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ARROWHEADS OF THE SOŚNIA TYPE – A TECHNOLOGICAL AND TYPOLOGICAL PHENOMENON IN PARA-NEOLITHIC FLINTWORKING

ABSTRACT

The Sośnia-type arrowheads are an extremely interesting example of combining distinct chronological and technological elements in a single item. These arrowheads integrate technology drawing from the Mesolithic traditions and the Neolithic way of shaping the surface, which suggests that these blades should be placed between the Mesolithic trapezoids and the Neolithic arrowheads. The function of these tools remains unknown, so the name “arrowheads” is based on a functional image derived from the Neolithic traditions. Until recently, the Sośnia-type arrowheads were considered to have been related exclu-

sively to para-Neolithic flintworking known from sites in Podlachia, Lithuania, and Belarus. This view was verified as a result of archaeological research conducted in the first decade of the 21st century on Eneolithic sites from southeastern Poland, for example at the cemetery of the Lublin-Volhynian Culture in Książnice. The presence of para-Neolithic elements in the Lublin-Volhynian environment is not limited to the Sośnia-type arrowheads but is represented also by other categories of insets with Mesolithic features. In addition, traces of mutual influences have also been observed in ceramic vessels.

Keywords: last hunter-gatherers, Late Neolithic, Neman Culture, projectile points, Sośnia-type arrowheads, Sośnia-type tool forms, flintworking

The Sośnia-type arrowheads are one of the most outstanding of the Neman flint artefacts, belonging to the broadly defined category of points, presumably used for arming arrows. Their specific technological and typological characteristics place them between insets with Mesolithic features and arrowheads of the Neolithic or Early Bronze Age types. The first to identify and define them was Elżbieta Kempisty, who studied flint materials from the settlement of the Neman Culture in the village of Sośnia, Grajewo district, which was reflected in the name of these arrowheads. Their description was included by the researcher in her classic elaboration of cultural

material from the forest zone in Mazovia and Podlachia.¹ Due to the specific technological nature of these products, their discoverer interpreted them as a kind of transitional form, combining the features of Mesolithic blade blanks with younger forms of retouch.² As a result of such a combination of seemingly mutually exclusive elements, a technological and typological hybrid was created, linking two separate chronological and technological ideas, i.e. the form of a Mesolithic trapeze produced of a microlithic blade with the Neolithic arrowhead with a surface retouch. In recent years, the Sośnia-type arrowheads have been repeatedly referred to in studies dealing

¹ Kempisty 1973, 31.

² Kempisty, Więckowska 1983, 17, 67.

with various issues related to the para-Neolithic in the territory of Poland³ and Belarus.⁴

Until recently, the Sośnia-type arrowheads were considered products related exclusively to para-Neolithic flintworking known from sites in Podlachia, Lithuania, and Belarus. This view was verified as a result of archaeological research conducted in the first decade of the 21st century on Eneolithic sites from southeastern Poland. There, in the cemetery of the population of the Lublin-Volhynian Culture in Książnice, apart from other insets with Mesolithic or para-Neolithic features, the Sośnia-type arrowheads were also discovered.⁵ This discovery provokes a particularly interesting research question, because in the light of studies on flint arrowheads clear connections emerge between some categories of products of para-Neolithic groups and the Eneolithic Lublin-Volhynian Culture.⁶ It should be emphasised here that the presence of para-Neolithic elements in the Lublin-Volhynian environment is not limited to the Sośnia-type arrowheads but is represented also by other categories of insets of the Mesolithic type.⁷ In addition, traces of mutual influences were observed in pottery.⁸ Moreover, penetration of the Lublin-Volhynian population has been traced to areas located quite far northwards from their native lands.⁹ The find from Książnice is extremely important for one more reason – as mentioned earlier, the Sośnia-type arrowheads were previously interpreted only as points used for arming arrow shafts, just like other microliths. In light of the discovery from Książnice, these artefacts could also have had other uses. The Sośnia-type arrowheads discovered there, together with other microliths, were arranged in an arch, which may indicate that they had originally been elements embedded in a segment implement.¹⁰ Furthermore, they were made of chocolate flint, which is one of the basic raw materials used in the Lublin-Volhynian flintworking,¹¹ while all specimens known so far from sites of the Neman Culture were made of local Cretaceous erratic flints, which is one of the typical features of the lowland para-Neolithic production.¹² The grave goods from the Książnice complex are among the southeasternmost examples of these points outside of the previously recognised para-Neolithic territorial range of their occurrence. Despite the relatively

Table 1. Frequency of Sośnia-type arrowheads in materials from selected sites of the Neman culture. Sośnia site 1 – according to Kempisty, Więckowska 1983; Sośnia “Swedish Bridge” according to Dziedzic 2019, Woźna Wieś site 1 – according to Sulgostowska 1991; Grądy Woniecko, site 1 – according to Wawrusiewicz *et al.* 2017.

Site	Frequency of the Sośnia-type arrowheads
Sośnia, Site 1	13
Sośnia „Szwedzki Most”	2
Woźna Wieś, Site 1	1
Grądy Woniecko, Site 1	5
Total amount	21

small number of specimens discovered so far in the zone covered by the settlement of the Neman Culture (Tab. 1), based on the cartographic analysis (Fig. 1), we can assume that the Sośnia-type arrowheads are concentrated in the area to the east of the Vistula line, and their number in Poland increases while moving towards the east. Their presence in the south, in the Lublin-Volhynian settlement zone, is a separate research issue, to be addressed in another study.

In terms of basic typological, technological, and raw material features, the Sośnia-type arrowheads produced by the para-Neolithic population constitute a distinct and relatively consistent group. This uniformity results primarily from production with the use of microlithic blade blanks with Mesolithic features and the surface re-touch applied on these points – a characteristic feature of flintworking in the Neolithic and Early Bronze Age. As already mentioned, all known specimens were made of local Cretaceous erratic flints, which is one of the features of Neman flint assemblages.¹³ Therefore, their identification should in principle not raise any major doubts. Despite this, even within such a consistent typological group a number of variants can be distinguished, based

³ Kempisty 1983, 183; Kempisty, Więckowska 1983, 27, 29, 31, 43, 50, 67; Iliaszuk 1985, 159; Kempisty, Sulgostowska 1991, 37; Libera, Zakościelna 2013; Kowalewski, Przeździecki 2017, 180; Kowalewski 2019a; 2019b, as well as Lithuania Jablonskitė-Rimantienė 1965, figs. 5, 18, 22; Kempisty 1983, 183; Kowalewski, Przeździecki 2017, 178.

⁴ AB 1997, 5, mal. 48; Lakiza 2003, fig. 12.1–2.

⁵ Zakościelna 2006a, 88; Zakościelna, Libera 2007, 260, tab. 1, fig. 2; Kufel-Diakowska, Wilk 2018, 247, 255, fig. 12.

⁶ Borkowski, Kowalewski 2020.

⁷ Zakościelna 2006a, 88.

⁸ Gardawski 1958, 305; Gurba 1959, 14–16, fig. 5:a; 1973, 86, 87; Gajewski, Gurba 1965, 32, 33; Zakościelna 2006a, 88; Borkowski, Kowalewski 2020.

⁹ Bargiel, Zakościelna 2005, 40.

¹⁰ Zakościelna 2006b, 284; 2010, 170.

¹¹ Zakościelna 1996; 2006a, 88, 90; Kufel-Diakowska, Wilk 2018, 255.

¹² Borkowski, Kowalewski 2022, 266.

¹³ Borkowski, Kowalewski 2022, 266.

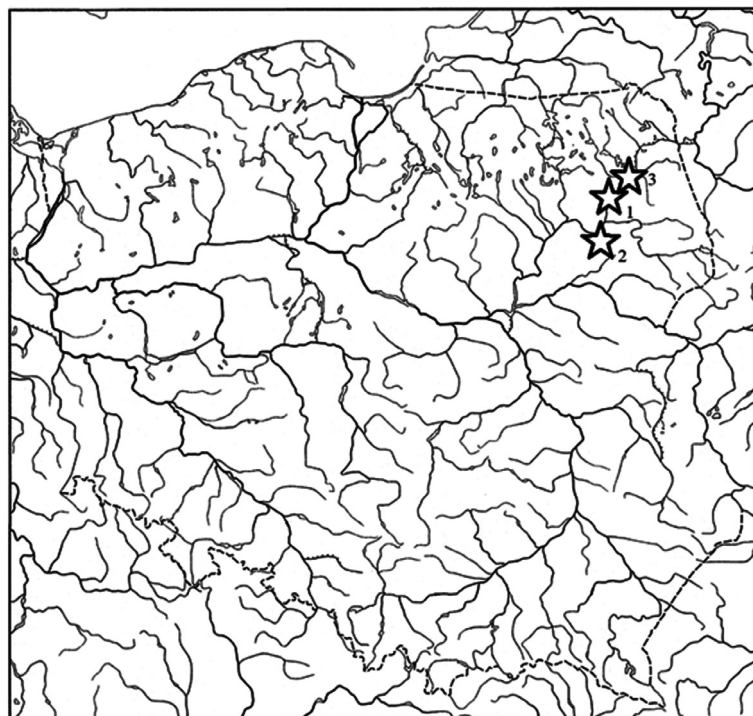


Fig. 1. Sites of the Neman culture with Sośnia-type arrowheads. 1 – Sośnia; 2 – Grądy Woniecko; 3 – Woźna Wieś.

on slightly different versions of the surface retouches and the way how they are distributed on the item. The simplest varieties of the described arrowheads resemble trapezes with a relatively flat retouch extending onto the surface.¹⁴ Apart from the Sośnia-type arrowheads of microlithic form, there are also specimens formally approaching the typological category covering the triangular arrowheads.¹⁵ Some of these artefacts have pseudo-trough

retouches, which may suggest their younger age. It should be noted here that the classification of certain trapezes from para-Neolithic sites sometimes raises doubts. They have a relatively flat retouch, extending slightly onto the surface, which makes them formally similar to the category of Sośnia-type arrowheads.¹⁶ Nevertheless, due to the general typological shape, they should still be treated as trapezes.

Table 2. The frequency of Sośnia arrowheads within the selected types in materials from selected sites of the Neman culture. Sośnia site 1 – according to Kempisty, Więckowska 1983; according to Więckowska, Kempisty 1970; Sośnia Szwedzki Most, according to Dziedzic 2019; Woźna Wieś, street 1 – according to Kempisty, Sulgostowska 1991; Grądy Woniecko, site 1 – according to Wawrusiewicz *et al.* 2017.

Site	Types of arrowheads					Total
	I	II	III	IV	other	
Sośnia, Site 1	1	8	2	2	–	13
Sośnia „Szwedzki Most”	–	1	–	–	1	2
Woźna Wieś, Site 1	1	–	–	–	–	1
Grądy Woniecko, Site 1	1	2	–	2	–	5
Total amount	3	11	2	4	1	21

¹⁴ Kempisty, Więckowska 1983, pl. XVII: 3; Kempisty, Sulgostowska 1991, pl. XXX: 1.

¹⁵ Kempisty, Więckowska 1983, pl. III: 6–8; Wawrusiewicz *et al.* 2017, pl. LVIII: 229.

¹⁶ Kempisty, Więckowska 1983, tab. IV: 1; Wawrusiewicz *et al.* 2017, figs. III.95: 8; LXVI: 373; LXVIII: 417.

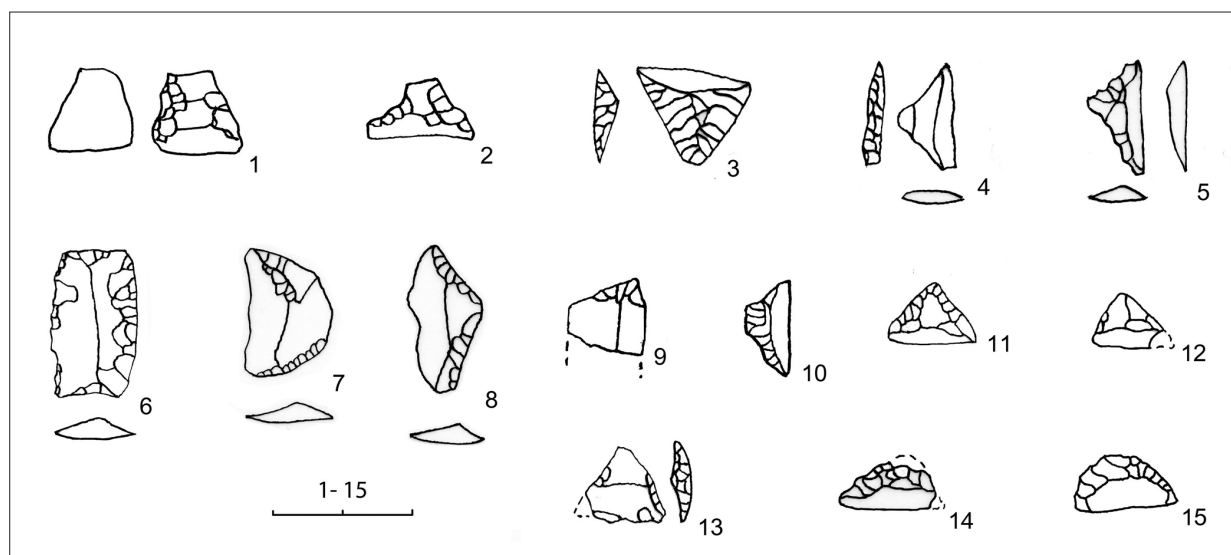


Fig. 2. The Sośnia-type arrowheads from para-Neolithic sites of Poland – Woźna Wieś st. 1: 1 (according to Kempisty, Sulgostowska 1991, tabl. XXX: 1); Sośnia st. 1: 2, 9–15 (according to Kempisty, Więckowska 1983, tabl. III: 6–9; IV: 8; V: 3, 4; XVII: 3; Sośnia st. Szwedzki Most: 6–8 (according to Dziedzic 2019, tabl. 13: 21, 23; 37: 12; Grądy Woniecko st. 1: 3–5 (according to Wawrusiewicz *et al.* 2017, ryc. III. 90: 1–3).

Slightly more than twenty Sośnia-type arrowheads were analysed. Specimens from archaeological excavations of three paramount para-Neolithic sites in Poland and from the former collection of Zygmunt Gloger make up this number (Table 1). Moreover, the Sośnia-type arrowheads published by Lithuanian¹⁷ and Belarusian researchers¹⁸ were taken into account. Despite such a small size of the collection, it is possible to initially identify four basic types of these arrowheads. The first are products that are formally classic trapezes, but with a flat edge retouch, clearly and quite deeply extending onto the surface (Fig. 2. 1, 7, 9). The second type includes arrowheads in which the morphology is clear in the form of a trapezium, but they are covered with a retouch extending onto the surface, wherein it is located in such a way that the retouched edges are convergent, giving the product a shape similar to a triangle. Within this type, several subtypes can be distinguished. In some of them, the convergence of the retouched edges is tangential, closing in the form of a triangle top (Fig. 2. 4, 5, 8, 11, 12), on others there remains a gap, which still creates a legible shape of a trapeze (Fig. 2. 2, 13). Two basic variants can be distinguished among such specimens because some of them have straight retouched edges (Fig. 2. 11, 12, 13) whereas others have concave ones (Fig. 2. 2, 4, 5, 8, 10). The third type is represented by “crescent-shaped” forms, formally similar to the second type but shaped by a continuous retouch

forming a semi-circular edge, which deprives them of a legible trapezoidal shape (Fig. 2. 14, 15). The fourth type consists of artefacts which, due to their definitely triangular form and retouches covering almost the entire surface, already formally refer to triangular arrowheads (Fig. 2. 3). Pseudo-trough retouches are most common on such specimens. It should be noted that the arrowheads of Type IV are formally similar to some Type II specimens due to their triangular shape. The only difference is the method of retouching, which in Type II is peripheral and in Type IV often covers the entire surface. Finally, it is worth mentioning one arrowhead from the site of Sośnia “Szwedzki Mos”^t which eludes the framework of four separate types (Fig. 2. 6). It is most similar to the semi-circularly retouched “crescent” specimens included in Type III, but its retouched edge is straight, giving the tool a rectangular shape. Due to the size and proportions, as well as morphological features, this artefact resembles a cutting inset for a segment tool rather than a point. The common feature of specimens from all types is that they were made of blades with Mesolithic features and retouched on the dorsal surface, as in typical trapezes. Within individual types, symmetrical and asymmetric specimens can be distinguished, which is extremely interesting in light of the analysis of para-Neolithic arrowheads, because in their case this feature is clearly noticeable.¹⁹ At the current stage of research, due to the small number of Sośnia-type

¹⁷ Jablonskitė-Rimantienė 1965, figs. 5, 18, 22.

¹⁸ AB 1997, 5, mal. 5; Lakiza 2003, fig. 12.1–2.

¹⁹ Kowalewski 2019a.

arrowheads, it is difficult to decide arbitrarily and definitively about the character of their typological diversity. The observed variability may result from either chronological differences or local technological customs, as well as from functional differentiation. Then, the shape of an arrowhead would have resulted even from its location in the shaft of the arrow. Nevertheless, at the moment this issue should be left open.

At the current stage of research, it is still difficult to decide what lies behind the quite distinct typological and morphological variability resulting from the range of chronological and technological features of surface retouches used in the Sośnia-type arrowheads. We are not yet able to determine whether the tangible typological differences express chronological stages or are functional.²⁰ Due to the technological duality of the analysed products, it is difficult to establish a clear chronological position for them. It should be assumed that, as a technological idea consisting in the production of insets from microlithic blades, these arrowheads date back to the Mesolithic Period, but at the same time they were shaped by surface retouches, typical of the Neolithic, and sometimes also by an even later variety in the form of pseudo-trough retouches considered a feature of Eneolithic and Early Bronze Age industries.²¹ We cannot exclude the possibility that some of these features may be regarded as yet-to-be-specified chronological determinants reflecting evolution taking place in successive stages in the development of the para-Neolithic population. In light of the frequently cited research limitations resulting from the lack of assemblages of sources and materials coming from one developmental phase of the Neman Culture,²² chronological ordering of these artefacts is extremely difficult. Many of the general problems and interpretative issues indicated in this analysis of the Sośnia-type arrowheads also apply to other types of points known from para-Neolithic sites.²³ On the other hand, the relative diversity of morphological and technological features can be treated as a potential expression of a functional character, which would mean that the technological and chronological differences observed in the applied retouches are apparent and related only to the function performed in a specialised economic system. At the same time, it cannot

be ruled out that the observed multiplicity of the used technological solutions is associated with intra-group variability within the Neman communities. In this case, the individual variants would constitute identifiers of particular subgroups.

The presented research problems show the Sośnia-type arrowheads as artefacts potentially crucial for understanding the complexity of the para-Neolithic cultural system. The analysis of these points revealed a clear picture of recurring patterns. Despite their relatively small number, it can already be said at this stage of research that the Sośnia-type arrowheads are the most interesting category in the Neman flint instrumentarium and well-worth of further study. The genetic multi-threading of the technological elements combining the idea of a trapezoidal inset with a Neolithic arrowhead allows us to see the Neman flint industry in a new light.

Summary

The Sośnia-type arrowheads are an extremely interesting example of combining distinct chronological and technological elements in a single item. They integrate technology with Mesolithic traditions and a Neolithic way of shaping the surface, which suggests that the place of these blades should be seen between Mesolithic trapezoids and Neolithic arrowheads. We do not know the function of these tools, so the name “arrowheads” is based on a functional image derived from the Neolithic traditions. Until recently, the Sośnia-type arrowheads were considered products related exclusively to para-Neolithic flintworking known from sites in Podlachia, Lithuania, and Belarus. This view was verified as a result of archaeological research conducted in the first decade of the 21st century on Eneolithic sites from southeastern Poland, for example at the cemetery of the Lublin-Volhynian Culture in Książnica. The presence of para-Neolithic elements in the Lublin-Volhynian environment is not limited to the Sośnia-type arrowheads but is represented also by other categories of insets with Mesolithic features. In addition, traces of mutual influences have also been observed in ceramic vessels.

²⁰ Kowalewski 2019b, 228, 229.

²¹ Libera, Zakościelna 2013, 217, 225.

²² Gardawski 1958, 303; Więckowska, Kempisty 1970, 196; Balcer 1971, 63; Kempisty 1973, 13, 28; Kempisty, Więckowska 1983, 81, 85; Kempisty, Sulgostowska 1991, 57; Szymczak 1995,

150, 152; Kobusiewicz 1999, 153, 154; Kowalewski 2019a, 226, 227; 2022, 14.

²³ Kowalewski 2019a.

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