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The dynamics of stone industry transformation at the interface of lower and Middle Paleolithic in the Northwestern Caucasus

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ABSTRACT

Modern data do not show a local evolutionary development of lithic industries throughout the Lower to Middle Paleolithic transition in the Northwestern Caucasus. Human occupation of these territories was not continuous during the Pleistocene. On the contrary, the lacunarity of archaeological record in some periods and a generally cooler climate characteristic for Eastern Europe and the Northwestern Caucasus in late Middle Pleistocene suggest that major climatic deteriorations had a great impact on human settlement of the regions. The human colonization of the Northwestern Caucasus at the interface of the Lower and Middle Paleolithic demonstrates a peculiar dynamics associated with climate cycles of the late Middle Pleistocene – the first half of Upper Pleistocene.

1. Introduction

One of important outcomes of the study of human dispersal and evolution of the Paleolithic culture in Eurasia in the last 20 years is the understanding that human occupation of some territories was not continuous during the Pleistocene, and that the cultural development within large regional contexts demonstrates a striking mosaic. This is especially true for the territories located in the northern latitudes that include the European part of Russia and Northern Caucasus. The Northwestern Caucasus is a part of Eastern Europe. During the Pleistocene, the area always had a cooler climate than those in more southern regions of Western Asia, including the Southern Caucasus. The colonization of the Northwestern Caucasus by Neanderthals at the interface of the Early and Middle Paleolithic demonstrates a peculiar dynamics associated with climate cycles of the late Middle Pleistocene – the first half of Upper Pleistocene.

The Northwestern Caucasus is one of the most studied Paleolithic regions in Eastern Europe and the Caucasus. The Paleolithic sites known in the region span the interval from the Lower Paleolithic (MIS 15) through the late Middle Paleolithic (MIS 5 and MIS 3) and later (until the end of Paleolithic at the Pleistocene/Holocene boundary). Numerically representative Lower Paleolithic and Early Middle Paleolithic (EMP) assemblages are few in the Northwestern Caucasus (Golovanova, 1994, 2000, 2015; Doronichev, 2008, Fig. 1), although the regional late Middle Paleolithic record is particularly rich and diverse (Golovanova and Doronichev, 2003). In the paper, we review the lithic industries recovered mostly in stratified sites in the region and covering the later Lower Paleolithic and earlier Middle Paleolithic. We discuss that the 'transition' from the Lower Paleolithic to the Middle Paleolithic cultural contexts in the Northwestern Caucasus appears not represent a gradual evolutionary process but that the available archaeological record suggests a specific cultural dynamics and some region-specific changes in technological and typological characteristics of lithic industries.

2. Lithic industries dated MIS 11 – MIS 10

Treugolnaya Cave, situated at 1510 m asl in the northwestern foothills of the Greater Caucasus, in the upper Kuban River basin, provides the earliest and reliably dated evidence of hominid occupation in Eastern Europe (Doronichev et al., 2004, 2007; Doronichev, 2015). A thick (4.5 m) sequence of the cave deposits contains several occupational levels (layers 7a through 4a) covering the time interval from MIS 15 to MIS 10. The late assemblage from Treugolnaya cave, including layers 4a, 4b and 4c, is in our study the starting point – the lithic assemblage that contains clearly Lower Paleolithic industry with reliable dates.

Assemblage I at Treugolnaya Cave is dated from late MIS 11 through early MIS 10 (from ca. 400 to 350 ka), based on the correlation of several lines of evidence – paleomagnetic, magnetic and

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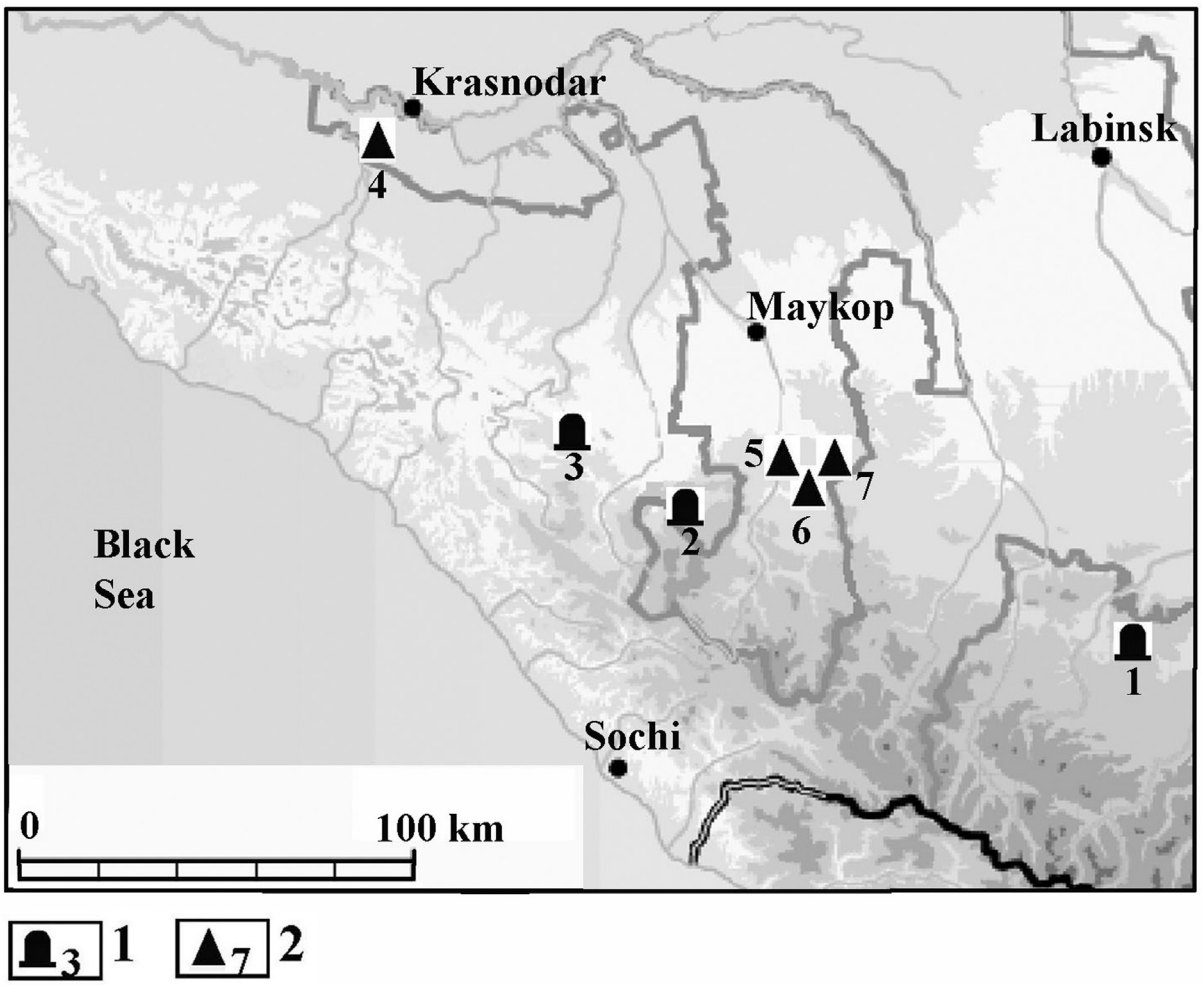

Fig. 1. Map showing the location of Paleolithic sites in the Northwestern Caucasus that are discussed in the text. Legend: 1 – cave sites, 2 – open air sites. Numbers: 1 – Treugolnaya Cave, 2 – Mezmaiskaya Cave, 3 – Matuzka Cave, 4 – Ilskaya 1 and 2 sites, 5 – Abadzeh location; 6 – Sredniy Khadjoh site, 7 – Shahan workshop.

palynological analyses of sediments, the study of a rich fauna including more than 20 mammal and more than 20 bird species, and ESR/LU dates on mammal teeth (Doronichev et al., 2004, 2007, Table 1). This time interval corresponds to the Likhvin Interglaciation in Eastern Europe – the warmest interglacial period during the Middle Pleistocene in Europe, characterized by a wide expansion of dense forests with warm- and moisture-loving tree species in the southeastern part of Eastern Europe, including the Northern Caucasus (Bolikhovskaya and Molodkov, 2002) – and the Holsteinian interglaciation in Western Europe. The Holsteinian period is characterized by a wide biodiversity, large faunal dispersions and regionalization of mammal communities, as well as significant changes in human activity and a mosaic of new human behaviors at different habitats (Arzarello et al., 2014).

Assemblage I at Treugolnaya Cave consists of 182 stone artifacts recovered *in situ* in layers 4a, 4b, and 4c. They are made mostly from gray flint, for which sources are unknown in the cave vicinity. Cores are represented by a few exhausted specimens (Fig. 2 – 11, 12) or formless core-like pieces. The cores show the predominance of unidirectional flaking with short reduction (2–3 removals are typically struck from one platform; Fig. 2 – 12), although a few multiplatform cores indicate an occasional longer reduction sequence from tree platforms (Fig. 2 – 11).

Striking platforms on flakes indicate a minimal preparation (Table 2), with the prevailing of plain (53.9%; Table 4; Fig. 2 – 1, 2, 5, 8, 9) platforms. Many flakes have cortical platforms (17.6%; Fig. 2 – 3), although prepared platforms are not numerous (9.9%) and retouched platforms are extremely rare (2.2%; Fig. 2 – 10). Dorsal surfaces (Table 3) of most flakes have parallel unidirectional removals made from one platform (46.1%; Fig. 2 – 5, 10), many fewer flakes exhibit orthogonal (with semi-crossed removals; 21.9%; Fig. 2 – 3) and irregular (i.e., having removals from different directions

Table 1
ESR ages on teeth from layers 4B–4C in Treugolnaya Cave. Source: Blackwell et al. (2005).

Sample (subsamples)	Layer	EU age (ka)	LU age (ka)
RT78 (2)	4B	194.6 ± 10.0	323.4 ± 19.9
RT50 (5)	4B	243.3 ± 8.2	386.3 ± 16.7
RT83 (1)	4B	228.4 ± 14.2	367.3 ± 30.3
Mean	4B	228.5 ± 5.9	365.8 ± 11.9
RT82 (4)	4C	246.1 ± 8.7	383.1 ± 17.3
RT90 (4)	4C	229.2 ± 8.2	360.3 ± 16.2
RT75 (1)	4C	238.8 ± 18.4	369.4 ± 35.1
RT91 (6)	4C	242.9 ± 6.4	378.6 ± 12.9
Mean	4C	240.1 ± 4.3	374.6 ± 8.5

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