The principal aim of this study is the analysis of tanged points of East European assemblages of Lyngby cultural affiliation. Traditionally, tanged points are used in archaeology of Paleolithic – Mesolithic epochs as a “fossil directors” for diagnostics of industrial complexes, as a background for distinguishing a relative chronology, for defining local cultural varieties and as principal means for constructing the interpretation models of human migrations, movements, mutual influences and contacts of ancient populations.

A methodological basis for the current study is the analysis of the projectile points in the Magdalenian-Mesolithic complexes of Subbalticum area, made by R. Rimantienė (Rimantienė 1978). Augmentation of new materials during the last two decade gives a possibility both for making the most detailed classification of tanged points and for developing the methodological principles of analysis according to R. Rimantienė approach.

Two kinds of typological may be distinguished in relation to the function of the supposed results. The first “self-valuable”, independent from the nature of problems for decision of which results of the analysis may be used. The maximum deliberated descriptive analysis with correlation of a number of attributes are principal methodological background for it. The basis of the second kind is the range of problems, the orientation on deciding of which limits a number of attributes estimated as significant for the concrete task. It is supposed in this case, that one set of morphological attributes of the typological group and one kind of its classification will be useful for deciding one set of problems, and another set of attributes and another kind of classification will be useful for other purposes. It appears to be possible that morphological attributes important for the problem of chronological seriation of materials would be irrelevant to the problem of distinguishing local cultural varieties.

The classification of R. Rimantienė belongs to the second group, based on orientation to resolution of concrete problems, in particular, the problems of cultural differentiation of archaeological records of the northwest of Eastern Europe in Final Palaeolithic – Mesolithic epoch.

Our classification is directed to the resolution of the same problem, it has the same methodical background of the analysis, and it seems to be appreciated as the augmentation of the approach of R. Rimantienė. The matter of our study is limited by analysis of projectile points from the assemblages of Lyngby cultural affiliation of the northern part of Eastern Europe in connection to new materials of tardi-glacial epoch discovered at Valdai Upland.
natural-scientific analysis related to chronological problems, at first palynological
data, have a principal meaning in this situation as a direct evidence of the real age
of archaeological sites.

The age of three sites of tanged point tradition were identified in the Upper
Volga region as related to Alleröd and Dryas-III period on the basis of pollen analysis.
These are: Poddol III/1, Poddol III/2 (Sinyutchna 1996), and Ust-Tudovka I (Kozlov
Krasnoe 1991), Materials of the Baranova Gora site (Sinyutchna 1996), Troitskoye 3
(Panteleev, Mikheev 1996), Lanpol I (Sinyutchna 1997) and Tioply Ruhej 2 (Koziyova
1994; Mirekji’s excavations, which materials are not published) are typologically
similar to them.

The fossil director for cultural identification of lithic assemblages for tardi-
postglacial epochs is the projectile points. Although general complex-statistical
characteristic of techno-typological parameters of industries have an important
meaning, the typology of projectile points remain the most important for cultural
diagnostics of archaeological materials.

Some techno-typological features are common for all varieties of Lyngby
cultural entity. First of all, use of hard hammer as a technological method for
production the large and relatively rough blades and flake-blades with well-
pronounced bulb. A tool-kit comprises large tanged points of Lyngby type, dilled
and retouched burlins, simple end-scrapers with the working edge of 60°.
Nevertheless, the basic criteria for the definition of cultural attribution of the industries
remains to be a particular kind of tanged point, which is used both for distinguishing
local variants and for distinguishing chronological sequences in cultural evolution.
As a particular type of projectile, Lyngby tanged point was described in
1936 by G. Clark (Clark 1936: 215) as a large point on rough blade with
pointed or semi-rectangular basal tang made by means of abrupt retouch, and a
point without ventral modifications.

B. Taute (Taute 1968) identified this type of projectiles in materials of Vilnius
site – the most eastern for that time point of distribution of Lyngby cultural tradition.
B. Taute distinguished the following varieties according to the size of items: 1) large
(5.5 cm in length and 1.7 cm in width) as a basic type; 2) narrow and long; 3) short,
with the length less than 5.5 cm. According to B. Taute, narrow and short varieties
are transitive to Ahrensburgian type of tanged point.

R. Rimantiene (Rimantiene 1971; 1978) made classification of tanged projectiles
of the so-called Magdalenian Subbaltic group of sites. Cultural complexes origin
of which was related to derivatives of Late Magdalenian of Western Europe were
incorporated in this entity. Assemblages referred to this culture, are distinguished
on the background of large points on blade or flake-blade, the length of which exceeds
the width no less than at 3 times. R. Rimantiene (Rimantiene 1978) distinguished
5 groups of tanged projectiles, the second among which was the “breadth-leaf”, or
Subbaltic Magdalenian set of types. Inside this group five types were identified:
- type 1: symmetric points. The tip sometimes may be displaced at one
side. Tang of tools of this group is wide, a bit narrower than point; the bulb is well-
distinguished. Initial Bromme-Lyngby complexes share the most close analogies
to them. R. Rimantiene supposed there to be two lines of evolutions in the
development of this group: basic and hybrid. The basic group has all attributes
considered above, but point may be both retouched and without retouch; a
distinctive attribute of points of a hybrid line is the ventral retouch on the tang, that
was the evidence of swiderian influence;
– type 2: projectiles of the same morphological feature but with pointed tang.
The most important feature of this type is the sharp contact of the tang and the
point. In most cases the retouch is dorsal, seldom ventral. The bulb frequently
is destroyed by formation of the tang. Two lines of evolution (also basic and hybrid)
are distinguished for this type. Projectiles of the basic have a tang made by dorsal,
bifacial and ventral retouch. The tip of point often also has a retouch. Tanged points of
a hybrid line (Chval'bovsky type according to L. Savicky) have a wide spread in
archaeological materials of the Baltic area. The principal diagnostic feature of them is
the ventral retouch of swiderian type on the tang. The tip is also usually retouched,
sometimes on one side only, that makes the point asymmetrical;
– type 3: points with a large tang made by a side notch at the base. According
to R. Rimantene this type sporadically appeared after the extinction of Hanseburgian
culture. Two lines of evolution are characteristic of this type;
– type 4: epimedieval points. They are usually small, with a tang made by
irregular retouches. They occur only in late mesolithic and neolithic assemblages;
– type 5: lanceolate points.
Typological classification of Lyngby points for Pomerania was made by Z. Bag-
niewski (Bagniewski 1999: 139). Seven types of projectiles were distinguished on
the basis of size, degree of symmetry of the blank, form of the tang, and a type of
the secondary modification.
A. Fischer (Fischer 1985) indicates the following diagnostic features of
Bromme tanged points:
1) retouch on both edges of the tang and any retouch of the point should be
carried out from the bulb-side of the flake;
2) the shortest tang retouch should be longer than the longest tang retouch
divided by 1.5 (X>Y/1.5);
3) the length should be equal to or larger than double shortest tang retouch,
equal to or smaller than four times shortest tang retouch (2x ≤ L ≤ 4x);
4) the flake used for marking the tanged point should not have been struck
off with a "soft" percussion implement;
5) if it cannot be shown that the flake was removed by using a "hard" hammer
the length should be at least 8.0 cm, or the width should be at least 2.2 cm, or the
weight should be at least 6.5 grammes. If the flake has definitely been struck off
with a "hard" hammer then the length need only be at least 6.0 cm (L = 6.0 cm).
The matter of the current study is the typological analysis of Lingby tanged
points from the Final Palaeolithic sites of Upper Volga area, the age of which was
distinguished by the evidences of palynological analysis. These are: Podol III/1
(excavated area 1), Podol III/2 (excavated area 2), Us' Tudovka I, and points of
the same typological attribution from the neighboring areas (Table 1).
According to E. A. Spirdonova (Spirdonova, Aleshkina 1996; Sinyshyna
and dr., 1997) the chronological framework of the fossil soil with cultural layer of
Lyngby attribution at Podol III is distinguished by Alleröd period, namely by its terminal
stage. The excavations provided the following number of Lyngby tanged points:
– Podol III/1: 5 intact, 3 fragments (Fig. 2: 1, 2, 6, 7, 11);
– Podol III/2: 4 intact, 11 fragments (Fig. 2: 4, 10, 13, 15) (one of them has a
sloped edge).

Fig. 2. Tanged points. 1–15 – Podol III/1–2; 16 – Troitskoe 3; 17–18 – Vyshegora 1.

According to quantitative meanings, the most diagnostic attribute for types
definition appears to be the size of the blank.
All tanged points of Podol III/1 and Podol III/2 are made on rough blades,
removed by means of hard hammer. Length of points varies within the framework
of 6–8 cm. Retouch does not change the size of the blank. According to these
parametric criteria tanged points of these two sites are identical to points of classic
Bromme assemblages.

Typological configurations of both sites also share a close similarity.
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**Denmark (Ahrensburgian) according to Petersen, Johansen, 1991:**

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**Upper Volga (Ust' Tudovka 1 according to Zhilin, Kravtsov, 1991:**

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The following varieties of tangled points of Lignby morphology are distinguished in assemblages of Podolskia culture:

- **type 1.** Points with the asymmetric tip. The contact of large tang and leaf is sharp. The sides of the blank, as a rule, are not modified. Classical Bromme-Lyngby projectiles are direct analogues of this type (Fig. 2: 1). 7 points represent this group: one non-finished, two fragments from Podol III/2 (Fig. 2: 3, 4, 5), fragments of two tongs from the dwelling from Podol III/1 and from a hole from Podol III/2. A point from a dwelling, with the distal edge truncated by ventral retouch can be considered a variant of this type (Fig. 2: 2). One point from Trolskoe 3 may be put in relation to this type as a variety or as an atypical form (Fig. 2: 16).

- **type 2.** Is represented by two intact symmetric projections with the pointed tang (Fig. 2: 7) from the site Podol III/1, and, also, by one intact point and two fragments of tang from Podol III/2. One of them is a bit smaller than others (the Fig. 2: 8), it is usually related to a high degree of utilization of raw material. According to B. Madsen (Madsen 1996: 67), the extraction of massive blades is necessarily accompanied by turn out of a number of fine "wast blades" and some micro-blades, which seldom are used in the manufacture of tools. The point from Podol III/1 is made on a similar blank. Two tang fragments of the points of this type provided the site Podol III/2 (Fig. 2: 6, 9); the intact point from this site has restricted bulb, destroyed by removals, directed from the striking platform (Fig. 2: 10);

- **type 3.** Is represented by one point (Fig. 2: 11) with the sloped tip. According to the size, proportion and the character of a break it has a direct analogy in a tool-kit of the classical Bromme site Ullerslev (Petersen, Johansen 1996: 88, Fig. 12-e) in southern Denmark. The point from Podol III/1 is 5 mm shorter than the last;

- **type 4.** Is represented by the broken asymmetric point with the right lateral back made by abrupt opposite retouch. The analogies for this type are well known.
from Neinigen site in northern Germany (Terberger 1996: 117). B. Taure (Taute 1968) had separated classical Bromme group (Denmark, southern Sweden, Schleswig-Holstein) and southern group (northern Germany). For the former, the coexistence of two cultural traditions — Bromme and Federmesser — was established. On the background of this, southern direction of distribution (migration) of the population of Bromme culture in Allerød time was reconstructed. It seems to be quite possible, that such important morphological element as continuous back, formatted by abrupt opposite retouche, is reflection of contacts or overlapping of these two cultural traditions. The point from Polend III/2 was renewed by means of burin spill (Fig. 2: 12). Similar morphological features have a point (Fig. 2: 13) provided from a hole at the same site Polend III/2; type 5. Points, according to their morphological features (Fig. 2: 14, 15), similar with leaf projectiles (type 7 — Hintersee, according to Z. Bagiewski (Bagiewski 1999). So, five typological varieties of Lyngby points of the most eastern local group of this cultural tradition have direct analogies, first of all, to materials of classical Bromme Group. Nevertheless, it is necessary to note a number of particular features of the Valdai materials. All varieties of Bromme types of tanged points were made on the basis of hard hammer technological method. Although tang of all types was formed by retouch located on both sides, there are some atypical forms. The best examples are points from Vyshegora I site (Fig. 2: 17, 18) at the Upper Dnepr. According to the second Fischer’s criterion, tanged points of Valdai Upland does not correspond to classical Bromme. Moreover, the ratio of length of a point to length of a tang appears to be a diagnostic chronological marker. The tang of projectiles of mesolithic epoch became to be shorter than the tang of final Palaeolithic points as it is illustrated by lithic assemblages of Nizhnie Kotitsy 5 and Baranova gora sites.

Comparative study of tanged points, according to their parametric criteria, appears to be a one of the arguments in favor of Bromme cultural affiliation of Valdai final palaeolithic assemblages. The sites Polend III/1 and Polend III/1 were distinguished as the most eastern manifestation of the Bromme-Lyngby tradition (CVEHAIKIN et al. 1996). M. Zhitlin (Zhitlin 1996) considered them as Ahrensburgian. Our study seems to be a good illustration for the most close typological similarity of Valdai materials to classical Bromme, and may be put in opposition to Ahrensburgian ones according both to types of blanks, general morphology, and to secondary modifications.

Tanged points of each cultural group, distinguished for East Europe, have their own particular features: in general, points of Krasnoselskaia group were made on a more narrow, but Ukrainian ones — on a more wide blade blanks.

Conclusions
1. Tanged points of Valdai sites Polend III/1, Polend III/2 are comparable and most similar to the projectiles of developed stage of classical Bromme of Scandinavia. Sites of Polend’s group are the most eastern manifestations of this cultural tradition.
2. According to the morphological attributes tanged points of Valdai area shared more close similarity with the tanged points of Ukrainian (Rudnia, Liutnya, Goliamovka, etc.) and Byelorussian (sites of Krasnoselskaia area) groups. Another unity is represented by tanged points of Lithuanian sites, assemblages of the Nemunas basin, and area of the Dnieper source.

3. The typological variability of Valdai tanged points is related to their chronological evolution: points of the type rare dated Allerød period; type 2 — Dryas III; type 3 — the the end of Younger Dryas — beginning of Preboreal.
4. The most probable that Bromme points were transformed into tanged points of lenevo culture of Preboreal times (type 5 of our classification).

Literature


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Liungbiu tipo strėlių antgaliai Rytu Europoje

GALINA SINITSYNA

Santrauka


Atsižvelgiant į antgalų įkūnijos matmenų kiekvienas reikšmės (1 lent.), reiki
ingiausias požymis – tai antgalio ruožinio dydis. Visi Podolo III/1 ir Podolo III/2 kompleksų įkūnijos antgaliai yra padaryti iš grubų skėlių, nuskelty nuo mišku


2-as tipas. Antgaliai su smaigaličia (koše (2: 6–9 pav.).

3-as tipas. Antgalis su įtraščiu retušuotu smaigaliu (2: 11 pav.).

4-as tipas. Asimetriški antgaliai su dvipusių statmenų retušiški retušuotu nuojo (2: 11–13 pav.).

5-as tipas. Antgaliai padal iš morfologinio bruožo panašūs į lapo formos antgalus (2: 14–15 pav.).

Nors visi Liungbiu tipo antgaliai iš Valdajaus aukščių gyvenviųčių turi tiesiogines analogijas Bromės kultūroje, tačiau pagal A. Fišerio nustatytą 2-ųjų kriterijų jie nepriklauso klasikinėi Bromės kultūrai.

Lyginamoji įkūnijos antgalų analizė parodė, kad pagal savo parametramus Podo
dol II/1 ir III/2 gyvenviųčių antgaliai yra labai panašūs į Bromės kultūros išvystytos stadijos gyvenviųčių antgalus. Tai dar vienas argumentas išvaizdant Valdajaus aukščių gyvenviųčių paleolito gyvenviųčių ir Bromės–Liungbiu kultūros artuma. Šį argumentą galima prisiminti kai kurį tyrimo toje nuomonei, kad šios gyvenvių


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