Retouching the Palaeolithic: Becoming Human and the Origins of Bone Tool Technology

Palaeolithic bone retouchers were first identified at the beginning of the 20th century. Since that time, these bone implements have become recognized as ubiquitous components of European Middle and Upper Palaeolithic tool-kits. More recently, bone retouchers and other bone tools used to manufacture and modify lithic tools have been identified in older chronological contexts across Western Europe (Boxgrove in England; Cagny l’Epinette, Caune de l’Arago, Orgnac 3 and La Micoque in France; Bolomor Cave, Cueva del Ángel and Gran Dolina in Spain; and Schöningen in Germany) and the Levant (Qesem Cave in Israel), at open-air sites and cave sites with ephemeral and long-term occupations. These few sites suggest the recognition of bone as a raw material is deeply rooted in Middle Pleistocene hominin behaviour, perhaps as early as MIS 12, and the use of bones in the production of lithic tools was well-established by MIS 9. Thereafter, this technology flourished across Europe and other regions, becoming commonplace artefacts in archaeological contexts from MIS 5 to MIS 3.

In 2002, the Commission de Nomenclature sur l’Industrie de l’Os Préhistorique (Société Préhistorique Française) published an influential volume entitled, *Retouchoirs, Compresseurs, Percuteurs. Os à Impressions et Éraillures*, which sought to standardize definitions and descriptions of these artefacts. We feel it is now time to explore the deeper behavioural and technological significance of these retouchers, compressors, and percuters. At the core of this issue is where and when our hominin ancestors began to use bones to create and modify lithic tools. More importantly, we seek a deeper understanding of how and why hominins ceased to consider bones as a sterile by-product of the hunting and butchery process and began to recognize bone’s technological utility for making lithic tools. We aim to synthesize various chapters of our hunting and tool-making pasts and investigate developments in Palaeolithic subsistence, technology and social behaviour reflected in the use of bone retouchers. Our goals are holistic and diachronic in scope, employing a multidisciplinary approach and evolutionary perspective to contextualize this fascinating intersection between our struggle for existence and our drive for technological innovation.

We have outlined four interrelated themes, each with a set of specific research questions, designed to address the origins, development and behavioural implications of the use of bone retouchers:

1-Identification and Methodology
   - Does the definition of retouching (action), retoucher (object) and retouch damage (modification) need to be updated?
   - Are the current standards adequate to differentiate retouch damage from other types of bone surface modifications (i.e., cut marks, hammerstone impact marks, carnivore marks)?

2-Time and Space
   - When and where does retouch damage first appear?
   - What is the geographic distribution of bone retouchers before, during and after MIS 9?
   - Is there evidence to suggest a single origin for the use of bone retouchers, or were bone retouchers invented independently in more than one location?

3-Form and Function
   - What is the morphological variation among bone retouchers?
   - What specific activities produced retouch damage?
   - Do variable forms equate to differences in function?
   - Do bone retouchers serve the same purpose as retouchers made from stone?
   - What can experimental studies reveal about the form and function of bone retouchers?
4-Associated Archaeology and Human Behaviour

- With what types of sites are bone retouchers associated (e.g., kill sites, living sites, quarry sites, etc.), where are these sites located on the landscape, and in what environments?
- What are the characteristics of the lithic and faunal assemblages associated with bone retouchers?
- What is the chaîne opératoire involved in the production, use and discard of retouchers?
- Were bone retouchers used on a strictly ad hoc basis or was more effort involved in their production?
- Was the use of bone retouchers a necessary economic decision related to the conservation or lack of lithic raw material for the purposes of retouching, or was bone preferred as a raw material for retouching activities?
- How did the knowledge of bone’s utility as a raw material for retouching stone tools influence organizational strategies related to mobility and subsistence practices?
- Does the use of bone retouchers imply cognitive complexity?
- Is there any evidence of brain lateralization/handedness in the use of bone retouchers?

These questions, among others, are aimed to synthesize a growing body of literature on bone retouchers and how tool use, in general, impacted the daily lives of our prehistoric human ancestors. Our ultimate intention is not to convene this symposium for the sole purpose of discussing the current state of knowledge regarding bone retouchers, rather we seek to define the circumstances under which these tools were integrated into the entire suite of emerging technologies and how those innovations influenced human subsistence and other socio-economic adaptations across space and time. As such, we draw from the fields of zooarchaeology, lithic technology, experimental archaeology, archaeometry and cognitive sciences to address these important issues. With this synthesis, we add an important dimension to the ways in which tool use defines what it means to be human.

We would like to invite you to take part in this multidisciplinary scientific meeting on the evolutionary significance of bone retouchers, scheduled for 21-24 October 2015 at the Herrenhausen Palace in Hannover, Germany. Funding for the conference has been generously provided by the Volkswagen Foundation, therefore all travels costs, accommodation, excursion, etc., will be paid for all attendees. We kindly request that you confirm your interest in participation via email to Aritza Villaluenga (villaluenga@rgzm.de) before 23 June 2015.

Sincerely,

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