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ABSTRACT BOOK

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Furrows on molars of woolly mammoths (Mammuthus primigenius)

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Woolly mammoth (*Mammuthus primigenius*) bone pathology is a sparsely investigated subject rarely mentioned in the literature. Pathological changes of mammoth teeth, on the other hand, are described more precisely (Guenther, 1955; Kubiak, 1965; van Essen, 2004; Kirillova, 2009). However, even in this subject there are still mysteries and one of them is the etiology of furrows in cement of mammoths' molars (Fig. 1). Such furrows have been reported from few different sites with woolly mammoth remains (Guenther, 1955; Kubiak, 1965; Kubiak and Zakrzewska, 1974; Niven and Wojtal 2002). Similar furrows on molars have been also noticed for some mammoth relatives like M. columbi, M. trogontherii, or P. antiquus (Kubiak, 1965; Niven and Wojtal, 2002). The etiology of those furrows is not known. So far hypoplasia and bacterial activity were proposed as the main possible explanations (Guenther, 1955; Kubiak, 1965; Niven and Wojtal, 2002). Scientists studying this subject pointed to the regularity and parallel arrangement of the furrows. A question of the different frequencies of such molars at different sites has been put forward.



Fig. 1. The *Mammuthus primigenius* left lower molar (M5) from Kraków Spadzista, Poland. A lingual view and a close up, deep single cement furrow visible. Scale bar equals 50 mm.

The present study was conducted on woolly mammoth molars from some of the biggest mammoth bone assemblages in Central Europe: Kraków Spadzista, Milovice I, and Dolní Věstonice I (Svoboda et al., 2005; Wojtal and Sobczyk, 2005; Brugère and Fontana, 2009). All of those sites provided mammoth molars with furrows. Due to such wide studies we postulate that they are not a result of hypoplasia or dental caries. They seem to be friction grooves – noncarious cervical lesions. Based on site comparisons we also think that various frequencies of such molars at different sites reflect different climate conditions.

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