years from one publication to another. So, it would be particularly interesting to check its viability. Secondly, this workshop was only one among four or five others mentioned in the different publications, where glazed ceramics seem to have been indeed produced¹⁹. Thus, their ceramic assemblage could help us to clarify the specifics of local pottery.

Analysis of the archaeological data from the publications

The workshop had been excavated in 1971 and then was published twice by Dr. Anastasiia Kravchenko in 1979 and 1986²⁰. It is located outside the fortress, about 50 m to the east of the main gate, on the eastern area of a medieval site (Fig. 1/3). It had a pair of rectangular, vertical, updraft, two-story kilns built of brick (Fig. 2/1–3, 3: no. 123,130). They were established inside the remains of monumental antique construction, the so-called 'round tower' (Fig. 2/1: no. 123,130). The kilns are oriented along different axes converging at an angle of about 50° to each other. They had a common pit for loading fuel (size – 1,5 x 1,1 m), into which their mouths went out. The combustion chambers of both kilns were equipped with parallel arches based on piers of the sidewalls, which supported the perforated firing floor (Fig. 3: no. 123,130), subtype II/e by K. T. Raptis²¹. The sizes of the kilns: 1,05 x 1,35 and 0,75 x 1,00 m, the height of the lower combustion chamber – 1,08–1,10 and 0,80–0,85 m. Upper chambers for firing wares did not survive.

It is important to note that 15 m to the east of this workshop there were investigated two other pottery kilns for firing bricks (Fig. 1/3, 2/1, 3: no. 24, 25). They were larger but similar in structure, subtype II/d by K. T. Raptis²², and were also allocated inside the ruins of the big ancient building. The authors of the excavations believed that both workshops were active at the same time and were part of the pottery quarter on the outskirts of the settlement²³. The quarter was placed near the road leading to the central part of the site (Fig. 1/3), which quite corresponded to the logistics of the city development in Byzantine time²⁴.

After the cessation of the workshops, its territory was built up with one or two dwellings. They included 3 or 4 chambers (Fig. 4: Structures no. 69, 128, 103, 165) equipped with tandoors²⁵, hearths, and stoves, as well as the stone-paved yard no. 149 with a ground-based furnace (Fig. 4). One of the kilns (no. 130) was damaged under construction of the tandoor in Structure no. 128 (Fig. 2/3, 4). The dwellings have been rebuilt at least once before their final destruction²⁶.

A. Kravchenko thoroughly described the constructions of kilns, dwellings, and tandoors but did not pay any attention to the analysis of ceramic assemblages from them. She published only one table with five ceramics wares from kilns and their area²⁷. There were a front plate of a stove tile with the scene of 'falconry', a jug with sgraffito decoration, a fragment of the wall of a similar vessel, and two tripods stilts among them. She attributed all items to local production, and represented the jug as a biscuit²⁸. Black and white photography was not clear enough to get more information (Fig. 5). A. Kravchenko also shortly mentioned some fragments of glazed wares and other stove tiles including one with a man's figure from the kilns²⁹, but has never returned to their detailed analysis later. Nevertheless, she offers a fairly detailed chronology of three successive building periods at this site. According to her the pottery kilns refer to the earliest period and date back to the turn of the 13–14th or to the beginning of

¹⁸ Maslovskii 2006; 2017; Teslenko 2018; 2021.

¹⁹ Kravchenko 1979; 1986, 39–44; Teslenko and Myronenko 2022b.

²⁰ Kravchenko 1979; 1986, 38–44.

²¹ Raptis 2012, 40, Fig. 2.

²² Raptis 2012, 40, Fig. 2.

²³ Kravchenko 1979; 1986, 38–42.

²⁴ Raptis 2012, 41.

²⁵ Tandoor is a cylindrical clay oven usually deepened into the ground, used in the East regions (Caucasus, Middle East, India, etc.) for baking bread and cooking.

²⁶ Kravchenko 1986, 25–27.

²⁷ Kravchenko 1979, 124, Fig. 9.

²⁸ Kravchenko 1979 Fig. 9; 1986, 64, Fig. 25/17.

²⁹ Kravchenko 1986, 44.

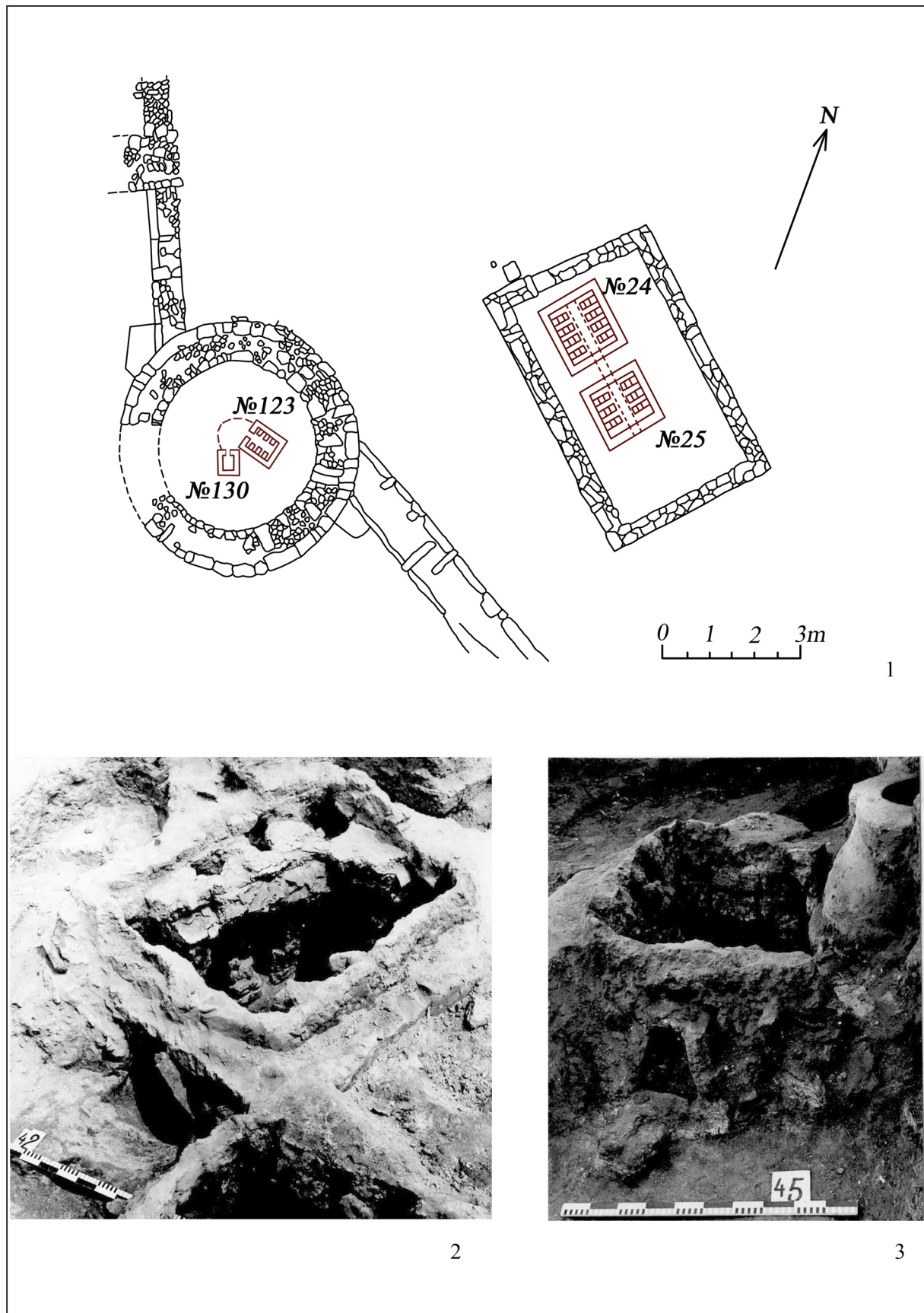


Fig. 2. Medieval Bilhorod, Bilhorod-Dnistrovskiy, pottery kilns: 1 – schematic plan of the kilns inside of the ancient constructions, No 24, 25 – kilns for the firing bricks; No 123, 130 – kilns for the firing stove tiles and glazed pottery; 2 – pottery kiln No 123, view from the southeast; 3 – pottery kiln No 130 view from the north (after Kryzhitskii, Kleiman 1971).

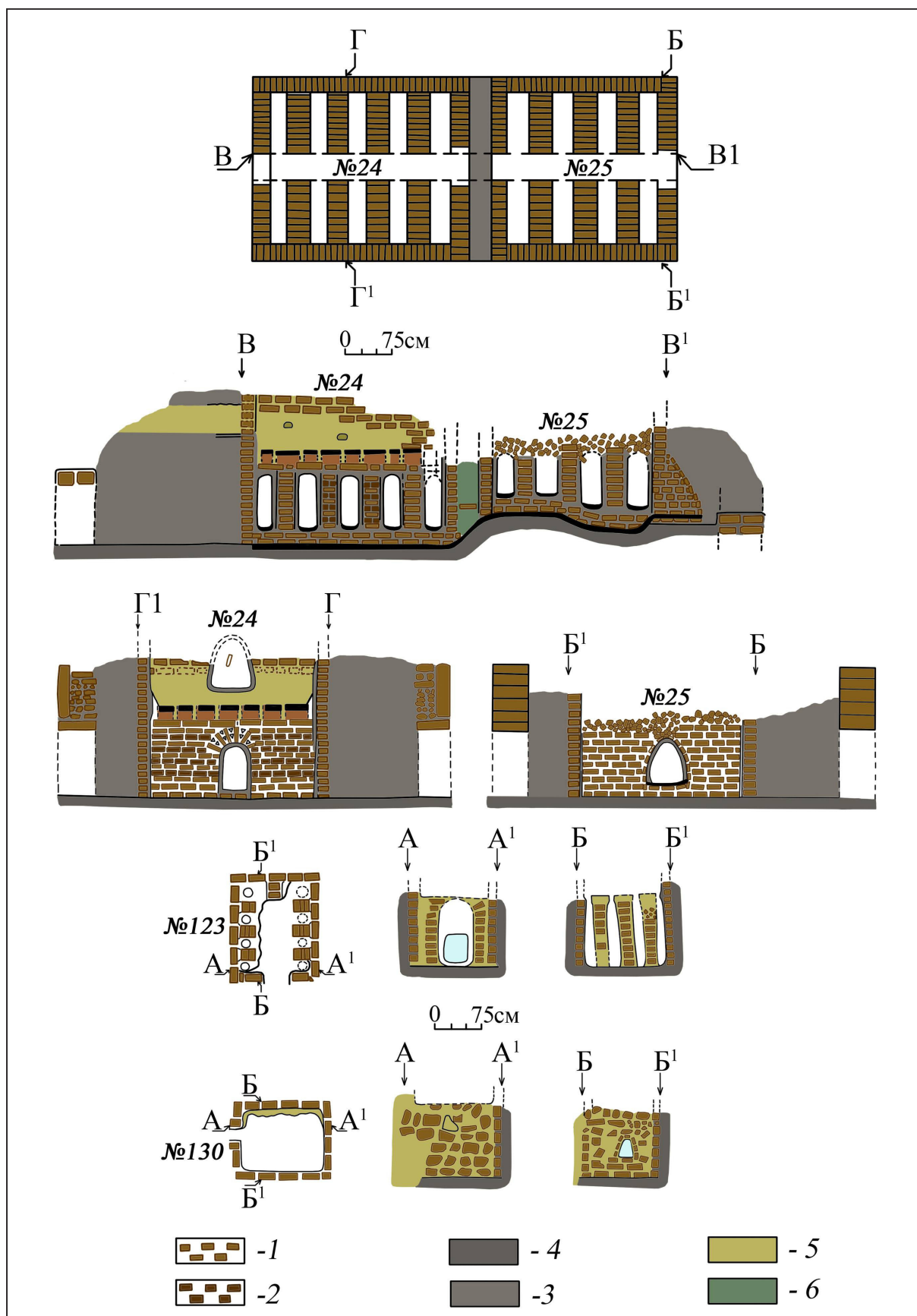


Fig. 3. Medieval Bilhorod, Bilhorod-Dnistrovskiy, pottery kilns, plans and sections (after Kravchenko 1979, Fig. 3, 8).
 1 – raw brick; 2 – burnt brick (antique); 3 – thermal insulation layer; 4 – cultural layer;
 5 – clay coating; 6 – backfill with green clay.

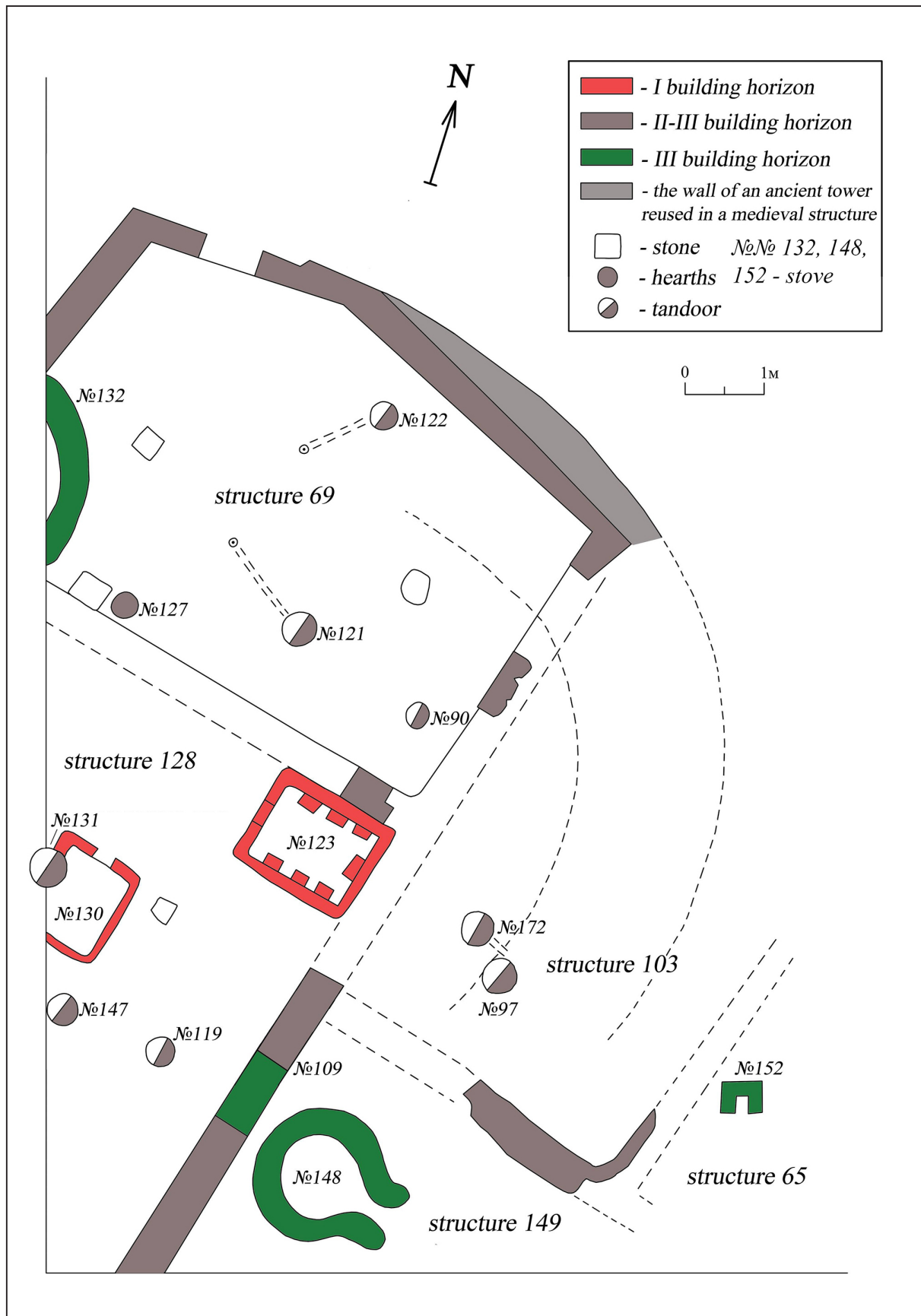


Fig. 4. Medieval Bilhorod, Bilhorod-Dnistrovskiy. The remains of buildings and pottery kilns on the ruins of an ancient tower; schematic plans, adapted (after Kryzhitskii 1971).

the 14th century. The following dwellings formed the second and third phase of construction activity, which lasted from the first half of the 14th century till the end of the Golden Horde period in the 1370s or 1380s³⁰. She did not clearly distinguish these periods, noting only the two-floor levels in dwellings, tandoors of different times, and some reconstructions of the wall. The absence of a stratigraphic section in the archaeological documentation does not allow clarifying these issues now either.

Kravchenko's chronological arguments were based not so much on the analysis of ceramics and other finds but on the common scientific opinions of her contemporaries.

1. Following L. Polevoi, P. Byrnia³¹, S. Kryzhitskii, I. Kleiman³², she believes that tandoors is among the main feature of the Golden Horde cultural tradition³³. Therefore, she associated with the Golden Horde period the dwellings with this type of furnace as well³⁴.
2. The second argument also followed the widespread opinion that the residential and craft quarters outside of the city walls were destroyed in the process of the fortress building to improve its defenses. As she thought, the final stage of this activity fell in the first half of the 15th century. So since then, the buildings outside of the fortress were completely destroyed³⁵.

It is interesting to note that she mentioned the finds of about 100 coins dated to the 1290–1370ss in different parts of the settlement outside the fortress as an argument for the proposed chronology³⁶. But at the same time, she did not pay a lot of attention to the finds of another fifty coins from the 15th century in the same area³⁷. As she regarded, these coins got into the constructions when they had been already ruined and so cannot be used to determine the time of their existence³⁸. Such conclusions look inconsistent. But anyway, this chronology for medieval building activity outside the fortress became the basis for the next three decades and has never been seriously disputed³⁹.

Analysis of ceramic materials

In 2021 we come back to the materials from the workshops area in the framework of the collaborative project of the "Archaeology and Archaeometry" Laboratory (CNRS – UMR 5138, Lyon, France) and the Institute of Archaeology NAS of Ukraine (Kyiv, Ukraine)⁴⁰. The part of our study involved revisiting the data available in the archaeological report 1971 together with related ceramics stored in the Scientific Repository of the Institute of Archaeology NAS of Ukraine. In spite of involving only a few wares⁴¹, the result of their research proved interesting and surprising.

The workshop space

The archaeological report mentions more than a hundred large fragments of unglazed stove tiles found in the area of the kilns⁴². The 65 fragments come from the kiln no. 130. Another 62 pieces of tiles plus one shard of a jar with a sgraffito decoration without glaze, and two tripods stilts were mentioned in the fuel pit.

It became possible to clear up the morphological features for the three stove tiles (Fig. 5/1, 6/1-2) and two tripods stilts from the workshop area (Fig. 5/4, 6/3). We also managed to find the jug represented in A. Kravchenko's article among production of a local workshop (Fig. 5/2, 6/5).

The tripod stilts belong to the same type widespread in the Byzantine world since the early 13th century (Fig. 5/4, 6/3)⁴³. In the Northern Black Sea region, they also were common in glazed pottery manufacturing from its beginning at the end of the 13th century and haven't changed a lot over time⁴⁴. That is why *the tripod stilts* can't be used for detailed chronology.

³⁰ Kravchenko 1979; 1986.

³¹ Polevoi 1969, 11; Polevoi and Byrnia 1974, 5-11; Polevoi 1979, 67-69; Abyzova et al. 1981 etc.

³² Kleiman 1979, 61-62.

³³ Kravchenko 1986, 23, 37.

³⁴ Kravchenko 1986, 20-38.

³⁵ Kleiman 1979, 65; Kravchenko 1986, 19.

³⁶ Kravchenko 1986, 117-120.

³⁷ By the 1980s, about 50 coins of the Moldavian Principality dated back to the 15th century and one gold ducat of the Hungarian king Matia Corvin (1458–1490) were found there, see: Kravchenko 1986, 19.

³⁸ Kravchenko 1986, 18-19.

³⁹ Bohuslavskiy 2008; Boguslavskii 2013

⁴⁰ The leaders of the project are Dr.HdR. S. Y. Waksman from the French side and Dr. I. Teslenko from the Ukrainian side.

⁴¹ The vast majority of excavated materials are stored in the Odessa Archaeological Museum and the Bilhorod-Dnistrovskiy Historical Museum. They, unfortunately, are not available for study now.

⁴² Kryzhitskii and Kleiman 1971, L. 21, 35.

⁴³ Papanikola-Bakirtzi 1999, 21-22.

⁴⁴ Teslenko 2018, 13; 2021, 121-122.



Fig. 5. Medieval Bilhorod, Bilhorod-Dnistrovskiy. Ceramics wares from kilns No 123, 130 and their area published by A. Kravchenko (after Kravchenko 1979, 124, Fig. 9)

On the contrary, *the stove tiles* are quite specific and can be dated more precisely.

1. One of them with an anthropomorphic image was found in the Scientific Repository of IA NAS of Ukraine (Fig. 6/2). It came from the kiln no. 130. It is a crown stove tile with a triangular panel and a half-cylinder body. Traditionally, products of this shape were placed in the upper part of the stove. The shard burnt out to gray-brown color. Clay includes abundant of coarse limestone sand. In terms of body shape, this stove tile is similar to type 9 according to E. R. Hegee's typology — to a composite niche-tile with a

half-cylinder body⁴⁵. Such type was widely represented in Central Europe: in Germany⁴⁶, the Czech Republic⁴⁷, Romania⁴⁸, and Moldova⁴⁹, where they appeared no earlier than the middle – second half of the 15th century. Close analogies to the decoration have not been found yet. However, triangular and rectangular stove tiles with anthropomorphic figures in the center of the composition are known in the territory of Romania and the Czech Republic, where they also date back no earlier than the second half of the 15th century⁵⁰.

2. The photo of another stove tiles come from the 1971 Excavation Report (code BD-1971/221, 231)⁵¹. These are three fragments of the front plate of a niche-like tile with cut-through architectural decoration in the form of a lattice (Fig. 6/1). These fragments came from the kiln no. 123. The tiles of this type also usually have a half-cylinder body. Decorative and morphological features allow us to date them to the second half of the 15th century⁵².
3. One more exemplar was published in the articles of A. Kravchenko mentioned above (Fig. 5/1)⁵³. It comes from the kiln no. 123 or no. 130. Only the front part of the item has been partially preserved. It is unglazed, square or rectangular, with relief decoration and a thin decorative frame similar to the triangular tiles from the kiln no. 130. The relief of the image is quite clear, and high, with carefully crafted small details. The basis of the composition is a scene of 'falconry': a rider holding a bird of prey with outstretched wings on his left hand. A similar plot is typical for Central European stove tiles of the second half of the 15th–16th centuries⁵⁴. A direct analogy to this tile is among the materials from the excavation in Suceava (Romania)⁵⁵. It is quite possible that both exemplars, from Suceava and from Bilhorod, were made in the same matrix. Referring to a tile

⁴⁵ Hegee 2012, 254-262.

⁴⁶ Hegee 2012, 74, Abb. 82.

⁴⁷ Jiřík and Kypta 2013, 108.

⁴⁸ Marcu-Istrate 2004a, 117, Fig. 27.

⁴⁹ Batariuc 1999, 88-89.

⁵⁰ Marcu-Istrate 2004b, Pl. 6/3; Jiřík and Kypta 2013, kat. 56, 90; Smetanka 1969, obr. 7/3,6.

⁵¹ Kryzhitskii 1971, album, L. 27, ill. 104.

⁵² Kypta and Žegklitz 2017, 27, Fig. 5

⁵³ Kravchenko 1979, Fig. 9/1.

⁵⁴ Pavlík 2007, 86-87; Ławrynowicz and Nowakowski 2009, Fig. 12.

⁵⁵ Batariuc 1999, Fig. 54/1; Batariuc and Haimovici 2003, Fig. 15/3.



Fig. 6. Medieval Bilhorod, Bilhorod-Dnistrovskiy. Stove tiles (1, 2, 4), tripod stilt (3) and glazed jug (5) from the excavations in 1971: 1 – fragments of a panel from composite niche-tile with a cut architectural décor from the kiln No 123 (after Kryzhiitskii 1971, alb., L. 27, Fig. 104); 2 – stove tile with an anthropomorphic image from the kiln No 130 (inventory no БД-71/211); 3 – tripod stilt from the fuel chamber of the kiln No 123 (inventory no БД-71/220); 4 – stove tile with floral décor from the building No 128 (inventory no БД-461); 5 – jug from the displaced sediments (inventory no БД-71/244). 2–5 – Scientific Repository of the Institute of Archaeology NAS of Ukraine, Kyiv. Photographs and drawings by the authors, 2021.

with a similar plot from the exhibition of the Museum in Arad, P.-V. Batariuc dates them to the 17th century⁵⁶. However, the stylistic similarity of the Bilhorod exemplar with another one from the local kiln and some parallels on Czech stove tiles of the second half of the 15th century allows us to relate it to the second half of the 15th century as well.

As for the jug (Fig. 5/2, 6/5), we investigated it again and tried to clarify its context in the Archaeological Report. The vessel is almost completely preserved. It has a biconical body, high, wide, slightly widened upward neck, one handle, and ring foot. The crock is hard, yellow-red with a beige tint on the surface. The clay contains the rare grain of limestone and chamotte. Sgraffito decoration covers the upper part of the vessel. It is really quite typical for the 14th century by analogies from Crimea and Azak⁵⁷. It does not contradict a lot with dating suggested by A. Kravchenko. Besides, the other information from her publications is not correct. Firstly, the jug is not a biscuit. The upper part of the ware is covered with a transparent greenish-yellow glaze. Secondly, it was not found in the area of the kilns, but at least 30 m to the northeast of them in the displaced sediments. That is, this jug cannot be used for dating the pottery workshop. Most likely it comes from the complex of the Golden Horde time, which was destroyed during modern earthworks. Thirdly, there are no good reasons to classify it as local production. The composition of raw materials visible to the naked eye, the morphology and decoration of the jug are quite similar to the ceramics of the South-Eastern Crimea group⁵⁸. Nonetheless, archaeometry studies are still needed to clarify its origin.

Hence it is obvious, that they are the stove tiles that were the main product of the pottery kilns at least at the last stage of their operation. One of the last series was faired there not earlier than the middle of the 15th century. That is why the kilns can't be dated to the turn of the 13–14th or the beginning of the 14th century as A. Kravchenko proposed. It is interesting to note that A. Kravchenko pointed out the differences in the structure of these pottery kilns from those in the craft centers of the Golden Horde, particularly in the Dnister region. She notes their similarity with the 8–10th centuries kilns of the Roman-Byzantine tradition from the Crimea⁵⁹. She explained this phenomenon by the continuity of ancient traditions in the Northern Black Sea region. Indeed, both kilns, as mentioned above, can be attributed to the subtype II/e according to the K. T. Raptis classification. It became common from the early Christian to the late Byzantine period in the area of Byzantine cultural influence and was used primarily for the firing building materials⁶⁰. In our case, kilns served for firing decorative stove tiles and, possibly, glazed pottery. A similar glazed pottery kiln dated back to the 15th century from Caffa (Crimea) should be also mentioned in this regard⁶¹. But this technological tradition hardly had been preserved in the Northern Black Sea region for centuries and for some reason was revived in the late medieval period. More likely it was brought there again with new inhabitants. Who were they and where did they come from? These questions will be among the most promising for further research. Anyway, there are very few reasons to believe that these potters originated from the Golden Horde centres.

Concerning the glazed wares, it is look likely they had also been produced in the same workshop or elsewhere in Bilhorod as tripod stilts evidenced. But we do not have a representative collection of wastes, biscuits, or semi-finished products yet. Perhaps some materials are in the Odessa and Bilhorod-Dnistrovskyi museums but they can hardly be numerous. At least such artifacts did not present in the excavation reports and publications. In the collection of 1971, we managed to find only three fragments of a biscuit that belonged to the same plate with sgraffito decoration (Fig. 7/4). They came from redeposited sediments about 30 m from the workshop. The shards are burnt to a dark grey. The composition of the raw material is similar to the stove tiles: it contained abundant of limestone. However, this unique exemplar is not enough for the clear-cut view of local glazed pottery production, their types and range. This raises the question whether the ceramics that A. Kravchenko put into a 'local group' are really local? 15 samples of the glazed ware, which are rather numerous in the glazed pottery assemblages of the site and were associated with the Bilhorod production before, were examined in the "Archaeology & Archaeometry" laboratory in Lyon under the direction of S. Y. Waksman in 2021. All of them demonstrated a great similarity in the chemical composition of raw materials with the pottery of Crimean origin⁶². It is thus obvious that the Crimean ceramics forms an essential part of the so-called 'local Bilhorod group'. So, the percentage of real local pottery in this group and its main characteristics become one more important question for future research.

⁵⁶ Batariuc and Haimovici 2003, 176; Bârnea and Batariuc 1994, 287.

⁵⁷ Maslovsky 2006, 335-336, Fig. 22/3, 23/3.

⁵⁸ More details about this group see: Teslenko 2018.

⁵⁹ Kravchenko 1979, 124-127.

⁶⁰ For more information on the chronology and topography of potteries of the 8–10th centuries with these types of kilns in the Crimea, see: Parshyna et al. 2001.

⁶¹ Raptis 2012, 40; Hesaki and Raptis 2016.

⁶² Teslenko 2018, 13-14.

⁶³ Teslenko and Waksman forthcoming.

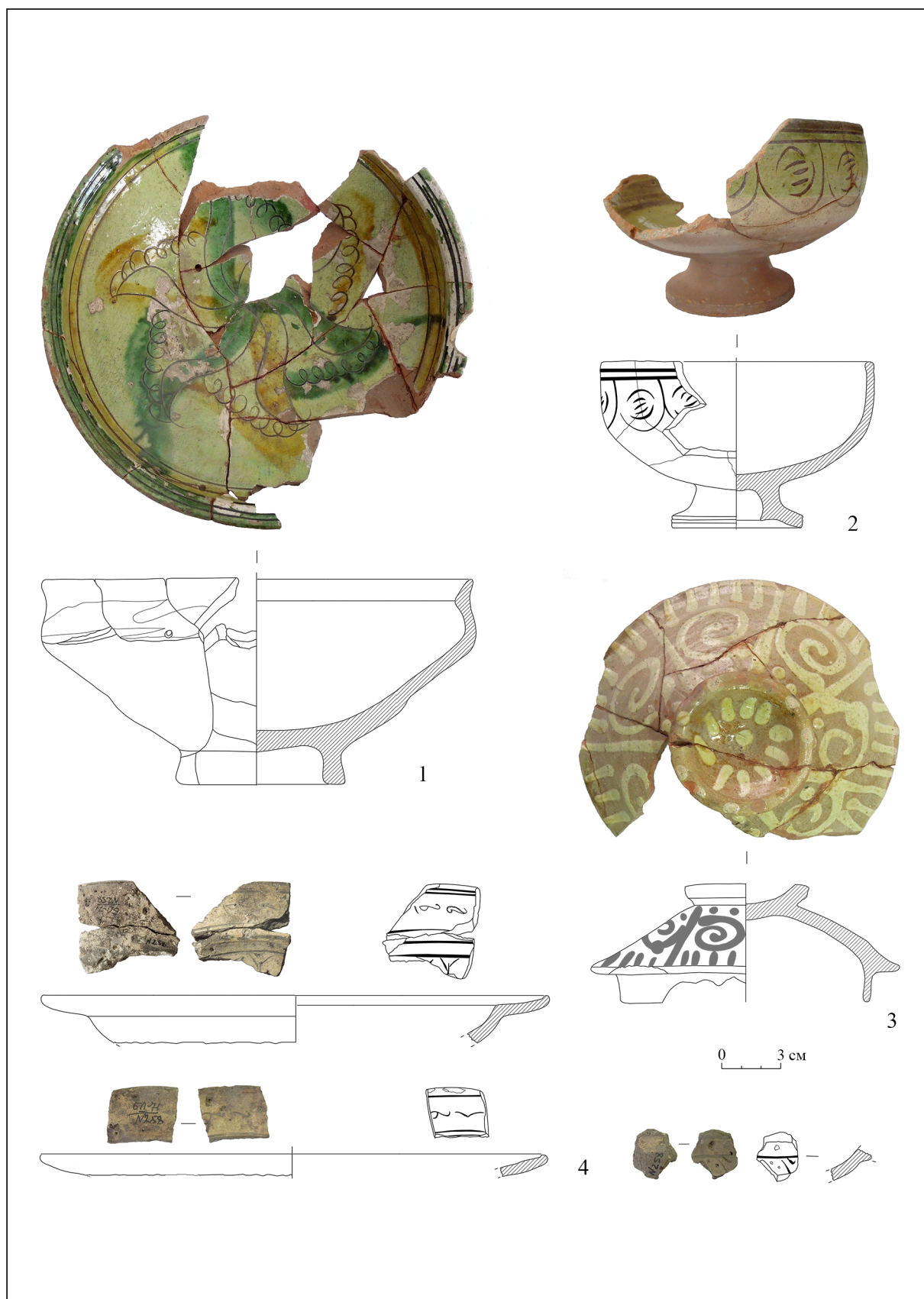


Fig. 7. Medieval Bilhorod, Bilhorod-Dnistrovskiy. Glazed wares (1–3) and biscuit (4) from the excavations in 1971: 1–3 – bowls and lid from the Structure no 69 (inventory no 1 – БД-71/206, 2 – БД-71/207, 3 – БД-71/209); 4 – semi-finished plate from the redeposited sediments (inventory no БД-71/258). Scientific Repository of the Institute of Archaeology NAS of Ukraine, Kyiv. Photographs and drawings by the authors, 2021.

The dwellings

We were able to examine two glazed bowls and one lid from Structure no. 69 (Fig. 7/1-3), as well as a fragment of a stove tile with floral decoration from Structure no. 128 (Fig. 6/4). The first three items were found on the floor of Structure no. 69. Their shapes are reconstructed from the fragments.

One bowl is small, hemispherical with the monochrome sgraffito decoration outside (Fig. 7/2). It has a high conical foot with a complex configuration of the profile. Code: BD-71/207. The clay contains abundant of fine sand and coarse inclusion of loose and dense white minerals. The glaze is transparent, light yellow inside and light green outside of the body. The direct analogies of the bowl have not been found yet. Nevertheless, the composition of the raw material and the profile of the bottom are similar to the Byzantine ceramics, which are known in 15th-century assemblages in Crimea and Bilhorod⁶³.

Another big bowl has polychrome sgraffito ornamentation (Fig. 7/1). Code: BD-71/206. It has a conical body on a low ring foot and an upright rim with a deflected lip. There are a lot of fine sand and a bit small limestone inclusion in the raw material. The surface of the bowl is decorated with a large floral rosette accompanied by small spirals. The petals of a flower are tinted with brown and green stripes. The glaze is transparent, light, and greenish-yellow. There are round holes in the wall drilled for repairs. According to technology, morphology, and decoration, this bowl is the closest to the so-called 'thick-walled bowls with bichrome painting' (TBBP) group of wares well-known in the Crimean assemblages from the last quarter of the 15th – the end of the 16th century⁶⁴. Their origin is still unknown. The design has some parallels in the 'Polychrome (green and brown) sgraffito ware' of the late 15th–16th centuries from the Aegean Sea and the Marmara Sea regions⁶⁵. The distribution area includes the southern coast of the Black Sea as well⁶⁶.

The lid is conical with a top in the form of a ring, and a vertical rib along the inner edge (Fig. 7/3). Code: BD-71/209. It is decorated with white engobe painting under the transparent yellowish glaze on the outside. The crock is dense, rich yellow-red, lighter on the surface. The clay includes rare coarse grains of limestone and of dense red-brown or dark brown minerals. Morphologically, it is similar to the lids of the South-Eastern Crimean group, type 12.2 according to I. Teslenko⁶⁷. However, the white engobe painting is not typical for them in the 15th century⁶⁸. On the other hand, different slip-painted dishes and bowls with similar ornamental motifs are known in the assemblages of the second half of the 15th century from Chembalo and Mangup excavations in Crimea⁶⁹. They are not homogeneous. It is possible that the lid belongs to the related group of ceramics and has the same chronology, but this question needs further research.

The stove tile is unglazed with embossed décor set in a frame (Fig. 6/4). Only the part of the front plate survived, so it is difficult to reconstruct the whole dimension and shape. The crock is yellow-red. The clay contained abundant of limestone inclusion like the exemplar with man-image from the kiln no. 130. The decoration with floral (lilies) and geometric elements is made in a style close to the Gothic. It has some parallels on the territory of the Czech Republic in the assemblages of the 15th century⁷⁰. Most likely this item represents the other type of the local Bilhorod stove tiles of the 15th century.

Some fragmentary information about the pottery from other structures of this complex was obtained from the field documentations. A few shards of 'light-clay' and 'red-clay' ceramics with cobalt painting from the Structures no. 103 are mentioned in the Field journal⁷¹. They were found on the floor under the layer of fire. A. Kravchenko published two 'light-clay' fragments from the same plate later⁷². She rightly identified it with Spanish lusterware but incorrectly referred to the Golden Horde time. In fact, this plate most likely belongs to LVDC⁷³ decorated in the 'Persian style' with 'alafia' motifs and dated back to the first half of the 15th⁷⁴ or a bit later⁷⁵.

⁶³ Teslenko 2021, 112-114, Fig. 130/8; Teslenko and Waksman forthcoming.

⁶⁴ Teslenko and Aliadinova 2019, 309; Teslenko and Aliadinova forthcoming.

⁶⁵ Aslınapa et al. 1989, 57, 81; Hayes 1992, Pl. 47; Papanikola-Bakirtzi 1999, 249-265; Vroom 2005, 144-145.

⁶⁶ Inanan 2012, Fig. 4, tab. 4, 5.

⁶⁷ Teslenko 2021, 83, Fig. 74.

⁶⁸ White engobe painting is more usual for the production of the Crimean workshops dated back to the middle – second half of the 14th century, but such type of lid is not typical for ceramics assemblages of this time, see: Teslenko 2018, 44-46, Fig. 22.

⁶⁹ Teslenko 2021, 112-113, Fig. 130.

⁷⁰ Richterova 1982, tab. 65/4; Šrejberova 2017, katalog, 141–142, kat. 040a, 040b.

⁷¹ Korpusova 1971, L. 36.

⁷² Kravchenko 1986, 102, Fig. 39/4.

⁷³ Loza valenciana dorada y azul clásica, more detalle see: Coll Conesa 2009.

⁷⁴ Coll Conesa 2009, 83-84.

⁷⁵ Gutiérrez 2000, 38.

The 'red-clay' exemplars are not mentioned anywhere else. They possibly belong to the 'Miletus Ware' family, which come to the Northern Black Sea region from around the middle of the 15th century⁷⁶. At least, other red-clay pottery with cobalt painting is unknown in that area in the late medieval time. Both groups of vessels are typical for the Crimean deposits associated with the Ottoman conquest in 1475⁷⁷. So more or less similar chronology for the Bilhorod assemblage is possibly as well.

It is also worth mentioning a Moldavian copper coin from the tandoors no. 147 of the first building period of the Structure no. 128 (Fig. 4), and five others from the Structure no. 69. The coins are not attributed precisely yet⁷⁸ and were only briefly mentioned in Report and publication⁷⁹. On the contrary, A. Kravchenko draws more attention to the Jochid coin of the 14th century, which was found under the floor of the Structure no. 69⁸⁰. She uses it as an argument for dating the first stage of building construction to the Golden Horde time. However, the earlier coin, as we know, cannot be a good reason for the chronology of the contexts⁸¹. In this case, it, assumable, could be redeposited and indicate some kind of anthropogenic activity in this area before⁸².

So, the construction of dwellings on the ruins of pottery kilns most likely dates back to the second half of the 15th century. Their ceramic material does not contradict this conclusion. Their destruction could be determined not earlier than the last quarter of the 15th century, possibly, due to the Ottoman conquest of Bilhorod in 1484 or later. At the minimum one building (no. 103) in the complex was destroyed in the fire. The details and sequence of these events are still unclear.

Conclusion

Thus, the re-examination of materials from a single year of excavation of medieval Bilhorod leads us to several important outcomes.

1. 1. On the basis of modern study, we have clarified that stove tiles, which were among the main production of the analyzed ceramic workshop, belong to the Central European morphological types of the second half of the 15th century. Therefore, the last period of the workshop activities cannot be dated earlier than the second half of the 15th century as well. It is almost a century and a half later than previously thought, and accordingly, these kilns could not be attributed to the first building period of the Golden Horde time, as A. Kravchenko and others suggested. Moreover, the types of stove tiles were not inherent to the Golden Horde cultural tradition, and therefore cannot be associated with it at all. Their manufacturing in Bilhorod should be related to the Central European influences in the local ceramics craft during the Moldavian period.
2. 2. The dwellings and other objects on the ruins of the kilns were built in the second half of the 15th, and not in the first half of the 14th century, and apparently have been used until the Ottoman conquest or a bit longer. Anyway, the latest ceramic finds mark the destruction between the last quarter of the 15th and 16th centuries.
3. 3. The pottery workshop, as well as residential development on its ruins, continued to exist during the construction of the last line of fortifications in the years 1454–1473⁸³, and even afterward. Thereby, the established opinion about the destruction of dwellings outside of the fortress in the first half of the 15th century should be classified as incorrect.
4. 4. It should also be noted that the tandoor is not a chronological indicator of the exclusively Golden Horde period, as previously believed. Indeed, the tradition of using tandoor came in the Dniester area with the new population during the expansion of the Jochid's state to the West. However, it did not disappear when the control over the city changed. It is obvious that tandoors were used in the Moldavian Bilhorod as well. Most likely, we can see a continuum of building traditions there. A similar long-term use of the tandoors over various historical periods, despite the change of 'owners' of the city, is also known in medieval Sudak in South-Eastern Crimea⁸⁴.

⁷⁶ Teslenko 2021, 91-97.

⁷⁷ Teslenko 2021, 94-103.

⁷⁸ It is stored in the Odessa Archaeological Museum (OAM), so their identification could be possible in the future. In any case, they could not be earlier than the end of the 14–15th centuries.

⁷⁹ Kryzhitskii and Kleiman 1971, L. 35, 69; Kravchenko 1986, 27.

⁸⁰ Kryzhitskii and Kleiman 1971, L. 69; Kravchenko 1986, 27. It is stored in OAM, inv. no. 53475.

⁸¹ For more details about the interpretation of coins in the archaeological record see: Sanders 2020.

⁸² There were also fixed two pits dug into the mainland. Their ceramic assemblage significantly differs from found in the kilns and dwellings, and indeed dated back to the 14th century, see: Teslenko and Myronenko 2022a, 145.

⁸³ Krasnozhan 2012, 350-351.

⁸⁴ Teslenko and Maiko 2020.

5. 5. Finally, we have to admit the lack of reliable information about the local manufacturing of glazed ceramics in Bilhorod. The group of pottery, previously presented as local, is not homogeneous. It has a significant Crimean component, which is well-distinguished thanks to archaeometry research. Therefore, the precise attribution and chronology of glazed pottery of the medieval Bilhorod, which we initiated in this study, remain among the tasks for the future also.

To summarize it should be mentioned that the work of the previous researchers and archeological materials accumulated for 120 years of excavations are certainly very important and form a rather impressive information database. Nevertheless, we have to admit that the chronology of the medieval building periods outside the fortress proposed in 1970–1980s was clearly erroneous. Some stereotypes at that time, gaps in the methodology of field research, misunderstanding of the coin evidence and a lack of knowledge in the late medieval ceramics have caused these mistakes. Therefore the results of our study shows that some previous ideas concerning the historical topography of medieval Bilhorod, together with the chronology of its deposits and with the ceramics assemblages should be revised, and we have already started this work.

Acknowledgment

We would like to express our sincere gratitude for the support of our study to the French National Program PAUSE, Claude Bernard University Lyon 1, Lumière University Lyon 2, the library of the ‘Maison de l’Orient et de la Méditerranée’ and as the team of the “Archeology & Archaeometry” laboratory in Lyon, (CNRS UMR5138).

REFERENCES

- Abyzova, E. N., Bârnea, P. P., Nudelman, A. A. 1981. *Drevnosti Starogo Orheia. Zolotoordynski period*. Chişinău: Ştiinţa.
- Aslanapa, O., Yetkin, S., Altun, A. 1989. *The Iznik tile kiln excavations (The Second Round: 1981–1988)*. Istanbul: The Historical Research Foundation, Istanbul Research Center.
- Avakian, Gr. 1931. Săpăturile de la Cetatea Albă. *Anuarul Comisiunii Monumentelor. Istorie, Secţia din Basarabia, Chişinău* 3: 47-104.
- Bârnea P. and Batariuc, P.-V. 1994. Cahle descoperite în Moldova dintre Prut şi Nistru. *Arheologia Moldovei* 18: 281–290.
- Batariuc, P.-V. 1999. *Cahle din Moldova Medievală (secolele XIV–XVIII)*. Suceava: Editura Istros.
- Batariuc, P.-V. and Haimovici, S. 2003. Elemente animaliere pe cahle descoperite în Moldova. *Arheologia Moldovei* 26: 145-178, DOI: <https://doi.org/10.11588/amold.2003.0.32619>.
- Beliaeva, S. A. and Fialko, E. E. 2008. Akkermanskaia keramika sgraffito (po materialam raskopok 2004 g.). *Rossiiskaia arkheologiya* 2: 62-70.
- Boguslavskii, G. S. 2002. Polivnaia keramika iz raskopok Belgorod-Tirskoi ekspeditsii (1996–1998 gg.), in: P. Roman and S. Kryzickij (eds.) *Tyras – Cetatea Albă / Belhorod-Dnistroskyj, I: Săpături 1996–1999*: 265-268. Bucuresti: Redacţia Publicaţiilor Pentru Străinătate.
- Boguslavskii, G. S. 2005. Polivnaia keramika s kobaltovoi rospisiu iz zolotoordynskogo Belgoroda (po materialam raskopok 1997 goda), in: S. G. Bocharov and V. L. Myts (eds.) *Polivnaia keramika Sredizemnomoria i Prichernomoria X-XVIII vv.*: 379-384. Kyiv: Stylos.
- Boguslavski, G. S. 2007. Polivnaia keramika mestnogo proizvodstva iz novykh raskopok zolotoordynskogo Akchakermana, in: S. G. Bocharov (ed.) *Polivnaia keramika Vostochnoi Evropy, Prichernomoria i Sredizemnomoria v X–XVIII vv. II mezhdunarodnaia nauchnaia konferentsiia (Ialta, 19–23 noiabria 2007 g.)*. Tezisy: 3-7. Yalta.
- Boguslavski, G. S. 2008. Deiaki zauvazhennia do stratyhrafii serednovichnykh shariv Bilhorod-Tirskoho horodyshcha. *Drevnee Prichernomore* 8: 46-52.
- Boguslavski, G. S. 2010a. Arabo-ispanskaia polivnaia keramika srednevekovogo Belgoroda (iz raskopok 1996-2004 gg.), in: S. D. Kryzhitskii (ed.) *Tira-Belgorod-Akkerman (materialy issledovani)*: 174-177. Odesa: Pechatnyi dom.

- Boguslavski, G. S. 2010b. Ranneosmanskaia keramika Belgorod-Tirskogo gorodishcha (keramika "miletskoi seriiiz" raskopok 1996–2004 gg.), in: S. D. Kryzhitskii (ed.) *Tira-Belgorod-Akkerman (materialy issledovaniia)*: 178-181. Odesa: Pechatnyi dom.
- Boguslavski, G. S. 2013. Belgorod – Akdzha Kermen – Asprokastro (oherk istorii i arkheologii srednevekovogo goroda), in: I. V. Bruiako and T. L. Samoilova (eds.) *Drevnie kultury Severo-Zapadnogo Prichernomoria: 757-791*. Odessa: SMIL.
- Cândeia, I. 2001. Cetatea Albă în istoriografia românească (I). *Studii și Materiale de Istorie Medie* 19: 217-226.
- Cândeia, I. 2003. Cetatea Albă în istoriografia românească (II). *Studii și Materiale de Istorie Medie* 21: 309-330.
- Cândeia, I. 2016. *Cetatea Albă: Cercetările arheologice și istorice*. Brăila: Istros.
- Coll Conesa, J. 2009. *La Cerámica Valenciana (apuntes para una síntesis)*. Valencia: Asociación Valenciana de Cerámica.
- Constantinescu, N. 1959. Contributii la cunoasterea ceramicii bizantine de la Cetatea Alba (Belgorod Dniestrovski). *Studii și Cercetări de Istorie Veche* 10, 2: 441-451.
- Gutiérrez, A. 2000. *Mediterranean Pottery in Wessex Households (13th to 17th centuries)*. British Archaeological Reports British Series 306. Oxford: British Archaeological Reports Oxford Ltd.
- Hayes, J. W. 1992. *Excavations at Sarachane in Istanbul 2. The pottery*. Princeton: Princeton University Press.
- Heege, E.R. 2012. *Ofenkeramik und Kachelofen. Typologie. Terminologie und Reconstruction*. Basel: Schweizerischer Burgenverein.
- Hasaki, E. and Raptis, K.T. 2016. Roman and Byzantine ceramic kilns in Greece (1st-15th c. CE): continuities and changes in kiln typology and spatial organization of production, in: N. Cucuzza, B. M. Giannattasio and S. Palleschi (eds.) *Quaderni di archeologia – Genova collana del dipartimento di antichità, filosofia e storia dell'Università Degli studi di Genova*: 213-234. Genova: Aracne editrice.
- Inanan, F. 2012. Sinop Balatlar Kilisesi Kazısı Sırlı Bizans Seramik Buluntularının Ön Değerlendirmesi (An Assessment for the Byzantine Pottery from the Excavation of Balatlar Church, Sinop, Turkey). *Türkiye Bilimler Akademisi Arkeoloji Dergisi* 15:147-160.
- Jirik, J. and Kypta J. (eds.). 2013. *Gotické kamnové kachle na Písecku (Výběrový katalog výstavy „Obrazový svět pozdního středověku“)*. Písek: Prácheňské muzeum v Písku.
- Karashevych, I. V. 2010. Serednovichni materialy iz rozkopok Bilhorod-Dnistrovskoi ekspeditsii 1946-1947, 1949–1950 rr. *Arkheolohiia i davnia istoriia Ukrainy* 3: 129-135.
- Kleiman, I. B. 1979. Stratifiia kulturnogo sloia gorodishcha Tiry – Belgoroda, in: P. O. Karyshkovskii and I. B. Kleiman (eds.) *Antichnaia Tira i srednevekovi Belgorod*: 54-75. Kyiv: Naukova dumka.
- Konovalova, I. G. Russev, N. D. 1988. O politicheskoi polozenii regiona Dnestrovsko-Dunaiskikh stepi v pervoi treti XIV v., in: P. V. Sovetov (ed.) *Sotsialno-ekonomicheskaiia i politicheskaiia istoriia Moldavii perioda feodalizma*: 33-45. Chișinău: Știința.
- Korpusova, V. A. 1971. *Dnevnik. Belgorod-Tirskaia arkheologicheskaiia ekspeditsiia 1971 g. Tsentralnyi raskop, zapadni uchastok*. Naukovyi arkhiv Instytutu arkheologii NAN Ukrainy, f. e. 7017, Inv. no. 1971/21. Kyiv.
- Krasnozhan, A. V. 2012. Krepost Belgorod (Akkerman) na Dnestre: istoriia stroitelstva Chișinău: Stratum.
- Kravchenko, A. A. 1969. Srednevekovaia goncharnaia pech v Belgorode-Dnestrovskom. *Arkheologicheskie otkrytiia* 1968: 322-324.
- Kravchenko, A. A. 1979. Proizvodstvennye komplekсы Belgoroda XIII–XIV vv., in: P. O. Karyshkovskii and I. B. Kleiman (eds.) *Antichnaia Tira i srednevekovi Belgorod*: 115-135. Kyiv: Naukova dumka.
- Kravchenko, A. A. 1986. *Srednevekovi Belgorod na Dnestre (konets XIII–XIV vv.)*. Kyiv: Naukova dumka.
- Kravchenko, A. A. and Stoliarik, E. S. 1983. Keramika vizantiiskogo kruga iz Belgoroda XIII–XIV vv., in: G. A. Dzis-Raiko (ed.) *Materialy po arkheologii Severnogo Prichernomoria*: 179-190. Kyiv: Naukova dumka.
- Kryzhitskii, S. D. 1971. *Dnevnik. Belgorod-Tirskaia arkheologicheskaiia ekspeditsiia 1971 g.* Naukovyi arkhiv Instytutu arkheologii NAN Ukrainy, f. e. 7017, Inv. no. 1971/21. Kyiv.
- Kryzhitskii, S. D. and Kleiman, I. B. 1971. *Otchet o raskopkakh Belgorod-Tirskoi ekspeditsii v 1971 g.* Naukovyi arkhiv IA NAN Ukrainy, f. e. 7015, Inv. no. 1971/21. Kyiv.
- Kypta, J. and Žegklitz, J. 2017. Gotické a renesanční kamnářství v českých zemích, in: J. Šrejberova (ed.) *Svět kachlových kamen. Kachle a kachlová kamna severozapadních Čech*: 20-39. Most: Oblastní Muzeum v Mostě.

- Ławrynowicz, O. and Nowakowski, P. A. 2009. Stove tiles as a source of knowledge about medieval and Early Modern arms and armour. *Studies in Post-Medieval Archaeology* 3: 2-14.
- Maslovskii, A. N. 2006. Keramicheskii kompleks Azaka. Kratkaia kharakteristika, in: V. Ia. Kiiashko (ed.) *Istoriko-arkheologicheskie issledovaniia v Azove i na Nizhnem Donu v 2004 godu. Sbornik statei* 21: 308-472. Azov: Izdatelstvo Azovskogo muzeia-zapovednika.
- Maslovskii, A. N. 2017. Vostochnokrymskii polivnoi import v zolotoordynskom Azake. Voprosy khronologii., in: S. G. Bocharov, V. Fransua and A. G. Sitdikov (eds.) *Polivnaia keramika Sredizemnomoria i Prichernomoria, X–XVIII veka*: 455-490. Kazan; Chişinău: Stratum.
- Marcu Istrate, D. 2004. *Cahle din Transilvania şi Banat de la începuturi până la 1700*. Cluj-Napoca: Accent.
- Ostapchuk, V., Bilyayeva, S. 2009. The Ottoman Northern Black Sea frontier at Akkerman Fortress: The view from a historical and archaeological project, in: A. S. C. Peacock (ed.) *The Frontiers of the Ottoman World*: 137-170. London: British Academy.
- Parshina, E. A., Teslenko, I. B., Zelenko, S. M. 2001. Goncharye tsentry Tavriki VIII—X vv., in: O. O. Parshina (ed.) *Morska torhivlia u Pivnichnomu Prychornomorii*: 52-81. Kyiv: Stylos.
- Papanikola-Bakirtzi, D. (ed.). 1999. *Byzantine Glazed Ceramics*. Athens: Archaeological Receipts Fund.
- Pavlik, Č. 2007. Gotické a renesanční kachle pod Žďánickým lesem. *RegioM : sborník Regionálního muzea v Mikulově*: 74-90. Mikulově: Regionální muzeum v Mikulově.
- Polevoi, P. P. 1969. *Gorodskoe goncharstvo Pruto-Dnestrovia v XIV veke. Po materialam raskopok goncharnogo kvartala na poselenii Kostashty*. Chişinău: Izd-vo AN MSSR.
- Polevoi, L. L. 1979. *Ocherki istoricheskoi geografii Moldavii (XIII–XV vv.)*. Chişinău: Shtiintsa.
- Polevoi, L. L. and Byrnia, P. P. 1974. *Srednevekovye pamiatniki XIV–XVII vv. Arkheologicheskaia karta Moldavskoi SSR 7*. Chişinău: Shtiintsa.
- Raptis, K. T. 2012. Early Christian and Byzantine ceramic production workshops in Greece: typology and distribution, in: S. Gelichi (ed.) *Atti del IX Congresso Internazionale sulla ceramica medievale nel Mediterraneo: Venezia, Scuola Grande dei Carmini, Auditorium Santa Margherita, 23-27 novembre 2009*: 38-43. Firenze: All'Insegna del Giglio, Bordo San Lorenzo.
- Richterova, J. 1982. *Středověké kachle*. Praha: Muzeum hl.m. Prahy.
- Russev, N. D. 1999. *Na grani mirov i epokh. Goroda nizovii Dunaia i Dnestra v kontse XIII–XIV vv.* Chişinău: VASH.
- Russev, N. D. 2015. Dva varianta gorodskoi istorii srednevekovogo Prichernomoria – Belgorod i Oleshe, in: S. G. Bocharov and A. G. Sitdikov (eds.) *Genuezskaia Gazariia i Zolotaia Orda*: 31-32. Chişinău: Stratum Plus.
- Sanders, G. 2020. Spring forward: two examples of how shifting chronologies can postpone the dark ages. *Journal of Hellenistic and Roman material culture* 9: 353-380.
- Shlapak, M. E. 2001. *Belgorod-Dnestrovskaia krepost (issledovanie srednevekovogo oboronnoho zodchestva)*. Chişinău: ARC.
- Slătineanu, B. 1937. Contribuţiuni la ceramica bizantină de la Turnu-Severin, Cetatea Albă şi Enisala. *Revista Fundaţiilor Regale* IV/11: 321-340.
- Spinei, V. 1994. La genèse des villes du sud-est de la Moldavie et les rapports commerciaux des XIIIe–XIVe siècles. *Balkan Studies* 35, 2: 197-269.
- Smetanka, Z. 1969. K morfologii českých středověkých kachlů. *Památky Archeologické* 1: 228-253.
- Šrejberova, J. (ed.). 2017. *Svět kachlových kamen. Kachle a kachlová kamna severozapadních Čech*. Most: Oblastní muzeum v Mostě.
- Teslenko, I. B. 2018. Vyrobnystvo polyvianoho posudu v Krymu za chasiv Uluh Uлуу. *Arkheolohiia i davnia istoriia Ukrainy* 4(29): 7-83, DOI: <https://doi.org/10.37445/adiu.2018.04.01>.
- Teslenko, I. B. 2021. *Keramika Kryma XV veka*. Kyiv: IA NAN Ukrainy.
- Teslenko, I. B. and Maiko V. V. 2020. Keramicheskii kompleks pozdnesrednevekovykh usadeb v portovoi chasti Sudaka (po materialam raskopa VI, 2006–2010 gg.). *Istoriia i arkheologiia Kryma* XII: 291-311.
- Teslenko, I. B. and Myronenko, L. V. 2022a. Keramika serednovichnoho Bilhorodu: materialy rozkopok 1969, 1971 rr. *Arheologia* 2: 128-152, DOI: <https://doi.org/10.15407/arheologia2022.02.128>.
- Teslenko, I. B. and Myronenko, L. V. 2022b. Keramika i keramichne vyrobnystvo seredn'ovichnoho Bilgorodu, istoriya doslidzhennya, problemy ta perspektyvy. *Arheologiya i davnia istoriya Ukrainy* 3 (44).

Teslenko, I. B. and Aliadinova, D. Yu. 2019. Vliianie osmanskogo zavoevaniia 1475 g. na kulturu zhitelei Iuzhnogo Kryma (po materialam keramicheskikh kompleksov kontsa XV–XVI vv.). *Stratum Plus* 6: 295-320.

Teslenko, I. and Waksman, S. Y. Forthcoming. Glazed pottery from the excavation in Akkerman (Bilhorod-Dnistrovskiy, Ukraine), preliminary results of archaeological and archaeometric study. *Proceeding of 13th International Congress on Medieval & Modern Period Mediterranean Ceramic. Grenada (Spain), November 8–13, 2021.*

Teslenko, I. B. and Aliadinova, D. Yu. Forthcoming. Glazed ceramics of the early Ottoman Crimea. *Proceedings of the 16th International Congress of Turkish Art Ankara, October 3-5, 2019.* Ankara.

Vroom, J. 2005. *Byzantin to modern pottery in the Aegean – 7th to 20th century.* Bijleveld: Parnassus Press.

Liste d'illustrations

Fig. 1. Forteresse de Bilhorod-Dnistrovskiy et Tyras antique, Bilhorod-Dnistrovskiy, région d'Odesa, Ukraine. Localisation, vue générale, plan : 1 – la carte de la mer Noire avec les noms des établissements selon les sources génoises et vénitiennes du milieu du 15^e siècle (d'après Dzhanov 2019, Fig. 6) ; 2 – vue générale de Bilhorod-Dnistrovskiy depuis le nord-est (détail de la photo du site <https://commons.wikimedia.org/wiki/File:Akkerman-fortress-aerial-3.jpg> access date 25/08/2022) ; 3 – le plan de la forteresse et de la zone habitée hors des murs : I – Citadelle ; II – Cour militaire ; III – Cour civile ; IV – Cour de commerce (adapté d'après Krasnozhan 2012, Fig. 77) ; 1-2 – emplacement des anciennes constructions avec les fours de potiers médiévaux à l'intérieur ; 3 – l'église chrétienne, 15^e siècle et la mosquée du sultan Bayezid construite sur ses ruines, fin 15-18^e siècles.

Fig. 2. Fours de potiers médiévaux de Bilhorod, Bilhorod-Dnistrovskiy : 1 – le plan schématique des fours à l'intérieur des anciennes constructions, n° 24, 25 – les fours pour la cuisson des briques ; n° 123, 130 – les fours pour la cuisson de carreaux de poêle et de céramiques émaillées ; 2 – le four de potiers n° 123, une vue du sud-est ; 3 – le four de potiers n° 130, une vue du nord (d'après Kryzhitskii, Kleiman 1971).

Fig. 3. Bilhorod médiéval, Bilhorod-Dnistrovskiy, les fours de potiers, plans et coupes (d'après Kravchenko 1979, Fig. 3, 8). 1 – une brique crue ; 2 – une brique cuite (antique) ; 3 – une couche d'isolation thermique ; 4 – une couche culturelle ; 5 – l'enduit d'argile ; 6 – un remblai avec de l'argile verte.

Fig. 4. Bilhorod médiéval, Bilhorod-Dnistrovskiy. Les restes de bâtiments et de fours de potiers sur les ruines d'une ancienne tour, un plan schématique, adaptés (d'après Kryzhitskii 1971).

Fig. 5. Bilhorod médiéval, Bilhorod-Dnistrovskiy. Les céramiques provenant des fours n° 123, 130 et de leurs environs publiées par A. Kravchenko (d'après Kravchenko 1979, 124, Fig. 9).

Fig. 6. Bilhorod médiéval, Bilhorod-Dnistrovskiy. Carreaux de poêle (1, 2, 4), trépied (3) et cruche émaillée (5) provenant des fouilles de 1971 : 1 – les fragments d'un panneau du carreau de poêle avec décor architectural découpé provenant du four n° 123 (d'après Kryzhitskii 1971, alb., L. 27, Fig. 104) ; 2 – un carreau de poêle à image anthropomorphe provenant du four n° 130 (n° d'inventaire БД-71/211) ; 3 – trépied provenant de la chambre à combustible du four n° 123 (n° d'inventaire БД-71/220) ; 4 – un carreau de poêle avec décor floral provenant du bâtiment n° 128 (n° d'inventaire БД-461) ; 5 – une cruche provenant des sédiments déplacés (inventaire n° БД-71/244). 2-5 – Dépôt scientifique de l'Institut d'archéologie NAS d'Ukraine, Kyiv. Photographies et dessins réalisés par les auteurs, 2021.

Fig. 7. Bilhorod médiéval, Bilhorod-Dnistrovskiy. Les céramiques émaillées (1–3) et les biscuits (4) provenant des fouilles de 1971 : 1-3 – bols et couvercle de la structure n° 69 (n° d'inventaire 1 – БД-71/206, 2 – БД-71/207, 3 – БД-71/209) ; 4 – la plaque semi-finie provenant des sédiments redéposés (n° d'inventaire БД-71/258). Dépôt scientifique de l'Institut d'archéologie NAS d'Ukraine, Kyiv. Photographies et dessins réalisés par les auteurs, 2021.

IRYNA TESLENKO

CNRS UMR 5138 'Archéologie et Archéométrie', Lyon, France

National Academy of Science of Ukrainian, Institute of Archaeology, Kyiv, Ukraine

teslenko.i2016@gmail.com

LIUDMYLA MYRONENKO

National Academy of Science of Ukrainian, Institute of Archaeology, Kyiv, Ukraine

ludmila6ko@gmail.com