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ABSTRACT BOOK

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Preliminary data from the study of the intact 50 000 YBP frozen mummy of the Anyuy steppe bison (Anyuy River, Arctic Far East)

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Ice Age Museum, Moscow, starts a multidisciplinary ANBIS project aiming to study the intact frozen carcass of Late Pleistocene bison that have recently been recovered from the Anyuy locality. Here we report the preliminary data from the study of this unique specimen (the Anyuy bison hereafter).

The complete mummy of Late Pleistocene steppe bison (*Bison priscus* Bojanus) was discovered in late September 2009 under the steep frozen left bank of the Anyuy River near Anyuysk settlement at 68°16'31.96"N;161°42'35.69"E (Chukotka, Arctic Far East, Russia). Local resident Vatagin have had found the mummy, while floating down a river, immediately after the carcass fell out of the frozen bluff, thereby the bison remained completely frozen (the temperature was already below zero). The frozen body was soon re-entombed into the specially constructed ice chamber next to the place of discovery, and in 2011 it was safely transported to the ice house in Anyuysk settlement. In spring 2012 the mummy was at last delivered to Moscow where it now resides in a freezer at a temperature similar to the bluff in which it was entombed. So the bison has never thawed since the discovery.

The state of preservation of the Anyuy bison mummy is unique even comparing to the mummies of other Pleistocene mammals that are sometimes found in northern Siberia and Northern North America – not even minor signs of decay have been revealed. The carcass is about intact; the only damage is a large laceration at the right underbelly. Horn covering and hoofs are intact. The fur has mostly detached, but was collected in abundance around the place of bison discovery. At some body parts the fur remains. Skin is brownish-gray-blue in color, small aggregates of vivianite scattered through the body surface.

Pilot abdominal autopsy showed the complete integrity of the internal organs, although they had some postmortem cryo deformations.

The mummy pose - lying down, with its legs pulled up, head slightly lowered and rotated to the right, the rear part of the body is rotated counterclockwise relative to the front, tail upturned.

The mummy has been found at the river beach just at the bottom of the 27 m bluff along which frozen fluvial, tabular (thawed and refrozen), and lacustrine deposits outcrop. The sequence here in general consists of two units – a horizontal thinly laminated floodplain sands up to 18 m thick (bed 1) with large ice wedge pseudomorphs (ice wedge casts) that are cut into the Bed 1 from above, and are overlaid by laminated lacustrine deposits and peat layers (Bed 2) altogether up to 15 m thick.

Although the carcass was found not in situ, its initial position was traced by wisps of fur that stretched down the



Fig. 1. Microbiologists are collecting the sterile samples from the Anyuy bison mummy inside a specially designed microbiologically clean plastic capsule. The temperature is - 21° C.

slope from the lower portion of one of the pseudomorphs (base of the Bed 2). Plant organic (wood and peat) from middle and lower portions of this pseudomorph was radiocarbon dated at 31300 – 38100 ¹⁴C YBP. The direct dating of collagen from the mummy tissues (bone and skin) yields ¹⁴C ages > 48000 and > 41000 YBP. There are only a few meters of sediments between the lowest piece of the wood, dated to 38100 ± 500 YBP, and the level, close to the base of the pseudomorph, that yielded the mummy. Taking into account low sedimentation rate here, we suggest that the age of the bison is somewhat between 48000 and 50000 ¹⁴C YBP.

As was proposed, the mummy occurred from mud deposits inside of an ice wedge pseudomorph (ice wedge cast) that was formed by infilling of a wedge cavity while ice thawing under the shallow lake. Taking into account that the abdominal cavity of the bison is filled with blood and there is a large laceration at the underbelly, it is possible that the animal was attacked by a predator (most probably a wolf), was then escaped and tried to save himself sitting in the lake water (such a defense strategy is common among modern bison). Soon after the bison died from a blood loss the mud buried it, and there it remained, its body becoming permafrost.

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