

Sungir: the choice between Szeletian and Aurignacian

Konstantin N. Gavrilo

Institute of Archaeology, Russian Academy of Sciences, Moscow,
k_gavrilo.68@mail.ru

Abstract

the article deals with the problem of cultural attribution of the Sungir site. The investigation based on the classification and typology of stone tools. It confirmed the presence of the Aurignacian types in Sungirian toolkit. The same trait is seen in Final Szeletian sites both in Central and Eastern Europe. The conclusion is that of Sungir and Streletskian in general are the regional manifestation of the final Szeletian in Eastern Europe.

Keywords: Early Upper Palaeolithic, Sungir, Streletskaya culture, the Final Szeletian.



Figure 1: The map of location of the sites, mentioned in the article.

Introduction

The stone industry of Sungir traditionally associates with thin bifaces – triangular and leaf points. In the European context this feature means analogies between Sungir and final Szeletian sites of the Central Europe. But G.P. Grigoryev (Grigoriev, 1990) and M.V. Anikovich (Anikovich *et al.*, 2007) urged that the Sungir industry should be incorporated in Aurignacian. A. E. Matyukhin also noted the presence Aurignacian types in the stone inventory of Sungir. He believed that this site may not be included in the Streletskaya culture (Matyukhin, 2006).

The problem consists in, whether so radical revision of cultural specifics of Sungir is possible.

G.P. Grigoriev was the first, who recognized Aurignacian types among the stone tools in Sungirian collection. At first there was a discussion between G.P. Grigoriev and M.V. Anikovich about the specifics of Sungirian industry. It was important to them at least for two reasons. First, the proportion of the Sungirian bifaces differed from the classic Streletskian. Second, typological features of sungirian industry are not limited to only this characteristic, but also affect others. For example, stone industry of the Sungir is characterized by a significant representation of the piece ecailee and relatively high percentage of blades. In the 1990s, the specificity of the Sungir traditionally attributed to its late age within the chronology of the Streletskaya archaeological culture (Anikovich *et al.*, 1998). However, recent studies that have led to the increase in the number of radiocarbon dates do not support this position. At the end of the 1990s, radiocarbon chronology of the Sungir was stretched. The range of dates from the GIN lab was within the following figures: the most ancient rate – 28800 ± 240 (GIN-9028), the youngest – 20360 ± 900 (GIN-9585) (Sulerzhitski, Pettitt, Bader, 2000). It is characteristic that the oldest radiocarbon dates of the mammoth bones, obtained in the GIN laboratory, coincided with the same ones of the fifth layer of the Kostenki I, also got the bones of a mammoth (Sinitsyn *et al.*, 1997). Radiocarbons dating of charcoal from this layer exceed 32,000 BP. Unfortunately, we can't compare charcoal dating of Kostenki I/5th layer and Sungir because samples from the Sungir hearths were not subjected to radiocarbon analysis. Anyway, Sungir may be considered as a site, which is synchronous with the middle chronological group of the Kostenki-Borshchevo settlements, including streletskian. New radiometric dates of the Oxford lab and the results of the excavations in Sungir during last years have stimulated a new analysis of a collection of stone tools. It is necessary to consider the degree of typological homogeneity of the Sungirian collection. But the main goal of the typological analysis of sungirian stone tools is a revision of the cultural specificity of this site.

Materials

Analyzed part of Sungir collection consists of 2403 stone artifacts, including 1624 tools with regular shape and 779 irregularly retouched/notched flakes and blades (tab. 1). The total size of the collection of stone objects is over 51000 items. Sungir tools made of different varieties of boulder and pebble chert, silicified limestone, quartz, quartzite and slate. But the vast majority of tools are made of flint (Bader, 1978: 114-117).

Category	N.	%
Burins	123	7,6
Scrapers	355	21,9
Core burins	12	0,7
Core scrapers	6	0,4
Piece ecailee	281	17,3
Tools with trimming ends	27	1,6
Bifacial points	16	1,0
Unifacial points	7	0,4
Bifaces	18	1,1
Points on flakes	27	1,6
Points on blades	28	1,7
Points on micro-blades	6	0,4
Blades with retouched end	2	0,1
Borers	16	1,0
Side scrapers	52	3,2
Backed knives	3	0,2
Combined tools	10	0,6
Blades with regular retouch	260	16,0
Flakes with regular retouch	375	23,1
Formal tools	1624	100,0
including:		
Tools made of blades	499	
Tools made of flakes	1125	
Blades with irregular retouch and notches	488	
Flakes with irregular retouch and notches	291	
TOTAL	2403	

Table 1: Sungir. Stone tools.

The collection is stored in the Vladimir-Suzdal Museum-Reserve. The inventory of the Museum's collection contains information about the location of objects on the squares and horizons in the excavations O.N. Bader. Unfortunately, precise information on the ratio of the excavation horizons and real stratigraphic units of the cultural layer of the site in these materials is missing. It is need to revise field drawings of excavation for the reconstruction of the spatial structure of the site. This task is one of the most urgent for study of Sungir in the near future.

Classification and typology of stone tools

Stone tools belong to the following categories: burins and scrapers, including nuclei-forms, chisel-shaped tools (piece ecailee) and chips with trimming of different sections, triangular and leaf-shaped points with bifacial and unifacial retouch, bifaces, points on flakes, blades and micro-blades, borers, side scrapers, backed knives, combined tools, and retouched blades and flakes. Piece ecailee, scrapers and burins are the most numerous tools, in addition to blades and flakes with retouch. Other categories

are few in number, but very significant. There are, first of all, bifacial points, scrapers and points made on the blades and the microblades.

Flake was the predominant type of blanks for the making of formal tools (69.3 %, tab. 1). However, the percentage of flakes in the whole studied collection is less (58.9 %). Blades dominate among the pieces with irregular retouch and notches— 488 blades and 291 flakes, respectively. However, after revision of the total collection, these figures may change in the future. Both flakes and blades are massive, with curved profile, large bulbs and striking platforms. Last ones, in most cases, are flat, but a single piece have a dihedral or multifaceted butts. Edges and dorsal surface are usually irregular. Dorsal ridges very often do not coincide with the longitudinal axis of piece. Burins, scrapers and piece ecailee do not differ from each other in size radically. We did not trace a special selection of flakes or blades in this case. Blanks for these tools are characterized by a width of 16 to 45 mm, a length of from 24 to 62 mm and a thickness of 4 to 13 mm. Big massive flakes in width from 27 to 52 mm, length from 26 to 72 mm and a thickness of 8 to 11 mm being preferred by people of Sungir for making side-scrapers. Parts of side-scrapers, in addition, were made on large fragments of flint and silicified limestone. The microblade was used as the workpiece in only two cases: for making micro-point and microblade with retouched end. Those items, which seem to backed bladelets, that were illustrated earlier (Bader, 1978, p. 140 Fig. 93: 11-16; see also Rogachev, Anikovich, 1984, p. 2446, Fig. 82: 1, 2) are actually burin spalls with retouched edges.

Most formal tools were shaped by using the technique of trimming, a large scraper retouch, or flat bifacial retouch. Abrupt and semi-abrupt as well steep retouch of large and medium sizes are also used for shaping the edges of tools. The ends of bladelets were processed with fine semi-abrupt retouch. Some of the microblades have also a small irregular marginal retouch (Fig. 7: 26, 28). There is one piece with large reflected retouch (Fig. 1: 3) and another one with small abrupt retouch (Fig. 7: 18-20). The kostenkian-like technique of trimming were used twice also (Fig. 2: 15; Fig. 3: 5).

Burins (Fig. 1: 1-13). The total number count 123 artifacts (7,6% of the toolkit). This number includes six burin-like products. Their working edge is formed by the intersection of surfaces, which were not negatives of burin spalls, but others regular blanks. Combined burins are only 8 pieces, four of which are made of flakes. Five items belong to the double angle burins on a break (Fig. 1: 7), three ones demonstrate a combination of dihedral and angle burins on a break. More than 68 % among burins (105 copies) refers to angle forms on a break (72 items; Fig. 1: 1-3, 5, 6, 13). Dihedral burins consists eight samples. One of them is made as the result of renewal of truncation burin (Fig. 1: 10). There are rare multiple forms among the burins – six copies. Burin spalls quite often cover the ventral surface, but the flat burins are just two copies among the angle items on a break. Burins on retouched truncation are six items (Fig. 1: 4, 11, 12). One

of it is double transverse burin on notch (Fig. 1: 8). This form not previously identified in the toolkit of Sungir, whereas it is found among artifacts of 5th layer of Kostenki I (Rogachev, 1957, Fig. 13: 2; Rogachev, Praslov et al., 1982, p. 63; Fig. 22: 13; Rogachev, Anikovich, 1984, p. 245; Fig. 81: 9, 14).

In general, retouching of the edge is not typical for burins. Only single angle burin is made on the blade with large retouch on the edge, which is partly reflected abrupt (Fig. 1: 3). It is not excluded that this burin is the result of the renewal of some other tool. 60,2 % of burins are made on flakes, and 28,5 % - on blades.

Scrapers (Fig. 2: 1-8, 11-15) are more numerous than the burins. There are 355 items (21,9 % of toolkit), including fractions, which are represented by fragments of working parts. Most scrapers (231 pieces, 65,0 %) made of flakes. Flakes with a width of 30 to 40 mm are often used for making scrapers, in contrast to the burins. Items that have retouch on one or two edges are few (77 copies, 21,7%). Most scrapers has a single working edge (77 items., 21,7%) and short proportions. However, miniature fan-shaped scrapers with retouched edges that emphasizes by M.V. Anikovich for streletskian, are not recorded in Sungirian toolkit. There are few scrapers with working edges, renewed by trimming technique and flat transverse spoll. 72 scrapers are the dual and multiple ones. Almost all of these artifacts except five items, made of flakes.

Core burins and core scrapers (Fig. 1: 14, 15; Fig. 2: 9, 10). Tools of these categories are few – 12 (0,7 %) and 6 (0,4 %) items, respectively. One of core burin made on flake and perhaps is an utilized nucleus (Fig. 1: 15). There is also one transversal core burin (Fig. 1: 14). Core scrapers made on massive short flakes (Fig. 2: 9), single item – on fragment of piece ecailee (Fig. 2: 10). There is one piece à museau among core scrapers.

Piece ecailee (Fig. 3) is one of the most characteristic categories of Sungirian toolkit. This is the most numerous series of objects (281 items, 17,3 % of tools), which in most cases made of flakes. It is 93,2 % of the total number of tools in this category. Massive flakes often used for making piece ecailee and rarely to be found among scrapers and particularly the burins.

Single-end and double piece ecailee are 109 (38,8 %) and 147 (52,3%) items. Blanks of the single-end piece ecailee have quite massive platforms with traces of impacts. Triple and four-ended tools are very few. The last one is so heavily processed that its external shape is similar to bifacial forms (Fig. 3: 7). 37 items belong to the group of the core-shaped piece ecailee. These artifacts are produced on massive flakes, which dorsal surface is completely covered with negatives from the microblades. As a result, they look like miniature flattened cores (Fig. 3: 2). It should also be noted that eight pieces made of thin flakes (Fig. 3: 10, 13). M.V. Anikovich attributed this type as characteristic forms for Gorodtsovian culture (Anikovich, 1991).

Bifacial points (Fig. 4; Fig. 5: 3), despite its small numbers (16 items, 1,0 %), are the brightest category in Sun-

girian toolkit. Morphologically these artifacts can be divided into two groups.

The first group consists of so-called streletskian/sungirian forms (11 items, Fig. 4: 1-7). These points have a triangular shape and doubly-convex profile. Points are divided into equilateral-shaped with a straight base, equilateral with a slightly concave base and elongated with a straight base.

The second group consists of leaf elongated points (5 copies, Fig. 4: 9, 10). All the listed points belong to thin bifaces (Anikovich et al., 1998).

There is one unique point among triangular forms (Fig. 5: 3). It is made on a massive flake and has equilateral proportions with oblique base.

Unifacial points (Fig. 5: 1, 2, 5). Tools of this category, as well as bifacial ones, are divided into groups of triangular (6 copies) and leaf (1 copy) points. The leaf point has a sub-oval asymmetrical shape and plano-convex cross-section (Fig. 5: 2).

One piece from the excavation unit II can be attributed to the tanged point (Fig. 5: 4). This item is made on the blade and has slightly asymmetrical shape and straight profile of retouched edge. Its tanged part is formed by small marginal retouch on one edge and blade is shaped with ventral retouch on the same edge.

Bifaces represented by a series of 18 items (Fig. 5: 6, 7). Six pieces are disc-shaped objects, one of which is massive enough and core-like. Bifaces made of massive flakes.

Flakes with trimming ends differ from piece ecailee by using of less intense, and mostly ventral, trimming technique for finishing only one end (Fig. 5: 11).

Points on flakes (Fig. 6) are also few (27 items, 1,9 %). Flakes of various sizes used for making of these tools, including very small (Fig. 6: 11, 12). However, points made on fairly large and heavy flakes are dominated in the series (Fig. 6: 1-3). Points in most cases have one edge with flat retouch, including seven items with edge fully covered by flat retouch. There are only 3 items with both retouched edges. One of the point made of shale, with the edge fully shaped by ventral retouch of medium size.

Points on blades (Fig. 7: 1-5, 7-12) are also not numerous. There are only 28 items, mostly in fragments. It is difficult to trace any kind of standardization among the tools of this category. Five points have a curved profile, but most is too fragmented. The retouch is flat, large and medium in size, slightly emarginate. Thirteen points are shaped by retouch along two edges. Two pieces were presented by massive, asymmetrical points, one of which is combined with a scraper (Fig. 7: 1). One tool is double massive point (Fig. 7: 3).

Points on micro-blades (Fig. 7: 18-20, 23). Items of this category are rare (6 artifacts, 0,4 %), but very meaningful. These points are made on a massive micro-blades with a slightly curved profile and width from 3,5 to 6 mm. The distal ends of these tools were pointed by small marginal

or semi-abrupt retouch. One point has a symmetrical shape and two retouched edges on the end. Other points are asymmetric. The symmetrical point has slightly oblique retouched base, and the asymmetric one has a transverse base (Fig. 7: 18, 19).

Borers (Fig. 8: 1-11) include a series of sixteen pieces (1,0 %). Half of it is made on flakes with short triangular points on the angle (Fig. 8: 8-11). One of the borers made on a large blade with retouched edge (Fig. 8: 1). Six other tools made on the blades, which points are located at the distal end and have an asymmetrical sub-triangular form.

Side-scrapers (Fig. 5: 8, 9; Fig. 9) of the Sungir are quite numerous (52 copies, 3.2 % of tools). These artifacts were made in most cases on large massive flakes. However, the collection includes six pieces of even larger fragments, including tiles of slate and silicified limestone. Nucleus was used as a work piece for one side-scrapers. Most of these tools (33 items, 63, 5 %) are single straight and convex scrapers. Three single side-scrapers have thinned ends with the trimming technique. There are 11 items of double side-scrapers, two of which are convergent. The collection includes also three scrapers with three working edges. Large, including stepped, retouch has been used most often for shaping these tools.

Combined tools consist of ten items. Three tools were made on the blades, and the rest of flakes. Items on the blades are represented by combinations of the scraper and borer with large vertical symmetrical stinger, and the scraper and the point with the retouching of the edges. One tool refers to the combination of the angle burin and borer with short oblique point. As a whole, the following forms are presented by the objects of this category:

- scrapers	7
- piece ecailee	2
- borers	3
- angle burins on a break	3
- points on blade	2

There are also micro-blade and blade with truncation retouched end (2 items, Fig. 7: 24, 27), and three naturally-backed knives. Among the latter, one piece is produced on the blade, and two of flakes.

Blades and flakes with retouch are the most numerous series in the toolkit of Sungir - 260 (16,0 %) and 375 (23,1 %) items, respectively. Any standardization among these products is nonexistent. In our view, four pieces among the blades with retouch are particularly interesting. The first of these ones is micro-blade with regular dorsal surface and straight profile, a very flat bulb and a narrow striking platform. Its proximal end is retouched along an oblique arc by ventral abrupt retouch, and the upper section of the right edge has small marginal retouch (Fig. 7: 26). One blade has one edge that was shaped by ventral notched retouch of medium size. The third artifact is asymmetrically notched Aurignacian blade (Fig. 8: 12). The left edge has a large flat retouch, the right one is retouched by a large steep retouch. The fourth is a large blade with Aurignacian retouch of edges (Fig. 8: 14). One fragmented blade may be part of the tanged point (Fig.

7: 6). Among flakes with retouch, there are forms resembling borer (1 item), points (4 items) and scraper-like tools (3 items). The edge of one of the flakes finished with semi-abrupt retouch along the entire perimeter (Fig. 8: 16).

Conclusions and discussion

Typological features of Sungirian toolkit are associated with several indicators. First of all, it is a thin bifaces, which are presented by leaf-shaped and triangular points. Second, Sungirian inventory differs from the classical streletskian by the following characteristics: a substantial proportion of piece ecailee, large number of burins and the presence of Aurignacian component. The latter include core burins and core scrapers, as well as the points on the micro-blades. The last characteristic is not something unexpected. In fact, the stone inventory of Sungir includes edge-faceted cores for micro-blades. There are also a pre-form of such nucleus, numerous micro-blades and the primary flake, produced from end core (Fig. 7: 13, 14, 17, 16, 25, 28). However, we can attribute Sungir as the part of Streletskian culture because of bifacial points, numerous series of side-scrapers (Fig. 9), and predominance of flakes among tools.

But this conclusion is not complete to determine Sungir's position in the European Palaeolithic context. The characteristics of sungirian stone inventory at the same time, allow us to compare this site with final Szeletian of Central Europe. It should be remind that O.N. Bader wrote about this in the beginning of studies on the Sungir (Bader, 1961). Now this conclusion is not refuted by the presence of Aurignacian types, because the same pattern is seen in some Szeletian sites of Central Europe (Allsworth-Jones 1986; Svoboda *et al.*, 1994). Researchers noted the uncertainty of the context of this combination (Kaminská *et al.*, 2012). However, a few sites in the last decades were excavated in Eastern Europe, toolkit of which is similar to streletskian and at the same time contains Aurignacian types. It is primarily the site of Garchi I, located in the North-East of European part of Russia and the site of Vys, located in the Central part of Ukraine (Fig. 10: 2, 5). The stone inventory of the Garchi I includes bifacial triangular points with straight and concave base, as well as leaf-shaped bifaces. This combination of forms is similar to sungirian one (Pavlov, Markarov, 1998). In addition, there are also core scrapers, end cores for microblades, and the microblades, piece ecailee made of massive flakes, side-scrapers in the Garchi I inventory. This whole set is characteristic also for Sungir. Bifacial triangular points with a concave base, and leaf-shaped points, as well as Aurignacian types of scrapers were found during the excavation of the site of Vys (Zaliznyak *et al.*, 2013). Another site, Biruchya Balka 2 (Fig. 10: 4), was excavated by E. A. Matiukhin in the lower reaches of the Seversky Donets River. Stone tools of the third horizon of this site is characterized by thin triangular bifacial points with a concave base, on the one hand, and edge-faceted cores for micro-blades, and series of micro-blades – on the other (Matyukhin, 2012).

L. L. Zaliznyak with coauthors notes that the combi-

nation of thin bifaces and Aurignacian forms is characteristic of Szeletian techno-complexes only in Central Europe (Zaliznyak *et al.*, 2013, pp. 102-103). Nevertheless, materials of Sungir, Garchi I and, in part, Biruchya Balka 2 suggest that this combination of features is typical for “szeletoid” complexes of Eastern Europe. “Szeletoid” character of Sungirian inventory in any case does not eliminate regional specificity both Streletskaya culture and Sungir, which was fixed in the 1960-ies (Grigoriev, 1963; Grigoriev, 1968; Bader, 1966). The regional specificity of the Streletskaya culture is manifested mostly in the morphology of the triangular points. For example, a triangular bifaces of the Moravany-Dlha site have a convex base. In addition, the edges of the points are connected with

the base in the form of an arc, and not at an acute angle (Barta, 1965). Actually triangular points of Streletskian types do not exist on the territory of Central Europe (Kaminská *et al.*, 2012).

Sungir is investigated in a huge area and we cannot confidently reason about the variability of Streletskian sites inventory in Kostenki Region due to the disparate small area of its excavations. Specifics of Sungirian inventory, which are identified in comparing with Streletskian in Kostenki, may reflect the functional feature of the site. In any case, Sungir and Streletskian in general can be considered as regional manifestations of the final Szeletian in Eastern Europe.

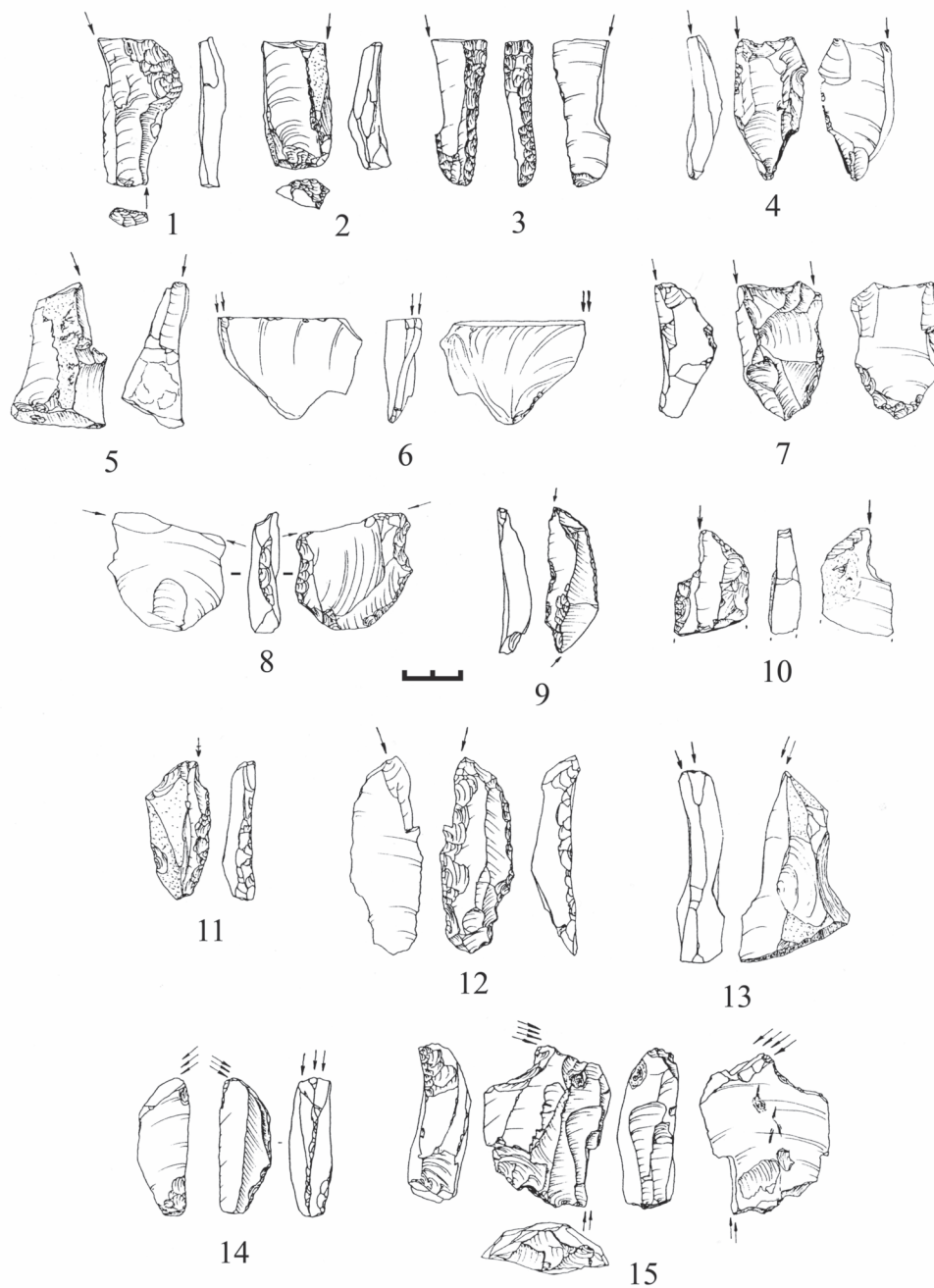


Figure 2: Sungir. Burins.

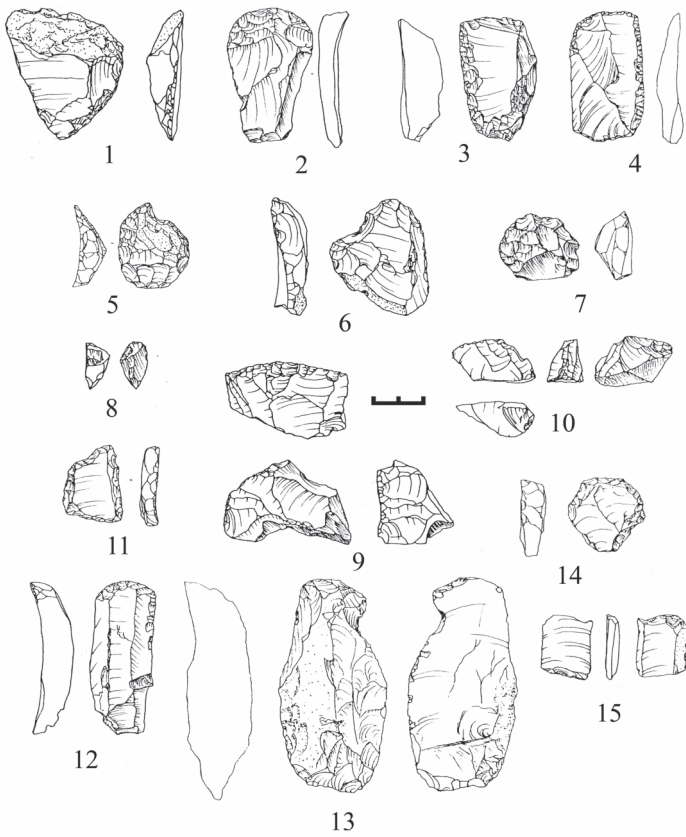


Figure 3: Sungir. The end scrapers (1-7, 11-15) and core scrapers (8-10).

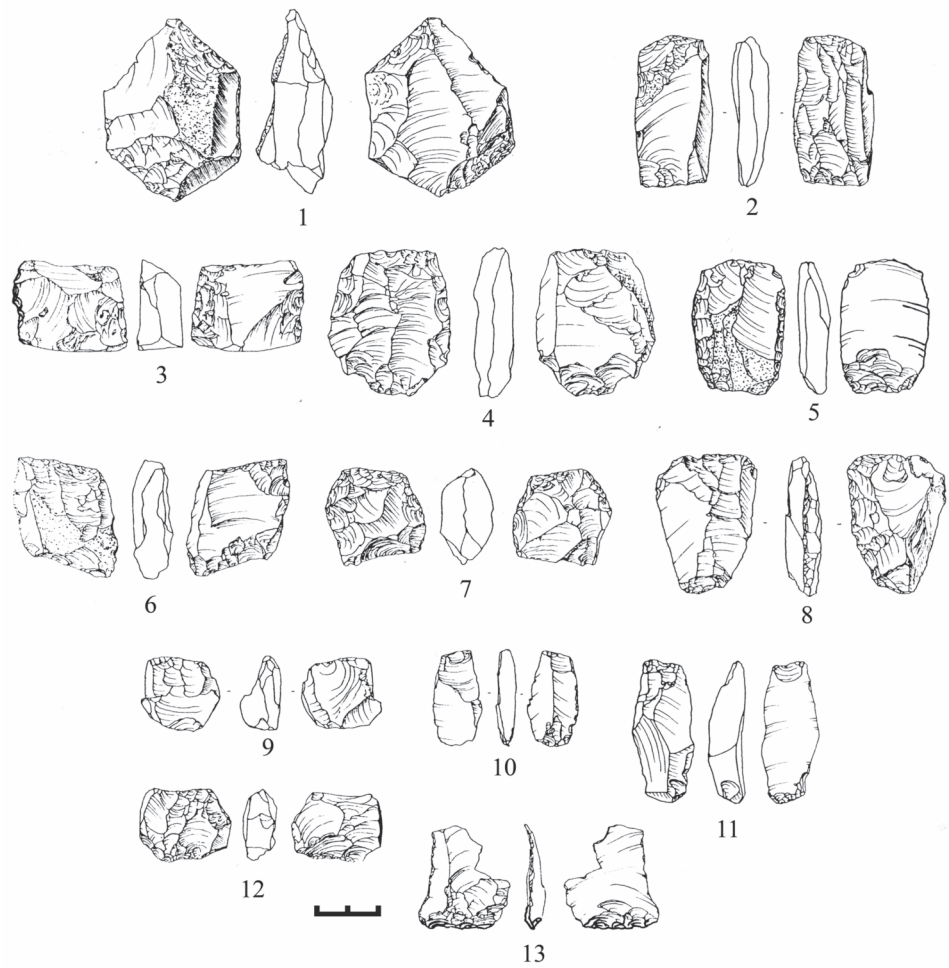


Figure 4: Sungir. Pièces écaillées

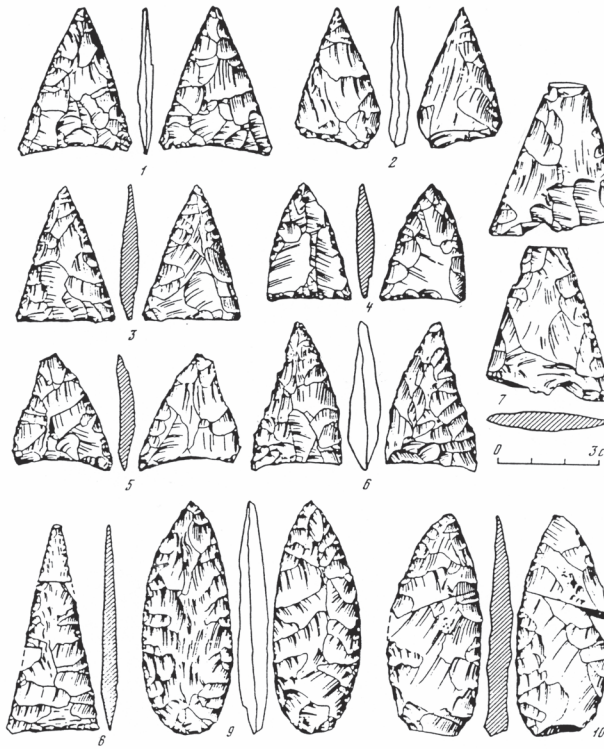


Figure 5: Sungir. Bifacial points (to: Bader, 1978).

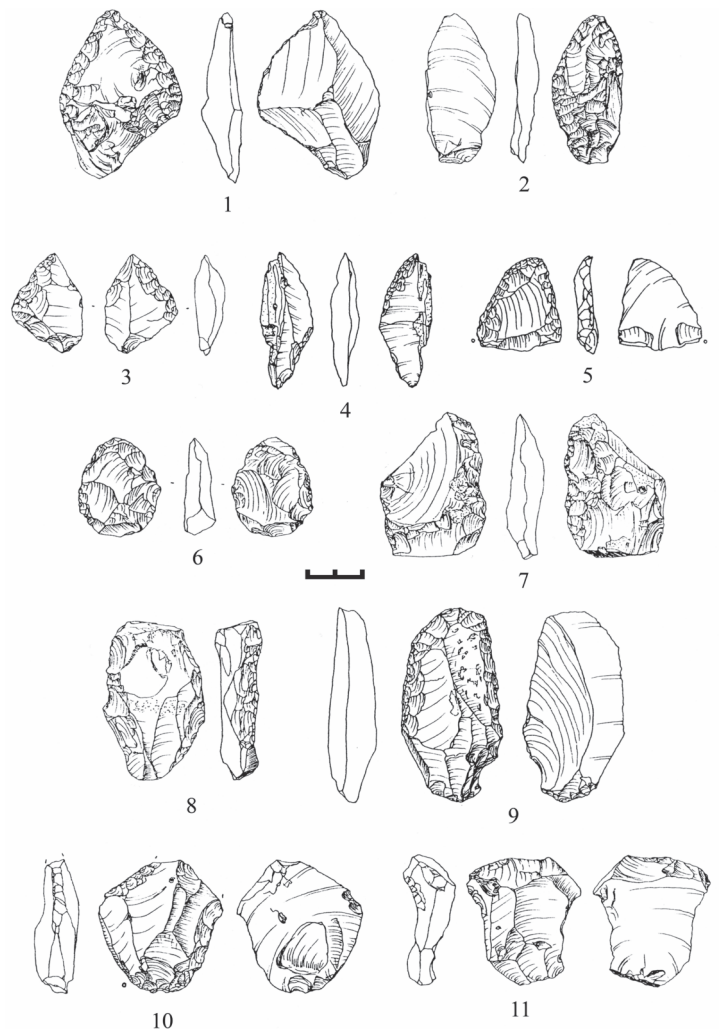


Figure 6: Sungir. Unifacial points (1-5), biface (6), side scrapers (7-11).

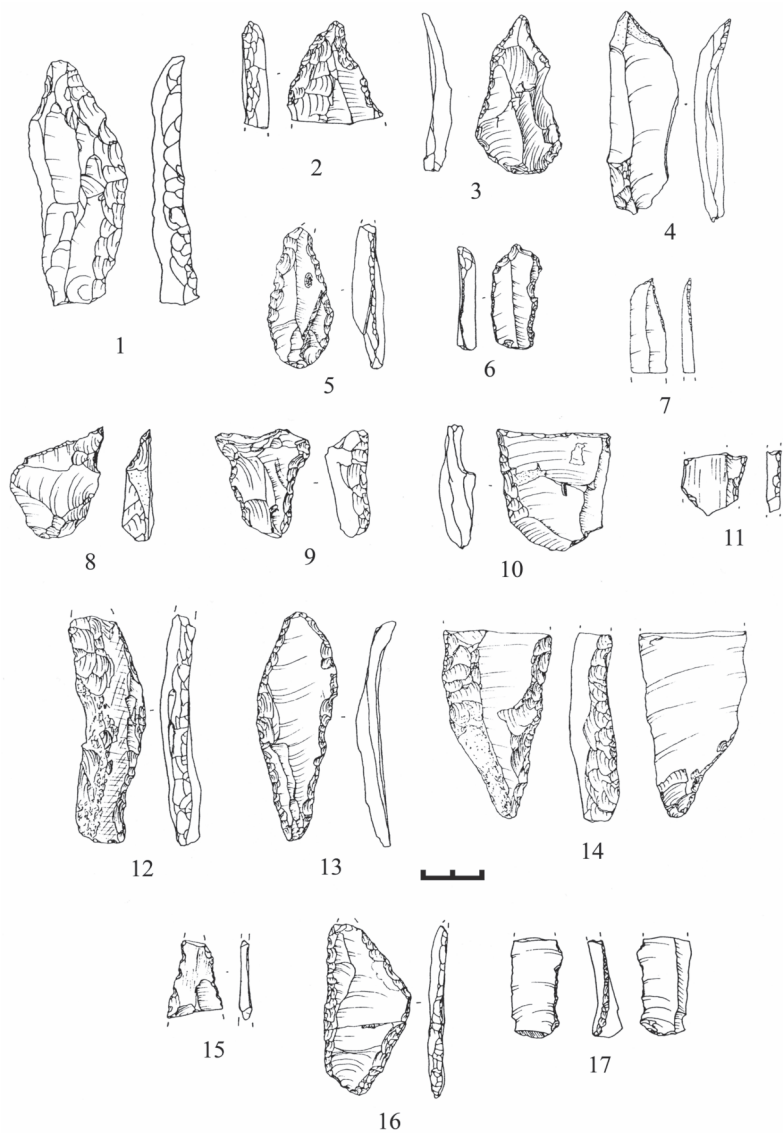


Figure 7: Sungir. Borers (1-11), retouched blades (12-17).

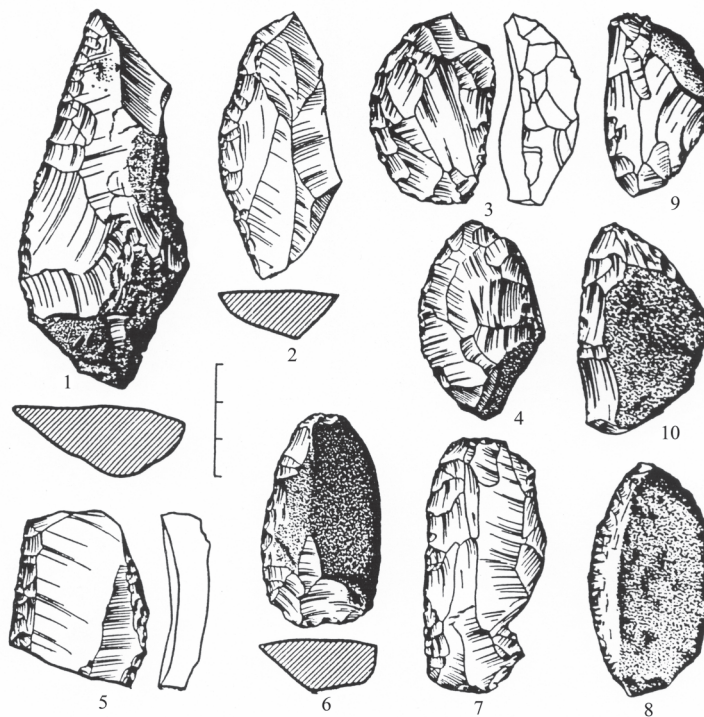


Figure 8: Sungir. Points on flakes.

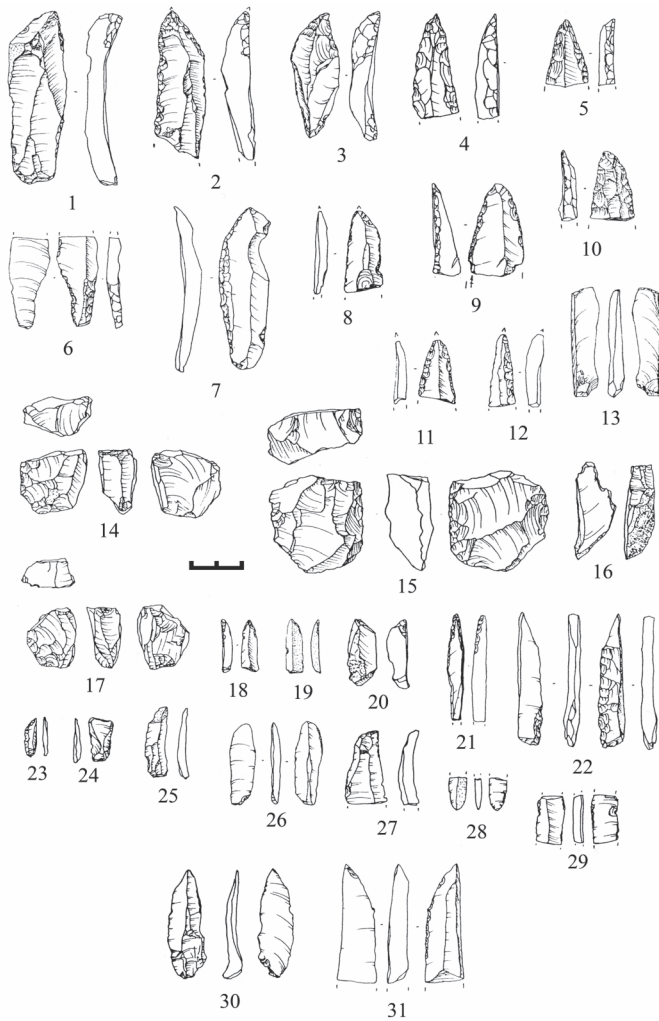


Figure 9: Sungir. Points on blades (1-5, 7-12, 30, 31), fragment of tanged point (6), burin spalls (13, 16, 21, 22), edge-faceted cores for micro-blades (14, 17), preform of edge-faceted core for micro-blades (15), points on micro-blades and bladelets (18-20, 23, 30), micro-blades and bladelets (24, 25, 27, 29), retouched micro-blades and bladelets (26, 28, 31).

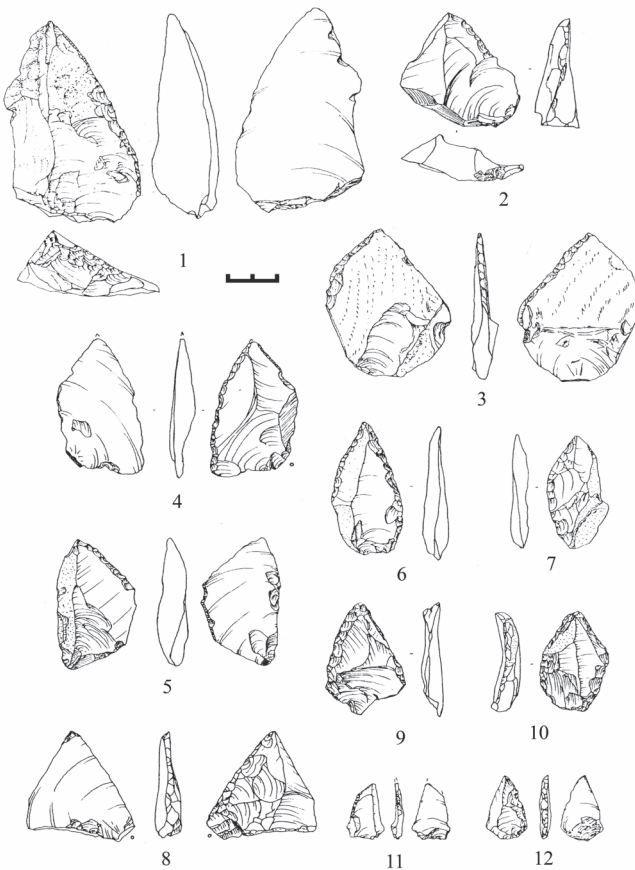


Figure 10: Sungir. Side scrapers (to: Bader, 1978).

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