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TYOLOGICAL, CHRONOLOGICAL AND CULTURAL VERIFICATION OF PLEISTOCENE AND EARLY HOLOCENE BONE AND ANTLER HARPOONS AND POINTS FROM THE SOUTHERN BALTIC ZONE

The study catalogues all currently known finds of bone and antler harpoons and points associated with Paleolithic, Mesolithic and Protoneolithic culture in the southern Baltic zone, between the mouths of the Oder and Niemen rivers. It undertakes an analysis of the category in typological, chronological and cultural terms, taking into consideration results of recent paleogeographic investigations and research on the Stone Age in this region. An important element of this study are drawn plates of nearly all of the discussed objects as well as distribution maps. The author gives a critical analysis of the classic harpoon and point typology presented by J.G.D. Clark (1936) in the context of a broader source base, encompassing finds from the entire Baltic zone. A detailed morphological classification of harpoon barbs is one of the most important tools essential to this end.

KEY WORDS: Paleolithic, Mesolithic, Protoneolithic, harpoons, points, barbs, tang, base, bone, antler, assemblages

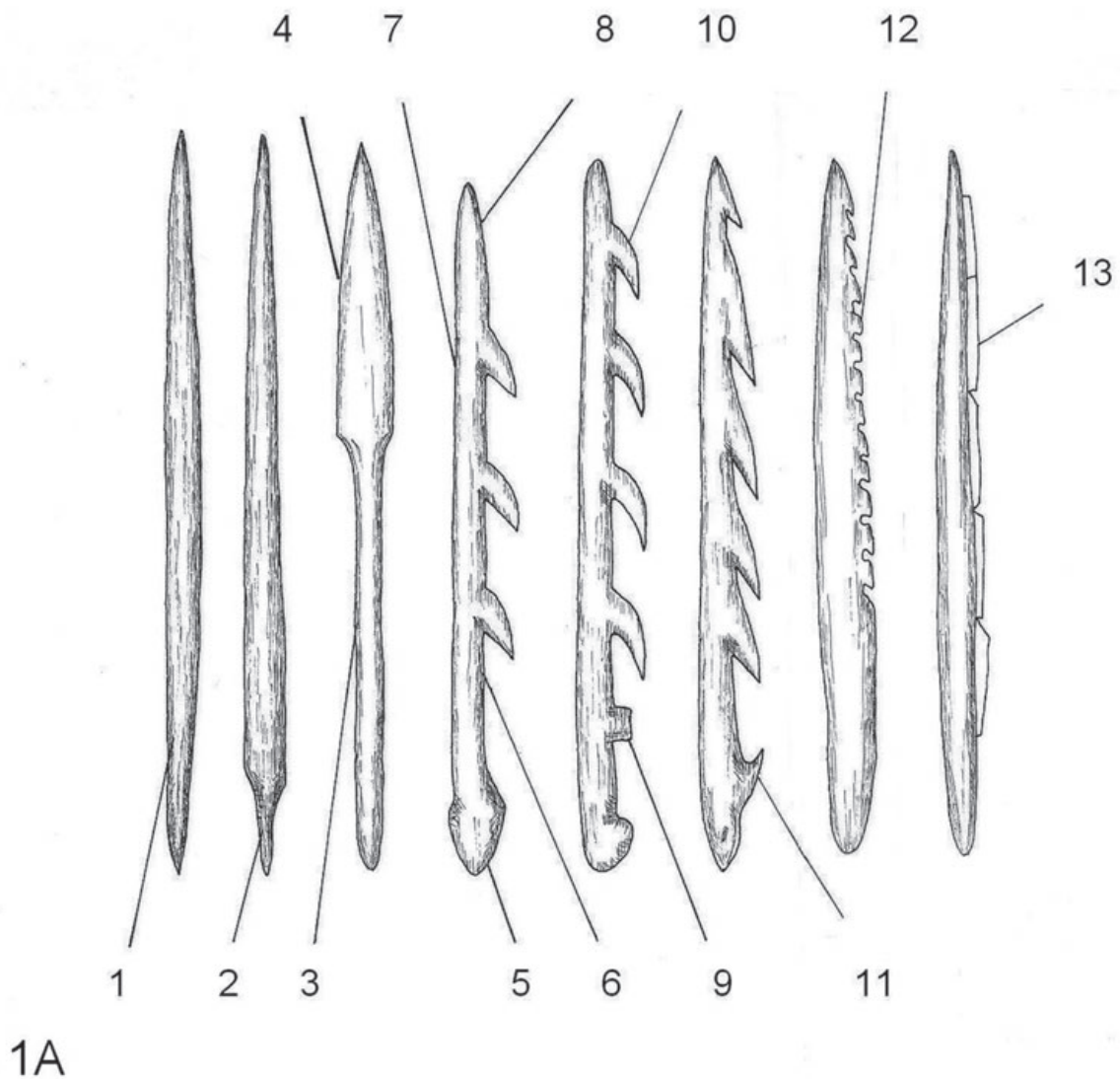
INTRODUCTION

The study refers to the author's 1980s publication in the journal "Materiały Zachodniopomorskie" (Szczecin), where all the then known finds of bone and antler harpoons and points from the southern Baltic zone between the mouths of the Oder and Niemen rivers were collected and discussed for the first time in Polish archaeological literature (T. Galiński 1986). The source base has grown significantly in the meantime, including a few discoveries of substantive importance for the issue of harpoons and points from the Baltic region. Specialist analyses were carried out by

the author on harpoons and points discovered in recent years, as well as those in museum collections. Most importantly, however, knowledge of the region's natural environment, as well as its cultural and chronological development has progressed substantially, especially with regard to the Mesolithic in northern Poland. The study also presents a revised and supplemented classification of harpoons and points in reference to the classic typology of J.G.D. Clark (1936), and discusses the chronological and cultural context of particular types of these tools.

Despite the extensiveness of archaeological writing on the subject, a uniform and unambiguous terminology for bone harpoons and points has yet to be developed. In Polish there are several terms in use concurrently to refer to barbs, teeth, hooks, projections, etc. In order to describe particular forms of these tools with fair precision, a standardized terminology has been adopted concerning harpoon and point structure (Fig. 1a), specific terms being introduced for particular forms

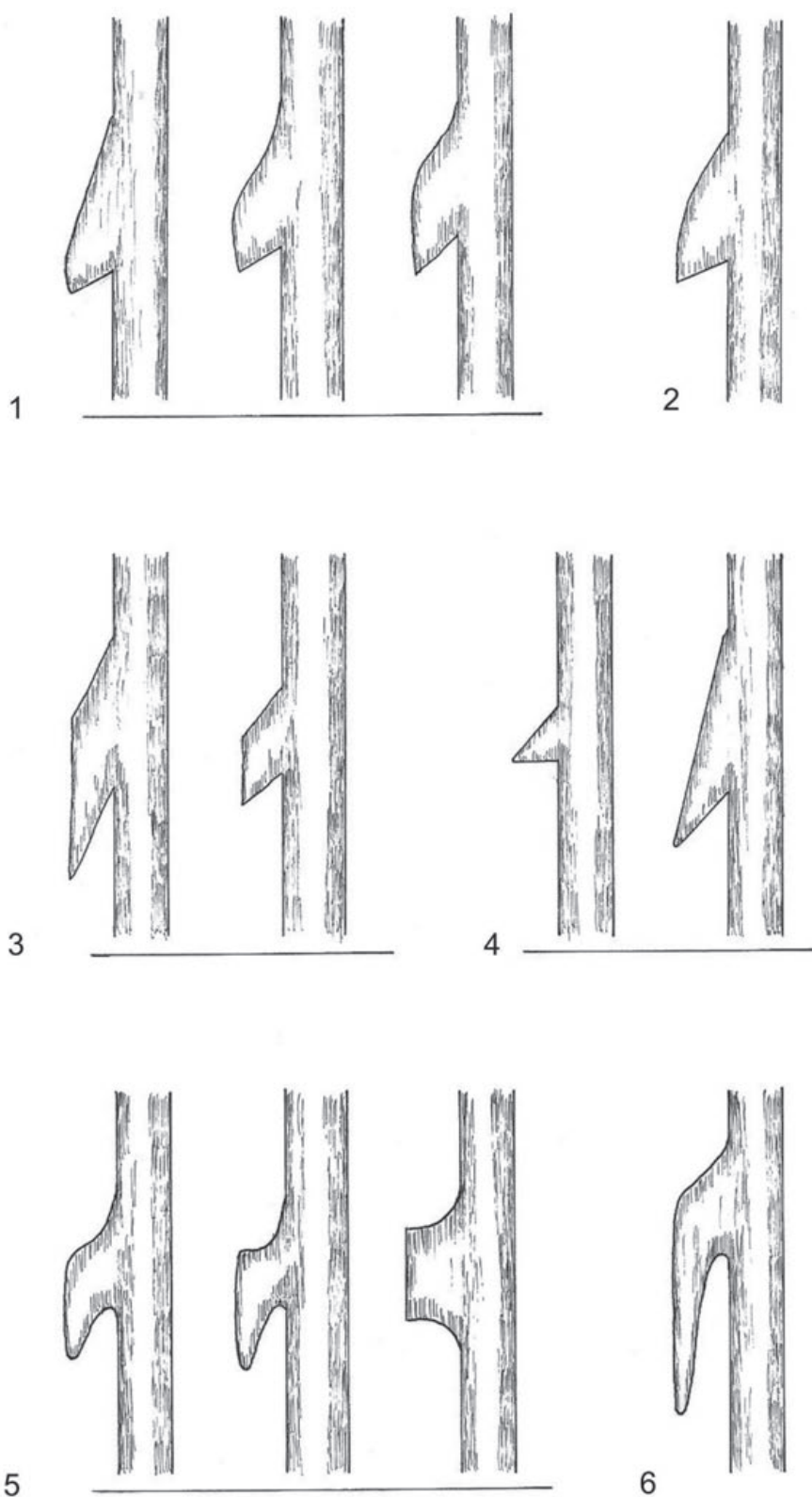
of barbs (Fig. 1b) and a detailed morphological classification of the barbs presented for further comparative studies. Unlike flint products, items made of bone and antler are much more expressive of clan tradition and individual personality of the maker. They are a valued source not because of their rarity, but because of what they can tell us about aspects of Paleolithic and Mesolithic hunting culture which are not to be researched otherwise.



1A

Fig. 1A. Elements of the structure of harpoons and points:

1 – truncated base; 2 – short tanged base; 3 – long tang; 4 – shoulder; 5 – shield-like base; 6 – handle; 7 – shaft; 8 – tip of shaft; 9 – indent; 10 – barbs; 11 – hook; 12 – teeth; 13 – slot. Prepared by T. Galiński



1B

Fig. 1B. Barb shape: 1 – convex; 2 – bowed; 3 – rhomboidal; 4 – triangular;
5 – angular; 6 – drooping. Prepared by T. Galiński

1. TYPOLOGICAL SYSTEMATICS OF BONE AND ANTLER HARPOONS AND POINTS

In 1936 J.G.D. Clark published his *The Mesolithic Settlement of Northern Europe*, in which he presented his now classic typology of harpoons and points, encompassing most of the late Pleistocene and early Holocene forms of these tools occurring in the Baltic zone (J.G.D. Clark 1936, p. 117, Fig. 41). Correctly he based his classification primarily on the forming of the teeth and barbs, this with regard to the notched points and harpoons (together with other basic elements of the structure shaping the appearance and form of the tool) and the different points: tanged, conical, lanceolate and slotted with flint inserts. Therefore, the typology has lost little of its relevance despite a meaningful growth of the source base from the entire Baltic zone and requires only minor revisions and additions today. The typology can also be finehoned, assuming the measure has practical application, resulting in more precise description or easier identification of form, and cognitive results, improving our understanding of prehistoric harpoons and points. As S.K. Kozłowski observed already in the 1970s, a more detailed version of Clark's typology was indicated especially in the case of single-row tanged harpoons, referred to as Havelan (S.K. Kozłowski 1977). It so happens that most of the presently known and fairly numerous harpoons of this type were discovered after Clark had published his classification, using relatively weak comparative material. Indeed, Clark's typology does not cover any of the early Holocene points and harpoons culturally associated with terminal Mesolithic, Protoneolithic and Neolithic groups.

The following section of the present study will be devoted to a detailed discussion of the types of bone and antler harpoons and points distinguished by J.G.D. Clark in the context of new source material and the new propositions that can be put forward in this respect.

PLAIN POINTS OF CIRCULAR SECTION

J.G.D. Clark's typology included only one category of plain points of circular section, the simplest, which is called *poinçons* and which is usually observed in Mesolithic inventories (No. 1). Taking into consideration Paleolithic material, which Clark appears not to have included in his premises,

one should distinguish in this group a number of types based on a distinctly different shaping of the base and a generally different overall shape of the tool (in terms of size and proportions). The division has long been applied in archaeological literature (e.g. J.K. Kozłowski 1963; J.K. Kozłowski, S.K. Kozłowski 1975; R. Schild 1975). It will be demonstrated later in this study that the division of plain points according to base treatment and tool shape (Fig. 2: 1-6) can be justified also by the chronological and cultural context. Six categories can be distinguished:

- a) base naturally flattened or pointed. Bonin type (Fig. 2:1);
- b) one-sided truncation of base. Międzychód type (Fig. 2:2);
- c) two-sided truncation of base. Nowe Juchy type (Fig. 2:3);
- d) tanged base. Gumbinnen type (Fig. 2:4);
- e) notched base. Jaskinia Maszycka type (Fig. 2:5);
- f) squat pointed base, fusiform ("poinçons doubles" in French). Obrowo type (Fig. 2:6).

NOTCHED POINTS

Clark distinguished eight categories in this group (Nos 2-4, 6, 8, 14-15, 20), exhausting the whole range of points occurring in the Baltic zone. Categories were differentiated by the treatment of notches and shape of the teeth (Figs 3-4), their spacing at the edges and overall tool shape.

Minor correction is required in the case of Duvensee (No. 2) and Dobbartin (No. 4) type points as regards notching technique. As indicated by some finds, from Bützse-Altfrisesack (E. Czesla 1999), for example, the Duvensee points were executed not only by perpendicular notches, as defined by J.G.D. Clark, but also by oblique cutting, which resulted in triangular notching, analogous to that on Dobbartin-type points. The opposite was also true, that is, Dobbartin-type points were executed by perpendicular notching, just as the Duvensee points. Thus, the primary trait differentiating the two very close categories is the depth and spacing of the notches, which are observable with the naked eye, and this is in keeping with Clark's determinations. Duvensee type points feature shallow notches (Fig. 3:1) spaced widely or

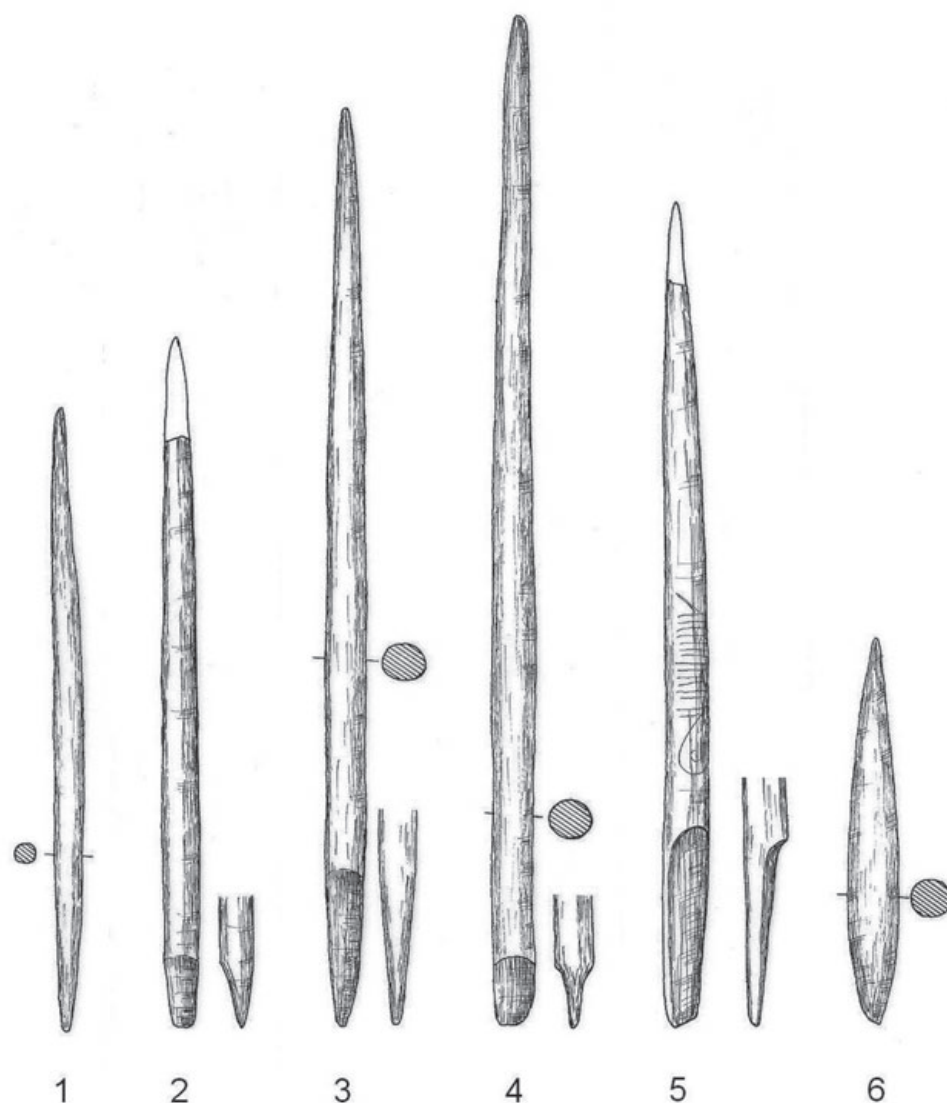


Fig. 2. Types of plain points of circular section (Clark's No. 1): 1 – Bonin: item 1; 2 – Międzychód: item 2; 3 – Nowe Juchy: item 3; 4 – former Gumbinnen: item 4; 5 – Jaskinia Maszycka: item 5; 6 – Obrowo: item 6.
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densely, while the Dobbertin type is characterized by deep and widely spaced notches (Fig. 3:3).

The definition of points No. 14 (Hörning type), distinguished by their unique bowed shape (Fig. 5:5), should be extended to include a remark concerning teeth. The known examples of this tool represent as many as four different notching techniques in analogy to Duvensee, Istaby, Dobbertin and Kunda point types (Fig. 3:1-4). The same can be said of points No. 20, which are characterized principally by notches on both lateral edges (Fig. 5:6). In this case, notching of the Duvensee and Istaby kind is the most frequent.

The biggest distinction is shown in this group by Pritzerbe points (No. 8) and points No. 15. The

notching is very wide in these cases, deeply cut into the surface and V-shaped (Fig. 3:5; Fig. 4:6). They were classified as harpoons by J.G.D. Clark, but this does not appear to be correct.

SIMPLE HARPOONS

The category includes single-barb harpoons No. 5 (Gniewino type), which were common in the Mesolithic, and typologically related harpoons of the Mullerup type (No. 7). Clark's typology did not include Star Carr harpoons (Fig. 6:3-4). The Star Carr A type is very close to the above mentioned types, especially the Mullerup harpoon, having on-

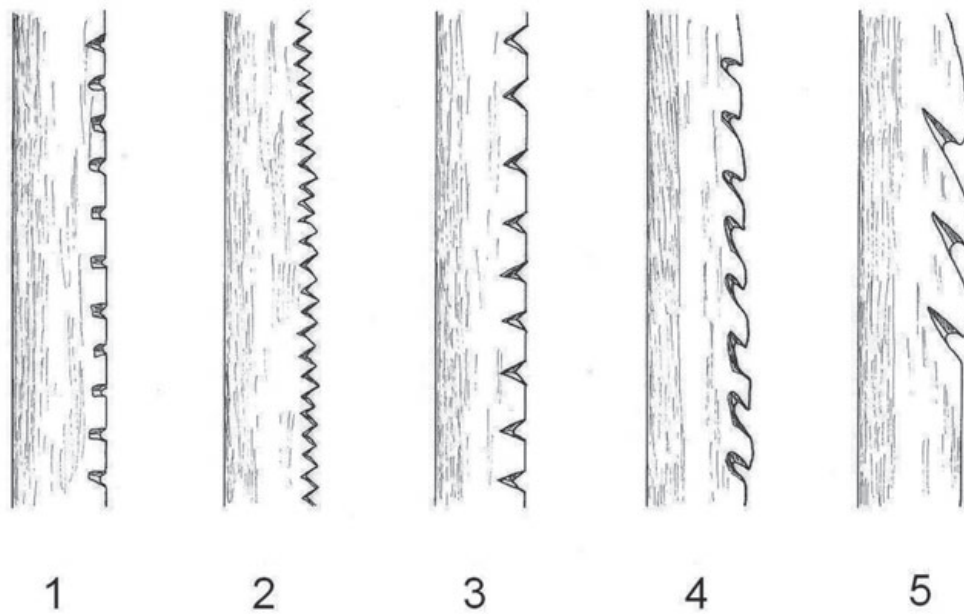


Fig. 3. Shape of teeth on points: 1 – Duvensee type; 2 – Istaby type; 3 – Dobbertin type; 4 – Kunda type; 6 – Pritzerbe type. Prepared by T. Galiński

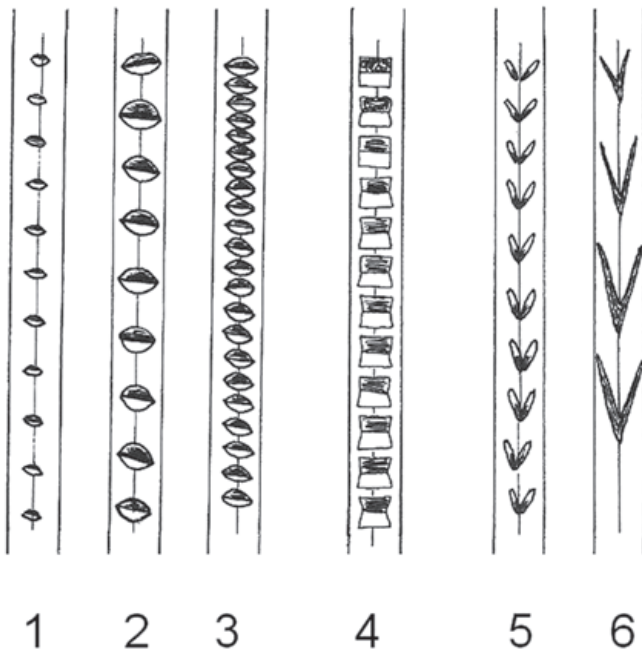


Fig. 4. Shape of notches forming the teeth on points: 1 – Duvensee type; 2 – Istaby type; 3 – Dobbertin type; 4 – Kunda type; 5-6 – Pritzerbe type. Prepared by T. Galiński

ly more barbs than the analogies. In the publication of the Star Carr site, where these harpoons occurred in large quantities, they were attributed to group C (J.G.D. Clark 1971). The Star Carr B type of harpoon has 2-4 small, widely spaced, convex barbs. The objects were published as group A in the cited monograph of the site. Both forms of this simple harpoon are fairly common outside the British Isles, also in the Epipaleolithic of the eastern Baltic zone.

Their sporadic occurrence in the southern Baltic is associated with the Mesolithic.

SINGLE-ROW SHUTTLE-SHAPED HARPOONS

In Clark's typology the group is represented by four categories: No. 9 (Törning), No. 10 (Góra Orle), No. 11 (Surbajny) and No. 12A (Havel), dis-

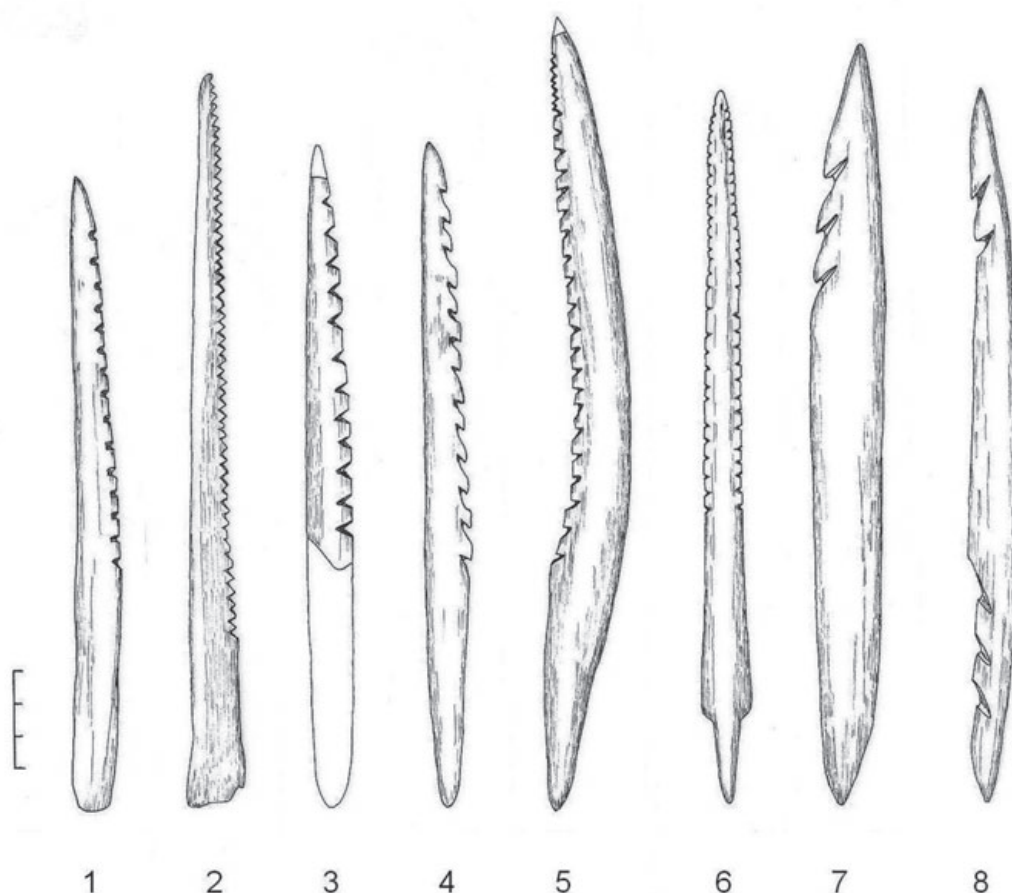


Fig. 5. Types of notched points: 1 – Duvensee: Clark’s No. 2 – item 7; 2 – Istaby: Clark’s No. 3 – item 8; 3 – Dobbertin: Clark’s No. 4 – item 9; 4 – Kunda: Clark’s No. 6 – item 10; 5 – Hörning: Clark’s No. 14 – item 11; 6 – Kunda: Clark’s No. 20 – item 12; 7 – Pritzerbe: Clark’s No. 8 – item 13; 8 – Pritzerbe: Clark’s No. 15 – item 14. Prepared by T. Galiński

tinguished based on the overall shape of the barbs (Nos 9-11) and in one case on a tang of circular section (No. 12A). The typological systematics of this particular group of harpoons is in need of some modification in the light of the more extensive current source base compared to the one at Clark’s disposal in the 1930s. Type No. 12A should be extended to include examples (coming from the entire southern Baltic zone) of harpoons with tangs of other than circular section: square and rectangular, square with rounded corners, oval and flattened. There is no typological or cultural-chronological justification for considering the round-tanged harpoons as representing a separate category. It is valid on the other hand to distinguish harpoons based on a distinct tang, so much so that the shuttle-shaped single-row harpoons should be subdivided into two groups:

- a) harpoons without distinguished tang;
- b) harpoons with distinguished tang.

Harpoons with distinguished tang of the Törning, Góra Orle and Surbajny types should be moved to type 12A, which thus becomes a large and varied group in terms of barb treatment.

Clark’s definitions of barb shape for the categories Nos. 9, 10 and 11 remain relevant for harpoons without a distinguished tang, but the guiding name for No. 11 (Surbajny type) now has to be changed, as the example from the Surbajny locality, which had been considered by Clark as representative of this category, is no longer in the type owing to its distinct tang. Harpoons of this category (No. 11) can no longer be called in reference to the Surbajny find and it is suggested to use the example from former Penken in the Kaliningrad District (Fig. 9:3) as representative of harpoons with pointed triangular barbs and without distinct tang. Thus, Clark’s harpoon type No. 11 will be referred to as the Penken type.

A detailed analysis of harpoons from this group in terms of barb shape (Fig. 7A-7B) has demonstrat-

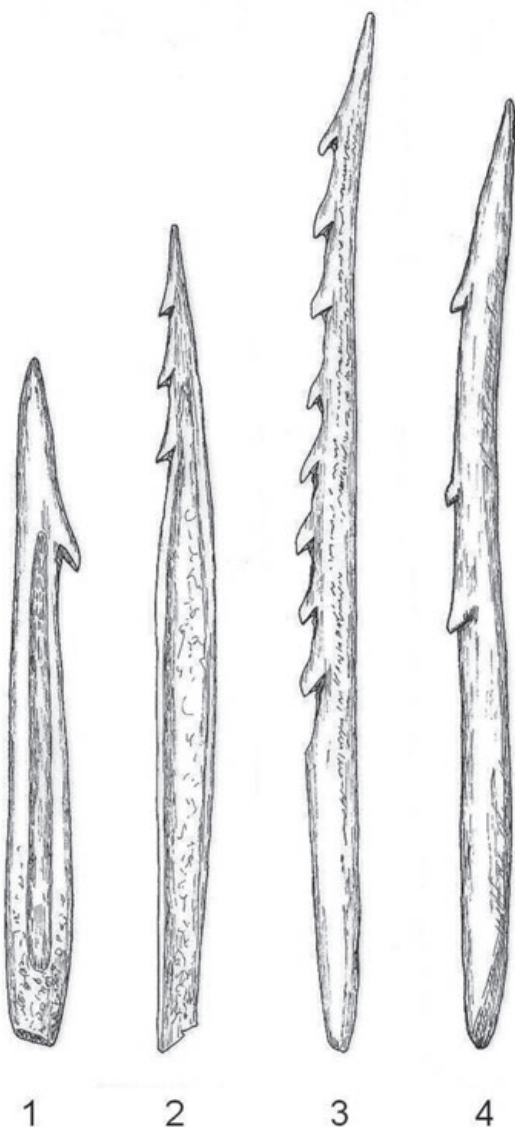


Fig. 6. Types of harpoons:
 1 – Gniewino: Clark's No. 5 – item 15;
 2 – Mullerup: Clark's No. 7 – item 16;
 3 – Star Carr A (not covered in Clark's
 typology): item 17; 4 – Star Carr B
 (not covered in Clark's typology):
 item 18. Prepared by T. Galiński

ed that the Törning type (No. 9) is characterized by barbs nos 7a-c, 9a and 10a-c and the Góra Orle type (No. 10) has barbs nos 1a-b and 3a-b; Penken-type harpoons (No. 11) feature barbs no. 2a.

The lack of distinguished tang and density of usually symmetric barbs impart on harpoons Nos 9-11 a particularly streamlined appearance with the outer line of barbs correlated with the asymmetric and most frequently hooked base. This shape recalls a weaving shuttle. Forms with distinguished tang seldom have this characteristic. It is evident most frequently on purely Havel finds (example from Weseram, see R. Stimming 1928, Abb. 2) and Wojnowo-type harpoons (Fig. 9:6).

Barb shape, as mentioned, is the main criterion differentiating the extensive group of harpoons with distinguished tang. Following the logic of Clark's classification, one should distinguish cat-

egories corresponding to his Nos 9-11. A detailed analysis of barb shape taking into account the upper and lower lines of the barbs and their size relative to tang thickness (Fig. 7A-7B), as well as the territorial and chronological distribution of these features indicates however the validity of distinguishing seven principal categories, each represented by at least three examples (Fig. 8: 1-7; Fig. 9: 4-10). The distinguished types are characterized by the following combinations of barb shape traits:

- a) Skeleton type – nos 5a, 6a;
- b) Kożuchy type – no. 8a;
- c) Wojnowo type – nos 7a-c;
- d) Wąż type – nos 1c, 3a-c;
- e) Surbajny-Rękawczyn type – nos 1a, 2a;
- f) Pritzerbe-Weseram (Havel) type – nos 1c, 3c, 5c, 6c, 7c;
- g) Lammasmägi type – nos 1c, 2b, 3c, 7c.

The last type is characterized by especially fine barbs compared to the thickness of the tang.

Single-barb harpoons have been classed separately. Moreover, there also exist usually singular examples mixing characteristics proper to different types, e.g. Wojnowo and Wąż, or Wojnowo and Surbajny-Rękawczyn. Some of these bear evident traces of remodeling.

Commenting the results of the analysis of harpoons with distinguished tang in the context of Clark's typology, one should remark based on the above lists that in terms of barb characteristics the Wojnowo harpoons resemble strongly the Törning type (No. 9), which features however a much richer range of barb forms. Next, the Wąż harpoons with distinguished tang are only partly like Góra Orle harpoons (No. 10), while the Surbajny-Rękawczyn harpoons are partly like the Góra Orle type (No. 10), but correspond wholly to the Penken type (No. 11). Analysis of the barbs on Clark's No. 12A harpoons demonstrates that in terms of the barbs the category is related to a large degree to the Pritzerbe-Weseram type of harpoon occurring principally in the Brandenburg lake district, especially the so-called Havelland type (R. Stimming 1928). Clark's representative example for type 12A (1936, Fig. 43:1) is however a specimen of the Wąż type (barbs nos 1c and 3a). Many of the single-row harpoons with distinguished tang from German sites are actually of the Wojnowo type (e.g. Venz, Stellmoor, Gr. Kreuz – O. Kunkel 1931, Taf. 2:3; A. Rust 1943, Taf. 89:2; G. Kosina 1921, Abb. 17). The situation in Scandinavia is similar with Wojnowo-type harpoons being known from Frøbjerg-Mose and Tjørnélund Raamose among others – R. Indreko 1948, Abb. 60: 1, 3). This is undoubtedly due to the close relation between Wojnowo and Törning types of harpoons, the latter being very popular in Scandinavia in the Allerød.

Strictly Havel-type harpoons according to Clark's classification, that is, with distinguished tang of round section are actually quite rare – barely a few examples among the harpoons classified with regard to this trait. Most of the harpoons have oval-sectioned tangs, followed in terms of existing number of examples by harpoons with quadrangular and flattened tangs.

The remaining categories of harpoons with distinguished tang are not correspondent to any of Clark's Nos 9-11.

DOUBLE-ROW HARPOONS

Double-row harpoons should also be subdivided into two principal groups: a) harpoons without distinguished tang and b) harpoons with distinguished tang. The former were completely missed in Clark's classification, while the latter constituted a single category, No. 12B.

Three basic categories were distinguished among the double-row harpoons without distinguished tang occurring in the Alpine-Scandinavian zone in the late Pleistocene and early Holocene (Fig. 10: 1-3):

- a) Rossignol type – nos 5a-b, 6a-b;
- b) Birsmatten A type – nos 1a-c, 2a;
- c) Bornholm type – nos 1b and 2a.

Harpoons in the individual categories are further distinguished by the massiveness of the barbs and overall shape. The first two types, occurring mainly in the uplands zone of central and western Europe and in the British Isles, are very broad, squat and equipped with appropriately massive barbs. On the other hand, the Bornholm harpoons, which are especially common in the Baltic zone, are rather slender and have a shorter or longer evident tang.

It should be noted that many of the generally innumerable finds of harpoons of this group from the Baltic zone represent singular types, featuring unique characteristics that have yet to find parallels (e.g., harpoon from Lubana lake – I. Zagorska 2005, Fig. 3:4).

The double-row harpoons with distinguished tang (Clark's No. 12B) have been subdivided into five categories characterized by different barb shape (Fig. 10: 4-8). All find counterparts among the single-row harpoons. These five categories are:

- a) Stellmoor-Skafteløv type (nos 5a, 6a-b, 9a) – related to the single-row Skeleton type of harpoon;
- b) Bistoft type (nos 5b, 6b, 7a-b) – corresponding to the single-row Wojnowo type;
- c) Tolkmicko type (no. 1a-b) – related to the Surbajny-Rękawczyn type;
- d) Gortz-Lachmirowice type (nos 1c, 3c, 5b-c, 6b-c) – very close to single-row harpoons of the Pritzerbe-Weseram variant;
- e) Lubana type (nos 1c, 3c, 5c, 6c, 7c) – corresponding to the Lammasmägi type.

All the described type of harpoons, single-row and double-row, with tang or without, find proto-

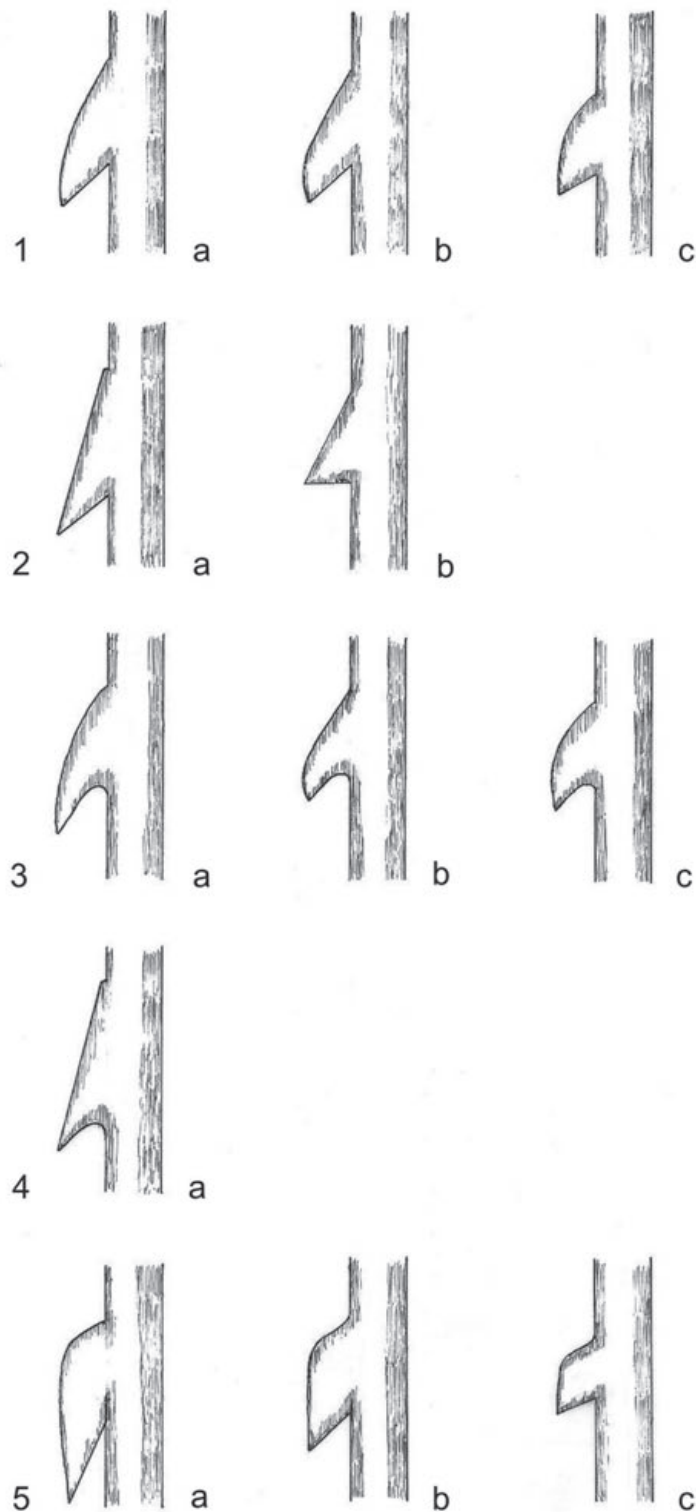


Fig. 7A. Classification of barbs: nos 1-5.

types in Upper Paleolithic Magdalenian cultures, particularly in complexes present in the uplands of France, Switzerland, Belgium and Germany, which were the cradle of late glacial settlement in the plain. In turn, throughout this period, the eastern Baltic provinces remained under the cultural influence of

territories to the east, in Russia extending all the way to the Ural mountains, which have produced parallel forms of harpoons, e.g. Wiercholenskaia Gora (L. Sawicki 1928, Pl. XXII:1-4).

Incidentally, the Wiercholenskaia Gora site has also produced a series of at least four double-

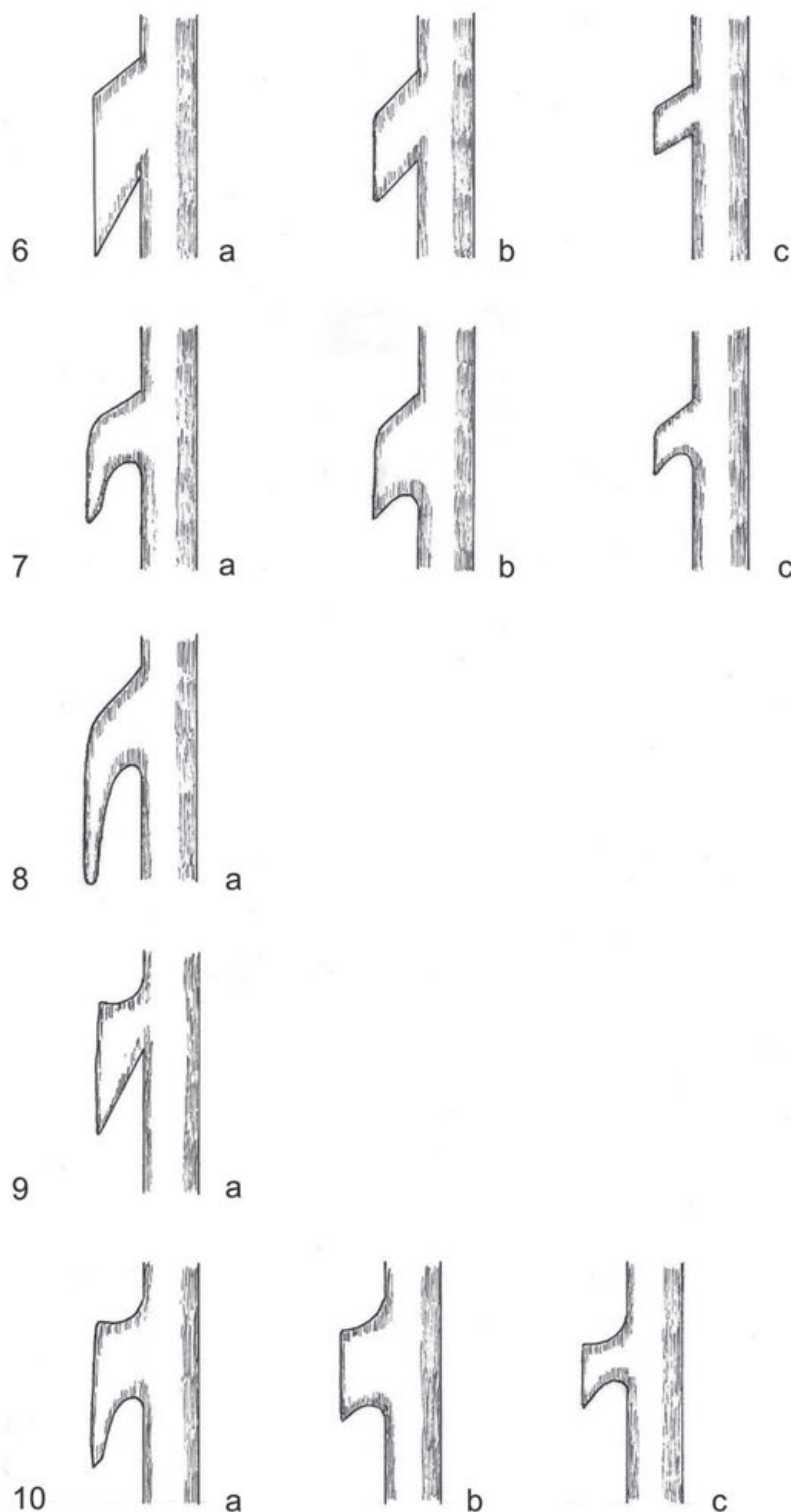


Fig. 7B. Classification of barbs: nos 6-10. Prepared by T. Galiński

row harpoons, apparently deriving from a single cultural complex (in the narrow sense). These harpoons are identical in terms of some of the morphological features, that is: a) no distinguished tang; b) barbs of approximately the same shape matching three closely related types (nos 1a-b; 2a);

c) same rounded shield-like base; d) similar hooked indents just above the base. The harpoons are differentiated by the number of barbs and their either symmetrical or asymmetrical disposition along the edges. They appear to be a good illustration of a proper hierarchy of traits determined for the

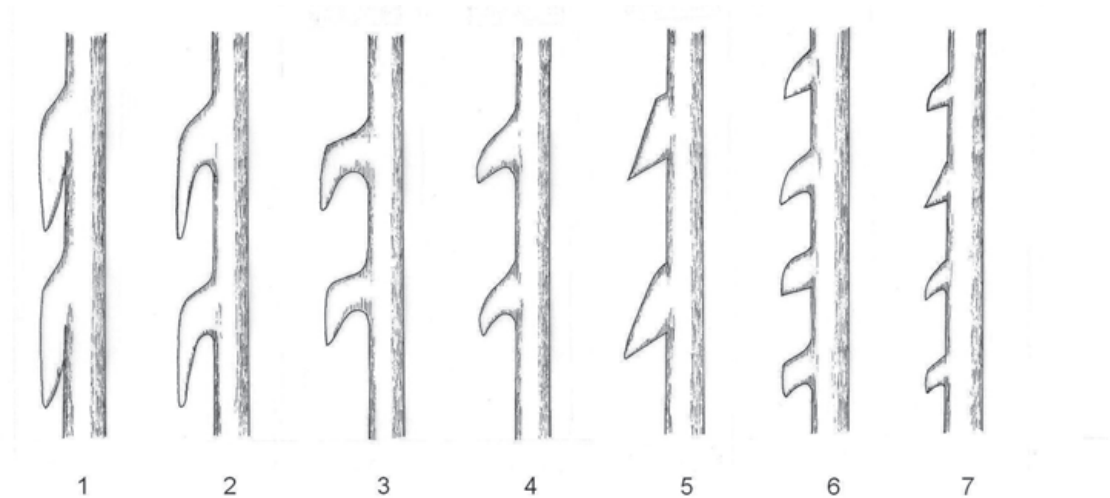


Fig. 8. Schematic representations of variants of single-row harpoons with distinguished shafts (Clark's No. 12A):
 1 – Skeleton type; 2 – Kozuchy type; 3 – Wojnowo type; 4 – Wąż type; 5 – Surbajny-Rekawczyn type;
 6 – Pritzerbe-Weseram type; 7 – Lammasmägi type. Prepared by T. Galiński

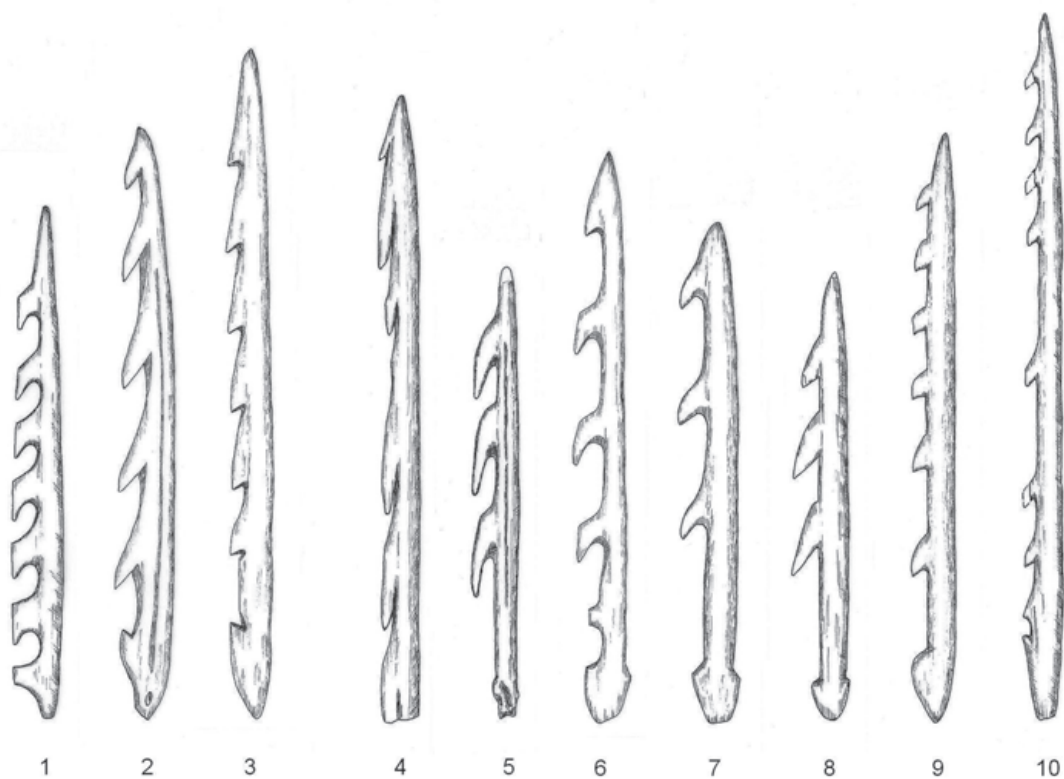


Fig. 9. Types of single-row harpoons: 1 – Törning: Clark's No. 9 – item 19; 2 – Góra Orle: Clark's No. 10 – item 20;
 3 – former Penken: Clark's No. 11 – item 21; 4 – Skeleton: item 22; 5 – Kozuchy: item 23; 6 – Wojnowo: item 24;
 7 – Lake Wąż: item 25; 8 – Rękawczyn: item 26; 9 – Pritzerbe: item 27; 10 – Kunda-Lammasmägi: item 28.
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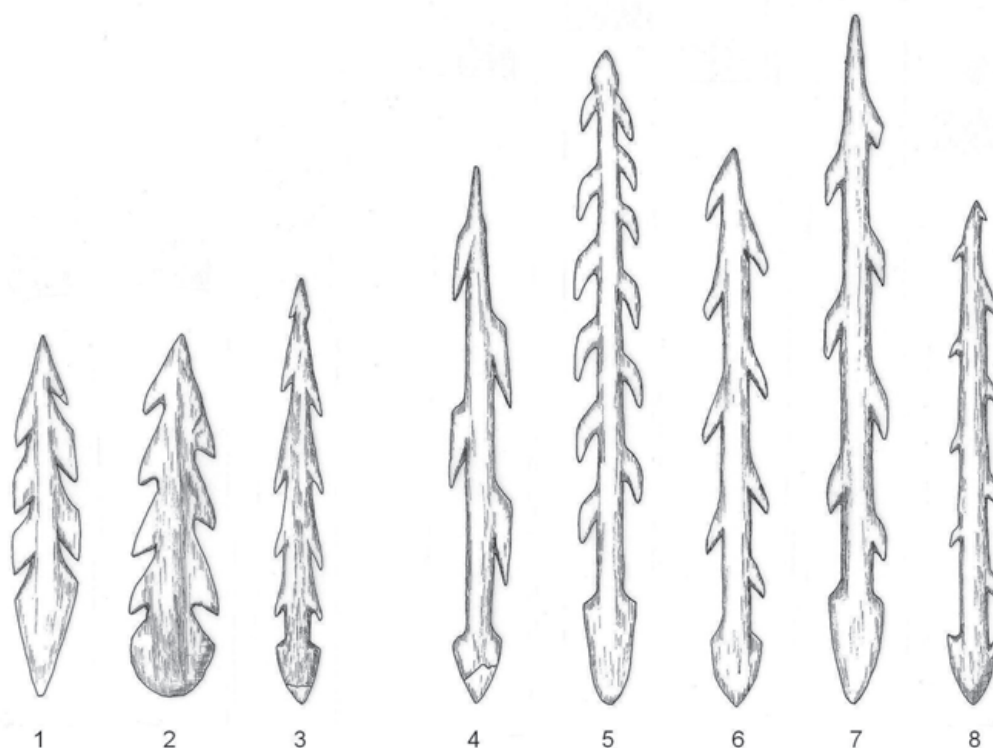


Fig. 10. Types of double-row harpoons: 1 – Rosignol: item 30; 2 – Inzigkofen (Birmatten A): item 31; 3 – Vallendgaards mose (Bornholm): item 32; 4 – Stellmoor: item 33; 5 – Bistoft: item 34; 6 – Tolkmicko: item 35; 7 – Gortz: item 36; 8 – Lake Lubana: item 40. Prepared by T. Galiński

same type of harpoon. This is confirmed among others by finds of harpoons where barbs made in the same manner were disposed at the edges partly symmetrically and partly asymmetrically (Fig. 10: 3).

TANGED POINTS OF TRIANGULAR SECTION

These points form a close-knit typological group with little internal differentiation (Clark's No. 13). Innumerable examples with finely-toothed edges, close to notched points of Clark's No. 20, can be found on the eastern shores of the Baltic.

CONICAL POINTS

Points with conical tips (Clark's No. 16), also called Shigirian points, form a distinct, closed and typologically uniform group. Some internal differentiation of the points is revealed in the following principal traits:

- a) no tang as in the case of examples from former Zedmar (Fig. 23: 10-11);

- b) different shape of the cone, including short and squat forms, such as on points from Książki (Fig. 23: 7) and long and slender ones, as on points from Krokowa (Fig. 23: 8). Some cones have a collar, while others do not, this regardless of the actual shape of the point;

- c) double cones, as on the example from the Kunda peat bog (R.K. Indreko 1948, Abb. 72:5).

All these forms are numerous in the rich assemblages from sites in the Russian Plain, e.g. Veretye (S.V. Oshibkina 1997, Pl. VII-XII, XV). Seven categories of conical points were distinguished in the monograph of this site (S.V. Oshibkina 1997, Pl. 6 on p. 195).

SHOVEL-SHAPED (LANCEOLATE) POINTS

Clark's lanceolate points, here referred to as "shovel-shaped", are represented by three types (Fig. 11: 3-5):

- a) Pentekinnen type (No. 17);
- b) Lohusu type (No. 18);
- c) Pärnu type (No. 19).

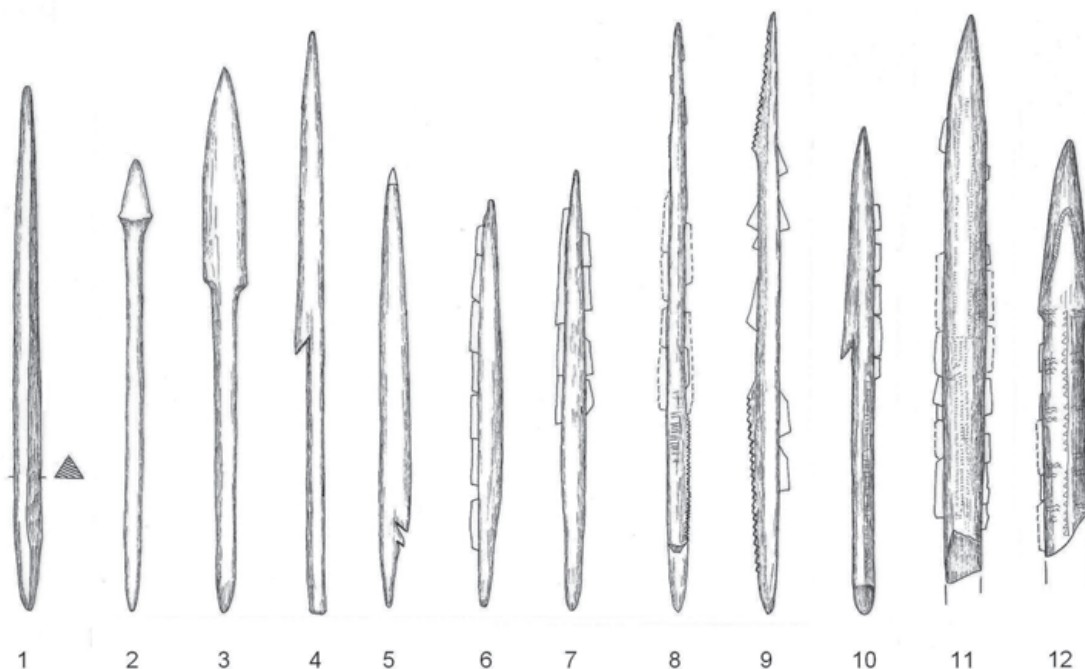


Fig. 11. Types of tanged points and slotted points with flint inserts: 1 – former Cranz: Clark's No. 13 – item 38; 2 – Książki: Clark's No. 16 – item 39; 3 – former Pentekinnen: Clark's No. 17 – item 40; 4 – Lohusu: Clark's No. 18 – item 41; 5 – Pärnu: Clark's No. 19 – item 42; 6 – former Zinten: Clark's No. 21A – item 43; 7 – former Menturren: Clark's No. 21B – item 44; 8 – Svaerdborg: Clark's No. 22 – item 45; 9 – Bussjö: Clark's No. 25 – item 46; 10 – Veretye: item 47 (not covered in Clark's typology); 11 – København: Clark's No. 23 – item 48; 12 – Mullerup (Søholm): Clark's No. 24 – item 49. Prepared by T. Galiński

These forms exhaust the range of internal differentiation of these tools.

SLOTTED POINTS WITH FLINT INSERTS

Seven categories make up the group of slotted points with flint inserts, including five already distinguished by J.G.D. Clark (Nos 21-25). Taken together, they exhaust the differentiation observed in points of this kind from the Baltic zone. Minor corrections are necessary with regard to the plain and narrow points of the Stora Dode type (No. 21). As pointed out correctly by S.K. Kozłowski (1972, p. 39), it is valid to treat separately examples of the Zinten type with one insert (No. 21A) and those of the Menturren type with two inserts (No. 21B), this in analogy to the single- and double-row harpoons.

Veretye type points (Fig. 11: 10), distinguished and described by S.V. Oshibkina (1997, Pls XVI-XVII; Table 6 on p. 195), constitute a new type not included in Clark's classification.

Moreover, other types of points and harpoons additionally slotted with flint inserts can be found

in the eastern Baltic and further east, on the Russian Plain, e.g. harpoons from Kunda-Lammasmägi (R. Inreko 1948, Abb.62:1). On the whole, however, these have been so far only singular and hence unique examples.

POINTS WITH PIERCED HOLE IN THE BASE

Clark did not include such points in his classification. Two categories have been distinguished:

- a) plain points of round section. Brovst type (Fig. 12:1);
- b) notched points with fine, straight and triangular notching. Bloksbjerg type (Fig. 12:2).

These forms refer directly to Mesolithic examples, from which they differ basically by the hole pierced in their base.

HARPOONS WITH PIERCED HOLE IN THE BASE

Also not included in Clark's typology. Six categories have been distinguished:



Fig. 12. Types of points and harpoons with holes pierced in the base and harpoons with projections at the base (not covered in Clark's typology): 1 – Brovst: item 50; 2 – Bloksbjerg: item 51; 3 – Lietzow-Augustenhof: item 52; 4 – Koster: item 53; 5 – Praeastø: item 54; 6 – Skateholm: item 55; 7 – Travenbrück (Ellerbek): item 56; 8 – Birmatten B: item 57; 9 – Police: item 58. Prepared by T. Galiński

- a) single-barb harpoons. Lietzow type (Fig. 12:3);
- b) harpoons with two to four convex barbs. Koster type (Fig. 12:4);
- c) single-row shuttle-shaped harpoons with broad angular barbs. Praeastø type (Fig. 12:5);
- d) single-row shuttle-shaped harpoons with projecting convex, bowed and triangular barbs. Skateholm type (Fig. 12:6);
- e) harpoons with two barbs, one on either side. Ellerbek type (Fig. 12:7);
- f) double-row harpoons with massive convex barbs, bowed and triangular. Birmatten B type (Fig. 12:8).

Harpoons of the Lietzow type were classed as “type A” in the classification of Ertebølle harpoons proposed by S.H. Andersen (1972); harpoons of the Koster type were referred as “type B” in the said typology.

Almost all of the categories distinguished here have close counterparts among Paleolithic and Mesolithic harpoons without a hole pierced in their base.

SPINDLY HARPOONS WITH PROJECTIONS AT THE BASE

Not included in Clark's classification, these are very characteristic harpoons made from the spindles of row deer antlers. They are equipped with one or two massive convex barbs and projections at the base for tying a rope. Both the barbs and projections made use of natural antler spindles. The Police type (Fig. 12:9) corresponds to “type C” in the typology of Ertebølle harpoons presented by S.H. Andersen (1972).

The following type list includes all of the author's suggestions revising Clark's typology:

Type list

Plain points of circular section (No. 1 after Clark).

1. Plain points of circular section. Bonin type (Fig. 2:1).
2. Points as above, with base truncated on one side. Międzychód type (Fig. 2:2).
3. Points as above, with base truncated on two sides. Nowe Juchy type (Fig. 2:3).

4. Points as above, with short tanged base. Gumbinnen type (Fig. 2:4).
5. Points as above, with indented base. Maszycka Cave type (Fig. 2:5).
6. Points as above, squat and fusiform. Obrowo type (Fig. 2:6).

Notched points (Nos 2-4, 6, 8, 14-15, 20 after Clark).

7. Points with straight notches sparsely distributed. Duvensee type. No. 2 after Clark (Fig. 5:1).
8. Points with triangular notching, dense, forming triangular teeth. Istaby type. No. 3 after Clark (Fig. 5:2).
9. Points with straight and triangular notches, widely spaced. Dobbertin type. No. 4 after Clark (Fig. 5:3).
10. Points with a row of fine oblique teeth. Kunda type. No. 6 after Clark (Fig. 5:4).
11. Points with a row of fine teeth along curved edge – bowed. Hörning type. No. 14 after Clark (Fig. 5:5).
12. Points with straight and oblique notches on both lateral edges. No. 20 after Clark (Fig. 5:6).
13. Points with long oblique notches forming small convex and angular barbs. Pritzerbe type. No. 8 after Clark (Fig. 5:7).
14. Points as above, curved with teeth at opposite ends. No. 15 after Clark (Fig. 5:8).

Simple harpoons (No. 5 and 7 after Clark).

15. Single-barb harpoons. Gniewino type. No. 5 after Clark (Fig. 6:1).
16. Harpoons with a row of two to four convex barbs. Mullerup type. No. 7 after Clark (Fig. 6:2).
17. Harpoons with a row of more than four convex barbs. Star Carr A type (Fig. 7:3). Not covered in Clark's typology; group C in the monograph of the Star Carr site (J.G.D. Clark 1971).
18. Harpoons with a row of two to four fine convex barbs, widely spaced. Star Carr B type (Fig. 6:4). Not covered in Clark's typology; group A in the monograph of the Star Carr site (J.G.D. Clark 1971).

Single-row shuttle-shaped harpoons (Nos 9-11 after Clark).

19. Harpoons with a row of large recurved barbs (nos 7a-c; 9a; 10a-c). Törning type. No. 9 after Clark (Fig. 9:1).

20. Harpoons with a row of massive protruding, sharp, curved and convex barbs (nos 1a-b; 3a-b). Góra Orle type. No. 10 after Clark (Fig. 9:2).

21. Harpoons with a row of diagonal, pointed, triangular barbs (nos 1a; 2a). Penken type (Fig. 9:3). The category corresponds to Clark's No. 11.

Single-row harpoons with distinguished tang (No. 12A after Clark; also including a few items classified by Clark to his types nos 9, 10 and 11 – namely, harpoons with distinguished tang, not necessarily circular in section).

22. Harpoons with long, angular and rhomboidal barbs bordering the tang (nos 5a; 6a). Skeleton type (Fig. 9:4).

23. Harpoons with long angular drooping barbs (no. 8a). Kozuchy type (Fig. 9:5).

24. Harpoons with broad angular barbs (no. 7a-c), bent at approximately mid-length. Wojnowo type (Fig. 9:6).

25. Harpoons with pointed, curved, protruding and convex barbs (nos 1c; 3a-c). Wąż type (Fig. 9:7).

26. Harpoons with massive protruding barbs, sharp and slightly curved or triangular (nos 1a; 2a). Surbajny-Rękawczyn type (Fig. 9:8). The Surbajny type harpoons have triangular barbs, while the Rękawczyn type has barbs that are slightly curved. Rare examples combining the two types of barbs have been observed.

27. Harpoons with relatively protruding, convex, angular and rhomboidal barbs (nos 1c; 3c; 5c; 6c and 7c). Pritzerbe-Weseram type (Fig. 9:9). Harpoons of the Pritzerbe type have barbs nos 1c, 3c and 5c, while the Weseram type features barbs nos 5c, 6c and 7c.

28. Harpoons with very fine protruding convex triangular or leafy barbs (nos 1c; 2b; 3c; 7c). Lammasmägi type (Fig. 9:10).

29. Single-barb harpoons (Fig. 18:4).

Double-row harpoons without distinguished tang (not covered in Clark's typology).

30. Shuttle-shaped harpoons with wide, angular and rhomboid barbs (nos 5a-b; 6a-b). Rossignol type (Fig. 10:1).

31. Massive, squat harpoons with protruding, curved and convex barbs (nos 1a-c). Birsmatten A type (Fig. 10:2).

32. Harpoons with sharp, convex and triangular barbs (nos 1b; 2a). Bornholm type (Fig. 10:3).

Double-row harpoons with distinguished tang (No. 12B after Clark).

33. Harpoons with long angular and rhomboid barbs adjoining the tang (nos 5a; 6a-b; 9a). Stellmoor-Skaftlev type (Fig. 10:4). Barbs on Stellmoor-type harpoons are widely spaced, those on the Skaftlev type are dense.

34. Harpoons with protruding rhomboid and angular barbs bent at more or less mid-length (nos 6b; 7a-b). Bistoft type (Fig. 10:5).

35. Harpoons with massive protruding, sharp, curved and convex barbs (nos 1a-b). Tolkmicko type (Fig. 10:6).

36. Harpoons with protruding convex, angular and rhomboid barbs (nos 1c; 3c; 5b-c; 6 b-c). Gortz-Lachmirowice type (Fig. 10:7). Barbs on Gortz-type harpoons are widely spaced, those on the Lachmirowice type are dense.

37. Harpoons with very fine protruding, convex, angular and rhomboid barbs (nos 1c; 3c; 5c; 6c; 7c). Lubana type (Fig. 10:8).

Tanged points of triangular, conical and shovel-shaped section (nos 13, 16-19 after Clark).

38. Points of triangular section. No. 13 after Clark (Fig. 11:1).

39. Points with the tip of conical shape. Shigirian type. No. 16 after Clark (Fig. 11:2)

40. Shovel-shaped points, flaring symmetrically. Pentekinnen type. No. 17 after Clark (Fig. 11:3).

41. Shovel-shaped points with one barb. Lohusu type. No. 18 after Clark (Fig. 11:4).

42. Shovel-shaped points terminating in barbs at the base. Pärnu type. No. 19 after Clark (Fig. 11:5).

Slotted points with flint inserts (Nos 21-25 after Clark).

43. Plain and narrow points. Stora Dode type. No. 21 after Clark: variant with one insert, Zinten type. No. 21A (Fig. 11:6).

44. Points as above, variant with two inserts, Menturren type. No. 21B (Fig. 11:7).

45. Plain and narrow points, notched at the lower end. Svaerdborg type. No. 22 after Clark (Fig. 11:8).

46. Narrow points, barbs located on one edge at both ends. Bussjö type. No. 25 after Clark (Fig. 11:9).

47 Shovel-shaped points with barbs. Veretye type (Fig. 11:10).

48. Broad and plain point. Copenhagen type. No. 23 after Clark (Fig. 11:11).

49. Broad and plain points of lanceolate shape. Søholm type. No. 24 after Clark (Fig. 11:12).

Points with pierced hole in the base (not covered in Clark's typology).

50. Plain points of circular section. Brovst type (Fig. 12:1).

51. Notched points. Bloksbjerg type (Fig. 12:2).

Harpoons with pierced hole in the base (not covered in Clark's typology).

52. Single-barb harpoons. Lietzow type (Fig. 12:3).

53. Harpoons with 2-4 convex barbs. Koster type (Fig. 12:4).

54. Single-row shuttle-shaped harpoons with broad and angular points. Praeostø type (Fig. 12:5).

55. Single-row shuttle-shaped harpoons with protruding, convex, curved and triangular barbs. Skateholm type (Fig. 12:6).

56. Harpoons with two barbs on both edges. Ellerbek type (Fig. 12:7).

57. Double-row harpoons with massive, convex, curved and triangular barbs. Birsmatten B type (Fig. 12:8).

Spindly harpoons made of roe deer antler (not covered in Clark's typology).

58. Harpoons with one or several sharp convex barbs and projections at the base. Police type (Fig. 12:9).

2. HARPOONS AND POINTS IN THE SOUTHERN BALTIC ZONE

More than 160 bone and antler harpoons and points have been found in the southern Baltic zone, between the mouths of the Oder and Niemen rivers, from late Pleistocene and early Holocene contexts associated with Paleolithic, Mesolithic and Protoneolithic cultures (Fig. 13). Of these 90 can be linked to the late Paleolithic and Epipaleolithic, 74 to the Mesolithic and 1 or 2 can be considered as Protoneolithic.

2.1. LATE PALEOLITHIC AND EPIPALEOLITHIC

In the sense understood here, the Late Paleolithic covers all Paleolithic assemblages on the European Plain, present in the region from the beginning of settlement in the plain in the post-glacial period, that is, the Bølling interstadial, through the Allerød and younger Dryas, inclusive of the early Boreal Friesland and Dryas IV. The Epipaleolithic, on the other hand, in keeping with the cultural character of these assemblages, is identified here with the early Holocene of central and northern Scandinavia, that is, the post-tanged points groups (post-Ahrensburgian/Masovian complexes) and the Kunda Technocomplex, which according to researchers from Russia and the Baltic countries represented the Mesolithic of the eastern Baltic and more broadly the Russian Plain (e.g. L.V. Kolcov 1989).

Part of the plain points of type 1 and all the finds of points representing types 2-6, that is, altogether 21 examples (list I) are associated with Paleolithic and Epipaleolithic culture; also assigned to these cultures are single-row harpoons without distinguished tang of the Törning, Góra Orle and Penken types (Clark's Nos 9, 10 and 11) – six sure examples (list II); single-row harpoons with distinguished tang (Clark's No. 12A) representing five different categories: Kożuchy, Wojnowo, Wąż, Surbajny-Rękawczyn, and a single-barb variant – altogether 27 examples (list III); double-row harpoons with distinguished tang (Clark's No. 12B) in two variants: Tolkmicko and Gortz-Lachmirowice – three examples (list IV); tanged points of triangular section (Clark's No. 13) – 19 examples (list V); conical points of the Shigirian type (Clark's No. 16) – eight examples (list VI); and shovel-shaped points of the Pentekinnen type (Clark's No. 7) – four examples (list VII).

The distribution of these finds in the southern Baltic zone is shown in fig. 14, while the actual objects are presented in Figs 15-23.

Also part of the slotted points with flint inserts, especially the Zinten type with one slot (Clark's No. 21A, 13 examples) can be connected with the Epipaleolithic and more strictly speaking, with the Kunda Technocomplex. Owing to the fact that the points with flint inserts, unlike the Shigirian points from the early Holocene, are also part of Mesolithic tool kits in this part of the Baltic zone, they have all been discussed together in the section on Mesolithic finds.

Points and harpoons of Paleolithic attribution from the southern Baltic were made of reindeer and moose bone and antler. Paleogeographic investigations of the region have demonstrated that reindeer was almost exclusively found in the Younger Dryas (approximately 11000-10300 BP), while products of moose bone and antler were associated with the Allerød (about 11800-11000 BP), as well as the early Boreal Friesland-Dryas IV climatic oscillations (10300-9700 BP). Some of the plain points of circular section of the Gumbinnen and Nowe Juchy type (formerly Gumbinnen, Piersele, Widno) can be assigned to the Allerød, as well as part of the tanged points of triangular section (formerly Drusken) and some of the shuttle-shaped harpoons of the Törning (Lisi Ogon) type and the double-row harpoons of the Gortz-Lachmirowice type (from the Baltic near Dziwnowo). Some of the plain points of circular section can be connected with the younger Dryas, the tanged points and tanged points-backed pieces complexes occurring on sites in the region at the time (Opšrutai, Jegliny, Wąż Lake, Nowe Juchy, Witów); likewise the shuttle-shaped harpoons of the Törning type (Piecki), and primarily the large majority of single-row harpoons with distinguished tang (Clark's type 12A), representing all of the variants occurring in this zone: Kożuchy, Wojnowo, Wąż and Surbajny-Rękawczyn. Some of the tanged points of triangular section (former Schirgupönen and Cranz) and shovel-shaped points of the Pentekinnen type (former Pentekinnen, Stega Wielka) were also made of reindeer bone and antler. Also linked to the Friesland-Dryas IV period are some of the single-row shuttle-shaped harpoons with distinguished tang (Clark's No. 9-12A) – also the ones combining traits, made of moose bone and antler

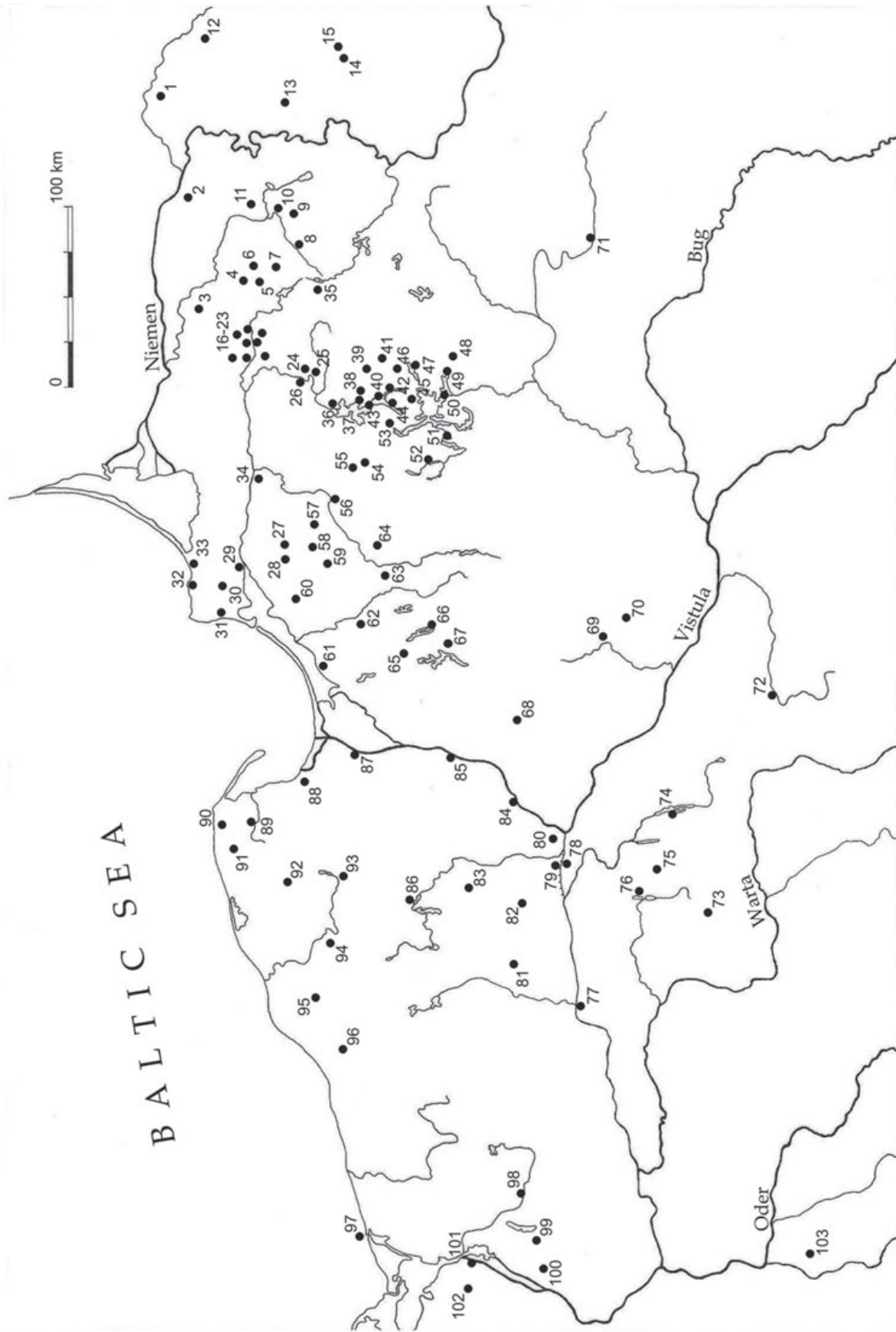


Fig. 13. Map of Pleistocene and early Holocene harpoons and points of bone and antler from the southern Baltic zone. Numbering of finds on the map corresponds to the sequence in the catalogue (chapter 5). Prepared by T. Galiński

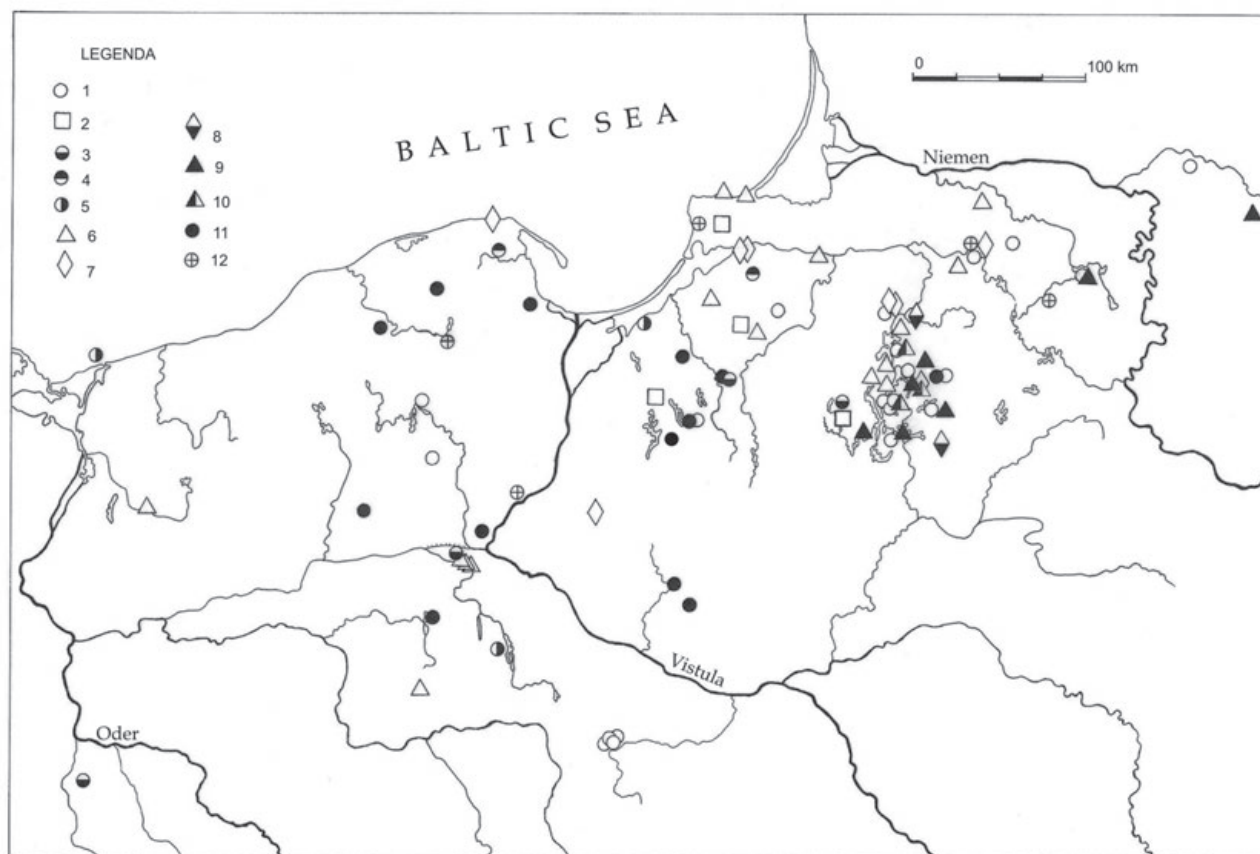


Fig. 14. Map of distribution of particular forms of harpoons and points associated with the late Paleolithic and the Epipaleolithic Kunda Technocomplex. Legend: 1 – plain points of circular section; 2 – Pentekinnen type points; 3 – Törning type harpoons; 4 – Góra Orle and Penken type harpoons; 5 – double-row harpoons of the Tolkmicko and Gortz-Lachmirowice types; 6 – points of triangular section; 7 – conical points of the Shigirian type; 8 – Kożuchy type harpoons; 9 – Wojnowo type harpoons; 10 – Wąż type harpoons; 11 – Surbajny-Rękawczyn type harpoons; 12 – other forms of harpoons. Prepared by: T. Galiński

(Barnowo, Biskupin, Łęgono, Staświny, Balsupiai, Rudninkai) – as well as shovel-shaped points of the Pentekinnen type (Piecki). These finds are undoubtedly part of early Holocene assemblages with tanged points.

Territorial distribution analyses of the relatively numerous finds of different variants of single-row harpoons with distinguished tang, that is, Clark's type 12A (Fig. 14), offer interesting results. The richest variant from the southern Baltic zone, that is, the Surbajny-Rękawczyn type of harpoon, forms a distinct concentration almost exclusively on the lower Vistula. The harpoon from Nowa Jucha in the more outlying Masurian lake district is the sole exception. Harpoons of the Kożuchy, Wojnowo and Wąż types, as well as the mixed Wojnowo/Wąż examples, form a separate concentration in the Masurian lake district and territories lying further to the northeast, in the basin of the Niemen river.

It is also to be observed that finds of type 12A harpoons in the western and southern Baltic zone (southern Scandinavia, Germany, Poland) represent generally typical forms described as items 22-27, while finds from the eastern Baltic region (Latvia, Estonia, Russia) consist mainly of atypical examples, combining characteristics of harpoons of the Surbajny-Rękawczyn type and the Wojnowo and Wąż variants, e.g. examples from Lubana lake or the Pärnu river (I. Loze 1966, Fig. 2, 5-6; R. Indreko 1948, Abb. 63: 2). Typical harpoons of the Surbajny-Rękawczyn type are also known from this area (Lubana Lake, Torbunovskie peat bog), as well as the Wojnowo variant (Lubana lake) and the Lammasmägi variant obviously (Kunda-Lammasmägi, Olenij Ostrov). The differences are surely due to different cultural traditions. While a definite majority of type 12A harpoon finds from the western and southern Baltic zones are linked to Late Paleolithic

assemblages, the latter finds should rather be attributed to Epipaleolithic, post-tanged points groups.

Objects associated with late Paleolithic and Epipaleolithic Culture.

I. Plain points of circular section
(Clark's No. 1)

A. Points of the Bonin type – item 1 (Fig. 16: 2, 4, 8);

1. Pałomanie (?)

2. Jegliny (reindeer bone)

3. Świdry.

B. Points with base truncated on one side, Międzychód type – item 2 (Fig. 15: 8);

1. Międzychód.

C. Points with base truncated on two sides, Nowe Juchy type – item 3 (Fig. 15: 2-4, 6-8);

1. Nowe Juchy (reindeer bone; ornament)

2. Lake Wąż – x 2 (reindeer bone)

3. Upały

4. Piersele (moose bone)

5. Witów – x 4 (reindeer bone).

D. Points with tanged base, Gumbinnen type – item 4 (Fig. 15: 1);

1. former Gumbinnen (moose bone; pollen date: turn of Allerød and younger Dryas – early younger Dryas).

E. Fusiform points of Obrowo type – item 6 (Fig. 16: 1, 3, 5-7);

1. Balsupiai

2. former Zedmar A

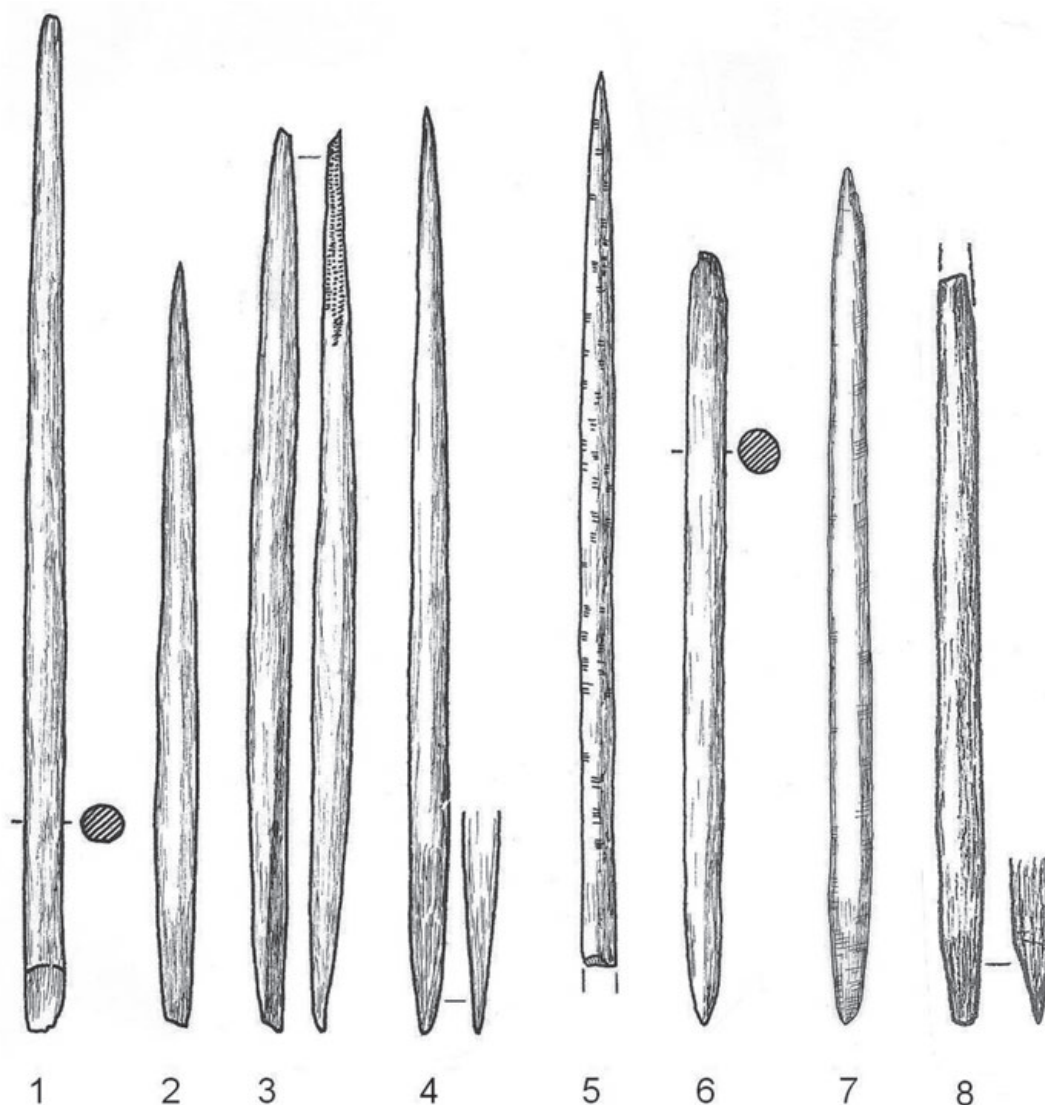


Fig. 15. Plain points of circular section: 1 – former Gumbinnen; 2 – Lake Wąż; 3 – Nowe Juchy; 4 – Piersele; 5 – Widno; 6-7 – Witów; 8 – Międzychód. Different scale reductions. After H. Gross 1939-40, Fig. 2:a, 2:c-d, 2:f; W. La Baume 1938, Fig. 1:a; A. Koszańska 1947, Fig. 3-4; M. Chmielewska 1978, Fig. 20; W. La Baume 1942, Fig. 2. Drawing by T. Galiński

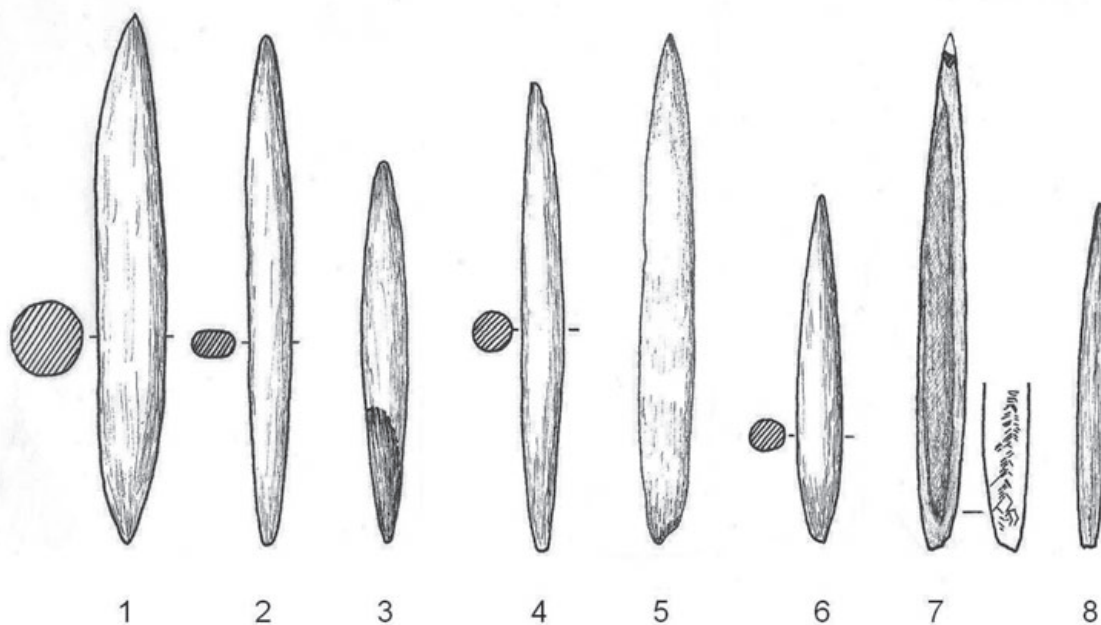


Fig. 16. Plain points of circular section: 1 – Balsupiai; 2 – Pałomanie; 3 – Zedmar A; 4 – Świdry; 5 – Orzysz; 6 – Obrowo; 7 – Lake Wąż; 8 – Jegliny. Different scale reductions. After R.K. Rimantenė 1971, Fig. 101:1-2; H. Gross 1939, Fig. 1; W. Gaerte 1929, Fig. 4b-c; O. Kleemann 1938, Pl. V:a; H. Gross 1939-40, Fig. 2e, 2g). Drawing by T. Galiński

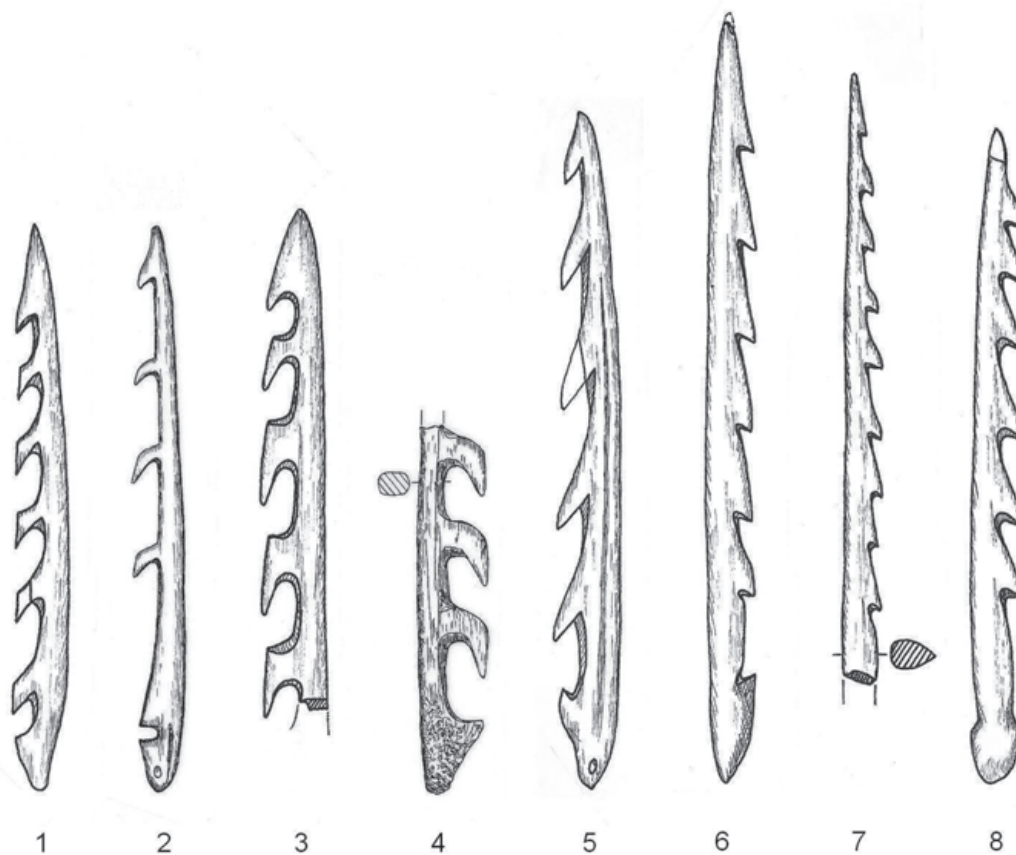


Fig. 17. Single-row harpoons: 1 – Lisi Ogon; 2 – Łęgno; 3 – Piecki; 4 – Węgliny; 5 – Góra Orle; 6 – former Penken; 7 – Kamšai; 8 – neighborhood of Bydgoszcz. Different scale reductions. After M. Schultze 1914, fig. 3; W. Gaerte 1929, Fig. 5e; H. Gross 1939-40, Fig. 4d; G. Domański, J.M. Burdukiewicz 1994, Fig. 2; W. La Baume, K. Langenheim 1933, Pl. 5:c; W. Gaerte 1927a, Pl. 206:b; R.K. Rimantenė 1971, Fig. 100: 3. Different scale reductions. Drawing by T. Galiński

3. Orzysz
 4. Lake Wąż (reindeer bone; ornament)
 5. Obrowo (moose bone ?).
- F. Indeterminate;
1. Widno – item. ? (moose bone; ornament).
 2. Obśrutai – item. ? (pollen date: younger Dryas).

II. Single-row shuttle-shaped harpoons (Clark's Nos 9-11)

- A. Harpoons of the Törning type (Clark's No. 9 – item 19), (Fig. 17: 1-4);
1. Piecki – barbs no. 10a (reindeer antler)
 2. Łęgno – barbs nos 7a; 7c
 3. Lisi Ogon – barbs nos 7b; 7c (moose bone?)
 4. Węgliny – barbs no. 7a (deer or ruminant bone).
- B. Harpoons of Góra Orle type (Clark's No. 10 – item 20);
1. Góra Orle – barbs no. 1a (moose or deer bone), (Fig. 17: 5).
- C. Harpoons of Penken type (Clark's No. 11 – item 21);
1. former Penken – barbs no. 2a (Fig. 17:6).

- D. Atypical harpoons (Fig. 17: 8; Fig. 31: 3);
1. Bydgoszcz region – barbs nos 1a; 2a (reindeer antler)
 2. Lake Duży Małsz – barbs nos 1b; 1c (deer bone).

III. Single-row harpoons with distinguished tang (Clark's No. 12A)

- A. Kożuchy type variant – item 23 (Fig. 20: 8-9);
1. former Pogrimmen – barbs no. 8a (moose bone)
 2. Kożuchy – barbs no. 8a (reindeer bone).
- B. Wojnowo type variant – item 24 (Fig. 20: 1-3, 6);
1. Kanał Krukliński – barbs nos 7a; 7b (reindeer bone)
 2. Orzysz – barbs no. 7a (reindeer bone; ornament)
 3. Jegliny – barbs no. 7b (reindeer bone; ornament)
 4. Wojnowo – barbs no. 7a (reindeer bone; pollen date: younger Dryas).

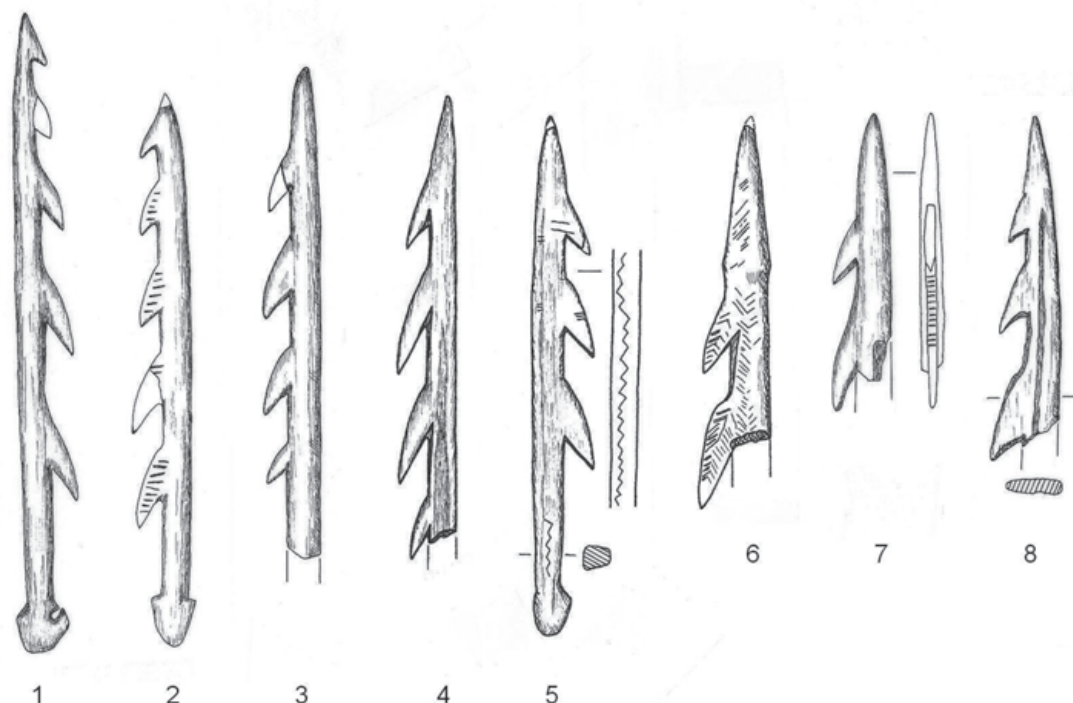


Fig. 18. Single-row harpoons with distinguished shaft: 1 – Nowe Juchy; 2 – Łęgno; 3 – Barnowo; 4 – Barniewice; 5 – Rękawczyn; 6 – Łukomie-Kolonia; 7 – Krepkowice; 8 – Biskupin. Different scale reductions. After H. Gross 1939-40, Fig. 4: f; 5:c; H.J. Egers, G. Giesen 1938, Pl. 10; J. Kostrzewski 1939-48, Fig. 51: 9; J. Antoniewicz 1953, Fig. 2; B. Ginter, Z. Woźniak 1969, Fig. 1; S.K. Kozłowski 1977, Pl. I: 5; S. Jasnosz 1949, Fig. 1. Drawing by T. Galiński

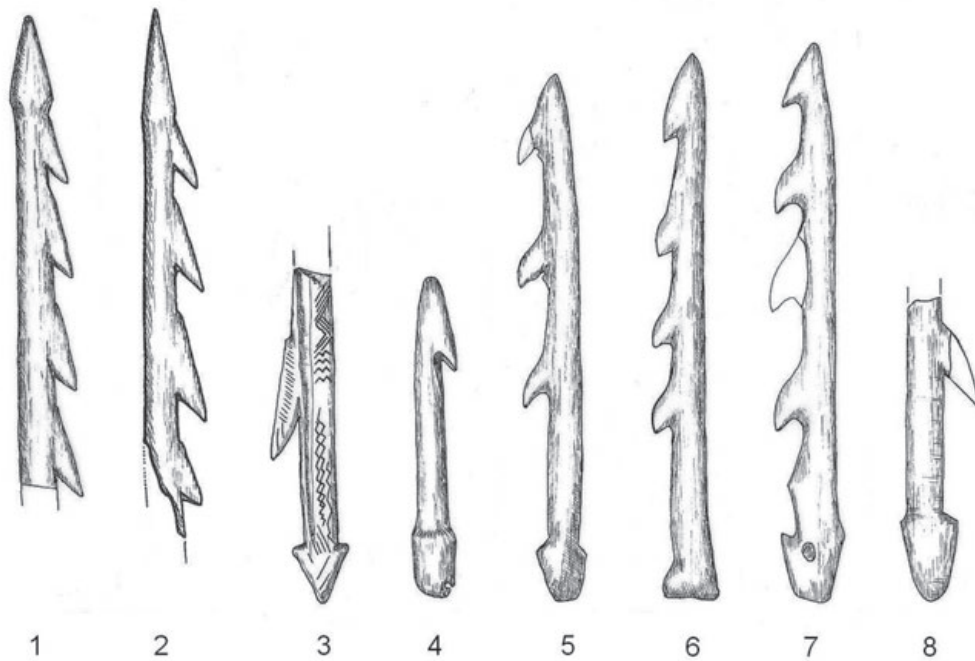


Fig. 19. Single-row harpoon with distinguished shaft: 1 – Surbajny; 2 – Międzychód; 3 – Złotów; 4 – former Palmnicken; 5 – Lake Wąż; 6 – Staświny; 7 – Sołdany; 8 – Ostrowo. Different scale reductions. After A. Lissauer 1887, Pl. II: 11; W. La Baume 1942, Fig. 3; J. Antoniewicz 1953, Fig. 1; W. Gaerte 1927a, Pl. 206: h; H. Gross 1939-40, Fig. 5:b; A. Gardawski, J. Gąsowski 1961, p. 17; J. Sobieraj, D. Makowiecki 1998, Fig. 4; collection of the Warmia and Masury Museum in Olsztyn. Drawing by T. Galiński

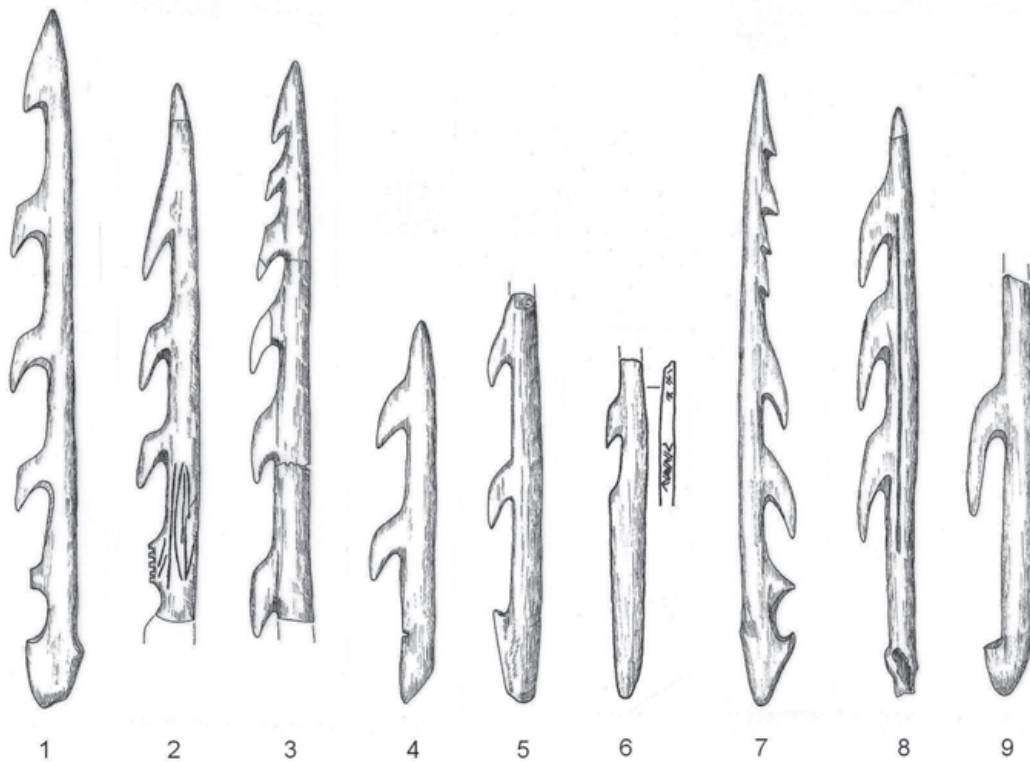


Fig. 20. Single-row harpoon with distinguished shaft: 1 – Wojnowo; 2 – Orzysz; 3 – Kanał Krukliński; 4 – Staświny; 5 – Balsupiai; 6 – Jegliny; 7 – Rudnikai; 8 – Kozuchy; 9 – former Pogrimmen. Different scale reductions. After H. Gross 1939-40, Fig. 4:a-c,e; Fig. 5:a,e-f; J. Antoniewicz 1928, Fig. IV: 4; R.K. Rimantenė 1971, Fig. 100:1. Drawing by T. Galiński

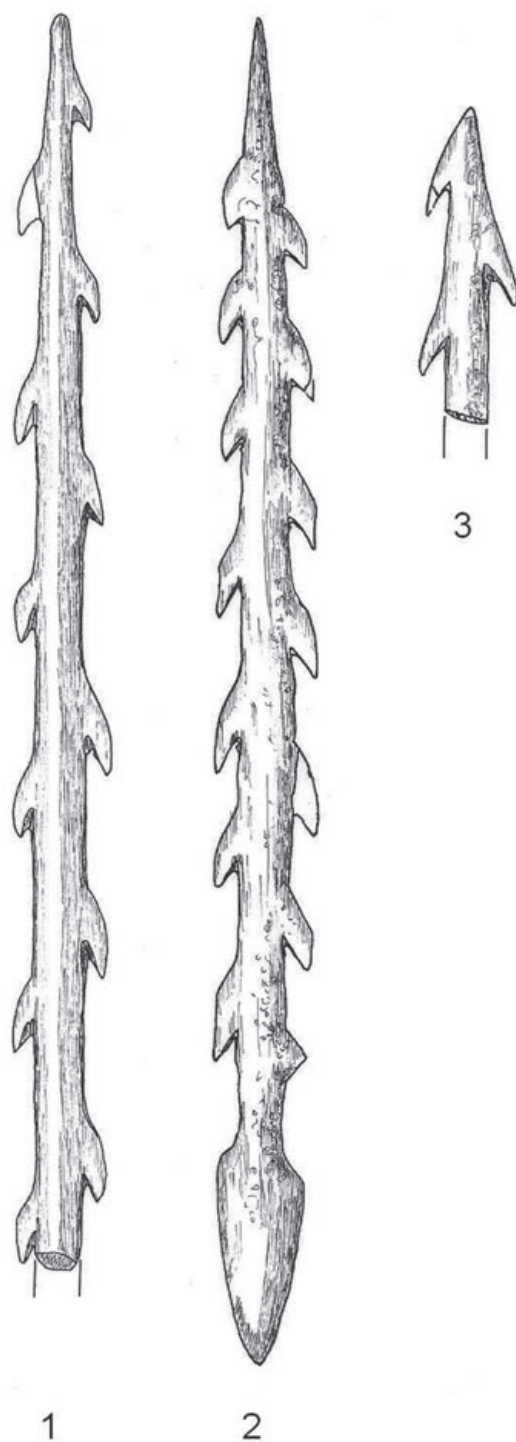


Fig. 21. Double-row harpoons:
 1 – from the Baltic near Dziwnowo;
 2 – Lachmirowice; 3 – Tolkmicko.
 Different scale reductions. After the
 collection of the Museum in Wolin;
 L. Kozłowski 1919, Pl. I: 3; W Gaerte
 1929, Fig. 5A:2. Drawing by T. Galiński

C. Wąż type variant – item 25 (Fig. 19: 5-7);

1. Lake Wąż – barbs nos 3a; 3b; 3c (reindeer bone)

2. Staświny – barbs nos 1c; 3c (reindeer antler)

3. Sołdany – barbs no. 3c (reindeer bone).

D. Harpoons with mixed characteristics, typical of the Wojnowo and Wąż types (Fig. 20: 4-5);

1. Balsupiai – barbs nos 3b; 7a (moose antler)

2. Staświny – barbs nos 3a; 7a (moose bone).

E. Surbajny-Rękawczyn type variant – item 26 (Fig. 18: 1-8; Fig. 19: 1-3, 8);

1. Nowe Juchy – barbs no. 1a (reindeer bone)

2. Surbajny – barbs no. 2a

3. Łęgno – barbs no. 1a (moose bone; ornament; pollen date: Preboreal)

4. Międzychód – barbs nos 1a; 2a (reindeer antler)

5. Ostrowo – barbs no. 1a (reindeer antler ?)

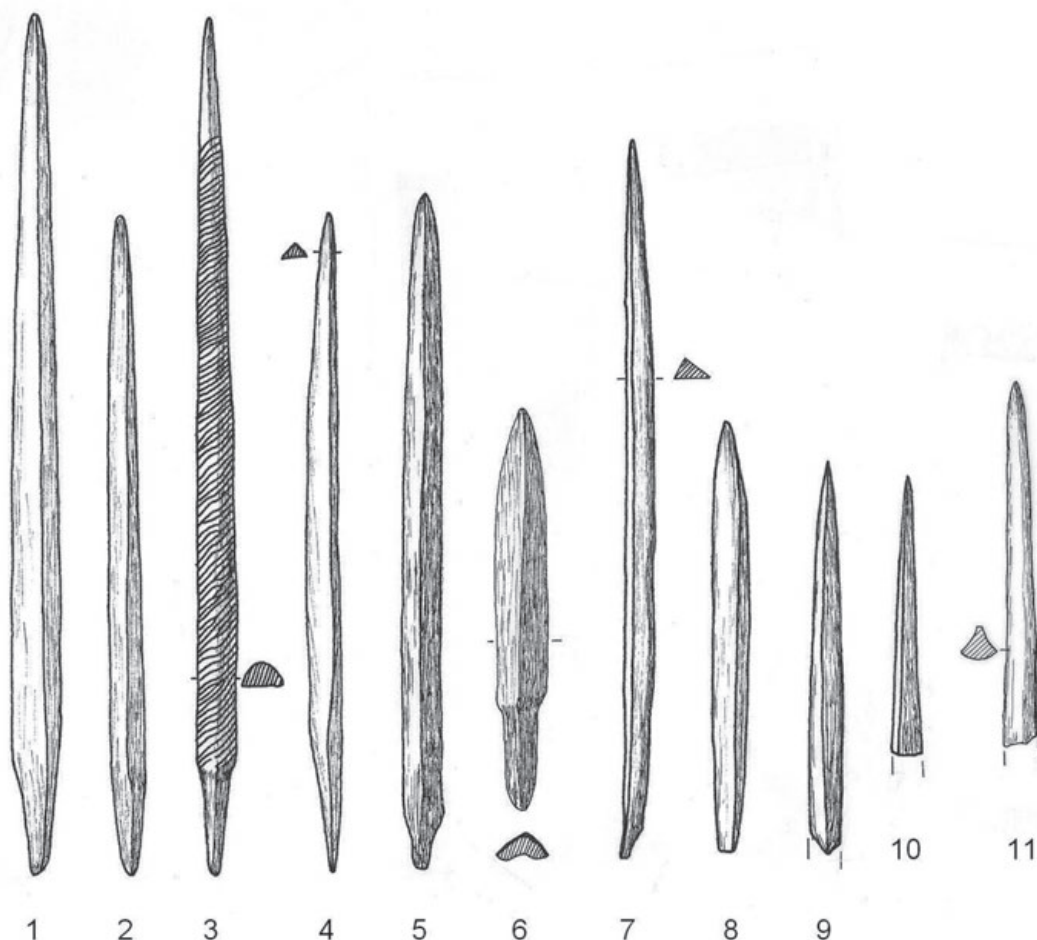


Fig. 22. Points of triangular section: 1 – Marzenin; 2 – former Cranz; 3 – former Schirgupönen; 4 – Juniškai; 5 – Jezioro Niegocin; 6 – former Drusken; 7-10 – Lisi Ogon; 11 – Sadłowo. Different scale reductions. After M. Schultze 1914, Fig. 1; C. Engel 1935, Pl. 16B:e; W. Gaerte 1927a, Pl. 206: c; R.K. Rimantenė 1971, Fig. 101:5; J.K. Kozłowski, S.K. Kozłowski 1977, Pl. 67: 9; H. Gross 1943, Fig. 1; MNS archives. Drawing by T. Galiński

- 6. Łukomie-Kolonia – barbs no. 1a (reindeer antler; ornament)
- 7. Rękawczyn – barbs no. 1a (reindeer antler; ornament)
- 8. Biskupin – barbs 1a (moose bone)
- 9. Złotów – barbs no. 2a (reindeer bone; ornament)
- 10. Barniewice – barbs no. 1a (moose bone)
- 11. Krępkowice – barbs no. 1a (ornament)
- 12. Barnowo – barbs no. 1a (moose antler).
- F. Variant with one barb – item 29 (Fig. 19: 4);
 - 1. former Palmnicken (moose bone)
 - 2. From Wisła (Vistula) near Chełmno.
- G. Atypical and indeterminate (Fig. 20:7);
 - 2. Rudninkai – barbs nos 3a; 3c (moose antler; pollen date: birch-pine phase)
 - 3. former Judtschen.

IV. Double-row harpoons with distinguished tang (Clark's No. 12B)

- A. Tolknicko type variant – item 35 (Fig. 21: 3);
 - 1. Tolknicko – barbs no. 1b (moose bone ?).
- B. Gortz-Lachmirowice type variant – item 36 (Fig. 21: 1-2);
 - 1. Lachmirowice – barbs nos 1c; 3c; 6b; 6c
 - 2. From the Baltic in the Dziwnowo area – barbs nos 1c; 3c; 5c; 6b; 6c (moose antler).

V. Tanged points of triangular section (Clark's No. 13 – item 38), (Fig. 22: 1-11)

- 1. Juniškai
- 2. former Schirgupönen (reindeer bone; ornament)
- 3. former Cranz (reindeer bone)

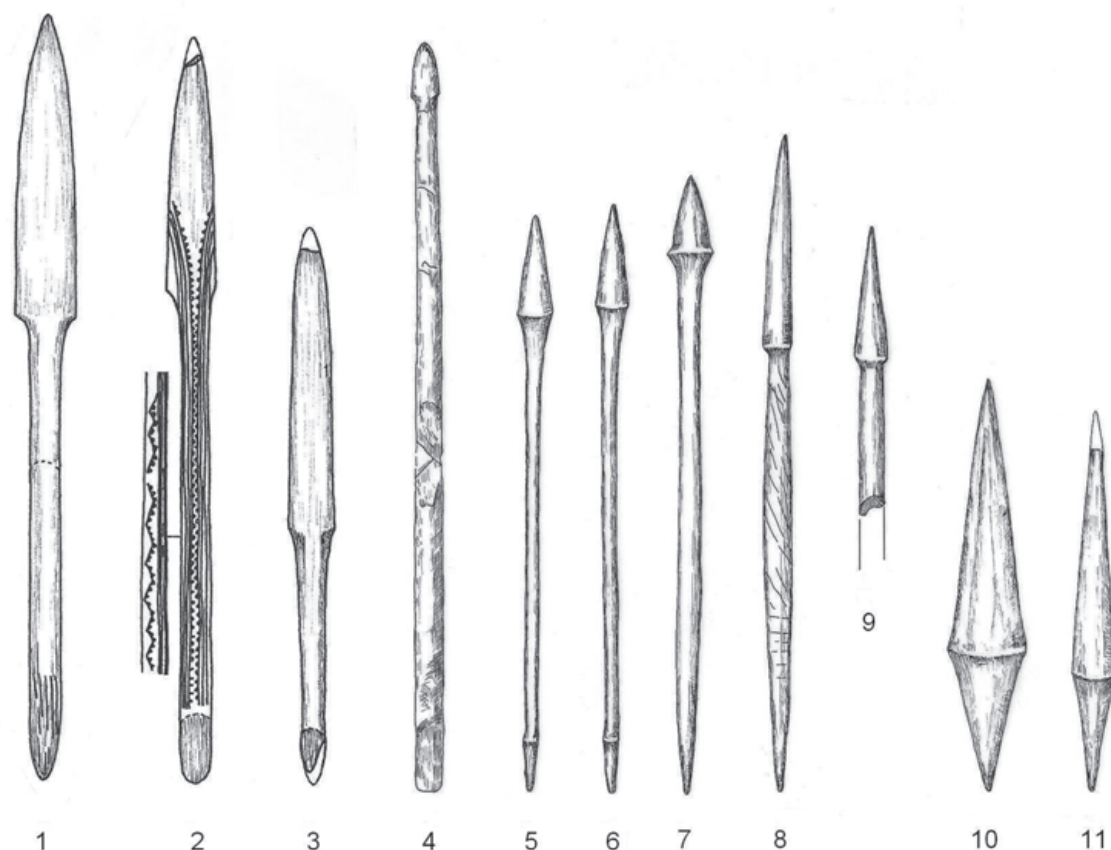


Fig. 23. Lanceolate points (1-4) and conical points of Shigirian type (5-11): 1 – former Pentekinnen; 2 – Piecki; 3 – Koszajny; 4 – Stega Wielka; 5 – former Pobethen or vicinity of Braniewo; 6 – former Gumbinnen; 7 – Książki; 8 – Krokowa; 9 – former Pobethen; 10-11 – former Zedmar A. Different scale reductions. After W. Gaerte 1927a, Pl. 206: d-f, k; W. La Baume 1942, Fig. 1; W. Gaerte 1929, Fig. 4:h; W. La Baume 1938, Fig. 1:b-c; C. Engel 1935, Pl. 16B:b; R. Indreko 1948, Fig. 13: c; J. Okulicz 1973, Fig. 21: g. Drawing by T. Galiński

4. former Drusken (moose bone?; pollen date: Allerød)
5. Niegocin
6. Marzenin
7. Lisi Ogon – x 4
8. Sadłowo (reindeer bone)
9. former Rantau
10. Ruska Wieś
11. Kleszczewo
12. Ryn
13. Pluty – x 3
14. Strzyżewo.

VI. Conical points of the Shigirian type (Clark's No. 16 – item 39), (Fig. 23: 5-11)

1. Near former Gumbinnen
2. former Zedmar A – x 2
3. former Pobethen – x 2
4. Upały
5. Książki
6. Krokowa (moose bone; ornament).

VII. Shovel-shaped points of Pentekinnen type (Clark's No. 17 – item 40), (Fig. 23: 1-4)

1. former Pentekinnen (reindeer antler)
2. Piecki (moose bone; ornament)
3. Stega Wielka (reindeer bone)
4. Koszajny (reindeer bone ?).

2.2. MESOLITHIC

Mesolithic culture is considered here following the author's definition based on cultural and not chronological criteria, and does not encompass early Holocene assemblages from the northern and eastern Baltic zone, including the Kunda Technocomplex; the latter is referred to as Epipaleolithic based on cultural differences and treated separately (T. Galiński 1997; 2002).

Part of the plain points of circular section of the Bonin type exclusively – item 1 (Clark's No. 1) – altogether more than 16 examples (list I), can be

assigned to the Mesolithic. Next, there are notched points represented by the Dobbertin type (Clark's No. 4) – two examples, Kunda type (Clark's No. 6) – six examples, and Pritzerbe type (Clark's No. 8) – four examples (list II); simple harpoons represented by the single-barb harpoon, Gniewino type (Clark's No. 5), which is quite numerous in Polish territory – 15 examples; Mullerup-type harpoons (Clark's No. 7) – four examples, and Star Carr B type (item 18) – two examples (list III); finally, slotted points with flint inserts represented by the Zinten variant (Clark's No. 21A) – 13 examples, and the Menturren variant (Clark's No. 21B) – 11 examples, as well as atypical points with one slot – one example (list IV).

The distribution of these objects in the southern Baltic zone is represented in Fig. 24 and the finds are illustrated in Figs 25-30.

Based on current research on the European Mesolithic, notched points of the Dobbertin (No. 4) and Pritzerbe (No. 8) types, along with Duvensee points (No. 2), which are absent from our finds, are connected primarily with the Duvensee Complex, while harpoons of the Gniewino (No. 5) and Mullerup (No. 7) types mostly with the Maglemosian Complex (T. Galiński 2002). Kunda type notched points (No. 6), like the plain points of circular section (No. 1), are fairly common in all Mesolithic and Epipaleolithic groups of the eastern Baltic.

Current research on the Mesolithic in the western Baltic zone has also helped to specify more precisely the relations between particular types of harpoons and points from the early Mesolithic assemblages of the Preboreal period. Harpoons of the Gniewino, Mullerup and Star Carr types are linked to the Flixtonian tradition (T. Galiński 2002, pp. 151-153), that is, the oldest Mesolithic assemblages from the Baltic region, referring directly to the local Late Paleolithic of the Plain and especially to the tanged points cultures (Bolków, site 1), the beginnings of which can be dated to around 9700 BP. Subsequently these forms were characteristic mainly of the Maglemosian (e.g. Svaerdborg I-II), which largely continued these manufacturing traditions. The notched points of the Duvensee, Dobbertin and Pritzerbe types on the other hand were new in the Baltic zone. They appeared in this territory together with classic Duvensian assemblages (T. Galiński 2002, pp. 153-160), that is, around 9400 BP at the earliest. Whereas the former refer to Paleolithic forms, the latter appear to be an original

development of Mesolithic culture. Both were accompanied by Bonin type plain points of circular section, which were common from the beginning of the Mesolithic.

The cultural attribution of slotted points with flint inserts (Nos 21A and 21B) is an issue that requires broader discussion. In the southern and eastern Baltic these tools may be linked to both the Mesolithic Janislavician Complex and the Epipaleolithic Kunda Technocomplex. Certain Maglemosian Complex are also theoretically to be considered in view of double-slotted forms of the Menturren type being noted in these assemblages. Points of this type from this environment have been recorded at among others Svaerdborg I, Trørød in Denmark, Bäckaskog in southern Sweden and Bergen on Rügen (B.B. Henriksen 1976, Fig. 79: 11-12; J. Troels-Smith 1956, Fig. 15:3; C.A. Althin 1954; O. Kunkel 1931, Abb. 2: 2). However, in the case of our finds this last attribution is to be excluded because of the geographical location, although certain cultural connotations between them are highly likely.

First and foremost, in our territories, the single-slotted points of the Zinten type (No. 21A) occur in much the same proportions as the double-slotted Menturren variant (No. 21B). The fact is worth noting in view of the heavily shaken proportions of the two in neighboring regions. In southern Scandinavia, taking into account all the categories of points with flint inserts, only double-slotted forms occur: Nos 21B, 22, 23, 24, 25, occur in territories occupied by the Maglemosian Complex, whereas in the eastern Baltic, in areas covered by the Kunda Technocomplex, the single-slotted form, mainly the Zinten type (No. 21A), is in clear dominance. Taking into consideration all of the technological and functional aspects of the points, these facts of distribution cannot be easily explained except by certain cultural traditions. In this context, one should note that it is only in southern Scandinavia and the eastern Baltic zone that slotted points with flint inserts occur additionally equipped with serrated edges, as in the case of Svaerdborg (No. 22) and Bussjö (No. 25) type points, or with barbs, as in Veretye points (item 47), as well as the massive lanceolate points (Nos 23 and 24) and diverse daggers (R. Indreko 1948; N.N. Gurina 1989; S.V. Oshibkina 1997). Harpoons with flint inserts are known only from the Kunda assemblages, as already mentioned above. These forms of points and harpoons additionally furnished with flint inserts are completely unknown

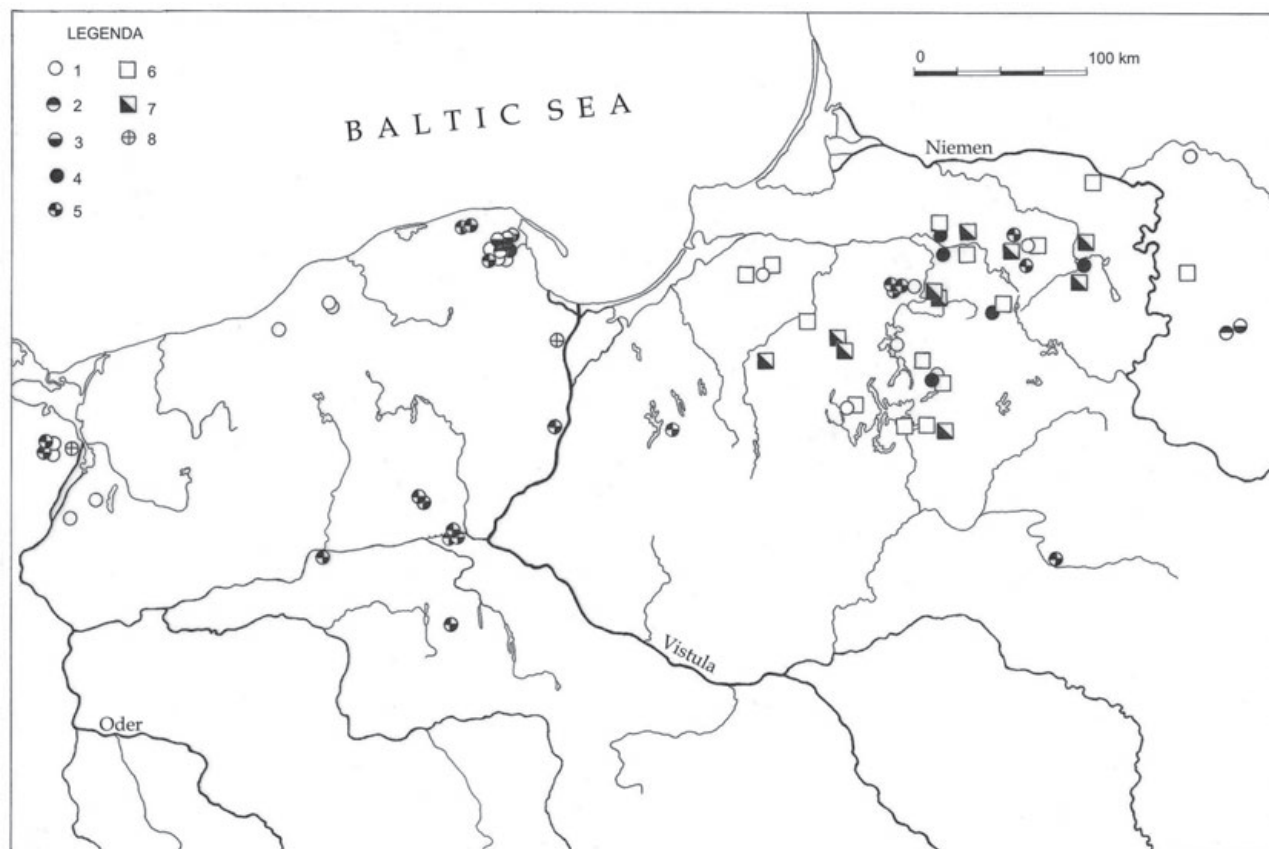


Fig. 24. Map of distribution of particular forms of points and harpoons associated with Mesolithic and Protoneolithic and Neolithic culture. Legend: 1 – plain points of circular section; 2 – Dobbertin type points; 3 – Pritzerbe type points; 4 – Kunda type points; 5 – Gniewino, Mullerup and Star Carr harpoons; 6 – slotted points with single flint insert of the Zinten type; 7 – slotted points with double flint inserts of the Menturren type; 8 – Protoneolithic and Neolithic harpoons. Prepared by T. Galiński

in the southeastern territories and even more so in the southern Baltic, where plain points with one or two slots, of the Zinten or Menturren variant, appear to the exclusion of all others.

Based on increasing numbers of well preserved and properly documented points with flint inserts, coming for example from the rich peatbog sites in northwestern Russia (e.g. Veretye I), it can be said that complete tools were used in the side slots. These could have been various retouched microliths just as well as fragments of broken blades and bladelets without edge retouching, and it seems that the latter clearly predominated regardless of the cultural environment, in which they occurred. This is only logical, considering that the sharpness of the insert depended on the raw and not retouched (as it is sometimes shown) edges of a blade, whereas there was no justification for the retouching of the remaining edges of an insert, unless there was some clan tradition or individuality of the pro-

ducer at work. Thus, it comes as no surprise that the tool inventories on some sites in the southern Baltic contained next to retouched microliths, large amounts of intentionally broken bladelets at one or both ends, which were used without any doubt as flint inserts. Next to the Kunda assemblages from the eastern Baltic, which were present throughout the early Holocene (N.N. Gurina 1989; N.N. Gurina, L.V. Kolcov, V.I. Timofeev 1989), these kind of flint products were extremely common also in Boreal and early Atlantic Maglemosian assemblages, including in particular “assemblages with Vig-type points” occurring in southern Scandinavia and central and western Pomerania, e.g. Płoty-Budziszczę 2, Rotnowo 18, and Unimie 3 (T. Galiński 2004; 2007), as well as the late Boreal and Atlantic Janislavician assemblages representing the so-called Maksimonis Group from northeastern Poland and the basin of the Niemen, for example, Sośnia “Szwedzki Most”, Sośnia 1-II, Woźna Wieś

2-II, Maksimonis 4 (H. Więckowska 1969; 1975; E. Kempisty, H. Więckowska 1983; E. Kempisty, Z. Sulgostowska 1991; R.K. Rimantienė 1971), which are genetically related to them (T. Galiński 2003).

With regard to the relatively common finds of bone points with flint inserts from our territory, linking them with specific cultural complexes defined on the grounds of the flint industries is still purely hypothetical at best today. Early Holocene settlement in northeastern Poland is still weakly investigated and it is not entirely clear which complexes were present, especially in the right-bank lower Vistula region, Warmia and Masury, which appear to have been a border zone swept by influences from two great cultural systems of the period, the European Mesolithic on the one hand and the Epipaleolithic Kunda Technocomplex (also referred to as the “Mesolithic of the Russian Plain”) on the other. There also exist some exceptional finds, like a point with flint inserts from former Potwiecie in Lithuania (B. Drobniiewicz, M. Zając 1998), which is made up of distinct truncations of a culturally fairly characteristic form. These few examples demonstrate that at the present stage of research

finds of Zinten- and Menturren-type points can be linked with the Kunda Technocomplex and to be more precise, with Lampédžiai-type assemblages in the Niemen basin (R.K. Rimantienė 1971), as well as with Janislavician assemblages.

The general impression that one gets from an analysis of this material is that the distribution of tools and other products of diverse organic materials, and especially the bone and antler points of interest to us here, in the Baltic zone does not quite correspond to the range of specific cultural complexes defined on the grounds of flint industries. It seems that these two areas of craftsmanship in terms of tools and other products constitute as if separate levels, on which one can observe and evaluate early Holocene settlement from a cultural perspective.

All finds of bone points with flint inserts were attributed to the Mesolithic in the present lists.

Objects associated with Mesolithic culture.

- I. Plain points of circular section (Clark's No. 1)
 - A. Points of the Bonin type (item 1), (Fig. 25: 1-10);
 1. Pałomanie (?)

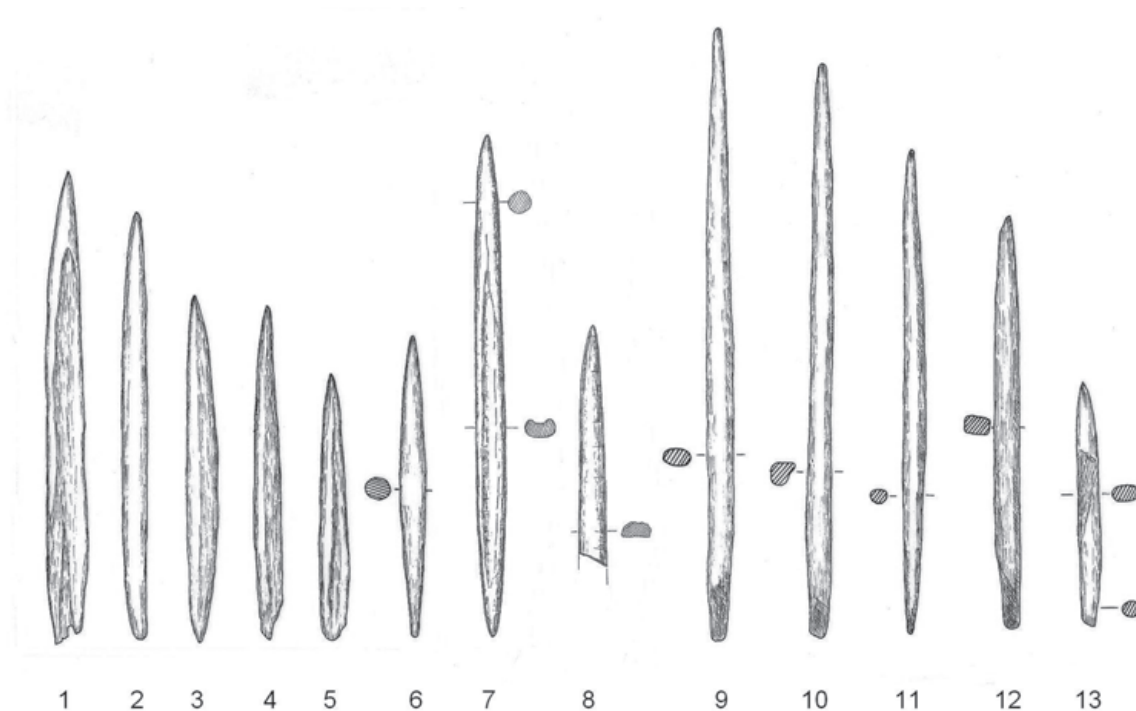


Fig. 25. Plain points of circular section of the Bonin type (Clark's No. 1): 1-5 – Góra Orle; 6 – former Zinten; 7-8 – Bolków; 9-10 – Kosierzewo; 11 – Bonin; 12 – Chabowo; 13 – Borzym. Different scale reductions. After W. La Baume, K. Langenheim 1933, Pl. 4d; H. Gross 1941, Fig. 2a; collection and research documentation in Bolków (IAiE PAN, Szczecin branch); photographs and drawings in the MNS archives; MNS collection. Drawing by T. Galiński

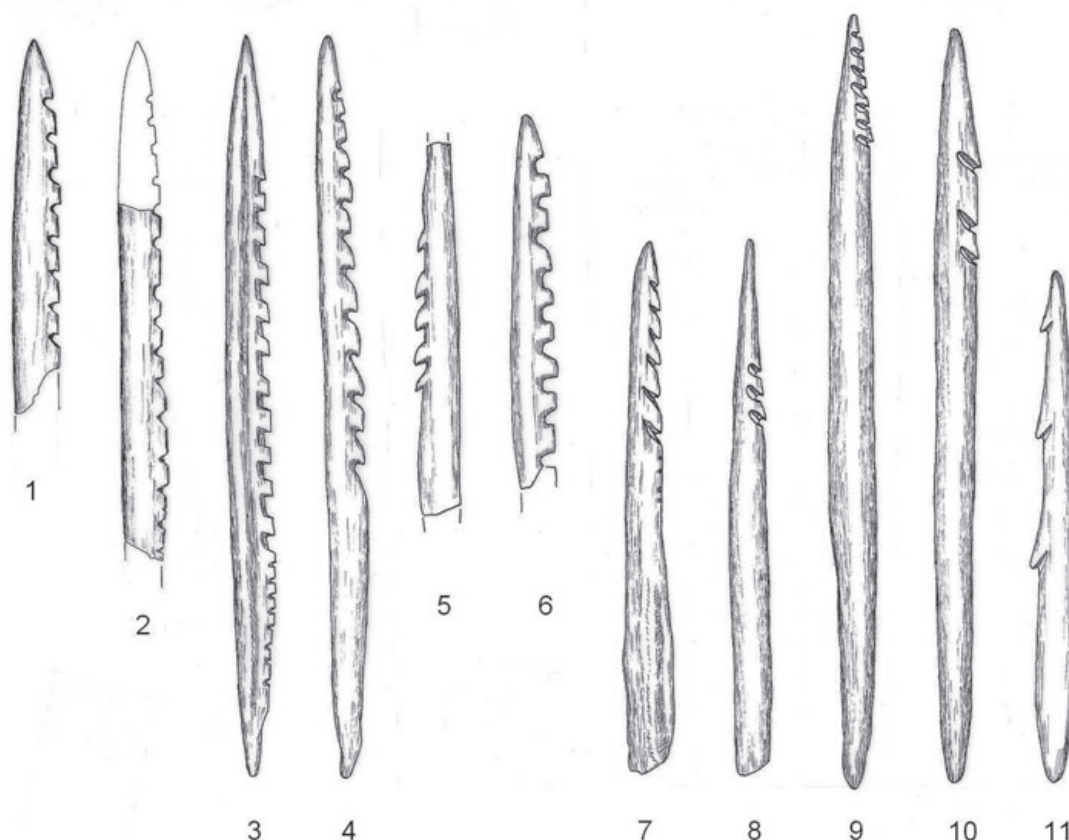


Fig. 26. Points of Dobbertin type (Clark's No. 4): 1-2; Kunda type points (Clark's No. 6): 3-6; Pritzerbe type points (Clark's No. 8): 7-10; Star Carr B type harpoons: 11. 1 – former Morgi; 2, 7-9 – Góra Orle; 3 – former Schirgupönen; 4 – former Tublauken; 5 – Balsupiai; 6 – Margai; 10 – Karaviškes; 11 – Babrininkai. Different scale reductions. After L. Kozłowski 1926, Fig. 5:6; W. La Baume 1938, Fig. 3:a, c-d; W. La Baume, K. Langenheim 1933, Pl. 5:b; W. Gaerte 1927a, Pl. 206: g; R. Indreko 1948, Fig. 60: 7; R.K. Rimantėnė 1971, Fig. 109: 2-3, 5-6. Drawing by T. Galiński

2. former Zinten (pollen date: Atlantic period)
3. Góra Orle – x 5 (deer bone; pollen date: Atlantic period)
4. Kosierzewo – x 2 (deer bone)
5. Bonin (deer bone)
6. Chabowo (moose or deer bone)
7. Borzym (deer, moose or auroch bone)
8. Bolków – x 3 (deer or moose bone; pollen and C¹⁴ date: Preboreal)
9. Dudka (item 1?).

II. Notched points

- A. Points of the Dobbertin type (Clark's No. 4 – item 9), (Fig. 26: 1-2);
 1. former Morgi
 2. Góra Orle (deer bone; pollen date: Atlantic period).
- B. Kunda type points (Clark's No. 6 – item 10), (Fig. 26: 3-6);
 1. Balsupiai

2. former Schorschiennen
3. former Tublauken
4. Wobały
5. Dudka

6. Góra Orle (pollen date: Atlantic period).

C. Points of the Pritzerbe type (Clark's No. 8 – item 13), (Fig. 26: 7-10);

1. Karaviškes
2. Góra Orle – x 3 (deer antler; pollen date: Atlantic period).

III. Harpoons

- A. Harpoons of the Gniewino type (Clark's No. 5 – item 15), (Fig. 27: 1-9; Fig. 28:1);
 1. former Wyłkowyszki
 2. former Zedmar A – x 2 (pollen date: turn of Boreal and Atlantic)
 3. Ostrowo (moose or deer bone)
 4. Lake Wiczanowskie
 5. Ujście

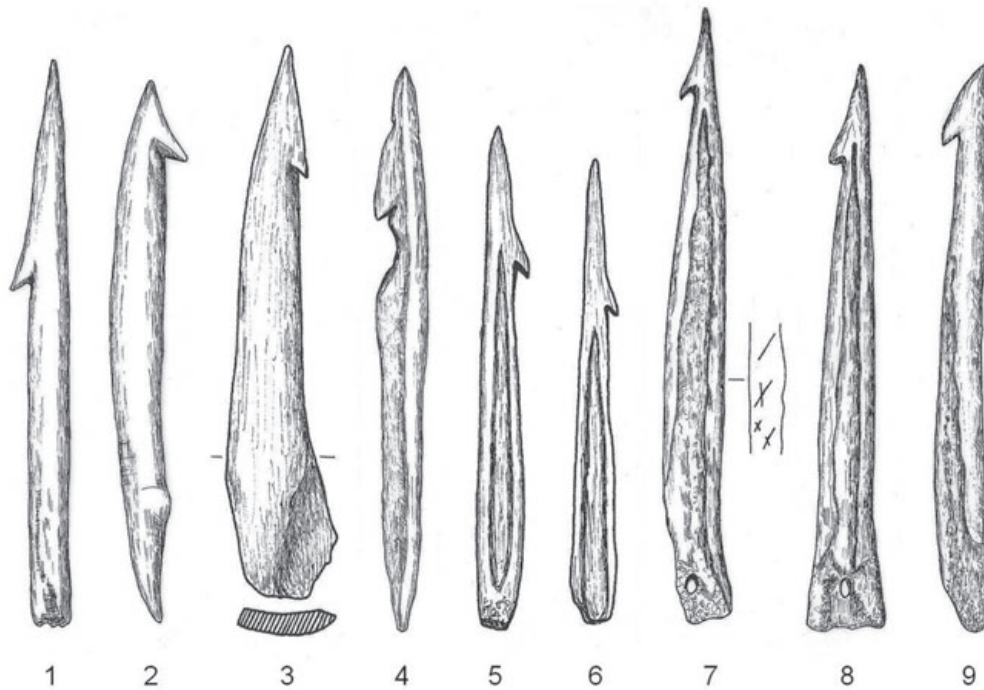


Fig. 27. Gnieuwino type harpoons (Clark's No. 5): 1-2 – former Zedmar A; 3 – former Wylkowyszki; 4 – Góra Orle; 5-6 – Gnieuwino; 7-8 – Wiele; 9 – Ostrowo. Different scale reductions. After W. Gaerte 1929, Fig. 5A:3; J. Okulicz 1973, Fig. 20: b; J. Antoniewicz 1928, Pl. IV: 3; W. La Baume, K. Langenheim 1933, Pl. 5:a; M. Wehrmann 1889, Pl. IV:1; J. Sobieraj, D. Makowiecki 1999, Fig. 2; collection of the District Museum in Bydgoszcz; MNS collection. Drawing by T. Galiński

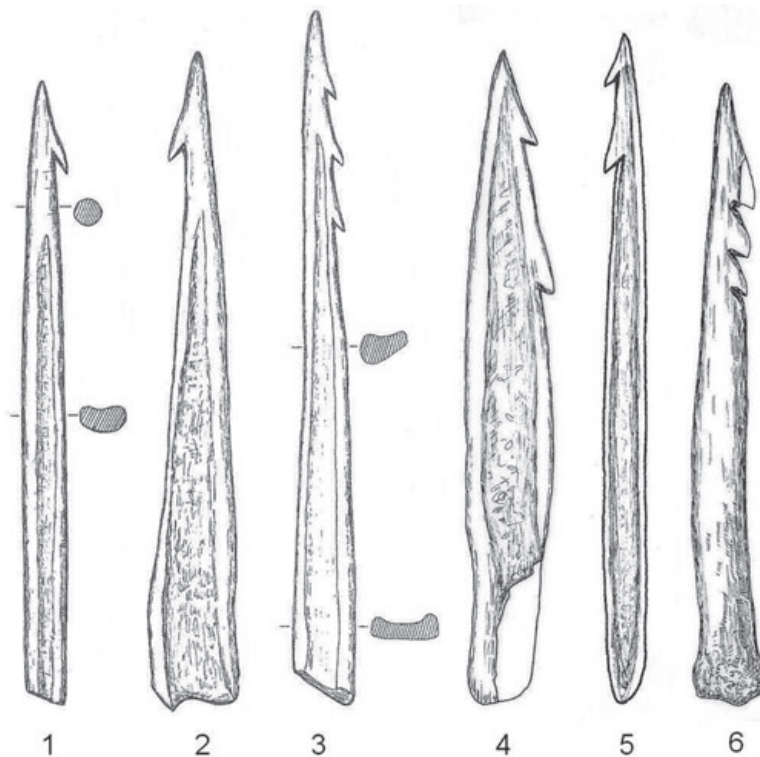


Fig. 28. Gnieuwino type harpoons (Clark's No. 5): 1-2 and Mullerup type harpoons (Clark's No. 7): 3-6. 1-3 – Bolków; 4 – former Zedmar A; 5 – Osowa Góra; 6 – Suraż. Different scale reductions. After the collection and research documentation in Bolków (IAiE PAN Szczecin branch); J. Okulicz 1973, Fig. 20:c; M. Schultze 1914, Fig. 3; D. Jaskanis 1968, Fig. 2. Drawing by T. Galiński

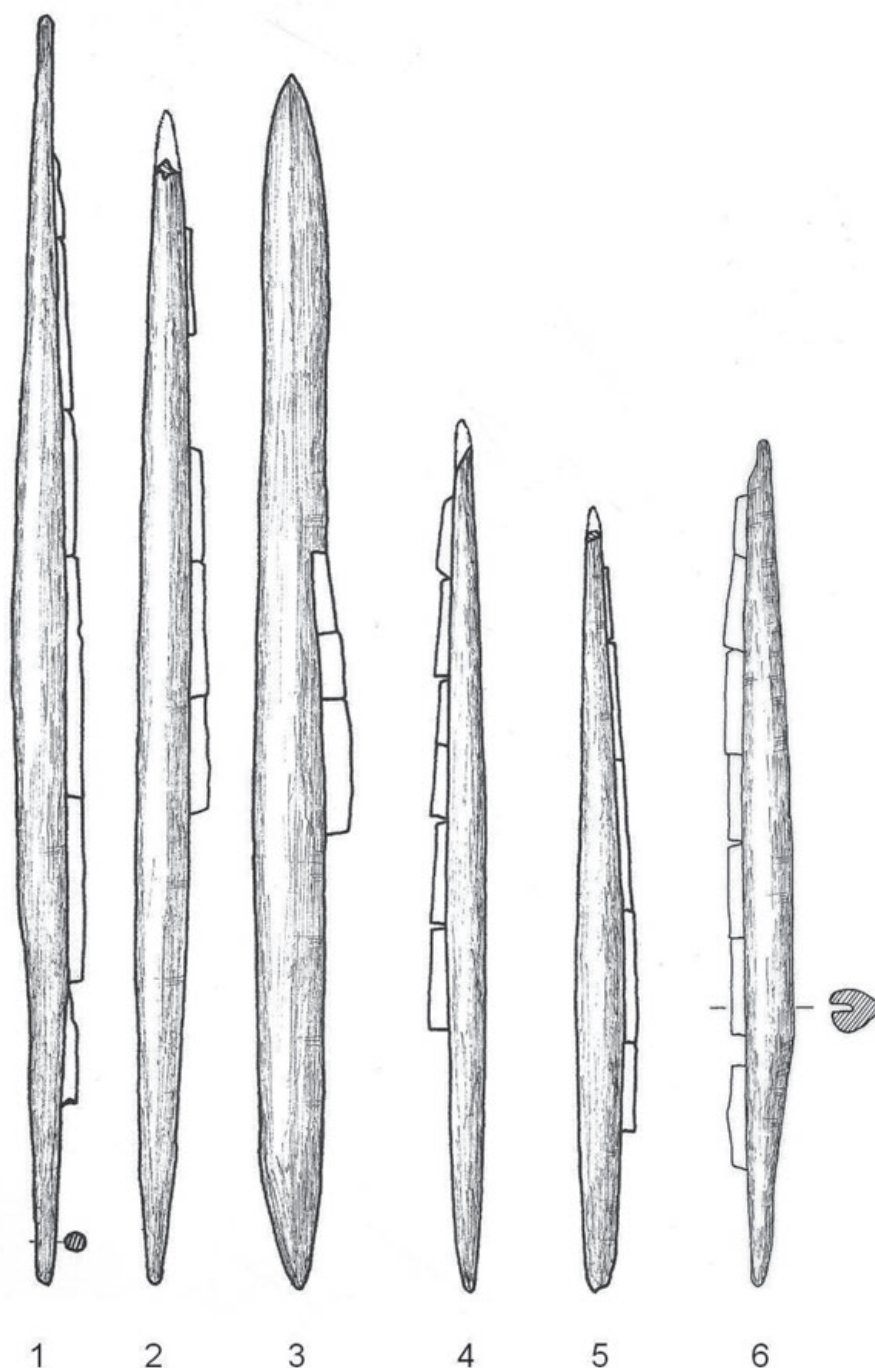


Fig. 29. Single-slotted points of the Zinten type (Clark's No. 21A): 1 – Vaikantonis; 2 – Opšrutai; 3 – Ežeralis; 4 – Upalų; 5 – former Perkalen; 6 – former Zinten. Different scale reductions. After R.K. Rimantėnė 1971, Fig. 142:1-2, 7; A. Gardawski, J. Gašowski 1961, Fig. on p. 17; W. Gaerte 1929, Fig. 5:d; H. Gross 1941, Fig. 2:b. Drawing by T. Galiński

- 6. Osowa Góra (a few pieces)
- 7. Wiele – x 2 (deer bone)
- 8. Nowe
- 9. Góra Orle (deer bone; pollen date: Atlantic period)
- 10. Gniewino – x 2 (deer bone)

- 11. Bolków – x 2 (deer or moose bone; pollen and C¹⁴ date: Preboreal).
- B. Harpoons of the Mullerup type (Clark's No. 7 – item 16), (Fig. 28: 2-5);
- 1. former Zedmar A (pollen date: turn of Boreal and Atlantic)

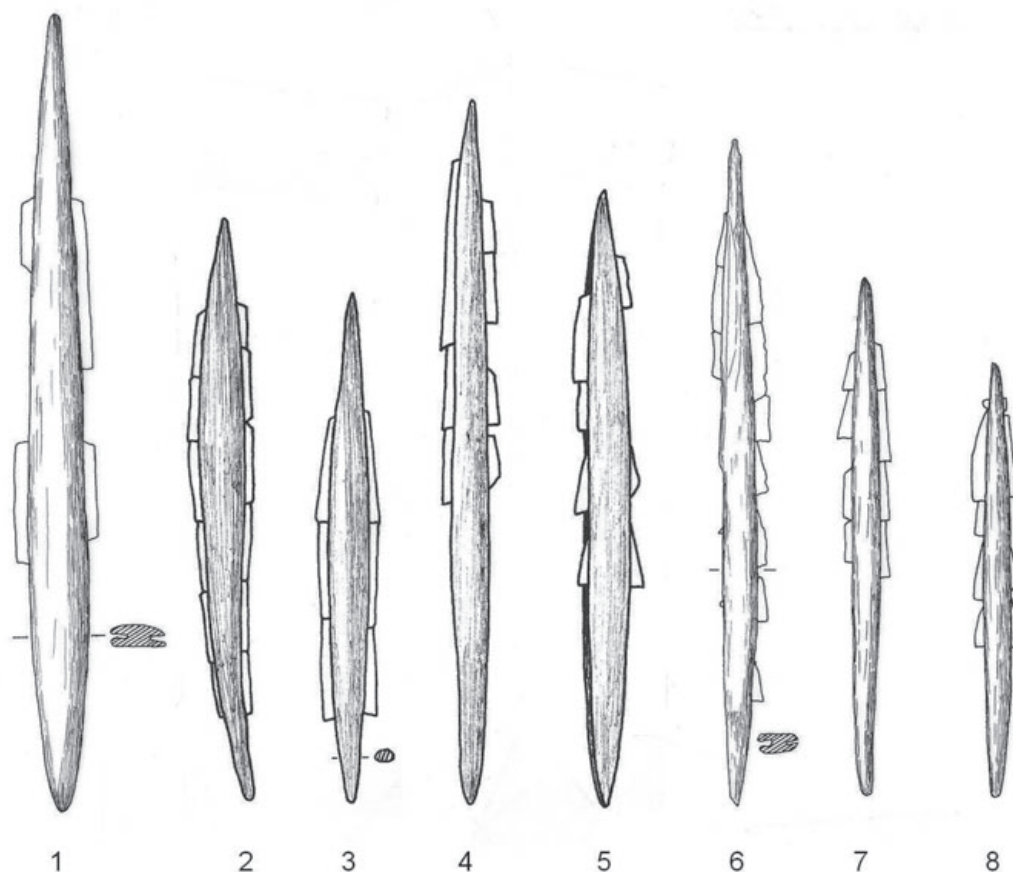


Fig. 30. Double-slotted points of the Menturren type (Clark's No. 21B): 1 – former Potwiecie; 2 – Gulbiniškai; 3 – Žurai-Gudalai; 4, 7 – former Menturren; 5 – Kożuchy; 6 – Tłokowo; 8 – Wola. Different scale reductions.

After J. Kostrzewski 1939-48, Pl. 51:3; R.K. Rimantėnė 1971, Fig. 142: 3-4; C. Engel 1935, Pl. 16B:a; H. Gross 1938, Fig. 3; W. Gaerte 1927a, Pl. 206:l; Z. Sulgostowska, M. Hoffmann 1993, Fig. 2; W. Gaerte 1927b, Fig. 1:c. Drawing by T. Galiński

2. Suraż (deer bone)

4. Bolków (moose or deer bone; pollen and C¹⁴ date: Preboreal).

C. Harpoons of Star Carr B type (item 18), (Fig. 26: 11);

1. Babrininkai

2. Góra Orle.

IV. Slotted points with flint inserts

A. Zinten type variant (Clark's No. 21A – item 43), (Fig. 29: 1-2, 4-6);

1. Opśrutai

2. Vaikantonis

3. former Schröterlauken

4. former Perkallen

5. former Zinten (pollen date: Atlantic period)

6. former Penken

7. from former Eastern Prussia

8. Wobały

9. Upały

10. Dudka

11. Biała Piska

12. Jegliny

13. Kinwągi.

B. Menturren type variant (Clark's No. 21B – item 44), (Fig. 30: 1-8);

1. Žurai-Gudalai

2. Gulbiniškai

3. former Potwiecie (deer, moose or auroch bone)

4. former Gumbinnen

5. former Menturren – x 2 (pollen date: first half of the Boreal)

6. from former Eastern Prussia.

7. Kożuchy

8. Wola

9. Worpławki

10. Tłokowo (deer or moose bone).

C. Atypical (Fig. 29: 3);

1. Ežarėlis.

2.3. PROTONEOLITHIC

In keeping with a definition proposed by the author (T. Galiński 1991, pp. 28-30), the Protoneolithic is understood here as referring to hunting-gathering communities from the second half of the Atlantic period, that is, about 6500-5000 BP, which were cultivating the hunting-gathering traditions of the Epipaleolithic and Mesolithic peoples, primarily in terms of economic base, subsistence and spiritual culture, but which had acquired and adapted to suit their needs certain civilizational advances of agriculturalists streaming in from the Near East and North Africa. Next to potmaking, this included

primarily the production of polished flint and stone tools. It should be kept in mind that the Protoneolithic cultures occurring in the Western Baltic zone are frequently associated by researchers with the terminal Mesolithic and referred to as a “ceramic Mesolithic”. This concerns Ertebølle culture in particular.

One find of a spindly harpoon from Police is certainly connected with Protoneolithic culture (Fig. 31:1), whereas a single-row harpoon with a hole in the base, discovered in the locality of Koźliny (Fig. 31: 2), could be Protoneolithic, but it could equally well be connected with Neolithic assemblages.

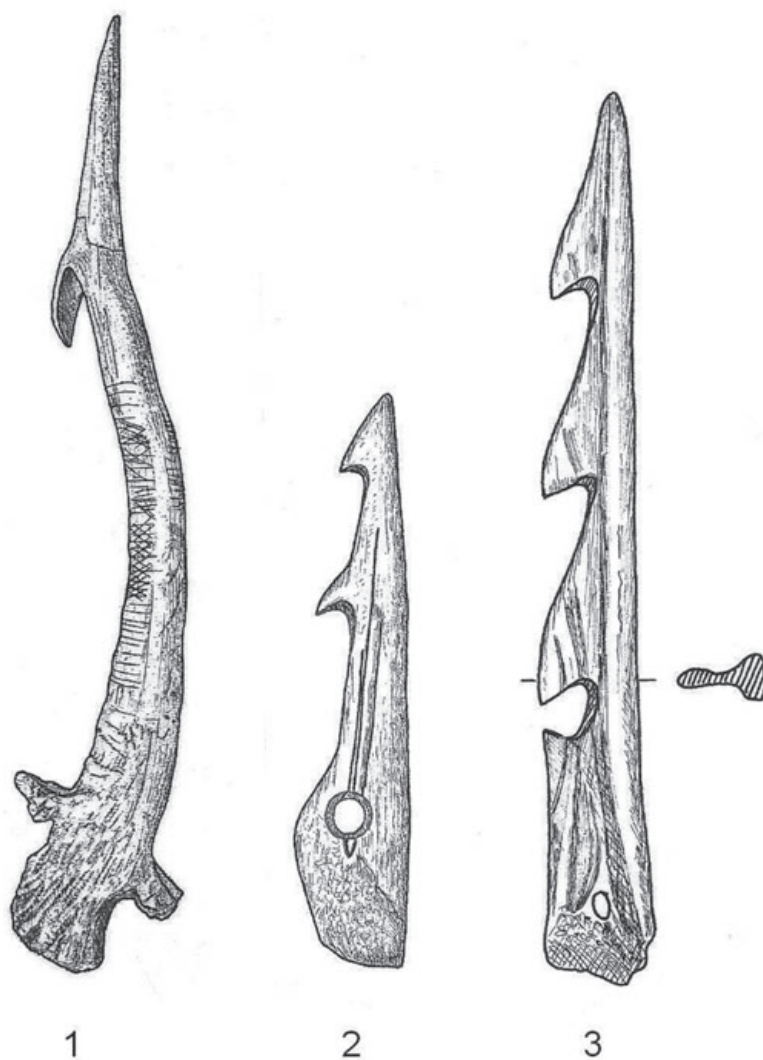


Fig. 31. Harpoons: 1 – Police; 2 – Koźliny; 3 – Lake Mausz. Different scale reductions. After the documentation in the MNS archives; W. La Baume 1938, Fig. 2.

3. RECAPITULATION

The following kinds of bone and antler points and harpoons can be connected with Paleolithic settlement of the late glacial period in the southern Baltic zone: plain points of circular section representing different variants (items 1-4, 6); single-row shuttle-shaped harpoons of the Törning type (No. 9); single-row harpoons with distinguished tang (type 12A) represented by variants: Kozuchy (item 23), Wojnowo (item 24), Wąż (item 25), Surbajny-Rękawczyn (item 26) and single-barb harpoons (item 29); double-row harpoons with distinguished tang (No. 12B) represented by the Tolkmicko (item 35) and Gortz-Lachmirowice (item 36) variants; tanged points of triangular section (No. 13), and shovel-shaped points of the Pentekinnen type (No. 17).

Moreover, harpoons of the Góra Orle type (No. 10), single-row harpoons with distinguished tang of mixed characteristics (Wojnowo/Wąż/Surbajny-Rękawczyn) and single-row atypical harpoons, such as the example from Rudninkai (pollen date) can probably be associated with assemblages with tanged points and assemblages with tanged and backed points from the Early Preboreal (Friesland-Dryas IV).

The Shigirian conical points (No. 16) and some of the slotted points with flint inserts (Nos 21A and 21B) can primarily be connected with Epipaleolithic assemblages of the Kunda Technocomplex, as can also some of the tanged points of triangular section (No. 13) and notched points of the Kunda type (No. 6).

The following points and harpoons made of bone and antler can be connected with Mesolithic settlement: plain points of circular section – exclusively Bonin type (item 1); notched points of the Duvensee (No. 2), Dobbertin (No. 4), Kunda (No. 6) and Pritzerbe (No. 8) types; next, dingle-barb harpoons of Gniewino type (No. 5); harpoons of the Mullerup (No. 7) and Star Carr B (item 18) types; finally, some of the slotted points with flint inserts, especially the two-insert Menturren-type variant (No. 21B).

A spindly harpoon from Police can be connected with Protoneolithic settlement.

In the early Holocene the eastern part of the southern Baltic zone, that is, the region between the mouths of the Oder and Niemen rivers, constituted an extensive border zone between two great cultural technocomplexes: the European Mesolithic on the west and the Epipaleolithic Kunda Technocomplex on the northeast. In consequence of this, the presence of typically Kundian Shigirian points in Dobrzyń Land (Książki) or in Gdańsk Pomerania (Krokowa) on the one hand and of notched points of the Dobbertin type (former Morgi, Karaviškes), can be understood in either one of two ways:

- a) evidence of bilateral, occasional and short-lived penetration by Mesolithic and Kundian hunters of border territories outside their range;
- b) evidence of mutual cultural borrowings by neighboring groups.

At the present stage of research the issue cannot be resolved.

4. DECORATION OF HARPOONS AND POINTS

Finds with engraved decoration (Fig. 32:1, 3-5; Fig. 33:1-7) are found among the harpoons and points associated with Late Paleolithic culture. These are:

- a) three plain points of circular section (Nowe Juchy, Jezioro Wąż and Widno);
- b) one shovel-shaped point of the Pentekinnen type (Piecki)
- c) two single-row harpoons of the Wojnowo type (Orzysz, Jegliny);
- d) five single-row harpoons of the Surbajny-Rękawczyn type (Łęgno, Rękawczyn, Łukomie-Kolonia, Złotów, Krępkowice).

A few other finds with decoration can be associated with the Epipaleolithic, Mesolithic and Protoneolithic. They include:

- a) conical point of the Shigirian type from Krokowa (Fig. 32:6), connected with the Kunda Technocomplex;
- b) point of triangular section from former Schirgupönen (Fig. 32:2), connected with the Kunda Technocomplex;
- c) harpoon of the Gniewino type from Wiele, Mesolithic (Fig. 27:7);
- d) spindly harpoon from Police, Protoneolithic (Fig. 31:1).

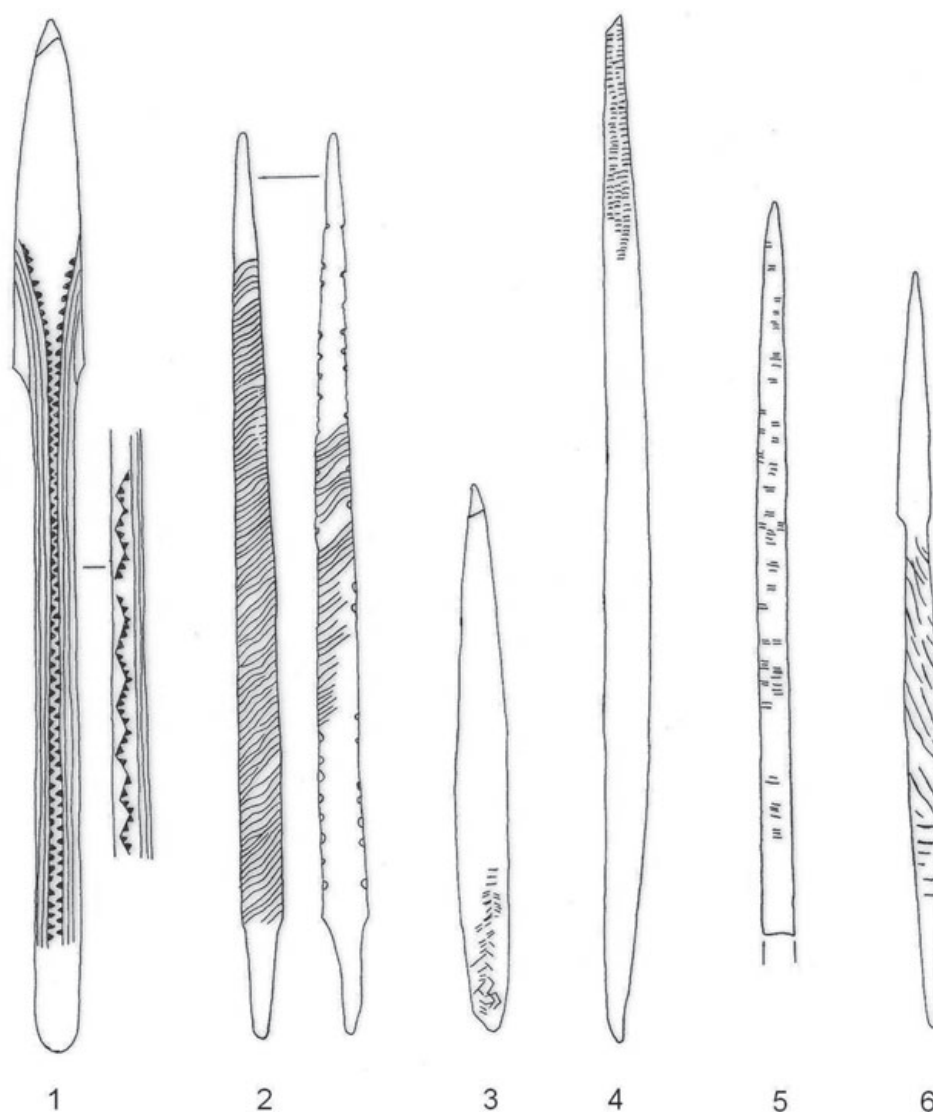


Fig. 32. Bone points with engraved decoration: 1 – Piecki; 2 – former Schirgupönen; 3 – Lake Wąz; 4 – Nowe Juchy; 5 – Widno; 6 – Krokowa. Drawing by T. Galiński

Eight of the 12 distinguished ornamental motifs are found on Paleolithic finds (Fig. 34). These are mostly simple motifs, composed of a variety of horizontal and vertical grooves. The most popular include:

- a) short horizontal dashes arranged in vertical rows (No. 3);
- b) zigzag (No. 5);
- c) herringbone pattern (No. 7).

These motifs occur either singly or in combination on all of the above-mentioned single-row harpoons and plain points. The ornaments were extremely popular in Late Paleolithic assemblages all over the Central European Plain, from Stellmoor near Hamburg (A. Rust 1943; G. Tromnau 1980) to Narva and Kunda-Lammasmägi in Estonia (R. In-

dreko 1948; L. Jaanits 1965). The motif on a Pentekinnen-type point from Piecki is entirely different (Fig. 32:1), composed of two themes: a series of parallel straight or curved lines with adjacent small dots and triangles (No. 10) and a linear zigzag with small dots and triangles attached to the line (No. 11). There are no good parallels for this decoration in the known Paleolithic assemblages from the Baltic zone, but it is close to Mesolithic ornamentation. Characteristic theme No. 10 can be found among the many known motifs and themes from the latter period, e.g. a sharpened bone from Bodals Mose, Denmark (MNK collection), and a magic rod of antler from Friesack 4, Germany (B. Gramsch 1987).

The other four motifs can be found on objects from the Epipaleolithic (2), Mesolithic (1) and

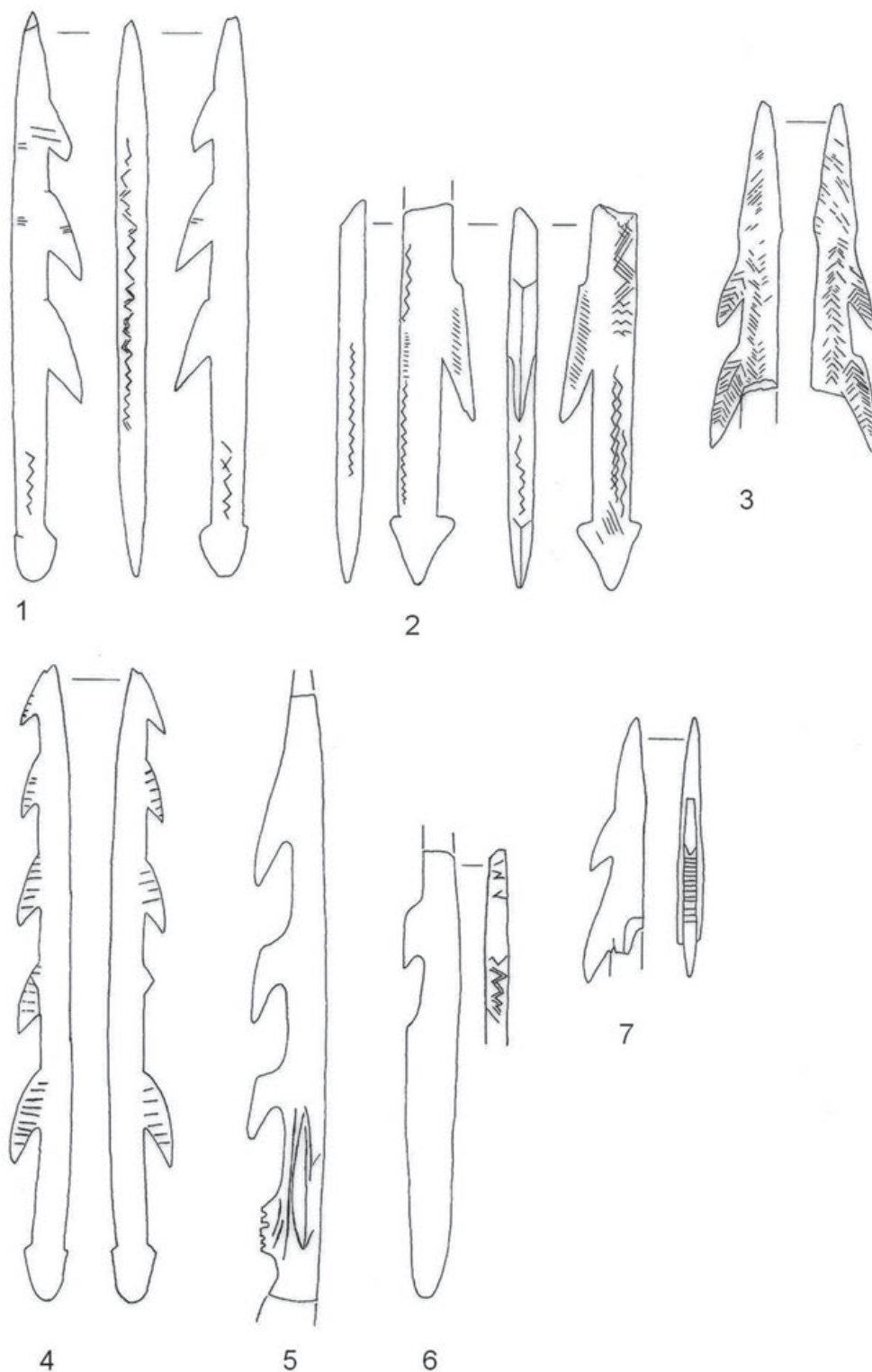


Fig. 33. Harpoons with engraved decoration: 1 – Rękawczyn; 2 – Złotów; 3 – Łukomie-Kolonia; 4 – Łęgno; 5 – Orzysz; 6 – Jegliny; 7 – Krępkowice. Drawing by T. Galiński

Protoneolithic (1) periods. Spiral motifs (Nos 8 and 9) are associated with the Kunda Technocomplex (points from former Schirgupönen and from Krokowa). Two short intersecting dashes (No. 6)

related to the Mesolithic occur on a harpoon from Wiele. It is a fairly unique find, because unlike the Paleolithic period, decoration on tools like harpoons and points is rare in the Mesolithic. They are

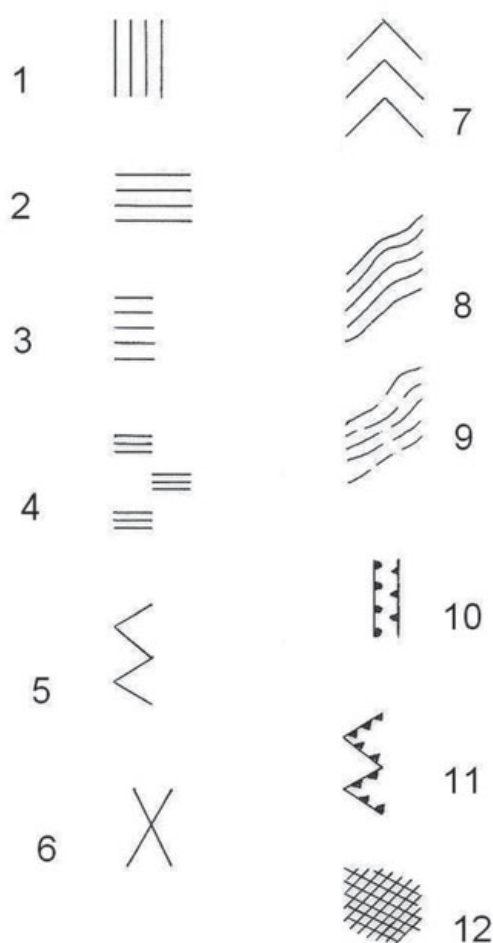


Fig. 34. Decoration themes on horn and antler harpoons and points in the southern Baltic zone: 1 – series of parallel vertical dashes; 2 – series of parallel horizontal dashes; 3 – series of short parallel horizontal dashes; 4 – checker pattern composed of series of short parallel horizontal dashes; 5 – zigzag; 6 – two short intersecting lines (theme X); 7 – herringbone pattern; 8 – continuous spiral; 9 – interrupted spiral; 10 – theme composed of parallel straight and curved lines with adjoining small dots and triangles (Piecki A theme); 11 – theme composed of zigzags with attached dots and triangles (Piecki B theme); 12 – oblique hatching. Prepared by T. Galiński

more frequent on antler frames or on adzes. On the other hand, there is a richness of engraved decoration on special objects of bone and antler, such as the so-called magic rods, which have no apparent utilitarian function (T. Galiński 1986, p. 58ff.; 2002, p. 326ff.).

The spindly harpoon from Police has an engraved ornament composed of two motifs: a) long horizontal incisions arranged in a column (No. 2); and b) checkered pattern (No. 12). The latter is fairly common in the Protoneolithic culture of the western Baltic zone.

5. CATALOGUE OF FINDS FROM THE SOUTHERN BALTIC ZONE (BETWEEN THE MOUTHS OF THE ODER AND NIEMEN RIVERS)

The serial number of particular finds in the catalogue corresponds to the numbering of sites in Fig. 13. Former Polish and German names are given in parentheses next to the current Lithuanian, Russian and Polish names, if the sites were published under those names in older archaeological literature. With regard to localities in the Kaliningrad District the old German name is given precedence in the catalogue, because as a rule only these names are known in the literature; moreover, many of these localities no longer exist.

Numbering of finds in the catalogue corresponds to the sequence on the map (Fig. 13).

Abbreviations:

L. – length

W. – width

Inv. – inventory

LITHUANIA

1. Palomanie

Plain point of circular section, Bonin type – item 1. L. 16.2 cm, W. 1.4 cm; material –? (Fig. 16:2).

Source: R.K. Rimantėnė 1971, Fig. 101:2.

2. Ežarėlis

Slotted point with flint inserts, single slot, atypical, no slot in the upper part. L. 23.3 cm, W. 1.4 cm; material –? (Fig. 29:3).

Source: R.K. Rimantėnė 1971, Fig. 142:7.

3. Juniškai

Point of triangular section (Clark's No. 13) – item 38. L. 22.0 cm, W. 1.2 cm; material –? (Fig. 22:4).

Source: R.K. Rimantėnė 1971, Fig. 101:5.

4. Opšrutai (German Abschruten)

A. Plain point of circular section – item ? No further data.

B. Single-slot point, Zinten type (Clark's No. 21A) – item 43. L. 21.4 cm, W. 1.0 cm; material –? (Fig. 29:2).

Remarks: Point A dated to 10500-10100 BP based on palynological analyses..

Source: H. Gross 1938, p. 111; 1939-1940, p. 43; R.K. Rimantėnė 1971, Fig. 142:2.

5. Babrinikai (Szeszupa River)

Harpoon of the Star Carr B type – item 18. L. 17.4 cm, material –? (Fig. 26:11).

Source: S.K. Kozłowski 1967, Pl. II:3; R.K. Rimantėnė 1971, Fig. 109:5.

6. Žurai-Gudalai

Double-slotted point, Menturren type (Clark's No. 21B) – item 44. L. 12.0 cm, W. 1.0 cm; material –? (Fig. 30:3).

Source: R.K. Rimantėnė 1971, Fig. 142:3.

7. Vilkaviškis (Polish Wyłkowyszki)

Single-barbed harpoon, Gniewino type (Clark's No. 5) – item 15. L. 19.6 cm, material –? (Fig. 27:3).

Source: J. Antoniewicz 1928, Pl. IV:3; R.K. Rimantėnė 1971, Fig. 109:7.

8. Kamšai (Kirsna River)

Fragment of a harpoon (lower part missing) with a row of well distinguished convex barbs. Nearest to specimens of the Star Carr A type (item 17). L. 21.6 cm, material –? (Fig. 17:7).

Source: S.K. Kozłowski 1967, Pl. III:5; R.K. Rimantėnė 1971, Fig. 100:3.

9. Gulbiniškai

Double-slotted point, Menturren type (Clark's No. 21B) – item 44. L. 13.6 cm, W. 1.1 cm; material –? (Fig. 30:2).

Source: R.K. Rimantėnė 1971, Fig. 142:4.

10. Balsupiai

A. Plain point of circular section, squat, fusiform – item 6. L. 16,8 cm, W. 2.1 cm; material –? (Fig. 16:1).

B. Fragment of a Kunda-type point (Clark's No. 6) – item 10. L. 12,6 cm, material –? (Fig. 26:5).

C. Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A) and convex, angular barbs (Nos 3b and 7a) – mixed traits typical of the Wojnowo and Waż types – items 24 and 25. L. 9.6 cm, W. shaft 0.7 cm, oval section; material – moose antler (Fig. 20:5).

Source: J. Antoniewicz 1928, Pl. IV: 4; R.K. Rimantėnė 1971, Fig. 100:2; Fig. 101:1; Fig. 109:3.

11. Budwiećai (Polish Potwiecie)

Double-slotted point, Menturren type (Clark's No. 21B) – item 44. L. 20.7 cm, W. 1.4 cm; material – bone of large ruminant (deer, moose or auroch). Flint inserts made of bladelets of the Borki type (Fig. 30:1). Source: L. Kozłowski 1926, Fig. 5:12; B. Drobniwicz, M. Zajac 1998, Pl. I, IV.

12. Rudninkai

Single-row harpoon with partly distinguished shaft, hooked, indented base, arched and arched-and-convex barbs (Nos 3a; 3c), short and long – atypical, probably repaired. L. 20.0 cm, W. shaft 0.9 cm; material – moose antler (Fig. 20:7). Objects dated to the Preboreal period (birch-pine phase) on the grounds of palynological analysis.

Source: R.K. Rimantėnė 1971, p. 113, Fig. 100:1.

13. Vaikantonis

Single-slotted point, Zinten type (Clark's No. 21A) – item 43. L. 24.2 cm, W. 1.0 cm; material – ? (Fig. 29:1). Source: R.K. Rimantėnė 1971, Fig. 142:1.

14. Margai (Polish Morgi)

Fragment of a Dobbertin-type point (Clark's No. 4) – item 9. L. 12.5 cm, material – ? (Fig. 26:1).

Source: L. Kozłowski 1926, Fig. 5:6.

Remarks: Fragment of bone point published by R.K. Rimantėnė (1971, Fig. 109:2) appears of similar overall shape despite barbs being cut differently, which suggests a Kunda-type point (Fig. 26:6).

15. Karaviškes

Point of the Pritzerbe type (Clark's No. 8) – item 13. L. 22.2 cm, material – ? (Fig. 26:10).

Source: R.K. Rimantėnė 1971, Fig. 109:6.

RUSSIAN FEDERATION, Kaliningrad Region (formerly Prussia)**16. Environs of former Gumbinnen (Polish Gąbin; Russian Gusiev)**

A. Conical point of the Shigirian type (Clark's No. 16) – item 39. L. 14.8 cm, material – ? (Fig. 23:6).

Source: W. Gaerte 1927a, Taf. 206:k.

17. Former Gumbinnen (Polish Gąbin; Russian Gusiev)

A. Plain point of circular section and short tanged basal part – item 4. L. 30.0 cm, W. 2.5 cm; material

– moose bone (Fig. 15:1). Find dated to 11000-10500 BP based on the results of palynological analysis.

B. Double-slotted point, Menturren type (Clark's No. 21B) – item 44. No further data.

Source: H. Gross 1937, Abb. 1; 1938, p. 96-102, Abb. 7; 1939-1940, p. 43, 55, Abb. 2a; (A); C. Engel 1935, p. 298; (B).

18. Former Judtschen (Russian Viesiolovka)

Single-row harpoon (probably Clark's No. 12A). No further data.

Source: C. Engel 1935, p. 299.

19. Former Schröterlauken Gut

Single-slotted point, Zinten type (Clark's No. 21A) – item 43. No further data.

Source: C. Engel 1935, p. 298.

20. Former Schorschienen (Russian Malinovka)

Point of the Kunda type (Clark's No. 6) – item 10. L. 18.7 cm, material – ? (Fig. 26:3).

Source: W. Gaerte 1927a, Taf. 206:g; 1929, Abb. 5b.

Remarks: Provenance in some publications (e.g. J.G.D. Clark 1936, p.120) given as Schirgupönen after W. Gaerte (1927a), but revised by this author in his next publication as Schorschienen (W. Gaerte 1929).

21. Former Tublauken- Gut. Schweizersfelde (Russian Rabotkino)

Point of the Kunda type (Clark's No. 6) – item 10. L. approximately 21.0 cm, material – ? (Fig. 26:4).

Source: C. Engel 1935, p. 298; R. Indreko 1948, Abb. 60:7.

22. Former Perkallen

Single-slotted point, Zinten type (Clark's No. 21A) – item 43. L. 18.1 cm, W. 1.3 cm; material – ? (Fig. 29:5).

Source: W. Gaerte 1929, Abb. 5:d.

23. Former Schirgupönen (Russian Podgorovka)

A. Point of triangular section (Clark's No. 13) – item 38. L. 28.5 cm, tanged base; material – reindeer bone. Rich engraved spiral ornament (Fig. 22:3).

Source: W. Gaerte 1927a, Taf. 206:c; 1929, Abb. 4:g.

24. Former Zedmar A (Russian Serovo)

A. Plain point of circular section, fusiform – item 6. L. 13.0 cm, W. 1.2 cm, base cut on one side at oblique angle; material – ? (Fig. 16:3).

B. Single-barbed harpoon, Gniewino type (Clark's No. 5) – item 15. L. 16.8 cm, material – ? (Fig. 27:1).

C. Harpoon as above. L. 10.6 cm, material – ? (Fig. 27:2).

D. Double-barbed harpoon, Mullerup type (Clark's No. 7) – item 16. L. 18.1 cm, material – ? (Fig. 28:4).

E. Conical point of the Shigirian type (Clark's No. 16) – item 39. L. 10.2 cm, material – ? (Fig. 23:10).

F. Conical point as above. L. 12.5 cm, material – ? (Fig. 23:11).

Remarks: Objects dated to the turn of the Boreal and Atlantic periods based on palynological analyses.

Source: W. Gaerte 1929, Abb. 5A:3; H. Gross 1939, p. 101-168; R. Indreko 1948, Abb. 13:c-g; J. Okulicz 1973, Fig. 20:a-c; Fig. 21:f-g.

25. Former Pogrimmen (Russian Pskovskoje)

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Kozuchy type variant – item 23. L. 13.5 cm, W. shaft 1.2 cm, flattened section; material – moose bone (Fig. 20:9).

Source: C. Engel 1935, p. 299; H. Gross 1939-1940, p. 46, Abb. 5:f.

26. Former Menturren (Russian Elovka)

A. Double-slotted point with flint inserts (Clark's No. 21B) – item 44. L. 18.0 cm, W. 1.0 cm; material – ? (Fig. 30:4).

B. Point as above. L. 17.7 cm, W. 1.0 cm; material – ? (Fig. 30:7).

Remarks: Point A dated to the first half of the Boreal period based on palynological analysis.

Source: C. Engel 1935, p. 298, Taf. 16B:a; H. Gross 1938, p. 84-139, Abb. 3.

27. Former Zinten (Russian Kornievo)

A. Plain point of circular section, Bonin type – item 1. L. 11.3 cm, W. 0.9 cm; material – ? (Fig. 25:6).

B. Single-slotted point with flint insert (Clark's No. 21A) – item 43. L. 18.3 cm, W. 1.0 cm; material – ? (Fig. 29:6).

Remarks: Palynological dating of the objects to 7500-6000 BP.

Source: H. Gross 1941, p. 35, Abb. 2:a-b.

28. Former Penken (Russian Podgornoje)

A. Streamlined single-row harpoon, shuttle-shaped, no shaft distinguished, long triangular barbs, close to the body (No. 2a); asymmetric, hooked base correlated with the line of the barbs – Item 21. L. 27.0 cm, material – ? (Fig. 17:6).

B. Single-slotted point, Zinten type (Clark's No. 21A) – item 43. No further data.

Source: W. Gaerte 1927a, Taf. 206:b; 1929, Abb. 5:a; (A); C. Engel 1935, p. 298; (B).

29. Former Pobethen (Russian Romanovo)

A. Conical point of the Shigirian type (Clark's No. 16) – item 39. L. 14.8 cm, material ? (Fig. 23:5).

B. Fragment of a Shigirian point. L. 8.0 cm, material – ? (Fig. 23:9).

Source: W. Gaerte 1929, Abb. 4:h (A); C. Engel 1935, Taf. 16B:b (B).

Remarks: W. Gaerte published point A as coming from the environs of Braniewo (“bei Braunsberg”) and was cited with regard to this by, e.g., J. Okulicz 1973, Fig. 24:f. In his 1935 study, C. Engel (p. 298) described Gaerte's identification of the provenance as faulty and determined that the object came from Pobethen. He published, however, a different Shigirian point (B), whereas his list of localities with finds indicated only one Shigirian point as coming from Pobethen. Consequently, it is not to be ascertained, which one he had in mind.

30. Former Pentekinnen

Shovel-shaped (lanceolate) point, broadening symmetrically (Clark's No. 17) – item 40. L. 28.0 cm, W. blade 2.3 cm, W. tang 1.0 cm; material – reindeer antlers (Fig. 23:1).

Source: W. Gaerte 1927a, Taf. 206: d; 1929, Abb. 4:e; J.G.D. Clark, 1936, Fig. 44:9; H. Gross 1939-1940, p. 45, Abb. 3:f.

31. Former Palmnicken (Russian Jantarnyj)

Harpoon with distinguished shaft and single barb – item 29. L. 14.3 cm, W. shaft 1.2 cm, oval section; material – moose bone (Fig. 19:4).

Source: W. Gaerte 1927a, Taf. 206:h; 1929, Abb. 5A:1; H. Gross 1939-1940, p. 46, Abb. 5:d.

32. Former Rantau (rup. Zaostrovie)

Point of triangular section (Clark's No. 13) – item 38. No further data.

Source: C. Engel 1935, p. 299.

33. Former Cranz (Russian Zelenogradsk)

Point of triangular section (Clark's No. 13) – item 38. L. 27.5 cm, W. 1.3 cm, tanged base; material – reindeer bone (Fig. 22:2).

Source: C. Engel 1935, p. 299, Taf. 16B:e.

34. Former Drusken

Point of triangular section (Clark's No. 13) – item 38. L. 15.0 cm, W. 2.1 cm, tanged base; material – moose bone (Fig. 22:6).

Dated to the Allerød on the grounds of a palynological analysis.

Source: H. Gross 1943, Abb. 1.

No number. From former Eastern Prussia

A. Single-slotted point, Zinten type (Clark's No. 21A) – item 43. No further data.

B. Double-slotted point, Menturren type (Clark's No. 21B) – item 44. No further data.

Source: C. Engel 1935, p. 298.

POLAND**35. Wobaly, Warmińsko-mazurskie province** (German Pabbeln)

A. Single-slotted point, Zinten type (Clark's No. 21A) – item 43. No further data.

B. Kunda-type point (Clark's No. 6) – item 10. No further data.

Source: C. Engel 1935, p. 298.

36. Ruska Wieś, Warmińsko-mazurskie province (German Reussen)

Point of triangular section (Clark's No. 13) – item 38. No further data.

Source: C. Engel 1935, p. 299.

37. Świdry, Warmińsko-mazurskie province (German Schwiddern)

Plain point of triangular section, Bonin type – item 1. L. 11.5 cm, W. 1.1 cm; material – ? (Fig. 16:4).

Source: W. Gaerte 1929, Abb. 4:b.

38. Soldany, Warmińsko-mazurskie province

Single-row harpoon with distinguished shaft (Clark's No. 12A), Wąż type variant – item 25. L. 21.5 cm, W. shaft – 1.1 cm, oval section; material – reindeer bone (Fig. 19:7).

Source: District Museum in Olsztyn, Inv. No. 886.

39. Krukliński Canal (Kruklin), Warmińsko-mazurskie province (German Krucklin-Kanal)

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Wojnowo type variant – item 24. L. 18.3 cm, W. shaft 1.1 cm, oval section; material – reindeer bone (Fig. 20:3).

Source: H. Gross 1939-1940, p. 46, Abb. 5:a.

40. Upalty, Warmińsko-mazurskie province (German Upalten)

A. Plain point of circular section, Nowe Juchy type – item 3. No further data.

B. Conical point of the Shigirian type (Clark's No. 16) – item 39. No further data.

C. single-slotted point, Zinten type (Clark's No. 21A) – item 43. L. 20.5 cm, W. 1.0 cm; material – ? (Fig. 29:4).

Source: C. Engel 1935, p. 298-299 (A-C); A. Gardawski, J. Gąsowski 1961, Fig. on p. 17 (C); S.K. Kozłowski 1967, Pl. V:6 (C).

41. Nowe Juchy, Warmińsko-mazurskie province (German Neu-Jucha)

A. Plain point of circular section with basal part truncated from both sides – item 3. L. 27.0 cm, W. 1.4 cm; material reindeer bone. Ornament consisting of rows of short horizontal dashes (Fig. 15:3).

B. Single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny-Rękawczyn type variant – item 26. L. 24.5 cm, W. shaft 0.8 cm, oval section; material – reindeer bone (Fig. 18:1).

Source: W. Gaerte 1927a, Taf. 206:a (B); C. Engel 1935, p. 299, Abb. 16B:d, f (A-B); H. Gross 1939-1940, p. 46, Abb. 2:d; Abb. 5:c (A-B).

42. Staświny, Warmińsko-mazurskie province (German Eisermühl)

A. Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A) and bowed and angular barbs (Nos 3a and 7a) – mixed features typical of the Wojnowo and Wąż types – items 24 and 25, probably reworked. L. 12.0 cm, W. shaft 0.9 cm, rectangular section; material – moose bone (Fig. 20:4).

B. Single-row harpoon with distinguished shaft (Clark's No. 12A), Wąż type variant – item 25. L. 23.0 cm, W. shaft 1.2 cm, flattened section; material – reindeer antler (Fig. 19:6).

Source: H. Gross 1939-1940, p. 46-47, Abb. 5:e; A. Gardawski, J. Gąsowski 1961, p. 17.

43. Niegocin, Warmińsko-mazurskie province

Point of triangular section (Clark's No. 13) – item 38. L. 16.0 cm, W. 1.0 cm, tanged basal section; material – ? (Fig. 22:5).

Source: J.K. Kozłowski, S.K. Kozłowski 1977, Pl. 67:9.

44. Kleszczewo, Warmińsko-mazurskie province
(German Kleszewen)

Point of triangular section (Clark's No. 13) – item 38.
No further data.

Source: C. Engel 1935, p. 299.

45. Jezioro Wąż (Cierzpięty), Warmińsko-mazurskie province
(German Wonsz-See)

A. Plain point of flattened circular section, fusiform – item 6. L. 17.3 cm, W. 1.8 cm; material – reindeer bone. Herringbone pattern (Fig. 16:7).

B. Plain point of circular section with basal section truncated from both sides, Nowe Juchy type – item 3. L. 22.5 cm, W. 1.3 cm; material – reindeer bone (Fig. 15:2).

C. Point as above. L. 19.8 cm, material – reindeer bone.

D. Single-row harpoon with distinguished shaft (Clark's No. 12A), sharp, bowed and convex, projecting barbs – item 25. L. 20.0 cm, W. shaft 1.1 cm, oval section; material – reindeer bone (Fig. 19:5).

Source: W. Gaerte 1927b, Abb. 1:b; 1929, Abb. 4:a; Abb. 5:f; H. Gross 1939-1940, p. 46, Abb. 2:c; Abb. 2:g; Abb. 5:b.

46. Dudka, Warmińsko-mazurskie province

A. Fragment of a point of circular section, Bonin type – item 1.

B. Two fragments of a Kunda-type point or points (Clark's No. 6) – item 10.

C. Fragment of a single-slotted point, Zinten type (Clark's No. 21A) – item 42.

Source: J. Fiedorczuk 1995, Fig. 5:a-b, h-i.

47. Orzysz, Warmińsko-mazurskie province
(German Arys-See)

A. Plain points of circular section, fusiform – item 6. L. 15.0 cm, W. 1.7 cm; material – ? (Fig. 16:5).

B. Almost complete (missing base) single-row harpoon with distinguished shaft (Clark's No. 12A), Wojnowo type variant – item 24. L. 17.0 cm, W. shaft 1.1 cm, rectangular section; material – reindeer bone. Ornament consisting of vertical straight and arched lines (Fig. 20:2).

Source: W. Gaerte 1927a, Taf. 206:i; 1929, Abb. 4:c; H. Gross 1939-1940, p. 46, Abb. 4:b (B).

48. Kozuchy, Warmińsko-mazurskie province
(German Kosuchen)

A. Double-slotted point, Menturren type (Clark's No. 21B) – item 44. L. 16.4 cm, W. 1.1 cm; material – ? (Fig. 30:5).

B. Single-row harpoon with distinguished shaft (Clark's No. 12A), long, angular, dropping barbs – item 23. L. 13.3 cm, W. shaft 0.9 cm, oval section; material – reindeer bone (Fig. 20:8).

Source: W. Gaerte 1927a, Taf. 206:l; 1929, Abb. 5:c; H. Gross 1939-1940, p. 46, Abb. 4:c (B).

49. Biała Piska, Warmińsko-mazurskie province
(German Biälla)

Single-slotted point, Zinten type (Clark's No. 21A) – item 43. No further data.

Source: C. Engel 1935, p. 298.

50. Jegliny, Warmińsko-mazurskie province
(German Jeglinnen)

A. Plain point of circular section, Bonin type – item 1. L. 11.8 cm, W. 1.1 cm; material – reindeer bone (Fig. 16:8).

B. Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Wojnowo type variant – item 24. L. 14.4 cm, W. shaft 1.0 cm, flattened section; material – reindeer bone. Zigzag ornament (Fig. 20:6).

C. Single-slotted point, Zinten type (Clark's No. 21A) – item 42. No further data.

Source: C. Engel 1935, p. 298 (C); H. Gross 1939-1940, p. 46, Abb. 2:e; Abb. 4:a (A-B).

51. Wojnowo, Warmińsko-mazurskie province
(German Eckertsdorf)

Single-row harpoon with distinguished shaft (Clark's No. 12A), wide angular barbs, bent in at about mid-length – item 24. L. 22.8 cm, W. shaft 0.9 cm, rectangular section; material – reindeer antler (Fig. 20:1). Dated to 10500-10100 BP on the grounds of palynological analyses.

Source: H. Gross 1939-1940, p. 44, 55, Abb. 4:e.

52. Piecki, Warmińsko-mazurskie province
(German Peitschendorf)

A. Shovel-shaped point, Pentekinnen type (Clark's No. 17) – item 40. L. 27.5 cm, W. blade 2.0 cm, W. tang 1.1 cm, tang part cut; material – moose bone. Rich engraved ornament consisting of different patterns (Fig. 23:2).

B. Fragment (basal section missing) of a single-row harpoon, Törning type (Clark's No. 9) – item 19. L. 19.5 cm, material – reindeer antler (Fig. 17:3).

Source: W. Gaerte 1927a, Taf. 206:f; 1929, Abb. 4:f; J.G.D. Clark 1936, Fig. 44:7; H. Gross 1939-1940, p. 45, Abb. 3:g; Abb. 4:d.

- 53. Ryn, Warmińsko-mazurskie province** (German Rhein)
Point of triangular section (Clark's No. 13) – item 38. No further data.
Source: C. Engel 1935, p. 299.
- 54. Wola, Warmińsko-mazurskie province** (German Dürwangen)
Double-slotted point, Menturren type (Clark's No. 21B) – item 44. L. 20.0 cm, W. 1.2 cm; material – ? (Fig. 30:8).
Source: W. Gaerte 1927b, Abb. 1:c.
- 55. Worplawki, Warmińsko-mazurskie province** (German Worplack)
Double-slotted point, Menturren type (Clark's No. 21B) – item 44; 2 pieces. No further data.
Source: C. Engel 1935, p. 298.
- 56. Kinwągi, Warmińsko-mazurskie province** (German Kinwangen)
Single-slotted point, Zinten type (Clark's No. 21A) – item 43. No further data.
Source: C. Engel 1935, p. 298.
- 57. Piersele, Warmińsko-mazurskie province** (German Perscheln)
Plain point of circular section, basal part truncated from two sides, Nowe Juchy type – item 3. L. 27.5 cm, W. 1.1 cm; material – moose bone (Fig. 15:4).
Source: H. Gross 1939-1940, p. 46, Abb. 2:f.
- 58. Pluty, Warmińsko-mazurskie province** (German Plauten)
Points of triangular section (Clark's No. 13) – item 38; 3 pieces. No further data.
Source: C. Engel 1935, p. 299.
- 59. Stega Wielka, Warmińsko-mazurskie province** (German Gr. Steegen)
Shovel-shaped point, Pentekinnen type (Clark's No. 17) – item 40; atypical, furnished with very small blade. L. 30.0 cm, W. blade 1.0 cm, W. tang 1.1 cm, basal part truncated; material – reindeer bone (Fig. 23:4).
Source: W. Gaerte 1927a, Taf. 206:e; 1929, Abb. 4:d; H. Gross 1939-1940, p. 44, Abb. 3:6.
- 60. Strzyżewo, Warmińsko-mazurskie province** (German Streitswalde)
Point of triangular section (Clark's No. 13) – item 38. No further data.
Source: C. Engel 1935, p. 299.
- 61. Tolkmicko, Warmińsko-mazurskie province** (German Tolkemit)
Fragment of a double-row harpoon with distinguished shaft (Clark's No. 12B), massive, sharp, projecting barbs, slightly bowed and convex – item 35. Preserved L. 9.6 cm, W. shaft 1.3 cm, oval section; material – moose bone ? (Fig. 21:3).
Source: W. Gaerte 1929, Abb. 5A:2.
- 62. Surbajny, Warmińsko-mazurskie province** (German Sorbehnen)
Fragment (no base) of a single-row harpoon with distinguished shaft (Clark's No. 12A), massive triangular projecting barbs – item 26. L. 14.7 cm, W. shaft 1.0 cm, oval section; material – ? (Fig. 19:1).
Source: A. Lissauer 1887, Taf. II:11.
- 63. Łęgno, Warmińsko-mazurskie province** (German Lingenu)
A. Single-row harpoon with distinguished shaft (Clark's No. 12A), Rękawczyn type variant – item 26. L. 17.7 cm, W. shaft 0.8 cm, oval section; material – moose bone. Ornament consisting of a row of short horizontal dashes (Fig. 18:2). Dated to 9000 BP on the grounds of palynological analysis.
B. Single-row harpoon, Törning type (Clark's No. 9) – item 19. L. 16.0 cm, material – ? (Fig. 17:2).
Source: W. Gaerte 1929, Abb. 5:e; H. Gross 1939-1940, p. 46, 55, Abb. 4:f.
- 64. Tłokowo, Warmińsko-mazurskie province**
Double-slotted point, Menturren type (Clark's No. 21B) – item 44. L. 18.6 cm, W. 1.3 cm; material – deer or moose bone (Fig. 30:6).
Source: Z. Sulgostowska, M. Hoffmann 1993, Fig. 2; Muzeum Warmii i Mazur in Olsztyn, Inv. No. 1730.
- 65. Koszajny, Warmińsko-mazurskie province** (German Koschainen)
Shovel-shaped point, Pentekinnen type (Clark's No. 17) – item 40. L. 22.0 cm, W. blade 2.0 cm, W. tang 1.1 cm, basal part truncated; material – reindeer bone ? (Fig. 23:3).
Source: W. La Baume 1942, Abb. 1.

66. Międzychód, Warmińsko-mazurskie province
(German Mitteldorf)

A. Plain point of circular section with base truncated on one side – item 2. Tip broken, preserved L. 16.0 cm, W. 1.0 cm; material – ? (Fig. 15:8).

B. Fragment (no base) of a single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny-Rękawczyn type variant – item 26. L. 14.0 cm, W. shaft 0.9 cm, flattened section; material – reindeer antler (Fig. 19:2).

Source: W. La Baume 1942, Abb. 2-3.

67. Ostrowo, Warmińsko-mazurskie province

A. Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny-Rękawczyn type variant – item 26. L. 7.2 cm, W. shaft 0.9 cm, oval section; material – reindeer antler? (Fig. 19:8).

B. Single-barbed harpoon, Gniewino type (Clark's No. 5) – item 15. L. 19.9 cm; material – moose or deer bone (Fig. 27:9).

Source: J. Sobieraj, D. Makowiecki 1998, Fig. 2-4; Muzeum Warmii i Mazur in Olsztyn, Inv. No. 1857.

68. Książki, Kujawsko-pomorskie province (German Hohenkirch)

Conical point of the Shigirian type (Clark's No. 16) – item 39. L. 17.7 cm, material – ? (Fig. 23:7).

Source: W. La Baume 1938, Abb. 1:b.

69. Łukomie-Kolonia, Mazowieckie province

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny-Rękawczyn type variant – item 26. L. 7.4 cm, W. shaft 0.7 cm, oval flattened section; material – reindeer antler. Herringbone ornament (Fig. 18:6).

Source: B. Ginter, Z. Woźniak 1969, Fig. 1.

70. Rękawczyn, Mazowieckie province

Single-row harpoon with distinguished shaft (Clark's No. 12A), massive projecting barbs with slightly bowed upper line – item 26. L. 14.5 cm, W. shaft 0.9 cm, rectangular section; material – reindeer antler. Zigzag ornament and short horizontal dashes (Fig. 18:5).

Source: Muzeum Mazowieckie in Płock, Inw. No. A/2; J. Antoniewicz 1953, Fig. 2.

71. Suraż, Podlaskie province

Harpoon of the Mullerup type (Clark's No. 7) – item 16. L. 20.0 cm, material – deer bone (Fig. 28:6).

Source: D. Jaskanis 1968, Fig. 2.

72. Witów, Łódzkie province

Plain point of circular section, basal part truncated from both sides, Nowe Juchy type – item 3; 4 pieces.

A. L. 21.5 cm, W. 1.2 cm; material – reindeer bone. Broken tip (Fig. 15:6).

B. L. 23.0 cm, W. 1.2 cm; material – reindeer bone (Fig. 15:7).

C-D. No data.

Source: A. Koszańska 1947, Fig. 3-4; M. Chmielewska 1978, Fig. 20 (B).

73. Marzenin, Wielkopolskie province

Point of triangular section (Clark's No. 13) – item 38. L. 27.7 cm, W. 1.6 cm, tanged basal part; material – ? (Fig. 22:1).

Source: M. Schultze 1914, Fig. 1 (2083); L. Kozłowski 1919, Pl. I:10.

74. Lachmirowice, Kujawsko-pomorskie province

Double-row harpoon with distinguished shaft (Clark's No. 12B), projecting, convex and rhomboidal barbs, fairly small ad dense – item 36. L. 23.0 cm, W. shaft 1.1 cm, oval section; material – ? (Fig. 21:2).

Source: M. Schultze 1914, Fig. 3 (1428); L. Kozłowski 1919, Pl. I:3.

75. Jezioro Wiecanowskie, Kujawsko-pomorskie province

Single-barbed harpoon, Gniewino type (Clark's No. 5) – item 15. No further data.

Source: S.K. Kozłowski 1967, p. 254.

76. Biskupin, Kujawsko-pomorskie province

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny-Rękawczyn type variant – item 26. L. 9.7 cm, W. shaft 1.1 cm, flattened section; material – moose bone (Fig. 18:8).

Source: S. Jasnosz 1949, Fig. 1.

77. Ujście, Wielkopolskie province

Single-barbed harpoon, Gniewino type (Clark's No. 5) – item 15. No further data.

Source: S.K. Kozłowski 1967, p. 254.

78. Lisi Ogon, Kujawsko-pomorskie province (German Fuchsschwanz)

A. Point of triangular section (Clark's No. 13) – item 38. L. 23.1 cm, W. 1.1 cm; material – ? (Fig. 22:7).

B. Point as above. L. 13.9 cm, W. 1.2 cm; material – ? (Fig. 22:8).

C. Fragment of a point of triangular section. L. 12.8 cm, material – ? (Fig. 22:9).

D. Fragment of a point of triangular section. L. 8.9 m, material – ? (Fig. 22:10).

E. Single-row harpoon, Törning type (Clark's No. 9) – item 19. L. 19.5 cm, material – moose bone ? (Fig. 17:1).

Source: M. Schultze 1914, Fig. 1 (2263, 2024, 2023a, 2023b), Fig. 3 (919); L. Kozłowski 1919, Pl. I:5-9.

79. Osowa Góra, Kujawsko-pomorskie province (German Ossowoberg)

A. Single-barbed harpoons, Gniewino type (Clark's No. 5) – item 15; a few pieces. No further data.

B. Harpoon with two barbs, Mullerup type (Clark's No. 7) – item 16. L. 22.5 cm, material – deer bone (Fig. 28:5).

Source: M. Schultze 1914, Fig. 3 (449); L. Kozłowski 1919, Pl. I: 2; J.G.D. Clark 1936, p. 242.

80. Environs of Bydgoszcz, Kujawsko-pomorskie province

Almost complete single-row harpoon without distinguished shaft, but with distinct tang and shield-like base – atypical. Projecting sharp barbs, a little bowed and triangular in shape. Nearest to specimens of the Surbajny-Rękawczyn type variant. L. 21.9 cm, W. shaft 1.2 cm, oval section; material – reindeer antler (Fig. 17:8).

Source: M. Schultze 1914, Fig. 3: No. 1940; L. Kozłowski 1919, Pl. I:4.

81. Złotów, Wielkopolskie province (German Flatow)

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny type variant – item 26. L. 8.0 cm, W. shaft 1.1 cm, flattened section; material – reindeer bone. Rich zigzag and horizontal dash ornament (Fig. 19:3).

Source: O. Kleemann 1938, Abb. 2; J. Antoniewicz 1953, Fig. 1.

82. Wiele, Kujawsko-pomorskie province

A. Harpoon with single barb, Gniewino type (Clark's No. 5) – item 15. L. 21.5 cm, material – deer bone (Fig. 27:7).

B. Harpoon as above. L. 20.0 cm, material – deer bone (Fig. 27:8).

Source: W. Mroczyński, P.A. Olszewski 1995.

83. Obrowo, Kujawsko-pomorskie province

Plain point of circular section, fusiform – item 6. L. 11.0 cm, W. 1.3 cm; material – moose bone? (Fig. 16:6).

Source: O. Kleemann 1938, Taf. V:a.

84. From the Vistula near Chelmno, Kujawsko-pomorskie province

Harpoon with distinguished shaft and a single barb like the specimen from Stellmoor (Clark's No. 12A) – item 29. No further data.

Source: J. Kostrzewski 1972, p. 94.

85. Nowe, Kujawsko-pomorskie province

Harpoon with one barb, Gniewino type (Clark's No. 5) – item 15. No further data.

Source: S.K. Kozłowski 1967, p. 254.

86. Widno, Pomorskie province

Almost complete (basal part missing) plain point of circular section. L. 18.5 cm, W. 1.1 cm; material – moose bone. A series of short horizontal notches as ornament (Fig. 15:5).

Source: W. La Baume 1938, Abb. 1:a.

87. Koźliny, Pomorskie province (German Gütland)

Harpoon with two sharp, convex barbs and broad, pierced basal part. Praeostø type (item 54). L. 16.5 cm, material – deer bone ? (Fig. 31:2).

Source: W. La Baume 1938, Abb. 2.

88. Barniewice, Pomorskie province (German Barnewitz)

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Rękawczyn type variant – item 26. L. 12.8 cm, W. shaft 0.9 cm, rectangular section; material – moose bone (Fig. 18:4).

Source: H. Conwentz 1887, p. 11; 1905, Taf. 45:8; W. La Baume 1920, Abb. 6; J. Kostrzewski 1939-1948, Pl. 51:9.

89. Orle (Góra Orle), Pomorskie province (German Gohra Worle)

A. Plain points of circular section (Clark's No. 1); at least 7 pieces. Five examples published in more detail, all of the Bonin type; material – deer bone. No data on dimensions (Fig. 25:1-5).

B. Fragment of a point of the Dobbertin type (Clark's No. 4) – item 9. L. 11.1 cm, material – deer bone (Fig. 26:2).

C. Points of the Pritzerbe type (Clark's No. 8) – item 13; 3 pieces:

a) L. 16.8 cm, material – deer antler (Fig. 26:7);

b) L. 14.7 cm, material – ? (Fig. 26:8);

c) L. 20.9 cm, material – ? (Fig. 26:9).

D. Harpoon with one barb, Gniewino type (Clark's No. 5) – item 15. L. 20.4 cm, material – deer bone (Fig. 27:4).

E. Harpoons of the Star Carr B type – item 18; at least 2 pieces. No further data.

F. Streamlined single-row harpoon without distinguished shaft; projecting convex barbs, asymmetrical basal part, hooked, correlated with the line of barbs (Clark's No. 10) – item 20. L. 24.1 cm, material – moose or deer bone (Fig. 17:5).

G. Other points and harpoons not identified in detail, known only from poor photographic images. According to J.G.D. Clark (1936, p. 239) there were also points of the Kunda type (No. 6).

Palynological analysis has dated part of the finds from the peat bog at Orle (site near the former Góra Orle estate) to the first half of the Atlantic period.

Source: H. Conwentz 1906, p. 16, Fig. 2-3; 1908, p. 19, Fig. 6-7; 1909, p. 21-22, Fig. 2; 1910, p. 21-26; W. La Baume, K. Langenheim 1933, Taf. 4:d; W. La Baume 1938, Abb. 3:a-d; T. Dobrzyński 1937.

90. Krokowa, Pomorskie province (German Krockow)

Conical point of the Shigirian type (Clark's No. 16) – item 39. L. 18.7 cm, material – moose bone. Dashed spiral ornament (Fig. 23:8).

Source: W. La Baume 1938, Abb. 1:c.

91. Gniewino, Pomorskie province (German Gniewin)

A. Harpoon with one sharp projecting convex barb; oval-flat section (Clark's No. 5) – item 15. L. 17.8 cm, material – deer bone (Fig. 27:5).

B. Harpoon as above. L. 16.8 cm, material – deer bone (Fig. 27:6).

Source: MNS collection, Inv. No. A/22031 (A); M. Wehrmann 1889, Taf. IV: 1 (B).

92. Krępkowice, Pomorskie province (German Krampkowitz)

Fragment of a single-row harpoon with distinguished shaft (Clark's No. 12A), Surbajny-Rękawczyn type variant – item 26. L. 8.8 cm, W. shaft 0.9 cm, flattened section; material – ?. Ornament consisting of a row of short false notches (Fig. 18:7).

Source: A. Lissauer 1887, p. 47; S.K. Kozłowski 1977, Pl. I:5.

93. Duży Malsz Lake, Pomorskie province

Single-row harpoon without distinguished shaft, massive convex projecting barbs; indented basal part with natural hole. Atypical. L. 23.7 cm, material – deer bone (Fig. 31:3).

Source: MNS Archives, dossier No. 3131; copy in the collection of the MNS.

94. Barnowo, Pomorskie province (German Barnow)

Fragment (no base) of a single-row harpoon with distinguished shaft (Clark's No. 12A), Rękawczyn type variant – item 26. L. 15.8 cm, W. shaft 0.9 cm, oval section; material – moose antler (Fig. 18:3).

Source: H.J. Eggers, G. Giesen 1938, Taf. 10.

95. Kosierzewo, Zachodniopomorskie province (German Kusserow)

A. Plain point of circular section and flattened base, Bonin type – item 1. L. 19.7 cm, W. 0.9 cm; material – deer bone (Fig. 25:9).

B. Point as above. L. 18.0 cm, W. 0.8 cm; material – deer bone (Fig. 25:10).

Source: MNS Archives, dossier No. 1263; collection of the MNS, Inv. No. A/5882.

96. Bonin, Zachodniopomorskie province

A. Plain point of circular section – item 1. L. 15.5 cm, W. 0.8 cm; material – deer bone (Fig. 25:11).

Source: MNS Archives, dossier No. 585; O. Kunkel 1931, Taf. 3:7.

97. From the Baltic near Dziwnowo, Zachodniopomorskie province

Almost complete (no base) of a double-row harpoon with distinguished shaft (Clark's No. 12B), Gortz type variant – item 36. L. 23.5 cm, W. shaft 0.9 cm, oval section; material – moose antler (Fig. 21:1).

Source: Regional Museum in Wolin, Inv. No. A/109.

98. Sadłowo, Zachodniopomorskie province

Fragment of a point of triangular section (Clark's No. 13) – item 38. L. 12.0 cm, W. 1.2 cm; material – reindeer bone (Fig. 22:11).

Source: MNS Archives, dossier No. 1588.

99. Chabowo, Zachodniopomorskie province

Plain point of circular section and flattened base, Bonin type – item 1. L. 14.9 cm, W. 0.9 cm; material – deer or moose bone (Fig. 25:12).

Source: MNS Archives, dossier No. 1135.

100. Borzym, Zachodniopomorskie province

Plain point of circular section, Bonin type – item 1. L. 10.2 cm, W. 0.9 cm; material – ruminant bone: deer, moose or auroch (Fig. 25:13).

Source: MNS collection, Inv. No. A/5905.

101. Police, Zachodniopomorskie province (German Pölitz)

Spindly harpoon with one massive sharp and projecting barb and projections extending from a broad flattened base (Andersen's type C) – item 58. L. 25.8 cm, material – roe deer antler (Fig. 31:1).

Source: MNS collection, Inv. No. A/7355; MNS Archives, dossier No. 1690.

102. Bolków, Zachodniopomorskie province

A. Plain point of circular section, Bonin type – item 1. L. 16.6 cm, W. 1.0 cm; material – deer or moose bone (Fig. 25:7).

B. Fragment of a point of circular section. L. 8.0 cm, W. 0.9 cm; material – deer or moose bone (Fig. 25:8).

C. Fragment of a point as above. Preserved L. 4.5 cm; material – deer or moose bone.

D. Single-barbed harpoon, Gniewino type (Clark's No. 5) – item 15. L. 16.8 cm, W. 1.2 cm; material – deer or moose bone (Fig. 28:1).

E. Harpoon as above. L. 17.2 cm, W. 2.3 cm; material – deer or moose bone (Fig. 28:2).

F. Harpoon of the Mullerup type (Clark's No. 7) – item 16. L. 19.9 cm, W. 1.8 cm; material – deer or moose bone (Fig. 28:3).

G. Four small fragments of the tip part of indeterminate points, most probably plain points of the Bonin type (item 1).

All specimens dated on the grounds of palynological and C¹⁴ analyses to the Preboreal period.

Source: Collection and documentation of excavations in Bolków in 2010-2012 at IAiE PAN, Szczecin branch.

103. Węgliny, Lubuskie province

Single-row harpoon, Törning type (Clark's No. 9) – item 19. Approximately half preserved: L. 9.8 cm, W. shaft 0.7 cm, rectangular section with rounded corners; material – bone of deer or other ruminants (Fig. 17:4).

Source: G. Domański, J.M. Burdukiewicz 1994, Fig. 2.

LIST OF REFERENCES

Abbreviations

IAiE PAN – Institute of Archaeology and Ethnology,

Polish Academy of Sciences

MNK – National Museum in Copenhagen

MNS – National Museum in Szczecin

Amtlicher Bericht – Amtlicher Bericht über die Verwaltung der naturgeschichtlichen, vorgeschichtlichen und volkskundlichen Sammlungen des Westpreussisches Provinzial-Museums für Jahr ..., Danzig

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