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## **ABSTRACT BOOK**

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**Dimitris S. KOSTOPOULOS, Evangelos VLACHOS, and Evangelia TSOUKALA**

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## Elephants, Acheulian tools, and large game processing: a use-wear and experimental perspective from Lower Palaeolithic Revadim, Israel

Natalya SOLODENKO ✉, Andrea ZUPANCICH, Avi GOPHER,  
Ofer MARDER, Cristina LEMORINI, and Ran BARKAI

The nature of interaction between early humans and elephants during the Palaeolithic period is still under discussion. While some scholars strongly advocate the significant role of elephants in early human subsistence and culture (e.g. Ben-Dor et al., 2011; Nikolsky and Pitulko, 2013), others have questioned the nature of such interactions (e.g. Boschian and Sacca, 2010; Smith, 2013). Elephant remains are found in many European, Asian and African Palaeolithic sites. In the Levant there are several Lower Palaeolithic Acheulian contexts characterised by the association of megafaunal remains and human made tools enabling a glimpse into the interactions between humans and elephants (Goren-Inbar, 1994; Chazan and Kolska-Horwitz, 2006; Rabinovich et al., 2012).

Our work is focused on testing the efficiency of Acheulian stone tools found in association with elephant remains in processing large game. This is achieved by means of an experimental program testing the efficiency of replicas of the archaeological items to process portions of a large animal body parts. Taking into consideration some of the typical implements present in the Acheulian toolkit (handaxes, notches, scrapers and retouched flakes) we set up an experimental framework in order to test

their efficiency in butchering a large animal carcass. We investigate both the edge damage and the micro use wear generated by this activity using both the low and high power approaches (Keeley and Newcomer, 1977; Tringham et al., 1974). The experimental use wear signs are compared to the wear patterns found on the archaeological finds from Revadim.

Our study includes the analysis of the stone tools found at a specific context from the Late Acheulian site Revadim Quarry (Israel), dated to a minimum age of 300-500 thousand years (Marder et al., 1999; 2011; Rabinovich et al., 2012). Locality 21 is part of a rich and well-defined archaeological layer B2 showing specific activity areas characterized by a high density of artifacts.

Locality 21 is defined as a well-preserved fast palimpsest with a discrete activity area and it exhibits elephant remains in association with flint tools. Especially interesting is an elephant rib, bearing cut marks, that was found alongside a number of flint items, one of which is a handaxe (Fig. 1). In the publication of the faunal material from the site, including the rib from Locality 21, it was stated that "The cut marks on the scapula and ribs are particularly notable because they indicate filleting of meat. Coping with large quantities



Fig. 1. Locality 21, Layer B2, Area B.


of meat may require a combination of immediate- and delayed-return strategies such as consumption on site, and drying meat for later consumption at Revadim" (Rabinovich et al., 2012).

Using low and high power magnification approach, we analysed handaxes, scrapers, notches and retouched flakes from Locality 21 looking at both edge damage and/or the microwear (polishes, abrasions and striations) present on these tools. From our analyses it is possible to highlight the average state of preservation of the materials from Locality 21 of Revadim, despite the age of the site, which allowed proposing several hypothesis about the tools' use. Throughout our microscopic analysis we have identified evidence suggesting the possible use of several lithic implements for processing medium hard materials.

The wear generated on the experimental tools and the pattern identified on the archaeological sample from Locality 21 are compared in order to suggest the probable use of the Acheulian artefacts. Our research provides a rare opportunity to study the function of Lower Paleolithic artefacts directly associated with elephant remains and discuss the possibility that these tools were actually used in processing large game. Indeed, the presence of either edge damage or polishes allows speculating about the actual use of the tools recovered at Revadim Locality 21, and provides strong and direct evidence related both to the behaviour of Acheulian human groups and the exploitation of elephants.

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 Natalya15@gmail.com



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