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## A FORGOTTEN HELMET FROM SILNICZKA IN POLAND

**Abstract:** The paper discusses a well-preserved helmet discovered in the vicinity of an Early Medieval cemetery in Silniczka near Radomsko. The helmet was made from two pieces of metal sheet, which were riveted together. In its upper part the presence of copper and gold sheets was noticed. The helmet can be dated to the 11<sup>th</sup>-first half of the 12<sup>th</sup> c. and it belongs to unique finds from the territory of Poland.

**Keywords:** helmet, early Middle Ages, Silniczka, metallographic examination

Finds of Medieval helmets from the Polish lands are generally rare and this especially concerns Early Medieval ones. It is therefore even more surprising that such an extraordinary discovery which was made almost half a century ago in the vicinity of the cemetery in Silniczka near Radomsko had to wait for so many years for a more extensive publication<sup>1</sup>. The first pieces of information concerning this find appeared in a report paper of Jerzy Augustyniak in 1977<sup>2</sup>. This paper discussed archaeological rescue campaigns in the river basin of the Warta and the Pilica. One of sites under threat was the Early Medieval cemetery in Silniczka, which was systematically destroyed by robbery extraction of sand (Fig. 1). Rescue works were carried out in Seasons 1969 and 1970. At that time, another five surviving inhumation burials were examined, including three women's and two men's burials. Apart from that, a strongly destroyed sword and a „mysterious” triangular piece of iron sheet were found outside of graves.

This „mysterious” and flattened artefact was discovered near a field road which went through the site (Fig. 2). Upon closer inspection it turned out that it was an Early Medieval helmet. Regrettably, its skull became strongly flattened and deformed. Furthermore, its long deposition in the soil caused corrosion, which resulted in damages to the metal. These damages, however, were generally rather small. Metrical data stated in the source publication were the following: height 20 cm, diameter 23 cm, diameter

of the outer opening 5 cm, thickness of the metal sheet 1.5-2 mm. The find was believed to be another representative of helmets of the so-called „Greater Poland's” type. The technology of manufacture was examined at that time by Mrs Elżbieta Nosek MA Eng. The skull was believed to be made by a proper forming of a single piece of metal sheet and joining of the edges with rivets. A metallurgical analysis demonstrated that the iron sheet was soft and not carburised. It was probably ferritic iron. No ornaments were recorded on the surface of the skull at that time<sup>3</sup>.

The find which was published in such a manner did not attract much interest of scholars dealing with old arms and armour, especially Medieval ones. The helmet in question found its way to literature again only at the beginning of the 21<sup>st</sup> c., when arms and armour from the territory of Early Medieval Lesser Poland were discussed. Regrettably, information concerning this helmet was not verified in the course of query, either, and it was still based on data available in literature<sup>4</sup>. Shortly thereafter, the find from Silniczka was also discussed by Jerzy Sikora, who classified it as a „putative *Spangenhelm*”<sup>5</sup>.

An impulse to carry out new examinations was given by results of re-conservation of the find, conducted in the Laboratory for Conservation of Metal Finds of the Institute of Archaeology of the University of Łódź in the years 2006-2009. A preliminary inspection revealed that the metallic iron core of the helmet's skull was very well preserved. It was decided that it would be possible to clean the find from layers which rendered the observation of the

<sup>1</sup> The authors are indebted to the Director of the District Museum in Radomsko and to Mr Krzysztof Błaszczuk MA for making the find available for research and for help in the course of examinations.

<sup>2</sup> Augustyniak 1977, 284, Fig. 7.

<sup>3</sup> Augustyniak 1977, 284.

<sup>4</sup> Strzyż 2006, 99-100, cat. No 21, Fig. 25:6.

<sup>5</sup> Sikora 2009, 110.

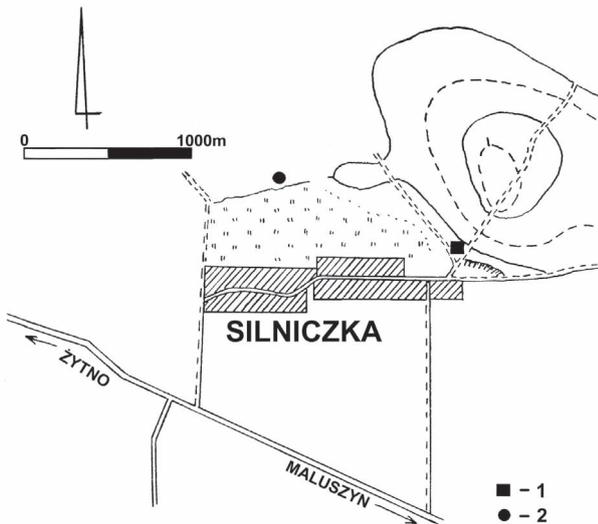


Fig. 1. Silniczka, situation plan. 1 – cemetery, Site 1; 2 – settlement, Site 2. After Augustyniak 1977, Fig. 1. Elaborated P. Strzyż.

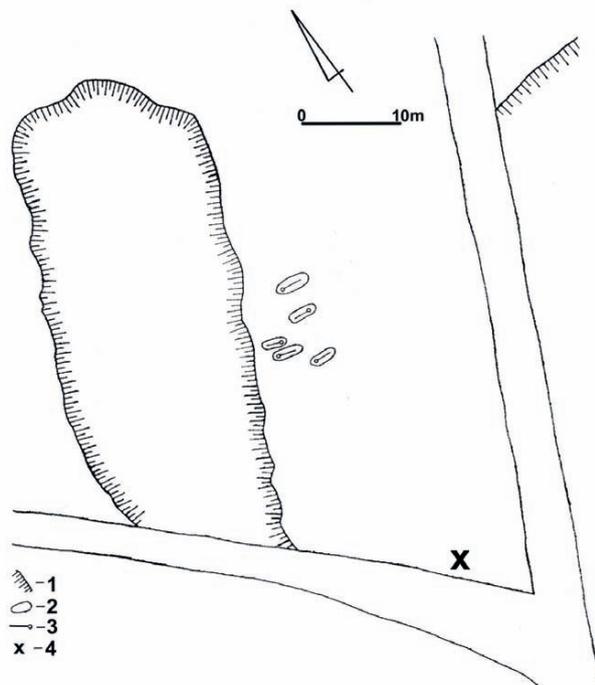


Fig. 2. Silniczka, Site 1. Situation plan of the cemetery. 1 – sandpit; 2 – outline of the grave pit; 3 – the position of skeleton; 4 – location where the helmet was found. After Augustyniak 1977, Fig. 2. Elaborated P. Strzyż.

helmet's surface difficult. Regrettably, the surface was covered with a 1-2 mm thick layer of corrosion, which formed on the helmet in result of its deposition in sandy acidic soil. Such soil causes the formation of corrosion composed of a mixture of iron oxides and sand. In the cause of original conservation procedures the find was probably not cleaned. Due to this, a thick layer of this corrosion survived. Then, the find was secured with a bath in hot tannic acid and then it was immersed in liquid paraffin.

The re-conservation consisted in a slow and systematic removal of paraffin layer in boiling water, alternately with

a bath in 0.01% solution of acetic acid. This process was long-lasting and labour-intensive – it took about 3 years. After the helmet had been cleaned completely, a decision was made to cover it again with a layer of paraffin. As it is the habit of the Laboratory to monitor the state of preservation of finds which were conserved in it, this procedure was correct in the light of information received from the place of storing of the find. Namely, until 2016 no new layer of corrosion formed on the helmet.

The removal of corrosion products from the find allowed for carrying out new examinations concerning the appearance and construction of the helmet (Figs. 3; 4). One of the most significant observations is the fact that the skull was made from two (and not, as hitherto maintained, from only one) triangular pieces of iron sheet. However, the way of processing of individual parts of the helmets demonstrates a low quality of the product – this is because individual pieces of iron sheet were joined in a slightly different way. The edge on the right side was joined with the neighbouring part using seven rivets (Fig. 5:1). On the other hand, on the left side both halves were joined using six rivets only, and the missing one was replaced by means of lap-hammering of overlapping sheets (Fig. 5:2). The diameter of rivet holes is 6 mm. This way, a conical skull was produced. Its diameter in the lower part is 16 cm (with the circumference of about 50 cm), while its height is 20 cm. In the top part of the helmet there is an opening (now oval) with dimensions of 1.8x1.6 cm. It is probable that an additional conical bushing was fixed in this place. The thickness of the iron sheet used to manufacture the helmet varies. In the lower part of the skull it is 1 mm and it becomes thicker and thicker toward the finial of the helmet. It is usually 1.5 mm, but locally it can be even 2 mm. What is surprising is a relatively small diameter of the helmet (about 16 cm); however, head protections with similar diameters are known, among others, from the territory of Rus<sup>6</sup>.

In the probable frontal part of the skull there is a significant gap in the metal (Figs. 3; 4; 5:1). Based on the observation of the shape of the iron sheet's edge in this place it is possible to conclude that this was rather an intentional opening. Its height is about 5.5 cm while its width is about 7 cm. As there are no traces of joining (riveting) with other parts of the helmet, it can be assumed that it was rather an opening made in order to improve the field of vision of the warrior and not – as previously believed – a place where a nasal was attached<sup>7</sup>. The lower edge of the skull has no holes or rivets, either, which could be traces of attaching an additional protective element there, such as an aventail or a textile or leather neck guard.

<sup>6</sup> E.g., the diameters of the helmets from Kiev and Mirovka are 17 and 19 cm respectively; Кирпичников 1971, cat. Nos 10, 17, Fig. XII: 2, 3.

<sup>7</sup> Augustyniak 1977, 284; Strzyż 2006, 100.



Fig. 3. The helmet from Silniczka after preservation. Photo P. Strzyż.

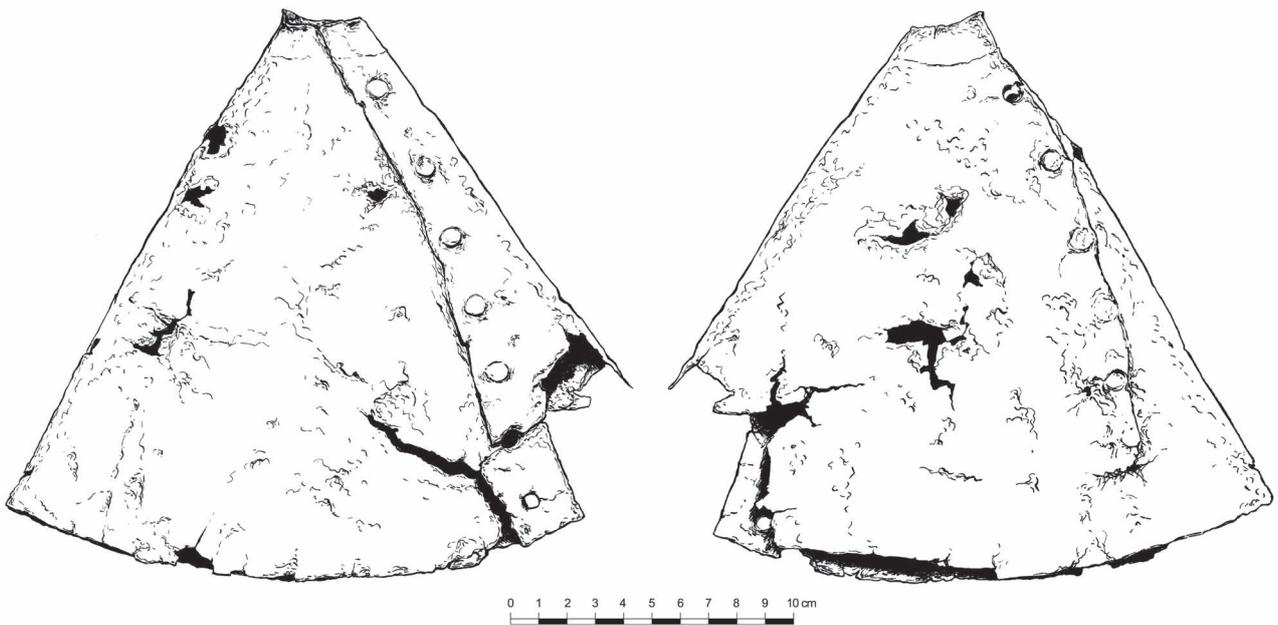


Fig. 4. The helmet from Silniczka. Drawing T. Przybył.

It is also worth stressing that in the top part of the skull there are remains of ornamentation with non-ferrous metal, in various shades of gold. These remains can be seen near the opening for the bushing and on rivets which join individual sheets of iron (Fig. 6:1-3). From this location two samples<sup>8</sup> were taken for the analysis of the chemical

composition<sup>9</sup>. In these samples, five spots underwent a detailed analysis (Sample A – 3 spots, Sample B – 2 spots). Obtained results can be considered very interesting. In Spot 1 of Sample A (Figs. 7:3, 8:1) there was a preponderance of copper (55%) and zinc (43%). Therefore, the metal can be

<sup>8</sup> These samples were taken by Mr Czarnecki, a jeweller from Łódź.

<sup>9</sup> Analyses were carried out by Krzysztof Jakubowski MSc Eng from the Laboratory of Research and Expert's Opinions of the Institute of Material Engineering, Faculty of Mechanical Engineering, Łódź University of Technology, using a Hitachi S3000N scanning microscope with an EDS module.



Fig. 5. Details of the construction of the helmet from Silniczka.  
Photo P. Strzyż and K. Skóra.

identified as brass. On the other hand, in Spot 3 of Sample A (Figs. 7:3, 8:2) there was gold (57.28%), copper (28.49%) and silver (2.23%). In Spot 2 of Sample B (Figs. 7: 4, 8: 4) there was a prevalence of copper (94.16%) with a small share of iron, zinc and tin. The main component in Point 2 of Sample A and in Point 1 of Sample B was iron (Fig. 8:3).

It can be therefore said that at least part of the skull was covered with cold on an underlay of copper or brass sheet. Hitherto interpretations of the helmet from Silniczka (apart from the isolated opinion of J. Sikora) tended to identify the find as the so-called “Greater Poland’s” type<sup>10</sup>. It includes finds discovered in Giecz, Gniezno, Gorzuchy and Olszówka in Greater Poland (Figs. 9, 10). Skulls of these helmets were made from four pieces of iron sheet, joined

with iron rivets. Lateral edges of sheets are remarkable for their arcuate lines. Lower edges of skulls are provided with reinforcements made from iron sheets, which in the forehead’s parts are shaped as ornamental diadems. Near their lower edges there are openings to attach chainmail. Ornamental rosettes or badges were also added on lateral surfaces of these helmets. On tops of such helmets there are conical bushings for plumes. A copper sheet, which was sometimes additionally gilded (Giecz, Gniezno, Gorzuchy), was laid on the helmet’s skull which was formed from a sheet of iron in such a manner. The height of the skulls of such helmets was 20-22 cm (without the bushing), while their diameter was about 20-21 cm. The weight of the find from Olszówka is 1.24 kg. The presence of such helmets in Greater Poland was explained in previous scholarship as a result of local manufacture<sup>11</sup>. Authors of later works tended to relate their manufacture to the activity of Rus’ craftsmen, settled here as prisoners taken by troops of Bolesław the Brave during the expedition to Kiev in 1018. A possibility of the presence of such helmets as war booty (of a similar origin) was also considered acceptable<sup>12</sup>.

Quite a numerous series of helmets of this kind is known from the territory of Early Medieval Rus’. Anatoly N. Kirpičnikov defined them as Type II in his classification. He identified five finds altogether. Out of these, three are dated to the second half of the 10<sup>th</sup>-11<sup>th</sup> c. – two finds from a barrow cemetery in Černihov (the „Černa Mogila” and the „Golubišče” barrows) and one from Mokre (Obl. Rovne). What is important here is that these helmets were mainly acquired in the course of examinations of barrows where remains of warriors of the Rus’ retinue were buried. Therefore, the chronology of these helmets is rendered more precise by the archaeological context of other finds of weaponry and personal equipment of warriors. The



Fig. 6. Details of the construction of the helmet from Silniczka. Photo P. Strzyż and K. Skóra.

<sup>10</sup> Augustyniak 1977, 286; Strzyż 2006, 100.

<sup>11</sup> Bocheński 1930, 3-9, Fig. I-IV; Nadolski 1954, 71-75, Fig. XXXIV.

<sup>12</sup> Somerfeld-Sarnowska 1939-1948, 318-321, Fig. LX; Nadolski 1960, 117; Nadolski 1994, 63-66, Fig. 4; Кирипичников 2009, 15-17, Fig. 22-25.

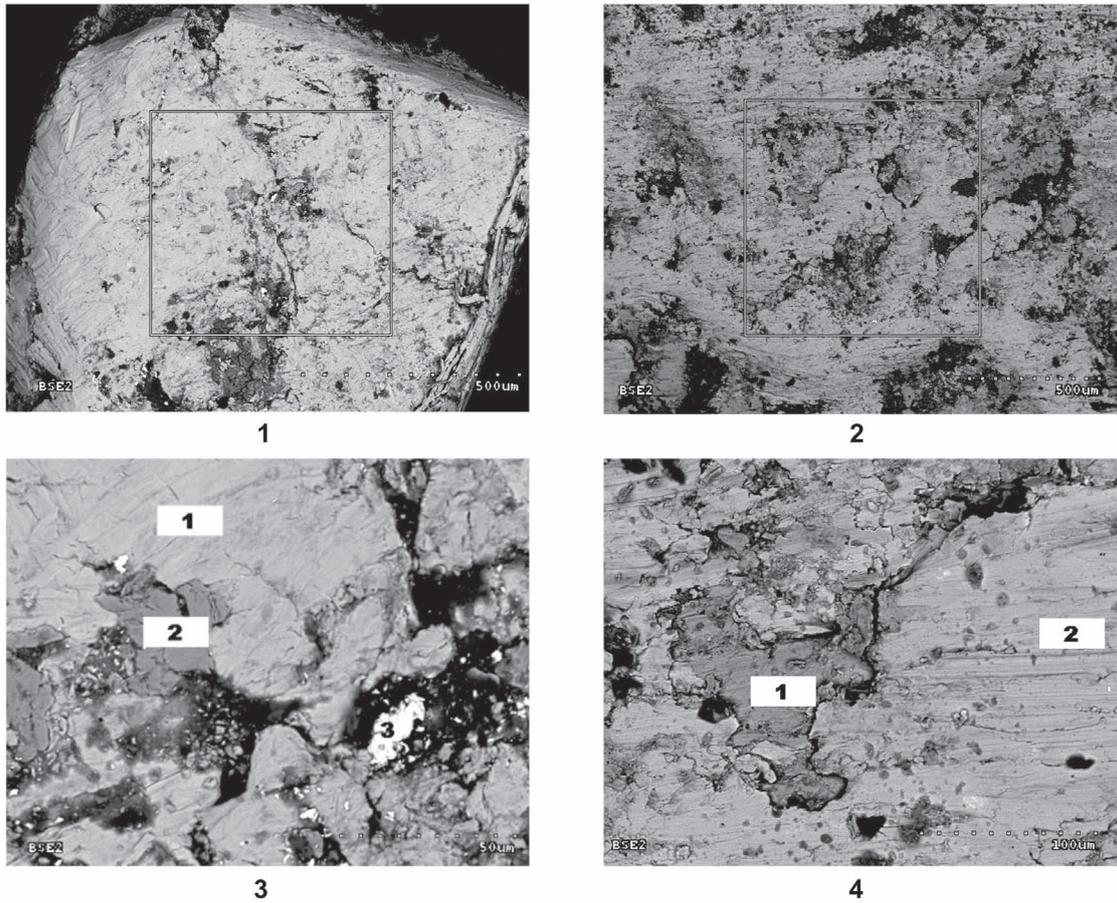


Fig. 7. Helmet from Silniczka. 1 – Sample A; 2 – Sample B; 3 – Sample A, Spots 1-3 underwent elemental analysis; 4 – Sample B, Spots 1-2 underwent elemental analysis. By K. Jakubowski.

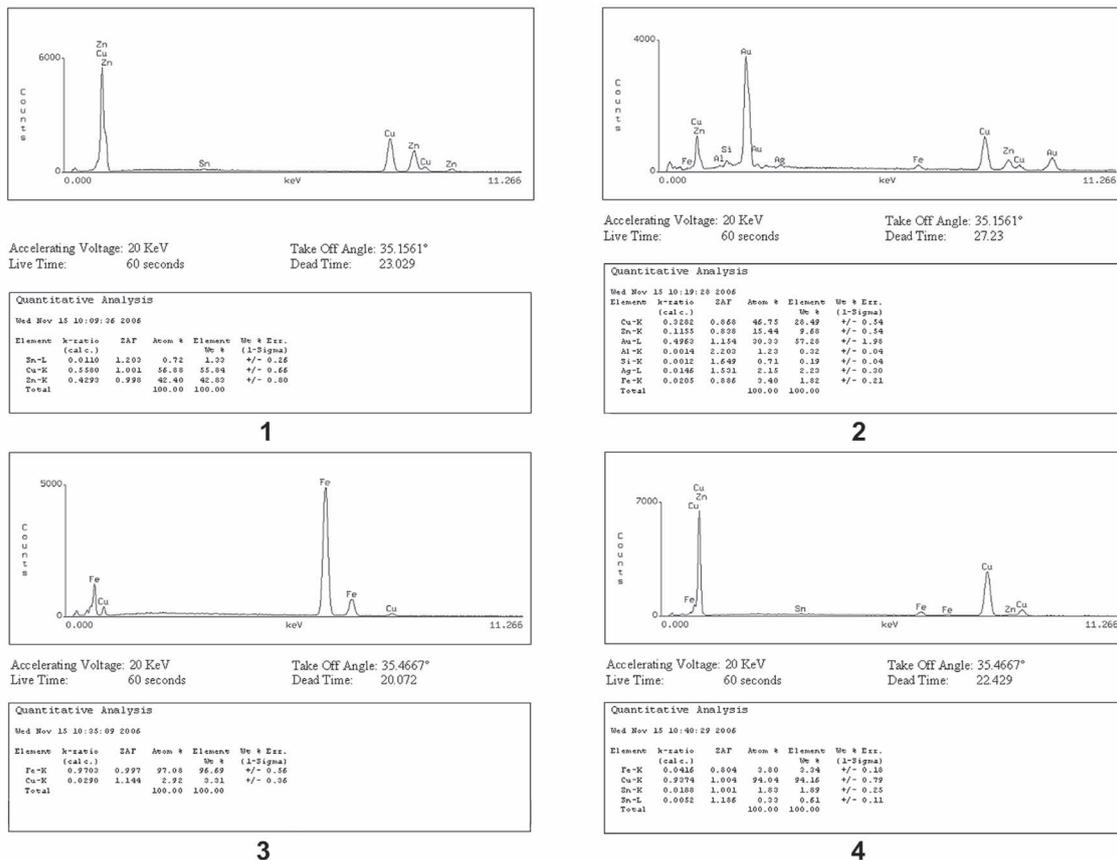


Fig. 8. Helmet from Silniczka. 1 – Sample A, Spot 1, elemental analysis; 2 – Sample A, Spot 3, elemental analysis; 3 – Sample B, Spot 1, elemental analysis; 4 – Sample B, Spot 2, elemental analysis. By K. Jakubowski.



Fig. 9. The helmet from Olszówka. After Nadolski 1994, Fig. 4.

height of the skulls (without bushings) is 18-22 cm, while the helmet's diameters are up to 22-25 cm and their circumferences oscillate between 63 and 73 cm<sup>13</sup>. A full set of ornaments, including the gilding of the surface of bronze sheets, can also be seen on the helmet from the cemetery of Gross Friedrichsberg, situated in the vicinity of Königsberg (Kaliningrad). This helmet is dated to the 11<sup>th</sup>-12<sup>th</sup> c.<sup>14</sup>

Apart from these artefacts, finds from Central-Eastern Europe also include a group of helmets which are remarkable for a simplification of their construction as well as for a more modest ornamentation. These are finds from the cemetery in Ekritten (Fischau County) in former East Prussia and from Pécs in Hungary. They do not have ornamental reinforcing metal sheets in the lower parts of their skulls, and the find from Ekritten is also remarkable for the lack of gilding on its bronze sheets. What is equally significant is that the former find was discovered in the grave of a „feudal lord” together with ornamented spearheads. The burial which was furnished in such a way was dated to the end of the 12<sup>th</sup> c., although A. Nadolski and A. N. Kirpičnikov proposed to rather date it to the first half of the 11<sup>th</sup> c.<sup>15</sup> In Rus' this group also includes the find from the stronghold in

Rajki (Obl. Zhytomyr), which is dated to the 12<sup>th</sup>-first half of the 13<sup>th</sup> c. and which also has no ornamental elements<sup>16</sup>. These traits can suggest that these three finds were more battle than parade helmets.

These analogies from the territory of Central-Eastern Europe imply that the find from Silniczka is not a typical representative of this kind of head protections. Due to the fact that the skull is made from two pieces of metal sheet which are joined with rivets, it can be included into the group of helmets with complex skulls, but with two parts only. The present state of preservation does not allow to identify the original area of the skull which underwent ornamental procedures. We do not know whether it was only the neighbourhood of the bushing or the entire surface of the helmet that was ornamented. Traces of copper and gold are without doubt best preserved in the top part of the skull, that is, in the place where the bushing was attached. What also makes the find from Silniczka different from classical helmets of „Great Poland's” type is the rectangular gap in the forehead's part of the helmet. A similarly shaped forehead's part can be seen in the helmet from Gnęzdovo (Smolensk Governorate), dated to the 2<sup>nd</sup> half of the 10<sup>th</sup> c. However, the very construction of the skull is different from the find from Silniczka – two pieces of metal sheet were joined together with a vertically riveted strap of metal, and its lower part is provided with a slat-like reinforcement<sup>17</sup>. Other finds of this kind, which were once found in Prague-Stromovka, are stored now in the National Museum in Prague<sup>18</sup>. In the territory of Rus' such gaps in the forehead's parts can often be seen in helmets of Type III according to A. N. Kirpičnikov, which are dated to the 12<sup>th</sup>-13<sup>th</sup> c. However, these helmets are remarkable for the additional presence of „masks” resembling human faces<sup>19</sup>, which is why it is difficult to speak about closer analogies in this case.

An important trait which makes the find from Silniczka close to helmets of „Great Poland's” type (Type II according to A. N. Kirpičnikov) are identified remains of copper and bronze sheet as well as gilding. Ornaments of this kind were found on a majority of helmets from Central-Eastern Europe (among others, „Černa Mogila,” Giecz, Gniezno, Gorzuchy, Mokre, Gross Friedrichsberg). Only in the case of the helmet from Olszówka gold sheet was placed directly

<sup>13</sup> Arendt 1935, 31, Fig. V; Kirpičnikov 1958, 49-52, Fig. 2:3-4; Kirpičnikov 1971, 25-26, cat. Nos 3-6, Fig. 9: 2, X: 2-3, XVII: 2; Kirpičnikov, 2009, 9-11, Fig. 11:3,4; 12-14. See also Vocheński 1930, 8-9, Fig. IV.

<sup>14</sup> Gaerte 1923, 41-42, Fig. III; Vocheński 1930, 7-8, Fig. III; Kirpičnikov 1958, 55, Fig. 4:4; Kirpičnikov 2009, 17, Fig. 18:4, 25:2.

<sup>15</sup> Nadolski 1954, 72; Antoniewicz 1955, 247, 256-258, Fig. 9, 11; Kirpičnikov 1958, 56; Kalmár 1971, 263, Fig. 18.

<sup>16</sup> Kirpičnikov 1958, Fig. 4; Nadolski 1960, 116, 117; Kirpičnikov 1971, 26-27, cat. No 7, Fig. XV:1; Kirpičnikov 2009, 12, Fig. 11:5.

<sup>17</sup> D'Amato 2015, 86, Fig. 9:1-3. The height of the helmet is 18 cm, its diameter in the lower part of the skull is 18 cm and the circumference is about 56 cm.

<sup>18</sup> Hejdová 1964, 49-51, Fig. 7:1-5, XI, XII; Šnajdrová 2014, 31-32, Fig. 1-2. The height of these helmets is 16.0 and 19.5 cm respectively, and their diameters are 17x22.7 cm and 15x21.5 cm respectively.

<sup>19</sup> Kirpičnikov 1958, 61, Fig. 7; Kirpičnikov 1971, 29-30, cat. Nos 21-23, Fig. XIV:1, 2-2a.

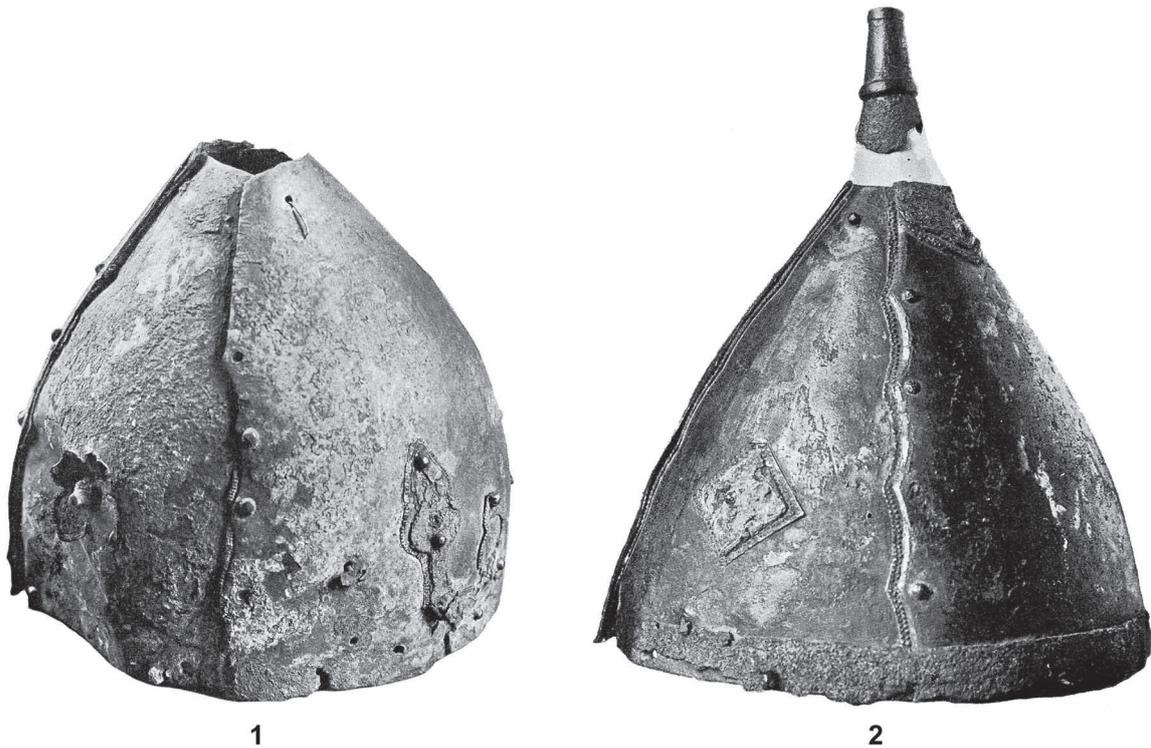


Fig. 10. The helmets from: 1 – Giecz; 2 – Gorzuchy. After Bocheński 1930, Fig. I, II.

on the iron skull<sup>20</sup>. The use of copper or brass sheets in the manufacture of helmets was well justified. In the Middle Ages it was not possible to cover iron artefacts with gold using a direct (galvanic) method. Instead of it, the iron skull of the helmet was first covered with a sheet of copper or its alloys. Only on such underlay it was possible to put gold. One of more popular methods was „amalgam gilding” or „fire gilding”. In this method, an amalgam composed of one part of gold and about eight parts of mercury was used. These ingredients were mixed when hot. The amalgam was applied to the artefact which was to be gilded and then the artefact was put into fire. A hot temperature (c. 600-700°C) caused mercury to evaporate, leaving a thin layer of gold on the surface, which could be polished to obtain a better visual effect<sup>21</sup>. Such a method of gilding of silver or copper artefacts is known i.a. from the work of Theophilus Presbyter from the 12<sup>th</sup> c.<sup>22</sup> or the treatise of Benvenuto Cellini from the 16<sup>th</sup> c.<sup>23</sup> However, our analyses did not demonstrate the presence of mercury (Samples A and B), which allows to assume that the layer of gold was applied to the helmet from Silniczka in a different manner. A thin gold sheet could be joined with a copper (or brass or silver) underlay using soft tin solder, which was especially effective on large flat surfaces<sup>24</sup>. This method was described in detail by Theophilus

Presbyter. He recommended to first prepare a special paste for soldering, with which elements to be soldered were covered. Then, tin was applied and the entire artefact was heated in fire. Tin melted and joined elements with durable adhesive<sup>25</sup>. Also this method could only hypothetically be used to gild the helmet from Silniczka, as only in one sample (Sample B, Spot 2) trace amounts of tin (0.61%) were found, while the content of tin should probably be much higher. In all probability the acquired research results demonstrate that gold was first hammered flat into the form of thin foil. Then, it was applied to iron or copper underlay and carefully hammered into it. A similar technology was applied in the case of the find from Olszówka (Fig. 9). As such foil was about 20-40  $\mu\text{m}$ <sup>26</sup>, it was not too difficult. A similar recipe is also mentioned by Michał Gradowski, who classified this method as forge-welding: *overlapping edges of a metal sheet are heated almost to the temperature of melting, and then they are forge-welded in points without the addition of solder*<sup>27</sup>. On the other hand, a brass sheet could be joined with the iron skull of the helmet by making delicate incisions in the iron and then by forge-welding it with the copper alloy sheet. To conclude, the helmet from Silniczka was in all probability gilded by means of hammering thin gold foil into copper applied to the iron core of the helmet's skull, or by means of soldering. The latter could be suggested by a low presence of tin.

<sup>20</sup> Bocheński 1930, 7; Кирпичников 1958, 54; Nadolski 1960, 105, Fig. 1.

<sup>21</sup> Gradowski 1980, 68-69.

<sup>22</sup> *Teofil Prezbyter Diversarum Artium Schedula*, 85-86, 122.

<sup>23</sup> Benvenuto Cellini, *Traktat*, 158-159.

<sup>24</sup> Strobin 2015, 187-188.

<sup>25</sup> *Teofil Prezbyter Diversarum Artium Schedula*, 94-99.

<sup>26</sup> Strobin 2015, 187.

<sup>27</sup> Gradowski 1980, 99.

While discussing the helmet from Silniczka attention must be paid to an important fact. Although the site was destroyed to a considerable degree and only five graves (including two of men) were examined, the nature of acquired weaponry can suggest quite a high social status of persons who were buried there. This is because apart from the discussed helmet a spearhead of Type II<sup>28</sup> according to A. Nadolski was discovered in Grave 3. Furthermore, a destroyed sword of Type Z according to J. Petersen was found – regrettably, outside of graves<sup>29</sup>. The chronology of the necropolis was generally identified as the 11<sup>th</sup> c. on the basis of sparse finds<sup>30</sup>. However, it must be noted that the chronology of occurrence of all the finds is quite broad and

we believe that in this case the first half of the 12<sup>th</sup> c. cannot be excluded, either. All in all, the find from Silniczka is no question an interesting example of Early Medieval forms of head protection, which completes the list of such finds from the territory of Poland. There are certain inconsistencies in the technology of manufacture – the skull was made in a rather rough manner from soft iron sheets. On the other hand, it underwent a costly and labour intensive procedure of covering with copper and gold. On account of its unique nature, which is first of all due to the fact that the skull was covered with precious metals, the helmet should receive a proper recognition in scholarly literature, analogously to the helmets discovered in Greater Poland.

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<sup>28</sup> Its state of preservation is so poor that it cannot be excluded that the find could also belong to Type III according to A. Nadolski. This type was more popular in Early Medieval Poland – Nadolski 1954, 54.

<sup>29</sup> Augustyniak 1977, 282, Fig. 9; Strzyż 2006, 26-27, 67, Fig. 1:3; Pudło 2012, 112, 113, cat. No 103, Fig. XXII:1; XLIII:7.

<sup>30</sup> Augustyniak 1977, 286.

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## Streszczenie

### Zapomniany hełm z Silniczki

Hełmy średniowieczne należą w Polsce do przedmiotów niezwykle rzadkich. Jednym z dotychczas szerzej niepublikowanych znalezisk jest hełm odkryty w pobliżu cmentarzyska w Silniczce koło Radomska. Przeprowadzona w Pracowni Konserwacji Zabytków Metalowych Uniwersytetu Łódzkiego na nowo konserwacja pozwoliła stwierdzić, iż dzwon hełmu wykonano z dwóch, trójkątnych fragmentów blachy żelaznej. Fragmenty blachy połączono nitami, miejscowo stosując zaklepanie zachodzących na siebie blach na „zakładkę”. Dzwon hełmu ma kształt stożka, o średnicy w dolnej części wynoszącej 16 cm (obwód około 50 cm) i wysokości 20 cm. W jego partii szczytowej znajduje się otwór, w którym pierwotnie mocowana była stożkowata tulejka. Blacha użyta do wykonania hełmu ma grubość 1-2 mm. W części dzwonu, którą można uznać za przednią, stwierdzono ubytek materiału. Było to raczej celowe wycięcie, którego funkcją było powiększenie pola widzenia wojownika. Niezwykle interesujące jest zaobserwowanie w szczytowej partii dzwonu pozostałości zdobienia kolorowym metalem, w różnych odcieniach barwy złotej. Obejmuje ono okolice otworu na tulejkę oraz nity łączące poszczególne blachy. Dobrze widoczne zdobienie pozwoliło na pobranie próbek do badań i przeprowadzenie analiz składu chemicznego. Ujawniono obecność miedzi, mosiądzu oraz złota. Można zatem stwierdzić, iż przynajmniej część dzwonu pokryto złotem na podkładzie z blachy miedzianej lub mosiężnej.

Dotychczasowe interpretacje hełmu z Silniczki skłaniały do identyfikacji go jako tzw. „wielkopolskiego” typu hełmów, czyli egzemplarzy odkrytych w Gieczu, Gnieźnie, Gorzuchach i Olszówce w Wielkopolsce. Ich dzwon był wykonywany z czterech fragmentów blachy żelaznej złączonych żelaznymi nitami. Dolna krawędź dzwonu ma wzmocnienie z blachy. Szczyt hełmu zwykle wieńczy stożkowata tulejka na ozdobny pióropusz. Na tak uformowany z blachy żelaznej dzwon nakładano blachę miedzianą, którą niekiedy dodatkowo złocono (Giecz, Gniezno, Gorzuchy). Dość liczna seria hełmów tego rodzaju pochodzi z terytorium wczesnośredniowiecznej Rusi (Czernichów, Mokre), ale i ziem Bałtów (Gross Friedrichsberg, Ekriten). Okaz z Silniczki nie jest typowym reprezentantem tego rodzaju ochrony głowy, ale do tej grupy kwalifikuje go wieloelementowa budowa, obecność tulei oraz zdobienie powierzchni metalami kolorowymi. Technika pokrycia dzwonu hełmu miedzią i złotem, wskutek złego stanu jej zachowania, pozostaje trudna do rozpoznania. Jest jednak wysoce prawdopodobne, iż zabieg ten polegał na wklepaniu cienkiej, złotej folii w blachę miedzianą nałożoną na żelazny rdzeń dzwonu. Z uwagi na swój unikatowy charakter, wynikający przede wszystkim z pokrycia dzwonu miedzią i złotem, hełm z Silniczki winien zyskać ważne miejsce w literaturze przedmiotu, na równi z hełmami odkrytymi w Wielkopolsce.

