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SOME ELEMENTS OF THE NORTH-WEST EUROPEAN MESOLITHIC CULTURES IN THE Odra AND VISTULA BASINS

NIEKTÓRE ELEMENTY KULTUR MEZOLITU PÓŁNOCNO-ZACHODNIEJ EUROPY W DORZECZACH ODRY I WISŁY

This work includes an analysis of the appearance of protoaxes and similar tools in the Odra and Vistula drainage basins. The existence of links between Mesolithic cultures of the northern part of central Europe and the north-west European circle of Mesolithic cultures has been determined on the basis of this analysis. The author considers the problem of the intensity of these contacts in various areas and in various chronological sub-periods of the Mesolithic.

Remarks on common cultural links between the Odra and Vistula basin areas and neighbouring districts are often found in already numerous elaborations on the Mesolithic of these areas, both in monographs of certain districts, and works dealing with respective cultures.

Attention has often been paid to distinct links between the Mesolithic cultures of Poland and those of north-western Europe (H. Schwabedissen's *Nordkreis* or *Kern- und Scheibenbeilkreis*). All research workers of the Polish Mesolithic assent to the existence of close links between these areas¹. This concerns in particular the older period of the Mesolithic.

All authors of works dealing with links between Mesolithic cultures of the Odra and Vistula basin areas and those in north-western Europe attach great importance to microlith assemblages, which characterize compared archaeological cultures. All types and sub-types of geometrical microliths have been subjected to careful analyses and investigated as regards their forms and the incidence of characteristics linking them with or differing from compared cultural areas. Relatively little stress has been placed on other forms of flint products.

It seems most essential—for the investigation of cultural links between Polish and north-west European areas—to pay attention to the appearance and range, in the Odra and Vistula basins, of products typical for the north-western circle of Mesolithic cultures, such as various proto-axes, picks, chisels and other flint tools, known in German literature as *Grossgeräte*—so characteristic for the North-West.

These problems have so far been passed over, only some general remarks were made on the appearance of such tools in certain regions and on their absence in others. The present, detailed monograph, discussing the appearance of Mesolithic proto-axes and other tools of that type in areas embraced by the basins of the two main Polish rivers is, therefore, of considerable interest, since these tools are, next to microliths, the second, very important typological element which makes it possible to study cultural links in the middle Stone Age.

Proto-axes representing the prevailing number of tools from the group to be discussed appeared sporadically already in the Palaeolithic. But a rapid development of this group of tools occurred only at the beginning of the Holocene. Some research workers even consider the moment when numerous proto-axes appeared as the border between the Palaeolithic and Mesolithic Periods².

The sudden increase in proto-axe forms should undoubtedly be linked with the predominance of forest environment. At the outset of the Holocene forests began to spread over European Lowlands. Groups of people inhabiting these areas changed distinctly their assemblage of tools helpful in their adaptation to the new forest environment and its exploitation. The core or flake axe became one of the most important tools.

H. Schwabedissen was the first to notice and define the existence of the circle of Mesolithic cultures characterized by a great number of proto-axes³. The circle of proto-axe cultures embraces, generally

¹ KOZŁOWSKI 1967; 1967a; 1969; 1969a; WIĘCKOWSKA, MARCZAK 1967; WIĘCKOWSKA 1969; KOBUSIEWICZ 1970.

² SCHWANTES 1958; SCHWABEDISSEN 1961.

³ SCHWABEDISSEN 1944.

speaking, south-eastern England, a part of north Holland, Denmark, northern Germany and the southern part of the Scandinavian peninsula. At least a greater part of the area at present submerged below the North Sea, linking England with the Continent in the older and middle Mesolithic, was also within its range. The ancient land, which had existed in the western part of the Baltic Sea was probably also penetrated by inhabitants of proto-axe cultures.

The most important sites of this circle include: Star Carr in south-western England, Klosterlund in Jutland, Pinnberg and Duvensee in Schleswig-Holstein and Hohen Viecheln in Mecklenburg. These sites are from the Preboreal and the first half of the Boreal. Later sites include Broxburne in England, Gudena and Ertebølle in Denmark, Oldesloe and Ellerbek in Schleswig-Holstein and Lietzow in Rügen.

The north-west European Mesolithic circle embraced various cultures during the 5,000 years of its prevalence and internal development. The differences among them resulted from various economic foundations within the framework of a general model of hunting-gathering cultures, and from the evolution linked with the passage of time. The most important include Maglemose-Duvensee, Gudena-Oldesloe and Ertebølle-Ellerbek. The Mesolithic circle of proto-axe cultures lasted through the Preboreal, Boreal and Atlantic Periods.

This work includes the entire material, known at present to the author, which deals with problems of the appearance of proto-axes and similar tools from Mesolithic sites in the Odra and Vistula basins. The majority of these tools, found in Great Poland (Wielkopolska) and Ziemia Lubuska, is stored in the Poznań Archaeological Museum or in assemblages exploited during excavations carried out by the author in recent years. Materials from areas of West Pomerania and the Barycz drainage basin were made available to the author prior to their publication. I should like, therefore, to acknowledge the help of M. Czarnecki M.A. from Szczecin and Doctor Z. Bagniewski from Wrocław. I also wish to express my appreciation to M. Marczak M.A. and Doctor R. Schild for making available so far unpublished types of proto-axes from sites at Stawinoga, Pułtusk district, and Całowanie, Otwock district. The remaining, small part of materials used in this work derives from various publications.

It has been decided not to include materials from L. Rothert's work concerning Silesian territory⁴. Though it may include individual proto-axes or picks, the author has been known to take into account natu-

ral flint detritus resembling purposely made implements. Thus, a separate culture (*Ellguther Kultur*) has been distinguished; its inventory is made up just of these detritus. Considering their form many resemble tools of the proto-axe group. Yet recent studies have proved the author to be mistaken and definitely contradicted any existence of such culture. Although the majority of the assemblage published by L. Rothert was lost during World War II, no genuine proto-axes or picks were proved among still existing objects. There is almost no mention of proto-axes in other publications concerning Silesia. It would be peculiar if they appeared almost solely in L. Rothert's materials. In our opinion, therefore, seeking support in that publication could create a source of error and cause a strong deformation of the picture presented in the present work.

All tools, except two, included in this article, have been reproduced in drawings. Both unpublished implements and those dispersed in various works have been included.

Out of a rather large number of finds unfortunately only a small part has proved to be of great cognitive value. This group includes tools from "pure" uni-cultural assemblages collected during excavations embracing the entire object. They include, for example, assemblages from Całowanie, or from Stawinoga. A fair value, though not as big as in the first category, is to be ascribed to finds from excavated assemblages, but these are mixed, multi-cultural, as for example those from Smolno Wielkie 1, or Pomorsko 1, both in the Sulechów district. The third, least expressive category of sources comprises surface collections.

Columns 32, 33 and 34 of the general Collective Table—which illustrates comprehensively materials used in this work and comprises a catalogue of sites—show into which category respective sites are to be included.

Tools of the proto-axe category distinguished in the north-west European Mesolithic circle constitute a rather extensive group. Generally speaking, these tools represent frequently the axe or hoe type, or resemble pickaxes or chisels. They are massively shaped, produced from large pieces of half-product, flint cores or lumps chosen for their shape. Tools of this group are of a large size and exceed, as a rule, the measurements of other tools comprising this assemblage. An abundance of types and diversiform proto-axes, picks and chisels appeared in areas embracing classical cultures of the proto-axe circle. This is not surprising if we consider their great numbers, amounting to several hundred objects at certain sites.

The number of forms of proto-axes and tools of

⁴ ROTHERT 1936.

similar type decreases significantly in the area of the Odra and Vistula basins, as will be seen in this work. This fact impedes the differentiation of so many variants.

The author of this work accepted in principle the typological division of proto-axe forms applied by H. Schwabedissen in his work on the Mesolithic of north-western Germany⁵. There have been other attempts to classify this group of tools but all have been more or less similar⁶. It seems, Schwabedissen's classification will serve best our purpose since it is based on materials which are very extensive and adjoin our territory. As this division has proved quite sufficient only small changes have been introduced where required by the specificity of materials here elaborated.

In all, 9 types of tools of the group here discussed have been distinguished among materials collected in the Odra and Vistula basins. The sequence here presented is in accordance with the arrangement in the columns of the Collective Table.

1. Core axes, type 1. These axes, produced from cores or lumps of raw material, are usually of a slender shape. The cross section may be oval or pointed-oval. Axes of this type were carefully treated from all sides by chipping of flakes or chips. Their shape and section is regular. They were finished with precision, one might say, with elegance. Sometimes there is a negative of a sideward sharpening stroke made to sharpen the working edge. Their measurements and proportions vary (Pl. I1).

2. Core axes, type 2. Produced from a core or a core-shaped lump of raw material. Their shapes, compared with core axes type 1, are irregular, both in their outline and cross section which is often polygonal. The treatment is clearly less elaborate, often primitive, it embraces the entire surface of the axe or at least its greater part. While preparing the surface of these tools flakes and flint chips were struck from various sides. These proto-axes have sometimes a negative of a sideward sharpening stroke made to sharpen the working edge (Pl. I2).

3. Core axes, type 3. Produced most frequently from axe-shaped lumps of raw material, occasionally from cores. Treated on both sides, but by such a method that one surface is convex and the other flat. Their shape resembles *prima facie* flake axes. But the flatness of one surface of the flake axe is the result of its being made from a flake or a very flat concretion, whereas the flat surface on core axes of type 3 was achieved purposely by flaking off. Their cross sec-

tion resembles a flat, low, irregular triangle or is sometimes of an irregular lenticular shape. These proto-axes include on the one hand primitively and carelessly made specimens and on the other tools made with great care and precision. Their measurements vary. There appear, moreover, negatives of the sideward sharpening stroke (Pl. I3).

4. Flake axes, type 1. Produced from large, massive flakes or more frequently from flat flint lumps, their shape resembles flakes. This type of proto-axe was tooled only by striking off chips from the bottom part of the flake upwards, the flat bottom part was not retouched. Their cross section resembles, therefore, as a rule a section of a circle or an irregular, low triangle. A negative of a sideward sharpening stroke occurs frequently. There also appear quite often diagonal specimens, i.e.—those, where the edge of the axe is not on the counter-knot edge of the flake but on one of its oblong edges, parallel to its axis. Measurements, proportions and the accuracy of finishing differ (Pl. I4).

5. Flake axes, type 2. Large, massive flakes were also used for their production. These tools were produced by flaking off the upper and lower surface of the flake. The proto-axe thus obtained resembled, as regards its form and the irregular cross section, core axes type 2. Their form, proportion and dimension are also diverse. A sideward sharpening stroke was also often applied (Pl. I5).

6. Lenticular tools. Their manner and regularity of production resembles core axes type 1. They are so stocky that their length equals the width. The cross section is lenticular, the outline resembles a square with rounded corners (Pl. I6).

7. Picks. Slender implements produced from massive, thick blades, very slender flint lumps or, seldom, from very slender cores. The cross section may be triangular, quadrangular, rhomboid or multiangular depending whether the tool was treated on two, three or more planes. Often one or even two planes are unfinished or treated in an only insignificant degree. These implements taper off towards the top and end with a sharp point. The opposite end is usually blunt as a poll. Their shapes and proportions vary—from chunky, slender almond-like specimen to slender pencil-like tools. Their measurements also differ (Pl. I7).

8. Chisels. Their shape, size and proportions resemble picks. The demi-product used here is often also the same as in the production of picks. Yet they differ from those implements since they have a diagonal chisel edge instead of the sharp, spiniform point of picks. These short, delicate edges were prepared

⁵ SCHWABEDISSEN 1944.

⁶ TROELS-SMITH 1937; GRAMSCH 1963.

by striking off an oblong chip from the side, its negative forms one of the side of the edge thus created. This treatment is identical with the manner applied in the sharpening of various types of proto-axes (Pl. I 8).

9. Massive *Zinken*-perforators. Resemble the usual tools of this type but differ from them by their bigger size and massiveness. The edges of these perforators are characteristically curved sideways (Pl. I 9).

Tools of the proto-axe group from the Odra and Vistula basins have been systematized pursuant to the typological division presented above.

On the whole, 108 artefacts of this group have been found there. They appeared on 54 sites. The brief description here presented supplements data compiled in the Table which lists most of the information on materials used as a basis for this work. This Table includes the name and number of sites, the occurrence of proto-axe type tools there, accompanying, characteristic flint implements, the chronology of the assemblage whenever it was possible to determine, and the above mentioned determination of the value of sources depending on the manner they were obtained. The quantity of proto-axe type tools in particular assemblages has been supplied in exact numbers within the framework of respective types. The quantity of accompanying, characteristic flint implements has not been supplied, only their presence (+) or lack (−) has been marked. Exact data can easily be found in reports of various authors, whose works have been used in preparing this publication⁷. In certain cases data for these Tables have been taken from so far unpublished sites, principally those explored by the author in recent years in western Poland (Pomorsko 1 and Smolno Wielkie 1).

Relatively few, i.e., 11, core axes type 1 were distinguished (Pls. III 5, 8, IV 1, 4, 7, V 4, VI 3, 4, VIII 1, XIII 1, XVI 6). The biggest is 11 cm long. Yet this is an exception, both among proto-axes of this type and among all proto-axes from the area here discussed. Only one more flake axe from Kowalewko 1, Oborniki district, is bigger yet. All others are distinctly smaller. The measurements of core axes type 1 vary between 4-5 cm.

Core axes type 2 make up the most numerous group. 26 specimens have been distinguished (Pls. II 1, 2, III 4, 6, 7, IV 5, 6, V 1, VI 6, VII 1, 4, 7, VIII 3, IX 2, 4, 5, XIII 3, XIV 1-3, XVI 1-4, XVII 2, 4). Their measurements vary between 4-8 cm. Most specimens vary

between 5-6 cm. They are often of very irregular shapes. They were frequently produced from unprepared lumps of flint.

In contrast with core axes type 2, core axes type 3 make up the least numerous group among proto-axes, since only specimen have been differentiated (Pls. V 2, VI 5, IX 3, 6, X 1-3, XIV 6, XVII 1). The biggest among them is 6 cm long. The usual length is 4-5 cm.

Flake axes type 1 are represented by 20 examples. They include some transversal implements (Pl. II 4, 5, 8). The smallest hardly exceeds 3 cm in length. The biggest is 8 cm long. Their length usually varies between 5-6 cm (Pls. II 3-5, 7, 8, III 1-3, IV 8, V 3, VI 1, X 4-6, XI 6, XII 1, XIV 4, XVII 3, 5).

15 specimens of flake axes type 2 have been distinguished. They include relatively many bigger implements, as the one from Kowalewko 1, Oborniki district—up to 12 cm long, or the implements from Poznań-Starołęka 1, Słochy Annapolskie, Siemiatycze district, or from Smolno Wielkie 1, Sulechów district. They are usually chunky (Pls. II 6, III 9, V 5, VI 2, 7, 8, VIII 2, 5, IX 1, XII 2, 3, 5, XIII 4, 6, XV 1).

Only one specimen of a lenticular tool was found in the area here discussed. It was discovered at Siemianowo 1, Gniezno district. It is a regularly chopped implement with sharp edges (Pl. XIII 2).

The majority of specimens among the 18 picks is neither very big nor very slender, they are often rather chunky. Their length varies from 4 to 8 cm (Pls. IV 2, 3, VII 2, 3, 5, 6, VIII 4, X 7, 8, XI 1, XII 4, XIV 5, XV 2, 3, XVI 5).

7 specimens of chisels have been distinguished. They are usually slender or very slender. Their length varies from 5 to 9 cm (Pls. XI 2-5, XIII 5, XV 4, 5).

The massive *Zinken*-perforator appeared—like lenticular tools—only once among the very extensive multi-cultural assemblage at Smolno Wielkie 1. (Pl. XV 6).

Columns 10-28 of the Collective Table show the presence or lack of certain characteristic types of flint produce which make it possible to determine the chronology of assemblages with proto-axe type tools. This is the list of those artefacts arranged successively, in accordance with numbers marking these implements in the Table⁸.

10. Backed bladelet of the Stawinoga type
11. Segment
12. Obliquely truncated point of the Komornica type
13. Double backed bladelet
14. Isosceles triangle
15. Scalene triangle

⁷ SZMIT 1929; MARKUSE, MAHNKOPF 1930; KOBUSIEWICZ 1961, 1966, 1967, 1970; GINTER 1967; WIĘCKOWSKA, MARCZAK 1967; WIĘCKOWSKA 1969; KOZŁOWSKI 1969b, 1972; BAGNIEWSKI 1972.

⁸ See KOBUSIEWICZ 1970.

16. Triangle of the Janisławice type
17. Triangle of the Pieńki type
18. Triangle with the third side retouched
19. Wieliszew point with retouched base
20. Wieliszew point with broken base
21. Wieliszew point with natural base
22. Microlithic bladelet with retouched base
23. Simple trapeze
24. Low trapeze
25. High trapeze
26. End-scrapers
27. Irregular scrapers
28. Burins

We are at present able to base the chronology of Mesolithic assemblages—embracing proto-axe type tools—from the Odra and Vistula basins exclusively on their typology. It may be that some of them will in the near future obtain radio-carbon or naturalistic data, at present not yet available. Since a large part of these assemblages does not include many finds and is, moreover, little representative, the determination of their chronology has been limited to rating them among the Early or Later Mesolithic. Whenever the assemblage—including proto-axe type tools—was very scanty and inexpressive, or if these tools appeared as single finds, their chronology has been defined only in the most general terms as Mesolithic—exclusively on the basis of their own typological form. Whenever the assemblage was multi-cultural and included elements of Early and Later Mesolithic cultures both possibilities have been presented in the Table.

Generally speaking, the Early Mesolithic embraces cultures from the Preboreal and Boreal Periods. The Later Mesolithic includes cultures from the Atlantic Period. The margin between these periods is, of course, fluid. It lies closer to the decline of the Boreal than to the beginning of the Atlantic.

Other works include an analysis of the occurrence of various types of Mesolithic products characteristic for respective chronological periods⁹. It should suffice to mention that implements typical for the Early Mesolithic include: backed bladelets of the Stawinoga type (10), segments (11), obliquely truncated points of the Komornica type (12), double backed bladelets (13), isosceles triangles (14), end-scrapers (26) and burins (28). Implements typical for the Late Mesolithic include: all trapezes (23-25), triangles of the Janisławice type (16), triangles of the Pieńki type (17), triangles with the third side retouched (18), all types of Wieliszew points (19-21), points with retouched bases (22) and irregular scrapers (27).

⁹ KOZŁOWSKI 1967a; KOBUSIEWICZ 1970.

It happens, of course, that certain types characteristic for one of those periods appear in assemblages of the other. In defining the chronology in such cases the statistic predominance and respective indexes have been considered. Yet we do not consider it necessary to repeat here the entire chronological analysis, the more so since the majority of sites can be found in detailed reports.

In accordance with what has already been said, the chronology of assemblages with proto-axe type tools is shown in columns 29, 30 and 31 of the Collective Table.

In general the following groups are presented:

Assemblages of the Early Mesolithic	Assemblages of the Late Mesolithic	Assemblages with elements of the Early and Late Mesolithic	Mesolithic in general
9	9	7	29

As may be seen in this Table proto-axe type tools appear on the same number of sites from the Early and Late Mesolithic. We shall now analyse closer these assemblages, the chronology of which has been defined more accurately.

In general 24 proto-axe type tools, including 22 proto-axes and 2 picks, have been distinguished within the framework of 9 older assemblages. The proto-axes included exactly 11 core axes and 11 flake axes.

Only 12 proto-axe type tools including 9 proto-axes and 3 picks have been distinguished among 9 earlier assemblages. Proto-axes included 5 core axes and 4 flake axes.

Judging by the above data it appears that the occurrence of proto-axe type tools in the Odra and Vistula basin areas is more characteristic for the Early Mesolithic. 50% less of these tools occurred in the Later Mesolithic.

This assertion is additionally supported by two very rich assemblages from the sites at Smolno Wielkie 1 and Pomorsko 1, Sulechów district. They are, it is true, multi-cultural assemblages, but it follows from an analysis of implements found at these sites that there is a distinct predominance of elements from the Early Mesolithic. The majority of those materials originated unquestionably in the period preceding the close of the Boreal. Both these assemblages yielded, moreover, a great number of proto-axe type tools. Smolno Wielkie 1—12 specimens including 6 proto-axes of both types, and Pomorsko 1—19 specimens, including 9 proto-axes also of both types.

Yet there is no corroboration—as regards the areas discussed in this work—for H. Schwabedissen's proved regularity concerning the circle of northern Mesolithic cultures. This suggests that the appearance

of core axes is typical for the Early and flake axes for the Late Mesolithic. It appears that axes of both types occur, as a matter of fact, in about the same quantities and percentage in the first and second half of the Mesolithic.

Anyway, cases of clear departure from the rule—concerning the predominance of core axes in the Early and flake axes in the Late Mesolithic—have been known in the circle of north-western Mesolithic cultures. One of those is the Bloksbjerg Group inhabiting Denmark and southern Sweden at the decline of the Mesolithic Age. There appears a clear predominance of core axes over flake axes in assemblages of that group. Another example is the Lietzow Culture on Rügen known from regions situated in the closest vicinity of the area here discussed. Skillfully produced core axes appear in large quantities and flake axes represent a clear minority in assemblages of that very late culture patterned upon a Mesolithic model of economy¹⁰. Yet, in general, the number of core axes (46 pieces) predominates over flake axes (35 pieces) in areas situated between the Odra and Vistula basins.

Let us now consider the range and spread of Mesolithic assemblages with proto-axe type tools in the area discussed in this work. The appended map shows the localization and quantity of all assemblages of that kind known at present to the author. Geometrical symbols mark the type of tools of the proto-axe group. Bigger, slanted letters represent the number which marks the respective site in the Collective Table. Smaller letters written inside the symbols show the number of implements of a respective type within the framework of the assemblage. One site is often marked by several symbols if several proto-axe type tools of various categories appeared within its inventory.

The eastern border of the true cycle of cultures containing proto-axe type tools marked out by its discoverer H. Schwabedissen runs approximately along the south-eastern border of Mecklenburg. At least it is legible there since we do not know what course it took in the west Baltic area. As regards Mecklenburg, other sites abounding in proto-axes are also known, particularly in its northern part.

The circle of cultures containing proto-axe type tools exerted a strong, clearly visible influence on Brandenburg, where tools of this kind appear in relatively large numbers, though obviously not so often as in the north of Mecklenburg or in the north-western areas of Schleswig-Holstein¹¹. The spreading from this circle can be seen even in Lower Saxony, where proto-axe type tools have also appeared. They

are known in particular in the north-western parts of this region¹².

Let us now look at this problem in the Odra and Vistula basins, i.e., in Poland. Having added up specimens of proto-axes and related tools we find that 15 of these implements have been distinguished in areas of West Pomerania, 72—in Great Poland (Wielkopolska) and Ziemia Lubuska, 6—in Silesia, 10—in Mazovia (Mazowsze), 4—scattered over south-central Poland, and 1 in Podlachia (Podlasie—Map).

It is obvious that these tools appear most frequently in north-western Poland, including West Pomerania and Great Poland together with Ziemia Lubuska. 87 pieces are known from that area, that is 80.5% of all tools of that type from the territory here discussed. A comparison of the number of known proto-axes and related tools in the basins of Poland's two principal rivers will be still more expressive. Thus, 94 specimens of these tools—i.e., 87% of the overall number—have been distinguished in the Odra basin embracing West Pomerania (a part of this area should rather be included in the Baltic drainage basin, but this does not change the picture here presented), Great Poland, Ziemia Lubuska and Silesia, and the area at the upper Warta. Yet, we know at present only 14 specimens of tools from that group—i.e., 13% of the overall number—from the Vistula basin area, which, by the way, is almost 50% larger than the Odra basin.

The above facts show clearly that the areas situated nearer to the native circle of Mesolithic cultures with proto-axe type tools (the Odra basin) yielded a much greater number of such tools than the areas lying further to the east and south (Vistula basin). In order to stress this fact even more it must be added that the West Pomeranian area, where a relatively small number of proto-axes and picks originated, has hitherto been only superficially examined by archaeologists. The area of Mazovia—the vicinity of Warsaw in particular—is, on the other hand, one of the most thoroughly investigated in Poland; this explains the relatively large concentration of proto-axe type tools in this region.

The above quoted facts point to the existence of influences of the north-western circle of European Mesolithic cultures, particularly noticeable in the Odra basin yet much weaker in the Vistula basin.

Another problem also deserves mentioning, namely whether the appearance of proto-axes and related tools in the Odra and Vistula basin areas should be explained only by cultural influences from the North-West, or if they originated independently and later

¹⁰ GRAMSCH 1963.

¹¹ GRAMSCH 1963.

¹² GEUPEL 1971.

converged. It is known that the circle of cultures with proto-axes developed in a certain characteristic ecological sphere, principally in areas bordering on the present day Baltic basin or partly on areas now under the sea, as well as near the Northern Sea and its present bed. An increase in the production of proto-axe type tools was undoubtedly brought about by the development of forests. This phenomenon took place also in the Odra and Vistula drainage basins, in particular in their northern part. The life of Mesolithic hunters required also on our territory the use of chipping and hewing tools. Copious assemblages of such produce are also known from areas adjacent to the south-eastern Baltic, Lithuania in particular, though they are far away from the Mesolithic circle of north-western Europe characterized by a massive appearance of proto-axes.

It seems that both factors could have taken place in the areas here discussed. Both, the influence of north-western Mesolithic cultures and the general need of cutting tools in the forest environment promoted their production in these areas.

The typological similarity of certain types of geometrical microliths, found among assemblages of the north-western circle of cultures and among cultures inhabiting areas discussed in this work, supports the fact of the existence of concrete inter-cultural links. This concerns in particular the Early Mesolithic period, i.e., the Komornica and Duvensee Cultures respectively. These convergences have also been emphasized by other Polish research workers studying the Mesolithic¹³.

All authors working on these problems agree that the links between the Mesolithic cultures of the northern part of Central Europe and those of north-western Europe are noticeable quite clearly in the Pre-Boreal and the first half of the Boreal. Later, these links become weaker and less marked. The analysis of the temporal appearance of proto-axe type tools, found in the area discussed in this work, which, in our opinion, were one of the most important proofs of the existence of cultural links with the north-western Mesolithic circle, confirms this hypothesis entirely. As has been shown above, twice as many tools of that type have been discovered in Poland in assemblages of the Early Mesolithic than in assemblages of the Late Mesolithic. No such difference has been observed in the north-western circle, where proto-axes appear in great quantities up to the very end of the Mesolithic. The significant decrease in the quantity of these tools in the Odra and Vistula areas in about the middle of the Mesolithic would therefore be proof of

a clear diminishing of influences exerted on these areas from the North-West.

Speaking of the existence of cultural links between circles of Mesolithic cultures of north-western and central Europe it must be remembered that the areas of the Odra and Vistula basins are joined by means of—as though—natural “corridors” with regions directly adjacent to areas once inhabited by the true circle of cultures with proto-axe type tools. These corridors included four ice marginal valleys: the Barycz Valley, the Warsaw-Berlin Valley, the Toruń-Eberswalde Valley and the marginal valley stretching between moraine ridges of various phases of the Pomeranian stadial in western Pomerania. It is known that the edges of these valleys were densely inhabited in the discussed period. The fact that such arteries existed must have favoured personal contacts of Mesolithic peoples or in any case the transfer of cultural achievements.

There seems to be no doubt that, among Mesolithic cultures known at present from the Odra and Vistula basin areas, the most extensive links with Mesolithic circles of north-western Europe should be ascribed to the Komornica Culture. Its genesis should be linked with the Late Palaeolithic basis of Magdalenian cultures which adjusted themselves to the new Holocene biotope and probably submitted to some influence of the Ahrensburg Culture¹⁴. This genesis is, therefore, close to the genesis of north-west European Mesolithic cultures. The relatively greatest number of proto-axes and related tools has been found in Poland, particularly in the Odra basin, just in assemblages of the Komornica Culture. Proto-axe type tools from Early Mesolithic assemblages should be linked in part with later sites of that Culture, and certainly also with Late Mesolithic sites of the Chojnice-Pieńki Culture, defined recently by S. K. Kozłowski¹⁵.

In discussing assemblages of proto-axe type forms from the Odra and Vistula region attention should also be paid to certain differences they show in relation to such products found in the Mesolithic circle of north-western Europe. One of such obvious differences—in assemblages from areas discussed in this work—is the absence of typical flake axes with large edges, known in German literature as *Spalter*. They are usually rather big flake axes widening markedly towards the edge, often prepared by a special chipping off blow. In materials from our region there is, moreover, practically no core implement known in German literature on the subject as *Handgriffschaber* or *Kernschaber*, frequently distinguished in assemblages of north-western Mesolithic cultures. Specimens

¹³ KOZŁOWSKI 1967, 1969, 1970; WIĘCKOWSKA 1969.

¹⁴ KOZŁOWSKI 1972.

¹⁵ KOZŁOWSKI 1972.



A map of sites with proto-axe type tools from the Odra and Vistula basins

1 — Core axes, type 1; 2 — core axes, type 2; 3 — core axes, type 3; 4 — flake axes, type 1; 5 — flake axes, type 2; 6 — picks; 7 — chisels; 8 — lenticular tools; 9 — Zinken-perforators; 10 — figures showing the number of specimen of respective types; 11 — figures showing the number of the site in the Collective Table

Mapa stanowisk z narzędziami ciosakowatymi w dorzeczu Odry i Wisły

1 — ciosaki rdzeniowe typ 1; 2 — ciosaki rdzeniowe typ 2; 3 — ciosaki rdzeniowe typ 3; 4 — ciosaki odlupkowe typ 1; 5 — ciosaki odlupkowe typ 2; 6 — piki; 7 — dłuta; 8 — narzędzie soczewkowate; 9 — przekłuwacz typu Zinken; 10 — liczba oznaczająca ilość egzemplarzy danego typu; 11 — liczba oznaczająca numer stanowiska w tabeli zbiorczej

of tanged proto-axes are also absent in our assemblages. There are almost no massive *Zinken*-perforators and lenticular tools, only one specimen of each of these has been distinguished in the investigated region.

The character of proto-axe type tools from the Odra and Vistula basins resembles the group of these tools from the Brandenburg area. They are also relatively carelessly treated—which is often the result of repeated repairs—small and degenerated. Our region as well as the Brandenburg area were in ancient times weakly influenced by the adjacent north-western cultural circle. It is possible that greater difficulties in the supply of flint material (which was more abundant in the North) played a certain role in the degeneration of proto-axe type tools.

Speaking of proto-axe type tools from the Odra and Vistula basins some attention should be paid to a tool of a similar type, not mentioned so far. This is a *przewęczec* appearing in flint extraction site assemblages and flint workshops. From the morphological point of view it resembles a flake axe. It is distinctly thinned down in the middle and has a broad, often fanshaped, spatulate edge. The symmetrical axis of this tool indicates that it was produced to be used as a hoe not as an axe. These tools are usually of a great size. They have been published by S. Krukowski¹⁶ and B. Ginter¹⁷. They are known to the author from autopsies at flint extraction sites at Orońsko, Szydłowiec district.

The appearance of these tools only on flint extraction sites and flint workshops, and their usual Late Palaeolithic age—whenever such determinations have been possible—necessitates their exclusion from the scope of this work. These products should be linked with the process of digging out lumps of flint. They were probably an inter-cultural discovery and were used in the Late Palaeolithic and the Mesolithic as well, and are by no means linked with the north-western circle of Mesolithic cultures.

It is interesting to note that almost all proto-axe type tools known at present and defined as Mesolithic, were produced from Baltic cretaceous flint, a raw material typical of the northern Lowlands. Two specimens of Mesolithic proto-axes made of other raw-material have so far appeared at only one site. One of these was definitely, the other probably prepared from “chocolate” flint. The site referred to is at Grzybowa Góra (VI/59), Starachowice district. It lies only about a dozen kilometres away from very rich layers of this excellent material. Imports of this flint spread much farther in the Mesolithic, reaching far into Polish Lowlands, but tools of the proto-axe type produced from this material have hitherto not been found.

Concluding these deliberations let us once more repeat reasons for the diminishing appearance of proto-axe type tools towards the east, or strictly speaking towards the south-east, since the appearance of distinct assemblages of these tools in Lithuania must be born in mind. It is difficult to elucidate this problem. It seems that this phenomenon may be explained to some extent by a smaller demand for this type of tools on areas situated further to the south and east of the Baltic Sea. These more continental regions were probably less forested, consequently the need of hewing and cutting tools was smaller there.

It may be that the following observation is a still more important premise. Numerous authors link the use of proto-axes with the production of dug-outs. Such boats are known from Mesolithic sites in northern Europe. They must have played an important role in the hunting-fishing activities of Mesolithic people. They were certainly employed frequently where water-ways permitted their use—i.e., principally in lake district areas recently created in the region embraced by the last glaciation. Dug-outs were undoubtedly often produced there. Thus, the range of the true circle of cultures containing proto-axe type tools together with areas distinctly influenced by it covers rather accurately the area of this lake district. The number of proto-axes and related tools decreases distinctly outside this area.

This assertion—as regards areas discussed in this work—could be contradicted by the absence of such tools in the Mazurian Lake District (Mazury and Warmia)—the largest lake district in Poland, in the north-eastern part of the Country. Yet these areas, although they supplied relatively numerous Mesolithic bone and horn implements, are so far exceptionally inadequately investigated as regards Mesolithic flint assemblages, but will, we believe, yield numerous proto-axe type tools in the future, in accordance with the above quoted hypothesis.

There is still the open question concerning the at present difficult to explain phenomenon of the decrease of proto-axe type tools in the Odra and Vistula basin areas in the Late Mesolithic. These phenomena have not been recorded in the circle of north-western cultures. It seems therefore most reasonable to explain this fact by the decrease of the already mentioned influence of these cultures on our Country. It might also be presumed that in consequence of unknown, possibly insignificant changes in the economic model of Late Mesolithic peoples inhabiting these areas the role of proto-axes and related tools decreased considerably.

¹⁶ KRUKOWSKI 1939.

¹⁷ GINTER 1970.

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NIEKTÓRE ELEMENTY KULTUR MEZOLITU PÓŁNOCNO-ZACHODNIEJ EUROPY W DORZECZACH ODRY I WISŁY

Streszczenie

Dla badań związków kulturowych w mezolitic między terenami dorzeczy Odry i Wisły a Europą północno-zachodnią wielce istotne jest przeanalizowanie wyrobów tak typowych dla północno-zachodniego kręgu kultur mezolitycznych, jak różnego typu ciosaki, piki, dłuta i inne narzędzia zwane w literaturze niemieckiej *Grossgeräte*.

W Europie środkowej ciosaki występują sporadycznie już w paleolicie, gwałtowny jednak wzrost ich ilości zaznaczył się dopiero wraz z początkiem holocenu. Rozwój form siekierowatych należy łączyć z rozwojem środowiska leśnego. Północny krąg kultur mezolitycznych z ciosakami — zdefiniowany po raz pierwszy przez H. Schwabedissena³ * — obejmuje południowo-wschodnią Anglię, częściowo Holandię, Danię, północne Niemcy, południową część Półwyspu Skandynawskiego oraz część dzisiejszego Morza Północnego i Bałtyku. Najważniejsze kultury tego kręgu to Maglemose-Duvensee, Gudena-Oldesloe i Ertebølle-Ellerbek. Chronologicznie krąg mezolitu północno-zachodniej Europy obejmuje okresy preborealny, borealny i atlantycki.

W pracy tej podano cały znany autorowi w obecnej chwili materiał, wiążący się z problematyką występowania ciosaków i narzędzi pokrewnych w dorzeczach Odry i Wisły. Z wyjątkiem dwóch, zamieszczono tu rysunki wszystkich okazów, o których mowa w pracy.

Narzędzia ciosakowate na naszym terenie są z reguły mniejsze, bardziej niedbale wykonane i zdegenerowane w porównaniu ze znanymi z Europy północno-zachodniej. Ogółem wyróżniono 108 narzędzi z grupy ciosakowatych. Wystąpiły one na 54 stanowiskach.

Większość danych o materiałach, a zarazem katalog stanowisk, zawiera załączona do pracy tabela zbiorcza. Po numerze kolejnym, pod którym stanowiska te występują także na mapie, podano nazwę stanowiska i powiat, a następnie kolejno typy narzędzi ciosakowatych: ciosaki rdzeniowe typu 1 (1), ciosaki rdzeniowe typu 2 (2), ciosaki rdzeniowe typu 3 (3), ciosaki odłupkowe typu 1 (4), ciosaki odłupkowe typu 2 (5), narzędzia soczewkowate (6), piki (7), dłuta (8), masywne przekłuwacze typu *Zinken* (9). Ilość tych wyrobów podana została dokładnie cyframi. W następnych rubrykach zaznaczono obecność (+) lub brak (—) pewnych charakterystycznych wyrobów krzemienych, o ile towarzyszyły one narzędziom ciosakowatym. Są to kolejno: tylczaki typu Stawinoga (10), segmenty (11), półtylczaki typu Komornica (12), zdwojone półtylczaki (13), trójkąty równoramienne (14), trójkąty nierównoboczne (15), trójkąty janisławickie (16), trójkąty pieńkowskie (17), trójkąty z łuskaną trzecim bokiem (18), zbrojniki typu Wieliszew z łuskaną podstawą (19), zbrojniki typu Wieliszew z celowo złamaną podstawą (20), zbrojniki typu Wieliszew

z naturalną podstawą (21), zbrojniki z łuskaną podstawą (22), trapezy zwykłe (23), trapezy niskie (24), trapezy wysokie (25), drapacze (26), skrobacze (27), rylce (28). Następnie w rubrykach 29—31 podano chronologię, o ile udało się ją ustalić. W rubryce 32 zaznaczono zespoły jednokulturowe pochodzące z eksploatacji, w rubryce 33 — zespoły wielokulturowe pochodzące z eksploatacji i w rubryce 34 — zespoły pochodzące ze zbiorów powierzchniowych.

Wśród 54 zespołów zawierających narzędzia ciosakowate 9 uznano za należące do starszego mezolitu, 9 do młodszego mezolitu, 7 zawiera elementy obu okresów, a 29 udało się określić tylko ogólnie jako mezolityczne.

W ramach 9 zespołów starszych wyróżniono ogółem 24 narzędzia ciosakowate, w tym 22 ciosaki i 2 piki. Wśród ciosaków 11 było rdzeniowych i 11 odłupkowych.

W ramach 9 zespołów młodszych wyróżniono ogółem tylko 12 narzędzi ciosakowatych, w tym 9 ciosaków i 3 piki. Wśród ciosaków 5 było rdzeniowych i 4 odłupkowe.

W zespołach starszego mezolitu występuje o 50% więcej narzędzi ciosakowatych niż w mezolitic młodszym. Ciosaki rdzeniowe i odłupkowe występują w tych samych ilościach zarówno w starszym, jak i w młodszym mezolitic. W ogóle jednak w dorzeczach Odry i Wisły przeważają ilościowo ciosaki rdzeniowe (46 okazów) nad odłupkowymi (35 okazów).

Narzędzia ciosakowate występują najliczniej w Polsce północno-zachodniej. Znamy ich stamtąd 87 sztuk, co stanowi 80,5% ogólnej ich liczby na omawianym terenie. W dorzeczu Odry wyróżniono ich 94 sztuki (87%), a w dorzeczu Wisły zaledwie 14 okazów (13%).

Fakty te wskazują na wyraźne istnienie wpływów kultur północno-zachodniego kręgu kultur mezolitycznych, szczególnie wyraźnych w dorzeczu Odry, o wiele słabszych w dorzeczu Wisły. Wpływy te były znacznie silniejsze w starszym mezolitic niż w młodszym. Świadczy o tym zmniejszenie się ilości narzędzi ciosakowatych w połowie tego okresu. Stanowi to potwierdzenie spostrzeżeń innych autorów na ten temat, opartych głównie na analizie zbrojników^{1,3}.

Kontakty między grupami ludności mezolitycznej Niżu Europy środkowej a kulturami kręgu mezolitu Europy północno-zachodniej ułatwiały w pewności wielkie pradoliny przecinające Niż równoleżnikowo.

Rozpatrując zasięg narzędzi ciosakowatych w Europie należy także wziąć pod uwagę możliwość konwergencji. Tryb życia grup mezolitycznych w pewnych strefach ekologicznych zmuszał do posługiwania się (a więc i wynalezienia) narzędziami rąbiącymi i ciosającymi. O występowaniu konwergencji świadczyć może bogate skupienie narzędzi ciosakowatych na Litwie, bardzo przecież odległej od centrum kręgu mezolitu północno-zachodniej Europy.

Na terenie omawianym w pracy najsilniejsze związki z kręgiem północno-zachodnim zdradza kultura komornicka

* Patrz przypisy do tekstu angielskiego.

oraz w późnym mezolicie także kultura chojnicko-pieńkowska.

Tak zwane przewężce, narzędzia przypominające ciosaki odłupkowe, znane ze stanowisk nakopalnianych i z pracowni krzemieniarskich nie mają nic wspólnego z rdzennym kręgiem północno-zachodnich kultur mezolitycznych z ciosakami. Były to narzędzia służące najprawdopodobniej do wydobywania brył surowca z ziemi i rumoszu skalnego. Funkcję taką mogły też zresztą spełniać czasami i zwykle ciosaki, szczególnie odłupkowe.

Wszystkie znane okazy narzędzi ciosakowatych z terenów dorzeczy Odry i Wisły wykonano z krzemienia kredowego bałtyckiego. Wyjątek stanowi tylko stanowisko w Grzybowej Górze, pow. Starachowice. Pochodzące z niego okazy wykonane są z krzemienia „czekoladowego”. Stanowisko to leży kilkanaście kilometrów od wschodni tego surowca.

Zmniejszanie się ilości narzędzi ciosakowatych w kierunku południowo-wschodnim należy, być może, tłumaczyć mniejszym

zapotrzebowaniem na te wyroby na bardziej kontynentalnych i zapewne słabiej zalesionych obszarach.

Wydaje się jednak, że występowanie ciosaków i pokrewnych im narzędzi należy wiązać przede wszystkim z terenami młodych pojezierzy powstałych po ustąpieniu ostatniego zlodowacenia. Większość badaczy wiąże funkcję ciosaków z wykonywaniem łodzi dłubanek. Łodzi takich używano i zapewne masowo produkowano je tam, gdzie liczne arterie wodne na to pozwalały. Zasięg rdzennego kręgu kultur mezolitycznych z ciosakami wraz z terenami noszącymi wyraźne piętno jego oddziaływania pokrywa się dość dokładnie z obszarami pojezierzy, charakteryzującymi się do dziś dużą ilością jezior i siecią naturalnych połączeń między nimi. Brak narzędzi ciosakowatych na Mazurach i Warmii — zdający się przeczyć tej tezie — należy tłumaczyć niedostatkiem znalezisk zespołów krzemiennych z tych terenów. Odkrycie takich zespołów w przyszłości powinno dostarczyć także sporo narzędzi ciosakowatych.

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Plate I. Typological Table — Tabela typologiczna

1 — core axe, type 1; 2 — core axe, type 2; 3 — core axe, type 3; 4 — flake axe, type 1; 5 — flake axe, type 2; 6 — lenticular tool; 7 — pick; 8 — chisel;
9 — massive Zinken-perforator

1 — ciosak rdzeniowy typu 1; 2 — ciosak rdzeniowy typu 2; 3 — ciosak rdzeniowy typu 3; 4 — ciosak odłupkowy typu 1; 5 — ciosak odłupkowy typu 2; 6 — narzędzie soczewkate; 7 — pik; 8 — dłuto; 9 — masywny przekłuwacz typu Zinken

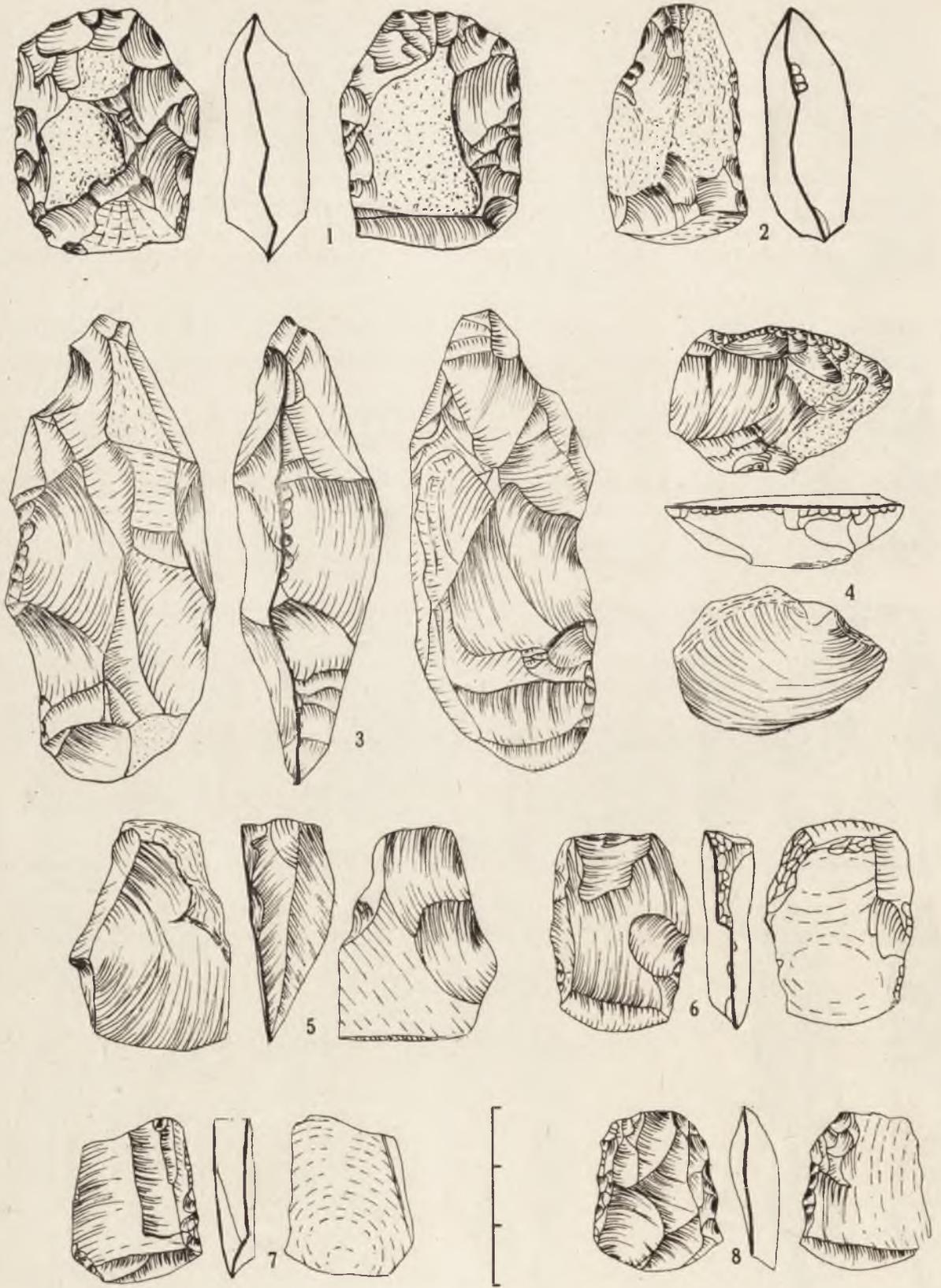


Plate II

1 — Baba-Szerzawy 2, Mogilno district; 2 — Bogucin 1, Poznań district; 3 — Babimost; b Sulechów district; 4-6 — Borowo 1, Środa district; 7, 8 — Borowo 2, Środa district

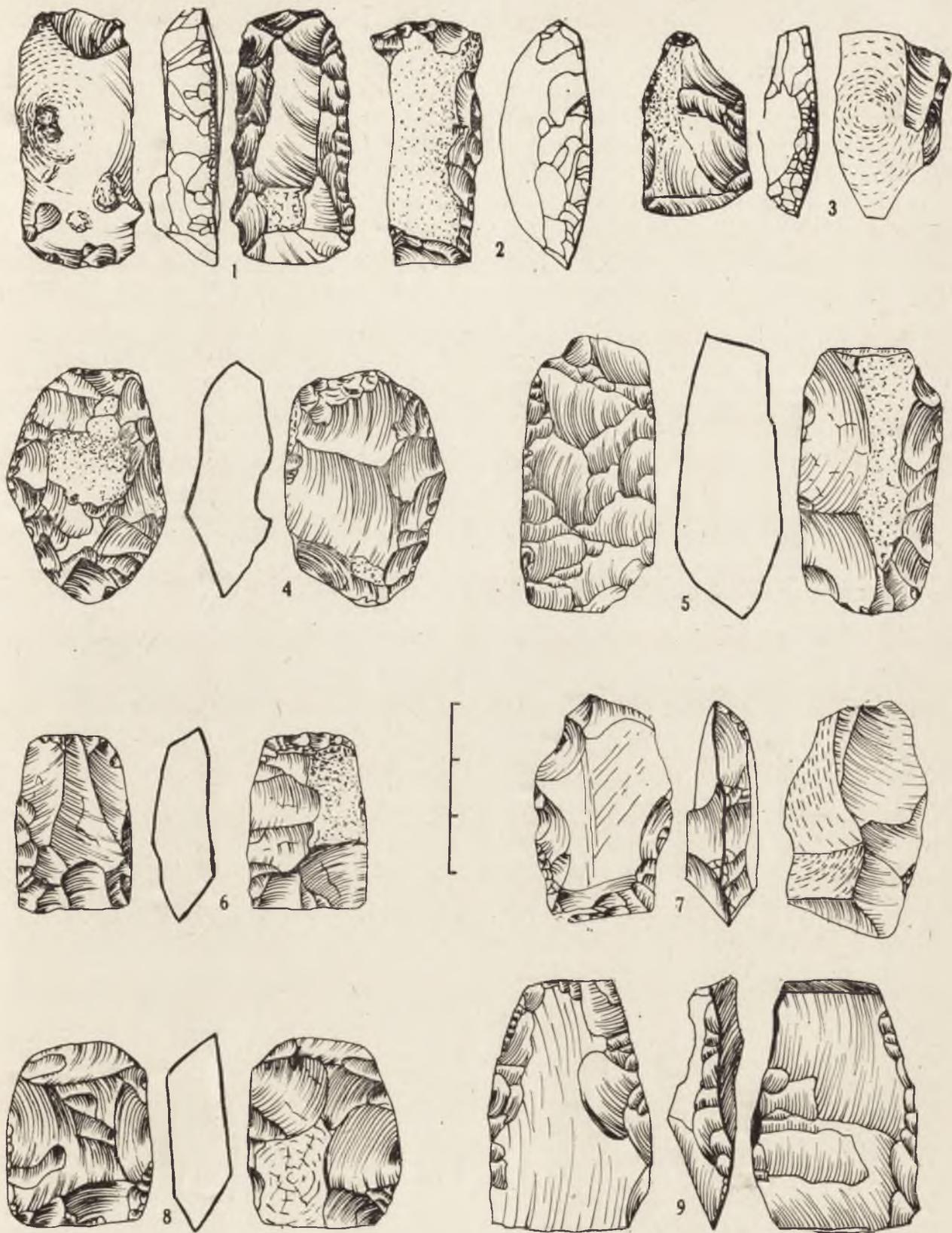


Plate III

1-3 — Całowanie, trench III, Otwock district; 4-6 — Czeladź Wielka, trench II, Góra district (according to Z. Bagniewski); 7 — Dolsk 5, Śrem district; 8 — Do-
maradzice 2, Rawicz district (accord. to Z. Bagniewski); 9 — Działawice, Busko district (accord. to S. K. Kozłowski)

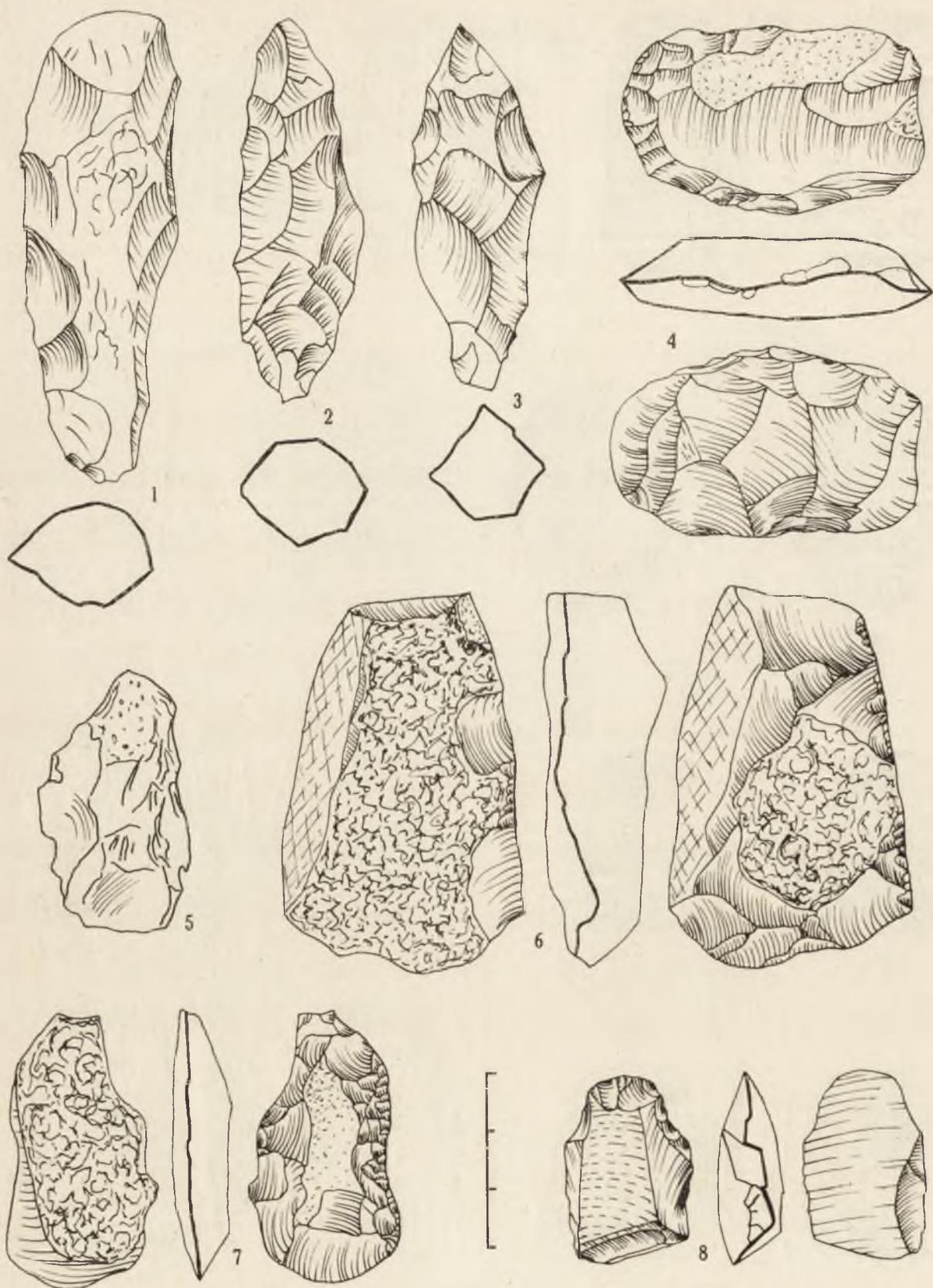


Plate IV

1-3 — Gościno 9/10, Kołobrzeg district (accord. to H. Agde); 4 — Góra 2, Międzychód district; 5 — Gozdowice, Dębno district; 6-7 — Grzybowa Góra VI/59 Starachowice district (accord. to B. Ginter); 8 — Jaskowo 1, Śrem district

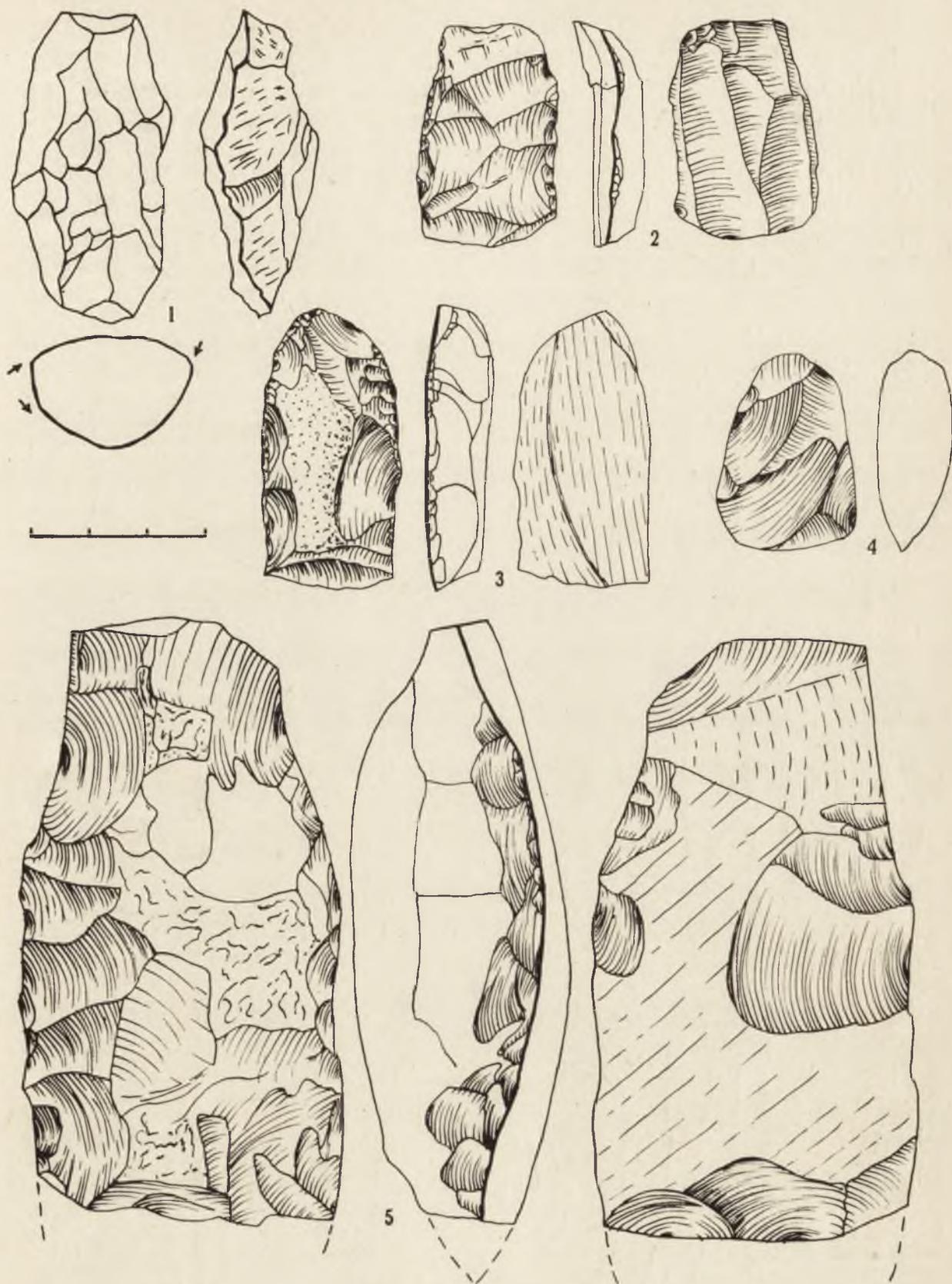


Plate V

1 — Jezierzyce, Gryfino district (accord. to M. Czarnecki); 2 — Kakulin, Wągrowiec district; 3 — Kargowa a, Sulechów district; 4 — Kargowa b; 5 — Kowalewko 1, Oborniki district

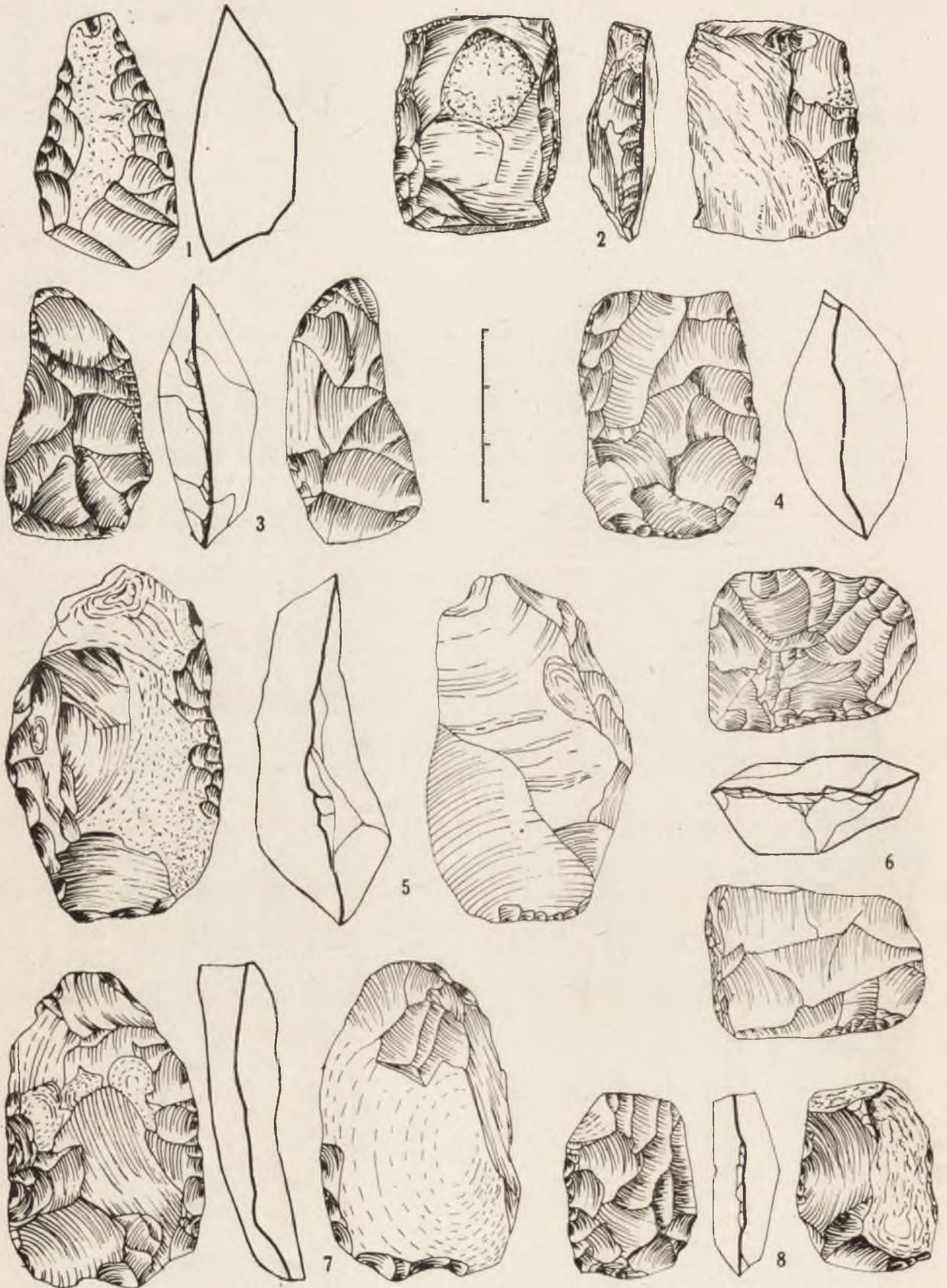


Plate VI

1 — Kargowa d, Sulechów district; 2 — Komornica VI, Nowy Dwór Maz. district (accord. to H. Więckowski); 3-8 — Lasek 2, Poznań district

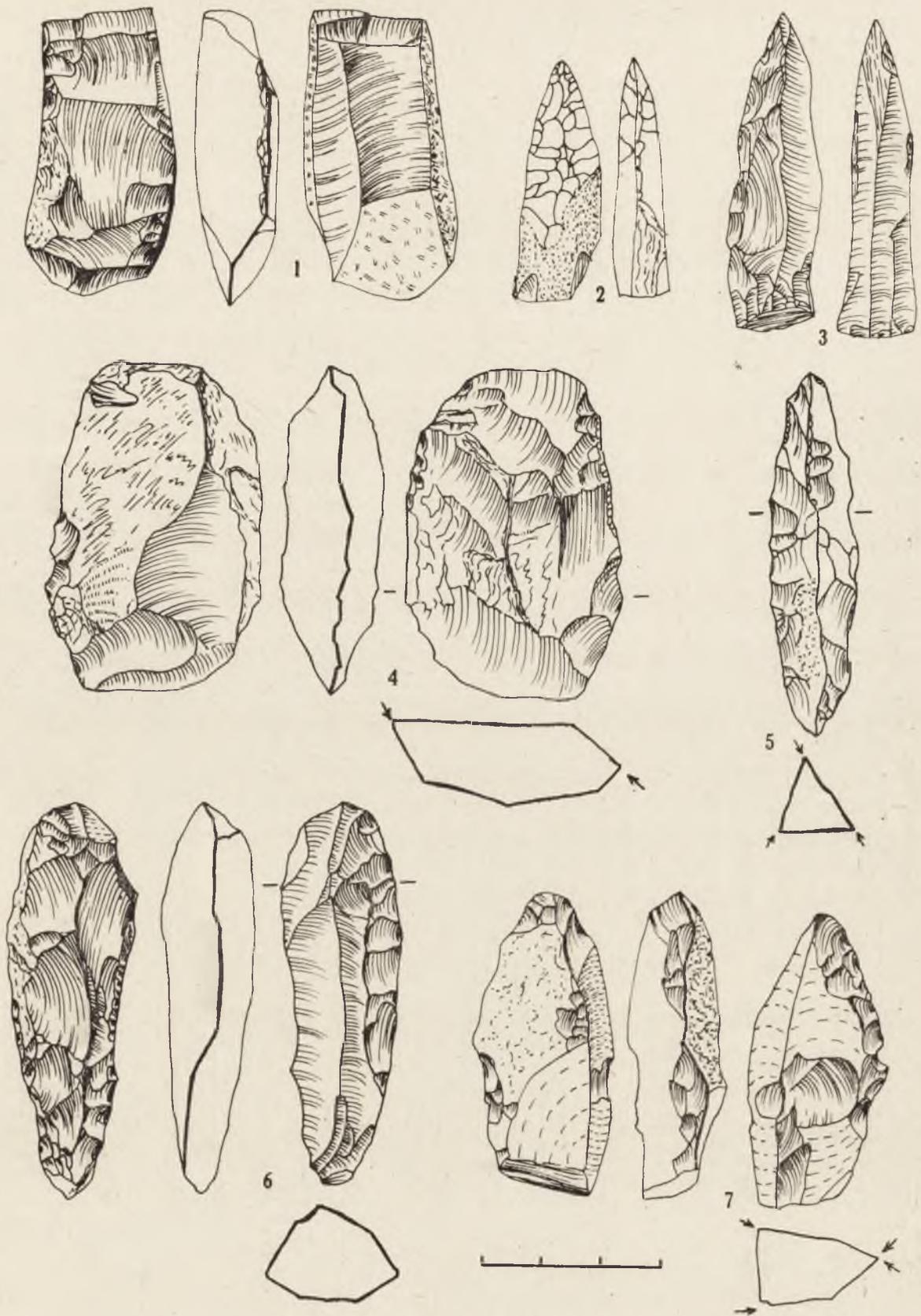


Plate VII

1-3 - Lasek 2, Poznań district; 4 - Łobez, Łobez district (accord. to M. Czarnecki); 5 - Morzyczyn, Stargard Szcz. district (accord. to M. Czarnecki); 6 - Mierzyn 2a, Szczecin district (accord. to M. Czarnecki); 7 - Mościska, Pruszków district

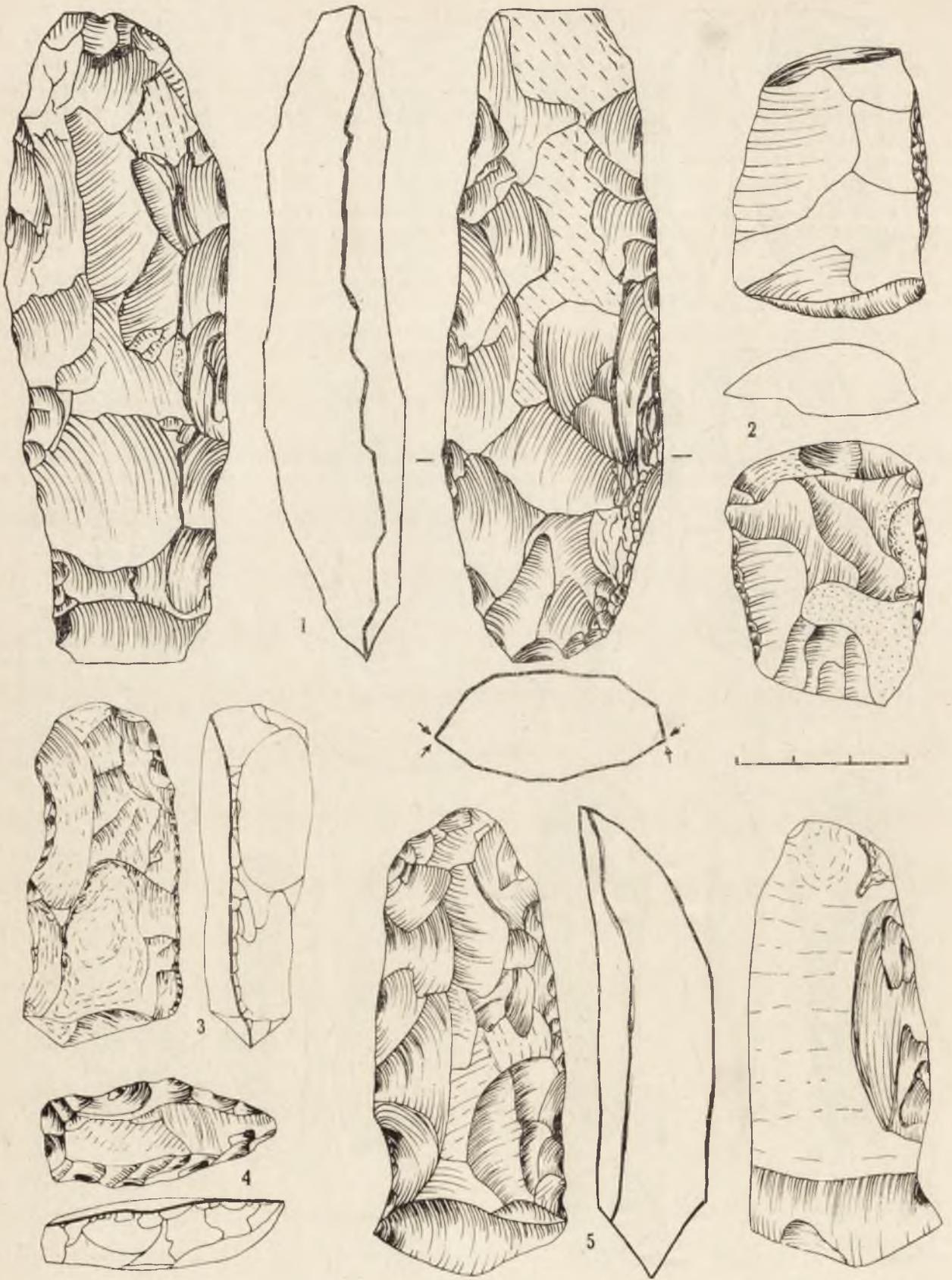


Plate VIII

Miedwiecko, Stargard Szcz. district (accord. to M. Czarnecki); 2 - Mosina 3, Poznań district; 3 - Mosina 10; 4 - Niewka 1, Poznań district; 5 - Oborniki 2a, Oborniki district

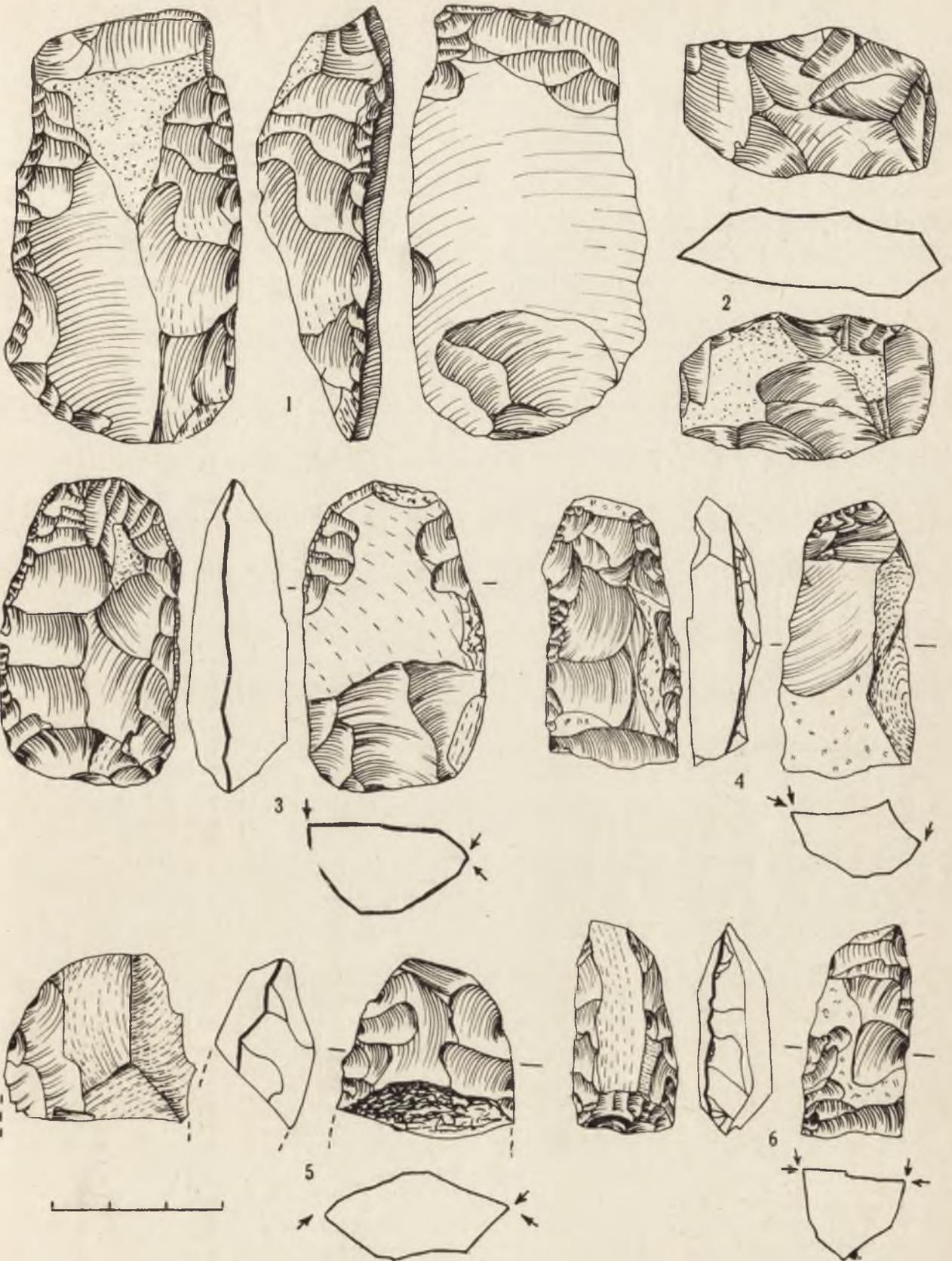


Plate IX

1 — Patrzyków-Pasieki 16, Pajęczno district (accord. to B. Ginter); 2 — Pobiel 10, Góra district (accord. to Z. Bagniewski); 3-6 — Pomorsko 1, Sulechów district

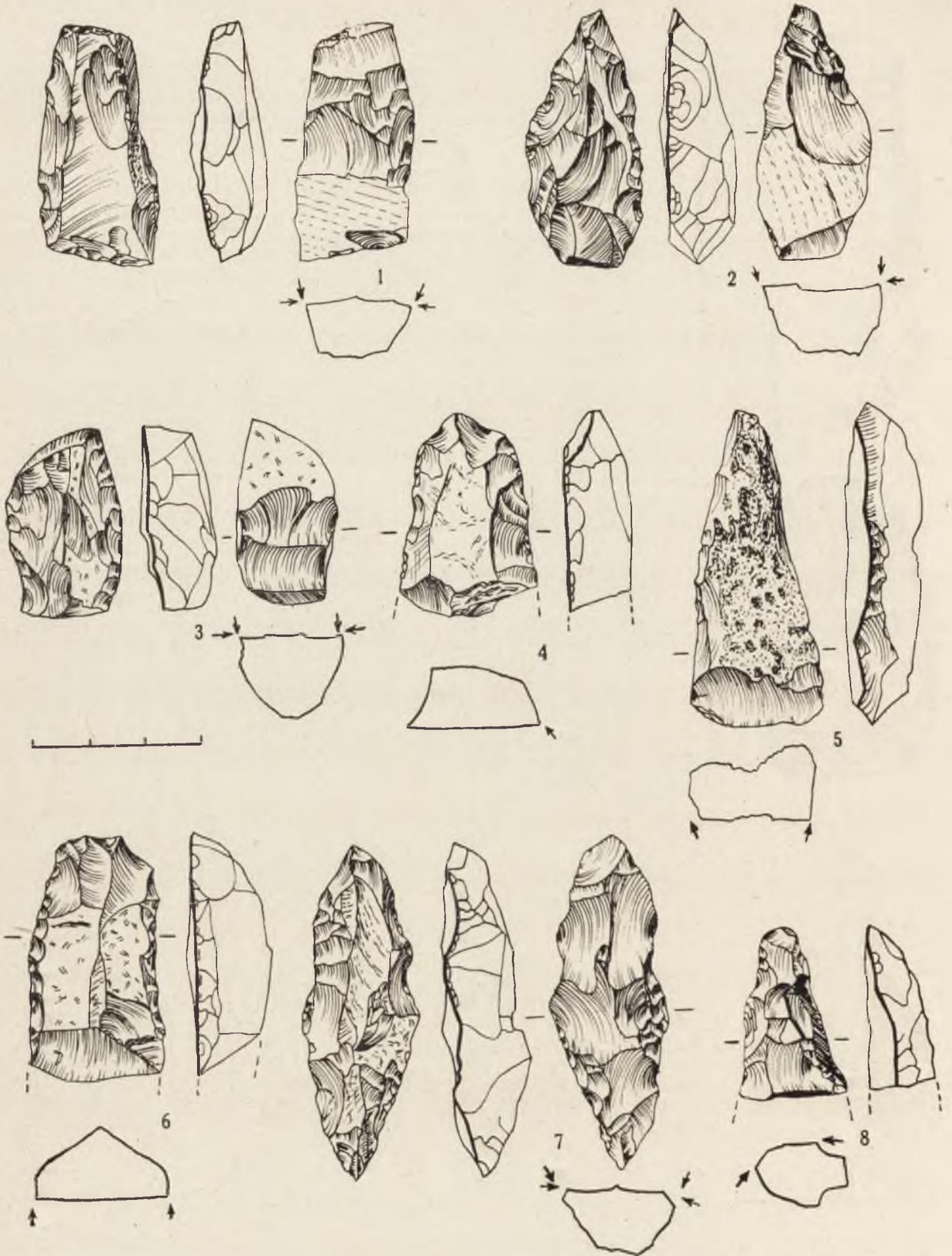


Plate X. Pomorsko 1, Sulechów district



Plate XI

1-5 - Pomorsko I, Sulechów district; 6 - Poznań-Janikowo I

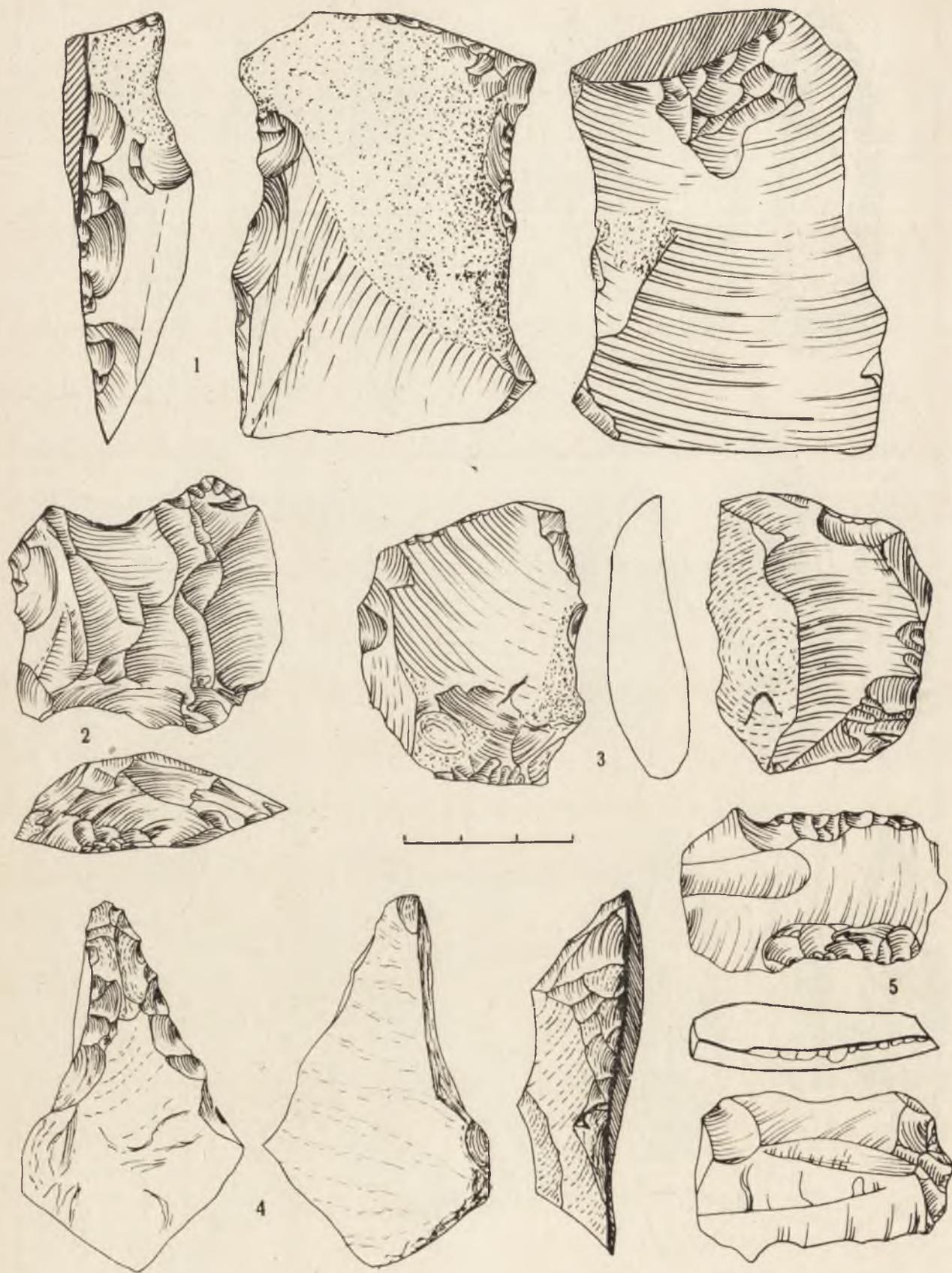


Plate XII

1-3 — Poznań-Starołęka 1; 4 — Rosko 1, Czarnków district; 5 — Puszcza Międzychodzka 2, Międzychód district

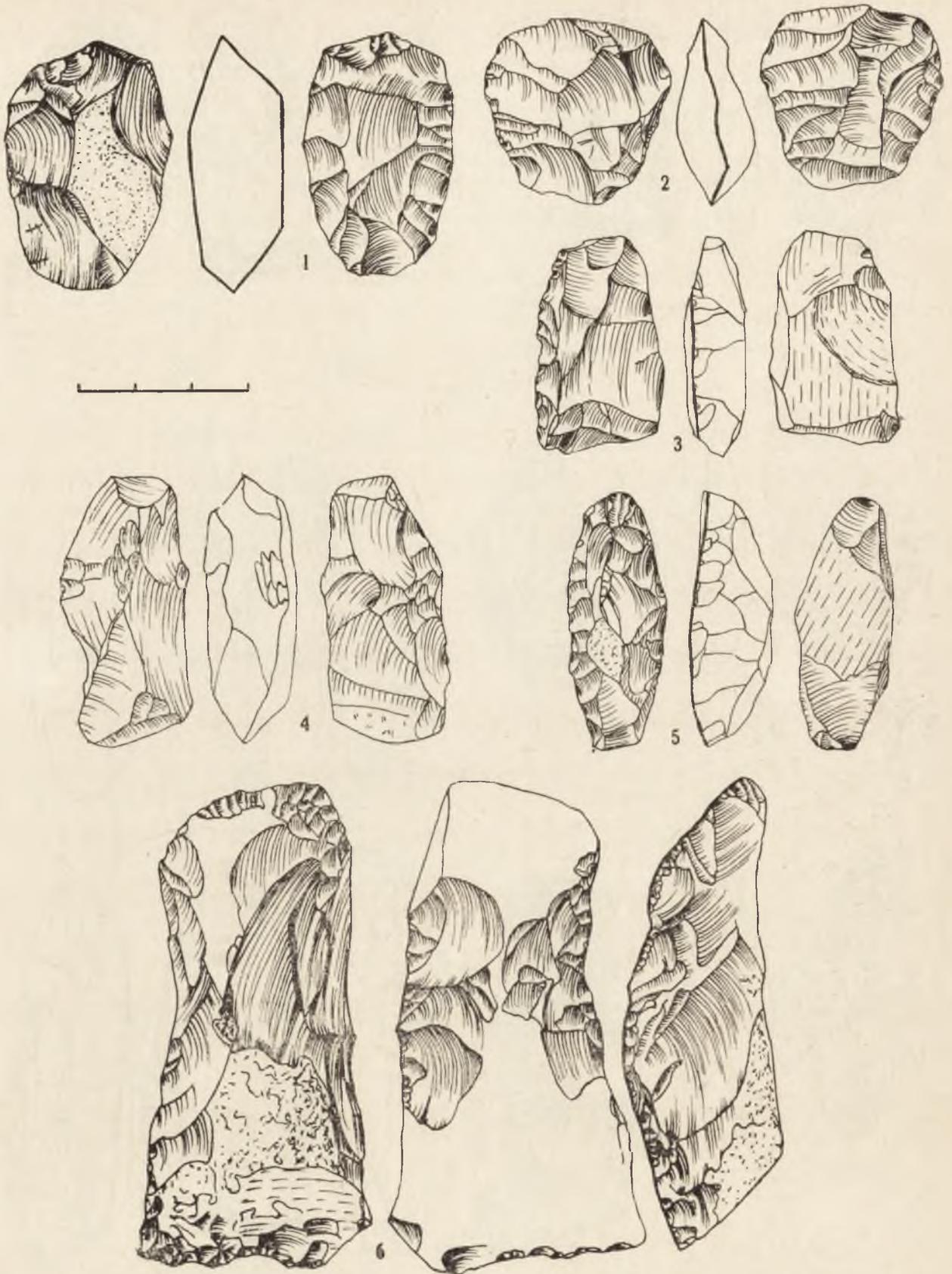


Plate XIII

1 — Siedlnica 6, Wschowa district (accord. to Z. Bagniewski); 2 — Siemianowo 1, Gniezno district; 3 — Skoki 1, Wągrowiec district; 4 — Sieraków 2, Międzychód district; 5 — Skoki 3; 6 — Słochy Annpolskie, dune at Czerwony Borek II, Siemiatycze district (accord. to Z. Szmit)

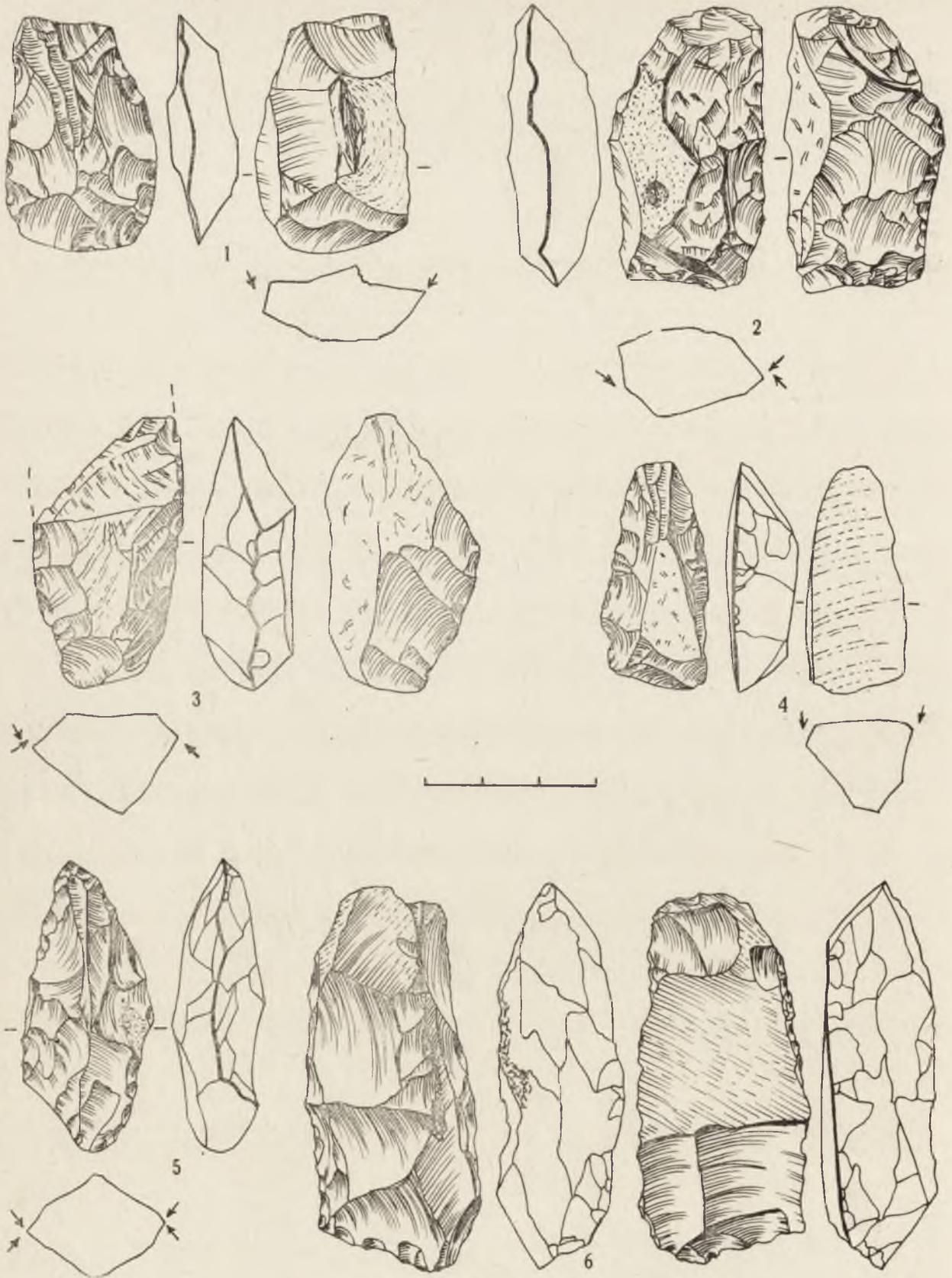


Plate XIV. Smolno Wielkie 1, Sulechów district

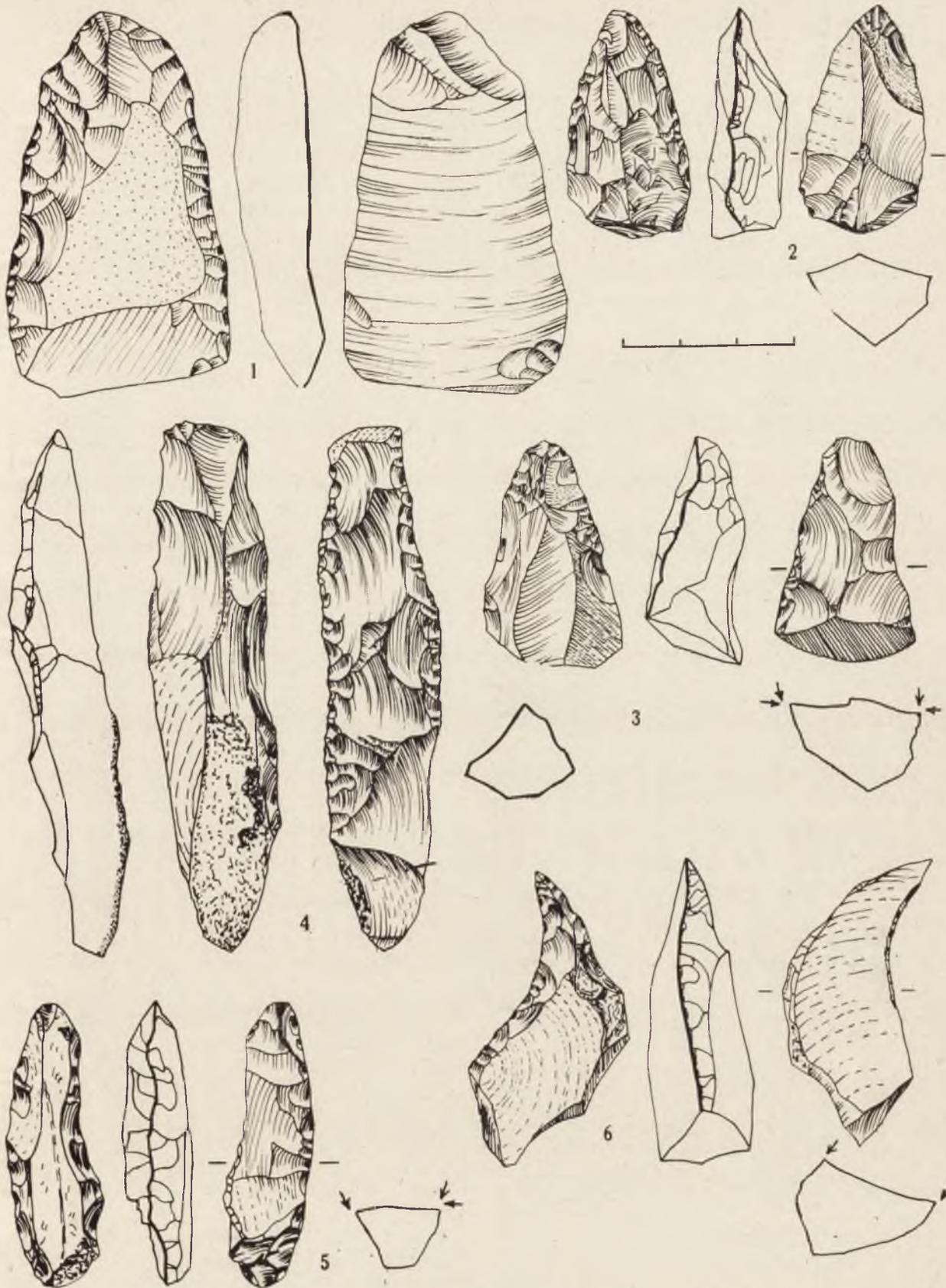


Plate XV. Smolno Wielkie 1, Sulechów district

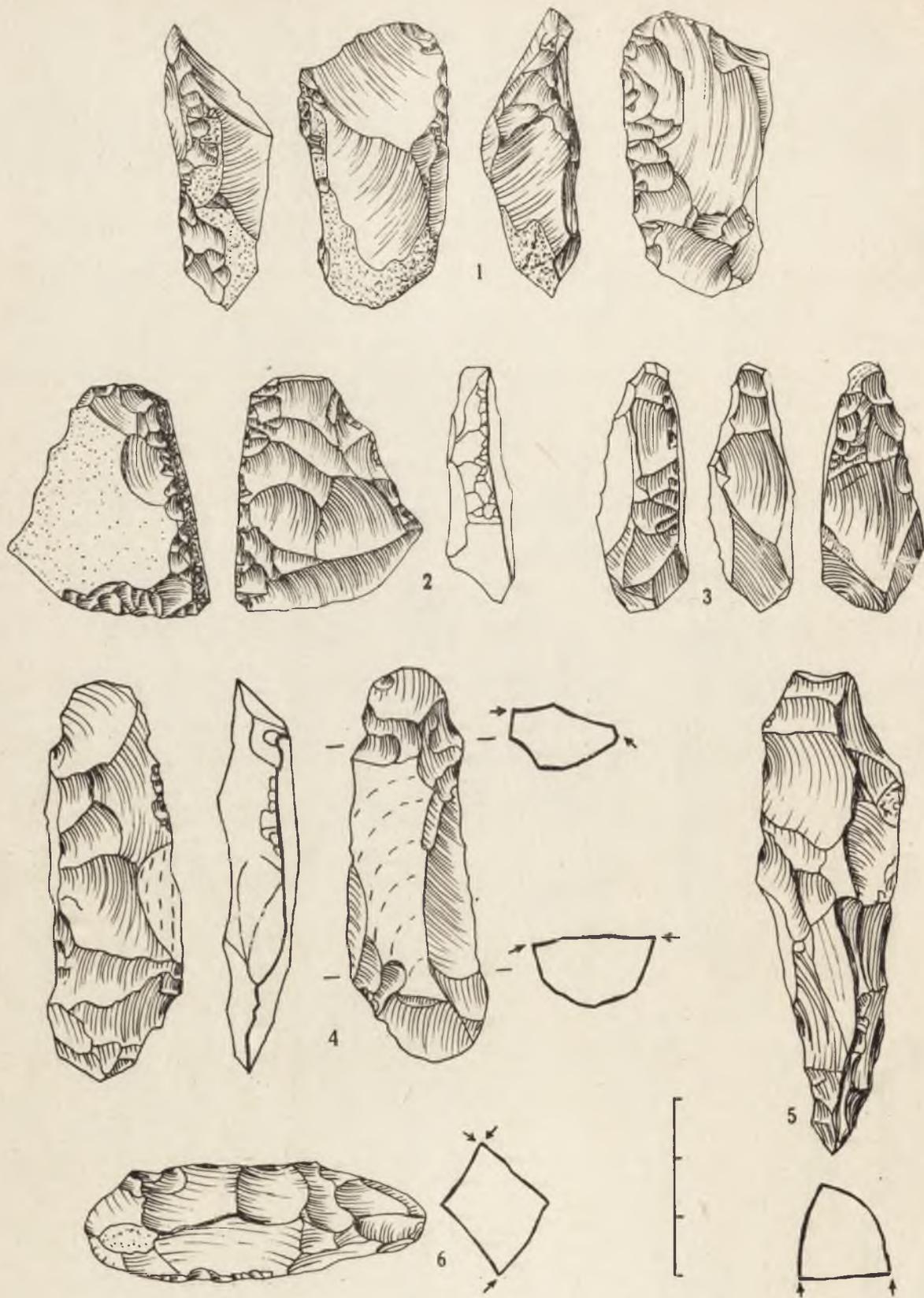


Plate XVI

1 — Stawinoga (from the surface of trench II), Pultusk district; 2 — Stawinoga, trench II, 3 — Swornigacie, Chojnice district (accord. to S. K. Kozłowski); 4-6 — Unimie, Łobez district (accord. to M. Czarnecki)

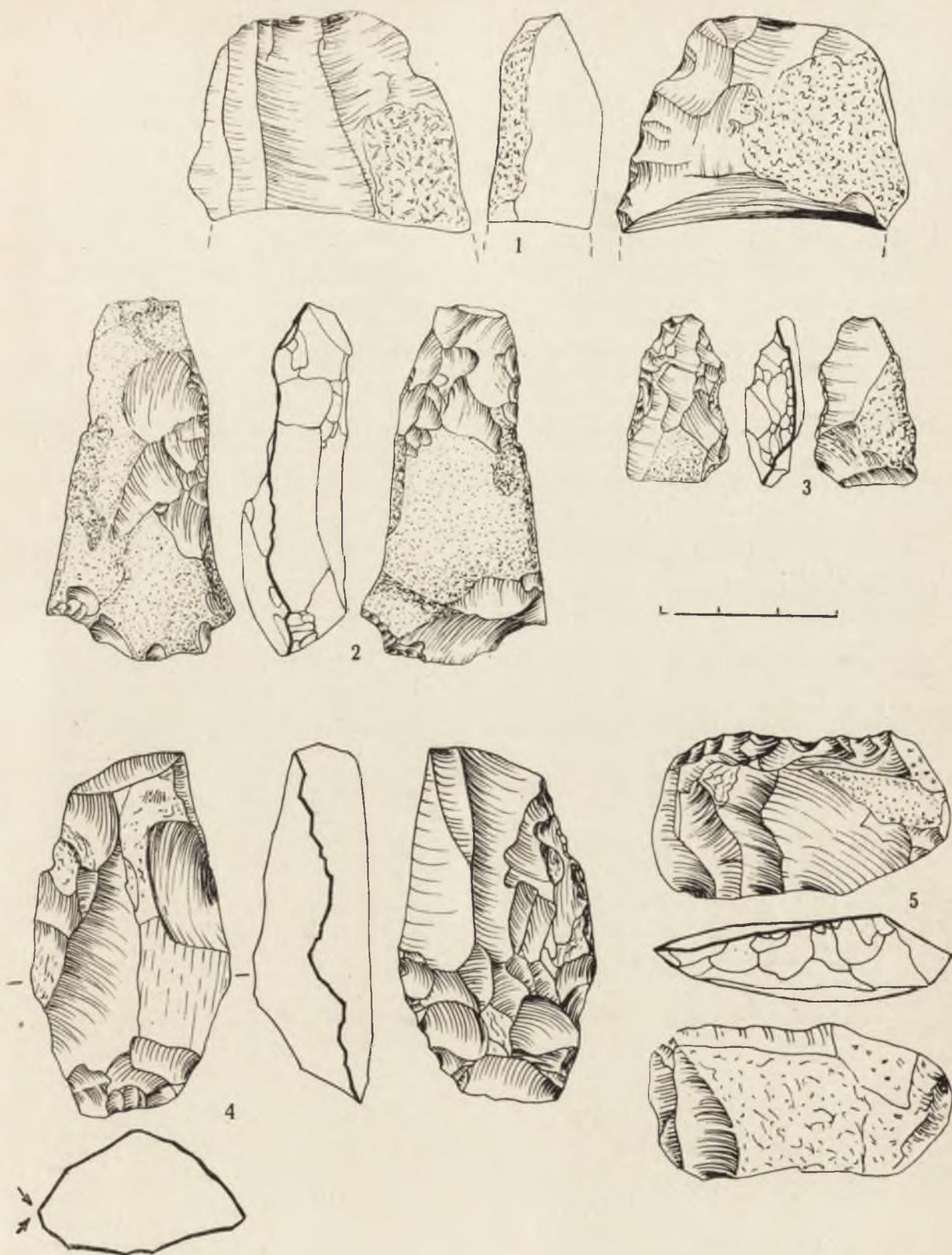


Plate XVII

1 - Szydłowiec 1, Mogiłno district; 2, 3 - Wieliszew XI, Nowy Dwór Maz. district (accord. to H. Więckowska); 4 - Złocieniec, Drawsko District (accord. to M. Czarnecki); 5 - Wytomyśl 2, Nowy Tomyśl district

