

Environmental Changes in the Laptev Sea Shelf in the Last 50 Thousand Years

¹KUZNETSOVA T. V., ²KUZ'MINA S. A. ¹Moscow State University, Moscow, Russia; ²Paleontology Institute, Moscow, Russia.

The shelf of the Arctic Ocean is one of the largest in the world. This shelf was formed in the Holocene. In the Middle and Upper Pleistocene the sea level was much lower and all this area was land. The geology of this area may be studied based on the steep riverbanks in the watershed between the Kolyma and Indigirka rivers (Northeastern Asia).

The Middle-Upper Pleistocene beds are represented by the permafrost deposits approximately 40 m thick. They contain ice and hence are designated as the "ice complex." These beds contain many mammal remains including *Mammuthus primigenius*, *Coleodonta antiquus*, *Equus caballus*, *Rangifer tarandus*, *Bison priscus*, etc. This assemblage indicates a dry and cold climate with little snow and tundra-steppe landscapes.

The detailed climatic changes were recognized based on the new material collected by the joint Russian-German Expedition "Laptev Sea 2000" in 1999. Study of many samples showed that in the last 50 thousand years the earliest beetle assemblage contained a maximum number of steppe taxa. The landscape represented the combination of the steppe and tundra plants, the latter dominating. Later, about 30 thousand years ago the assemblage contained many beetles that indicate very cold xerophyte landscapes. The closest modern landscape is observed in Wrangel Island. At the Pleistocene-Holocene boundary (10-11 thousand years ago) the proportion of the steppe taxa again increased.

In the last 10 thousand years the tundra-steppe landscape gradually disappears and at present it is completely absent. Hence the formation of the modern shelf of the Arctic ocean occurs in the more humid climate, while the typical tundra environment is being formed in the coastal areas.