
MEAT OR WOOD? A LSCM ANALYSIS TO DISTINGUISH USE-WEAR ON STONE TOOLS

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Abstract

Traceological studies are based on the identification and analysis of the stone tools edges modifications as a result of the use. Traditionally, use-wear analysis have been performed through Optical Light Microscopy (OLM) or even, Scanning Electronical Microscopy (SEM), basing the interpretations on subjective descriptions. Although there are general tendencies successfully followed and good results in this field, researchers have always been conscious about the need to advance towards a quantitative and objective method. In response to that concern, and thanks of the technical progress, functional analyses have improved notably. Techniques as Laser Scanning Confocal Microscopy (LSCM) are being applied successfully to functional analyses, thus improving the metrological studies.

The basic principle of Laser Scanning Confocal Microscopy (LSCM) is the shooting of parallel focal planes of the sampled surface, reconstructing out of focus areas and creating a topographical image. This topographical image is highly accurate. Unlike other techniques, LSCM provides a 3D image and a 2D profile that allow taking measures directly and immediately.

The aim of this study is to analyze an experimental lithic assemblage, made with chert, through Optical Light Microscopy (OLM) and Laser Scanning Confocal Microscopy (LSCM). The independent variables as raw material, worked material, activity and time have been controlled. The experimental collection has been created to become a comparative collection for certain Mousterian lithic assemblages. The chosen worked materials have been meat and wood, very common among Late Pleistocene hunter-gatherers. Traceological analysis has been focused on polish use-wear, trying to verify the improvements that LSCM can offer to

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the use-wear analysis.

Our results show that the integration of different microscopy techniques notably improves the interpretation of use-wear surfaces on lithic stone tools. The analyses of use-wear performed through OLM provide a clear visualization of the polished morphology. However, LSCM allows for similar observations, but its main advantage rely on the possibility to take tridimensional measurements and provide statistical parameters that can, in a future, set the basis of a quantifier and objective methodology to characterize use-wear on stone tools.

Keywords: Use wear, confocal microscopy, experimental archaeology, Late Pleistocene