THE SIBIRYACHKHA FACIES OF THE ALTAI MIDDLE PALEOLITHIC

S.K. Vasiliev

Institute of Archaeology and Ethnography, Siberian Branch, Russian Academy of Sciences, Pr. Akademika Lavrentieva 17, Novosibirsk, 630090, Russia
E-mail: svasiliev@archaeology.nsc.ru

LARGE MAMMAL FAUNA FROM THE PLEISTOCENE DEPOSITS OF CHAGYRSKAYA CAVE, NORTHWESTERN ALTAI (BASED ON 2007–2011 EXCAVATIONS)

The article focuses on the results of analysis of more than 100 thousand animal fossils recovered from Chagyrskaya Cave in 2007–2011. Animal remains from strata 5 and 6a result mostly from the hunting activity of wolves and cave hyenas, which used the cave as a shelter or den for breeding their offspring. In contrast, fauna remains from strata 6b and 6c at the cave’s entrance zone primarily accumulated due to the hunting activities of Paleolithic humans, who mostly hunted bison (Bison priscus). To a lesser extent, they also hunted the Ovodov horse (Equus (Sussemionus) ovodovi), reindeer (Rangifer tarandus), Siberian mountain goat (Capra sibirica), and argali (Ovis ammon). Animal bones representing common taxa point to the existence of steppe landscapes during the formation of stratum 6. The sediment deposition of stratum 5 supposedly proceeded under arid climatic conditions. However, small forested areas existed in river valleys and mountain gorges throughout the entire sedimentation period.

Keywords: Chagyrskaya Cave, bone remains, taphocenosis, carnivores, Paleolithic man.

Introduction

Chagyrskaya Cave is situated in the middle-elevation region of the northwestern Altai, in the valley of the Charysh River draining offshoots of the northern slope of Tigirek Ridge (Derevianko, Markin, Zykin, 2008; Derevianko et al., 2009; Markin, Zykin, Zykina, 2011). The stratigraphic sequence revealed in the cave comprises Holocene (strata 1–4) and Pleistocene formations, whose upper part is composed of subaerial sediments of two horizons (stratum 5 and strata 6a, 6b, 6c/1 and 6c/2) of loess-like deposits. The lower part of the latter horizon contained abundant archaeological, paleontological, and anthropological remains. In the Altai, the lithics from Chagyrskaya are paralleled only by those from Okladnikov Cave (Derevianko, Markin, 1992). Based on the lithic assemblages from these two caves, a new – Sibiryachkha – facies of the Middle Paleolithic has been identified. This facies is similar to the Mousterian industries of Transcaucasia, southeast Europe, and Southwest Asia (Derevianko, Markin, 2011, 2012). Judging by the human fossils, this tradition was associated with the Neanderthals (Viola, Markin, Zenin et al., 2011; Viola, Markin, Buzhilova et al., 2012).

The study of large mammal remains from Chagyrskaya Cave has been conducted since the first year of excavations (Vasiliev, 2009). The collection of animal fossils recovered over five years of excavations (2007–2011) slightly exceeds 100 thousand specimens. Fossils that can be identified only to the species, genus, or class level make up just 3.4 % of the total. All fossils are highly fragmented. Bone fragments exceeding 5 cm in length form just 5.5 % of the assemblage. Fragments of the diaphyses of long bones from the Pleistocene strata in a
dry condition delaminate and split into parts; hence the number of bone fragments in the collection under study is greater than their original number. In the Holocene strata 1–4, at least 20 taxa were recorded including large mammals such as beaver, wolf, brown bear, roe deer, Siberian maral deer, domesticated sheep, horse, and cow. The Pleistocene strata 5–7 contained fossils attributable to 35 mammal species as well as the bones of fish, birds, and humans (Table 1). The assemblage of identifiable bones of large mammals from strata 5 and 6 is dominated by isolated teeth and small bones of the distal parts of limbs (Table 2).

**Taphonomic characteristics**

The bone remains are partially redeposited as a result of animal burrowing activities. In most cases, it was impossible to determine the exact boundaries of burrows. Some Holocene bone fragments penetrated to the level of stratum 7 when the burrows filled with soil. On the other hand, Pleistocene bones were transported into the Holocene strata with the ground discharged from burrows. Thus, while almost all bone fragments from stratum 4 demonstrate the state of preservation typical for Holocene fossils, nearly a quarter of the bones from stratum 3 were apparently associated with the Pleistocene strata. In the assemblage from stratum 5, bones embodying the Pleistocene state of preservation dominate, although typical Holocene fossils are also encountered.

The degree of fragmentation varies insignificantly across the strata (Table 3). The highest degree of bone fragmentation is observed in the assemblage from stratum 5. The degree of fragmentation is less further down the profile. In strata 6a and 6b, the portion of larger fragments increases. In stratum 6c, the number of bone fragments exceeding 5 cm increases twofold, which might indicate a higher sedimentation rate. This also indirectly evidences the more intensive utilization of the cave by humans and large carnivores during that period. Humans and animals could have transported organic remains, dust, and dirt into the cave via their feet.

In stratum 5 (horizons 1–6), bones with traces of acid corrosion prevail. These bones are strongly thinned and have many small through holes. The surfaces of bone fragments are glossy and undulated. The enamel on the teeth of ungulate and carnivores regurgitated by hyenas is either thinned or absent. The glossy bone surface looks heavily rounded. Most bones from stratum 6a (horizons 1–3) are also eaten away by acid corrosion. The largest fragment of a long bone in this state of preservation (stratum 6c/1, horizon 1) is 123 mm long and shows a through hole 21–28 mm in diameter. The volume of bones corroded by acid in stratum 6b/3 is smaller than in stratum 6a. Bones with signs of artificial fracturing and cut marks also appear here. Some bones from stratum 6a (horizons 1 and 2) and 6b/1 in the entrance zone show vague wavy lines left by plant roots.

Strata 6a and 6b/4 contained several small (1–2 cm) bone fragments with traces of fire; four such bones were found in the wet-screened debris.

Cut marks left by stone tools were mostly noted on bones recovered from stratum 6c/1 (horizons 1–5). Cut marks are present on 13 fragments varying from 5 to 10 cm in size including identified bones: tibia diaphysis, thin part of scapula, ribs, and large long bones of bison. Some bones show numerous cut marks that are parallel and V-shaped. On a small fragment of the distal end of bison rib, 9 parallel and crossing shallow cut marks are visible. Another rib fragment shows 14 cut marks; a fragment of a long bone bears 7 such marks.

The osteological analysis has shown that during the last three field seasons (2009–2011), excavations were mostly conducted beyond the large concentration of bones left by Paleolithic humans in the cave’s entrance zone. Fragments of long bones that were split fresh by humans are encountered at the rear of the cave, but are much less numerous. From the entrance area, where parts of bison carcasses were butchered and the meat was eaten, fragments of bones were scattered in all directions, forming a tapering trail. At the rear of the cave, mostly bone fragments and teeth not related to human activity were found. These bones bearing distinct traces of acid corrosion evidently passed through the digestive system of cave hyenas and wolves. The bones are mostly thinned, corroded, and glossy plates of long and flat bones with uneven and wavy surfaces. Many have numerous small, through holes. Most isolated teeth bear distinct traces of fermentation that would have taken place in the digestive tract. More than 97 % of all Capra/Ovis teeth show such traces.

Carnivore remains in Chagyrskaya stratum 5 constitute 23.0 % and 18.5 % in stratum 6. Such percentages correlate closely with those estimated for other cave sites in the Altai and Khakassia, where the proportion of carnivore bones is high: 34.5 % (of all large mammal bones) in Strashnaya Cave; 28.1 % in Okladnikov Cave; 11.6 % in Kaminnaya Cave; 21.5 % in Proskuryakov Grotto; 18.8 % at the terrace zone of Denisova Cave; 50.9 % in the Denisova Main Chamber; 36.2 % in Denisova Southern Gallery; and 31.7 % in Denisova Eastern Gallery. In Logovo Gieny (Hyena’s Den) Cave, where bone remains were accumulated due to natural factors without human impact, the proportion of carnivore bones is much lower (12.7 %) than at most “archaeological” cave sites (Prirodnyaya sreda..., 2003; Vasiliev, Ovodov, 2013). Such a disproportionately high percentage of carnivore bones has been recorded neither in natural taphocenoses, nor in the relevant alluvial taphocenoses, in which the proportion of carnivore bones does not normally exceed 1–2 %.