

The Analysis and Interpretation of Fragmented Mammoth Bone Assemblages:
Experiments in Bone Fracture with Archaeological Applications.

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ABSTRACT

The study of flaked mammoth bone tools from the Late Pleistocene is a topic that has inspired great interest in the archaeological community for the last 40 years. The interpretation of evidence of culturally modified mammoth bone tools has varied widely across both time and space. At different times and in different places, flaked bone toolmaking has been interpreted across the geographic expanse of the North American continent, from Beringia to central Mexico, and through a vast timeframe, from 120,000 years ago, until as recently as 10,000 years ago.

The study of these purported flaked bone tool assemblages has taken many forms, and has involved efforts to understand broken mammoth bone assemblages by drawing analogies to stone toolmaking strategies, by understanding the multitude of taphonomic processes that affect archaeological bone assemblages, and by attempting to differentiate the effects of natural and cultural processes.

This thesis reports on a series of experiments designed to lend new actualistic evidence to the debate surrounding flaked bone toolmaking. These experiments include investigations into the effect of different environmental conditions on the degradation of bones, the flaking characteristics of both fresh and frozen bones, and the effect of rockfall as a taphonomic process on bones exposed to different real-world environments.

These experiments, paired with a body of previous research, provide a basis in actualistic and taphonomic research that allows for the reassessment of archaeological and paleontological broken mammoth bone assemblages. This thesis includes the reassessment and detailed taphonomic analysis of four mammoth bone assemblages relevant to understanding cultural bone modification and the effect of non-cultural taphonomic processes. New interpretations of zooarchaeological assemblages from

Lange/Ferguson (South Dakota, USA), Owl Cave (Idaho, USA), Inglewood (Maryland, USA), and Kent's Cavern (Devon, UK) reveal new data that revise the understanding of the nature of these assemblages, and the effect of both natural and cultural bone fracturing agencies.

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