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Aborigines or Migrants? A New Stage in the Okunev Origin Debate

New arguments put forward by advocates of the migration theory of the Okunev origin are discussed and found unconvincing. A cultural impulse from the Late Yamnaya and Yamnaya-Catacomb populations of the northeast Caucasian steppes is quite probable; in fact, a migration is possible too, but not on a mass scale. The western pulse was single and limited in size, and its effect on Okunev origin was likewise limited. Eventually, it was overlaid by a much more powerful local tradition—a fact that is supported by both craniometry and genetics. The belief that "brachycranic Caucasoid males"—alleged militant migrants from the west—played a critical part in Okunev origins is erroneous. Even if it proves possible to single out such males among the newly discovered skeletons from burials of the early, Uybat, stage (thus far, such attempts have been unsuccessful), their contribution to the Okunev gene pool was much smaller than that of the autochthonous population of South Siberia. According to A.V. Gromov and other members of the Saint-Petersburg school of cranial nonmetric studies, new crania from the Uybat burials don't reveal the "Native American" tendency peculiar to other Okunev samples and to certain other ancient groups of South Siberia. This is especially evident in the frequency of infraorbital pattern type II. However, no inequality is observed either in the number of Uybat males and females or in the distribution of nonmetric traits between them, disproving the idea of a military campaign allegedly causing a population turnover whereby, as migrationists claim, Afanasyevo people were destroyed or displaced. Genetics provides no indication that the source of the western admixture in Okunev people was some post-Afanasyevo migrant group from the western steppes rather than Afanasyevans themselves. This idea is more plausible with regard to the Chaa-Khol people of Tuva.

Keywords: *South Siberia, Okunev culture, Yamnaya culture, Catacomb culture, migrations, relict populations.*

Introduction

The debate around the Okunev culture has not subsided. Recently, I tried to demonstrate that Okunevans were aborigines of South Siberia, a relict group that survived for many millennia in the place whence some of its remote ancestors had migrated to the New World (Kozintsev, 2020). This theory (this, as I believe, is what it may be called today rather than just a hypothesis) was initially based on cranial data (Kozintsev, Gromov, Moiseyev, 1995, 2003; Kozintsev, Gromov, Moiseyev, 1999; Kozintsev, 2004; Vasiliev et al., 2015: 323–325). It did not receive any attention in Russia, but was 20 years later supported by geneticists in Denmark (Allentoft et al., 2015; Zacho, 2016), France (Hollard et al., 2018), and the USA (Kim et al., 2018), and was eventually supported by Russian geneticists as well (Balanovsky, 2015: 312). It would appear that the issue has been finally settled, and one might move on. Therefore, in the last publication on Okunevans, I adduced no further proofs, concentrating instead on their ties with other groups. I touched on the problem in a later article, addressing main patterns in the population

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dynamics of North Eurasia (Kozintsev, 2021). As it turned out, however, my arguments did not convince some of my Russian colleagues. The question, then, has to be revisited.

Migrants from the west: New arguments?

In the last years, the traditional view that the Okunev culture was autochthonous, held by archaeologists (Maksimenkov, 1975: 36–37; Vadetskaya, Leontyev, Maksimenkov, 1980: 26; Sokolova, 2009) and physical anthropologists (Chikisheva, 2012: 88, 123, 180; Kozintsev, 1976, 2004; Kozintsev, Gromov, Moiseyev, 2003) was countered by the hypothesis that this culture had been introduced by some militant group related to Late Yamnaya and Yamnaya-Catacomb populations—the "brachycranic Caucasoids"—who had migrated from the northwestern Caspian to South Siberia. As a result, the Afanasyevans were rapidly destroyed or displaced (Lazaretov et al., 2012; Polyakov, 2017; 2022: 83, 132, 154; and others).

That Yamnaya-Catacomb tribes played a critical role in the origin of the Afanasyevo culture has been demonstrated more than once (see, e.g., (Kozintsev, 2009)). Theoretically, of course, one cannot rule out the possibility that one of those tribes, marked by brachycrany, tracked their dolichocranic relatives to Siberia, having eventually caught up with and disposed of them (Polyakov, 2022: 128). But such a scenario is somewhat akin to romantic tales of 19th-century anthropologists about the rivalry between brachycranic and dolichcranic races. In modern physical anthropology, the cranial index is deemed a relatively unreliable indicator of migrations owing to its environmental lability.

Arguing with me, A.V. Polyakov is less than consistent. In his words, "the principal discussion involves mainly archaeological materials. The evidence from physical anthropology and especially paleogenetics was employed much later, after it had become clear that it does not contradict the migration theory [and if it did? – *A.K.*]. Therefore, it plays a purely subsidiary rather than a key role, clearly demonstrating a radical population turnover in the Minusinsk Basin at the transition between the Afanasyevo and Okunev cultures" (Ibid.: 132–133). But if the role of physical anthropology is indeed so modest, then why are mentions of "brachycranic Caucasoids"—alleged migrants from the west—so frequent in his writings? "A highly distinct brachycranic Caucasoid type represented in male series of the Uybat stage sharply distinguishes them from all known local samples" (Ibid.: 83); further on: "At the very beginning of the Okunev culture, there appear brachycranic Caucasoids, which cannot be derived from the local Neolithic by any stretch of the imagination" (Ibid.: 132); and again: "The earliest stage (Uybat) mirrors the initial process of emergence and subsequent consolidation of cultural traits. It is marked by a peculiar sexual dimorphism—the division between brachycranic Caucasoid males and a highly heterogeneous group of females, some of whom have a distinctly Mongoloid appearance" (Ibid.: 315).

First of all, it is strange to hear that the evidence from physical anthropology was adduced as a purely secondary source, when it was needed to support the migrationist theory. The review of the scholarship definitely suggests otherwise: long before the Okunev culture was considered independent and separate from Afanasyevo, the physical features of those associated with it had struck the eye (Lipsky, 1952). It is precisely to the early (Uybat) stage that the Askiz cranium belonged—the first cranium to provide an idea of how the Okunevans looked (Ibid.: Fig. 28; Polyakov, 2022: 114, fig. 63, *21*). The specimen is male and indeed brachycranic, but in no way Caucasoid. According to M.M. Gerasimov, who reconstructed the individual's appearance, it is a "robust, coarse type of a brachycranic proto-Mongoloid" (1955: 537–538, fig. 222). His facial flattening is no less pronounced than in members of the Baikal and Central Asian types, and only a strong nasal protrusion is suggestive of possible admixture (Alekseyev, 1961: 139). A.N. Lipsky was quite right when, apart from mentioning the resemblance of such individuals to the Neolithic people of the Yenisei valley, he noted a certain archaism in their appearance, supporting the idea of deep local roots (1952: 74, 75, 77).

Contrary to Polyakov's claim, not the slightest stretch of imagination is needed to derive such individuals (or even less Mongoloid ones) from the local Neolithic. Only those whom their preconceptions prevent from seeing apparent facts can regard them as "brachycranic Caucasoids" and migrants from the west. Generally, using such typological labels in the era of computers and multivariate statistics makes no sense at all. Here, as in most other cases, racial typology is a much less efficient tool than populationist thinking and statistics (see, e.g., (Kozintsev, 2017)). A.V. Gromov (1997, 2002) was unable to separate the alleged "brachycranic Caucasoids" from the total mass of Okunev males either typologically or statistically; whereas Mongoloid females, who do contrast with others, are singular. This agrees with the conclusion that the Okunev sample is genetically homogeneous (Zacho, 2016: 38). The situation may change after male crania from the Uybat stage have been measured, and this is what Gromov and his students are doing now.

Polyakov does not regard a marked similarity between Okunev crania and Neolithic ones from the Krasnoyarsk-Kansk forest-steppe across the entire set of measurements (Gromov, 1997; 2002: 74; Kozintsev, 2009, 2020, 2021) as a weighty argument in favor of relationship, because this series is small and insufficiently documented. For instance, it included an Okunev cranium from Bateni, erroneously attributed to the Neolithic. This, however, does not concern my studies: I used only male crania,

whereas the Bateni specimen has been diagnosed as female by V.P. Alekseyev (1961: 115) and by all later specialists. Also, it had long ago been excluded from the Neolithic sample (Tur, Solodovnikov, 2005)*. One of the male Krasnoyarsk-Kansk crania, from Bazaikha, has a radiocarbon date of 4700 BP. This admittedly corresponds to the Early Bronze Age rather than the Neolithic, but still the Bazaikha specimen predates the Okunev sample while revealing genetic ties with it (Yu et al., 2020). His genome can be modeled as consisting of two components: Botai and Baikal Late Neolithic and Early Bronze Age (Ibid.).

Apart from that, the Neolithic and Early Bronze Age people of the Krasnoyarsk-Kansk region can no longer be regarded as the only or even the best candidates for the role of Okunev ancestors. As recently turned out, strong contenders are Neolithic and Copper Age inhabitants of a far more westward area—the Middle Irtysh (Solodovnikov et al., 2019; Kozintsev, 2021: 126–127, fig. 1). Ascribing two such parallels to coincidence is less easy. Morphologically, the Irtysh group is even closer to the Okunev sample than is its Krasnoyarsk-Kansk counterpart. Moreover, Okunev individuals from burials of the Tas-Khazaa type and Uybat**, where "brachycranic Caucasoids" should predominate, are actually closer to it than to any of the 45 Yamnaya and Catacomb groups of the western steppe. True, the Irtysh sample is likewise small, but this is to some extent compensated for by a representative battery of informative traits. If migration from the Irtysh to the Yenisei did take place, this was clearly not the "migration from the west" envisaged by Lazaretov and Polyakov.

There is, however, reason to think that what we deal with here is not migration, but conservation of a very ancient genetic legacy in South Siberia. T.A. Chikisheva (2012: 57, 153, 169) termed it the "South Eurasian Anthropological Formation". Its considerable age and stability are evidenced not only by craniometric data (Ibid.; Kozintsev, 2021) but by cranial nonmetrics as well. "The most striking trait peculiar to the Okunev population", Gromov et al. (2021: 152–153) write, "is the low frequency of IOP II*** (about 30 %). Sometime ago, based on this peculiarity, it was hypothesized that ancestors of Okunevans were related to those of Native Americans (Kozintsev et al., 2003). However, newly examined materials from the Bronze Age suggest that low frequencies of IOP II were typical of populations spanning vast territories of South Siberia at least from the Baraba forest-steppe to the Minusinsk Basin (Gromov, 1997, 2002)". All of this is true except for the word "however", since a wide distribution of the South Eurasian Anthropological Formation in South Siberia makes it likely that not only Okunevans but several other ancient populations of this region too might be "collateral relatives" of Native Americans.

The study of human crania from newly excavated burials of the earliest (Uybat) stage of the Okunev culture may provide unexpected answers to some critically important questions raised here. This study is ongoing, and thus far only the findings of nonmetric studies are available. In the first of the recent publications by Gromov and his students, they mention the low frequency of IOP II as a peculiarity of most previously examined Okunev samples, and go on: "All the more amazing was it to find that the occurrence of this trait in the pooled series of the Uybat chronological horizon was quite high—70.4 %, and this type of the infraorbital pattern was equally frequent in samples from both cemeteries of that group. If the reason is migration from the west, then the idea of a military campaign* does not stand up to scrutiny, because sexual dimorphism in that series is absent both in the proportion of males and females and in the frequencies of IOP II" (Gromov et al., 2021: 153). In the second publication, which appeared after additional materials had been studied, the following statement is made: "In sum, nonmetric studies of crania from burials of the Uybat chronological stage demonstrate that those people differ from other Okunevans. This primarily concerns a very high frequency of IOP II. But the results of the principal component analysis, too, picture the earliest Okunevans as a European rather than Siberian group. The analysis of craniometric traits might clarify the origin of this peculiar skeletal population" (Gromov, Kazarnitski, Lazaretova, 2022: 259). Importantly, as before, no sex difference in cranial nonmetrics has been found (Gromov's personal communication, for which I thank him).

But even though the idea of a military campaign is not upheld by cranial data, the role of the western component in Okunev origins cannot be denied, if only because of an appreciable Yamnaya-Afanasyevo admixture (see below). That Okunevans are "Americanoids" admixed with Europeans was demonstrated long ago (Kozintsev, Gromov, Moiseyev, 1999). In a recent study (Kozintsev,

*I thank K.N. Solodovnikov for this information.#

**These terms and the measurements of respective groups were taken from Gromov's (1997) publication. In his dissertation (Gromov, 2002) he renamed the Tas-Khazaa series to Uybat, but this time he used the latter term not in the geographic sense, as in the publication, but with reference to the chronological stage introduced by Lazaretov and Polyakov. Later, however, Lazaretov separated the Uybat stage from that which he now termed Tas-Khazaa. All these changes resulted in a tremendous confusion, which Polyakov, for no apparent reason, imputes to me.

***This is a definite configuration of infraorbital and adjoining sutures, which I termed Infraorbital Pattern Type II—specifically, the situation where the infraorbital suture is overlaid by the zygomatic bone.

*They imply the idea that a group of males associated with the Yamnaya-Catacomb tradition had migrated from the northeastern Caucasus to Siberia, exterminating or displacing the Afanasyevans (Polyakov, 2022: 128).

2020), I noted that among the Yamnaya and Catacomb series from the western steppe, one closest to Okunev is the Catacomb sample from Stavropol (Romanova, 1991). Strange as it is, the resemblance is caused not only by the "western" tendency of Okunevans, but also by a slight "eastern" shift of the Stavropol Catacomb population. This group takes a peculiar position with regard to Siberian samples, being the western steppe population closest to the Andronovo people of the Upper Ob and to the Karasuk people. Okunevans are admittedly less similar to it than to the Krasnoyarsk-Kansk Neolithic sample, but still the parallel cannot be ignored. Male crania of the Stavropol Catacomb people, unlike female ones, are mesocranic rather than brachycranic (78.0 versus 81.5 in Okunevans, according to Gromov), making it even more doubtful that brachycrany in Okunevans has a western origin. That the Catacomb component is likely present in the Afanasyevo sample has already been demonstrated (Kozintsev, 2009).

Migration of Caucasoids marked by a somewhat elevated cranial index, originating from the Yamnaya-Catacomb tribes of Kalmykia, to the steppes of Kazakhstan and South Siberia is by no means a fantasy. It did take place, but later, and those people were ancestors of Andronovans, not Okunevans, as I also demonstrated long ago (Ibid.). Unlike the situation with Okunevans, the western ties of Andronovo are beyond doubt.

An interesting question concerns the typically Okunev cranial deformation, resulting in the so-called obelionic flattening. I noticed its identity to the one practiced by the Pueblo Indians (Nelson, Madimenos, 2010). A.V. Gromov and A.A. Kazarnitski (2022) discard this parallel because its acceptance would imply that this custom had been practiced by the presumed common ancestors of Okunevans and Native Americans and had survived for several millennia. Theoretically, such conservatism of tradition is possible, given, for instance, Native American parallels to Okunev art (see below). The problem, however, is that obelionic flattening is typical only of the late stages of the Okunev culture, and this indeed detracts from the value of the parallel. The early (Uybat) type of deformation resembles that in Yamnaya-Catacomb samples of Kalmykia, but this is an ordinary occipital flattening, which is rather common worldwide (Ibid.). Its frequency is no lower than 20 % in 14 out of 65 rather diverse series from various parts of the world, i.e., at least in every fifth (Kozintsev, 1988: 17). The deformation data, then, support neither the autochthonous nor the migrant origin of the Okunev culture.

The genetics of Okunevans has already been discussed in my previous publication (Kozintsev, 2020). It points to the deep, possibly Upper Paleolithic, roots of this group and to its collateral relationship with Native Americans. The reason why I focused on the work by Claus Zacho (2016), the student of Morten Allentoft, is that to date, this is the only monographic study addressing Okunev genomes. His findings were ignored by Polyakov in his summary (2019), and the true reason is now clear: they could in no way be used as a "purely subsidiary" source for illustrating the correctness of the migrationist hypothesis. In his book, Polyakov justifies the omission by saying that at that time Zacho was too young and inexperienced (Ibid.: 134). This ad hominem argument is invalid. True, Zacho's work is only a master's thesis, but his supervisors would hardly recommend it for defense if it contained serious mistakes. In the joint paper by Eske Willerslev's team, published after Zacho's defense, there is indeed no reference to his thesis. This was unnecessary, since Zacho himself is listed among the co-authors, and so, incidentally, is Polyakov (Damgaard et al., 2018). I am glad that Polyakov (2022: 134) deems the conclusions of this study "much more balanced and founded". They are as follows. Three Copper and Early Bronze Age samples—people of the Botai culture, Okunevans, and an individual from a mid-3rd millennium BC Yamnaya type burial at Sholpan-4, Eastern Kazakhstan, are genetically close to one another, and their genomes can be modeled as a mixture of two autosomal components. One of them, ANE, was presumably inherited from Upper Paleolithic South Siberians, represented by the Mal'ta boy; the other is eastern, similar to that present in the Early Neolithic (Kitoi) group from Shamanka, southwestern Baikal area*. In the presumed common ancestor of all the three groups, who lived 10–13 thousand years ago, the share of both Siberian components was approximately equal. Okunevans, in addition, have a western component in the amount of 10–20 %, originating from populations of the western steppe or from their Siberian descendants**. The latter was male-derived and received about 4600 years ago (Damgaard et al., 2018; Allentoft et al., 2022), which corresponds to the lower date of the Okunev culture (Polyakov, 2022: 184). In the geneticists' view, the source of admixture was the Afanasyevo population (Damgaard et al., 2018; Allentoft et al., 2022). This is the most natural explanation, since contacts between Afanasyevo and Okunev people are beyond doubt. There are no indications that the admixture stemmed from hypothetical post-Afanasyevo migrants from the west***. Such an assumption is much more plausible with regard to the Chaa-Khol people of Tuva (Kozintsev, Selezneva, 2015).

Affinities between Okunevans and the ancestors of Native Americans have not been touched upon in the 2018

*According to newer calculations, the agreement between empirical and theoretical data is better if the Baikal Neolithic sample is replaced by another one, representing the native population of more westward areas of the Siberian forest-steppe (Allentoft et al., 2022).

**Genetically, the Yamnaya, Catacomb, and Afanasyevo people are almost indistinguishable (Wang et al., 2019).

***The analysis of mtDNA results in the same conclusion (Pilipenko et al., 2022).

publication by the Copenhagen team (Damgaard et al., 2018), since this had already been done in their previous study. To recap: "Intriguingly, individuals of the Bronze Age Okunevo culture from the Sayano-Altai region (…) are related to present-day Native Americans (…), which confirms previous craniometric studies (Kozintsev, Gromov, Moiseyev, 1999). This finding implies that Okunevo could represent a remnant population related to the Upper Palaeolithic Mal'ta hunter-gatherer population from Lake Baikal that contributed genetic material to Native Americans." (Allentoft et al., 2015: 169). Therefore, when Polyakov claims that local roots of Okunevans cannot be demonstrated, that "attempts at reconstructing them through the genetic profile of the Mal'ta boy, who lived 20,000 years earlier, look somewhat strange" (2022: 134), and when he refers to the Y-chromosome haplogroups, his doubts should be readdressed to the geneticists.

Archaeology, physical anthropology, and genetics: Is a compromise possible?

Not being an archaeologist, I am not going to dispute the archaeological facts on which the migrationist theory is based; moreover, I find them convincing. What I wish to do instead is to point out two things. First, disagreement between archaeological and biological data is in no way exceptional. I have already mentioned two such cases here: the Botai culture is not at all similar to the Okunev, despite the genetic affinities between the people associated with them, and the Yamnaya individual from Sholpan is an apparent native of Eastern Central Asia. One more example is the Chemurchek culture, which is related to the Okunev. Its western, in fact Western European, origin has been convincingly documented in A.A. Kovalev's numerous publications (see, e.g., (2011)). The physical type of the Chemurchek people, on the other hand (as far as one can judge from two crania), is Mongoloid, close to that of the Neolithic and Bronze Age Baikalians (Solodovnikov, Tumen, Erdene, 2019; Kozintsev, 2021). Genetically, the Chemurchek people are a mixture of various components, the principal of which, ANE, could have been inherited from the Botai people, indirectly supporting the affinities between Chemurchek and Okunev populations (Jeong et al., 2020; Wang et al., 2021). This subtracts nothing from the Western European parallels listed by Kovalev. One should only keep in mind the well-known rule: cultural traits, unlike genes, can be borrowed. Both categories of data are independent, and none of them is "subsidiary" with regard to the other. Using biological facts merely to illustrate the correctness of archaeological theories rather than to test them is a faulty principle, and this is precisely what the case of "brachycranic Caucasoids" demonstrates.

Second, archaeological facts themselves can hardly be considered unambiguous. How, for one thing, could one reconcile the claims of migrationists with the Okunev artistic style, which has no parallels in Europe (Polyakov, 2022: 122–127)? How, for another, could one ignore the view of Y.E. Berezkin, a leading expert in prehistoric art? In his words, Okunev maskoids "can without any doubt be associated with the imagery typical of the pre-Shang cultures of China" (Vasiliev et al., 2015: 469)*. To this, one might add the resemblance between Okunev petroglyphs and the rock art of the Angara, and between Okunev ceramics and Neolithic ones from the Angara and even the Late Pleistocene ones from the Amur (Sokolova, 2007). As Berezkin notes, the artistic canon related to that of the Okunev and pre-Shang China was introduced from East Asia to the northwestern coast of North America, specifically to Eskimo and Tlingit cultures and eventually to those of Mesoamerica and the Andes (Vasiliev et al., 2015: 489–538). Nothing remotely similar is found in western Eurasia.

Let me ask my opponents in conclusion: should one really be so steadfast? As for myself, I do not in the least cling to the idea that all Okunev groups were native to Siberia. On the contrary, I am eager to hear the findings of Gromov and his students, who are scrutinizing the origin of the earliest Okunevans—those of the Uybat stage. And should they actually turn out to be migrants from the west, which can in no way be ruled out, I will only be glad, since this would make our reconstructions more accurate and eventually bring my opponents and myself closer to a compromise, which perhaps only seems unattainable.

Instead of a summary

No actual summary can be formulated at present—one must wait for the new findings concerning the Uybat people. If the idea of their western origin is supported, one should agree with Gromov and partly with Polyakov: the migration was a one-time event, limited in scope. The migrants, who had been vastly outnumbered by the local population, eventually dissolved in it. And this means that migrationist and autochthonist approaches to Okunev origin are mutually complementary rather than incompatible.

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*The sources of this style should probably be sought in the Neolithic of the Amur Basin and China (Bokovenko, 1995: 37).

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