

## DISCUSSIONS

### ON THE GENESIS OF KUNDA CULTURE. A. SOROKIN'S HYPOTHESIS. COMMENTS

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##### Introduction

Though Mesolithic Kunda culture is one of the earliest explored prehistoric European and global phenomena of this period, the question of its genesis is still a source of passionate debates among researchers. In this article, I will attempt to discuss it with Sorokin, the Russian archaeologist and famous researcher of the Upper Volga and the Oka river basins in the Late Palaeolithic and Mesolithic ages. In 1999, Sorokin presented, apart from other hypotheses, a detailed and reasoned hypothesis of the genesis of Kunda culture, which treats the question as a cultural process in the wider Mesolithic context of the East European forest region. I address this study to researchers of the Late Palaeolithic and Mesolithic ages in Eastern Europe with the proposal to consider it an invitation for discussions to promote further research of the genesis of Kunda culture.

##### The history of research into the genesis of Kunda culture

At the end of the 19th century C. Grewingk, the first researcher of Kunda settlement in northern Estonia, attempted to link its origin to Finno-Ugric tribes, which came from Finland or Sweden (Янитс 1959, 7). The interwar Estonian archaeologist R. Indreko initially derived Kunda culture from Palaeolithic centres of Central and Western Europe (Indreko 1948, 398). Later, however, he changed his mind and related its origin to Borshevo 1 type settlements with stemmed spearheads from the Don-Desna region in the Late Palaeolithic Period (Indreko 1964, 58-61). In a study summarising explorations of Stone Age Estonia, and published in Estonia in 1959, the archaeologist L. Janits assumes that, though the material for findings is not sufficient, Kunda culture probably formed several multi-original elements: Askola culture and the impacts of the south and east (Янитс 1959, 327-328). At the beginning of the Seventies, the Polish researcher S.K. Kozłowski hypothesised about a huge circle of

northwestern cultures, including Kunda culture. According to Kozłowski, cultures of this circle formed at the start of the Holocene Period after the convergence of a wave of migration from Siberia and the inheritance of Swiderian culture, including some suppositional influence of the northern Black Sea coast. The northwest circle of cultures included northern forest territories from the Baltic Sea to the Urals (Kozłowski 1971, 69-71). In subsequent studies, Kozłowski related the appearance of the northwest circle of cultures in the northern part of Eastern Europe only to westward expanded Siberian cultures (Kozłowski, Kozłowski 1977, 242-243). In his latest summarising study about the Polish Mesolithic Age, he draws a curtain over the question of Kunda culture, though he attributes it to the northwest circle of cultures together with the Nemunas and Kudlaevka cultures (Kozłowski 1989, 177-179). This position taken by the researcher probably proves that the question of the Kunda's genesis is not obvious to him. In the Eighties and Nineties of the 20th century, most researchers would relate Kunda culture to Swiderian culture, though indirectly, since they were embarrassed by typological and technological differences in collections of flint artefacts. The Lithuanian Stone Age researcher R. Rimantienė noted a few components which were characteristic of the formation of the above culture: Maglemosian and Askola cultures, together with the inheritance of Swiderian culture from the southeast, probably from the Valdaj highlands (Rimantienė 1984, 94). A similar attitude is taken by L.V. Kolcov. Like Rimantienė, he derives separate elements of Kunda culture from different cultures. He thinks that the flint inventory of Kunda culture formed its bone and horn tools under the influence of Swiderian and Ahrensburg cultures, its schist and quartz of Duvensee-Maglemosian cultural communities, and of Askola culture from southern Finland. According to this Russian scientist, the influence of Swiderian culture dominated (Кольцов 1977, 134; 1979, 24). To the Latvian researcher I. Zagorska, early Mesolithic Latvian and Estonian Pulli-type settlements derive from

the late Palaeolithic Salaspils Laukskola settlement in the lower reaches of the Daugava. She relates this settlement to Swiderian and Ahrensburg cultural monuments in Lithuania, Byelorussia and Poland (Заропска 1981, 63-64). The Estonian researcher K. Janits and the Byelorussian archaeologist V.P. Ksenzov derive Kunda culture from Swiderian culture (Янитс 1990, 30; Ксензов 1994, 24). The famous Ukrainian archaeologist L. Zalizniak believes Kunda culture and other post-Swiderian cultures derive from Swiderian culture (Зализняк 1989, 80-89). The Polish archaeologist Z. Sulgostowska analysed research on the transition period from Palaeolithic to Mesolithic in the Eastern Baltic region and points to gaps which do not allow us to prove undoubtedly genetic ties between Swiderian and Kunda cultures (Sulgostowska, 1999). The most significant among them are presented below.

Researchers have only isolated radio-carbonic dates regarding both Late Swiderian and Kunda cultures, so it makes it impossible to identify precisely the time of the extinction of the first culture and the time of the origin of the second, and to elaborate their interrelations. However, the strongest argument of sceptics on the Swiderian origin of Kunda culture is the different flint processing technique and the typological composition of flint tools. The primary treatment of flint, based on direct split by soft hammerstone, separating irregular blades from two-end cores, is typical of Swiderian culture. The basic types of artefacts are stemmed arrowheads, scrapers and burins. The latter are either central, shaped with different side percussion, or sidelong and transversal, shaped by retouch and percussion (Sulgostowska 1989, 38-57). Pressure technique, which implies the percussion of regular blades from one-end, mostly conical cores, is dominant in Kunda culture. Arrowheads, including stemmed ones, as well as burins, are mostly shaped by percussion at the broken ends of the blades and by waste flakes, though burins shaped by retouch and percussion are not unusual either. The widespread blade-shaped technique, when numerous microlithic flint blades with retouched sides and ends, elements of former stone hunting tools, are discovered, is noteworthy (Ostrauskas 2000: 2002a, 98; 2000b, 78).

Summarising briefly the attitudes of the origin of Kunda culture, the researchers can be divided into two groups. Some of them link it to large-scale migration from the east (from Siberia). Others link the genesis of Kunda culture to Swiderian culture of the late Palaeolithic Period, and try to explain the differences in the available archaeological material by different cultural impacts.

## Sorokin's hypothesis on the genesis of Kunda culture and a critique of it

In 1995 the Muscovite archaeologist A. Sorokin proposed an unusual solution to the question of the genesis of Kunda culture (Sorokin 1999). In his 2002 study "Mesolithic of Zhizdra Polesie" the researcher proposed a slightly widened hypothesis on the genesis of Kunda culture (Сорокин 2002, 120-122). According to this hypothesis, Reseta, Kunda and Butovo cultures (the first and the third are spread between the basins of the Volga and Oka rivers) make up different stages of one single chain of cultural development. According to him, Pulli-type settlements of Kunda culture in Latvia and Estonia reflect the seasonal migration of people of Reseta culture from the Upper Volga, along the Daugava valley and to the Eastern Baltic region in the pre-Boreal Period. Sorokin distinguishes an early period in Kunda culture, that is, Pulli-type settlements. He thinks the links between settlements of the early stage with settlements of the Boreal Period (Kunda-Jalavere) are not proven (Сорокин 2002, 120). He believes only the understratum of Pulli and Lepakoze settlements can be attributed to the early stage of Kunda culture. According to Sorokin, hunting tools and relics of flint tools discovered have no analogues in other Mesolithic settlements of the Eastern Baltic region. He believes the genesis of Pulli-type settlements cannot be related to Swiderian culture, as no one-edged spearheads and micro-blades, no retouched blades or micro-burin technique, and so on, have been discovered in Swiderian culture. Nevertheless, he finds these and other (eg Reseta-type microlithic spearheads) peculiarities only in Reseta cultures which existed in the basins of the Volga and Oka rivers in the early Kunda period. It appears from this that Sorokin's hypothesis is the only one to "discover" complexes of settlements which directly stimulated the formation of features typical of Kunda culture. These are the Reseta 3 settlement, and the understratum of the Ust'-Tudovka 4 settlement (Сорокин 2002, 121-122). In addition, he thinks both the micro-burin technique and Reseta-type microlithic spearheads from Pulli-type settlements are vanishing relics (Сорокин 2002, 122); therefore, Pulli-type settlements are related to the later period, while the Reseta 3 settlement is datable to an earlier period than that of the Pulli settlement. Spearheads in Butovo culture settlements (eg Butovo, Prislon settlement), typical of Pulli-type complexes, indicate that some types of Butovo spearhead originate from those belonging to Pulli-type complexes and Reseta culture (Sorokin 2002, 122).

Sorokin has noticed rightly that broadly significant (all Mesolithic of the northern part of the Eastern Baltic region) differences between findings in complexes of

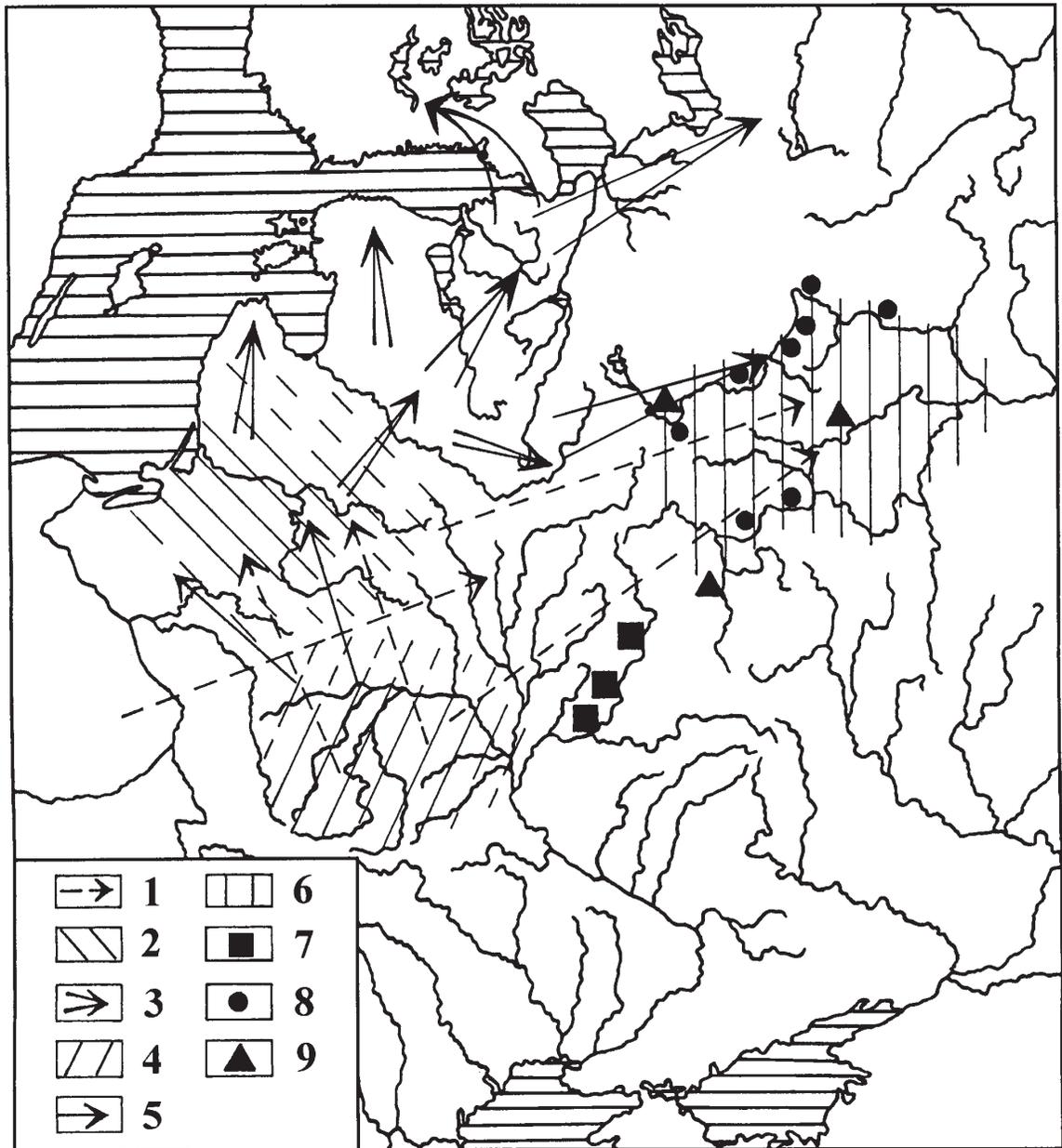


Fig. 1. The formation of early mesolithic Kunda culture in the region and the directions of its spread in the first half of the eighth millennium: 1 directions of migration of Swiderian culture in the early Holocene; 2 region of formation of Kunda culture; 3 directions of spread of Kunda culture; 4 the areal of formation of Kudlayevka culture; 5 direction of spread of Kudlayevka culture; 6 Butone culture; 7 Pesochny Row culture; 8 Yenevo culture; 9 sites of Reseta culture

the early, pre-Boreal stage of Kunda culture (Pulli-type settlements) and material on monuments of the subsequent Mesolithic periods are full of questions whether it is one single culture. In my articles on the subject of Kunda culture research (Ostrauskas 2000; 2002a), I stated my opinion that flint findings and technologies discovered in pre-Boreal Period settlements of this culture are conditioned by the import of high-quality flint material from the Nemunas basin. After a stoppage in the import in the second half, at the end (?), of the pre-Boreal Period some types of artefacts and technologies are no longer found, as local Estonian or Latvian stone material is no good for them. A continuity in the work-

ing of horn and antler tools in the northern part of the eastern Baltic region (Estonia and Latvia), however, survives until the end of the Boreal Period. Moreover, the Latvian researcher I. Zagorska proved that horn and antler collections of the early and late Mesolithic periods are too different and they should not be jumbled into one culture (Zagorska 1992, 109, 112-113, Fig. 19). I have suggested delineating the caesura of Mesolithic development in the northern part of the eastern Baltic at the end of the Boreal Period. The end of flint imports signals the end of the early Kunda culture period, together with its typical flint processing technology; consequently, the extinct tradition of

typical horn and antler processing should signal the end of Kunda culture at the end of the Boreal Period. However, all settlements from southern Finland (Lahti Ristola) to southern Lithuania, northeast Poland and western Byelorussia with imported flint material, Kunda percussion technology and stemmed arrowheads should be linked to the early pre-Boreal stage of Kunda culture. At the moment, I have material about at least 33 settlements and 45 find spots with single Pulli-type arrowheads (Ostrauskas 2000, Fig. 1; 2002a, Fig. 1). In short, Sorokin's hypothesis can hardly explain the huge numbers of settlements and finds in the Nemunas and Narev basins. He simply had no opportunity for a detailed acquaintance with the material on Kunda culture settlements, while forming a clear picture with old publications is not possible. I also regret to say that after the collapse of the Soviet Union, the latest material, together with data on the latest research, is almost no longer accessible to archaeologists.

I would not like to agree with Sorokin on the stratigraphically separate layer in the Lepakoze settlement. The settlement's researcher himself does not single it out (Янитс 1990, 7). A greyish seam, discovered in some places beneath a ploughing layer, contained finds, and was not sterile at all, as Sorokin maintains (Сорокин 2002, 120). The Lepakoze collection could be interpreted in two different ways. It is either the remains of relatively contemporaneous pre-Boreal settlements with small quantities of imported flint or material from the pre-Boreal Period, or finds from imported and local material which are intermingled with finds from local material alone and belong to subsequent periods. In any case, the huge amount of finds (11,588 items) indicates that it could be the remains of a few settlements. Similar greyish sand seams are frequent among sandy Lithuanian settlements. They are discovered also in ploughed settlements beneath undisturbed sites in woods under the soil. Probably the origin of seams is different, as some are likely to be patterns of mixed soil. The latest radio-carbon investigation of Kunda settlement revealed three stages of settlement: Early Mesolithic (in pre-Boreal 9000-9500 bp), Middle Mesolithic (second part of Boreal 8000-8500 bp) and Neolithic (3500-4000 bp) (Akerlund, Regnell, Possnert 1996, 266, 269). This is why I am inclined to link the only stemmed arrowhead and part of other material from this campsite to the pre-Boreal Period of settlement.

Sorokin emphasises similarities in primary flint processing techniques (one-end conical cores, pressure technique, micro-blades of a regular shape, etc) between Reseta culture and Pulli-type settlements, though in fact it is only a manifestation of features which are typical of most cultures in a common Mesolithic Euro-

pean context. Only an incomplete introduction to materials of archaeological collections could explain his pointed similarities between Pulli-type and Reseta culture settlements on the basis of the hunting inventory. Lancet-shaped microlithic arrowheads ("Reseta type microlithic arrowheads") in Pulli settlements are only painted upside-down non-isosceles triangle microliths. There is no sign of the micro-burin technique in the Pulli collection. I personally explored every single item and flake. This technique is not to be discovered in any other Kunda culture settlement of the pre-Boreal Period either (unless collections are mixed with the remains of Janislavici or early Neolithic settlements). Not a single example of micro-burin technique was discovered even in 2002, when a 500-square-metre area of the Paramėlis 3C settlement in Lithuania was explored. As far as I am acquainted with Latvian and Estonian archaeological material, a micro-burin discovered in the Koškeni campsite in Kurzeme (western Latvia) and probably dated to the second half of the Mesolithic Period (Zagorska 1992, 105, Fig. 19: 15), is likely to be the only one; whereas the only lancet discovered comes from the Osa early Neolithic settlement at Lake Lubana (eastern Latvia). Microlithic blades of early Kunda culture, as well as other tools with massive blades, were made without the employment of the micro-burin technique. With the necessity of division, blades simply used to be broken. "Unilateral" Pulli-type heads or blades, as I call them on the basis of their application, are spread in the entire cultural territory from southern Finland to the Nemunas basin and the Upper Volga (Prislon). These heads are made from massive blades, and should not be identified with type A microlithic heads from Reseta, though their application might be similar, that is, as arrowheads or bladed bone hunting tools. Bladed Pulli-type heads from early Kunda culture show that analogous bladed heads are traced among the Butovo cultural material discovered (eg Prislon, Reseta 3, Kultino 4 settlements) and they have to be linked to Butovo rather than to Reseta culture (Кольцов, Жилин 1999, Fig. 15, 30; Сорокин 2002, Fig. 50-51). My suggestion to colleagues exploring the Mesolithic Period of the Upper Volga and Oka rivers would be to examine the hypothesis.

According to Sorokin's publication, stemmed heads are not discovered in Reseta culture settlements of an early stage, as, for example, in Sukontsevo 8 and 9 (Sorokin 1999, 427 Fig. 1), so I think that stemmed heads from the collections of the Reseta 2 and 3 sites imply the addition of material from Butovo and perhaps Swiderian cultures. Therefore, flint hunting tools from early Kunda, discovered in the Butovo and Prislon sites (Кольцов, Жилин 1999, 62, 77, Fig. 2, 4, 30) and perhaps coming from Nemunas coastal material,

just prove the ties between Kunda and Butovo cultures, but not the rise of the latter from Reseta culture.

Examples presented in the first chapter show how the key differences between Kunda culture sites of the early Mesolithic Period and flint processing technique, the typological composition in Swiderian culture, make researchers seek for the origin of Kunda culture somewhere else, away from its area. This situation is essentially changed by the Ukrainian researcher L. Zalizniak, who thinks that in monuments of post-Swiderian cultures from the early Mesolithic Period pressure technique can be traced, which means the employment of one-end cores for making regular-shape blades. All this is nothing more than a normal stage in developing the flint processing technique, the transition to an optimal form of cores for the percussion of regular-shape blades, that is, for making one-end conical cores. Due to new semimanufactures (blanks), a regular-shape blade, the typological composition of flint tools and microlithisation became possible (Зализняк 1989, 83-84). Rapid and radical natural changes at the end of the late Glacial Period and the beginning of the Holocene, and the necessity to adapt to the influence of neighbouring cultures from forest-steppe and steppe zones, affected by natural changes, perhaps, stimulated these changes and determined the rise of important new features in Mesolithic culture, like, for example, the appearance of the blade processing technique.

This hypothesis of Zalizniak was confirmed by D. Stupak, another Ukrainian archaeologist. He found that alongside typical Swiderian two-end cores, discovered in some Swiderian settlements in Ukraine (Berezno 6, Pribor 13 A, E, Г, Ж) and the Crimea (Siurenj II), conical cores for the percussion of regular-shape blades in the pressure technique were also employed (Ступак 1999). As the latter technique is meant for knapping regular-shape micro-blades suitable for making blades, Stupak presumes this kind of technology in the above monuments of Swiderian culture had already been employed for the manufacture of integrated hunting tools. In the Paramelis 3C settlement, explored in southern Lithuania in 2002, alongside the legacy of late Swiderian and typical pre-Boreal periods of Kunda cultures, a technique of a transitional type was discovered. Two-end cores with separated points of percussion at the edge of the striking platforms were perhaps meant for blade pressing. Later, some cores were reshaped into one-end conical cores. A transitional-type arrowhead discovered confirmed the attribution of other similar heads. The precise fixing of finds in the campsite during explorations will hopefully allow us to complete the "refitting" of the material and planigraphic research of the settlement in the near future. It might also prove the transformation of the typical late

Swiderian primary processing technique into Kunda culture technique.

Early Kunda culture groups could have taken some Reseta culture-related features from Kudlaevka culture people, who had reached the Nemunas basin already in the first half of the pre-Boreal Period (eg the development of the blade-shaping technique?). Kudlaevka culture, like Reseta culture, is also derived from late Gravet groups, who survived in the steppe and forest/steppe zones of Ukraine. Relations between Kunda and Kudlaevka cultures could hardly be called friendly, as the export of flint into the eastern Baltic region stopped after Kudlaevka culture settled in the Nemunas basin. Besides, poor cultural contact between them can be proved by Kunda's not mastering the micro-burin technique, which was the core of the hunting inventory in Kudlaevka culture (Ostrauskas 2002c).

The author believes that sources of good-quality flint in the southern part of the Nemunas and the northern part of the Narev basins were a material base for Swiderian culture in its local form around the Nemunas basin. At the beginning of the pre-Boreal Period these resources of flint made up a material base for late Swiderian culture to transform into Kunda culture technologically, as this region appeared to be the only source of good-quality flint in the total Kunda culture area, including southern Finland, the Ladoga shores and the Upper Daugava. Flint processing technique in Kunda culture, that is, the employment of pressure technique for the percussion of regular-shape blades, could form only in the case of abundant and high-quality flint.

The facts presented above allow us to locate the area of the formation of Kunda culture in the following way: the southern and central parts of the Nemunas basin (coastal areas around the Byelorussian sections of the Nemunas, southern and central Lithuania) and the northern part of the Narev basin (northeast Poland).

### The modern subject of research in the genesis of Kunda culture

This chapter is to show what we are missing to finally solve the question of the origin of Kunda culture. Firstly we need at least a small but reliable series of C-14 dates from late Swiderian and early Kunda culture settlements in the Nemunas basin. It would be good to explore another one or two settlements of the transitional period, and to perform detailed planigraphic and technological research (re-fittings) in them. With respect to the relations of Kunda culture settlements with settlements in Estonia and Latvia, it would be useful to discover new settlements with extant organic material findings. Otherwise, a comparison of collections from

these settlements is not possible. Findings from bone and antler dominate among the Latvian and Estonian material, while flint finds alone are available from the Nemunas basin. Research into the economy of Kunda culture and relations with the surroundings is impossible without peatbog settlements in the Nemunas basin. Early Kunda culture groups employed high-quality flint from mines (according to the researcher W. Migal, of the Archaeological Museum in Warsaw), which allows us to search for flint mines exploited by Kunda culture people. Naturally, the genesis and development of ethnic-cultural phenomena cannot be conclusively reconstructed without anthropological data. Researchers have almost no material for the elaboration of relations between Kudlaevka and Kunda cultures.

We have more questions than answers; therefore, the endeavours of each researcher to unveil the secrets of the past are encouraged.

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