

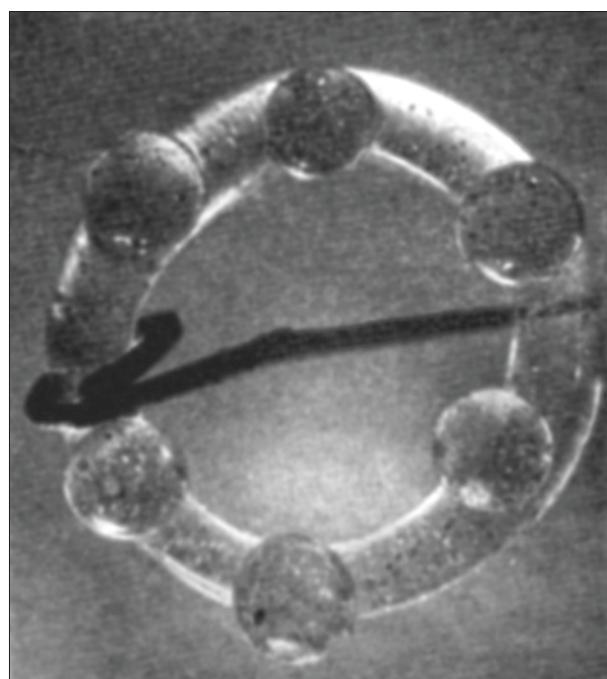
## CHANGE IN THE GLASS JEWELLERY PRODUCTION DURING THE 13<sup>TH</sup>-CENTURY REVOLUTION IN CENTRAL EUROPE. A CASE STUDY OF A UNIQUE GLASS ANNULAR BROOCH

The excavations of medieval residential centres are often abundant with unique finds that reflect far-reaching trade and political contacts, which is especially evident during transformation periods (Samsonowicz 2017; Siemianowska in print). Not all objects, even though they were found completely, have the chance to be insightfully studied. Some of them are affected by corrosion or unforeseeable occurrences, e.g. they get lost in unfortunate, or sometimes unexplained circumstances (Pankiewicz/Siemianowska/Sadowski 2017, 73-74). Things, just like people, have their biographies that can be presented based on various narrative styles (Appadurai 2013; Holtorf 2002; Kobińska 2017; 2018; Kopytoff 2013; Olsen 2010; Shanks 1998).

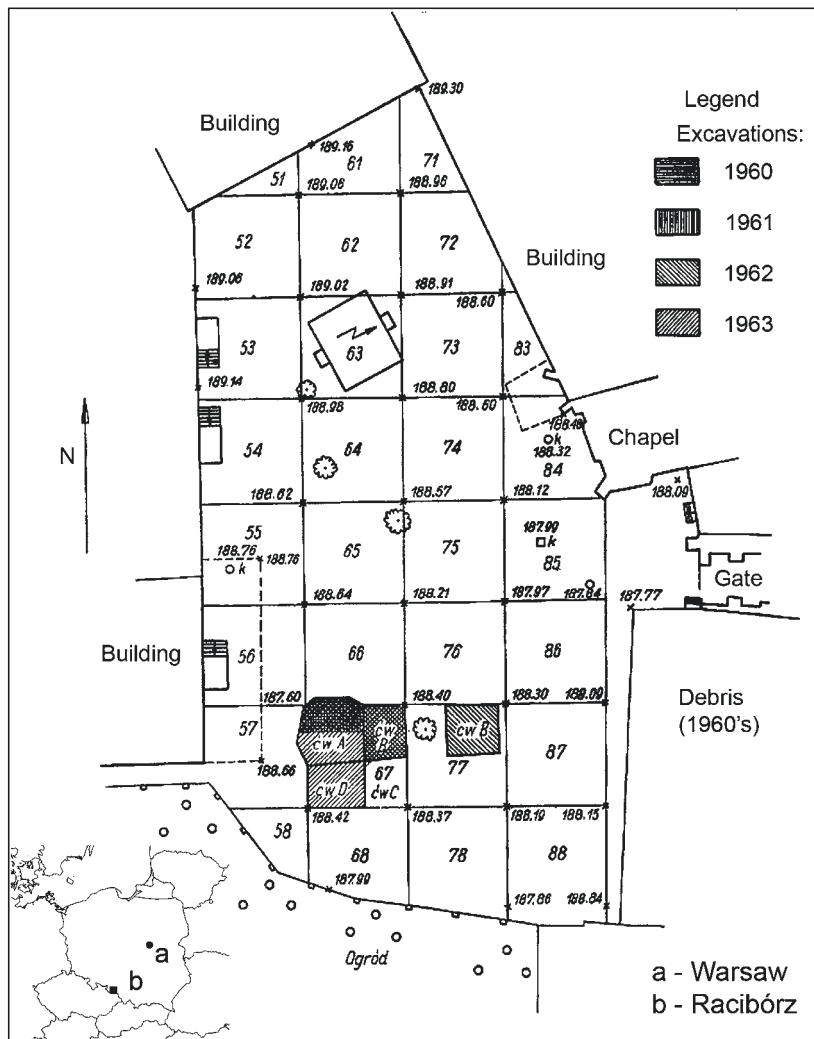
The main protagonist of our paper is a unique glass brooch (fig. 1). We discuss here the context of its production at the turn of the 13<sup>th</sup> century, as well as its discovery in the 1960s and its disappearance. Our aim is not only to trace the biography of this very artefact (Kopytoff 2013; Shanks 1998) but also first to outline issues connected with glass making and the production of glass jewellery and accessories at the turn of the 13<sup>th</sup> century. We would like to show, in this particular case study, how new fashion is changing former production traditions. According to the idea of the biography of things (Kopytoff 2013), we want to take a closer look at how the discussed brooch was produced, what was the cost and how it compares to other glass objects and jewellery. However, for the entire career (see Holtorf 2002) of the analysed brooch, we will start the story right from the middle.

### RACIBÓRZ, SOUTH-WESTERN POLAND, EARLY 1960S

Archaeological excavations at Racibórz-Ostróg (woj. śląskie/PL; fig. 2) – probably a two-part stronghold situated on an island, surrounded by a wood and earth rampart, replaced in the mid-13<sup>th</sup> century by a castle – were carried out both in the pre-war period (Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967)<sup>1</sup> and during the time of the »millennial« studies<sup>2</sup> and even later. In 1960-1966, systematic excavations were conducted at this site. They concentrated mostly on the southern part of the castle's courtyard and in front of the castle chapel's portal as well as beyond the courtyard (Nejowa 1961-1962; 1962;



**Fig. 1** Racibórz-Ostróg (woj. śląskie/PL). Glass brooch. – (After Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967, fig. 14). – Scale missing.



**Fig. 2** Racibórz-Ostróg (woj. śląskie/PL). Site grid on the castle's courtyard. – (After Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967, fig. 8).

1963; 1964; 1965/1966a; 1965/1966b; 1966). In 1963, archaeological-architectural studies were carried out (Kozłowski 1963; Kozłowski/Kutzner 1963; Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967, 51). Other excavations focused on the castle hill were conducted in the years 1985-1988 (Muzolf 1985; 1986; 1987; 1988). The latest research from 2009-2013<sup>3</sup> aimed only at determining the conditions of construction of a modern technical infrastructure.

### Glass brooch

During several years of excavation, numerous vessel fragments, items made of iron, leather, wood, bark, bone and antler, bronze, lead, and glass as well as coins were discovered (Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967). Nevertheless, no comprehensive monographic study on these objects, just like the site itself, exists. The discussed brooch (inv. no. 548 MR-A-1/6; **fig. 1**) was found in 1961 during the excavations of the castle's courtyard (**fig. 2**), in the layer dated to the 12<sup>th</sup>-early 13<sup>th</sup> century (Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967, 49. 55 tab. 1). The context in which the brooch was discovered indicates that it has »originally« a Slavic origin, as no other »imported« material culture was found. The object was initially stored in the mu-

seum in Racibórz, where it was later presented on an exhibition showing the results of the excavations of the local stronghold. Unfortunately, not long after the opening, the brooch disappeared. Right after it had been reported to the police, the artefact, or rather its damaged remains, were found in the place where it was originally exhibited. The remains of the object were placed again in the museum's repository. It has not been found so far, despite the great effort put into searching.

Based on the information on the artefact's data sheet and archival photographs (**fig. 1**), it can be assumed that the ring-shaped frame of the brooch, with a flat/convex cross-section, was made of transparent yellow glass with small air bubbles visible in the mass, using the winding technique. It is decorated with six, embedded in its body, semi-circular, irregular, green ornaments placed 3-4 mm apart from each other. To the frame, a straight spike, most probably made of thin iron wire, was attached. The brooch has following dimensions: the outer/inner diameter – 22 mm/15 mm; the width of the frame – 4 mm, the height – 3 mm; the diameter of the flattened green balls – 4 mm, the height – 3 mm. It should be emphasized that according to the current state of knowledge it is – or rather was – a unique find.

### **CENTRAL EASTERN EUROPE, THE TURN OF THE 13<sup>TH</sup> CENTURY**

Both the item's form and its decoration are typical in the context of high and late medieval European brooches. No comprehensive synthesis of this kind of object was published; however, studies by the following authors give a good idea of the subject: K. Wachowski (2007; 2011; 2012; 2013), S. Krabath (2001), J. Sawicki (2017), as well as various publications on hoards from Central Europe<sup>4</sup> (Krabath/Lambacher/Kluge 2006; Ostritz/Speitel 2010; Prokisch/Kühtreiber 2004).

The situation is different regarding the material used for the production of the discussed brooch. Metal brooches decorated with coloured glass paste or glass gemstones (see also: Scholz 2015)<sup>5</sup> are known, even though not from the region in question, but those entirely made of glass are undoubtedly rare.

Brooches, as the Polish (*zapinka*) and German (*Spange*) terms, indicate »to fasten«, were supposed to serve utilitarian purposes – to pin clothes or cloaks, and in this convention, apart from the symbolic meaning and connotations connected with demonstrating status, they were shown in iconographic depictions (Wachowski 2012). A small glass brooch (outer diameter: 22 mm) with a construction where the weight of the cloth rested upon the spike that pressed the frame, had a difficult task to fulfil, as not much cloth could fit in. Furthermore, the glass could have got crushed and damaged under the tension of heavier textile and iron wire. That is why we may suppose that the object was most likely a pin – just an ornament used to probably decorate a neckline of a robe. It should be stressed that there are many such small brooches in late medieval collections. The collection from pl. Nowy Targ (New Market Square) in Wrocław (woj. dolnośląskie/PL) where 19 out of 49 brooches have a diameter smaller than 30 mm can be an example.

K. Wachowski also pays attention to the problem of the »atypical« way of using brooches (Wachowski 2012), pointing out the examples of using them as pendants, hangers at rosaries, a symbol of a knightly order's badge or even potentially a belt buckle. To complete the reflections, it is worth mentioning that a brooch (or a buckle) made of a riveted ring from a chain-mail armor is known from Wrocław (**fig. 3**).

### **Glass production in Central Europe at the turn of the High Middle Ages**

In the context of minor glass production in Central and Central Western Europe, various types and sizes of beads, rings with gemstones, band rings, and simple rings as well as glass gemstones were typical products



**Fig. 3** Wrocław (woj. dolnośląskie/PL), pl. Nowy Targ (New Market Square). Brooch (buckle) made of a riveted ring from a chain-mail armor, c. 1270-1330. City Museum of Wrocław, Department of Archaeology, inv. no. 3591/11. – (After Sawicki 2017, fig. 79). – Scale 3:1.

especially rings and beads – almost entirely disappeared in Silesia and Bohemia. It seems to be one of the most evident changes in the »minor« material culture in this cultural zone, where also temple rings disappear with a new »western« or »Gothic« (Ruttikay 1989) style. Instead, completely new objects appear, sometimes symbolically referring to the courtly culture (Sawicki 2014; 2015) or being the core of the new urban lifestyle (see Sawicki 2017). Mass-produced dress accessories and jewellery were only additionally decorated with glass, or niello, which is sometimes hard to distinguish from the glass without chemical analyses (Miazga 2014; 2017; see Sawicki 2017, figs 433-434).

In this context, the brooch from Racibórz appears to be another interesting example of following »new« models using »old« techniques.

### Jewellery with embedded glass

In the existing sources as well as literature, it was often stressed that glass of a particular colour was used to imitate precious gemstones. Intensive green imitated emerald (Krueger 2014, 73. 78. 83), saturated blue – lapis lazuli (Reade 2007), safflower colour – hyacinths, yellow – amber or gold, especially when combined with metal foil (Pankiewicz/Siemianowska/Sadowski 2017, 43). The practice of replacing gemstones with their glass imitations or glass paste had been well-known since ancient times (Filarska 1959; Reade 2007). Theophilus Presbyter (Prezbiter 1998, book XXVIII – *De gemmis picto vitro imponendis*) describes glass imitations of gemstones as follows: »In figures upon windows, in crosses or books, or in ornament of draperies, if you wish to make gems of another colour upon painted glass, without the lead, such as hyacinths and emeralds, you may act this manner. When you have designed crosses in their places, upon the head of majesty or on a book, or ornaments upon the border of draperies, which in a picture are made with gold or pigment, these in windows are made with clear yellow glass. When you have painted which in the artistic manner, you determine the places in which you wish to lay the stones, and taking small pieces of clear sapphire, from with them hyacinths according to the size of their places, and emeralds from green glass, and act so that an emerald may always stand between two hyacinths. Which being carefully joined together and made firm in their places, paint a thick colour round them with the pencil, so that none may flow between the two glasses, and so, with the other portions, heat them

until the mid-13<sup>th</sup> century (Černa/Tomkova 2017; Dekówna 2007; Markiewicz 2006; Mecking 2013; Pankiewicz/Siemianowska/Sadowski 2017). Especially important seem to be rings whose construction resembles the discussed brooch – ring-shaped frame, sometimes with a semi-circular ornament in the form of a gemstone (fig. 4).

Exceptional are glass bracelets and earrings imported from Islamic, Byzantine or Eastern European workshops (Antonaras 2012; Cressier 1993; Lavysh 2017; Lora Hernández/Malalana Ureña 2014; Stolyarova 2016; 2017; Zanon 2013) as well as lunulas, known from Ruthenia and the territories of the modern Baltic Countries.

Together with the incorporation of towns under German law, the production of glass jewellery – especially rings and beads – almost entirely disappeared in Silesia and Bohemia.



**Fig. 4** Legnica (woj. dolnośląskie/PL). Glass ring with a gemstone, c. 900-1100. The collection of the Copper Museum in Legnica, inv. no. ML/A/3000. – (Photo S. Siemianowska). – Scale 2:1.

in the furnace; and they will adhere to each other so that they can never fall off« (translated by Hendrie 1847, 153. 155).

Glass techniques were systematically improved and perfected, which led to the emergence of new glass types that were supposed to imitate not only precious emeralds, rubies or sapphires but also semi-precious and decorative stones, rock crystal, amber or pearls (Nowak/Kulesza/Grupa 2018, 102-103; Polak 1981, 127-133; Torzewski 2002, chapter VI). Was then the yellow-green decoration from Racibórz-Ostróg a relatively cheap substitute for a golden brooch decorated with emeralds? Considering its unique character, such an option should be taken into account. Probably it would not be the only example of a glass imitation of non-ferrous metals known from Silesia. A similar function could have had glass signets and rings with gemstones from Wrocław and Opole (woj. opolskie/PL; Pankiewicz/Siemianowska/Sadowski 2017, 78-87), or face beads discovered during the excavations in the Old Town in Głogów (woj. dolnośląskie/PL; Kowalczyk/Siemianowska 2018)<sup>6</sup>.

### **The brooch's value and place of production**

The place of production of the brooch from Racibórz and its potential value are also interesting issues to be studied. The latter might be also connected with the question of whether it was a local product or an import. Additionally, if so, where did it come from? Undoubtedly, analyses of glass used for the production would significantly help with solving this problem; however, as it was mentioned in the introduction, it is impossible to perform them. At this point, it is worth recalling the analyses of similar finds. These are glass stones that could have been originally placed in rings or brooches. They are known, among others, from the excavations in Opole-Ostrówek and Wrocław (Ostrów Tumski and pl. Nowy Targ – New Market Square). They were usually made using the so-called drop technique from glass in the following shades: yellow, green, white, black and turquoise. In Opole, they occurred in the layers dated from the second quarter of



**Fig. 5** Wrocław (woj. dolnośląskie/PL), pl. Nowy Targ (New Market Square). Brooch with pseudo-stones/glass, c. 1220-1270. City Museum of Wrocław, Department of Archaeology, inv. no. 11055/11. – (After Sawicki 2017, fig. 409). – Scale 2:1.

the 11<sup>th</sup> century to the mid-12<sup>th</sup> century<sup>7</sup>. Chemical composition analyses<sup>8</sup> of five glass gemstones from Opole-Ostrówiek and one from Ostrów Tumski in Wrocław revealed that they were produced using the following recipes: lead<sup>9</sup>, lead-potassium<sup>10</sup>, potassium-calcium<sup>11</sup> and soda-lime<sup>12</sup> (Siemianowska in print). The results are similar as it was in the case of glass rings with gemstones, band rings, and rings from the same residential centres of Silesia. This indicates an evident correlation between the chemical composition of glass and its colour (see also: Pankiewicz/Siemianowska/Sadowski 2017, 33-34; Siemianowska in print), which may indirectly prove a local production of these decorations. The description in the data sheet reveals that the brooch from Racibórz was also yellow, decorated with green gemstones.

As we mentioned earlier, in the case of this brooch, taking into account its unique character and the worth of precious metal, we can only suggest that

it was a rather costly item, however, it is difficult to estimate its value in comparison to golden or silver objects. It is also noteworthy that jewellery monolithically made of precious stones were considered to be the most valuable, as it was pointed out by the poet Wirnt von Grafenberg at the beginning of the 13<sup>th</sup> century (Blaschitz/Krabath 2004).

Most probably also other accessories decorated with glass enamel were of higher value than their undecorated equivalents. Theophilus Presbyter (Prezbiter 1998, book XXXI – *de annulis*) describes the technique as follows: »[...] You can also place upon a ring glass of another kind, as a gem, and warm it in the flame that it may adhere« (translated by Hendrie 1847, 159).

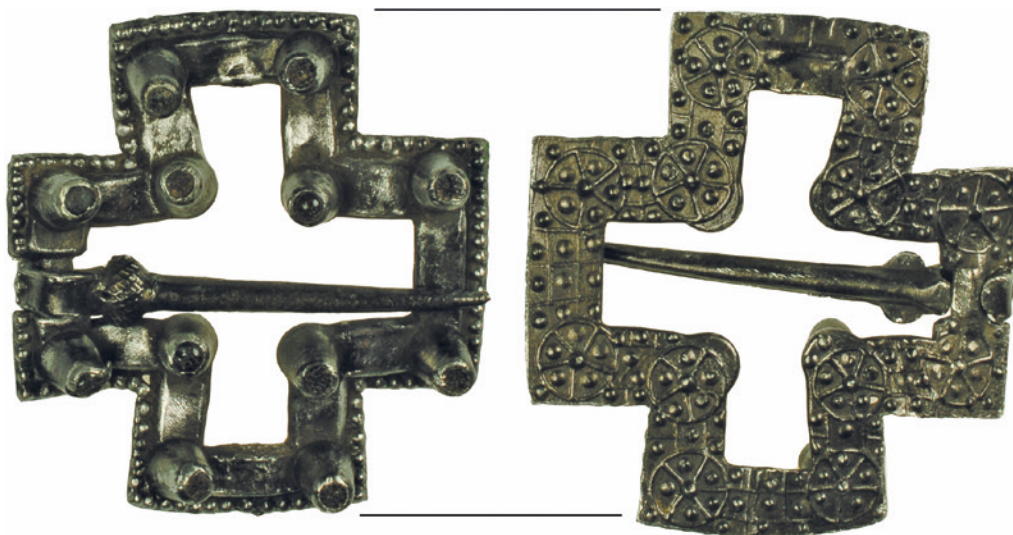
Interesting in this context are brooches known from Wrocław, pl. Nowy Targ (New Market Square) which have pseudo-gemstones collets, with frames cast straight in a mould (Sawicki 2017, cat. no. 409; **fig. 5**). Some also have simple collets cast with a hollow – as for placing enamel (Sawicki 2017, cat. nos 427. 455; **figs 6-7**). However, those are objects made of tin-lead alloy, so of low fusibility, which excludes the possibility of using this technique. The glass would have been rather mounted with putty as in the case of jewels from the Fuchsenhof hoard (Upper Austria).

Moreover, simple frames are known – cases with spikes entirely cast using tin alloy. A fragment of a diadem (**fig. 8**) from pl. Nowy Targ (New Market Square) in Wrocław can be an example.

## **SUMMARY: CENTRAL EASTERN EUROPE, THE SECOND DECADE OF THE 21<sup>ST</sup> CENTURY**

The brooch from Racibórz is an intriguing example of an object with a rich and interesting biography (unfortunately, already finished).

On the one hand, it shows well some changes in fashion that started at the beginning of the 13<sup>th</sup> century and lasted for the next 100 years, however, it was produced in the traditional technology. The new form of decoration was acquired using the old technique typical of the local jewellery.



**Fig. 6** Wrocław (woj. dolnośląskie/PL), pl. Nowy Targ (New Market Square). Brooch with collets, c. 1220-1270. City Museum of Wrocław, Department of Archaeology, inv. no. 2218/11. – (After Sawicki 2017, fig. 455). – Scale 3:2.



**Fig. 7** Wrocław (woj. dolnośląskie/PL), pl. Nowy Targ (New Market Square). Brooch with collets, 13<sup>th</sup> - 14<sup>th</sup> century. City Museum of Wrocław, Department of Archaeology, inv. no. 11250/11. – (After Sawicki 2017, fig. 427). – Scale 3:2.



**Fig. 8** Wrocław (woj. dolnośląskie/PL), pl. Nowy Targ (New Market Square). Diadem with framed glass gemstones, find without context, probably 13<sup>th</sup> - 14<sup>th</sup> century. City Museum of Wrocław, Department of Archaeology. – (After Sawicki 2014, fig. 40b). – Scale 1:1.

On the other hand, the story of this object shows the sad fate of some artefacts – items that became missing in the distant past and lost again in the present day.

### Acknowledgements

The research was financed by the National Science Centre grant: »Social and economic changes of the incorporation period in the light of glass finds from Silesian residential centres«, agreement no. UMO-2013/09/N/HS3/01001, the Institute of Archaeology and Ethnology of the Polish Academy of Sciences in connection with the *Adulescentia est tempus discendi* contest for financing research

and related tasks, which is aimed at supporting the development of young researchers and Ph.D. candidates in 2018, agreement no. 8/ATD8/MN/2018 as well as project no. 18-26503S of the Czech Science Foundation.

We would like also to thank reviewers for all the comments and guides concerning this text.

## Notes

- 1) Carried out by G. Raschke, before 1945.
- 2) The studies conducted in the 1960s in Poland on the occasion of the 100<sup>th</sup> anniversary of the Baptism of Poland.
- 3) See also: [www.zamekpiastowski.pl/site/index/129/178.html](http://www.zamekpiastowski.pl/site/index/129/178.html) (24.3.2020).
- 4) Recent publications indicate the discovery of objects of similar form and size found in the layers of medieval Brno. Glass rings made of transparent green and yellow glass, decorated with additional, melted bumps are dated to 1240-1270 (Sedláčková 2019, fig. Me-22-15-18, 465, 469).
- 5) See also: King 2015 and other similar finds from Great Britain.
- 6) Accepting the 14<sup>th</sup>-century chronology for the beads from Głogów, it should be considered whether they could have been glass imitations of metal applications occurring in diadems at that time (cf. Kowalczyk/Siemanowska 2018, fig. 1 with Sawicki 2014, fig. 43).
- 7) Opole-Ostrówek, inv. nos 279/51; 58/52; 88/52; 2655/54; 1131/60; 199/66; 1565/69; Wrocław, Ostrów Tumski inv. no. 296/54. The collection of the Centre for Late Antique and Early Medieval Studies of the Institute of Archaeology and Ethnology of the Polish Academy of Sciences.
- 8) The chemical composition analysis was carried out thanks to the grants financed by the National Science Centre: Preludium – »Social and economic changes of the incorporation period in the light of glass finds from Silesian residential centres«, agreement no. UMO-2013/09/N/HS3/01001 and Sonata Bis – »Early Polish glass-making in the light of finds from Silesian stronghold complexes«, agreement no. UMO-2013/10/E/HS3/00121. For the methods and conditions of the analyses see: Siemanowska 2015, 274; Pankiewicz/Siemanowska/Sadowski 2017, 20-21.
- 9) Yellow, probably alkaline glass (presence of potassium and calcium peaks); inv. nos OO 1131a/60 and OO 279/51.
- 10) Turquoise glass; inv. no. OO 58/52.
- 11) Yellow and black glass; inv. nos OO 88/52 and OO 1565/69.
- 12) White gemstone; inv. no. WOT 296/54.

## References

- Antonaras 2012: A. C. Antonaras, Middle and Late Byzantine Jewellery from Thessaloniki and its Region. In: B. Böhlendorf-Arslan / A. Ricci (eds), *Byzantine Small Finds in Archaeological Contexts. Byzas 15* (Istanbul 2012) 117-126.
- Appadurai 2013: A. Appadurai (ed.), *The social life of things: commodities in cultural perspective* (Cambridge 2013).
- Černa/Tomkova 2017: E. Černa / K. Tomkova, On the road from the Early to High Middle Ages: Glass of the 9<sup>th</sup>-13<sup>th</sup> centuries in Bohemia. *Archaeologia Polona* 55, 2017, 189-209.
- Cressier 1993: P. Cressier, Humildes joyas: pulseras de vidrio en una casa andalusí de Senés (Almería). *Revista del Centro de Estudios Históricos de Granadas y su Reino* 7, 1993, 67-84.
- Dekówna 2007: M. Dekówna, Wczesnośredniowieczne ozdoby szklane ze zbiorów Państwowego Muzeum Archeologicznego, na tle ogólnej problematyki rozwoju szklarstwa. In: W. Brzeziński (ed.) *Skarby wieków średnich. Katalog wystawy* (Warszawa 2007) 52-87.
- Filarska 1959: B. Filarska, Starożytne inkrustacje ze szkła. *Rocznik Muzeum Narodowego w Warszawie* 4, 1959, 221-238.
- Hendrie 1847: R. Hendrie, An essay upon various arts in three books by Theophilus, called also Rugerus, priest and monk (London 1847).
- Holtorf 2002: C. Holtorf, Notes on the Life History of a Pot Sherd. *Journal of Material Culture* 7/1, 2002, 49-71.
- King 2015: P. King, PUBLIC-5B689E: A Medieval Brooch. <https://finds.org.uk/database/artefacts/record/id/753951> (9.10.2018).
- Kobiałka 2017: D. Kobiałka, Kufer pełen wspomnień: (auto)biograficzne podejście do dziedzictwa. *Acta Universitatis Lodziensis. Folia Archaeologica* 32, 2017, 191-213.
- 2018: D. Kobiałka, 100 years later: the dark heritage of the Great War at a prisoner-of-war camp in Czersk, Poland. *Antiquity* 92/363, 2018, 772-787.
- Kopytoff 2013: I. Kopytoff, The cultural biography of things: commoditization as process. In: Appadurai 2013, 64-92.
- Kowalczyk/Siemanowska 2018: E. Kowalczyk / S. Siemanowska, Mysterious glass face beads from Głogów in Lower Silesia. *Historické Sklo* 6, 2018, 51-64.
- Kozłowski 1963: J. Kozłowski, Sprawozdanie z prac sondażowych wczesnośredniowiecznych założeń obronnych na Ostrogu w Raciborzu w r. 1963. *Terenowe Badania Archeologiczne na Opolszczyźnie* 1963, 36-37.
- Kozłowski/Kutzner 1963: J. Kozłowski / M. Kutzner, Sprawozdanie z prac architektoniczno-wykopaliskowych prowadzonych w obrębie zamku raciborskiego. *Terenowe Badania Archeologiczne na Opolszczyźnie* 1963, 39-40.
- Krabath 2001: S. Krabath, Die hoch- und spätmittelalterlichen Buntmetallfunde nördlich der Alpen: eine archäologisch-kunsthistorische Untersuchung zu ihrer Herstellungstechnik, funktionalen und zeitlichen Bestimmung. *Internationale Archäologie* 63 (Rahden/Westf. 2001).
- Krabath/Lambacher/Kluge 2006: S. Krabath / L. Lambacher / B. Kluge (eds), *Der Pritzwalker Silberfund: Schmuck des späten Mittelalters [exhibition catalogue]. Bestandskatalog des Kunstgewerbemuseums* 23 (Pritzwalk 2006).
- Krueger 2014: I. Krueger, Islamisches Bleiglas und minā. *Journal of Glass Studies* 56, 2014, 61-84.
- Kuźniar-Niedźwiecka/Woźniak/Nejowa 1967: S. Kuźniar-Niedźwiecka / D. Woźniak / H. Nejowa, Racibórz w pradziejach i we wczesnym średniowieczu. In: M. Suboczowa (ed.), *Szkice z dziejów Raciborza* (Katowice 1967) 25-61.
- Lavysch 2017: K. A. Lavysch, Byzantine glass bracelets in Western Rus. *Archaeological finds from Belarus*. In: S. Wolf / A. de Pury-Gysel (eds), *Annales du 20<sup>e</sup> Congres de l'Association internationale pour l'histoire du Verre, Fribourg/Romont, 7-11 septembre 2015* (Rahden/Westf. 2017) 319-325.



- Lora Hernández/Malalana Ureña 2014: O. Lora Hernández / A. Malalana Ureña, Catálogo de un ajuar de brazaletes de vidrio de época nazarí (siglo XIII) perteneciente a los conjuntos funerarios de la calle Mendivil (Málaga). *Revista Portuguesa de Arqueología* 2014, 245-261.
- Markiewicz 2006: M. Markiewicz, Biżuteria szklana z wczesnośredniowiecznych cmentarzysk strefy chełmińsko-dobrzyńskiej. *Mons Sancti Laurentii* (Toruń 2006).
- Mecking 2013: O. Mecking, Medieval lead glass in Central Europe. *Archeometry* 55/4, 2013, 640-662.
- Miazga 2014: B. Miazga, Tin and tinned dress accessories from medieval Wrocław (SW Poland). X-Ray Fluorescence investigations. *Estonian Journal of Archaeology* 18/1, 2014, 57-62.
- 2017: B. Miazga, Zabytek archeologiczny jako źródło informacji o przeszłości: badania specjalistyczne śladów produkcji, użytkowania i depozycji artefaktów (Wrocław 2017).
- Muzolf 1985: B. Muzolf, Racibórz, woj. katowickie. Zamek-Ostróg. *Informator Archeologiczny: Badania* 19, 1985, 176.
- 1986: B. Muzolf, Racibórz, woj. katowickie. Zamek na Ostrogu. *Informator Archeologiczny: Badania* 20, 1986, 195.
- 1987: B. Muzolf, Racibórz, woj. katowickie. Zamek-Ostróg. *Informator Archeologiczny: Badania* 21, 1987, 205-206.
- 1988: B. Muzolf, Racibórz, woj. katowickie. Zamek-Ostróg. *Informator Archeologiczny: Badania* 22, 1988, 133.
- Nejowa 1961-1962: H. Nejowa, Sprawozdanie z badań w Raciborzu na Ostrogu w latach 1961-1962 prowadzonych przez Muzeum w Raciborzu. *Badania Archeologiczne na Górnym Śląsku i Ziemiach Pogranicznych w Latach 1961-1962* (1964), 39-42.
- 1962: H. Nejowa, Sprawozdanie z badań w Raciborzu na Ostrogu prowadzonych przez muzeum w Raciborzu w roku 1962. *Terenowe Badania Archeologiczne na Opolszczyźnie 1962*, 47-48.
- 1963: H. Nejowa, Sprawozdanie z badań wykopaliskowych na Ostrogu w Raciborzu w 1963 r. (wykop główny). *Terenowe Badania Archeologiczne na Opolszczyźnie 1963*, 36-39.
- 1964: H. Nejowa, Badania wykopaliskowe w Raciborzu na Ostrogu w 1963 roku. *Archeologiczne na Górnym Śląsku i Ziemiach Pogranicznych w Latach* 46, 1964, 75-80.
- 1965/1966a: H. Nejowa, Sprawozdanie z badań archeologicznych na Ostrogu w Raciborzu. *Terenowe Badania Archeologiczne na Opolszczyźnie 1965/1966* (1966), 40.
- 1965/1966b: H. Nejowa, Sprawozdanie z badań archeologicznych na Ostrogu w Raciborzu. *Terenowe Badania Archeologiczne na Opolszczyźnie 1965/1966* (1966), 11-12.
- 1966: H. Nejowa, Sprawozdanie z badań wykopaliskowych na Ostrogu w Raciborzu. *Opolski Rocznik Muzealny* 2, 1966, 143-150.
- Nowak/Kulesza/Grupa 2018: S. Nowak / A. Kulesza / M. Grupa, Biżuteria w płonkowskich grobach (Jewellery in Płonkovo graves). In: M. Grupa / K. Jarzęcki / W. Nowosad (eds), *Historia kościoła św. Oswalda w Płonkowie: History of St. Oswald church in Płonkovo* 2 (Płonkovo 2018) 93-105.
- Olsen 2010: B. Olsen, In defense of things: archaeology and the ontology of objects (Lanham 2010).
- Ostritz/Speitel 2010: S. Ostritz / E. Speitel (eds), *Die mittelalterliche jüdische Kultur in Erfurt* (Langenweißbach 2010).
- Pankiewicz/Siemanowska/Sadowski 2017: A. Pankiewicz / S. Siemanowska / K. Sadowski, Wczesnośredniowieczna biżuteria szklana z piastowskich ośrodków grodowych Śląska (Wrocław, Opole, Niemcza). In *Pago Silensi* 3 (Wrocław 2017).
- Polak 1981: A. Polak, *Szkło i jego historia* (Warszawa 1981).
- Prezbiter 1998: T. Prezbiter, *Diversarum Artium Schedula*. Średniowieczny zbiór przepisów o sztukach rozmaitych (Kraków 1998).
- Prokisch/Kühtreiber 2004: B. Prokisch / Th. Kühtreiber (eds), *Der Schatzfund von Fuchsenhof. Studien zur Kulturgeschichte von Oberösterreich* 15 (Linz 2004).
- Reade 2007: W. J. Reade, Imitation stone: why the oldest glass is blue. In: A. Betts (ed.), *The Past Uncovered* (Sydney 2007) 18-19.
- Ruttkey 1989: A. Ruttkey, Prvky gotickej módy v odeve a ozdobách dedinského obyvateľstva na území Slovenska (Horizont hrobov zo 14.-15. stor. v Ducovom, obec Moravany nad Váhom). *Archaeologia Historica* 14, 1989, 355-376.
- Samsonowicz 2017: H. Samsonowicz, Lokacje na prawie niemieckim na Śląsku w XIII wieku, In: D. Adamska / K. Chrzan / A. Pankiewicz, *Cum gratia et amicitia. Studia z dziejów osadnictwa dedykowane Pani Profesor Marcie Młynarskiej-Kaletynowej z okazji 65-lecia działalności naukowej* (Wrocław 2017) 175-177.
- Sawicki 2014: J. Sawicki, Średniowieczne świeckie odznaki w Polsce na tle europejskim = Medieval secular badges in Poland against the European background (Wrocław 2014).
- 2015: J. Sawicki, Richly Decorated Pewter Artefacts from Wrocław: Expressions of Cultural Transformation in the 13<sup>th</sup> Century. *Medieval Archaeology* 59, 2015, 212-232.
- 2017: J. Sawicki, Medieval dress accessories from Nowy Targ Square in Wrocław. *Catalogue of finds* (Wrocław 2017).
- Scholz 2015: A. K. Scholz, Modeschmuck und Statussymbol. In: R. Röber (ed.), *GlasKlar. Archäologie eines kostbaren Werkstoffes in Südwestdeutschland* [exhibition catalogue Konstanz] (Friedberg 2015) 196-205.
- Sedláčková 2019: H. Sedláčková (ed.), *Glass in Brno and Moravia, ca. 1200-1500. II: Catalogue of Glass* (Brno 2019).
- Shanks 1998: M. Shanks, The life of an artifact in an interpretive archaeology. *Fennoscandia Archaeologica* 15, 1998, 15-30.
- Siemanowska 2015: S. Siemanowska, Analiza zabytków szklanych i szklawionych z badań św. Idziego na Ostrowie Tumskim we Wrocławiu. In: A. Limisiewicz / A. Pankiewicz (red.), *In pago Silensi. Wrocławskie Studia Wczesnośredniowieczne* 1. *Kształtowanie się grodu na wrocławskim Ostrowie Tumskim. Badania przy ul. św. Idziego* (Wrocław 2015) 261-284.
- in print: S. Siemanowska, Przemiany społeczno-gospodarcze doby przełomu lokacyjnego na Śląsku. Szkło jako identyfikator zmian. In: K. Chrzan / P. Rzeźnik / S. Siemanowska (eds), *Ceramika i szkło w badaniach interdyscyplinarnych* (Wrocław in print).
- Stolyarova 2016: E. K. Stolyarova, *Stiekló sriedniewiekowej Moskwy: XII-XIV wieka: Medieval Moscov glass* (Moscow 2016).
- 2017: E. K. Stolyarova, Rare glass adornments of the pre-Mongolian period of the Old Rus. In: S. Siemanowska / K. Chrzan / P. Rzeźnik (eds), *The 3<sup>rd</sup> International Symposium on Pottery and Glass OSTRAKON* (Wrocław 2017) 13.
- Torzewski 2002: J. Torzewski, *Rozmowy o sztukach robienia szkła. Wznowienie po ponad dwustu latach pod redakcją Jerzego Olczaka* (Jelenia Góra 2002).

Wachowski 2007: K. Wachowski, Mon Cor Plesor. Symbolika przedstawień i napisów na średniowiecznych wyrobach kultury materialnej. In: S. Rosik / P. Wiszewski, Cor hominis. Wielkie namiętności w dziejach, źródłach i studiach nad przeszłością. Acta Universitatis Wratislaviensis 3049 (Wrocław 2007) 254-279.

2011: K. Wachowski, Blisko i daleko od morza. Kultura materialna miast hanzeatyckich. In: M. Adamczewski (ed.), Polska i Europa w średniowieczu: przemiany strukturalne: podmioty i przedmioty w badaniach historycznych (Warszawa 2011) 125-160.

2012: K. Wachowski, Symbolika zapinek w średniowieczu. In: J. Doležel / M. Wihoda (eds), Mezi raným a vrcholným středověkem. Pavlu Kouřilovi k šedesátým narozeninám přátelé, kolegové a žác (Brno 2012) 313-332.

2013: K. Wachowski, Emblemata mediaevalia profana: przykład Polski. Acta Universitatis Wratislaviensis 3509 (Wrocław 2013).

Zanon 2013: M. Zanon, Tyana/Kemerhisar (Niğde): Glass bracelets of the Byzantine and Islamic period. Anatolia Antiqua 21, 2013, 181-197.

## Zusammenfassung / Summary / Résumé

### Wandel in der Glasschmuckproduktion während der Revolution des 13. Jahrhunderts in Mitteleuropa.

#### Eine Fallstudie über eine einzigartige Ringfibel aus Glas

Bei Ausgrabungen in den 1960er Jahren wurde in der heutigen Burg von Racibórz-Ostróg eine einzigartige Fibel gefunden, die vollständig aus Glas besteht (mit Ausnahme einer Eisennadel). Hier wird die Biographie dieses mittelalterlichen Objekts (vom Zeitpunkt und Kontext des Fundes bis zu den Umständen seines Verlusts) diskutiert und mit anderem Glasschmuck aus der Region verglichen. In diesen Gebieten hat sich während der Zeit der sogenannten Revolution des 13. Jahrhunderts viel in der Herstellung und im Stil verändert – neue Moden brachen frühere Traditionen auf. Diese Fibel ist ein interessantes Beispiel für einen neuen (westlichen?) Stil, wurde allerdings unter Anwendung älterer Techniken hergestellt. Diese Traditionen sind auch an anderen Schmuckstücken aus der gleichen Zeit sichtbar, wie z. B. an Ringen. Am Ende des 13. Jahrhunderts scheint jedoch Schmuck, der vollständig aus Glas hergestellt wurde, zu verschwinden, und Glas (und Emaille) findet sich meist in Fassungen von Metallschmuck oder wird sogar vollständig durch farbige Metalllegierungen imitiert.

### Change in the Glass Jewellery Production during the 13<sup>th</sup>-Century Revolution in Central Europe.

#### A Case Study of a Unique Glass Annular Brooch

During excavations in the 1960s at the present castle in Racibórz-Ostróg a unique brooch, made entirely of glass (except an iron pin) was found. We discuss this medieval object's biography (from the moment and context of its finding to the circumstances how it was lost) and compare it to other glass jewellery from the region. In those territories during the time of the so-called 13<sup>th</sup>-century revolution much changed in the production and style – new fashions disrupted former traditions. This brooch is an interesting example of a new (western?) style but manufactured by the use of older techniques. Those traditions are also visible on other jewellery from the same period, such as rings. However, at the end of the 13<sup>th</sup> century jewellery made entirely of glass seems to disappear and glass (and enamel) are mostly found in sockets of metal jewellery, or are even entirely imitated using colour metal alloys.

### Changements dans la production de bijoux en verre lors de la révolution du 13<sup>e</sup> siècle en Europe centrale.

#### L'étude de cas d'une fibule annulaire en verre tout à fait unique

Lors de fouilles au château de Racibórz-Ostróg dans les années 60 fut découverte une fibule toute en verre (à l'exception de l'ardillon en fer) absolument unique. Nous abordons la biographie de cet objet médiéval (à partir du moment où il fut trouvé jusqu'aux circonstances de sa disparition) et le comparons à d'autres bijoux en verre de la région. Durant la «révolution du 13<sup>e</sup> siècle», ces territoires virent en effet de grands changements dans la production et le style – de nouvelles modes ont bouleversé les anciennes traditions. Cette fibule est un exemple intéressant d'un nouveau style (occidental?), mais fut fabriquée selon des techniques anciennes que l'on peut observer sur d'autres bijoux de la même période, comme les anneaux. Pourtant, les bijoux confectionnés uniquement en verre semblent disparaître vers la fin du 13<sup>e</sup> siècle. Le verre et l'émail apparaissent alors uniquement dans les cavités de bijoux en métal ou sont même entièrement imités en utilisant des alliages de métaux colorés.

Traduction: Y. Gautier

*Schlüsselwörter / Keywords / Mots clés*

Mittelalter / Glas / Fibel / Herstellung / Objektbiographie  
Middle Ages / glass / brooch / production / object biography  
Moyen Âge / glass / fibule / production / biographie de l'objet

**Jakub Sawicki**

Archeologický ústav AV ČR, Praha, v.v.i.  
Letenská 4  
CZ - 118 01 Praha 1  
sawicki@arup.cas.cz

**Sylwia Siemianowska**

Instytut Archeologii i Etnologii Polskiej Akademii Nauk  
Ośrodek Badań nad Kulturą Późnego Antyku  
i Wczesnego Średniowiecza  
ul. Więzienna 6  
PL - 50-118 Wrocław  
sylwiasiemianowska@wp.pl