

LATE MEDIEVAL (13TH–14TH CENTURIES) ENAMELLED GLASS FROM WROCŁAW AND OPOLE (SILESIA)

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INTRODUCTION

Regular, sometimes long-term and large-scale excavations in towns, especially those with roots in the Middle Ages, typically provide archaeologists with an abundance of find material. Apart from building remains, everyday items as well as rarer objects associated with the upper classes are discovered. Glassware and glazed objects can be undoubtedly included in the category of luxury goods. Furthermore, they often elucidate far-reaching trade and political contacts between towns. In medieval Europe, glass had a high value, and therefore owning glassware was regarded as a luxury and connected with those of higher social and financial status.¹

The subjects of this paper² are fragments of enamelled glass from the 13th and 14th centuries discovered in the area of present-day Silesia. Such finds are extremely rare and unusual in Poland. Even though numerous excavations have been conducted in the region of Silesia over the years, only 17 fragments of late medieval glassware decorated with coloured enamel or gilding are known. They were discovered at only three sites: Wrocław-Ostrów Tumski, Wrocław-Nowy Targ square, and Opole-Ostrówek. All fragments appeared either in strongholds and castles or within the towns' first marketplace (See table 1). These finds will be discussed in terms of their macroscopic features, chemical composition, and hypothetical provenance. An attempt to determine the circumstances of their journey to Silesia will also be made.

ARCHAEOLOGICAL CONTEXT AND DESCRIPTION OF THE OBJECTS

The oldest example of late medieval enamelled glass discovered in Silesia comes from the excavations of Opole – Ostrówek. Cultural layers containing almost perfectly preserved wooden constructions of the early medieval stronghold were uncovered in 1930. The survey was connected with buildings of the Opole regency (present-day Governor's Office) that replaced the deconstructed and demolished Piast castle. The first comprehensive excavations were conducted in the years 1930–1931 and again in 1933. Further research was related to the so-called “millennial studies”. In the years 1948–1969 and 1977–1978, most of the early medieval stronghold³ was excavated⁴. A fragment of a glass vessel (fig. 1a), whose present location is unknown and was most likely lost during World War II, was discovered during the surveys that took place in the 1930s⁵ and was therefore probably discovered somewhere in the area of Piast castle. The fairly-large fragment was presumably part of a richly decorated Islamic mosque lamp and was lavishly inscribed in Arabic with the phrase “mewla is the sultan”⁶. Given this information, this piece can be dated to the 14th–15th centuries.⁷

The next two glass objects come from the excavations on Ostrów Tumski in Wrocław (fig. 1b, 3c)⁸. Initiated by Rudolf Jamka in 1946, archaeological research in this part of the city has been carried out almost continu-

1 See also: Piekalski 2008; Piekalski/Wachowski 2009; Siemianowska 2015a, 2015b; Siemianowska/Sadowski 2017; Siemianowska 2020.

2 The study has been carried out thanks to the Preludium-5 fellowship “Social and economic changes at the time of urbanization breakthrough in the light of glass finds from residential centers in Silesia”, agreement number: UMO-2013/09/N/HS3/01001, funded by the National Science Centre of Poland.

3 Bukowska-Gedigowa/Gediga 1968, 11–20.

4 The research was conducted by the former Institute of Material Culture of the Polish Academy of Sciences.

5 Raschke 1938.

6 The fragments of mosque lamps from Wrocław – Ostrów Tumski and Opole – Ostrówek were studied in a separate paper (see: Siemianowska/Sadowski 2017) – that is why they will not be described here in detail.

7 Dekówna 1962, 242; Siemianowska/Sadowski 2017.

8 The excavations on Ostrów Tumski in Wrocław were mainly conducted by the former Institute of Material Culture of the Polish Academy of Sciences. In the 1970s, the research was taken over by the Institute of Archaeology of the University of Wrocław. In the last years, private companies have been taking part in the excavations in that area as well.

Table 1 Chemical composition of the enamelled glass dating from the 13th–14th centuries from Wrocław-Ostrów Tumski and Wrocław Nowy Targ square.

	Group 1: the Islamic enamelled glass		Group 2: the enamelled glass from Western Europe, such Alderverdinii type			Group 3: the enamelled glass of Eastern provenance, imported from Byzantium or Rus
	2972/11	2779/52	? /11	3360/11	1770/11	2564/11
K ₂ O	3,06	2.832	1,51	2,05	2,11	16,69
CaO	6,56	8.893	8,45	9,63	9,81	1,43
P ₂ O ₅	0,29	0.179	0,22	0,22	0,2	0,26
SO ₃	0,2	0.156	0,18	0,17	0,19	0,1
Cl ₂ O	0,99	0.683	0,74	0,87	0,86	0,04
PbO	0,03	0.112	0,2	-0,05	0,01	25,76
Ag ₂ O	-0,04	0.000	0,01	-0,05	-0,04	0,02
SnO	0,05	0.000	0	0,02	0,02	-0,02
Sb ₂ O ₃	0,11	0.092	0,19	0,07	0,1	0,29
BaO	0,11	0.058	0,06	0,18	0,11	0,01
Na ₂ O	12,2	12.419	14,14	11,64	11,59	0,16
SiO ₂	70,15	69.052	66,66	69,43	68,58	54,86
Al ₂ O ₃	0,95	1.049	2,2	0,68	0,7	0,81
MgO	2,97	3.747	2,05	3,03	3,08	0,1
As ₂ O ₃	-0,05	0.000	-0,01	-0,07	-0,01	0,01
SrO	0,09		0,06	0,04	0,05	0,06
Fe ₂ O ₃	0,46	0.516	0,99	0,34	0,34	0,12
MnO	1,23	0.709	0,78	1,26	1,29	0
CoO	0,06	0.057	0	-0,04	0,04	-0,03
NiO	-0,09	0.033	-0,04	-0,09	-0,03	-0,03
CuO	-0,04	0.000	0,13	0,01	0,13	-0,01
ZnO	-0,11	0.000	-0,02	0,04	-0,06	-0,2
TiO ₂	0,06	0.052	0,16	0,12	0,14	0,2
Total	99,24	100.638	98,68	99,49	99,2	100,6

ously for nearly 70 years. Similar to the case of Opole-Ostrówek, regular excavations on Ostrów Tumski were connected with reconstructions of the city after World War II and the aforementioned millennial studies that were focused on the origin of the Polish State. These excavations were most intensively conducted in the 1950s–1980s. The results obtained from the excavations are complemented by relatively frequent trial trenches, bore holes, and rescue surveys.⁹ The first fragment of enamelled glass (fig. 1b) was discovered in 1952 during an exploration of trench VI. The trench was situated in the area of the settlement which was adjacent to the so-called “bigger stronghold”.¹⁰ The fragment is a small piece of the thick-walled

body of a vessel made out of transparent yellowish glass. Its outer surface was decorated with dark red, white, and golden enamel. The ornament consists of circles and floral motifs representing palmettes.¹¹

Twenty years later in an adjacent trench, described as I/72 and located in layer D, which dates to the mid-13th century, another fragment of enamelled glass – presumably once part of a bowl – was discovered (fig. 3c). This particular fragment was made of transparent sapphire-coloured glass and the surface was painted and decorated with gilding. It is worth noting that the layer in which the fragment was discovered contained 8 kg of broken glass, including numerous fragments of stained glass,

9 Antosik/Siemiańska 2015, 101, footnote 1; Limisiewicz/Pankiewicz 2015, 9.

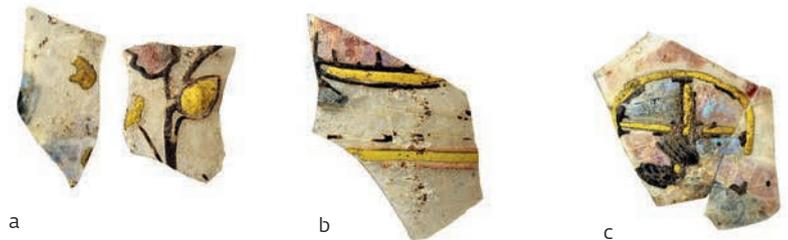
10 Antosik/Siemiańska 2015, 101–104 with further references.

11 Siemiańska 2015c, 85; Siemiańska/Sadowski 2017.

single pieces of glass vessels, and jewellery.¹² In terms of typology, the aforementioned fragment is very similar to the gilded bowl from the Treasury of San Marco in Venice.¹³

The largest known group of late medieval enamelled glass fragments were uncovered during excavations at Nowy Targ square in Wrocław, with the first large-scale excavations¹⁴ taking place in the 1960s.¹⁵ In the years 2010–2011, due to the construction of an underground parking area, almost the entire square was archaeologically investigated.¹⁶ Numerous fragments of late medieval glass were discovered, including 14 small pieces of enamelled glass. These finds were observed lying loosely in the layers that date to the Late Middle Ages. Nine of these finds (fig. 2) are small, thin-walled (with a wall thickness under 1 mm) pieces of beakers made of transparent colourless glass. Within the glass material itself, sporadic, miniscule air bubbles are visible. Moreover, the pieces are painted with yellow, black, pink, white, and golden paint and include floral, geometric, and likely heraldic motifs. The fragment of a thick-walled vessel (preserved in two pieces, with the thickness of the wall measuring 2–3 mm) appears entirely different and presumably formed a part of a large beaker or a lamp. This piece itself is comprised of transparent yellowish glass (fig. 1c) that exhibits relatively large air bubbles. Partially preserved painted floral decorations featuring convoluted ornaments and combined floral-geometric motifs in gold, brown, black, green, and white were also observed on the vessel.

Among the finds from Nowy Targ square in Wrocław there were also four fragments (from two different vessels) of wide-mouthed glass vessels that were mostly likely bowls, lamps, or beakers (fig. 3a–b). One of the vessels was made out of a transparent, yellow glass while another was made from emerald green glass. In both cases, very small air bubbles and cracks on the surface are visible. Moreover, both vessels



1 The Islamic glass fragments with coloured enamels, Syria or Egypt: a – Opole – Ostrówek, 14th–15th centuries; b – Wrocław-Ostrów Tumski, 2nd half of the 13th–14th centuries.

2 The late medieval enamelled glasses from Western Europe provenance, Alderverdinii type: Wrocław – Nowy Targ, 13th/14th centuries.

12 Kaźmierczyk et al. 1974, 261–264, Abb. 9, 14–16; 1975, 184, 200–202, Abb. 2, 15–25; Pankiewicz et al. 2014, 195; Pankiewicz/Siemanowska 2018; Pankiewicz et al. 2018.

13 See also: Gedentrath et al. 2007.

14 Kaźmierczyk 1966, 6–13.

15 These were excavations conducted in joint effort by the Institute of Archaeology of the University of

Wrocław and the Institute of Material Culture of the Polish Academy of Sciences.

16 The excavations in 2010–2011 were conducted by the Institute of Archaeology of the University of Wrocław and directed by Professor Jerzy Piekalski whom I would like to thank for providing the material for the purpose of this study. See also: Piekalski/Wachowski 2018.



3 The late medieval enamelled glass of Eastern provenance, imported from Byzantium or Rus: a, b.

feature vertical rims with their edges folded inwards. On the preserved fragments, traces of gilded horizontal lines and stripes can be seen.

The artefacts from Silesia can thus be divided into three main groups:

1. Islamic enamelled glass, imported from Syro-Palestine
2. Enamelled glass from Western Europe, the so-called Alderverdinii-type vessels
3. Enamelled glass of Eastern origin, imported from either Byzantium or Ruthenia

This division was based on the observed morphological and typological features as well as the results of chemical composition analyses. The following features were taken into consideration: vessel form, transparency level, and the colour of the material. Also taken into account were the technological traces and decoration represented on the finds, including their type, colour, and style.¹⁷

CHEMICAL ANALYSES

The chemical composition of eight artefacts from Wrocław – two from Ostrów Tumski and six from Nowy Targ square – was examined. In the case of the six finds from Nowy Targ square, we obtained a full composition¹⁸. In addition, we received semiquantitative results¹⁹ from two fragments²⁰. Full elemental analyses were performed on the basis of an x-ray-related

method using the Electron Probe Micro-Analyser (EPMA) CAMECA Sx 100. The analysis was conducted under the following conditions: acceleration voltage 15 kV (electron energy 15 keV), beam current 10 nA, and beam width on the sample (spot) 15 microns. These conditions were controlled on different models of synthetic oxides and natural minerals and glass.²¹ The obtained results are shown in table 1. One glass fragment (inv.no. 11691/11) was examined based on a non-invasive survey that was performed using an electron scanning microscope JEOL JSM-6380LA connected to an EDS electron microprobe analyser. The analysis was carried out in the following conditions: Acc Volt (acceleration voltage) 20 kV; LC (electron gun current) 65 mA, WD (working distance) 10 mm; duration of the analysis 100 seconds (live time). Elemental analyses, along with the appropriate images acquired in the light of backscattered electrons (BEI COMPO), were performed using a low-vacuum SEM technique (in this case 40 Pa). This technique does not require a dust covering of the objects, which makes the analyses free of any peaks that come from an element used for covering the samples in standard SEM examinations. The obtained results – EDS spectres with microscopic photography – are shown in figure 4. Laboratory research enabled us to define the main glass forming components as well as the used colouring ions, decolourisers, and substances that make the glass non-transparent. Also, specific kinds and types of glass were distinguished and, based on methods of interpreting the results of the archaeological glass elemental analysis discussed in the literature,²² the obtained results were compared to those of similarly dated glass artefacts from Europe and the Middle East.

Group I – Islamic enamelled glass²³

Three artefacts can be included in this group: the bowl from Opole-Ostrówek decorated with ornate Arabic inscriptions (fig. 1a), the fragment of a mosque lamp from Wrocław-Ostrów Tumski (fig. 1b), and the fragment of a beaker or a lamp from Nowy Targ square (fig. 1c). The two pieces from Wrocław are decorated with convoluted floral ornaments and are made of yellow-

17 See catalogue. Find No. 2 was provided by the Institute of Archeology and Ethnology of the Polish Academy of Sciences, Wrocław, while Nos. 3–15 were provided by the Institute of Archeology University of Wrocław.

18 Inv.no. 2779/52; 2972/11; ? /11; 3360/11; 1770/11; 2564/11.

19 Including one archival analysis. The survey of a sapphire-coloured gilded glass bowl was carried out in the 1970s at the Wrocław University of Technology by Dr A. Idzikowski (Kaźmierczyk et al. 1974, 264).

20 Inv.no.: 11691/11; ?/1972.

21 Purowski 2012, 47; Purowski et al. 2012; Siemianowska 2020, 197.

22 See also: Szczapowa 1973, 1983, 29–30; Dekówna 1980, 31–32; Ciepela Kubalska/Stawiarska 2005; Černá et al. 2012; Dekówna/Purowski 2012; Purowski 2012, 45–50; Wajda 2013; 2014, with further references.

23 For further information see Siemianowska/Sadowski 2017.

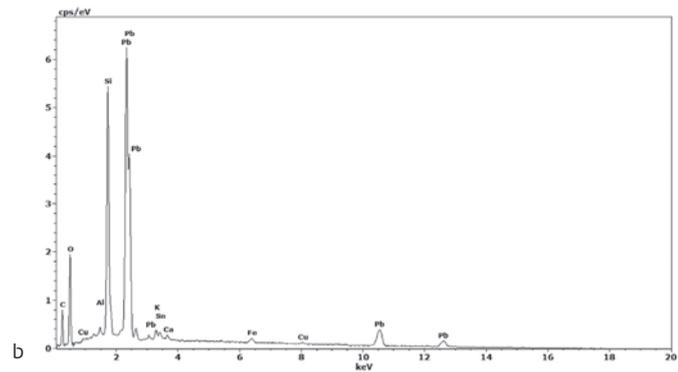
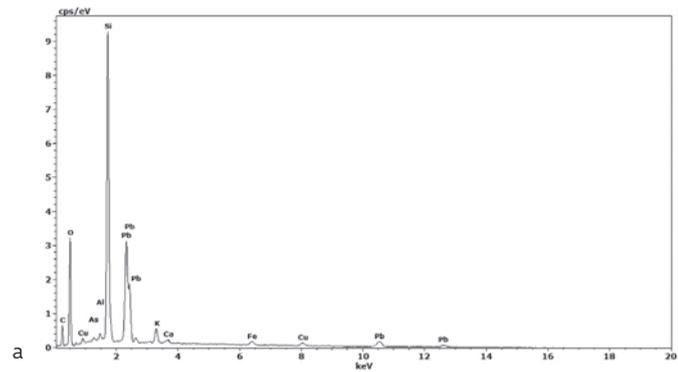
ish glass with relatively thick walls.²⁴ Considering the chemical composition, the examined fragments might be classified as sodium-calcium-silicate glass (see table 1) for the production of which halophyte ash was used.²⁵ The Middle Eastern origin can be also proved by a high concentration of chlorine and manganese oxides in the surveyed glass as well as the gilded decoration. This type of glass is typical for Syro-Egyptian workshops in the 13th–14th centuries that were at the time controlled by the Ayyubid dynasty and the Mamluk Sultanate.²⁶

Group II – Alderwerdini-type beakers

Nine pieces of beakers from Nowy Targ square in Wrocław are most likely to be associated with Western European workshops located in Northern Italy and Murano (fig. 2).²⁷ Despite their fragmentary state of preservation, we can undoubtedly state that they come from relatively low and thin-walled vessels with their rims slightly folded outwards. Their glass is transparent and colourless. Unfortunately, their painted decoration is barely preserved; yet floral, geometric, and possible heraldic motifs are visible. The chemical composition of the three pieces was analysed (See table 1) and, similar to the case of group I, the vessels were made of sodium-calcium-silicate glass. A comparative analysis showed that their chemical composition is very similar to glass produced in the area of Northern Italy.²⁸

Group III – Enamelled glass from Byzantium and Ruthenia

Three vessels from Wrocław can be connected with the last group: two of them come from Nowy Targ square (fig. 3a–b) and one from Ostrów Tumski (fig. 3c). They are all parts of wide-mouthed vessels, presumably bowls, lamps, or beakers. As mentioned above, the preserved fragments of rims are folded inwards. They are decorated with horizontal lines and stripes of golden enamel (fig. 3a–b) or gilding with a painted convoluted floral ornament (fig. 3c). This group is the most diverse in terms of chemical composition, as it includes potassium-lead-silicate glass and sodium-lead-silicate glass (See table 2; fig. 4). Cracks that form a kind of net on the surface of the discussed pieces seem to be typical of lead and lead-potassium glass from Ruthenia and Byzantium.²⁹



4 The results of analyses of the chemical composition of enamelled glass vessels.

DIRECTIONS AND CIRCUMSTANCES OF THE IMPORT OF ENAMELLED GLASS INTO SILESIA IN THE 13TH–14TH CENTURIES

In the cases of Central and Central-Western Europe, a specific trend is visible: nearly all enamelled late medieval glass known from this area comes from excavations in castles, strongholds, monasteries, and marketplaces or from areas in their close proximity. These pieces were all found in regional centres of political, religious, or economic significance along important trade routes, and in Hanseatic towns.

24 See also: Baumgartner/Krueger 1988, 120–125; Černa et al. 2012, 403; Sedláčková et al. 2014, 244.

25 Freestone/Stapleton 1998, 122; Wedepohl et al. 2007, 266.

26 See also: Wedepohl 2003, 103–106; Wedepohl et al. 2007, Tab. 1; Gueit et al. 2010, 1744; Siemianowska/Sadowski 2017, with further references.

27 Baumgartner/Krueger 1988, 126–160; Sedláčková et al. 2014, 242–243.

28 See also: Verita 1995, tab. 2.

29 See also: Pankiewicz et al. 2014, with further references.

These luxury objects travelled to such places most probably as a result of far-reaching trade or political relations. Some scholars put forward that they could have been gifts from a foreign ruler or a souvenir brought from either the crusades or from popular late medieval pilgrim destinations. Other possibilities, however, cannot be completely excluded. In the 13th century, Silesian cities were based on German law (Magdeburg law), which contributed to a real

socio-economic revolution. That resulted in the cultural enrichment due to the increased contact with foreign communities, the emergence of a prosperous bourgeoisie, and the establishment of a specialized merchant class. The enamelled glass described in this article could therefore be a response to the societal and cultural changes taking place in medieval Silesia, while also reflecting the new tastes in fashion and the growing demand for luxury products.³⁰

CATALOGUE

1 Mosque lamp

Fragment, transparent glass with a clear yellow colour (?). The decor of the mosque lamp is gilded with colourful enamels depicting floral motifs. The following inscription is also visible: "mewla is the sultan"; Fig. 1a. Prov.: Syria, or Egypt. Comm.: Islamic glasses with enamel. Context: Neighborhood of Piast castle (14th–15th centuries). Ref.: Raschke 1938; Hołubowicz 1956: 251, fig. 101); Dekówna 1962, 242); Siemianowska – Sadowski, 2017.

2 Mosque lamp

Fragment, transparent glass with a clear yellow colour. Wall thickness 2,7–3,6 mm. Small bubbles are visible within the glass. The decor of the mosque lamp is gilded with colourful brown and white enamels depicting motifs of circles and palmettes; fig. 1b. Chem. comp.: SiO₂-Na₂O-CaO, Prov.: Syria, or Egypt. Comm.: Islamic glasses with enamel. Inv. No.: 2799/52, Context: Trench VI, layer No 3 (second half 13th–14th centuries). Ref.: table 1b; Siemianowska 2015c, 85; Siemianowska – Sadowski 2017.

3 Bowl/lamp

Fragment, transparent glass of sapphire colour. Wall thickness 3–4 mm. This glass is decorated with paint and the ornamental pattern is gilded. The bright gold gilding has survived on the vessel's surface in the form of small scales. The decoration of circles, floral motifs, and possibly a fragment of an inscription; fig. 3c. Chem. comp.: SiO₂-Na₂O-PbO, Prov.: Byzantium, or Rus. Comm.: Enamelled glass of Eastern provenance. Inv. No.: ? /72, Context: Trench I, layer D, concentration of glass (mid-13th century). Ref.: Kaźmierczyk et al. 1974: 260–264, 271; Pankiewicz et al. 2014, 195.

4 Mosque lamp

Two fragments, transparent glass with a clear yellow colour. Wall thickness 2–3 mm. Small bubbles are visible within the glass. The decor of the mosque lamp is gilded and features brown, green, yellow, and white enamels depicting motifs of circles, plants, and palmettes; fig. 1c. Chem. comp.: SiO₂-SiO₂-Na₂O-CaO, Prov.: Syria, or Egypt. Comm.: Islamic glasses with enamel. Inv. No.: 2972/11, Context: Medieval marketplace; 74c, layer 19 (14th century).

5 Bowls/lamps or beakers

Two fragments, preserved fragments are rims that are folded inwards. Wall thickness 1–2, 8 mm. transparent glass of yellow colour. This glass is decorated with gold paint and gilded horizontal lines. Characteristic network of cracks on the surface; fig. 3a. Chem. comp.: SiO₂-Pb-K₂O, Prov.: Byzantium, or Rus. Comm.: enamelled glass of Eastern provenance. Inv. No.: 2564/11, Context: Medieval marketplace; 93b, layer 72 (13th century).

6 Bowls/lamps or beakers

Two fragments, preserved fragments preserved fragments are rims that are folded inwards. Wall thickness 1–3 mm. Transparent glass of green colour. This glass is decorated with gold paint and was gilded in horizontal lines. Characteristic network of cracks on the surface; fig. 3b. Chem. comp.: SiO₂-Pb-K₂O, Prov.: Byzantium, or Rus. Comm.: Enamelled glass of Eastern provenance. Inv. No.: 11691/11, Context: Medieval marketplace; 84a, layer 352 (13th century).

7 Beakers

Fragment, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow and white geometrical motifs. Prov.: Murano/Venice? Comm.: Enamelled glass from Western Europe, such as Alderverdinii type. Inv. No.: 67/11, Context: Medieval marketplace; 83, layer 7 (14th century).

8 Beakers

Fragment, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow, white, black, and pink geometrical and floral motifs; fig. 2f. Prov.: Murano/Venice? Comm.: Enamelled glass from Western Europe, such as Alderverdinii-type. Inv. No.: 3474/11, Context: Medieval marketplace; 85A, layer 19 (14th century).

9 Beakers

Two fragments, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow, white, black, and pink geometrical motifs; fig. 2g. Prov.: Murano/Venice? Comm.: enamelled glass from Western Europe, such as Alderverdinii-type. Inv. No.: 3512/11, Context: Medieval marketplace; 23A, layer 19 (14th century).

10 Beakers

Two fragments, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow, white, and black geometrical and floral motifs; fig. 2e. Prov.: Murano/Venice? Comm.: Enamelled glass from Western Europe, such as Alderverdinii-type. Inv. No.: 8446/11, Context: Medieval marketplace; 32A, layer 22 (14th century).

11 Beakers

Two fragments, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow, pink, and black floral motifs; fig. 2a. Chem. comp.: SiO₂-Na₂O-CaO, Prov.: Murano/Venice? Comm.: enamelled glass from Western Europe, such as Alderverdinii-type. Inv. No.: 1770/11, Context: Medieval marketplace (end of 13th–14th centuries).

12 Beakers

Two fragments, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow, pink, and black geometrical motifs; fig. 2b. Chem. comp.: SiO₂-Na₂O-CaO, Prov.: Murano/Venice? Comm.: enamelled glass from Western Europe, such as Alderverdinii-type. Inv. No.: 3360/11, Context: Medieval marketplace (end of 13th–14th centuries).

13 Beakers

Two fragments, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow and black geometrical motifs; fig. 2d. Prov.: Murano/Venice? Comm.: Enamelled glass from Western Europe, such as Alderverdinii type. Inv. No.: 1270/11, Context: Medieval marketplace (end of 13th–14th centuries).

14 Beakers

Fragment, colourless glass. Wall thickness 1–1,5 mm. Small bubbles are visible within the glass. The surface is painted with yellow, blue, and black heraldic motifs; fig. 2c. Chem. comp.: SiO₂-Na₂O-CaO, Prov.: Murano/Venice? Comm.: Enamelled glass from Western Europe, such as Alderverdinii-type. Inv. No.: WNT/11, Context: Medieval marketplace (end of 13th–14th centuries).

³⁰ See also: Steppuhn 1996, 326–329; Haggrén/Sedláčková 2007, 190–192; Černa et al. 2012, 407; Pankiewicz et al. 2014, 202; Siemianowska 2015b,

141; Siemianowska/Sadowski 2017; Siemianowska 2020; Sawicki/Siemianowska 2020.

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ABSTRACT

The late medieval enamelled glass finds presented in this paper, despite long-term and large-scale excavations of strongholds and towns, are still extremely rare in Silesia. At the time of writing, only 17 pieces have been discovered. Two were found in cultural layers on the site of Wrocław-Ostrów Tumski, one was found at Opole-Ostrówek, and 14 were found in the area of the late medieval marketplace of Wrocław-Nowy Targ square. Based on morphologic and typological features and supported by the results of chemical composition analysis, the finds can be divided into three groups. The first group includes Islamic enamelled glass, or the so called gilded-glass, imported from the area of present-day Syro-Palestine. Finds of this group are generally vessels with relatively thick walls, ornate Arabic inscriptions, and are composed of sodium-calcium glass. The Aldervertinii-type beakers belong to the second and biggest group and originated presumably in the Murano workshops of South-Western Europe. They are thin-walled, delicate, made of sodium-calcium glass, and decorated with painted geometric, floral, and heraldic motifs. The third group – which consists of glass objects of Eastern, Ruthenian, or Byzantine origin – is more complex than the previous two. On the one hand, the group includes vessels made of sodium-lead glass, and on the other hand it contains objects produced of lead-potassium glass. Finds from this group are wide-mouthed vessels (bowls, lamps, and

FIGURE CREDITS

Fig. 1 Inv. No: 2799/52; Institute of Archeology and Ethnology of the Polish Academy of Sciences; c – Wrocław – Nowy Targ, 14th century, Inv.No: 2972/11, Institute of Archeology, University of Wrocław, photo S. Siemianowska.

Fig. 2 Inv.No: a – 1770/11; b – 3360/11; c – absence; d – 1270/11; e – 8446/11; f – 3474/11; g – 3512/11; Institute of Archeology, University of Wrocław, photo S. Siemianowska.

Fig. 3 Wrocław – Nowy Targ, Institute of Archeology University of Wrocław; c – Wrocław-Ostrów Tumski, by: Kaźmierczyk at al. 1974, table 9:e; Inv.No: a – 2564/11; b – 11691/11; c – ?/72, photo S. Siemianowska.

Fig. 4 Inv. No. 11691/11; a, b – EDS spectrum, c – photography.

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beakers) decorated with gilding and enamel.

All enamelled glass objects discovered in Silesia were found in the close vicinity of castles, strongholds, or urban marketplaces. This undoubtedly shows that Wrocław and Opole played an active role in the dynamic transnational exchange that characterised 13th century central European commerce.

ZUSAMMENFASSUNG

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