



# Oldowan technological behaviour at HWK EE (Olduvai Gorge, Tanzania)

Ignacio de la Torre <sup>a,\*</sup>, Rafael Mora <sup>b</sup>

<sup>a</sup> Institute of Archaeology, University College London, 31–34 Gordon Square, WC1H 0PY London, United Kingdom

<sup>b</sup> Centre d'Estudis del Patrimoni Arqueològic de la Prehistòria, Facultat de Lletres, Universitat Autònoma de Barcelona, 08193 Bellaterra, Spain



## ARTICLE INFO

### Article history:

Received 1 June 2017

Accepted 3 April 2018

### Keywords:

Early Pleistocene

Early Stone Age

Lithic technology

Knapping skill

Stone tool reduction sequence

Acheulean origins

## ABSTRACT

HWK EE (Olduvai Gorge, Tanzania) is a late Oldowan site dated to ~1.7 Ma that contains a large fossil and lithic assemblage. This paper reports on the technology of the recently excavated stone tool collection, over 18,000 pieces. Our results indicate that reduction sequences were generally short, flaking productivity was low, and knapping methods were largely simple and expedient, lacking the technical skills observed in other Oldowan assemblages. Conspicuous differences are observed in the chaînes opératoires of the three main raw materials used at HWK EE: the quartzite reduction sequence can be reconstructed in full at the site, most of the lava detached pieces are missing, and there is a preferential use of chert for retouched tools. This portrays a composite picture, where knapping expediency and low productivity are accompanied by raw material selectivity and consistent presence of retouched artefacts. Coexistence of these features in the same assemblage leads us to question the monolithic structure of the Oldowan techno-complex, and highlights the kaleidoscopic nature of technological strategies at Olduvai immediately before the earliest Acheulean handaxes appear in the sequence.

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## 1. Introduction

Recent years have witnessed considerable progress in our understanding of Oldowan technology in eastern Africa, with a growing number of studies on skill (Semaw, 2000; de la Torre, 2004; Delagnes and Roche, 2005; Toth and Schick, 2009; Stout et al., 2010; Barsky et al., 2011), raw material procurement and economy (Rogers et al., 1994; Stout et al., 2005; Braun et al., 2008, 2009; Blumenschine et al., 2008, 2012; Harmand, 2009; Goldman-Neuman and Hovers, 2012; Reti, 2016), diachronic trends (Kimura, 1999, 2002; de la Torre and Mora, 2005), and even stone-tool function (Lemorini et al., 2014). Most of these studies agree on the existence of a certain level of technological complexity during the Oldowan, which is thought now to have included awareness of the differential quality of raw materials, rock type selectivity, (some degree of) procurement planning, adaptability (to landscape variations, raw material distance and particularities of each raw material), technical know-how and relatively efficient flaking skills.

While the onset of the Oldowan sensu stricto is well established at 2.6 Ma (Semaw et al., 2003) in eastern Africa, less agreement

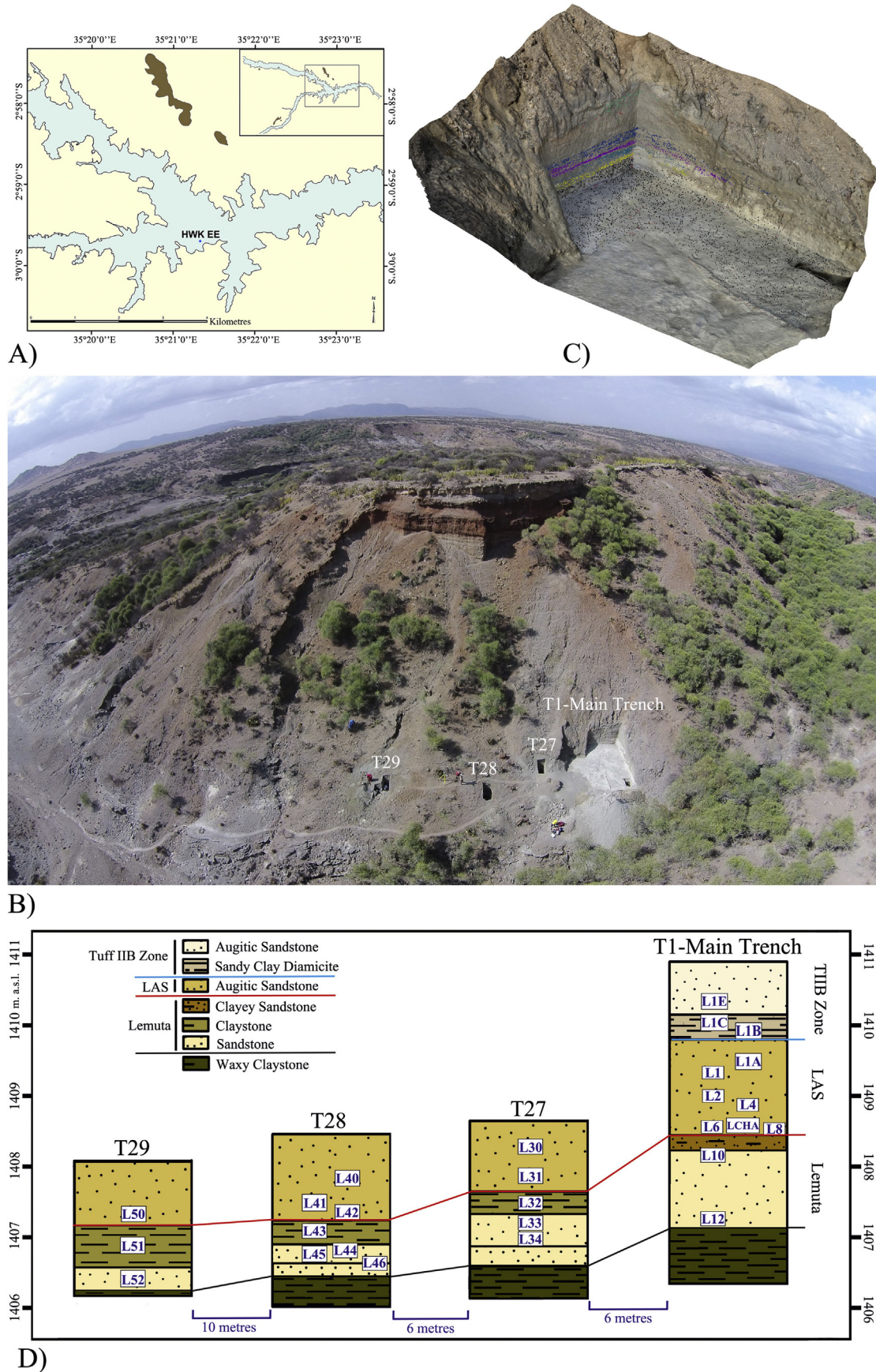
exists on the extent that technological variability may be embedded in this techno-complex (e.g., Delagnes and Roche, 2005; Rogers and Semaw, 2009; Stout et al., 2010) and, particularly, when it ended/was replaced by the Acheulean. This latter issue has been debated since Mary Leakey's (1971) seminal work at Olduvai Gorge and her identification of evolving stages within the Oldowan (see recent reviews by de la Torre and Mora, 2005, 2014; Semaw et al., 2009; Proffitt, 2018). While so-called Developed Oldowan assemblages are still reported elsewhere (Texier et al., 2006; Braun et al., 2008b), the abundance of assemblages spanning the Oldowan–Acheulean boundary in Bed II makes Olduvai highly relevant for the study of late Oldowan technology in eastern Africa.

Here we present the assemblage from HWK EE, one of the Olduvai sites that may contribute to the discussion surrounding the end of the Oldowan in eastern Africa. Located in the southeast of the Junction Area at Olduvai Gorge (see Fig. 1A), HWK EE was originally excavated by Mary Leakey in the early 1970s, but she never published the assemblage. In 2008, the Olduvai Geochronology Archaeology Project (OGAP) commenced analysis of the large collection unearthed by Leakey (see details in Pante and de la Torre, 2018), and between 2009 and 2014 OGAP conducted intensive fieldwork at the site.

The HWK EE archaeological assemblage is positioned in the stratigraphic transition from Lower to Middle Bed II (de la Torre

\* Corresponding author.

E-mail address: [i.torre@ucl.ac.uk](mailto:i.torre@ucl.ac.uk) (I. de la Torre).



**Figure 1.** A) Location of HWK EE in Olduvai Gorge. B) Aerial view of HWK EE trenches. C) Photogrammetric reconstruction of T1-Main Trench, with cross-sections of archaeological units plotted on the back and sidewalls, and plan view of L10. D) Synthetic stratigraphic sequence of HWK EE trenches.

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