
Burning questions about Mesolithic sites

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Abstract

Fire has played an important role in human history. It has been part of occupation sites since at least the Middle Palaeolithic. However, little is currently known about the exact impact of fire on lithic artefacts, which are frequently found within prehistoric hearths. Even less is understood about the effect of burning on microscopic wear traces. To address this gap, we conducted several experiments in the framework of an interdisciplinary project at Ghent University combining geologists and archaeologists focusing on replicating conditions known from Mesolithic sites in NW Belgium. Experimentally used replicas of these Mesolithic flint artefacts were burnt both in field and laboratory conditions. Microwear traces were analysed before and after the alteration, and also validated by blind-tests. Possible microstructural and geochemical changes in the flints are investigated using macroscopic observations, colour measurements, micro-CT and thin-section analysis. This is combined with traditional microwear analysis. The first results show that some microwear traces are preserved even when the replicas show heavy burning features. The preservation characteristics are connected to heating temperatures, raw material characteristics, and contact materials. Therefore, to have a more unbiased view on the activities conducted with stone tools, burnt artefacts should be included in functional analysis of lithic assemblages. This way we can have a more inclusive view on the way of life during prehistoric times. This certainly holds for Mesolithic sites, as these generally include large proportions of artefacts affected by heating (30-75%). Our observations are also interpreted on a broader theoretical level. We reflect on the spatial and social organisation of camp sites and on the possible causes for the concentrated larger quantities of burnt artefacts on the sites. Were stones deliberately thrown into the fire after use? Could this have been done as a clean-up strategy? Or were they discarded at the same refuse area where heat-dumps were deposited? We will present the insights gained from our experiments to these questions.

Keywords: Mesolithic, burning, experimentation, microwear, flint

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