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Rycina na okładce: malowany pucharek szklany
z Zaborowa, pow. warszawski zachodni. Rys. P. Holub

Cover picture: enamel-painted glass beaker
from Zaborów, distr. Warszawa Zachód. Drawn by P. Holub

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DOROTA SŁOWIŃSKA, KATARZYNA DEJTROWSKA, ULLA LUND HANSEN

A ROMAN PAINTED GLASS BEAKER FROM A PRZEWORSK CULTURE CEMETERY AT ZABORÓW, WESTERN MAZOWSZE*

MALOWANY PUCHAR SZKLANY Z CMENTARZYSKA KULTURY PRZEWORSKIEJ W ZABOROWIE NA ZACHODNIM MAZOWSZU

RESEARCH

The Museum of Ancient Iron Metallurgy in Pruszków (Polish abbreviation: MSHM) stores archaeological material from a Roman Period cemetery at Zaborów (site 21), comm. Leszno, distr. Warszawa Zachód (Fig. 1).

In spring of 1975, and later, in 1981, Stefan Woyda then director of the Museum had an aerial survey made of the prehistoric centre of iron metallurgy (S. Woyda 1977; *cf idem* 2002, p. 121, fig. 1); the same project also included the making of a photographic documentation of sites identified during archaeological field survey[1]. In the area of Zaborów the main focus of the aerial survey was a settlement recorded as site 22 (Fig. 2). Aerial photographs taken on this occasion (Fig. 3) revealed the presence to the north-east of the settlement, across a stream, of a regular discolouration surrounding a low elevation – *ca* 60 m in diameter – which in due course was recorded as Zaborów, site 21. A field investigation made at the site in 1984 did not bring expected results: only a small quantity of prehistoric pottery of undetermined chronology was recovered, along with some early medieval and medieval ceramics[2].

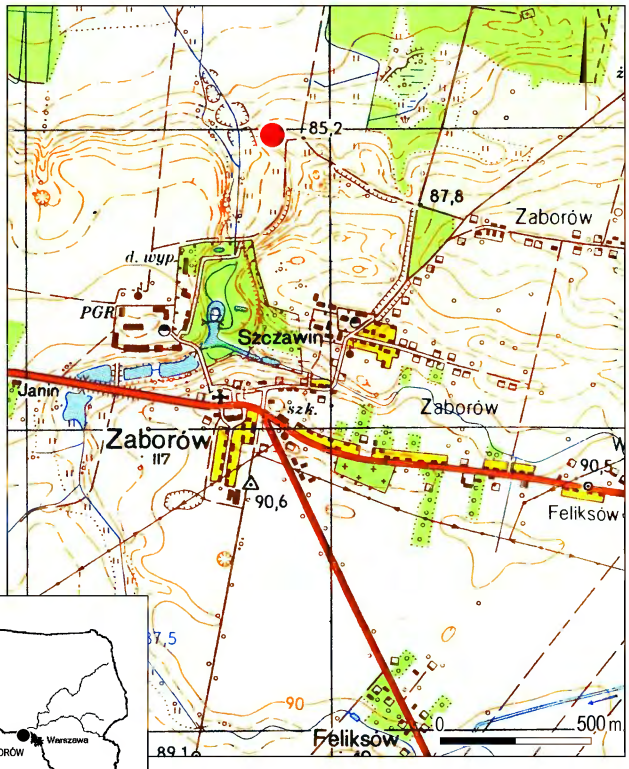

Fig. 1. Zaborów, distr. Warszawa Zachód, site 21. Location of the cemetery

Ryc. 1. Zaborów, pow. Warszawa Zachód, stan. 21. Lokalizacja cmentarzyska

* Description and analysis of the cemetery and grave assemblages by D. Słowińska & K. Dejtrowska, detailed analysis of the enamel-painted glass beaker by U. Lund Hansen. Translation from Polish and proofreading by A. Kinecka.

[1] The aim of research, initiated on a wide scale by S. Woyda in mid-1960s as part of the National Archaeological Field Survey project (*Archeologiczne Zdjęcie Polski* – Polish abbreviation: AZP), was to identify the extent of the Mazowsze centre of iron smelting. Aerial photographs (archive of the Museum in Pruszków) were taken by Central Photographic Agency (*Centralna Agencja Fotograficzna*).

[2] S. Woyda, *Zaborów stan. 21*, AZP index card.

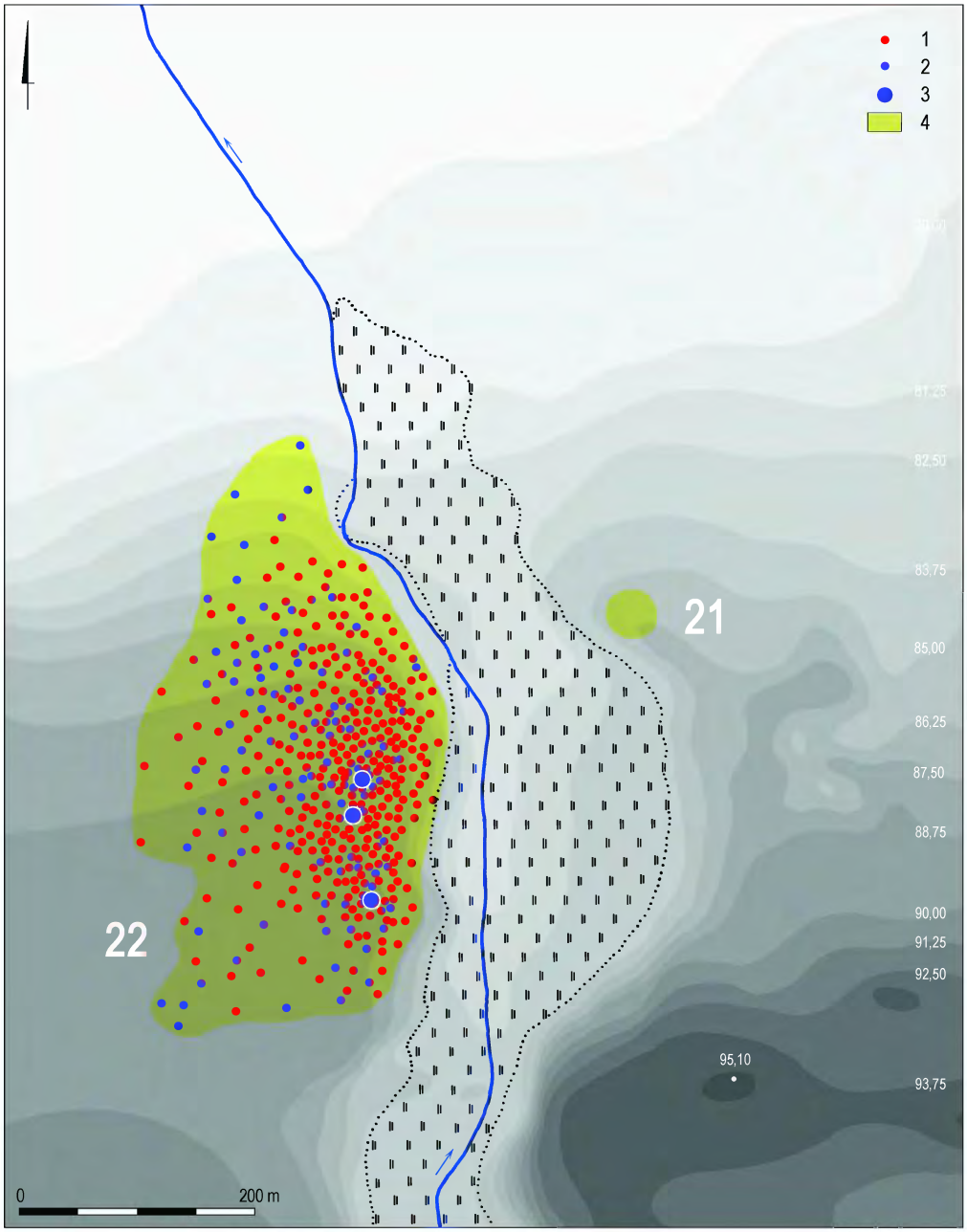

Fig. 2. Z a b o r ó w, distr. Warszawa Zachód, site 21 and 22. Site plan of the cemetery and settlement. 1 – pottery, 2 – lumps of slag, 3 – blocks of slag, 4 – extent of the sites. Acc. to S. Woyda (AZP); graphic rendering by J. Andrzejowski

Ryc. 2. Z a b o r ó w, pow. Warszawa Zachód, stan. 21 i 22. Wzajemne położenie cmentarzyska i osady. 1 – ceramika, 2 – bryłki żużla, 3 – kloce żużla, 4 – zasięg stanowisk. Wg: S. Woyda (AZP); oprac. graficzne J. Andrzejowski

The remains of the cemetery were discovered in the same area only three years later by a stroke of fortune when the aerial photographs of Zaborów were examined by Jan Tarnowski, then student of the Institute of Archaeology, Warsaw University, working on his MA thesis on aerial photography in archaeology. In spring of 1987 Tarnowski carried out two surface surveys of site 21 and made the following report: "On 2nd and 7th April I paid a visit to Zaborów to repeat the verification in the field of the location documented in photographs (no. 37, 38) received from S. Woyda in December 1986; on this occasion I recovered assorted archaeological material: on 2nd April – flints, ceramics from Late La Tène, Early Roman and Early Medieval Period, fragments of iron slag and unburnt human bones. I revisited Zaborów on 7th April and this time secured truly spectacular finds. On the surface I found large fragments of a painted glass vessel, sherds from a cinerary urn dated to the Early Roman Period, and burnt bones" (J. Tarnowski 1987)[3].

[3] From the typescript of J. Tarnowski's MA thesis; its selected fragments and surface finds collected at Zaborów were presented to the Museum in March 2008. We acknowledge J. Tarnowski's assistance in writing the present study.

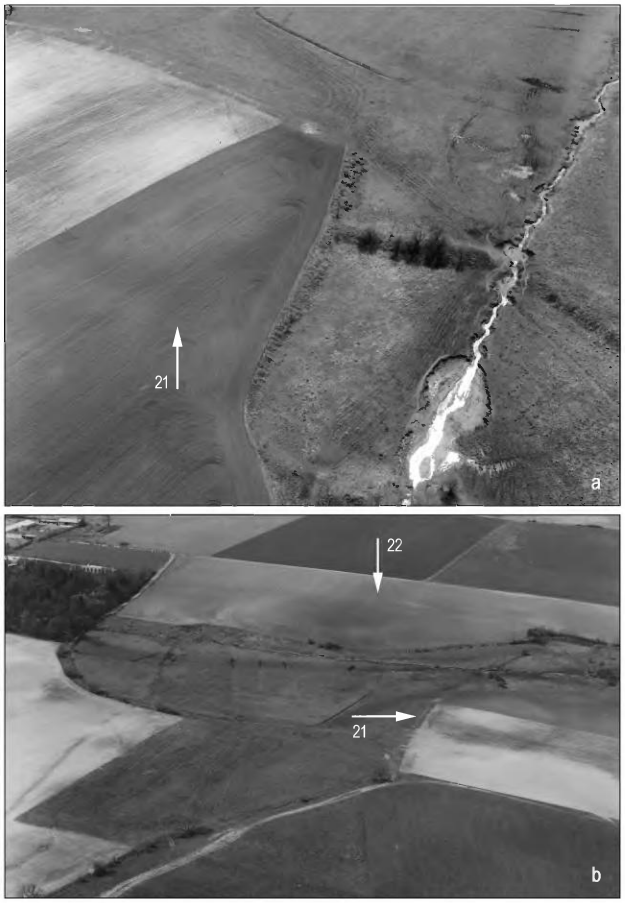

Fig. 3. Z a b o r ó w, distr. Warszawa Zachód, site 21 and 22. View from the north (a) and from south-east (b). MSHM archive
Ryc. 3. Z a b o r ó w, pow. Warszawa Zachód, stan. 21 i 22. Widok od N (a) i SE (b). Archiwum MSHM

In late September and early October of the same year Zaborów site 21 came under a rescue excavation led by Stefan Woyda. The only report on this fieldwork is published in "Informator Archeologiczny" (1988, p. 132): "A rescue excavation was made of an area of 36 m^2 on the site of discovery of surface finds. Three substantially eroded graves were identified, surviving only in their bottom 10–15 cm layer. Two of them were urn graves. One, next to the base section of the urn, contained an iron buckle and the bow fragment of a bronze fibula. The second grave, next to sherds from the urn, contained fragments of a beaker which escaped destruction by ploughing (*in situ*, in a vertical position, *ca* ⅔ of its height). The beaker of white glass was ornamented with painted human figures (gladiators?)" (...) "Also discovered were two early medieval pits (pit bottom layer of several cm thick)". The beaker was submitted to Teresa Stawiarska PhD, then with the Institute of History of Material Culture, Polish Academy of Science, for conservation and physical and chemical analyses (*cf* T. Stawiarska 1999, p. 243, 326).

Now, more than 21 years after its discovery, archaeological material from Zaborów finally has come to be analysed and published[4].

Location of the site

Zaborów site 21 lies in the western reach of the Mazowsze Lowland, on the Plain of Łowicz and Błonie (J. Kondracki 1998, p. 190–191), approximately 15 km from the western outskirts of Warsaw. It is found at a distance of several hundred metres from the village buildings and the former residence of the family Goldstand at Zaborów, in an area used for agriculture[5] (Fig. 1). In terms of relief this is a lightly folded terrain, situated at the foot of the upland of the Vistula ice-marginal valley, which descends in a long slope to its bottom terrace. The site covers a small elevation which on its west side adjoins a deeply incised valley of a minor stream which cuts into the rim of the upland built of loamy soils with a moderate admixture of stone, which do not stand out in the surrounding landscape. A several metres wide ring of darker-coloured soil visible from higher elevation around the top of the hill (Fig. 3a.b) is not apparent from the ground level. Cremation graves were discovered in its SE area. That the site was attractive for settlement is confirmed by the presence of a large prehistoric iron smelting site and settlement of several hectares (site 22), which presumably was directly associated with the cemetery (Fig. 2, 3b).

The material

Archaeological documentation from the excavation is now lost. The only surviving record is an inventory of finds (*Inwentarz zabytków masowych i wydzielonych*), which was used for reconstructing the grave inventories, and six black and white photographs made during exploration of grave 1. The location of the site and its number were identified using a plan which is now part of the permanent display at the Museum in Pruszków and with assistance of Jan Tarnowski. The Museum archive has in its keeping also a location and elevation plan of the site showing the extent of the rescue excavation trench, aerial photographs, the AZP index card and photographs of the painted glass beaker taken after its conservation[6]. The numbers of graves (1, 2a, 2b1) and other features (2b2, 3) are the same as those used in the field documentation.

[4] Warm acknowledgements to Jacek Andrzejowski (State Archaeological Museum in Warsaw) and Adam Cieśliński (Institute of Archaeology, Warsaw University) for their all-round assistance.

[5] On 19 March 2008 when the site was visited by Jacek Andrzejowski, Adam Cieśliński, Dorota Słowińska and Katarzyna Dejtrowska, it was lying fallow with only a trace amount of archaeological finds on its surface.

[6] A new photographic and photogrammetric documentation was made for the purpose of this study by respectively, Michał Dąbski and Miron Bogacki, and by Marcin Gładki, whom we thank for their

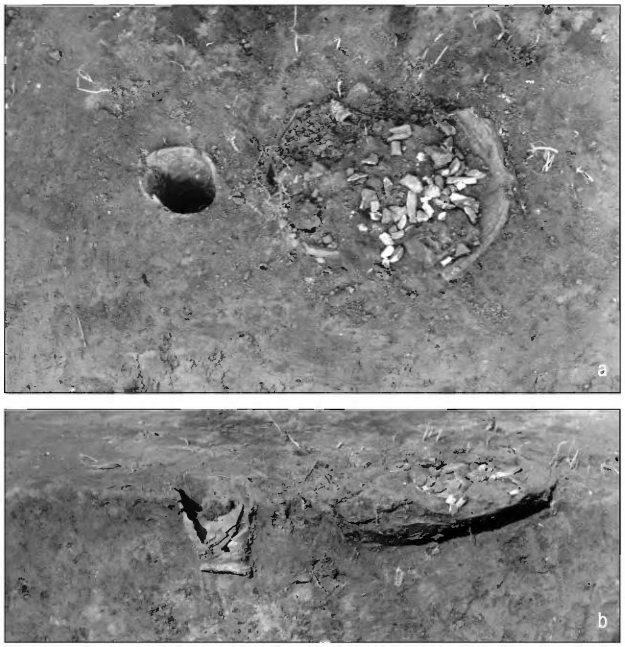

Fig. 4. Z a b o r ó w, distr. Warszawa Zachód, site 21. Plan (a) and cross-section (b) of grave 1. Photo S. Woyda

Ryc. 4. Z a b o r ó w, pow. Warszawa Zachód, stan. 21. Plan (a) i przekrój (b) grobu 1. Fot. S. Woyda

Grave 1

An urned grave, heavily damaged, the upper part of the urn and the rim of the glass vessel lost to ploughing[7]. From the photographs of the grave plan and its section (Fig. 4a.b) it appears that the cinerary urn and glass beaker stood just a few centimetres apart, centrally at bottom of a small grave pit, gently basin-like in cross-section. There is evidence that the grave-fill also held the remains of the funerary pyre. A reference in the finds inventory (*Inwentarz...*) indicates that some of the skeletal remains of presumably an older (*maturus–senilis*)[8] male occurred under the base of the urn, and that the grave also contained a small bucket-shaped vessel.

Inventory: **1.** Glass beaker, Eggers type 186, partly reconstructed. Conical body covered with a painted representation of two pairs of gladiators (Fig. 5–8). The contours of the figures are faint, brown, olive-yellow and turquoise. Finely preserved transparent glass with a pale yellow tint. Presumably mould-blown into a two-piece mould; solid conical foot. H *ca* 15 cm, foot diam. 4.5 cm (*cf* T. Stawiarska 1999, p. 243); **2.** Urn – fragmented biconical vessel with angular shoulder, well-defined, pushed out base and lightly everted rim. Carefully smoothed, grey-black. Crushed rock and sand temper. H *ca* 19 cm, rim diam. *ca* 23 cm, body diam. *ca* 26 cm, bottom diam. 9.5–10 cm (Fig. 9a); **4.** Small bucket-shaped vessel with a truncated everted lip, fragmented. Poorly fired, poorly preserved pottery with stratified flaking walls. Grey-black, with traces of burning. Substantial quantity of medium-grained crushed rock temper. H. *ca* 5.5 cm, rim diam. *ca* 9 cm, bottom diam. *ca* 6 cm (Fig. 9b); **5.** *Ca* 232 g of quite heavily burnt human bone, moderately and poorly preserved, beige-cream in colour.

Grave 2a

Urned grave[9] of a mature individual of undetermined sex. Closer details on this feature are lacking. The grave contained the bottom of a largely destroyed urn, an iron buckle and sherds of two other vessels. An undetermined «metal object 'x'» named on a label found with the rest of these finds which may have belonged to the same inventory was not identified.

Inventory: **1.** Iron unipartite buckle with half-round frame, lozengic in cross-section, R. Madyda-Legutko type D1. Diam. 3.3×2.7 cm (Fig. 9d); **2.** Urn – 50 sherds from a biconical vase-like vessel with an angular shoulder, well-defined flat base and single (?) handle. Polished, black. Substantial quantity of fine- and medium-grained crushed rock and sand temper. Body diam. *ca* 27 cm, bottom diam. *ca* 12.5 cm (Fig. 9e); **3.** 9 fragments of a vessel with a well-defined lightly everted lip and a high-set profiled shoulder, distorted by burning. On vessel shoulder – 'rafter ornament'. Smooth, light grey-brick-red. Substantial quantity of fine- and medium-grained crushed rock and sand temper (Fig. 9g); **4.** 11 fragments of a small bowl with a rounded base and angular shoulder. Smooth, brick-red surfaces, with traces of fire. Substantial quantity of fine- and medium-grained mineral temper. H 4.5 cm, rim diam. *ca* 10 cm (Fig. 9f); **5.** 15 g of bones, heavily burnt and poorly preserved, cream-white in colour.

Grave 2b1

Urned cremation grave of a juvenile (*infans II – iuvenis*). Basing on the inventory of small finds we established the bow of a bronze fibula[10] and several sherds from three or so vessels also belonged to this assemblage.

Inventory: 1. Bronze fibula fragment, type Almgren 38-39, with a crest in the middle of the bow. Surviving L. 2.7 cm (Fig. 9c); **2.** 5 body sherds from a gently profiled vessel, carefully smoothed, lightly glossy black. Substantial quantity of fine- and medium-grained crushed rock and sand temper. Body diam. *ca* 22 cm; **3.** 1 Body sherd, outer surface roughened by daubing with a solution of clay, beige-orange, blackened on the inside, rough. Substantial quantity of mostly coarse- and medium-grained crushed rock temper; **4.** 6 featureless sherds; burnt; **5.** 13 g of moderately burnt bone, poorly preserved, beige-cream in colour.

assistance and dedication. Acknowledgements also go to Radosław Prochowicz (State Archaeological Museum, Warsaw) for his valuable comments and assistance in making the drawings.

[7] During the field survey were collected 9 sherds which were refitted with the urn from the grave and 8 sherds showing the same technological features as the bucket-shaped vessel from the same grave.

[8] Acknowledgements for specialist opinion on bone remains from Zaborów go to Łukasz M. Stanaszek PhD, anthropologist from the State Archaeological Museum, Warsaw. The analysis established that the bones from the urn and the pit belonged to the same individual.

[9] According to "Informator Archeologiczny" (1988, p. 132), two of the three graves identified during rescue excavation were urn graves. The inventory of grave 2a includes fragments of a partly reconstructed vessel showing morphological and technological features typical for urns, which suggests that the reference applies to this grave deposit.

[10] Most probably this is the fibula mentioned in "Informator Archeologiczny" (1988, p. 132) as discovered in the second urned grave. This information is not confirmed either by the label attached to this find or by the entry in the site book.

Fig. 5. Z a b o r ó w, distr. Warszawa Zachód, site 21. Enamel-painted glass beaker from grave 1 seen from four sides.
Ryc. 5. Z a b o r ó w, pow. Warszawa Zachód, stan. 21. Malowany puchar szklany z grobu 1 widziany z czterech stron.
Photo / Foto M. Dąbski & M. Bogacki

Fig. 6. Z a b o r ó w, distr. Warszawa Zachód, site 21. Enamel-painted glass beaker from grave 1. Drawn by P. Holub
Ryc. 6. Z a b o r ó w, pow. Warszawa Zachód, stan 21. Malowany pucharek szklany z grobu 1. Rys. P. Holub

Pit 2b2

Posthole. Its fill contained a small number of sherds which refitted with the fragments of the vessel no. 2 from grave 2b1.
Inventory: 1. 4 sherds with a carefully smoothed, lightly glossy black surface. Substantial quantity of fine- and medium-grained crushed rock and sand temper.

Pit 3

Settlement pit. Several small sherds of early medieval ceramics, probably from four vessels.
Inventory: 1. 1 body sherd, engraved ornament of triple wavy line. Lightly rough surface, dark brown. Well fired, abundant medium- and coarse-grained crushed granite temper (pink); **2.** 1 sherd with an ornament of engraved parallel lines. Smooth surface, light orange outside, grey inside. Well fired, abundant fine-, medium- and coarse-grained crushed granite and mica temper; **3.** 1 body sherd. Slightly rough surface, beige-orange outside, grey-dark brown inside. Well fired, fine- and medium-grained crushed granite temper; **4.** 1 featureless sherd from a thick-walled vessel with carefully smoothed black surfaces. Well fired, substantial quantity of fine- and medium-grained crushed rock temper.

Material collected from the trench surface

This material occurred within two layers removed with shovels: layer 1: "1 cut deep – 20–22 cm", and layer 2: "2 cuts deep – between 20–22 and 30–33 cm". Mostly, these are featureless sherds from different vessels (including early medieval), some of them belonging to the destroyed cinerary urns identified in the graves. Also from the humus originate two undetermined iron objects, a fragmented clay spindle whorl, a few fragments of slag and cremated bone remains.

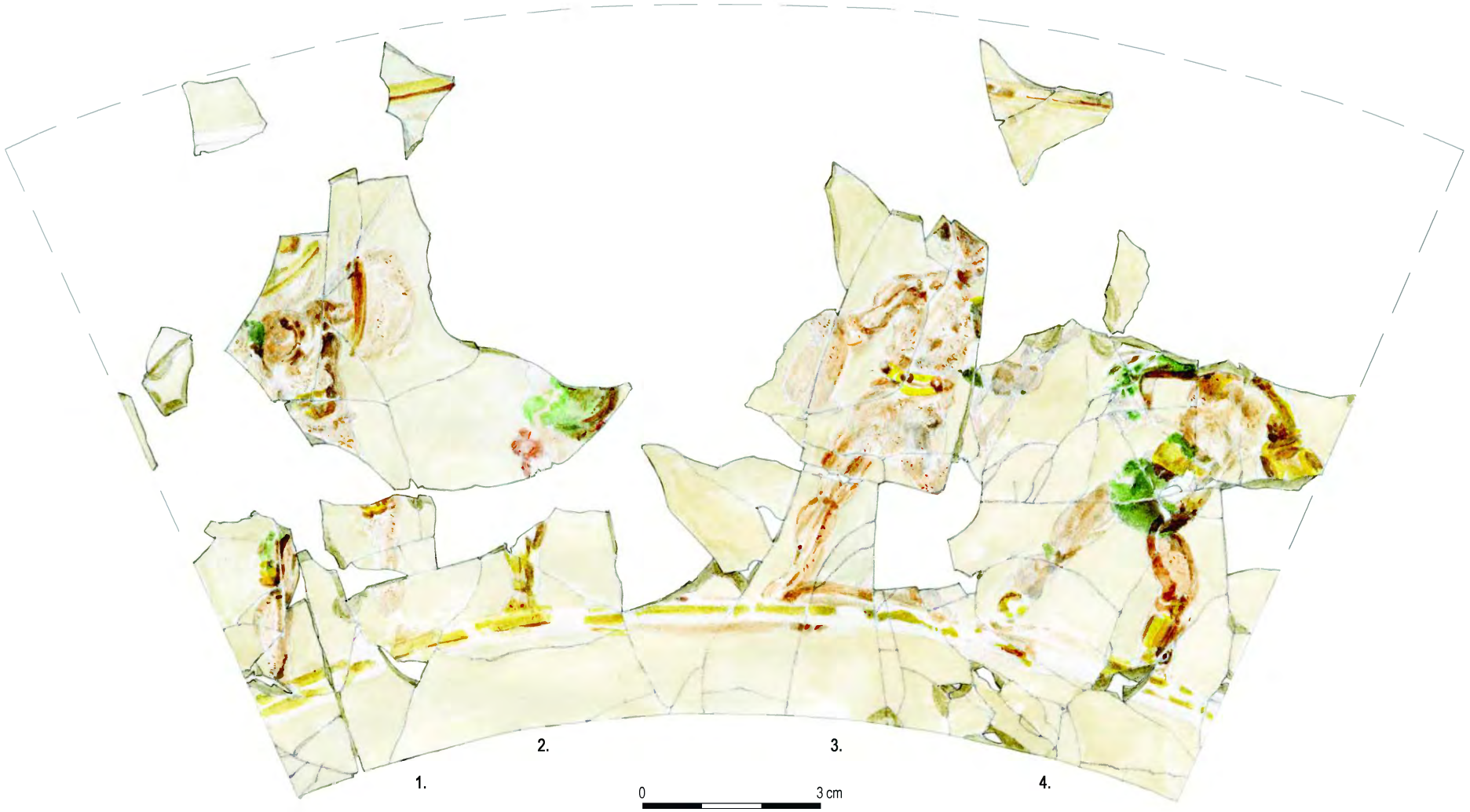

Fig. 7. Z a b o r ó w, distr. Warszawa Zachód, site 21. Design and colours of the enamel-painted glass from grave 1. The four gladiators are marked with numbers. Drawn by P. Holub

Ryc. 7. Z a b o r ó w, pow. Warszawa Zachód, stan. 21. Motywy barwnej dekoracji malowanej pucharka szklanego z grobu 1. Numery odpowiadają opisowi gladiatorów w tekście. Rys. P. Holub

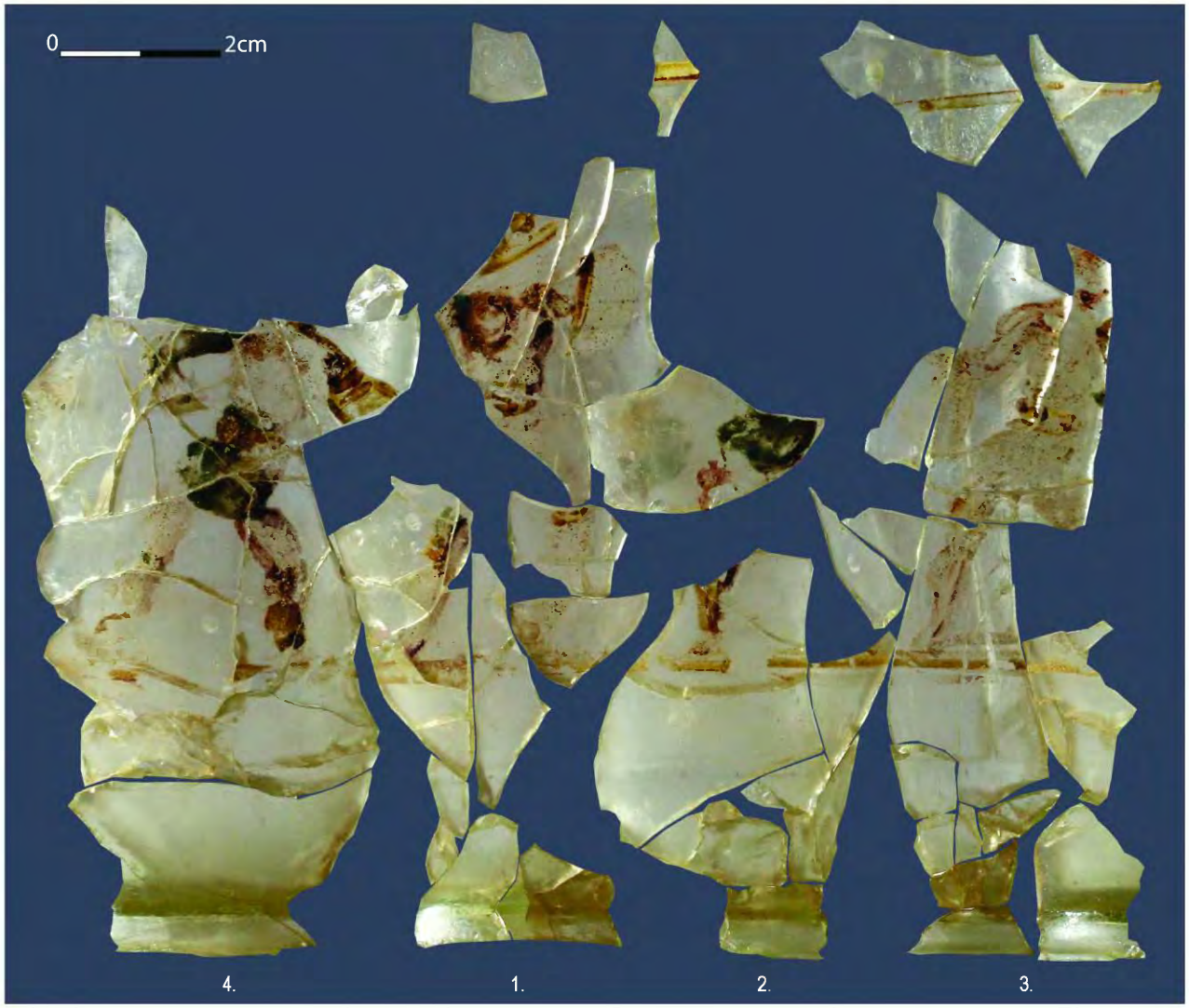

Fig. 8. Z a b o r ó w, distr. Warszawa Zachód, site 21. Photogrammetric image of the ornament on the painted glass beaker. The four gladiators are marked with numbers. Photo M. Gładki

Ryc. 8. Z a b o r ó w, pow. Warszawa Zachód, stan. 21. Fotogrametryczne rozwinięcie ornamentu malowanego pucharka szklanego. Numery odpowiadają opisowi gladiatorów w tekście. Fot. M. Gładki

1. layer: 1. Fragmented clay spindle whorl M. Stasiak (1994) type p-1, orange in colour (Fig. 10a); **2.** 29 sherds probably from a single well made vessel with a marked shoulder and strap handle, with a geometric (meander?) pattern above shoulder. Smooth, grey-black surface. Substantial quantity of fine- and medium-grained crushed rock and sand temper (Fig. 10e.f); **3.** 6 sherds with similar technological features, traces of fire, including 2 small fragments with an everted rim. Smooth, light grey-orange surface. Substantial quantity of fine- and medium-grained crushed rock temper; **4.** 7 sherds from lightly burnt upper section of a thin-walled vessel with a smooth, light grey--orange surface. Abundant fine- and medium-grained crushed rock temper; **5.** 7 substantially fragmented featureless body sherds from a thick-walled vessel with a carelessly finished, orange surface. Abundant medium- and coarse-grained crushed granite temper; **6.** 10 sherds from a vessel with a lightly thickened rounded rim emphasised by an engraved horizontal line, ornamented above shoulder with an engraved zigzag, at shoulder with two parallel lines, heavily distorted by burning. Variegated light grey-orange-brick-red surface. Substantial quantity of fine- and medium-grained white rock temper (Fig. 10g.h). **7.** 17 early medieval sherds with similar technological features from 3 or so vessels, including 2 rim sherds with a truncated everted lip, diam. *ca* 18 cm (Fig. 10n), 1 upper body sherd ornamented by a tight arrangement of horizontal grooves (Fig. 10o) and 1 body sherd with an ornament of horizontal grooves, slightly rough, dark brown, grey-dark brown and beige-orange surface; abundant crushed granite and sand temper (Fig. 10p); **8.** 16 featureless sherds with heavily eroded, stratified or burnt surfaces; **9.** 5 fragments of prehistoric iron slag; **10.** 6.2 g heavily burnt, poorly preserved bones of a mature individual, cream-white in colour[11].

2. layer: 1. 1 fragment of an object of thin (*ca* 0.1 cm) iron sheet, perhaps a Jahn 7 shield-boss. Dim. *ca* 3.3×3.1 cm (Fig. 10b); **2.** 6 featureless body sherds, presumably from a single vessel, smoothed black-grey surface. Fine- and medium-

[11] According to specialist opinion these bones show great similarity to the remains from grave 2a, which applies also to the bones discovered in layer 2 (no. 6).

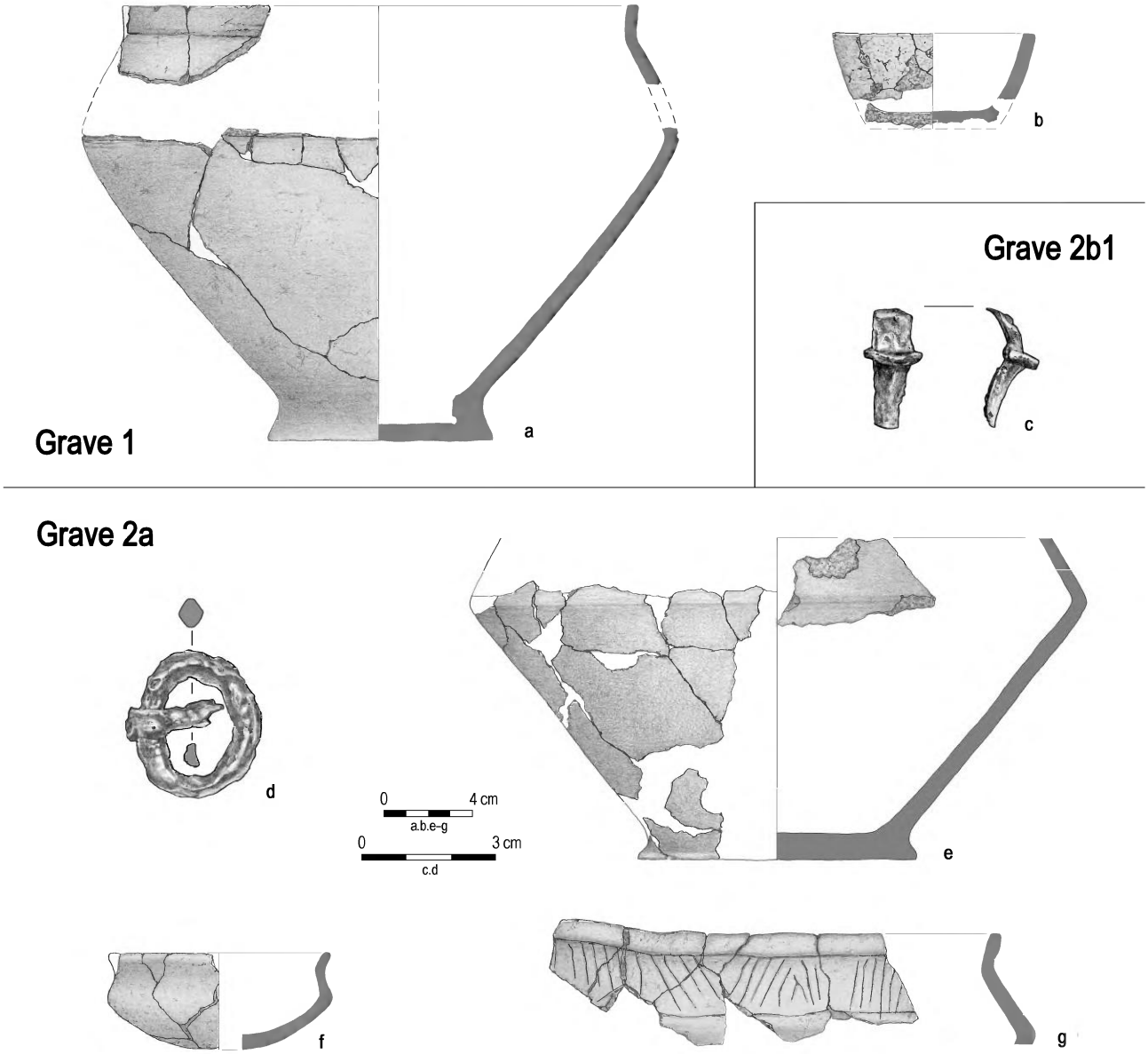

Fig. 9. Z a b o r ó w, distr. Warszawa Zachód, site 21. Grave 1 (a.b), 2a (d–g) and 2b1 (c). a.b.e–g – clay, c – bronze, d – iron. Drawn by K. Dejtrowska

Ryc. 9. Z a b o r ó w, pow. Warszawa Zachód, stan. 21. Grób 1 (a.b), 2a (d–g) i 2b1 (c). a.b.e–g – glina, c – brąz, d – żelazo. Rys. K. Dejtrowska

-grained crushed granite and sand temper; **3.** 2 rim sherds from a small vessel with a lightly thickened rounded rim and high-set profiled shoulder, orange surface. Poorly fired. Substantial quantity of fine- and medium-grained crushed granite temper. Rim diam. *ca* 10 cm (Fig. 10k); **4.** 6 sherds from early medieval vessels, including: 2 body sherds with a rough beige-orange surface, with an ornament of a tight arrangement of horizontal grooves, well fired; substantial quantity of coarse- and medium-grained crushed rock temper, 2 sherds of light brown ceramics, well fired, substantial quantity of medium- and fine-grained crushed granite and sand temper, 2 small body sherds, brick-red-dark brown, engraved horizontal line, mediocre firing, substantial quantity of coarse- and medium-grained crushed granite temper; **5.** 12 sherds from several vessels, damaged. **6.** 13 g of heavily burnt, poorly preserved bones of a mature individual, cream-white in colour.

Material recovered during surface survey

1. Fragment of a bronze mirror, round in shape, with a thickened slightly folded under and flat shaped rim. The disc probably was lightly plano-convex. On outer face, engraved ornament of two concentric rings. Diam. *ca* 11.5 cm[12], Th. of disc *ca* 0.1 cm, Th. of rim *ca* 0.3 cm (Fig. 10d); **2.** Bronze fibula pin and 3 spring coils[13]. L *ca* 1,3 cm (Fig. 10c); **3.** 9 sherds belonging

[12] The size of this fragment (surviving length of the perimeter *ca* 2 cm) is too small to determine the diameter of the mirror precisely.

[13] According to information given by Jan Tarnowski this fibula fragment was discovered on the same occasion as fragments of the painted glass beaker, urn and cremated bone. Because the upper layer of all the features identified at Zaborów was lost to ploughing the find cannot be safely attributed to any of the three grave inventories.

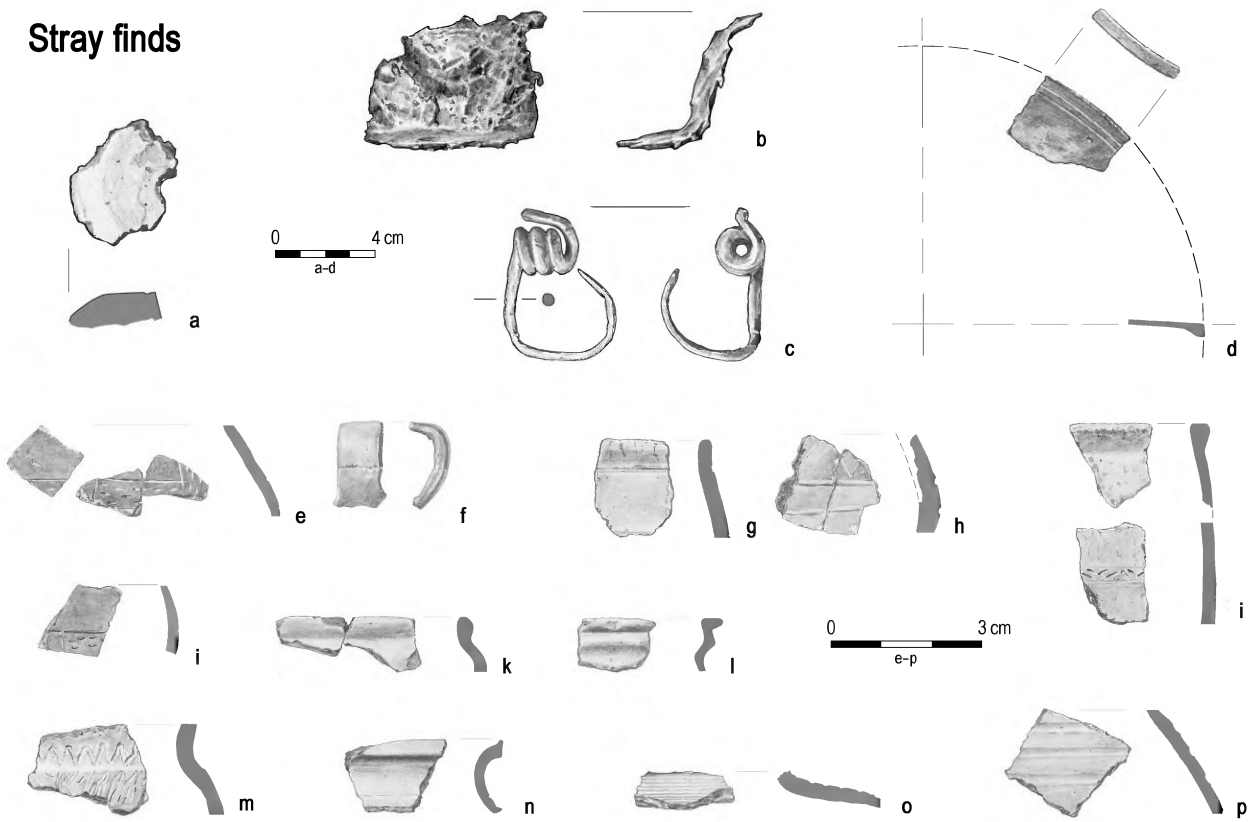

Fig. 10. Z a b o r ó w, distr. Warszawa Zachód, site 21. Stray finds. a.e–p – clay, b – iron, c.d – bronze. Drawn by K. Dejtrowska & P. Holub
Ryc. 10. Z a b o r ó w, pow. Warszawa Zachód, stan. 21. Znaleziska luźne. a.e–p – glina, b – żelazo, c.d – brąz. Rys. K. Dejtrowska i P. Holub

to the urn from grave 1; **4.** 8 poorly preserved sherds from a bucket-shaped vessel from grave 1; **5.** 1 small rim sherd from a vessel with an everted rounded lip and smooth light grey-orange surface. Medium quantity of fine- and medium--grained crushed rock temper; **6.** 2 small body sherds, smoothed, blackened surface, engraved geometric ornament. Medium quantity of fine- and medium-grained crushed rock temper (Fig. 10j); **7.** 5 rim and body sherds, light grey-orange surface with traces of burning. Facetted rim emphasised by an engraved line. On vessel shoulder, a narrow band of delicately engraved ornament. With some fine- and medium--grained crushed rock temper. Rim diam. *ca* 14 cm (Fig. 10i); **8.** 2 sherds, black-dark brown surface, tight arrangement of shallow grooves. Medium quantity of crushed granite temper; **9.** 1 rim sherd, trunctated everted lip and profiled (?) body. Smoothed, light orange surface. Medium quantity of fine-grained mineral temper (Fig. 10l); **10.** 10 early medieval sherds, presumably from three vessels of similar make, among them 4 body sherds with differently arranged horizontal groves, and 1 neck sherd with an ornament of a wavy line (Fig. 10m). Slightly rough, orange-beige-dark brown surfaces. Well fired, substantial quantity of medium- and coarse-grained crushed granite temper; **11.** 5 body sherds, smooth, substantially eroded, light grey-orange surface. Abundant medium- and coarse-grained crushed rock temper; **12.** 7 substantially fragmented prehistoric sherds, presumably from two vessels, cracked and variegated grey-orange-dark brown surface. Careless execution, poor firing, abundant coarse-grained crushed rock temper, visible on vessel surface; **13.** 7 substantially fragmented sherds with poorly preserved surfaces; **14.** 3 pieces of worked flint: fragment of a retouched blade of chocolate flint, blade of Cretaceous erratic flint, chip of Cretaceous erratic flint showing traces of polishing[14]; **15.** 4 fragments of prehistoric iron slag; **16.** 51.5 g of cremated bones[15]; **17.** Unburnt human bones (several fragments of skull, teeth and skeleton) from a 25–35 year old individual[16].

Discussion of the grave inventories

Grave 1

The painted Eggers type 186 glass beaker is discussed in more detail hereinafter by Ulla Lund Hansen. Next to it grave 1 contained two hand-built pottery vessels, substantially eroded. The biconical urn (Fig. 9a), carefully executed, with matt black-grey surfaces, high-set shoulder emphasised by an engraved line, belongs to

[14] Acknowledgements to Barbara and Sławomir Sałaciński (State Archaeological Museum, Warsaw) for determining these finds.

[15] According to opinion of Ł. M. Stanaszek these were bones of the same individual as in grave 1.

[16] According to opinion of Ł. M. Stanaszek the state of preservation and extent of fossilisation of the bones suggests medieval or modern age.

T. Liana's group II (1970, p. 433, 439, pl. II:1–6.8–10.13) of biconical forms characterised by a substantial rim diameter, only slightly smaller than the maximum body diameter, many of them with a well defined hollow foot. The state of preservation of the upper section of this vessel is too poor to allow conclusive classification to one of the three types in group II, but by its relatively small base diameter and – apparently – absence of neck (determined on the basis of two rim sherds) it may be classified as type II/3. Vessels of this type are in evidence throughout the entire Early Roman Period.

The second ceramic vessel from grave 1 survives in fragments, its surfaces are stratified, so its reconstruction is not entirely certain (Fig. 9b). Presumably it was a small vessel, reminiscent of bucket-shaped vessels which have no counterparts in the typology of T. Liana and do not feature at all in the system developed by M. Stasiak (1994). They are vessels extremely rare on Przeworsk territory. Single specimens are known from Zadowice, distr. Kalisz (A. Abramowicz, B. Lepówna 1957, pl. XXXII:3) and Niedanowo, distr. Nidzica (W. Ziemlińska-Odojowa 1999, pl. CXXIX/347:9), where they occurred in grave assemblages dated to phase B_2. Similar forms were classified by R. Wołągiewicz (1993, p. 17, 30, 114, map 13) as group XI of Wielbark Culture pottery. Vessels of this group are encountered across the whole Wielbark territory throughout the Roman Period. In a somewhat later period (starting from phase B_2/C_1) bucket-shaped vessels enter the archaeological record also in the Balt environment (P. Szymański 2000, p. 119, pl. XV).

Grave 2a

This grave contained an iron unipartite buckle with a half-round frame lozengic in cross-section, type D1 (Fig. 9d). In Przeworsk grave assemblages buckles of this type occur in great number starting from the late phase of the Late Pre-Roman Period until the younger phase of the Late Roman Period, but are distinctive particularly for phase B_2 (R. Madyda 1977, p. 367; R. Madyda-Legutko 1987, p. 24–25). This is supported by evidence from larger cemeteries in the Przeworsk zone. While at Kamieńczyk, distr. Wyszków, a single D1 buckle occured in a deposit from phase A_2 a definite majority originated in graves dated to phase B_2 (T. Dąbrowska 1997, p. 88, 120), similarly as at Nadkole, distr. Węgrów (J. Andrzejowski 1998, p. 58, 112), and Niedanowo, distr. Nidzica (W. Ziemlińska-Odojowa 1999, p. 116, 139). At Oblin, distr. Garwolin, type D1 buckles occurred only in graves dated to phase B_2 (K. Czarnecka 2007, p. 77, 112). The buckle form is known also from a number of sites found in direct vicinity of the iron smelting centre in the Plain of Błonie. Several specimens originate from the cemetery at Grodzisk Mazowiecki, distr. *loco*, including graves 6, 7 and 23 (B. Barankiewicz 1959, p. 212–213) dated reliably to phase B_2. A similar chronology may be adopted on the basis of ceramics for a D1 buckle from grave 2 at Zduny, distr. Łowicz (Z. Nowakowski 1995, p. 130), whereas two further buckles of the same type discovered in the humus at the cemetery at Żdżarów, distr. Sochaczew (Z. Nowakowski 2003, p. 130), cannot be dated more closely.

Presumably, the inventory of grave 2a originally consisted of two complete pottery vessels and pottery sherds. The cinerary urn (Fig. 9e) is a biconical glossy black vessel of relatively plump proportions, probably with an applied handle, group II in T. Liana's typology (1970, p. 439). Its type, similarly as in case of the cinerary urn in grave 1, is difficult to determine because its upper body does not survive. Nevertheless it seems that this vessel also may be classified as type II/3 by its marked shoulder and well defined base. The small round-based bowl (Fig. 9f) belongs in type VI/2 of T. Liana (1970, p. 440), a form which start to appear only during phase B_2, and becomes widespread in several cemeteries of Przeworsk culture. The upper body sherds of another vessel (Fig. 9g), with an engraved ornament, sharply profiled high-set shoulder, are distorted by fire. Forms with similarly wide mouth and upper body form may be placed in group IV of T. Liana (1970, p. 439, pl. II:7–12), *ie*, bowl-like vessels. By its well defined and lightly thickened rim the vessel should be classified to type IV/1, forms noted mainly during the Late Pre-Roman Period and during phase B_1. The ornament of two horizontal lines which enclose groups of alternately arranged oblique strokes, is referred to as 'rafter' pattern (*cf* J. Andrzejowski 1998, p. 92, fig. 6). It is seen in a number of variants on various vessel types. The rafter ornament is characteristic primarily for phase B_2, and is rarely seen on vessels from phase B_1, from the Late Pre-Roman and Late Roman Period. It is encountered definitely more often in the eastern zone of Przeworsk Culture than to the west of the Vistula river (A. Niewęgłowski 1972, p. 154).

Grave 2b1

The fragment of a bronze fibula discovered in grave 2b1 (Fig. 9c) with a crest in the middle of its flat S-shaped bow, may be classified as Almgren type 38-39 (1923, p. 143, pl. II:38). Fibulae of this type are elements characteristic for female dress and appear during phase B_{2a}, to become more widespread, both in Przeworsk and Wielbark culture, during phase B_{2b} (*eg*, M. Olędzki 1998, p. 74–75; M. Mączyńska 2006, p. 161–162; A. Cieśliński 2007, p. 280). In three larger cemeteries of the eastern Przeworsk zone – Kamieńczyk, Nadkole and Niedanowo – these forms occurred in assemblages datable to this phase exactly (T. Dąbrowska 1997, p. 116–119; J. Andrzejowski 1998, p. 106–108; W. Ziemlińska-Odo-

jowa 1999, p. 111). Type A.38-39 brooches rarely occur in deposits in western Mazowsze – the closest analogy is a fibula from a cemetery at Kompina, distr. Łowicz, grave 49 (L. Tyszler 1999, p. 168). A fibula from the cemetery at Grodzisk Mazowiecki, published as type A.38 (B. Barankiewicz 1959, p. 214, pl. IX:3) is in reality a solid iron fibula with a spring in a cylinder, a local Przeworsk variant of spring-cover brooches, which fit within the framework of type A.41 X1 in the typology of J. Schuster (*cf* J. Andrzejowski 2001, p. 65–66, fig. 8; J. Schuster 2005, p. 136, fig. 39:7).

The fill of grave 2b1 contained also some featureless sherds from different vessels with traces of fire as well as a number of body sherds with carefully executed blackened surfaces.

Surface finds

An object which was collected from the surface of the cemetery at Zaborów is a small fragment of a bronze mirror with a thickened and raised rim and disc diameter of *ca* 11.5 cm. The lightly convex upper part of the disc features an engraved ornament of two concentric circles (Fig. 10d). Mirrors are a toiletry item exceedingly rare in central European Barbaricum (*cf* K. Pieta 1998; E. Droberjar 1999, p. 154). They are considered a female attribute as confirmed by iconography from the Roman provinces of *Noricum* and *Pannonia* of AD 1st and 2nd century. Most of these representations depict mirrors with handles, more rarely, in the form of a 'compact' (J. Garbsch 1965, p. 4–11, pl. 1–4).

The small number of metal mirror finds from Poland was recently correlated by M. Pietrzak (2007). All mirrors found in Przeworsk deposits are flat discs with profiled handles, dated to A_3 of the Late Pre-Roman Period (Zadowice, distr. Kalisz, grave 733 – E. Kaszewska 1982, pl. 288:1.2; Charłupia Mała, distr. Sieradz, grave 25 – P. Kurowicz, M. Olędzki 2002, p. 22–23, pl. XVII:2; Kraków 1 – Wschód, settlement – M. Pietrzak 2007, p. 144), or to phase A_3 and onset of phase B_1 (Pasieka Otfinowska, distr. Tarnów, settlement[17] – A. Szpunar 1994, pl. XVIIIb).

Three mirrors originated in cemeteries of Wielbark culture in East Pomerania (Różyny, distr. Pruszcz Gdański, grave 151, Opalenie, distr. Tczew, grave 81 – M. Pietrzak 2007, p. 140, 141, pl. 1:1, 2:1; Elbląg, distr. *loco* – H. J. Eggers 1951, p. 104:628). All were flat discs without a defined rim. The grave at Opalenie is dated to phase B_1, the grave at Różyny to the beginning of phase B_2, and the stray find from Elbląg cannot be dated more closely.

Two further mirrors in the form of flat unornamented discs were discovered in a cemetery within a so-called royal grave at Lubieszewo, distr. Gryfice (*Lübsow, Kr. Greifenberg*), in graves III/1913 and 1/1925 (H. J. Eggers 1953, p. 71, 72, 100, fig. 5, pl. 3c). The same cemetery produced another mirror – a 'silvered' disc with a serrated rim, ornamented with concentric rings, grave I/1908 (E. Pernice 1913, p. 140, fig. 8; H. J. Eggers 1953, p. 100). The graves from Lubieszewo are datable respectively, to phases B_{1b}, B_{2b-c} and B_{1b-c}[18].

It seems that the mirror from Zaborów has no parallel among finds recorded in Poland. A similar specimen is known from the so-called Wrocław collection (B. Niezabitowska 2004, p. 210–214, fig. 2E). The author is inclined to consider it to be a provincial Roman product and does rule out that it may be a fragment of a mirror with a cover, so-called compact. The mirror fragment from Zaborów is too small for conclusive identification. The shape of its rim, lightly concave upper face, ornament of concentric grooves and its reconstructed diameter correspond best to group C (Hellenistic and related) and group Ra (lid mirrors) of Roman mirrors as classified by G. Lloyd Morgan (1981, p. 24–25, 69–71), which are encountered in number within the Roman Empire of AD 1st c. (*eg*, S. Boucher, G. Perdu, M. Feugère 1980, p. 94–98, fig. 458–476)[19].

The material originating from the 2. (lower) level removed with shovels from the surface of the trench included a fragment of an iron object (Fig. 10b). This has been interpreted as a fragment of a Jahn 7a shield boss, similar to T. Liana's variant 2 (1970, p. 432, 451–452), characterised by a relatively low flange, dated to the younger segment of phase B_2. Jahn 7a is a form of shield boss frequently encountered across the entire Przeworsk territory. At Kamieńczyk shield bosses type 7a/2 occurred in five graves (1, 150, 170, 173, 191), dated from phase B_{2a} until phase B_{2c}–B_2/C_1 (T. Dąbrowska 1997, p. 91). A smaller number of similar shield-bosses is recorded at Nadkole, in grave 100, dated to phase 3 of this cemetery, which corresponds to phase B_{2c}–B_2/C_1 (J. Andrzejowski 1998, p. 68–69), and at Oblin, in grave 26b, dated to the close of phase B_2 (K. Czarnecka 2007, p. 86). In western Mazowsze J.7a/2 shield-bosses occurred at the cemetery at Grodzisk Mazowiecki, in graves 6, 22, in the so-called located graves as well as in grave 'A' (B. Barankiewicz 1959, p. 212, pl. VI:15, IX:2).

Mechanical layer 2 also yielded a very small fragment of a disc-like spindle-whorl (Fig. 10a). It is closest in form to type p-1 distinguished by M. Stasiak (1994, p. 56; *cf*

[17] This specimen was published as a strap end.

[18] The dating of graves from Lubieszewo is consistent with the newest, as yet unpublished, analysis of the cemetery by Jan Schuster (Institute of Archaeology, Łódź University), who is acknowledged here for sharing this information.

[19] Warm acknowledgements to Barbara Niezabitowska-Wiśniewska (Institute of Archaeology, Maria Curie-Skłodowska University, Lublin), for consultation and guidance on bibliography concerning antique mirrors.

K. Godłowski 1977, p. 56). Spindle-whorls, both due to the small variability of their form and lack of evident differences in intensity of occurrence are a class of finds which are of low value for chronological studies (T. Liana 1970, p. 41). Until recently they used to be considered universally as a typical item of furnishing of female graves (A. Kietlińska 1963, p. 28; K. Godłowski 1977, p. 110) but newer research has made this interpretation much less definitive (K. Czarnecka 1990, p. 42–45, 57; *cf* T. Dąbrowska 1997, p. 99).

Among surface finds was a fragment of a bronze fibula spring (Fig. 10c) which by its solid character is classified safely to the Early Roman Period but its closer typological attribution is not possible. It is closest probably to Almgren group III of the main series or to the early strongly profiled brooches.

Of 165 sherds originating from the humus layer only a very small percentage are characteristic fragments. The fragment of a strap handle (Fig. 10f) and a number of smaller body sherds with an engraved geometric ornament of continuous and broken lines (Fig. 10e) which presumably form the meander motif, have technological attributes similar to those of the urn discovered in grave 1. The same layer contained rim sherds from a vessel with a flat thickened lip and body sherds from the same vessel ornamented with a narrow arrangement of engraved horizontal lines which enclose a row of double zigzag (Fig. 10i). The shape of the rim and the style of ornamentation bring this vessel close to mugs, quite widespread in Przeworsk material from the Late Pre-Roman Period, corresponding to type I.1 of ceramic wares from Kamieńczyk, distr. Wyszków, dated to phases A_2–A_3 of the Late Pre-Roman Period (T. Dąbrowska 1997, p. 102).

Also distinguished in the ceramic inventory were 33 fragments of vessels (Fig. 10m–p) with technological features typical for Early Medieval hand-built pottery (*cf* A. Buko 1990). Stray finds of worked flint may be linked in general with Neolithic cultures.

Burial rite

A closer analysis of the cemetery w Zaborów is constrained greatly by our knowledge of only a small part of the site. The graves discovered correspond in their form and inventory to typical graves known from flat egalitarian Przeworsk cemeteries from the Early Roman Period (*cf* A. Niewęgłowski 1981, p. 81–111). Even though their content dates these assemblages to phase B_2 of the Early Roman Period, ceramic material from the surface of the site indicates that the cemetery had been established still during the Late Pre-Roman Period.

Entirely unexpected is the occurrence among the grave goods of an 'ordinary' cremation burial of such an out of the ordinary item as a painted glass beaker. Another item which signals the special character of the cemetery is the bronze mirror fragment.

A further unusual feature found at Zaborów site 21 which cannot be explained at this stage of research is the ring of darker soil surrounding the cemetery. Its regular shape intimates the existence of some sort of structure which may have erected to mark the burial ground in some way or set it apart from its surrounding area. The exact nature of this structure may be revealed only by undertaking excavation at the site.

Conclusions

Site 21 at Zaborów lies within a major settlement concentration associated with the Mazowsze centre of iron metallurgy[20], which was in operation in western area of Mazowsze from phase A_1 of the Late Pre-Roman Period until phase B_2/C_1 of the Roman Period[21]. A special feature of this centre was the existence of self-sufficient iron metallurgy settlements of various sizes which were accompanied by smaller, not fully self-reliant and perhaps seasonal, 'branch' settlements. The output of iron production varied substantially in individual settlements. Some of the sites yielded evidence of an unusually lively production activity which was based on permanent infrastructure, suggesting that the activity was carried out on a permanent basis (S. Woyda 2002, p. 121–122).

The cemetery at Zaborów lies near one of these large production settlements, classified by Stefan Woyda as type 1 (2002, p. 122). These are settlements of considerable size (up to 10 ha), within which has been recorded the coexistence of two clearly separated zones – the production and residential zone. The inner space of these great settlements was fully subordinated to production (S. Woyda 2002, p. 139).

The cemetery and settlement lie on two opposite banks of a minor stream at a distance of *ca* 200 m (Fig. 2, 3b), by which they form an extremely interesting settlement complex. To date the number of cemeteries documented in the area of Mazowsze iron smelting complex is very small; grave fields tend to occur on its margins or altogether outside them. So far Zaborów site 21 and 22 are the only settlement-cemetery complex of its kind which by the small body of evidence recovered during excavation may be dated to phase A_2–A_3 until B_2.

Importance of the local iron smelting centre would be confirmed by the find of a unique painted glass beaker. Imports of this type, often diplomatic gifts, are discovered

[20] An area of 300 km^2 with documented 238 sites which contained evidence on prehistoric metallurgy, mainly by surface survey, however some of these sites had been at excavated to some extent.

[21] The chronology is based on the analysis of surface finds (*cf* T. Dąbrowska 2006, p. 44) and preliminary analysis of excavated material made by the museum in Pruszków (MSHM).

almost invariably in the richest graves in *Barbaricum*, so-called princely burials (J. Kolendo 1998, p. 19). The presence of an item of this class in the furnishing of an 'ordinary' burial, deposited in a flat egalitarian cremation cemetery, is astounding. Roman imports, especially of the highest class, were the mark of social status of their owners, it is possible therefore that the adult male buried with the painted glass beaker had enjoyed in the local community a special elevated social status.

To clarify all the questions raised by the archaeological evidence comprehensive research is needed to investigate the entire settlement complex at Zaborów.

AN EARLY ROMAN PAINTED GLASS BEAKER FROM ZABORÓW

Painted drinking glasses from Roman times are very uncommon. They are known inside the Roman Empire in a very limited number and outside the Empire they are extremely rare. The painted glass from Zaborów is only mentioned once in the archaeological literature, in a publication by Teresa Stawiarska (1999, p. 243 no. 16; *cf* Inf.Arch. 1987 [1988], p. 132) – the glass is depicted in colours on the front-page of the publication.

The glass vessel was found outside the urn of the cremation grave 1. It was partly damaged (Fig. 5–8) although during the excavation it retained its original shape (Fig. 4). Some parts of the glass are missing (perhaps because they were lost in the pyre). Nevertheless, enough is left to reconstruct the glass and to determine its type and decoration.

The glass is a type Eggers 185–186 (H. J. Eggers 1951, p. 178, map 50). Eggers describes these types in this way: slender, high footed beaker made of transparent colourless to light yellowish glass, either decorated with facet-cutting (E 185 = variant Sojvide) or with painting (E 186 = variant Lübsow) (Fig. 11). Beside the terminology by H. J. Eggers the glass is also known as Isings Form 21: *Goblet on pad-base, almost colourless glass decorated with wheel-cut lines or – more often – with wheel-cut ovals in a honey-comb pattern. There also exists a blown variety* (C. Isings 1957, p. 37 f.).

A more precise description of the glass type is later given by A. Oliver (1984) in his research on glass type E 185. Oliver mentions the fact that both the cut and the painted glasses (E 185–186) have features as a splayed foot, a ledge below the faceted or painted zone and ridges above the decoration and the rim.

T. Stawiarska (1999, p. 326 no. 183, p. 331 no. 183, *cf* fig. 4 on p. 98) has published results of the chemical analyses of the glass from Zaborów, and dates the glass to phase B_2 acc. to H. J. Eggers (T. Stawiarska 1999, p. 103 ff.). Stawiarska summarises: *The chemical composition of glass used to make the E 183, E 184 and I 3c* (I = Isings 1957) *ribbed bowls of phases* B_1-B_{1c} *resembles that of the Italian glasses (nos. 6-13). The Egyptian roots of the* B_2*-phase E 186 painted beakers from Lubieszewo and Zaborów are indicated by both the formal analysis and chemical composition of one of the specimens (cf. Fig. 4); the same is true for the* B_2*-phase E 185 cut beakers from Oblin (nos. 14-16)* (T. Stawiarska 1999, p. 346 f.). *In the early Roman period the principal amber route served to distribute E 181–183 vessels, probably from glasshouses in the eastern Mediterranean basin or Campagna, and also E 184 and I 3c vessels from northern Italy. Also travelling along this route were the E 186 and E 185 beakers, which were Egyptian products or Italian copies thereof* (T. Stawiarska 1999, p. 353).

Description of the glass vessel from Zaborów

The very rim of the glass is missing and therefore the final treatment of the rim cannot be told. The glass vessel is now 14.0 cm high but because of the decoration it can probably not have been very much higher. The diameter of the opening is 8 cm, the diameter at the transition from body to foot is 3.2 cm, and the diameter of the base ring 4.5 cm, thickness of the glass is 2 mm. There is a groove between the body and the foot (Fig. 5, 6).

The decoration consists of one broad horizontal zone decorated by enamel painting. The zone is approximately 9 cm in height and is confined, top and bottom, by horizontal painted lines in two colours – brownish and yellowish. The scenery shows gladiators fighting. A good deal of the enamel is missing but because of the irregular traces on the surface which the now missing enamel has left, a good deal of the scenery can be described. Four gladiators are depicted fighting against each other in pairs; at the pictures (Fig. 5, 7, 8) the gladiators are marked with numbers corresponding to their description.

Gladiator 1. Of the gladiator only the upper part of the body (painted in brown) is now seen but it is uncertain whether he is wearing an armour or has a naked torso (Fig. 5a, 7, 8). As the skin of gladiator no. 4 is painted in a reddish-brown colour this suggests (because this part of the body of gladiator no. 1 is of a different colour) that gladiator 1 is wearing an armour. There are faint traces of a loincloth (*subligaculum*). His left arm is raised in front of him and is holding what is probably a small round shield

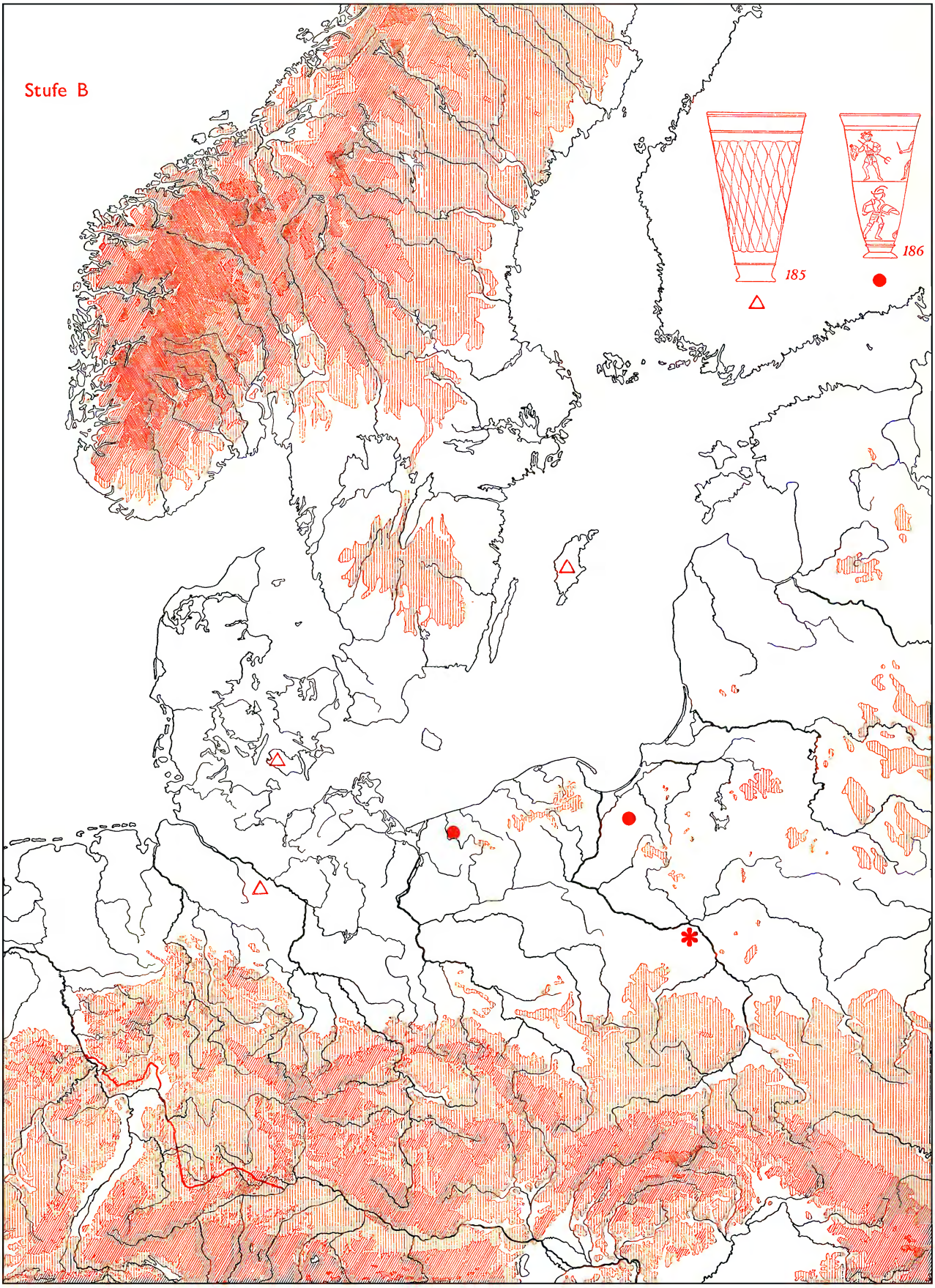

Fig. 11. Distribution map of glasses type Eggers 185–186. The new find from Zaborów is added with an asterisk.
After H. J. Eggers (1951, map 50)

Ryc. 11. Rozmieszczenie naczyń szklanych typów Eggers 185–186. Nowe znalezisko z Zaborowa oznaczono gwiazdką.
Wg: H. J. Eggers 1951, mapa 50

(*parmularii)*. His weapon or weapons unfortunately are not to be seen because parts of the glass at this point are missing. The left leg is placed in front of him, the right one is a bit behind him. Only the uppermost part of the right arm is to be seen, protected with a bandage (or arm guard) painted in green. Arm guards are always made of organic material and are very common for gladiators. Also on the lower part of the right leg is marked a kind of protection in green, and he is therefore probably wearing also a bandage on at least the right leg. On his head he is wearing a helmet with a great brim, the exact type is not to be decided but traces after the enamel paint on the glass suggest the helmet had a vizor. These details indicate that gladiator no. 1 is a *hoplomachus*, a gladiator of the heavy class who normally fought with a lance (Fig. 12).

Fig. 12. Bronze statuette of a *hoplomachus*. Late 1st or 2nd c. AD. Find spot unknown. After M. Junkelmann (2000, fig. 190)
Ryc. 12. Brązowa figurka *hoplomachusa*. Późny I lub II w. po Chr. Miejsce znalezienia nieznane. Wg: M. Junkelmann 2000, ryc. 190

G l a d i a t o r 2. The figure to the right of gladiator no. 1 is now nearly missing because of destruction of the glass (Fig. 5b, 7, 8). Only parts of the gladiator can be observed: some parts of one leg and parts of the lower body. The leg is painted red-brown. The lower part of the body is painted green (like one of the legs of gladiator no. 1). Obviously he is wearing a garment protecting the lower part of his body (*subligaculum*).

G l a d i a t o r 3. The third gladiator is better preserved than no. 1 and 2. (Fig. 5c, 7, 8). Very little enamel paint is left, but most parts of the figure are to be seen as a silhouette at the glass. The gladiator turned to the right, his left leg is in front of him, the right behind. What his left hand holds in front of him is not to be seen. He is

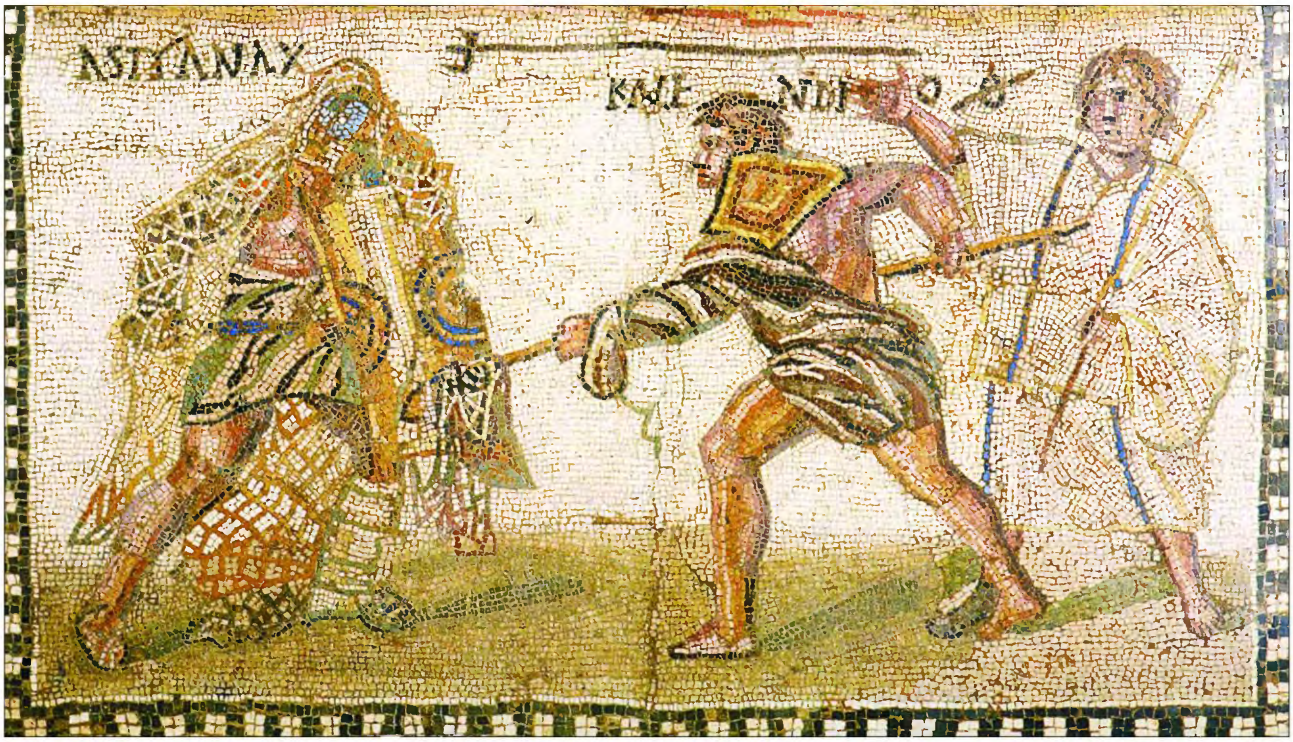

Fig. 13. Duel between a *secutor* (left) and a *retiarius* (right). The *retiarius* has thrown his net and caught the *secondor* (a very seldom depicted scenery). Mosaic from *Via Appia*, Rome. After M. Junkelmann (2000, fig. 216)
Ryc. 13. Walka pomiędzy *secutorem* (po lewej) a *retiariusem* (po lewej). *Retiarius* zarzucił sieć i chwycił *secondor* (bardzo rzadko wyobrażana scena). Mozaika z *Via Appia*, Rzym. Wg: M. Junkelmann 2000, ryc. 216

wearing a wide belt (*balteus* or *cingulum*) and below this a garment – loincloth (*subligaculum*) going to the thighs. His right arm looks as if he is about to throw something forward – and the traces on the glass show it can hardly be anything else than a net. Pictures of this type of gladiator (*retiarius*) are rather seldom because it is more typical to show scenes where this kind of fighting is at a more advanced stage – often the net has already been thrown and the *retiarius* is now fighting with a trident and sword (*cf* Fig. 13). It looks as if this gladiator is wearing shoulder-protection, which also is the only type of metal armour a *retiarius* had to wear. In his left hand he holds a weapon. The weapon, of which a part is like a stick, is to be seen both above and below his left hand, it can therefore only be a three-pronged fork (trident) he is fighting with; what he is wearing on his head is not to be seen.

Gladiator 4. The painting of the fourth gladiator is the best preserved. The gladiator is leaning his body to the right (Fig. 5d, 7, 8). His legs are painted red-brown and his left leg is bent slightly and the right leg stretched backwards. His left arm is situated in front of him and the right arm (?) bent backwards. He is holding something in his hand in a position that shows it must be a weapon to stick with. His left arm is wearing a bandage (arm guard) painted yellow. The head is now missing. On his body is a wide belt; the lower as well as the upper part of his body is painted green showing a garment – the lower part a loincloth (*subligaculum*).

Parallels. Early Roman glasses with painted gladiators

Glasses like the specimen from Zaborów belong to a group of colourless glass conical footed beakers whose other characteristics are a polished rim and a fine roof shaped list on the lower part of the vessel above the base ring. These characteristics are in common with the glass vessels of type Eggers 185 with polished decoration – the prototype of the glasses – vessels of type Pompeii (H. Norling-Christensen 1968, p. 410 ff.).

The closest parallels to the glass from Zaborów are two glasses from grave 2/1925 from Lubieszewo, distr. Gryfice, in Pomerania (former *Lübsow-Tunnehult, Kr. Greifenberg*; H. J. Eggers 1951, p. 106 f., no. 692; recently H. Fehr & E. Welker 1986, pl. 39:1). The two glasses were lost during World War II, only photos of the glasses and sketches their decoration exist today (Fig. 14a.b). Both glasses were part of the equipment in a very rich grave containing: two bronze Østlands cauldrons type E 40, bronze ladle and sieve type E 162, two silver cups type E 171, three clay vessels, four bronze ducks probably belonging to a drinking horn, one silver fibula type Almgren 38–39, two silver fibulae type Almgren 110–111, two gold finger rings and four round silver knobs.

First rich graves from the cemetery at Lubieszewo were excavated already in early 20th c. (E. Pernice 1913). The first publication of grave 2/1925 was made by O. Kunkel (1927) in Mannus-Ergänzungsband. This important grave find was also mentioned by H. J. Eggers (1940) in "Baltische Studien" and finally came the more extended publication by H. J. Eggers (1953). The glasses from Lubieszewo are of course also mentioned by T. Stawiarska (1999, p. 103 ff., 242 f. no. 14, 15, 364 f., pl. V:14, VI:14.15), who dates the find to phase B_{2a}.

H. J. Eggers (1953, p. 73, pl. 6) describes the glass vessels from Lubieszewo grave 2/1925 as: *Scherben zweier reich mit figürlichen Darstellungen bemalter Glasbecher*. The Lubieszewo beakers are like the Zaborów beaker of Eggers type 186, by Isings (1957) named *form 21* and described as a 'Conical beaker or goblet on pad-base', a glass type which again corresponds with group II acc. to A. Oliver (1984, 35 ff.). The beakers from Lubieszewo grave 2/1925 are 16.5 cm high, with a rim diameter of 9 cm and base diameter of 3.8 cm. One of the beakers was fully preserved; of the other beaker only a few glass pieces were left. The glasses are enamel-painted in several colours and depict gladiator fights arranged in two horizontal rows.

Related enamel-painted glasses

From *Barbaricum* we know of a number of related glasses with enamel paint. Geographically close are the enamel-painted glasses from grave 15 at Połowite, distr. Ostróda, in northern Poland (former *Pollwitten, Kr. Mohrungen*; H. J. Eggers 1951, p. 103 no. 610), and from a grave in barrow 4 at Rostołty, distr. Białystok, in north-eastern Poland (J. Jaskanis 1976, p. 236; T. Stawiarska 1999, p. 263 f. no. 81, pl. XI no. 81).

The glass from Połowite (very fragmented) was found in a grave containing: an iron lock mounting of a wooden box, an antler comb, a bronze fibula type Almgren 41, three iron nails, a glass bead and bronze fragments (Fig. 15; H. J. Eggers 1966, p. 157, pl. 13:4.5). Eggers (1951, p. 103) says the glass is a type 186. F. Fremersdorf saw the painted glass fragments in the then *Prussia-Museum, Königsberg*, in 1934, and got them for study in Cologne. Fremersdorf's examination of the glass fragments resulted in an opinion different than Eggers's – he classified the glass from Połowite grave 15 as a glass bowl of type E 209 (F. Fremersdorf 1970, p. 65, pl. 9:6). Połowite grave 15 is dated to phase B_2/C_{1a}, which means it is only slightly younger than the painted glass from Zaborów.

Fragmented enamel-painted glass from a destroyed inhumation grave at Rostołty is also identified as type E 209 though it preserved in three fragments only. The rich burial contained *ia*, fragments of one or more glass

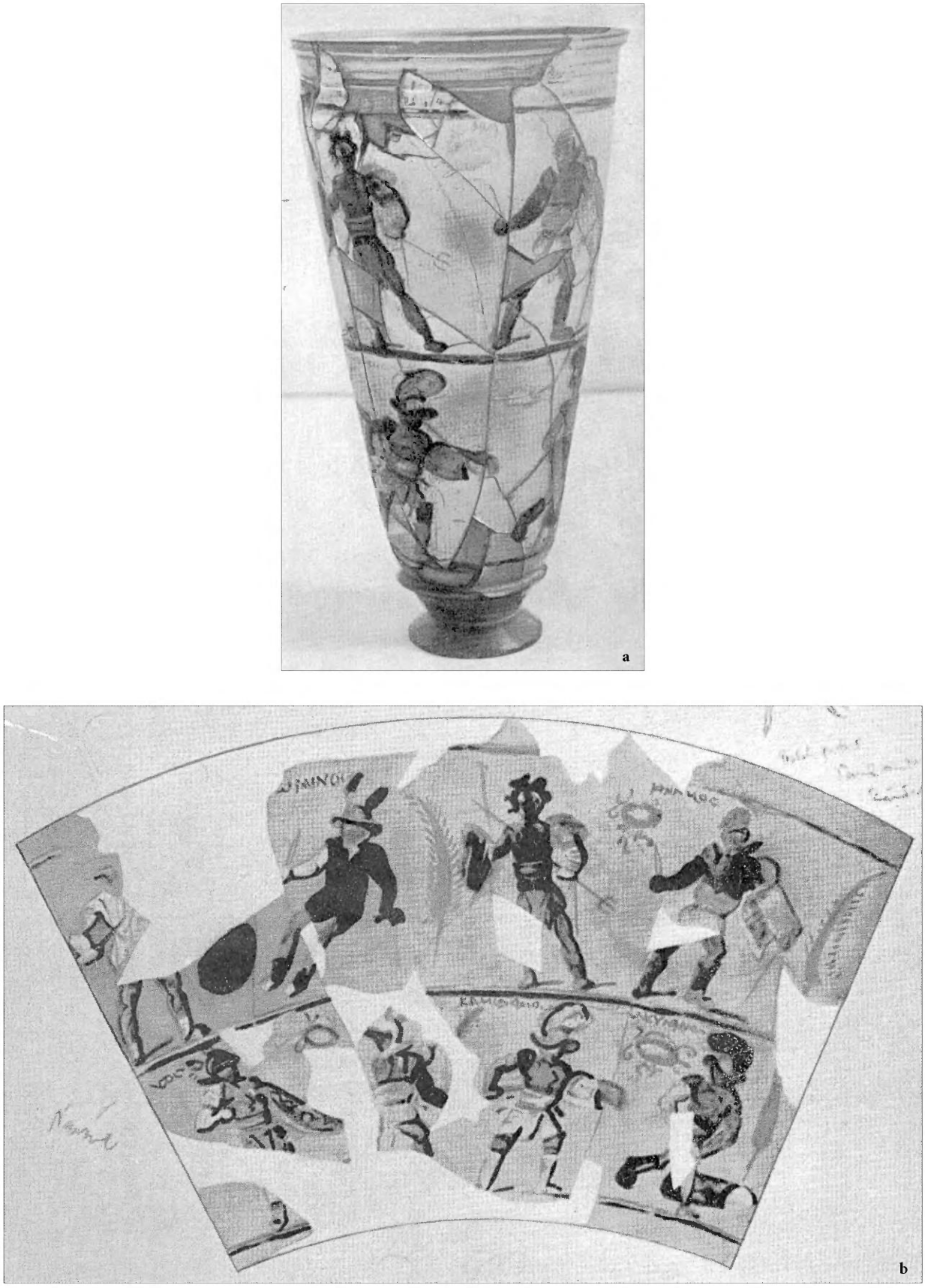

Fig. 14. Photo (a) and drawing (b) of the now missing enamel-painted glass from Lubieszewo/*Lübsow* grave 2/1925. After H. J. Eggers (1953, pl. 6)

Ryc. 14. Fotografia (a) i rysunek (b) zaginionego malowanego pucharka szklanego z grobu 2/1925 z Lubieszewa/*Lübsow*. Wg: H. J. Eggers 1953, tabl. 6

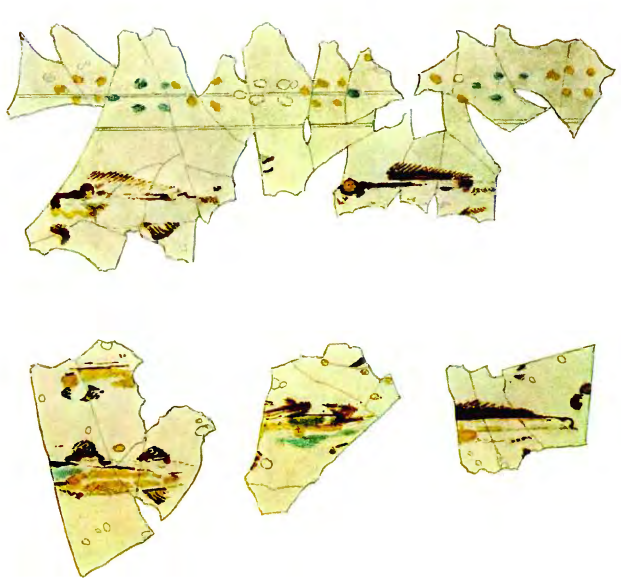

Fig. 15. Fragments of the enamel-painted glass vessel from Połowite/*Pollwitten* grave 15. After F. Fremersdorf (1970, pl. 9:6)
Ryc. 15. Fragmenty malowanego naczynia szklanego z grobu 15 z Połowitego/*Pollwitten*. Wg: F. Fremersdorf 1970, tabl. 9:6

beakers E 189, pieces of glass drinking horn and other glass vessel, and silver fibula type Almgren 162 with knee-shaped bow (J. Jaskanis 1976, p. 235 ff., fig. 11c, 13b–d, 14, 20c; T. Stawiarska 1999, fig. 32, 53, 67, 69, 71) what set the grave within phase C_{1b}.

In 1984 a glass specimen very like the beaker from Zaborów, Lubieszewo and Połowite, though with a different design of the enamel-painted motif, was excavated at Bassenheim, Kr. Mayen-Koblenz, Germany (H. Fehr & E. Welker 1986). The glass was of the same shape or type as type E 186. This glass, in contrast to the above mentioned glasses, was excavated in an area of the former Roman Empire.

The glass was found during rescue excavation within the bottom layer of a pit. Together with the glass fragments were excavated fragments of pottery (*ca* 50 different vessels – all burnt), nails, bones of pig, cats, birds, sheep – but no traces of human bones. Near the bottom of the pit lay fragments of a largely destroyed enamel-painted glass and a colourless glass bowl. The pottery – partly *terra sigillata* – is dated to the first half of the 2nd c. AD. Before the pit was observed during the rescue excavation some fragments of a tuff cinerary urn were discovered in the same area; this means that the find represents a completely disturbed cinerary urn belonging to a grave from the early 2nd c. AD. The pyre goods and debris were probably deposited within the pit next to this urn; afterwards it was covered by a mound. A grave with such grave goods probably belonged to a wealthy landowners in the Trier district (H. Fehr & E. Welker 1986, p. 193).

This enamel-painted glass is strongly damaged by fire (H. Fehr & E. Welker 1986, p. 196, fig. 2, pl. VII:1). To be measured is the diameter of the foot 3.4 cm and the thickness of the foot – 3.8 cm. The glass is colourless with a faint greenish tint; it is of good quality but with many small bubbles. The painted decoration is in yellow, rose (colour of the skin), red to red-brown and turquoise-blue.

The shape is probably that of a slender conical beaker. The painted decoration on one side of the glass includes the figure of a young, partly naked woman wearing a turquoise-blue scarf worn over her left arm and on her lap. Her hair is brown and decorated with a flower garland painted yellow with red dots. The skin of the woman is painted in rose nuances, the outline of the body, breast etc. red-brown. The woman is probably sitting in a garden because of the structure of paling and leaves. The other side of the glass shows the other part of her other arm holding what probably is a flower garland (red brownish petals, yellow leaves). It appears that the garland ran all the way around the rim of the glass. The technique of decoration is enamel painting (H. Fehr & E. Welker 1986, p. 195). A parallel mentioned by the authors is Begram (Bagram) in Afghanistan and Lubieszewo (H. Fehr & E. Welker 1986, resp. pl. 38:1.2, pl. VII:2, and pl. 39:1).

Fig. 16. Painted goblet from Begram, Afghanistan, project II, chamber 10. After P. Cambon *et alii* (2007, no. 163)
Ryc. 16. Malowany pucharek z Begram, Afganistan, stan. II, komora 10. Wg: P. Cambon *et alii* 2007, nr 163

Fig. 17. Begram, Afghanistan, project II, chamber 13. Large goblet with enamel painting of the fight between Achilles and Hector (a) and its details (b). After P. Cambon *et alii* (2007, no. 211)

Ryc. 17. Begram, Afganistan, stan. II, komora 13. Duży puchar z malowanym motywem walki pomiędzy Achillesem a Hektorem (a) i szczegóły zdobienia (b). Wg P. Cambona *et alii* (2007, nr 211)

The enamel-painted glass from Bassenheim is very close in shape to the Zaborów glass and is a new parallel to the glasses of Eggers type 186. The dating of the two finds also makes it obvious that they belong to the same group of enamel-painted Early Roman glasses.

Important for the discussion of enamel-painted Roman glass, their origin and dating, are glass finds from the famous archaeological site Begram situated at the foot of the Hindu Kush, 60 km north of Kabul. Begram was the meeting point of two important caravan routes: an east-west route between the Mediterranean and India, and a north-south route from the Wakhan Corridor and China. The site is identified by A. Foucher (1925) as *Kapisa* – the summer residence of the Kushans.

The site was excavated between 1936 and 1942 by the Delegation Archéologique Francaise en Afghanistan both inside and outside the *nouvelle ville royale* – a fortified enclosure some 550 metres across. The most spectacular discovery consisted of an extraordinary rich and

Fig. 18. Enamel-painted glass with stem and foot excavated at Richard-Wagner-Strasse grave 103 in Cologne, Germany, dated to around 200 AD. After M. Schleirmacher & Z. Ovisi (1993, fig. 1)
Ryc. 18. Malowane naczynie szklane na nóżce z grobu 103 w Kolonii, Niemcy (Richard-Wagner-Strasse). Ok. 200 roku po Chr. Wg: M. Schleirmacher i Z. Ovisi 1993, ryc. 1

varied deposit (bronze, rock crystal, glass, and plaster models for metalwork from the Mediterranean, ivories from India and lacquer from China; P. Cambon *et alii* 2007, p. 65 ff.). The glasses were excavated in 1937 in chamber 10, and in 1939 in chamber 13 (resp. Fig. 16 & 17a.b; *cf* P. Cambon *et alii* 2007, p. 237–244 no. 158–172, p. 264 f. no. 211 & 212). The cache has been interpreted in different ways: 1. as part of a palace treasure, 2. as a customs depot for the caravans crossing Begram, and 3. as a mixed hoard of treasures and accessories from a palace workshop (D. Whitehouse 1989a, p. 151; 1989b, p. 93 ff.).

The amount of glass is considerable: 179 glass objects (not including the beads). There are cast and blown glasses of many shapes and with many different decorations. In this context only the enamelled glasses (18 pieces) and the cold painted glasses are of interest. The deposit included also a considerable number of Early Roman faceted conical glass beakers of A. Oliver's group II which actually is the glass shape, as earlier mentioned, very close to the painted edition E 186 (A. Oliver 1984; C. Isings 1957, p. 37 f. [form 21]; P. Cambon *et alii* 2007, p. 244 no. 172).

The painted conical beakers (25 fragmentary vessels) are decorated with a variety of scenes including hunting and fishing, a duel between Hector and Achilles, the rape of Europa, the goddess Isis with attendants, and finally, also gladiators (Fig. 17b; *cf* P. Hamelin 1955, p. 94 f., pl. IV; H. Fehr & E. Welker 1986, pl. 38:1–3; P. Cambon *et alii* 2007, 240 f. no. 163, p. 264 no. 211).

Many of the glasses (as other objects from Begram) were in earlier publications dated to the 2nd and 3rd c. AD – a dating which recently has been much discussed. D. Whitehouse (1989a, p. 153) is of the opinion that the enamel-painted glasses from Begram are so equal to Oliver's group II, that their dating must be the 1st c. AD, which is also my opinion. The same goes for the gilded glasses from Begram. Whitehouse's analysis concludes that the glasses from Begram include a large number of objects made in the Roman World in the 1st or early 2nd c. AD.

In addition, analyses of the composition of the glass material have been made; these show that the samples analysed all are soda-lime-silica glass made with natron and containing antimony. The best match to this is a group of glasses from Karanis in Egypt (early group of fabrics acc. to D. B. Harden 1936, p. 33).

To summarise, the glasses from Begram are now dated earlier than before; presumably they reached Begram between 50 and 125 AD. Much speaks in favour of trade by sea from the eastern Mediterranean – probably Egypt (D. Whitehouse 1989a, p. 155). They are at the moment some of the best parallels to the Zaborów, Lubieszewo and Bassenheim glasses, and they might have originated from the same workshop.

Another new find of enamel-painted glass is from Richard-Wagner-Strasse grave 103 in Cologne, Germany, excavated in 1991. This find occurred inside the borders of the Roman Empire and in the Rhine region, just like Bassenheim. The glass was discovered during excavation of a cremation coffin. Among other things the coffin contained a conical glass beaker with a stem and foot, decorated with enamel painting (Fig. 18). The pottery in the grave is from about 200 AD. Very similar to this specimen – enamel-painted glass with a stem and foot – are two gold-enamel decorated glasses from Sedeinga in Sudanese Nubia (Fig. 19) dated to probably the 3rd c. AD (J. Leclant 1973, p. 52 ff.;

W. Gudenrath 2006, p. 38, fig. 7). The decoration of the glass from Richard-Wagner-Strasse grave 103 in Cologne depicts scenes from Greek mythology. The shape of the glass is different from Zaborów and the other glasses mentioned above. The Richard-Wagner-Strasse glass is the successor of the Early Roman enamel-painted glasses; it represents the development of the enamel-painted cone shaped glasses in the Late Roman times.

In relation to the discussion of the origin of the enamel-painted glasses in Roman times, the new excavation at Ismant el-Kharab (ancient *Kellis*), Egypt, is of importance. The excavations began in 1986 as a part of the work of the Dakhleh Oasis Project. Dakhleh Oasis lies 800 km south-west of Cairo and has been inhabited since prehistoric times. Situated above artesian springs, Dakhleh Oasis forms part of a chain of oases and trade routes that start in the Nile Valley in the north of the country and rejoin the river at modern Luxor, Aswan and in the northern Sudan (C. A. Hope & H. V. Whitehouse 2003). In 2000 inside Enclosure 4 (area D) yielded two deposits of glass, one of them included fragments of a jug painted with well-preserved scenes of gladiator combat (Fig. 20a.b).

Fig. 19. One of two gold-enamel decorated glasses from Sedeinga in Sudanese Nubia dated to probably the 3rd c. AD.
After W. Gudenrath (2006, fig. 7)

Ryc. 19. Jeden z dwóch kielichów zdobionych złotą emalią, z Sedeinga w sudańskiej Nubii. Prawdopodobnie III w. po Chr.
Wg: W. Gudenrath 2006, ryc. 7

The jug is one-handled and with a low ring base – Isings form 120b (C. A. Hope & H. V. Whitehouse 2003, fig. 2b, pl. 5, 6a–d, 7). The jug is dated to the 3rd c. or the first half of the 4th c. AD by its type rather than context. Close parallels are known from the Daphne Ewer collection from Kerch, Crimea, from Dura Europos and Begram. As mentioned, this find is important for the ongoing discussion of the manufacturing workshops of enamel-painted glasses in the Early as well as the Late Roman times (see below).

The well known enamel-painted glasses from the Late Roman times, already published in several important publications will be mentioned later.

The decorative technique

Glass vessels from the Roman period could be decorated in many ways, either by so-called hot working or by cold working or by a combination of the two techniques. Hot working includes processes such as fashioning pinched projections or applying ornamental handles and bases, blobs, trails and others, or blowing into decorated moulds. This was undertaken in the glass-house as part of the process of making the vessel. Decoration by cold working such as painting and enamelling or cutting and engraving, was undertaken after the vessel had been formed and carefully cooled, by craftsmen probably with quite different skills from those of the glassmakers, and who did not necessarily work for the same establishment or even in the same geographical location as the glassblowers who produced the vessel. Only future analyses can throw light on this discussion.

There are two types of painting on glass. In cold painting the surface is decorated with watercolour, tempera or oil paint. In the second category, the paint consists of powdered glass, which is fused to the surface of the object by heating. This technique is known as enamelling. The Romans practised both techniques. Painting and enamelling is not very common in the Western Roman provinces, though some cups and flasks from Italy, Gaul, the Rhineland, Britain and Africa have been recorded. Two groups of drinking cups are particularly noteworthy. A small number of early to mid-1st c. AD hemispherical cups, with painted and enamelled designs including motifs such as vine and ivy leaves, various birds and fishes, pygmies and garlands on the outside surfaces of the body and base, have been found in Italy, Gaul, the upper Rhineland, Britain and Africa, and were probably produced in northern Italy, though this theory is still discussed. One of the finest of these glasses is a dark green specimen from a burial at Locarno-Mu-

ralto, which has a frieze of vine tendrils, ivy leaves and birds painted in blue, greyish-white, olive-green, brownish-red, orange and yellow on the body and an eight-pointed star surrounded by a ring of dots painted in red and white on the base (Fig. 21).

A rare and special group of glasses decorated with enamelling are the so-called glass beakers of type *Lübsow* (Eggers type 186), dated to the second half of the 1st and first half of the 2nd c. AD – the group which includes the mentioned new finds is discussed in this article (Fig. 22).

In the later 2nd and 3rd c. AD another group of painted and enamelled cups is known. These are colourless and cylindrical and concentrate in the lower Rhineland, nor-

Fig. 20a. Enamel-painted jug, excavated in Ismant el-Kharab, Egypt. 4th c. AD. After C.A. Hope & H.V. Whitehouse (2003, pl. 5, 6)
Ryc. 20a. Malowany dzban znaleziony w Ismant el-Kharab, Egipt. IV w. po Chr. Wg: C.A. Hope i H.V. Whitehouse 2003, tabl. 5, 6

Fig. 20b. Details of the enamel-painted jug from Ismant el-Kharab. After C.A. Hope & H.V. Whitehouse (2003, pl. 5, 6)
Ryc. 20b. Szczegóły dekoracji dzbana z Ismant el-Kharab. Wg: C.A. Hope i H.V. Whitehouse 2003, tabl. 5, 6

thern Britain and beyond the Roman frontiers – especially in Denmark (Fig. 23). They are decorated in general with scenes of fighting gladiators, or huntsmen and wild beasts, although representations of Bacchus and other designs also occur. It is apparent from the variation of the styles, the execution of the painting and the use of colour that the decoration was produced by more than one painter, and probably by more than one workshop. Many of the best-preserved pieces come from burials in Denmark, although they are thought to have been made and decorated in the lower Rhineland, probably at Cologne (H. Norling-Christensen 1953a; 1953b; G. Ekholm 1958, p. 40 ff.; D. Charlesworth 1959, p. 44 ff.; F. Fremersdorf 1967, p. 189 ff., pl. 275–280; 1970, p. 65 ff.; E. Welker 1974, p. 112 ff; M. Riedel 1982, p. 75; U. Lund Hansen 1987, p. 74 ff.; 1995, p. 149 f.).

About early enamelled glass

Painted glass vessels are among the most exceptional specimens of ancient glass, and furthermore they are found or excavated in the most unexpected parts of the old world. In 1874 de Villefosse was the first to describe painted glass vessels in some detail. During the first two decades of the 20th c., when research into ancient glass was at its most productive, a number of treatises on Roman painted glass appeared, notably those by A. Kisa

(1908), E. Michon (1913) and most importantly M. Rostovtzeff's study (1914) on late Hellenistic painted glass vases.

Until that time research into painted glass had dealt almost exclusively with the existing finds or pieces found in collections; new finds from the 1930s onwards led to their study evolving along new lines. In 1938 following the discovery of a painted glass bowl at Locarno-Muralto in Switzerland (Fig. 21), D. Silvestrini (1939) for the first time concentrated on examining enamelled glass vessels from the early Roman Imperial period. In 1947, in a treatise on the glass from Colchester (*Camulodunum*), D. B. Harden presented a find from England. Since the 1950s studies on Roman painted glass have been appearing at frequent intervals (G. M. A. Richter & R. W. Smith 1953; P. Hamelin 1955; G. Ekholm 1958; F. Coarelli 1963; F. Fremersdorf 1967; 1970; L. Faedo 1976; K. Weitzmann & E. Turner 1981; E. Welker 1986, and above all by D. B. Harden 1969; 1988; K. S. Painter 1968; 1988, as well as B. Rütti 1980; 1991; 2003; C. A. Hope & H. V. Whitehouse 2003; U. Lund Hansen 1987; D. Whitehouse 1989a; 1989b; N. P. Sorokina 1968; 1984; E. M. Stern 2001, and W. Gudenrath 2006).

Fig. 21. Hemispherical green cup with enamel painting from grave in Locarno-Muralto, Italy, 1st c. AD. After W. Gudenrath (2006, fig. 3)

Ryc. 21. Zielona półkulista miseczka zdobiona emalią z grobu w Locarno-Muralto, Włochy. I w. po Chr. Wg: W. Gudenrath 2006, fig. 3

Actually the earliest known glasses decorated with enamelling go as far back as to15th c. BC Egypt. Enamel decoration consists of coloured glass (or a mixture of colourless glass and a colouring agent) that is pulverized and applied – in the form of fine granules suspended in liquid – onto a cooled glass vessel, and subsequently permanently fused to its surface by intense heating. There is a – until now unexplainable – gap between the use of enamel decoration in 15th c. BC Egypt and the Roman period; until now no glass find has shown the use of enamel technique in fourteen centuries. The Roman glass manufacture used the rediscovered art of

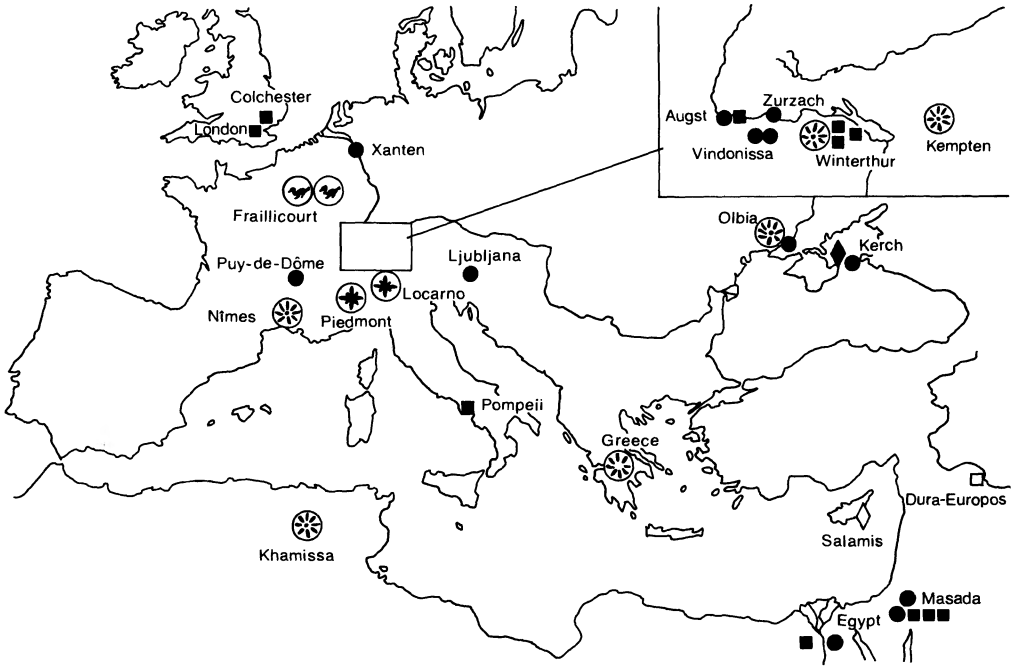

Fig. 27. Distribution of glass vessels with enamelled decoration. ● Fragmentary bowls, ⊛ bowls with a rosette as a base-mark, ✦ bowls with a star as a base-mark, 🐦 bowls with a bird as a base-mark, ♦ amphorisks, ■ Uncertain shape, ◊ □ probably painting in unfired pigments.
Drawn by Miss S. Fünfschilling

Fig. 22. Distribution of Early Roman glass vessels with enamel decoration inside the Roman Empire. After B. Rütti (1991, fig. 27)

Ryc. 22. Rozmieszczenie znalezisk wczesnorzymskich malowanych naczyń szklanych na terenie Imperium. Wg: B. Rütti 1991, ryc. 27

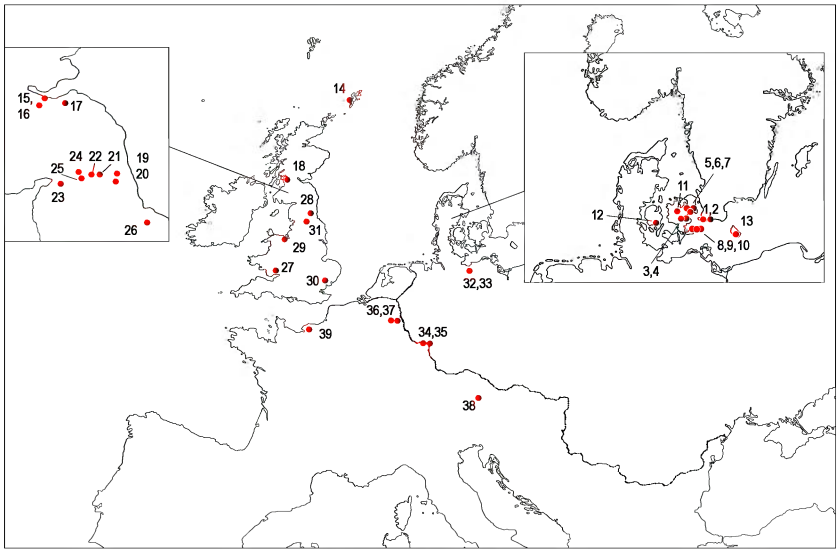

Fig. 23. Distribution of Late Roman enamel-painted glasses.
After S. Le Maho & G. Sennequier (1996, fig. 4)

Ryc. 23. Rozmieszczenie znalezisk późnorzymskich malowanych naczyń szklanych.
Wg: S. Le Maho i G. Sennequier 1996, ryc. 4

decoration from the beginning of the Roman era and over a period of about 300 years.

This high-fire process can soften and possibly damage the object. The process is carried out in a glass furnace (glass furnace: specialized piece of equipment intended for making glass or for reheating an object during its manufacture). Typically, such a furnace operates at temperatures of about 2100°F (1149°C) for glass working and about 2250°F (1232°C) for glass making (W. Gudenrath 2006, p. 23).

The earliest enamel-painted glasses from Roman period are from the Tiberian period. On some of these early painted glasses (from, for example Khamissa, Nimes, Greece and Kempten) the contour of the design was scratched onto the surface before painting – in the rest of the painted glasses the decoration was made in free hand (M. Schleirmacher & Z. Ovisi 1993, p. 586). The painter used *glasfrittenfarben*: the colours were produced by using metal oxides: red (iron), blue (copper, iron and antimony), yellow (lead, antimony). In dark red, bright red, rose and blue there was no lead. The colours were fastened to the glass dissolved in oil, oil of cloves, or white spirit. The enamel was heated to around 680–770° (M. Schleirmacher & Z. Ovisi 1993, p. 587).

About enamel

There exist different types of enamel: premelted (or prefritted) enamel and cold-mixed (or unfritted) enamel depending on when and how the enamels get their colour. There is a clear difference between the two types of enamel: the cold-mixed type gets its colour during the firing process while the colour of the premelted enamel was achieved by chemical reactions which took place long before the firing process, when the ingredients were melted in a crucible within a glass-making furnace (W. Gudenrath 2006, p. 224). In the case of premelted enamel the coloured glass is finely ground probably using a mortar and pestle. Next, the ground enamel mixed with a small amount of perhaps water, oil or gum arabic to create a somehow viscous enamel. Subsequently the enamel is applied onto the blank; it has to dry before being placed in the furnace.

This classification of enamel categories is based on the temperature of the enamel in comparison with the temperature at which the vessel might begin to become distorted under its own weight. High-fire enamels: these enamels require exposure to such a high temperature for such an extended period that without some intervention on the part of the glass-worker, the vessel would begin to collapse under its own weight. High-fire enamels require either a furnace-firing procedure or the kiln-firing procedure known as flash firing. These were the only enamels available for decorating glass until the 19th c. The other category, which not is of importance here, is low-fire enamels. This technique was not used before modern times sometimes in the 19th c. (W. Gudenrath 2006, p. 24 f.).

Technique used for the glass vessels of type E 186

For firing enamels on glass vessels like Zaborów, Lubieszewo *etc.* the glass maker had to hold the decorated blank at the end of a long tool and reintroduce it into an intensely hot glass-working furnace. The decorated blank had to be reheated very gradually to a temperature slightly above the annealing point of the glass (modern soda-lime glass – about 510°C). When the blank was hot (but not sufficiently hot to fire the enamels), it was attached to a tool and removed from the kiln in which it had been preheated. In Roman times the blank was held by a metal rod used in the core forming process or the blowpipe which had been employed to blow the blank.

Next, the decorated blank was thrust immediately into the glass furnace (or into another similarly high temperature – about 2000°F/1093°C – furnace) and held there until the enamels started to glow orange and shine. To the glass worker this visual cue indicated that the enamels had fully fused or fired. When the firing process had been completed, the finished object was broken free of the pontil and placed in an annealing oven (W. Gudenrath 2006, p. 27).

Fig. 24. Enamel-painted amphora from Kerch, Crimea, 1st c. AD. After N. Sorokina (1997, p. 143 no. 107, p. 289 no. 178)
Ryc. 24. Malowana amfora z Kerczu na Krymie. I w. po Chr. Wg: N. Sorokina 1997, s. 143 nr 107, s. 289 nr 178

Origin of enamel-painted glass from the Roman times. A discussion

The origin or origins of Roman enamelled glass vessels have caused much discussion. In general researchers distinguish an 'Early group' and a 'Late Group'.

The Early group. The opinion is today that this group of painted glass reflect the development of painted glass from its appearance in Italy in the 1st c. AD, where it probably was introduced from Syria or possibly Egypt (K. S. Painter 1988; B. Caron 1990, p. 61 ff.; B. Rütti 1991; 2003).

1st c. AD material comprises hemispherical bowls (Fig. 21) and amphorisks in coloured glass (Fig. 24). Amphorisks are known only from Cyprus and from Kerch on the northern shore of the Black Sea, hemispherical bowls are known from across Europe to Egypt – but mostly from the western part of the Roman Empire (Fig. 22). It is suggested that many of the bowls were made in just a few centres, presumably, one in the East (Egypt) and another in northern Italy. Isings (1957) names the *deep bowl and hemispherical cups* mentioned above for her type 12 and dates them all to 20–70 AD (Fig. 22; B. Rütti 2003, p. 351 fig. 6). They are found especially in Alexandria, north Italy and Syria-Palestine (B. Rütti 2003, p. 351 f.).

The discussion here will be limited to Eggers type 186 (Isings type 21). Oliver (1984, p. 38) points out that blanks for both type E 185 and E 186 can have come from the same glass factory and been given identical preliminary tooling before being handed over to a diatretarius (glass-cutter) or to a painter or enameller. This theory might be confirmed by the hybrid glass from the Benaki Museum in Athens which is a glass of Oliver type I with a row of wheel-cut, oval facets underscoring panels of painted decoration (A. Oliver 1984, p. 38 f., fig. 11). The opinion of Oliver seen from his perspective is that the Early Roman faceted glasses point to an origin in Egypt or at least an eastern origin (because of parallels from Ain el Turbeh in the Kharga Oasis, fragments from The Victoria and Albert Museum coming from *Oxyrhynchus* and a fragment in a private collection coming from Luxor – and then, the painted glasses from Begram are not to be forgotten.

Also of interest is a painted glass found in Algeria, a hybrid; its shape is more like that of Late Roman cups from, for example, Denmark, but the decoration is gladiators and foliage which resembles decoration from the Early Roman times (P. Hamelin 1955, p. 89 ff.).

To the early group belong also the amphorae (Fig. 24) from an area north of the Black Sea (N. P. Sorokina 1968, p. 67 ff.; 1984, p. 233 ff; 1993, p. 64). Some of these glasses Sorokina considered as imports from Italy and the painting technique copied subsequently in the Black Sea area. Sorokina points at Italy as the area of origin of enamel painting in the 1st c. AD in contradiction to many other archaeologists. The amphorae found in the Black Sea area are of oriental shape, and they have been considered as produced in this area but inspired by Italian imported painted glass. Analyses of the enamel do show that the enamel on the glasses of Isings type 12 and the amphorae from the Black Sea area is identical.

Glasses with a stem-foot like the already cited new find from Richard-Wagner-Strasse grave 103 in Cologne are closely related to the early enamel-painted glasses as also the Begram glasses, though the shape varies and the dating is about 200 AD.

Fig. 25. Bottle with enamel painting of Apollo and Marsyas and its detail. 3rd or 4th c. AD, found in Syria or Germany. After W. Gudenrath (2006, fig. 8.1)

Ryc. 25. Butelka z malowanymi wyobrażeniami Apolla i Marsjasza (Syria lub Niemcy), obok detal zdobienia. III lub IV w. po Chr. Wg: W. Gudenrath 2006, fig. 8.1

There seems to be a continuity between the production of enamel-painted glasses from the Early to Late Roman times, the new excavated finds emphasise this.

The Late Group of enamel-painted glasses are dated to late 2nd and 3rd c. AD. In the West especially cylindrical cups are common and only found in the north-western provinces of the Roman Empire and *Barbaricum*, a total of more than 50 examples – and new finds continue to appear (Fig. 23). They are distributed around the North Sea, Denmark, northern Germany, Britain, western France and the Rhineland (F. Morton & E. Polaschek 1944, p. 321; F. Fremersdorf & E. Polonyi-Fremersdorf 1984, p. 125 f., fig. 6; U. Lund Hansen 1987, p. 74 ff.; H. E. M. Cool & J. Price 1995; S. Le Maho & G. Sennequier 1996, p. 175 ff., fig. 2, 3, 6–8; B. Rütti 2003, fig. 9). Another, also rare glass type with enamel paint are globular flasks with a cylindrical neck, Isings form 103 (Fig. 25), well known from the Rhine area too. Of these enamel-painted glasses only seven or eight show parts of gladiator scenes. This late group will not be discussed further.

The Early Roman enamel-painted glasses from *Barbaricum* are all – except Zaborów – from richly equipped grave finds from a limited part of *Barbaricum*. But the grave field Zaborów is a part of a very important iron extraction area in Poland – an area which must have played an important economic role during the Roman times.

As shown in this paper there exist different types of glasses with enamel paint – especially type Eggers 186 and the hemispherical small cups (as Fig. 21). Looking at the distribution of the Early Roman enamel-painted glasses inside the Roman Empire of the Early Roman times one could get an impression that also the enamel-painted glasses in *Barbaricum* were a product of the same workshops which produced most of the glass shown in Fig. 22. The question is, are the enamel-painted glasses from Begram also the product of western glasshouses, or – more probably – the product of East Mediterranean workshops. At present this question must remain open. Some progress has been made in dating the Begram glasses which has been pushed back, to a phase where they fit in with other Early Roman glass material and are one of the most important parallel materials to Zaborów, Lübsow and Richard-Wagner Strasse.

The glass find from Richard-Wagner-Strasse demonstrates that the production of enamel-painted glasses in the Rhine area continued from the Early Roman period and that the design continued to develop to, in particular, enamel-painted so-called Circus-beakers, of the Late Roman times, Eggers type 209 (Fig. 23).

Let it be noted that the distribution of the early enamel-painted glasses must be seen in the of Roman military activity (B. Rütti 2003, p. 351 fig. 6). A discussion of glass distribution in relation to not only exchange and trade but also to Roman military activities will be made in a later paper.

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MALOWANY PUCHAR SZKLANY Z CMENTARZYSKA KULTURY PRZEWORSKIEJ W ZABOROWIE NA ZACHODNIM MAZOWSZU

STRESZCZENIE

Cmentarzysko

W Muzeum Starożytnego Hutnictwa Mazowieckiego w Pruszkowie przechowywane są materiały zabytkowe pochodzące z badań ratowniczych przeprowadzonych w 1987 r. przez Stefana Woydę na cmentarzysku kultury przeworskiej z okresu wpływów rzymskich na stan. 21 w Zaborowie w gminie Leszno, w powiecie warszawskim zachodnim (Ryc. 1).

Stanowisko zostało odkryte przypadkowo w 1981 r. podczas obserwacji lotniczych nad obszarem osady hutniczej na stan. 22 w Zaborowie, zlokalizowanej powierzchniowo (Ryc. 2, 3). Cmentarzysko oraz osada położone są na dwóch przeciwległych brzegach niewielkiego cieku wodnego, w odległości ok. 200 m i są prawdopodobnie bezpośrednio ze sobą powiązane. W wyniku badań archeologicznych odkryto pięć silnie zniszczonych obiektów, z których trzy (1, 2a, 2b1) to groby ciałopalne, natomiast pozostałe (2b2, 3) to osadnicze jamy wczesnośredniowieczne.

Grób 1, popielnicowy, z pochówkiem mężczyzny zmarłego w wieku *maturus–senilis*. Wyposażenie pochówku stanowiły: malowany puchar szklany typu Eggers 186 oraz dwa naczynia gliniane – popielnica typu II/3 według T. Liany (1971) i małe naczynie nawiązujące do form doniczkowatych (Ryc. 4–9a.b). Te ostatnie na obszarze kultury przeworskiej spotykane są rzadko, zwykle w zespołach z fazy B_2, natomiast w kulturze wielbarskiej występują przez cały okres rzymski (grupa XI w klasyfikacji R. Wołągiewicza 1993).

W popielnicowym grobie 2a (dorosły nieokreślonej płci) znaleziono dwustożkowatą popielnicę typu II/2, miseczkę typu VI/2, fragmenty naczynia typu IV/1 zdobionego motywem krokwiowym oraz żelazną sprzączkę typu D1 wg R. Madydy-Legutko (Ryc. 9d–g). Zespół można datować na fazę B_2. Podobną chronologię ma jamowy grób 2b1 (*infans II–iuvenis*), z fragmentem brązowej fibuli kapturkowej typu Almgren 38-39 (Ryc. 9c).

Wśród luźnych znalezisk z warstwy humusu na szczególną uwagę zasługuje fragment brązowego lusterka o kolistym dysku z pogrubionym brzegiem, zdobionego koncentrycznymi kręgami (Ryc. 10d). Zbliżony jest on do tzw. puderniczek, zaliczonych do grupy C oraz grupy Ra wg G. Lloyd Morgan (1981), których występowanie na terenie Cesarstwa przypada na I wiek po Chr. Lusterka należą do kategorii importów niezwykle rzadko występujących na terenach środkowoeuropejskiego *Barbaricum*. Pojedyncze egzemplarze znane są ze stanowisk kultury przeworskiej od fazy A_3 późnego okresu przedrzymskiego oraz początku fazy B_1 (E. Kaszewska 1982, tabl. 288:1.2; A. Szpunar 1994, tabl. XVIIIb; P. Kurowicz, M. Olędzki 2002, s. 22–23, tabl. XVII:2; M. Pietrzak 2007, s. 144), natomiast z zespołów kultury wielbarskiej z faz B_1 i B_2 (ostatnio M. Pietrzak 2007). Z humusu pochodzą także fragment żelaznego umba, zapewne typu Jahn 7a/2, oraz część sprężynki fibuli brązowej, zapewne wczesnorzymskiej, być może oczkowatej serii głównej (Ryc. 10c).

Stanowisko 21 w Zaborowie zlokalizowane jest w obrębie potężnego skupiska osadniczego wiążącego się z mazowieckim ośrodkiem metalurgicznym oraz w bezpośrednim sąsiedztwie jednej z wielkich osad hutniczych. Obydwa stanowiska tworzą unikatowy zespół osadniczy. Z terenu tego ośrodka znanych jest wyjątkowo mało cmentarzysk, dotychczas nie udało się też zarejestrować innego zespołu pozostających w tak wyraźnych wzajemnych relacjach przestrzennych. Materiały z badań ratowniczych oraz luźno znaleziona ceramika pozwala datować kompleks osadniczy w Zaborowie na okres od fazy A_2–A_3 młodszego okresu przedrzymskiego do fazy B_2 okresu wczesnorzymskiego.

Wczesnorzymski pucharek szklany

Malowane szklane naczynia do picia z okresu rzymskiego są znaleziskami bardzo rzadkimi, nawet na terenie Imperium. Pucharek z Zaborowa ma całkowicie zniszczoną krawędź, ale rodzaj dekoracji zdaje sie wskazywać, że pierwotnie był niewiele większy niż zachowane do dzisiaj części. Zrekonstruowana część naczynia ma 14 cm wysokości, największą średnicę 8 cm, średnicę nasady nóżki 3,2 cm i średnicę stopki 4,5 cm; grubość szkła wynosi ok. 2 mm (Ryc. 5, 6). Szeroki pas malowanego ornamentu (wys. ok. 9 cm), od dołu i od góry ograniczony liniami brązowawą i żółtawą, obejmuje wyobrażenia czterech walczących parami gladiatorów (Ryc. 5, 7, 8).

Gladiator 1. Zachowała się górna część malowanej na brązowo postaci, prawdopodobnie ubranego w jakiś rodzaj pancerza gladiatora, widoczne są też nikłe ślady przepaski biodrowej (Ryc. 5a, 7, 8). W lewej ręce gladiator trzyma prawdopodobnie małą okrągłą tarczę (*parmularii*), nie wiadomo jednak, jak jest uzbrojony, bo ta część naczynia jest całkowicie zniszczona. Lewą nogę ma lekko wysuniętą, prawą cofniętą. Widoczna najwyższa część prawego ramienia (malowana na zielono) jest osłonięta, być może bandażem; zapewne podobnie chroniona była dolna część prawej nogi (także malowana na zielono). Hełm z szeroką krezą był zapewne zaopatrzony w maskę. Te szczegóły wskazują, że gladiator ten to *hoplomachus*, „ciężki" gladiator walczący włócznią (Ryc. 12).

Gladiator 2. Postać drugiego gladiatora jest niemal całkowicie zniszczona – zachowały się jedynie ślady nóg malowanych czerwonobrązową farbą i korpusu malowanego na zielono (Ryc. 5b, 7, 8), co wskazuje, że gladiator nosił przepaskę chroniącą dolną część ciała (*subligaculum*).

Gladiator 3. Farba, którą namalowano trzeciego gladiatora niemal

całkowicie zniknęła, jednak zarys postaci jest zupełnie dobrze czytelny (Ryc. 5c, 7, 8). Gladiator jest zwrócony w prawo, z lewą nogą wysuniętą a prawą cofniętą. Ma na sobie szeroki pas (*balteus* lub *cingulum*) i – niżej – przepaskę biodrową (*subligaculum*) sięgającą ud. Ułożenie prawej ręki sugeruje, że gladiator czymś rzuca – ślady na szkle wskazują, że nie może to być nic innego jak sieć. Takie wizerunki sieciarza (*retiarius*) są dość rzadkie, bowiem zwykle przedstawiana jest zaawansowana faza walki, gdy sieć została rzucona, a sieciarz operuje już trójzębem i mieczem (Ryc. 13). Wydaje się, że ten gladiator ma jakąś ochronę ramion, zapewne charakterystyczną metalową lub skórzaną osłonę lewego barku i ramienia, w lewej ręce trzyma broń, która może być jedynie typowym dla niego trójzębem, nie wiadomo natomiast, czym chronił głowę.

Gladiator 4. Jego wizerunek jest najlepiej zachowany (Ryc. 5d, 7, 8). Gladiator jest pochylony w prawo, nosi szeroki pas i przepaskę biodrową (*subligaculum*) malowaną na zielono. Nogi malowane są na czerwono-brązowo: lewa lekko ugięta, prawa wyciągnięta do tyłu, prawa ręka jest zgięta do tyłu, lewa wysunięta do przodu; lewe ramię chroni osłona (malowana na żółto). W rękach gladiator trzyma drzewce jakiejś broni. Nie zachowała się głowy tego gladiatora.

Najbliższe analogie pucharek z Zaborowa znajduje w grobie 2/1925 z Lubieszewa, pow. gryficki (*Lübsow-Tunnehult, Kr. Greifenberg*; O. Kunkel 1927; H. J. Eggers 1953), skąd pochodzi para zaginionych dzisiaj pucharków z malowanymi scenami walk gladiatorskich, ułożonymi w dwóch pasmach (Ryc. 14a.b). Podobnie jak naczynie z Zaborowa należą one do typu Eggers 186 (typ 21 wg C. Isings 1957; grupa IIa wg A. Oliviera 1984). Pucharki z Lubieszewa znaleziono w bogatym grobie zawierającym m.in. dwa brązowe kociołki typu Østland, brązowy czerpak i cedzidło typu Eggers 162, dwie srebrne czarki typu Eggers 171, trzy naczynia gliniane, srebrną zapinkę typu Almgren 38-39, dwie srebrne zapinki typu Almgren 110-111 i dwa złote pierścienie. Zespół datować można na fazę B_{2d} (T. Stawiarska 1999, s. 103 nn., 242 n., nr 14 i 15).

Inne bliskie terytorialnie znaleziska malowanych szkieł rzymskich pochodzą z grobu 15 z Połowitego, pow. ostródzki (*Pollwitten, Kr. Mohrungen*; H. J. Eggers 1966, s. 157, tabl. 13:4.5), i z grobu w kurhanie 4 w Rostołtach, pow. białostocki (J. Jaskanis 1976, s. 236; T. Stawiarska 1999, s. 263 n. nr 81, tabl. XI nr 81) – w obu wypadkach są to miseczki typu Eggers 209 (Ryc. 15). Grób z Połowitego datowany jest na fazę B_2/C_{1a}, natomiast grób z Rostołtów na fazę C_{1b}.

Pucharek typu Eggers 186, podobny do okazów z Zaborowa i Lubieszewa, znaleziony został w 1984 roku w grobie w Bassenheim w Nadrenii-Palatynacie, już na terenie Cesarstwa – zespół datowany jest na 1. połowę II wieku po Chr. To naczynie, silnie zniszczone w ogniu, zdobione jest wielobarwną malowaną sceną przedstawiającą postać młodej kobiety, zapewne siedzącej w ogrodzie (H. Fehr, E. Welker 1986, s. 196, ryc. 2, tabl. VII:1).

Kolejne nowe znalezisko malowanego szkła pochodzi, podobnie jak pucharek z Bassenheim, z Nadrenii – z odkrytego w 1991 roku grobu 103 z Richard-Wagner-Strasse w Kolonii. Pucharek na nóżce ze stopką, malowany w sceny z mitologii greckiej (Ryc. 18), na podstawie ceramiki być może datowany na ok. roku 200 po Chr. Dwa podobne do niego pucharki zdobione złotą emalią, znane z miejscowości Sedeinga w sudańskiej Nubii (Ryc. 19), prawdopodobnie umieszczać należy w III wieku po Chr. (J. Leclant 1973, s. 52 nn.; W. Gudenrath 2006, s. 38, ryc. 7).

Ważną rolę w rozważaniach na temat rzymskich szkieł malowanych i ich datowania odgrywają znaleziska z Begram (Bagram) w Afganistanie, ok. 60 km na północ od Kabulu, i z Ismant el-Kharab (starozytne *Kellis*) w oazie Al-Dahla w Egipcie (ok. 800 km na południowy zachód od Kairu).

Begram, leżące na przecięciu dwóch ważnych szlaków karawanowych: trasy wiodącej znad Morza Śródziemnego do Indii i szlaku północnego prowadzącego z Chin tzw. korytarzem wachańskim, identyfikowane jest (A. Foucher 1925) jako *Kapisa* – letnia rezydencja władców królestwa Kuszanów. W latach 1936–1942 odkryto tu w pomieszczeniach potężnej fortyfikacji określonej jak *nouvelle ville royale* (P. Cambon *et alii* 2007, s. 65 nn.) bogate zespoły niezwykle efektownych przedmiotów pochodzących ze strefy śródziemnomorskiej (brązy, kryształ górski, formy odlewnicze), Indii (kość słoniowa) i Chin (laka) – malowane szkła (Ryc. 16, 17a.b) pochodzą z dwóch pomieszczeń odsłoniętych w 1937 roku (P. Cambon *et alii* 2007, s. 237–244 nr. 158–172, s. 264 n. nr 211 i 212). Ten depozyt interpretowany jest w różny sposób: jako część pałacowego skarbca, jako skład celny karawan przechodzących przez Begram, bądź jako przemieszany zespół skarbca i pałacowych warsztatów (D. Whitehouse 1989a, s. 151; 1989b, s. 93 nn.). Wyjątkowa jest tu także liczba szkieł – 179 różnych przedmiotów (nie licząc paciorków) ze szkła dmuchanego i wytłaczanego, bardzo różnie zdobionych, także emaliowanych lub malowanych, oraz licznych facetowanych stożkowatych pucharków grupy II Oliviera, morfologicznie bardzo podobnych do pucharków typu Eggers 186.

25 zachowanych fragmentarycznie malowanych pucharków stożkowatych zdobionych jest bardzo różnymi motywami, m.in. polowania i łowienia ryb, pojedynku Hektora i Achillesa, porwania Europy, Izydy ze świtą, a wreszcie gladiatorskich (Ryc. 17b; por. P. Hamelin 1955, s. 94 n., tabl. IV; H. Fehr, E. Welker 1986, tabl. 38:1–3; P. Cambon *et alii* 2007, 240 n. nr 163, s. 264 nr 211). W starszej literaturze znaleziska z Begram, także szkła, były datowane na II i III wiek po Chr., ostatnio jednak przeważa pogląd, że te szkła to wyroby z I i początków II wieku po Chr. (D. Whitehouse 1989a, s. 153). Analizy naczyń z Begram wykazały, że wykonano je ze szkła sodowo-wapniowo-krzemowego z dodatkiem saletry; technologicznie najbliższe są szkłom z wczesnej fazy produkcji warsztatów z Karanis w Egipcie (D. B. Harden 1936, s. 33). Stożkowate pucharki malowane z Begram są na tyle podobne do pucharków z Zaborowa, Lubieszewa i Bassenheim, że przypuścić można ich pochodzenie z tego samego warsztatu.

Oaza Al-Dahla leży na szlaku handlowym biegnącym od doliny Nilu na północy kraju w kierunku dzisiejszego Luksoru, Asuanu i północnego Sudanu (C. A. Hope, H. V. Whitehouse 2003). W 2000 roku znaleziono tu dwa depozyty szkieł – jeden z nich zawierał fragment dzbana z malowanymi scenami walk gladiatorskich (Ryc. 20a. b). Jednouchy dzban typu 120b wg Isings (C. A. Hope, H. V. Whitehouse 2003, ryc. 2b, tabl. 5, 6a–d, 7) na podstawie formy naczynia datowany jest na III lub 1. połowę IV wieku po Chr. Szklane dzbany o podobnym kształcie pochodzą z kolekcji Daphne Ewer z Kerczu na Krymie, z Dura Europos w Syrii i z Begram.

Szkła rzymskie dekorowane techniką „na gorąco", „na zimno" lub łączonymi. Zdobienie „na gorąco" (różnorodne dekoracje plastyczne lub wydmuchiwanie w ozdobnych formach) częścią procesu produkcyjnego w manufakturach szklarskich. Zdobienie „na zimno" (malowanie i emaliowanie, szlifowanie, grawerowanie) wykonywane było już po ukończeniu i wychłodzeniu naczynia, zapewne przez innych rzemieślników, którzy niekoniecznie musieli pracować w tych samych warsztatach. Szkła malowano dwoma technikami: „na zimno", farbami wodnymi, temperą lub farbami olejnymi, oraz „na gorąco" przez łączenie sproszkowanego barwnika z naczyniem przez ogrzewanie jego powierzchni – ta druga technika nazywana jest emaliowaniem. Malowanie i emaliowanie szkieł rzymskich w zachodnich prowincjach rzymskich jest dość rzadkie, chociaż z Italii, Galii, Brytanii, prowincji nadreńskich i afrykańskich znane są niezbyt liczne naczynia dekorowane w ten sposób. Zwracają tu uwagę dwie grupy naczyń. Z 1. połowy I wieku po Chr. pochodzą półkuliste miseczki z malowanymi i emaliowanymi motywami liści winogron i bluszczu, ptaków, ryb itp., prawdopodobnie produkowane w Italii. Jednym z najpiękniejszych przykładów takich szkieł jest ciemnozielona miseczka z grobu w Locarno-Muralto (Ryc. 21). Specjalny zespół, do której należy omawiane naczynie z Zaborowa, tworzą rzadkie pucharki typu Lubieszewo (Eg-

gers 186), datowane na 2. połowę I i 1. połowę II wieku po Chr. (Ryc. 22). Druga grupa to malowane i emaliowane miseczki z końca II i III wieku po Chr., znane z południowej Nadrenii, północnej Brytanii i obszarów poza granicami Cesarstwa, szczególnie z dzisiejszej Danii (Ryc. 23). Są one zwykle zdobione scenami walk gladiatorskich, wyobrażeniami myśliwych i dzikich zwierząt, choć zdarzają sie też motywy bachiczne i inne. Zróżnicowanie stylu i technik zdobienia oraz barw wskazuje, że wykonywane były przez różnych malarzy, zapewne w więcej niż jednym warsztacie. Sądzi się, że były produkowane w Nadrenii, prawdopodobnie w Kolonii (H. Norling-Christensen 1953a; 1953b; U. Lund Hansen 1987, s. 74 nn.; 1995, s. 149 n.).

Najstarsze znane dziś malowane szkła pochodzą z Egiptu, z XV wieku przed Chr. Sproszkowane barwne szkło (lub mieszanka szkła bezbarwnego i barwnika) było nakładane na powierzchnię wychłodzonego naczynia w postaci płynnej zawiesiny i następnie spajane z naczyniem przez intensywne ogrzewanie. Trudny do wytłumaczenia jest brak podobnych znalezisk aż do czasów rzymskich, kiedy to stosowano tę technikę przez ok. 300 lat, począwszy od panowania Tyberiusza. W wypadku niektórych sposród tych wczesnych naczyń rzymskich kontur rysunku był wydrapywany w szkle przed malowaniem, inne malowano „z wolnej ręki". Barwniki uzyskiwano z tlenków żelaza (czerwony), miedzi, żelaza lub antymonu (niebieski), ołowiu lub antymonu (żółty); ołów nie jest obecny w barwnikach ciemno- i jasnoczerwonym, różowym i niebieskim. Barwniki nakładano na szkło w roztworze oliwy z oliwek lub czosnku albo spirytusu mineralnego i ogrzewano w temperaturze ok. 680–770° (M. Schleirmacher, Z. Ovisi 1993, s. 586–587).

Istnieją dwa zasadnicze rodzaje emalii – fryta, oraz emalia mieszana na zimno. Frytę, czyli emalię uprzednio stopioną w tyglu i wybarwioną a następnie rozdrobnioną do postaci proszku, nakładano na naczynie po rozprowadzeniu w niewielkiej ilości wody lub gumy arabskiej. Frytę wypalano w piecu po wyschnięciu zdobionego naczynia, natomiast emalia mieszana na zimno uzyskiwała barwę podczas ogrzewania naczynia z nałożonymi zdobieniami.

Wypalenie emalii na takich naczyniach jak pucharki z Zaborowa czy z Lubieszewa wymagało wsunięcia go na długim narzędziu do rozgrzanego pieca szklarskiego. Zdobiona powierzchnia musiała być ogrzana stopniowo do temperatury nieznacznie przekraczającej punkt topnienia szkła (510°C w wypadku współczesnych szkieł sodowo-wapniowych). Po rozgrzaniu naczynia było ono wysuwane z pieca i natychmiast wsuwane do innego pieca rozgrzanego do ok. 1093°C, gdzie trzymano je dopóki emalia nie zaczęła żarzyć się na pomarańczowo i błyszczeć, co dla rzemieślnika było znakiem, że proces jest ukończony; na końcu wyrób poddawany był wyżarzaniu zmiękczającemu (W. Gudenrath 2006, s. 27).

Zdaniem Oliviera (1984, s. 38) „surowe" pucharki typów Eggers 185 i 186 mogły być produkowane w tych samych manufakturach i podobnie wykańczane przed przekazaniem ich do wyspecjalizowanych pracowni *diatretariusa* (szlifierza) lub malarza/emaliera. W Muzeum Benaki w Atenach przechowywane jest unikatowe naczynie łączące obie techniki – ma ono rząd szlifowanych owali podkreślony pasmem dekoracji malowanej (A. Oliver 1984, s. 38 n., ryc. 11). Wczesne pucharki szlifowane wywodzą się zapewne z pracowni egipskich, lub szerzej – wschodnich, na co zdają się wskazywać znaleziska z Ain el Turbeh w oazie Al-Harga w Egipcie, ułamki z The Victoria and Albert Museum pochodzące z *Oxyrhynchus* (Banhasa w Egipcie) oraz z prywatnej kolekcji z Luksoru, a także – o czym należy pamiętać – z Begram. Naczynia ze stopką na nóżce, takie jak wspominane naczynie z grobu 103 na Richard-Wagner-Strasse w Kolonii są ściśle związane ze starszą grupą szkieł malowanych, podobnych do pucharków z Begram, jednak różnią się od nich kształtem i chronologią – datowane są na ok. roku 200 po Chr., co wskazuje, że obie grupy chronologiczne szkieł malowanych były blisko powiązane.

Wczesnorzymskie pucharki emaliowane z terenu *Barbaricum* pochodzą – z wyjątkiem Zaborowa – z grobów wyjątkowo bogatych. Pamiętać jednak należy, że cmentarzysko w Zaborowie położone jest w strefie dużego centrum metalurgicznego, które odgrywać musiało w okresie wpływów rzymskich niezwykle istotną rolę ekonomiczną.

Rozmieszczenie znalezisk wczesnorzymskich szkieł emaliowanych na terenie Cesarstwa (Ryc. 22) zdaje się wskazywać, że emaliowane szkła znalezione w *Barbaricum* pochodzą z tych samych manufaktur. Nie jest jasne, czy emaliowane szkła z Begram są wyrobami pracowni zachodnich, czy – co bardziej prawdopodobne – manufaktur ze wschodu strefy śródziemnomorskiej. Znalezisko z Richard-Wagner-Strasse w Kolonii pokazuje, że produkcja szkieł emaliowanych w Nadrenii trwała w głąb okresu późnorzymskiego, a wzory ulegały zmianie – w okresie późnorzymskim dominowały emaliowane miseczki typu Eggers 209 (Ryc. 23), w literaturze określane terminem *Circus-beakers*. Warto zwrócić uwagę, że rozmieszczenie znalezisk wczesnych szkieł emaliowanych należy rozpatrywać w aspekcie rzymskiej aktywności militarnej (B. Rütti 2003, s. 351 ryc. 6), kwestia ta jednak będzie przedmiotem odrębnej analizy.

oprac. J. Andrzejowski, D. Słowińska

WYKAZ SKRÓTÓW TYTUŁÓW CZASOPISM I WYDAWNICTW WIELOTOMOWYCH

ABBREVIATIONS OF PERIODICALS' AND SERIAL PUBLICATIONS' TITLES

AAC	– „Acta Archaeologica Carpathica", Kraków
AAHung.	– „Acta Archaeologica Academiae Scientiarum Hungaricae", Budapest
AFB	– „Arbeits- und Forschungsberichte zur sächsichen Bodendenkmalpflege", Berlin (Stuttgart)
Amtl. Ber.	– „Amtlicher Bericht über die Verwaltung der naturgeschichtlichen, vorgeschichtlichen und volkskundlichen Sammlungen des Westpreußischen Provinzial-Museums für das Jahr ...", Danzig
APolski	– „Archeologia Polski", Warszawa
APS	– „Archeologia Polski Środkowowschodniej", Lublin (wcześniej: Lublin-Chełm-Zamość)
AR	– „Archeologické rozhledy", Praha
B.A.R. Int. Series	– British Archaeological Reports, International Series, Oxford
BerRGK	– „Bericht der Römisch-Germanischen Kommission", Frankfurt a.M.-Berlin
BJahr.	– „Bonner Jahbücher", Köln/Bonn
BMJ	– „Bodendenkmalpflege in Mecklenburg-Vorpommern", Lübstorf (wcześniej: „Bodendenkmalpflege in Mecklenburg. Jahrbuch ...", Schwerin/Rostock/Berlin)
CRFB	– Corpus der römischen Funde im europäischen Barbaricum
FAP	– „Fontes Archaeologici Posnanienses" (wcześniej: „Fontes Praehistorici"), Poznań
Inf.Arch.	– „Informator Archeologiczny. Badania rok ...", Warszawa
InvArch.	– „Inventaria Archaeologica, Pologne", Warszawa-Łódź
JmV	– „Jahresschrift für mitteldeutsche Vorgeschichte", Halle/Saale
JRGZM	– „Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz", Mainz
KHKM	– „Kwartalnik Historii Kultury Materialnej", Warszawa
KSIA	– Kratkie soobŝeniâ Instituta arheologii Akademii nauk SSSR (Краткие сообщения Института археологии Академии наук СССР), Moskva
MIA	– Materialy i issledovaniâ po arheologii SSSR (Материалы и исследования по археологии СССР), Moskva
MatArch.	– „Materiały Archeologiczne", Kraków
MS	– „Materiały Starożytne", Warszawa
MSiW	– „Materiały Starożytne i Wczesnośredniowieczne", Warszawa
MSROA	– „Materiały i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego", Rzeszów-Krosno-Sandomierz-Tarnów (-Przemyśl/Tarnobrzeg)
MZP	– „Materiały Zachodniopomorskie", Szczecin
PA	– „Památky archeologické" (wcześniej: „Památky archeologické a místopisné"), Praha
PArch.	– „Przegląd Archeologiczny", Poznań
PMMAE	– „Prace i Materiały Muzeum Archeologicznego i Etnograficznego w Łodzi. Seria Archeologiczna", Łódź
PomAnt	– „Pomorania Antiqua", Gdańsk
Prahistoria ziem polskich	– *Prahistoria ziem polskich*, tom I: *Paleolit i mezolit* (red. W. Chmielewski, W. Hensel), Wrocław-Warszawa-Kraków-Gdańsk 1975; tom II: *Neolit* (red. W. Hensel, T. Wiślański), Wrocław-Warszawa-Kraków-Gdańsk 1979; tom III: *Wczesna epoka brązu* (red. A. Gardawski, J. Kowalczyk), Wrocław-Warszawa-Kraków-Gdańsk 1978; tom IV: *Od środkowej epoki brązu do środkowego okresu lateńskiego* (red. J. Dąbrowski, Z. Rajewski), Wrocław-Warszawa-Kraków-Gdańsk 1979; tom V: *Późny okres lateński i okres rzymski* (red. J. Wielowiejski), Wrocław-Warszawa-Kraków-Gdańsk 1981
Prussia	– „Sitzungsberichte der Altertumsgesellschaft Prussia" (później: „Prussia. Zeitschrift für Heimatkunde"), Königsberg i.Pr.
PZ	– „Praehistorische Zeitschrift", Berlin-New York
RArch.	– „Recherches Archéologiques", Kraków
RB	– „Rocznik Białostocki", Białystok
RO	– „Rocznik Olsztyński", Olsztyn
SJahr.	– „Saalburg Jahrbuch", Berlin-New York
SlA	– „Slovenská archeológia", Bratislava
SovArch	– „Sovetskaâ Arheologia" (Советская археология), Moskva
SprArch.	– „Sprawozdania Archeologiczne", Kraków
SprPMA	– „Sprawozdania P.M.A.", Warszawa
WA	– „Wiadomości Archeologiczne", Warszawa
ZNUJ	– „Zeszyty Naukowe Uniwersytetu Jagiellońskiego", Kraków
ZOW	– „Z otchłani wieków", Warszawa

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