

BACKGROUND

BABY LYUBA

First time in Canada for 40,000-year-old preserved baby mammoth

In 2007, a Siberian reindeer herder and two of his sons made a fantastic discovery – an intact baby woolly mammoth, preserved in the frozen soil of the Arctic for some 40,000 years. The baby mammoth was named Lyuba (pronounced Lee-OO-bah) after the herder’s wife.

Lyuba’s discovery made headlines around the world. The *Mammoths: Giants of the Ice Age* exhibition at the Royal BC Museum in Victoria marks the first time people will be able to see the baby mammoth in Canada.

Lyuba is on loan from the Shemanovskiy Yamal-Nenets District Museum and Exhibition Complex in northern Siberia, Russia.

Lyuba is preserved in remarkable condition, giving researchers rare insights into the lives and habits of her extinct species. After Lyuba was found, an international team of Russian, French, Japanese and American scientists performed DNA analysis, an autopsy, and used computerized X-ray tomography and microsampling techniques to explore her anatomy and physiology.

Previously, the researchers had worked together for more than a decade examining fossils, tusks, and other frozen mammoth carcasses found in Siberia. But Lyuba was by far the best-preserved specimen they had ever seen.

The scientists retraced Lyuba’s short life and determined that she was only about 30 days old when she died of suffocation after being trapped in mud along the banks of a river. While she struggled to free herself, her trunk filled with silt and her body was quickly covered by sediment. Samples of Lyuba’s soft tissue and tusks suggest she was healthy at the time of her death.

One of the most puzzling questions about Lyuba was how she remained so well preserved, even though she lay exposed almost a year before discovery. Why didn’t her flesh rot during this last year?

The scientific team’s American member, Daniel Fisher, PhD, a University of Michigan paleontologist and guest curator at The Field Museum in Chicago, provided the answer based upon his own research. Dr. Fisher found that Lyuba had been preserved by lactic-acid-producing bacteria that colonized her body after death. This microbial process “pickled” her soft tissues and worked, along



with freezing, to keep Lyuba's carcass – approximately 110 pounds and 45 inches long – in excellent condition.

To prepare Lyuba for the *Mammoths: Giants of the Ice Age* exhibition at the Royal BC Museum, Russian scientists have preserved her body using formalin, a chemical that will make her tissue less susceptible to decay and allow Lyuba to be displayed without refrigeration.

Lyuba's visit is not the Royal BC Museum's first encounter with Russia. The Museum and Archives has a history of travelling to Russia and engaging with Russian institutions.

Royal BC Museum Curators Dr. Richard Hebda and Dr. Ken Marr, in collaboration with Tomsk State University, collected plants and plant DNA samples from the Altai Mountains of southern Siberia in 2010 and in the Magadan region of far eastern Russia in 2011, to help trace the Ice Age history of BC alpine plants.

In 2014, a researcher at the A.V. Zhirmunsky Institute of Marine Biology of the Far Eastern Branch of the Russian Academy of Sciences travelled to the Royal BC Museum to examine marine clams in our Invertebrates collection.

Coinciding with the exhibition, the Royal BC Museum will unveil a major update to its Natural History gallery, home of the iconic Woolly Mammoth. Hands-on, interactive displays will present the latest scientific and archaeological discoveries to reveal the most complete understanding to date of life in British Columbia during the Ice Age.

Mammoths: Giants of the Ice Age opens June 3 and runs until Dec. 31, 2016.

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