



KOSTENKI 14 (MARKINA GORA): NEW AMS DATES AND THEIR SIGNIFICANCE WITHIN THE CONTEXT OF THE SITE AS A WHOLE

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SUMMARY

Four new AMS dates have been obtained for three of the cultural layers at Kostenki 14. The significance of these dates is briefly discussed, prior to a detailed description of the site ("data, problems, and perspectives") by A.A. Sinitsyn. The results reinforce the need for continuing multidisciplinary investigations at the site, to resolve existing contradictions, and to provide a more reliable framework for comparisons, both between its different parts and between it and other sites in the Pokrovsky ravine.

INTRODUCTION

Two main factors account for the unique position occupied by the Kostenki-Borshchevo region in the European upper palaeolithic. First is the extraordinary concentration of sites in quite a limited area. Second is the number of sites which are multilayered, nine out of a total of 25. There is no comparable concentration of open air palaeolithic sites in Europe. Among other things, this concentration provides a potentially reliable basis for the construction of a relative chronology of the cultural layers, and the correlation of the deposits in which they are situated.

In the 1950s a chronological system was constructed, consisting first of four and then of three separate groups, thanks to the efforts of A.N. Rogachev (1957), M.N. Grishchenko (1950, 1951, 1961), G.I. Lazukov (1957 a and b), and A.A. Velichko (1963; Velichko and Rogachev, 1969). It was based above all on the stratigraphy of the sites, particularly those on the second terrace above the floodplain of the Don. Three components of the late Pleistocene succession were particularly important in this system: an upper and lower humic bed divided by volcanic ash,

and overlying loams constituting the topmost part of the sequence on both the first and second terraces. The oldest group of sites was situated in the lower humic bed beneath the volcanic ash; the second within the upper humic bed; and the third in the overlying loams.

As data provided by the natural sciences increased in the period from the 1960s to the 1980s, particularly radiocarbon dates and pollen analyses (Praslov and Rogachev, 1982), some new problems were added to the traditional ones of correlation and environmental reconstruction. They arose because of the need to work out a detailed chronology within the groups, and to reconcile the frequently contradictory conclusions reached on the basis of different scientific methods. Up to now, the absence of strict agreement between radiocarbon, thermoluminescence, and palaeomagnetic dates (Sinitsyn, 1991) has been explained by their different degrees of exactitude and the extent to which their methodologies have or have not been perfected. It is much more difficult to explain the discordances in environmental reconstructions based on pollen analyses and on faunal evidence, or to understand why samples taken from evidently synchronous cultural layers have produced different pollen diagrams (Spiridonova, 1991).

These considerations mean that the problem of dating at Kostenki continues to be a very live one. Over recent years three basic points seem to have emerged.

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1. The upper limit of human settlement in the region has been shifted back. Until a few years ago, many sites were considered to date to the end of the glacial period, and age determinations of 11-14,000 BP at Kostenki 2, Kostenki 11 (Ia), and Kostenki 19 were used as an argument in favour of this (Boriskovsky, 1984). But today the situation is different. Apart from Borshchevo 2, all the cultural layers belonging to the third chronological group are regarded as having been in existence no later than 19-21,000 BP. It cannot be excluded that settlements belonging to the last glacial maximum were altogether absent.

2. A more detailed subdivision of the overlying loams containing sites of the third chronological group has been suggested, following the discovery of in situ fossil soils in the stratigraphic sounding and at Kostenki 1. These sections together with those from Kostenki 14, 17, and 21 are fundamental in terms of their completeness and the analytical thoroughness with which they have been investigated. Up to four horizons of increased humification or initial soil formation have been identified within the overlying loams, despite the fact that until quite recently they were considered to be a single homogeneous deposit.

3. The first chronological group of sites and the lower humic bed have also been shifted back. Mainly this is due to the date of 36,400 \pm 1700/-1400 BP for Kostenki 17 cultural layer 2 and the correlation of the volcanic ash layer at Kostenki with one of the eruptions at Campi Flegrei in Italy about 38,000 years ago (Melekestsev *et al.*, 1984). Although the dispersal of the dates for the sites in the lower humic bed is quite large (Table 1) and cannot be considered final, and the determination of the age of the volcanic ash layer at Kostenki requires confirmation (Lefevre and Gillot, 1994), it is quite probable that the oldest group of sites was in existence about 38-40,000 years ago (Praslov and Rogachev, 1982; Hoffecker, 1988; Anikovich, 1993).

It is against this background that the new dates for Kostenki 14 must be seen, and in general it can be said that they fit in quite well with what we currently know about the site.
New AMS dates

The samples submitted came from trenches VII and III (in Rogachev's numbering)

on the west of the promontory (Figure 4,C) and in the centre (Figures 3,B and 4,D), and from Sinitsyn's excavations of 1987 in a trial trench on the east of the promontory (Figure 4,E). The dates obtained relate to cultural layers 1, 2, and 4, as follows.

OxA-4114 mammoth bone layer 1 square H-70 trial trench 1987 22,780 \pm 250 BP

OxA-4115 horse bone layer 2 square P-43,64 trench III 1982 28,580 \pm 420 BP

OxA-4116 horse bone layer 4 square OX-40,41 trench III 1954 27,460 \pm 390 BP

OxA-4117 horse bone layer 4 square X-41 trench III 1954 27,710 \pm 410 BP

In addition to these samples, two others failed to produce a result because they did not yield sufficient collagen. Both came from cultural layer 3 in square M-24 of trench VII from Rogachev's excavations of 1954.
Significance of the dates

The dates have to be considered in the light of what we know about the site in general and about the conditions in the particular trenches from which the samples came. This is so because, although Kostenki 14 has produced a stratigraphy which taken as a whole is typical for the sites on the second terrace, not one of the individual sections is complete and none of them can be taken as standard. Conditions on the west and the east of the promontory and in the centre are far from being identical, and it is not always easy to correlate one part of the site exactly with another.

Cultural layer 1

The date for cultural layer 1 (22,780 \pm 250 BP) is broadly in agreement with others from Kostenki 1 layer 1, with which archaeologically it is comparable (Anikovich 1993). Both contain shouldered points and are regarded as belonging to the Kostenki-Avdevo culture. It is possible that all the sites with shouldered points in the Pokrovsky ravine belonged to a single settlement which functioned at approximately the same time. Nonetheless, so far as the detailed comparison of different parts of this site is concerned, it would be rash to assume that this date can be automatically extended to other areas, since the conditions in which the finds occurred on the eastern slope suggest that they may have

constituted an independent layer. Further work is needed to determine the unity or otherwise of the cultural layer as a whole, which represents the third chronological group at the site.

Cultural layer 2

The date for cultural layer 2 (28,580±420 BP) is in agreement with three others previously obtained (LU-59A 26,400±660, LU-59B 28,200±700, and GrN-12598 28,380±220 BP (Rogachev and Sinitsyn 1982; LE-1400 19,300±200 is obviously too young)). Archaeologically speaking this is the most important and characteristic layer at the site, and there seem to be good grounds for regarding it as representative of a separate Gorodtsovskaya culture (Sinitsyn 1982).

Cultural layer 3

It is unfortunate that the two samples from layer 3 trench VII of Rogachev's excavations of 1954 failed to produce a result, since they would have given an indication of the date to be assigned to the hominid found in that year in a position immediately below layer 3 (Rogachev 1955; Debets 1955; Gerasimov 1982; the date previously obtained for this layer GIN-79 14,300±460 BP is also obviously too young). Both cultural layers 2 and 3 belong to the second chronological group at the site.

Cultural layer 4

The two dates now obtained for samples from cultural layer 4 (27,460±390 and 27,710±410 BP) do not appear to be satisfactory, because in general one would not expect them to be the same as or younger than those from the upper humic bed, and there are reasonable grounds for expecting the lower humic bed to be considerably older than this. It is possible that these age determinations may have something to do with the particular conditions of the trench from which they came. In the central part of the promontory neither the lower humic bed nor the volcanic ash deposits which overlie it are present. The whitish marly loam from which these samples came can therefore only generally be correlated with layer 4 as it is found on the western and eastern slopes of the promontory, although it has usually been regarded as its equivalent. Hence the relationship of these dates to the cultural remains from the lower

humic bed remains unclear. In general, a great deal still needs to be done to clarify the nature and chronology of layer 4 and the first chronological group of sites at Kostenki.

CONCLUSION

The dates presented here for cultural layers 1 and 2 are in agreement with our present conceptions regarding the stratigraphy and chronology of the site as a whole. The dates for cultural layer 4 must be considered too young, although they reinforce the need for careful stratigraphic correlation between different parts of the site. The TL dating results previously reported in ERAUL 52 on the other hand (Sinitsyn 1991) must clearly be regarded as too old. These chronological difficulties are part of a general problem of comparability between the results achieved by different scientific disciplines at the site, as indicated in the more detailed article which follows.

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