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Bartosz Kontny*, Artur Grabarek**, Elżbieta Jaskulska***

A UNIQUE SARMATIAN-TYPE ARROWHEAD FROM FEATURE 109 FROM A PRZEWORSK CULTURE NECROPOLIS IN PODLESIE, OLEŚNICA DISTRICT, ŚWIĘTOKRZYSKIE VOIVODESHIP

ABSTRACT

Kontny B., Grabarek A., Jaskulska E. 2018. A unique Sarmatian-type arrowhead from feature 109 from a Przeworsk culture necropolis in Podlesie, Oleśnica district, Świętokrzyskie voivodeship. *Sprawozdania Archeologiczne* 71, 359-385.

This paper presents the trilobate arrowhead of Sarmatian origin found in 2014 in Podlesie, Oleśnica district, site 6 by the expedition of the Institute of Archaeology at the University of Warsaw, conducted under the guidance of Artur Grabarek. It was found in a Przeworsk culture grave (feature 109) together with weapons, tools, pottery and costume elements (i.a. brooch Almgren 236c). It is dated to the beginning of Phase B1, i.e. much earlier than the chronology of such arrowheads from the territory of Poland assumed earlier. Similar items from the Przeworsk culture and the Bogaczewo culture are mentioned. The find is discussed within the context of Germanic-Sarmatian contacts at the turn of the eras and slightly later.

Keywords: the Przeworsk culture, arrowheads, Sarmatians, Roman Period, weapon
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* Institute of Archaeology, University of Warsaw, Krakowskie Przedmieście St. 26/28, 00-927 Warsaw, Poland; bdkontny@uw.edu.pl
** Institute of Archaeology, University of Warsaw, Krakowskie Przedmieście St. 26/28, 00-927 Warsaw, Poland; a.grabarek@uw.edu.pl
*** Institute of Archaeology, University of Warsaw, Krakowskie Przedmieście St. 26/28, 00-927 Warsaw, Poland; ejaskulska@uw.edu.pl

In 2014, an expedition of the Institute of Archaeology at the University of Warsaw, under the guidance of Artur Grabarek, M.A., conducted excavations at a Linear Pottery culture settlement, i.e., Podlesie, Oleśnica district, site 6 (Fig. 1). The investigated area is located in the south-central part of the Połaniec Basin, which is also one of the mesoregions of the Małopolska Upland (Kondracki 2002, 263-270). Around this time, the team was informed by the head of the village of Podlesie, Mr. Marian Piekut, about a disturbed cemetery located in the western part of the village, and they visited the spot immediately. The burial ground was located on a small, sandy elevation sloping on all sides, ca 400 m to the east of the edge of the village of Podlesie and ca 600 m to the south of the Wschodnia river bed. During the survey, a sand pit with numerous hand-made potsherds and small pieces of human bones were found. Additionally, one complete and two damaged urns were discovered and, as they seemed very fragile, explored on the spot. The site was explored with the permission of the Provincial Monument Conservator in Kielce, Sandomierz branch.

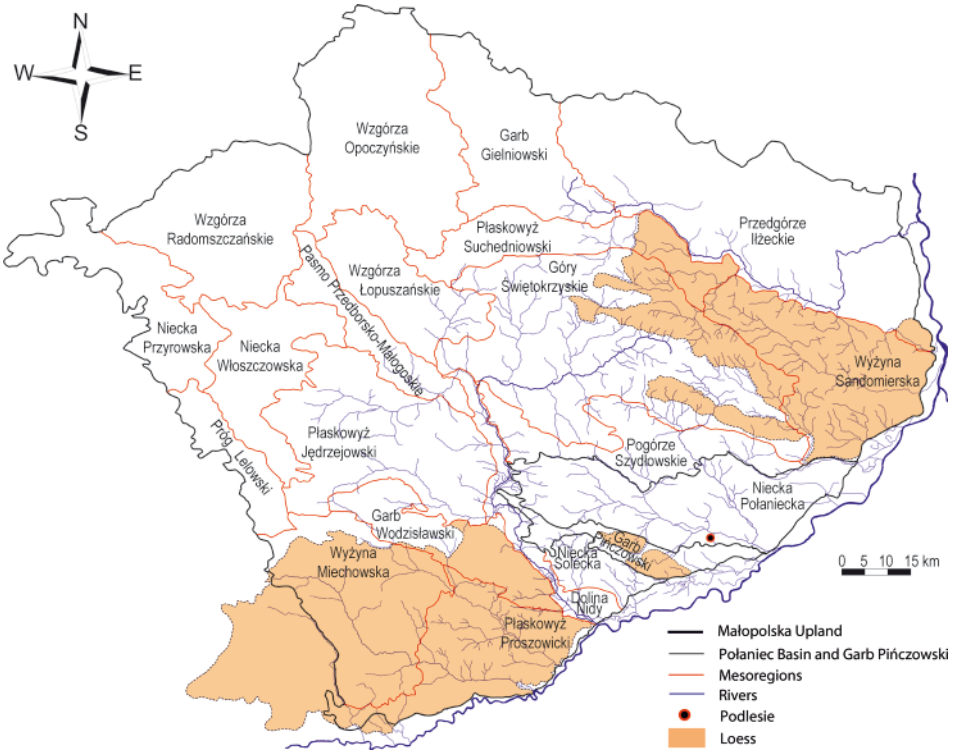

Fig. 1. Location of Podlesie on the map of the Małopolska Upland (drawn by Artur Grabarek)

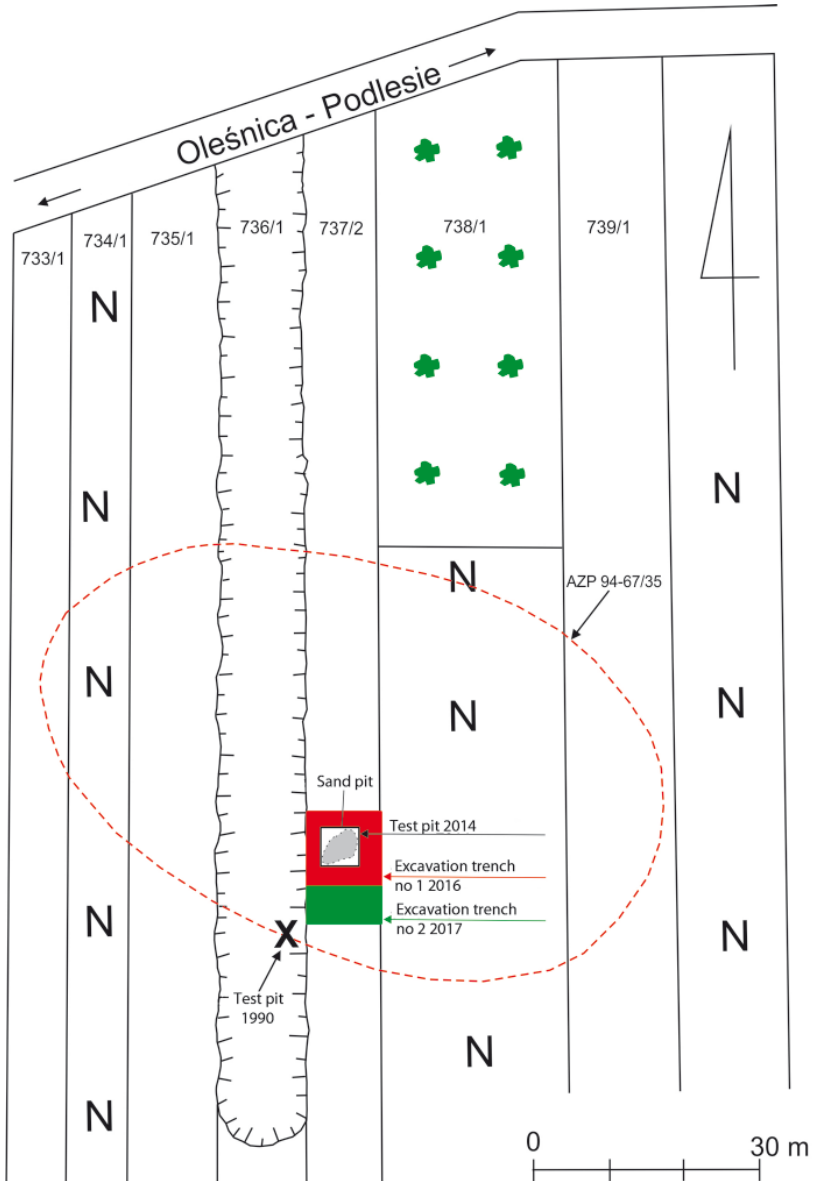

Fig. 2. General plan of site 5 at Podlesie (drawn by Artur Grabarek)

The query of the records from the National Heritage Board of Poland in Warsaw confirmed that this was site 5, discovered in the late 1960s when the road from Oleśnica to Podlesie were constructed. At that time, from several to more than a dozen cremation urn burials were uncovered in the layer of sand excavated during the works, along a length of

tens of metres, at right angles to the road. It is not known what happened to these artefacts later. In 1990, information about this old discovery reached the archaeologists working in the Archaeological Museum in Cracow. On July 8, 1990, Andrzej Matoga and Bartłomiej Konieczny confirmed the existence of the site. Besides the field survey, a 1 × 1 m test pit was made. It contained a disturbed Lusatian culture burial.

The sand pit is now overgrown and has remained undisturbed since the last exploration. Some years ago, a new sand pit was made close by (Fig. 2). For that reason, in order to act before the site was further damaged, rescue excavations were conducted beginning in 2014. During three excavation seasons, an area of 1.5 ares (0,01 ha) was uncovered (Fig. 3). The excavations revealed two pit cremation burials and 129 vessels, the majority of them probably also being urn cremation burials (their function will be ascertained when the contents of the vessels have been explored in the laboratory). Also, more than 3000 potsherds of various sizes, probably coming from the disturbed burials, especially bowls covering the urns, were found in the alluvium layer. Besides the abundant pottery materials, a very rich collection of flint artefacts, including more than 350 products, has considerable scientific value. In their majority, these products were discovered both at the site and in the burials. They were mostly scaled pieces or small scales connected with the use of the scaling technique. The collection also includes several flint blades from the Early Neolithic, which were probably brought from site 6.

Site 5 in Podlesie is a flat cremation burial ground of the Lusatian culture. The analysis of the artefacts has shown that it was used for a very long period of time, at least from Bronze Age IV until the Early Pre-Roman Period, i.e., the time of the decline of the Lusatian culture in the area (Dziechciarz 2015, 40). Especially interesting are two features from younger dates: two cremation urn burials that can be undoubtedly assigned to the Roman Period and the Przeworsk culture. Significantly, these two burials do not disturb the earlier ones (or any other features), which indicates that even many years after the Tarnobrzeg Lusatian culture had disappeared, the local residents were aware of the existence of the cemetery in that place, possibly due to the fact that near the burials there were large stones (between 15 and 40 cm in diameter) that may have marked the graves or determined the borders of burial quarters.

FEATURE 109 (Figs 4-5)

The outline of the feature was not very clear on the background of the virgin soil (yellow, fine-grained sand); it was strongly blurred, probably oval-shaped, with dimensions of 70 × 45 cm. In the top part, there was a large pebble. The filling was uniform in the cross-section and was composed of a grey layer of burning with more than a dozen rather large pieces of charcoal (lumps of ca 2-5 cm), strongly blurred in the bottom part. The filling was 35-40 cm thick. The artefacts, consisting of strongly burnt and fragmented hand-made

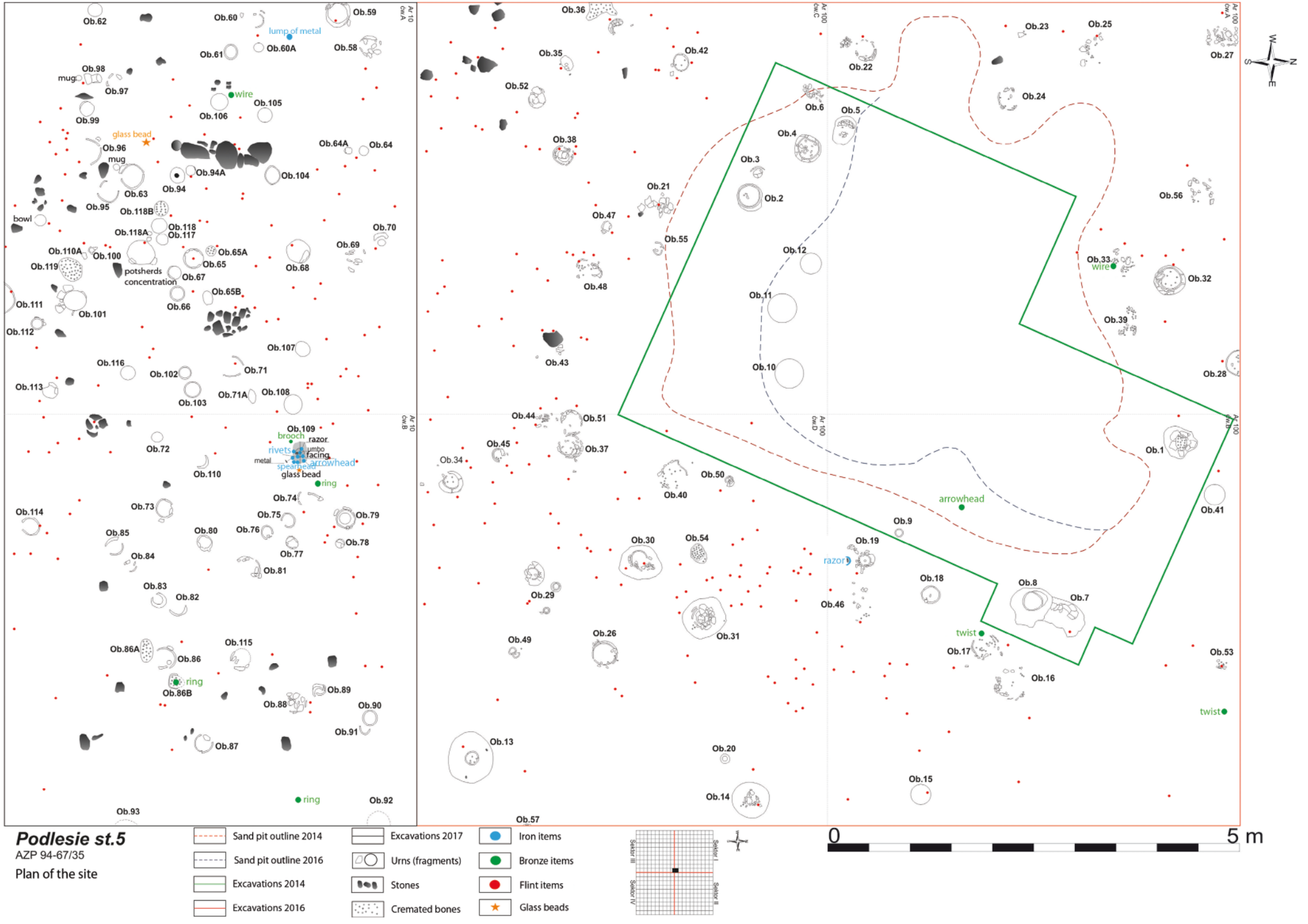

Fig. 3. Detailed plan of Podlesie, site 5. Drawn by Artur Grabarek

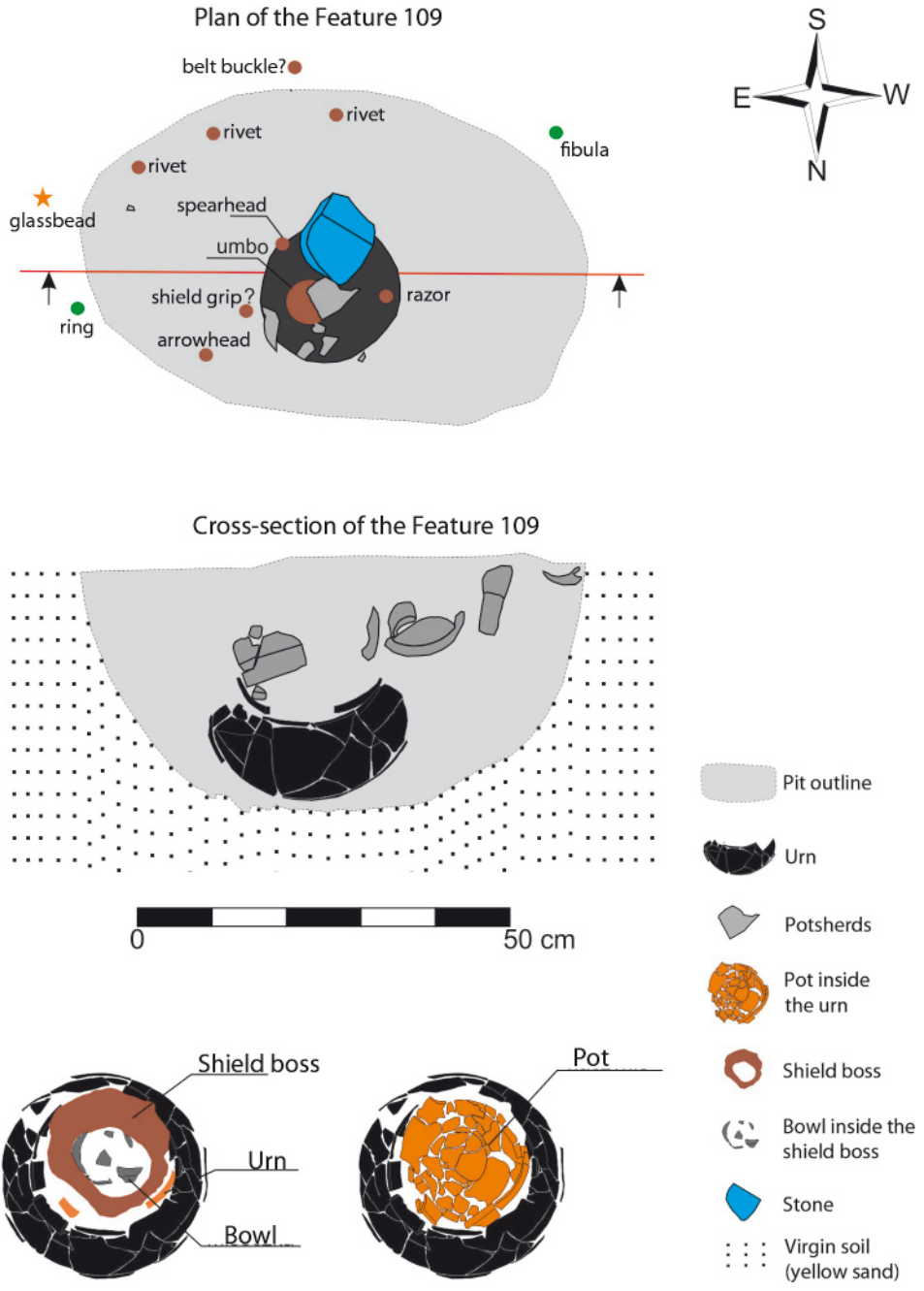

Fig. 4. Podlesie, site 5, feature 109 – plan and profile (drawn by Artur Grabarek)

Fig. 5. Podlesie, site 5, feature 109 during excavation (photograph by Artur Grabarek)

potsherds, were located in the upper part of the feature. In the centre of the pit there was a richly decorated urn (Fig. 7:1). During the exploration, another vessel was found in the pit (Fig. 7:2) with a shield boss inside. In the boss, there was a small bowl (Fig. 7:4). The urn was covered with a grey layer, which can be interpreted as soil mixed with the remains of the pyre. When the top part of the feature was cleared, six metal artefacts were discovered: two rivets, an arrowhead, a brooch, the head of a shafted weapon, and a fragment of a buckle (?). The other metal artefacts, i.e., the shield boss, a razor fragment, a shield handle fragment, and a rivet were found within the filling. Additionally, in the western part of the ceiling of the feature, a bronze ring was discovered, which may be related to the burials of the Tarnobrzeg Lusatian culture.

Grave goods

1. Fragment of a brooch made from a copper alloy, Type 236 after O. Almgren (1923); most probably Variant 236c (Garbsch 1965), partly deformed by the fire (parts of the head, missing parts of the foot). Preserved length – 2.3 cm, weight – 0.006 kg (Fig. 6:1).

2. Iron shield boss, Type 5 after M. Jahn (1916). Ritually damaged: the depressions on the top were made by at least five blows of a heavy blunt object. The edge partially bent

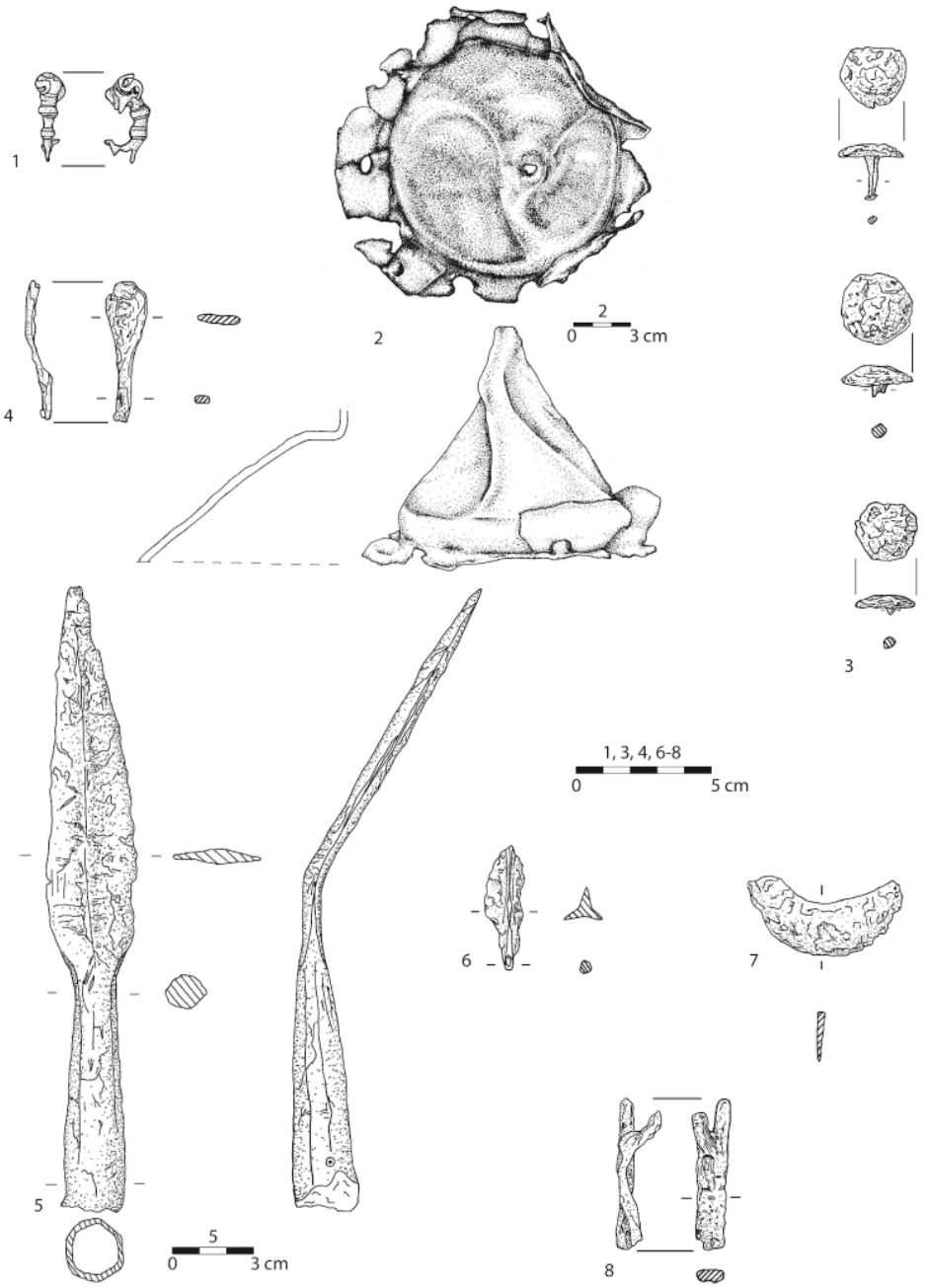

Fig. 6. Podlesie, site 5, feature 109 – metal elements of the grave furnishing (drawn by Agata Borowska – 2, and Katarzyna Szymańska – others). 1 – copper alloy brooch, 2 – iron shield boss, 3 – iron rivets, 4 – iron shield grip (?), 5 – iron spearhead, 6 – iron trilobate arrowhead, 7 – iron razor, 8 – iron bar (buckle?)

upwards. In the upper part is a hole with a diameter of ca 0.5 cm. Dimensions: reconstructed diameter – 16 cm, width of the rim – 3 cm, height – 10.5 cm, height of the edge – 2 cm, weight – 0.373 kg; reconstructed number of rivet holes – 11 (Fig. 6:2, 8:4).

3. Three shield boss rivets made of iron, circular with slightly convex heads, Type B after N. Zieling (1989); one of them has a completely preserved pin (thickness of the preserved tang is equivalent to the diameters of the holes in the shield boss). Dimensions: head diameters – 2.3-2.6 cm, height of the item with the pin – 2 cm (the pin is flattened at the end), weight – 0.005 kg; reconstructed thickness of the shield in the place where the rivet was fixed – 1.4 cm (Fig. 6:3).

4. Droplet-shaped iron plate with a rivet hole. At one end it has a slightly bent, narrow rod, broken off in the distal part. It is probably a fragment of a shield handle, Type C after N. Zieling (1989) / 3 after M. Jahn (1916). Dimensions: preserved length – 5.3 cm, weight – 0.004 kg (Fig. 6:4).

5. Iron head of a shafted weapon of Type X, after P. Kaczanowski (1995), with a bent blade and faceted socket (octagonal in cross-section, variety PT7 – the system of the symbols used in the description of the shafted weapon heads was elaborated by P. Kaczanowski 1995), hammered down (deformed), with a transverse rivet in the socket. Dimensions: length of the head G (reconstructed) – 24.2 cm, length of the blade L (reconstructed) – 15.6, cm, length of the socket – 8.6 cm, width of the blade A (reconstructed) – 3.2 cm, length between the tip and the widest part Q – 12.2 cm, diameter of the socket T – 2 cm (on the outside), height of the place where the rivet was fixed starting from the lower end of the socket – 1.5 cm, cross section of the blade PL2B, cross section in place where the blade meets the socket PTL5; T/G shape coefficient = 0.35, A/L= 0.20, Q/L = 0.78; weight 0.140 kg (Fig. 6:5, 8:5).

6. Iron trilobate, tanged arrowhead Type IV after A.M. Hazanov (1971, Plate XIX) with slightly convex lobes and low undercut; the lower parts of the sharpened edges are partly missing and the tangs are broken off. Dimensions: preserved length – 4.7 cm, reconstructed width – 1.5 cm, weight – 0.006 kg (Fig. 6:6).

7. Iron crescent-shaped razor, broken off at the ends. Dimensions: length – 5.4 cm, weight – 0.006 kg (Fig. 6:7).

8. Iron bar forked at one end, broken off at both ends; perhaps a fragment of the loop and tongue of a figure eight-shaped buckle, Group A after R. Madyda-Legutko (1987). Dimensions: preserved length – 5.5 cm, weight – 0.007 kg (Fig. 6:8).

9. Pottery (all the vessels were hand-made):

a) clay vessel (urn) Type I/1 after T. Liana (1970), with a slanting neck, an out-turned rim of even thickness and a bent profile in the bottom part; grey-brown, decorated with a horizontal rib below the neck and engraved envelope-, meander-, and swastika-shaped ornaments (this ornament is commonly considered as a solar symbol cf., e.g., Bugaj 1999, 185-186; Lasota-Kuś 2018, 163-164) filled with horizontal, vertical and oblique lines forming a horizontal decorative band in the upper part of the belly. Dimensions: rim diameter – 20.3 cm, height – 23.9 cm, diameter of the bottom – 13.8 cm (Fig. 7:1, 8:1);

b) vase-like vessel Type II/2 after T. Liana (1970), with a slanting rim; thin-walled, orange in colour (grey in the break), deformed by fire (rim in-turned on one side), and almost complete (preserved in numerous fragments, only a small rim fragment is missing); fine-grained admixture. Dimensions: rim diameter (reconstructed) – ca 18 cm, diameter of the bottom – 8.6 cm, height – 12 cm (in the deformed part), originally ca 11 cm (Fig. 7:2, 8:2);

c) small bowl Type VI/1 after T. Liana (1970), thin-walled with polished surface, bottom rounded in profile (partly reconstructed), marked out vertical neck. Non-uniform in colour, dark brown-orange. Dimensions: rim diameter – 8.4 cm, height – 4.3 cm (Fig. 7:4, 8:3);

d) Fragments of at least two thin-walled clay vase-like vessels Type II/2 after T. Liana (1970), orange in colour (secondary burning), deformed in fire: a fully preserved bottom with a diameter of 9 cm, a fragment of the bottom part of a vessel, two rim fragments (one with a rib below the neck and one with the base of a handle located between the undercut of the belly and the rim), three uncharacteristic belly fragments; fine-grained admixture (Fig. 7:3);

e) Two fragments (belly and upper part: rim and neck with a preserved handle) of an orange-brown vessel, probably Type I/3 after T. Liana (1970), rounded and burnt;

f) Two belly fragments of an orange-brown vessel Type I/3 after T. Liana (1970);

g) More than a dozen small, uncharacteristic fragments;

h) Fragments of the bottom part (?) of a brown-orange vessel, swollen and deformed by fire; fine-grained admixture;

i) A large fragment of a belly bend of a vase-like vessel Type II/2 after T. Liana, thin-walled, discoloured into orange (grey in the break) and slightly swollen by fire;

j) Five rim fragments of thin-walled vessels, brown-orange in colour (including one swollen by fire); fine-grained admixture;

k) Three belly fragments of thin-walled vessels (uncharacteristic), grey-orange in colour (discoloured by fire); fine-grained admixture;

l) Three rim fragments of two vase-like vessels Type II/2 after T. Liana (1970), thin-walled, brown-orange in colour (one swollen by fire); fine-grained admixture;

m) Fragment of a vessel with a thickened, slightly faceted rim, thin-walled, brown-orange in colour; fine-grained admixture;

n) Uncharacteristic fragment of a thick-walled belly, brown in colour; rough on the outside; medium-grained mineral admixture;

o) Eight uncharacteristic fragments of an orange-brown vessel with a rough external surface;

p) 14 uncharacteristic fragments of an orange-brown vessel.

10. Charcoal from the fill: oak (*Quercus* sp.) – 157 pieces, pine (*Pinus sylvestris*) – 61 pieces, birch (*Betula* sp.) – 3 pieces (the analysis was done by Grzegorz Skrzyński, Polish Academy of Sciences – Museum of the Earth in Warsaw).

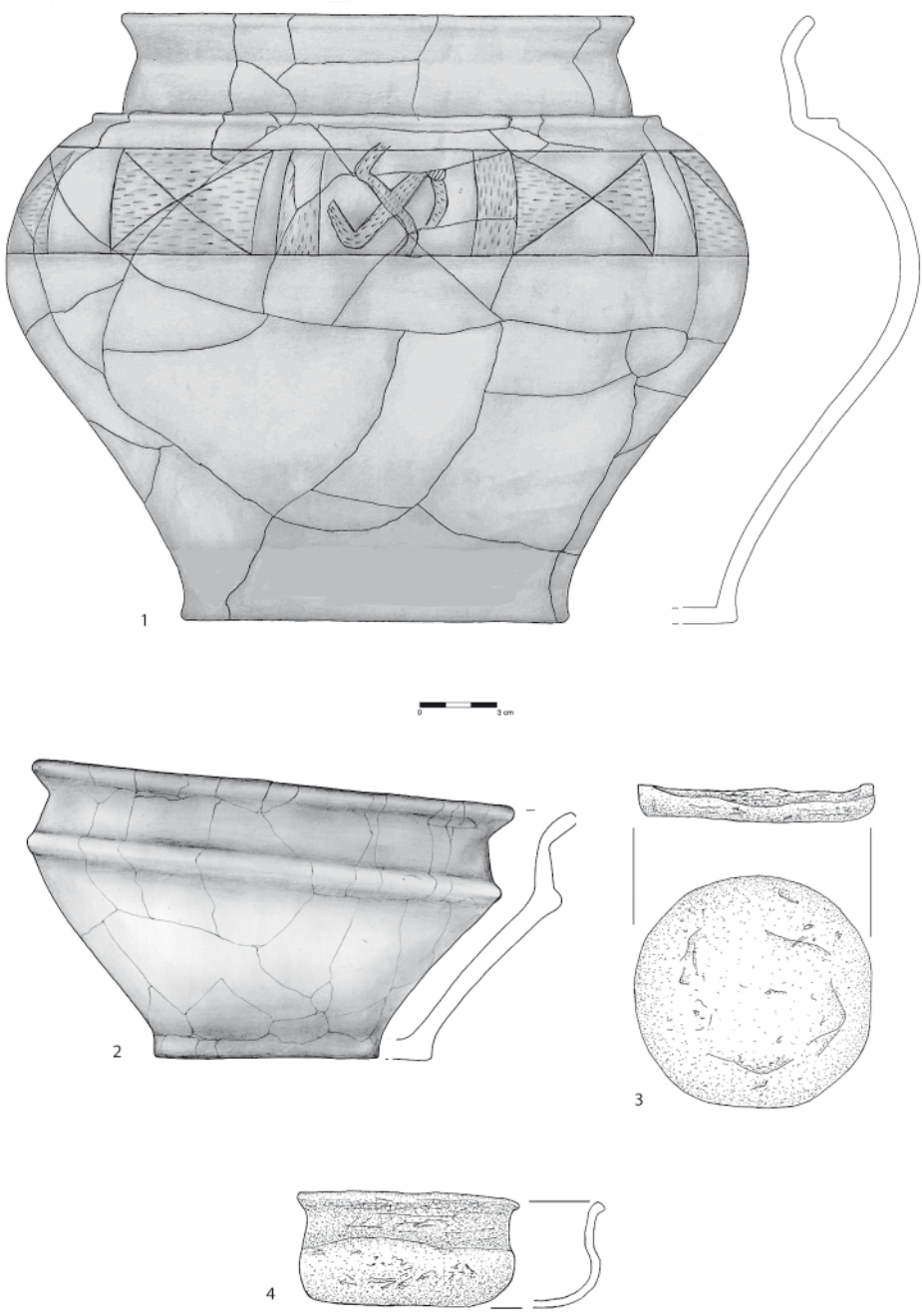

Fig. 7. Podlesie, site 5, feature 109 – pottery (drawn by Agata Borowska: 1-3 and Katarzyna Szymańska: 4). 1 – urn, 2 – vase-like vessel, 3 – bottom of vase-like vessel, 4 – bowl

Fig. 8. Podlesie, site 5, feature 109 – grave furnishing (photograph by Paweł Kobek). 1 – clay urn, 2 – clay vase-like vessel, 3 – clay bowl, 4 – shield boss, 5 – spearhead

11. Sample of the wood from the upper part of the fill.

12. Fragment of a burnt piece of flint (cracked inside and patinated).

13. Remains of a burnt skeleton of a single human adult individual, with an uncertain indication of middle adult age category (around 30-40 years old).

OSTEOLOGICAL ANALYSIS

A grave labelled feature 109 was excavated in trench no 2, are 10, quadrant A/B, sector III within the 3rd layer. The human cremains within were extracted and submitted for laboratory analysis. The total weight of the cremains was determined to be 437 g, which indicates that the burial is smaller than the average of the previously analyzed burials from the site (679 g, see Jaskulska, in print). The remains were not excavated in layers, thereby precluding a spatial analysis of identified fragments within the grave.

Due to the relatively small amount of cremains, the analysis was limited to a description of the level of fragmentation and anatomical identification of the fragments. The level of fragmentation was established using the method proposed by McKinley (1994; 2004), which is fairly easy to perform, while allowing for a relatively detailed description of the size of the bone fragments. The cremated remains were sieved through a set of sieves of 10, 5 and 2 mm mesh, and each fraction passing through the different sieves was weighted. During the analysis, some small fragments of pottery (probably urn fragments) were removed (weight of 6.8 g). The fractioned remains were subjected to anatomical analysis, in which fragments belonging to separate parts of the body were identified: skull, upper limb (without shoulder girdle), lower limb (without pelvic girdle), and torso (the postcranial axial skeleton with both shoulder girdles). This way, it was possible to differentiate the preservation of general parts of the body, as well as to identify any potential patterns of variation in heat-related changes among separate regions of the skeleton. This method also allowed us to look for any signs of the possible selection of body parts prior to cremation ritual, such as the exclusion of specific body parts (see analysis of human cremains from Zbucz, site 3 in Jaskulska 2019, 367).

Table 1. Fragmentation of the human cremated remains from feature 109, Podlesie, site 5, compared to the average from burials excavated during the 2014 season (features 1-12) (Jaskulska 2015, Jaskulska in print). Fragmentation expressed as the amount (in grams) of fragments of different size and/or percentage of total weight

Sieve mesh size	Feature 109	Average from features excavated during 2014 season
10 mm	149.2 (34.1%)	49.1%
5 mm	184.9 (42.3%)	41.0%
2 mm	102.9 (23.5%)	9.9%

Table 2. General morphological identification of the human cremated remains from feature 109, Podlesie, site 5, compared to the average from burials excavated during the 2014 season (features 1-12) (Jaskulska 2015, Jaskulska in print). Fragmentation expressed as the amount (in grams) of fragments of different size and/or percentage of the sum of the weight of identified fragments

Morphological identification	Feature 109	Average from features excavated during 2014 season
skull	26.1 (69.4%)	39.5%
torso	10.5 (27.9%)	23.9%
upper limb	–	17.3%
lower limb	1 (2.7%)	19.4%

Table 3. Detailed morphological identification of the human cremated remains from feature 109, Podlesie, site 5, with information on the state of preservation of individual fragments; n.a. (not applicable)

Sieve mesh size	Identified fragment	Number of fragments	Body side	Preservation
10 mm	acetabulum	3	?	<25%
	femur: distal epiphysis	1	?	<25%
	scapula: glenoid cavity	1	left	25-49%
	unidentified vertebral arch	3	?	<25%
	cranial vault	19	?	<25%
	mandible: unidentified tooth socket	1	?	<25%
5 mm	unidentified tooth root	1	?	<25%
	cranial vault	>20	?	<25%
	unidentified rib shaft	2	?	<25%
	unidentified vertebral arch	3	?	<25%
	cervical vertebra: C1; atlas	4	n.a.	<25%
	cervical vertebra: dens C2; axis	2	n.a.	>75%

The overall morphological characteristics of the bone fragments indicate that the remains belong to an adult individual. The small amount of the analyzed fragments suggests that the burial should be regarded as incomplete, with a total weight of around 50% of the expected minimal weight for modern females (modern data indicates that the cremains of an adult should weigh between 876 and 5000 grams or more, with the range for females between 876 and 4000 g, and for males between 1865 and 5379 g; see Bass and Jantz 2004; Warren and Maples 1997). Analysis of the separated fractions of different sizes shows a slightly larger amount of the middle-sized fragments than the largest fragments (see Table 1). The amount of the smallest fragments is lowest, but still significantly larger than in the case of the burials from the 2014 season, analyzed previously (see Table 1 and Jaskulska 2015, Jaskulska in print). This observation may indicate some

difference in the excavation methods employed during various excavation seasons (e.g. sieving techniques).

The morphological analysis of remains has not indicated the presence of more than one individual; a list of characteristic identified fragments is presented in Table 3. The presence of cranial vault fragments with partially fused cranial sutures suggests that the age of the individual could be in the middle adult category (about 30-40 years old), according to the method of Meindl and Lovejoy (1985, after: White *et al.* 2011, 392-393), but the reliability of the fusion of cranial sutures as an age indicator has been long debated by osteologists (e.g. Cunha *et al.* 2009).

Not all skeletal regions were identified (none of the elements belonging to upper limb has been recognized), which should be explained as a result of the small number of analyzed fragments, as well as problems with the separation of most upper limb bones from smaller bones of the lower limb. Detailed information on the amount of the identified skeletal regions is presented in Table 2. It should be noted that identified elements weigh in total about 37.6 g, and the rate of anatomical identification (RAI, expressed as the ratio of the weight of identified fragments to the total weight of the analysed fragments) is significantly low at around 8.6% (average RAI for features from the 2014 season is about 45%).

Within middle-sized fragments, an unusually dense element of trabecular bone tissue was identified, which can suggest it belonged to an animal, but a lack of characteristic morphological features prevented any further identification.

The analyzed remains were described as whitish in colour, with some (less than 5%) fragments of bluish-grey colour, which indicates that they probably underwent nearly full calcination in temperatures over 600°C (after Holden *et al.* 1995a, 1995b). The small amount of analyzed fragments did not yield any additional taphonomic observations.

The analysis of feature 109 from Podlesie, site 5 indicated that the cremated human remains from the grave probably belonged to a single adult individual, with an uncertain indication of middle adult age category (around 30-40 years old). The amount of the excavated cremains is insufficient for representing a whole set of cremated remains; the total weight of the cremains in question represents about 50% of the smallest female skeletal weight after cremation according to modern data (Bass and Jantz 2004; Warren and Maples 1997). Analysis of the fragmentation showed a similar amount of the largest (>10 mm) and middle-sized (10-5 mm) fragments, but the rate of anatomical identification is significantly low (8.6%). The remains have undergone nearly complete calcination, inferred from their white colouration, indicating pyre temperatures over 600°C. Compared to previously examined graves from the 2014 excavation season, the preservation of feature 109 is significantly worse, as indicated by the rate of anatomical identification and the total amount of analysed fragments.

DATING

The dating of the assemblage can be established mainly on the basis of the brooch and parts of the shield. Although the brooch is incomplete, it can be classified as Type Almgren 236, most probably A. 236c. It should be noted that the artefact is small in comparison to analogous items, and it is the Noric-Pannonian fibula most commonly imported to the Central-Eastern Barbaricum (they were produced in south-western Pannonia and Noricum, cf. Garbsch 1965, 77). They came as part of the Bohemian wave of imports, i.e., du-

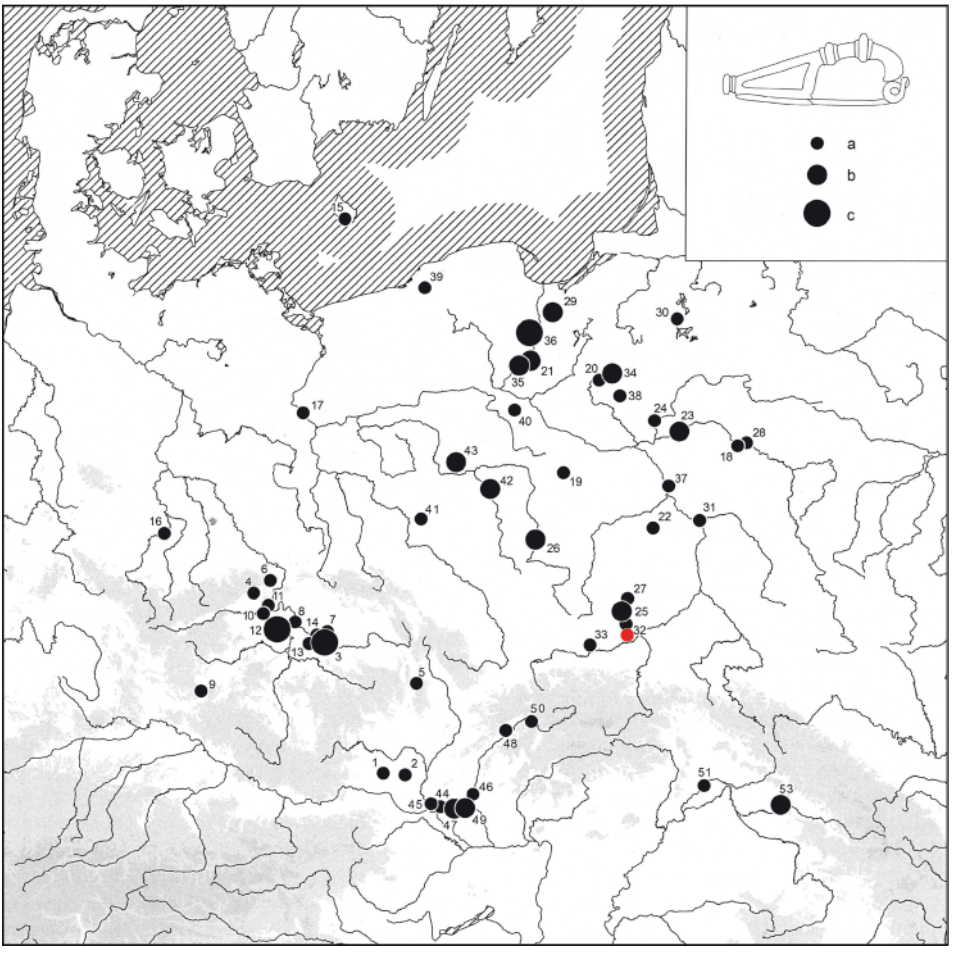

Fig. 9. Distribution map of fibulae of Type A.236c; red dot – Podlesie (numbers and map according to Zagórska-Telega 2017, supplemented by the authors); a – 1 brooch, b – 2 or 3 brooches, c – 4 or more brooches

ring the heyday of the Marcomanni state ruled by Marbod (Wołągiewicz 1970, 218, 245-246), but also of the so-called Slovakian wave, after the fall of Marbod and the takeover of power by the Quadi (Wołągiewicz 1970, 221-222). From the area of modern Poland, two concentrations of brooches of Type A.236c are known (Fig. 9): one on the lower Vistula, and another in the eastern zone of the Przeworsk culture, but they are also known from the Lesser Poland and Kielce regions, as well as from southern Slovakia and Bohemia. Single artefacts have been recorded in Carpatho-Ukraine, the Elbe Land, western Poland (including the Lubusz Group), the Bogaczewo culture, and on Bornholm (Zagórska-Telega 2017, map 2). In the Barbarian areas, they are often found in men's burials, unlike in the Roman provinces where they were used by women (Zagórska-Telega 2017, 588). In the Roman provinces they are found throughout the whole 1st century AD (Garbsch 1965, 27*-30; cf. Demetz 1999, 50-52), but in the Barbaricum they occurred only in Subphases B_{1a} and B_{1b} (Zagórska-Telega 2017, 568-570; cf. Andrzejowski 1998, 75-76).

Another item of attire that was found is represented by elements of the supposed buckle. If it has been correctly classified, it was a representative of Group A after R. Madyda-Legutko, dated in the Przeworsk culture to Phase B_1 (Madyda-Legutko 1987, table 7). Buckles from that group are found in male burials (cf. Madyda-Legutko 1987, 11).

The shield boss should be classified as Type 5 after M. Jahn (1916), and in the Przeworsk culture it represents the chronological Group 1 of graves with weapons, meaning that it occurred in Subphases B_{1a-b} (Godłowski 1992, 72). In some areas of Barbarian Europe, their dating may be considerably different (cf. Kontny 2019, 132). Such shield bosses most probably derived from the conical/dome-shaped forms of Type 8 after D. Bohnsack (1938), characteristic of the final part of the Late Pre-Roman Period (cf. Bochnak 2005, fig. 35; Łuczkiewicz 2006, 87-91, table 12). To produce them, it was necessary to use more sophisticated devices than those used for making bosses with a hemispherical or rounded shape, i.e., appropriately shaped insets similar to a shoe-last or an anvil with a horn (Bochnak 2005, 114). The benefits of using a pointed calotte, allowing for greater effectiveness in the offensive use of the shield, are obvious (Kontny 2019, 32). When lacking blacksmithing skills sufficient to make the shield a more effective offensive weapon, craftsmen began to make conical shield bosses by hammering out metal sheets rather than iron billets. The use of this method left a visible trace in the shape of a seam on the cover in the place where the edges of the metal sheet met. Such seams (Germ. *Buckelnaht*) were found, i.a., in the Elbe Cultural Circle, the Przeworsk culture, and in Scandinavia (cf. Jahn 1916, 170-171; Zieling 1989, 294; Kontny 2007, 96).

A clearly archaic feature is the large number of rivets, which was common among artefacts from the Late Pre-Roman Period until its decline (cf. Bochnak 2007; Kontny 2007, 94-95; for the final period of the use of such solutions during the Roman Period in the West Balt Circle cf. Kontny 2017, 30, fig. 11:3-5). This solution was rather ineffective, as the excessive number of the rivets weakened the boards of the shield; it was enough to use three or four rivets, which can be seen in numerous examples from the Roman Period.

However, the discussed technical solution may have also had reasons unknown to us, e.g., the type of wood used to make the shield. It may only be said that the reconstructed thickness of the shield in the place where the boss was affixed, which was 1.4 cm, does not differ from the data known for other such Przeworsk items (see e.g. Zieling 1989, 288-290). The damage to the boss may have resulted from ritual action, since it is too serious to have been sustained in combat (cf. Czarnecka and Kontny 2009). It is also worth noting the small hole at the top of the boss; it seems to be rather a result of an error made when it was forged and exposed after destruction, since there are no indications that it was intentional (there was no reason to leave such a hole, as it would create a potential threat, albeit small due to its dimensions), or that it was damaged on purpose. Rivets of Type B, after N. Zieling, occurred in the Late Pre-Roman Period and in Phase B_1 (Zieling 1989, table 34: B, plate 4). Taking into account these archaic features, it seems justified to shift the dating of the artefact to the early stage of Phase B_1.

The iron fragment that should be considered as part of a double plate for the rivet of a shield handle of Type C after N. Zieling / 3 after M. Jahn (Jahn 1916, fig. 189) may be dated to the Late Pre-Roman Period (Zieling 1989, table 2), but in the Przeworsk culture (Bochnak 2005, 121-123; Łuczkiewicz 2006, 170, graph 5, table 14) and in the Oksywie culture, where they were more numerous, they occurred almost exclusively in Phase A_3 (Bochnak 2005, 121-123; Łuczkiewicz 2006, 170, graph 6, table 15 – Group 2a and 2b). Contrary to the general observations made by T. Bochnak (2005, 123), the discussed artefact could not have been fixed with the same rivets as those used for fixing the boss because the rivet hole has a much smaller diameter.

The head of a shafted weapon represents Type X after P. Kaczanowski, which is made up of a set of rather morphologically diverse artefacts. This type is dated to Phases B_2 and, mainly, C_{1a}, yet the earliest specimens may be related to Phase B_1. These forms precede Type IV. In the analysed case, however, we are dealing with an exceptionally early form. This unique element is a polygonal cross-section of the socket, while among the specimens of Type X, sockets that are circular or, exceptionally, lenticular in cross-section are predominant (Kaczanowski 1995, 20-21). The polygonal cross-section became popular in Phase B_2 (Kaczanowski 1995, *passim*).

The arrowhead is not a good chronological determinant; Type IV has a very broad dating to the period between the 3rd and 2nd centuries BC and the 1st-4th century AD (Hazanov 1971, plate 19).

The pottery also does not contribute much to the dating, even though it fits in the chronological framework determined by the artefacts described above. Vase-like vessels of Type Liana II/2 occurred mainly in Phases B_1 and B_{2a} (Liana 1970, 439), Type I/1 occurred earlier, i.e. in Phases A_3 and B_1 (Liana 1970, 439), and Type VI/1 occurred in the Late Pre-Roman Period, Phase B_1 and even slightly later, whereas Type I/3 occurred mainly in Phase B_2 (Liana 1970, 440). As the time frame is not very exact, we may only generally assume that the pottery should be dated to Phase B_1.

The whole assemblage should be dated to this phase, but taking into account the brooch of Type A.236c, the possibly early shield handle and the archaic ways of fastening the shield boss, it may be assumed that it we deal with the earliest stage Subphase B_{1a}.

THE ARROWHEAD

Out of the weapons present, the most interesting is the seemingly least spectacular one, i.e. the arrowhead. It is not a form typical of the Przeworsk culture, in which leaf-shaped blades of arrowheads predominate, barbed items are rare, and needle-shaped ones are exceptional (Kontny 2019, 38). Trilobate arrowheads are typical of nomadic milieus: Sarmatian, Hunnic, and Avarian. It is possible, however, to distinguish between them, as the earliest, Sarmatian ones, had generally triangular lobes forming broad barbs, whereas the Hunnic type (dated to the Migration period) was more rhombic, and the Late Migration Period / Early Middle Ages Avarian three-vaned specimes were most frequently deltoid oblanceolate in shape (cf. Bitner-Wróblewska and Kontny 2005). Naturally, this is only an overall tendency, and particular specimens may differ slightly in shape.

There are only a few examples of such early, viz. Sarmatian, finds from the Polish lands as the case of the item from Podlesie (Figs 10-11). Forms with triangular (or similar in shape) leaves are known from the find of 16 arrowhead fragments from the Przeworsk culture burial ground in Grzybów, Staszów district (Garbacz 1995, 211-214, fig. 2). They were found in a concentration that could not be related to any specific burial, for they were abandoned by unknown looters who had disturbed one or more features.

This lack of context gave the author (Garbacz) an opportunity to make his own interpretation. He considered them as Roman artefacts connected with the territorially close military contacts from the Marcomannic wars (Garbacz 1995, 217-218). They are also dated to the Marcomannic wars by H. Dobrzańska, although she attributes them to the Sarmatians (1999, 86). Indeed, Roman arrowheads looked identical to the Sarmatian ones for, being effective and relatively easy to produce (Zanier 1995), they were included into the Roman weaponry together with the Indo-Iranian arrow men, and these troops (*sagittari*) were recruited from among the Sarmatian and Parthian warriors, and often used in provinces threatened with the invasions of similarly equipped peoples (Zanier 1988, 9-11, fig. 2; Fischer 2012, 201, fig. 294; cf. also Coulston 1985).

However, the finds from Grzybów should not be linked with the Roman milieu in the light of the dating of the arrowhead from Podlesie and the recently published arrowhead from a groove-type feature (No 31) in Michałowice, Kazimierza Wielka district (Zagórska-Telega *et al.* 2011, fig. 12:4). Aside from an analogous arrowhead, in the filling of this feature were found, three brooches of Type M after J. Kostrzewski (1919), a brooch of Type 18 after O. Almgren (1923) and a brooch of Type A. 67 (Zagórska-Telega *et al.* 2011, 212-215, fig. 12:4-9; 16), among other items, which allows the feature to be dated to the earliest

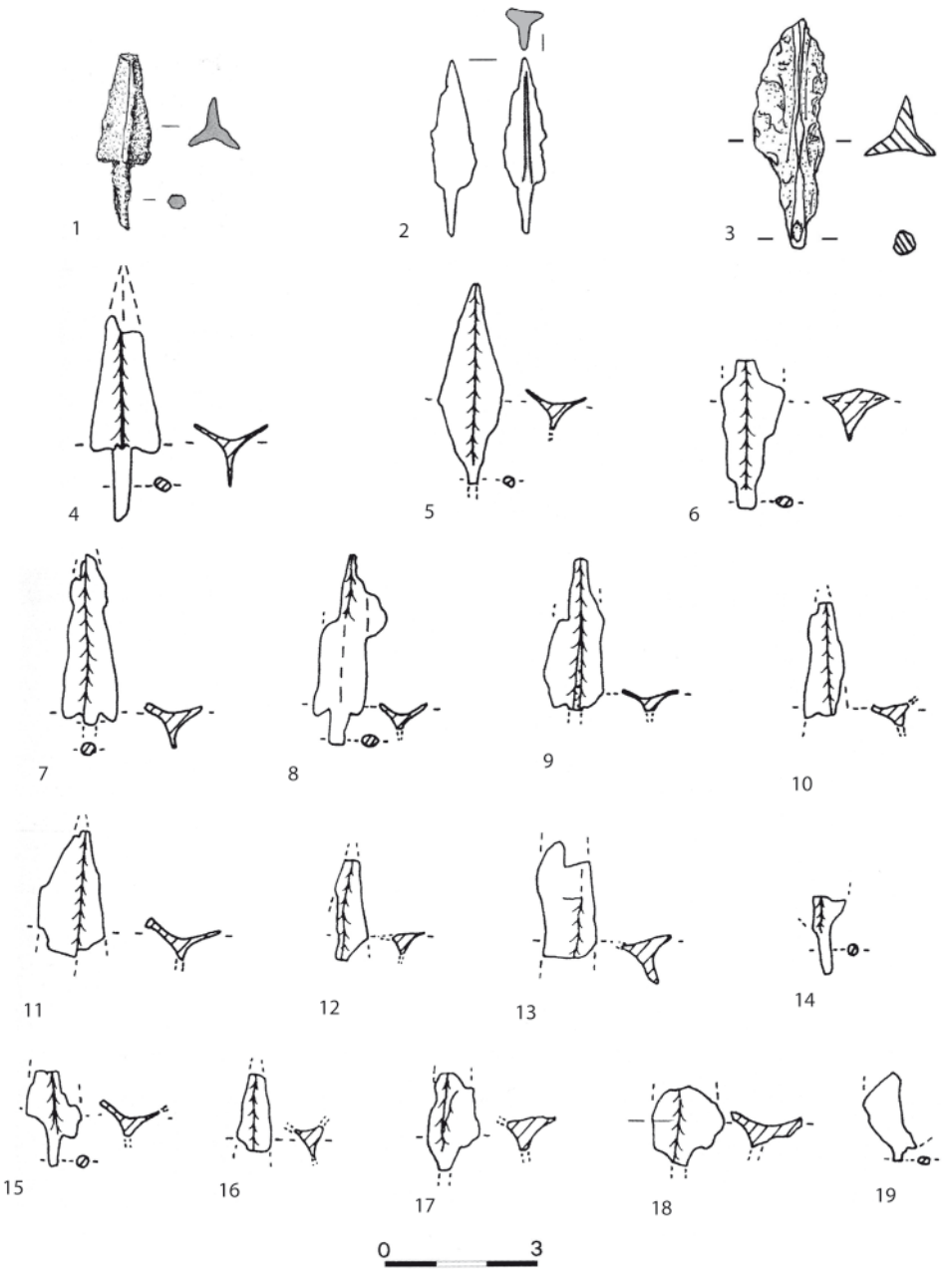

Fig. 10. Examples of Sarmatian-type trilobate arrowheads from the territory of Poland. 1 – Dybowo, stray find; 2 – Michałowice, groove feature no 31; 3 – Podlesie, feature 109; 4-19 – Grzybów, stray finds (1 – after Engel *et al*. 2018; 2 – after Zagórska-Telega *et al*. 2011; 3 – drawn by Katarzyna Szymańska; 4-19 – after Garbacz 1995)

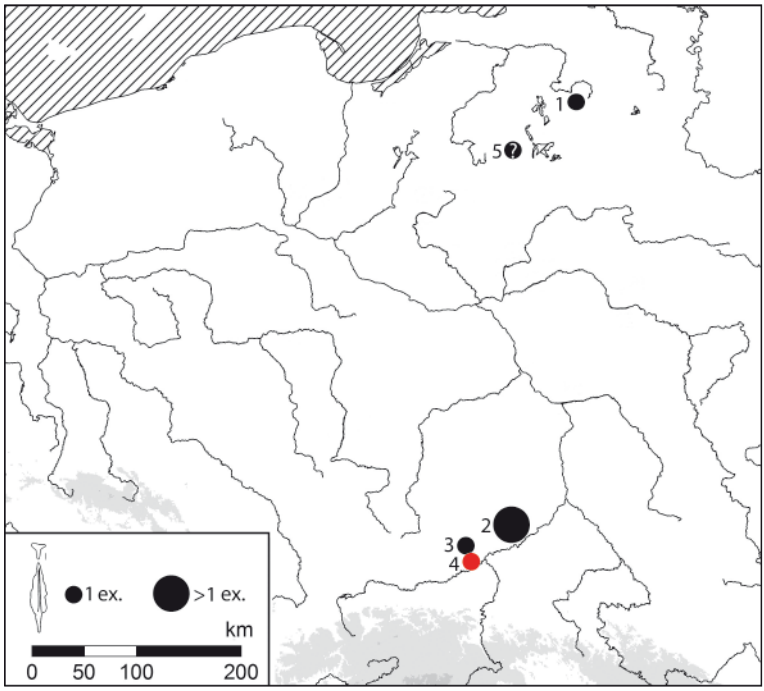

Fig. 11. Distribution map of Sarmatian type trilobate arrowheads from the territory of Poland. 1 – Dybowo; 2 – Grzybów; 3 – Michałowice; 4 – Podlesie; 5 – Mojtyny

stage of Phase B_1 or even stage A_3/B_1 (the context of the Roman provinces indicates the Augustan times, cf. Demetz 1999, 133-135). Therefore, this feature is almost identical in chronology as that of the feature in Podlesie. In such a situation, a late dating of the finds from Grzybów, and their connection to the Roman milieu, is completely improbable. Also, the limited numbers of arrowheads in the graves from Podlesie and Michałowice seem to indicate that at least several if not more than a dozen burials must have been disturbed in Grzybów.

Another three-flanged arrowhead from Polish lands was a stray find from the hillfort in Dybowo, Olecko district, which may be connected with the Bogaczewo culture settlement from the Roman Period; the habitation layers connected with that period were strongly disturbed, but the dating within this stratum can be tentatively limited to Phase B_2/C_1-C_{1a} (Engel *et al.* 2018, 279, fig. 5:5). The find from Grave 59 at the Bogaczewo culture site of Mojtyny, Mrągowo district, may perhaps be interpreted in a similar way (Hollack and Peiser 1904, plate VII:59a), but in this case the unsatisfactory quality of the documentation and the state of preservation do not allow for a definitive determination (Kontny 2019, 138-139). The assemblage is not precisely dated, but taking into account the chronology of

the cemetery (Lewoc 2016, 83-84), it may probably have been made in Phases B_{2b}-C_2. Thus, the Balt finds are most probably not related to the same time horizon as the finds from the Przeworsk culture, and so are not connected to contacts from the Early Roman Period described below.

CULTURAL CONTACTS WITH THE SARMATIANS

The relations with the Sarmatian milieu at the beginning of the Early Roman Period are well documented for the Przeworsk culture, especially in its southern part, and are connected with the relations with the Black Sea littoral. The Sarmatians managed to create there a realm with a capital in Olbia ruled by king Farsoes (from 49 AD), and then (from 70 AD) his successor, king Inismeos (Dobrzańska 1999, 85). Although these contacts were not so intense as in the second half of the 2nd and in the 3rd century AD (cf. Dobrzańska 1999, 85-86), they did exist. They are said to have been manifested by contacts between the elites, cf. a woman's rich burial from Giebułtów, Kraków district, and a man's from Sandomierz-Krakówka, Sandomierz district, in which pottery considered as Sarmatian was found, as well as other artefacts believed to come from that cultural circle (Dobrzańska 1999, 78-79 with further literature).

It should be noted, however, that these graves are later than the feature from Podlesie, and can be linked with Phase B_{2a}, or the last quarter of the 1st century AD. Furthermore, the Sarmatian origins of the pottery are questioned; it could also have had a Dacian provenience (Florkiewicz 2006, 197-198; Lasota 2009, 165). Additionally, the supposedly Sarmatian conical arrowheads with a tang (Dobrzańska 1999, 81) turned out to be decorative points of chair-shaped spurs (Germ. *Stuhlsporn*) (Kontny 2003, footnote 139), most probably attached to organic bases and fixed to additional pairs of shoes put together with the deceased on the pyre – hence the exceptionally large number of spurs in the burial. A similar situation was confirmed for the so-called princely burials (No I and II) of the Early Roman Period from Marwedel, Ldkr. Lüchow-Dannenberg in Lower Saxony (Wegewitz 1983, 129; Bischop 2006, 108-109, fig. 30; cf. Laux 1988).

The importance of the realm of Farsoes, who exerted control over some groups of Dacians or Germans, may be inferred from written sources, and it may be confirmed by the existence of metallurgical centres in the area earlier occupied by the post-Zarubincy culture in the mid-1st century AD – especially in Lyutezh in the central Dnieper region and Uman' on the Boh river, which, as some researchers believe, were controlled by the Sarmatians and produced their wares for them (Voronyatov and Eremenko 2013, 52-58).

German-Sarmatian military contacts are testified by Tacitus, who wrote about the invasion of the Lugii (related to the Przeworsk culture) on the state of the Quadi, ruled by Vannius, which took place in ca 50 AD (Tacitus, *Annales* XII, 29-30; after: Kolendo and Płóciennik 2015, 114). Vannius' troops included the cavalry of Sarmatian Iazyges who lived

in the eastern part of modern Hungary, but who could not withstand the attack – in the open field – of the Lugii and Hermunduri coming from the north (the Iazygi ruler defended himself with his native foot soldiers in fortified places), as a result of which the ruler fell (Kolendo and Płóciennik 2015, 119-120).

The most spectacular manifestation of German-Sarmatian contacts in the military sphere was the adaptation of the Sarmatian tamgas (or motifs based on the tamgas, but not having direct analogies among the Sarmatians) in the second half of the 2nd century and in the early 3rd century AD as decorations for spearheads in the Przeworsk culture or, more broadly, in the Germanic milieu (Voronyatov and Machinskij 2010, 58-65). It is assumed that the adoption of Sarmatian symbols may have been connected with participation in combat (Shchukin 1994, 230) and contacts with the nomadic aristocracy; essentially, these symbols may have been inspired by or copied from designs seen on Sarmatian banners, tattoos, or brands on horses that became property of the Germans as spoils of war (Voronyatov and Machinskij 2010, 62, 69-71, with further literature). This may be related to the period of the Marcomannic wars (167-180 AD) also called (not without reason) the Sarmatian-Marcomannic wars, because both the Germans (not only the Marcomanni but also, i.a., Lugii) and the Sarmatians were plaguing the Romans. S. Voroniatov assumed that an opportunity to adopt the tamgas may also have been provided by the victory of the Goths over the Sarmatian tribe of the *Spali*/*Spalaei*, who most probably inhabited the area between the Boh and Dniester rivers, and were earlier the subjects of Farzoes and Inismeos as described by Jordanes (*Getica* 28 after E. Zwolski 1984). These events took place soon after the German tribe reached the land of *Oium*, most probably already in the 2nd century AD (Voroniatov 2012, 190). It seems, however, that it is not plausible to associate the adaptation of a new pattern with a single episode.

Mutual contacts in that period were, of course, very broad, and there is no room here to describe them in detail (cf. Istvánovits and Kulcsár 2017, 258-289 with further literature). Contacts in earlier times – from the very beginning of the Roman Period – are also indicated, and not only by the aforementioned arrowheads. One should also note a number of finds from the upper Dniester river, which show that the are of Sarmatian settlement (expanding from the concentration on the middle Prut and Dniester) overlapped with the Dacian one (the Lipica culture in the Pre-Roman Period, Phase A3) and with the Przeworsk culture (with its characteristic elements of men's attire and weapons) at the end of the Late Pre-Roman Period and at the turn of the eras (Kokowski 1999, 30-40; Voronyatov and Machinskij 2010, 59).

There were also finds of German weaponry in purely Sarmatian contexts, such as an eight-shaped buckle (untypical among the nomads) from the younger part of the Late Pre-Roman Period and the beginning of the Early Roman Period at the Sarmatian cemetery of Zolotaya Balka on the lower Dnieper river (Vyazmitina 1972, 134, fig. 66; Madyda-Legutko 1987, 11). It is difficult to establish what events spurred these contacts. The decline of the Zarubincy culture, resulting, as it is believed, from a Sarmatian invasion, seems to be a con-

vincing idea. The Sarmatian arrowheads need not necessarily indicate that Przeworsk culture warriors participated in large numbers in these events; the adoption of certain traits of military gear is possible both when the warriors belong to ethnically mixed military retinues as well as when they fight one against another. Evidently, this did not result in a change of the Przeworsk culture model of military equipment in which the bows and arrows did not play an important part (cf. Kontny 2019, 38-39).

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