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Editorial

From the Oldowan to the Acheulean at Olduvai Gorge, Tanzania – An introduction to the special issue

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1. Introduction

Even before setting foot at Olduvai Gorge, Louis Leakey was certain that he would find handaxes there (Leakey, 1951). Apparently, he did so on the very first day of the 1931 expedition, the first that Louis Leakey ever conducted at Olduvai. More unexpectedly, Louis Leakey also found an archaic, handaxe-free industry in the lower beds of Olduvai (Leakey et al., 1931), which then he formally termed Oldowan (Leakey, 1936). In one way or another, all studies on the transition from the Oldowan to the Acheulean in East Africa and elsewhere, stem from Louis Leakey's (e.g., 1936, 1951) initial reports at Olduvai, the first site where a stratigraphic sequence showed that handaxes emerged after a core-and-flake technology.

Such studies are many, among which Mary Leakey's (1971) '*Olduvai Gorge. Volume 3*' stands out as the pivotal work that shaped the empirical, methodological and conceptual frameworks of the Oldowan–Acheulean transition. Leakey (1971) reported on excavations that were methodologically exemplary, and produced painstaking descriptions of lithic assemblages to characterise the Oldowan, the Acheulean and the transitional industries between the two cultures (i.e., Developed Oldowan A and B), within well-constrained geological contexts. The superb quality of Leakey's (1971) analysis and publication, combined with the wealth of the archaeological record in Beds I and II (with abundant, well-preserved, high-density, stratified assemblages), and the radiometric control over the age of the sites (which placed the earliest handaxes in Middle Bed II at around 1.4 Ma), made Olduvai Gorge the world's reference for the emergence of the Acheulean in the following decades (see review by de la Torre and Mora, 2014).

Although the relevance of Leakey's (1971) monograph can never be stressed enough, most subsequent discussions of the Oldowan–Acheulean transition did not involve first-hand reanalysis of the Olduvai collections, and some that did include a study of the original materials (e.g., de la Torre and Mora, 2005) highlighted problems that were unsolvable without renewed archaeological excavations at Olduvai. In this context, the Olduvai Geochronology Archaeology Project (OGAP) commenced fieldwork at Olduvai in 2008, and over the past decade has focused most of its efforts on gaining a better understanding of the geology, chronology, palaeoecology and archaeology of Olduvai Bed II. During this phase of the project, OGAP's overarching aims (see details in de la Torre et al., 2012) have included an investigation of the ecological adaptations of late Oldowan and early Acheulean hominins, their technological skills and subsistence strategies, and a refinement of the chrono-stratigraphic framework in which such patterns unravelled.

As one of the major transitions in human evolution, it is an exciting time for those interested in the origins of the Acheulean and the evolutionary and cognitive patterns associated with the emergence of this technology (de la Torre, 2016). Recent findings suggest that handaxes may have appeared elsewhere in eastern Africa at around 1.76 Ma (Lepre et al., 2011; Beyene et al., 2013), and thus the Olduvai Acheulean is not the earliest. Nevertheless, the quality and quantity of its archaeological record, and the existence of Oldowan sites that are stratigraphically succeeded by Acheulean assemblages, still guarantee a pivotal role for Olduvai in the discussion of the transition. Proof of this is the renewed fieldwork interest in the Middle and Upper Bed II archaeological sequence (e.g., Domínguez-Rodrigo et al., 2014, 2017) which, in addition to the data presented by OGAP in this special issue, should contribute to shape a modern view of the origins of the Acheulean at Olduvai Gorge.

2. Materials and methods

This special issue compiles results of fieldwork by OGAP between 2008 and 2016, in which we conducted at least one field season annually and, in some years (2014 and 2015), two field seasons. Most of these eleven fieldwork seasons focused on a specific stratigraphic interval of the Olduvai Pleistocene sequence, that which captures the local transition from the Oldowan to the Acheulean between Lower and Upper Bed II, and involved the excavation of 57 trenches. OGAP's field strategy has combined the excavation of large trenches in some sites with high density of material—following Leakey's (1971) approach—with the landscape perspective inaugurated at Olduvai in 1989 by the Olduvai Landscape Paleoanthropology Project (OLAPP) (Blumenschine and Masao, 1991), and based on the excavation of randomly-placed trenches that sample targeted stratigraphic intervals. However, while Bed I and Lowermost Bed II contain stratigraphic layers that can be laterally followed across large extensions of Olduvai Gorge (Hay, 1976), the overlying stratigraphic units are more locally restricted, therefore

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limiting the palaeogeographic range available for OGAP's random trenching, which is often limited to sampling within each of the outcrop localities defined by the Leakeys. Excavations between 2009 and 2016 focused on the eastern shoreline of the Olduvai paleolake, particularly at archaeological localities EF-HR, HWK EE, HWK E, FLK, FC (East and West) and MNK (Fig. 1A), and sampled the top of Lower Bed II, throughout Middle Bed II, and the lower part of Upper Bed II (Fig. 1B).

Apart from an overview of OGAP's research aims (de la Torre et al., 2012), digital mapping initiatives of the Gorge (Jorayev

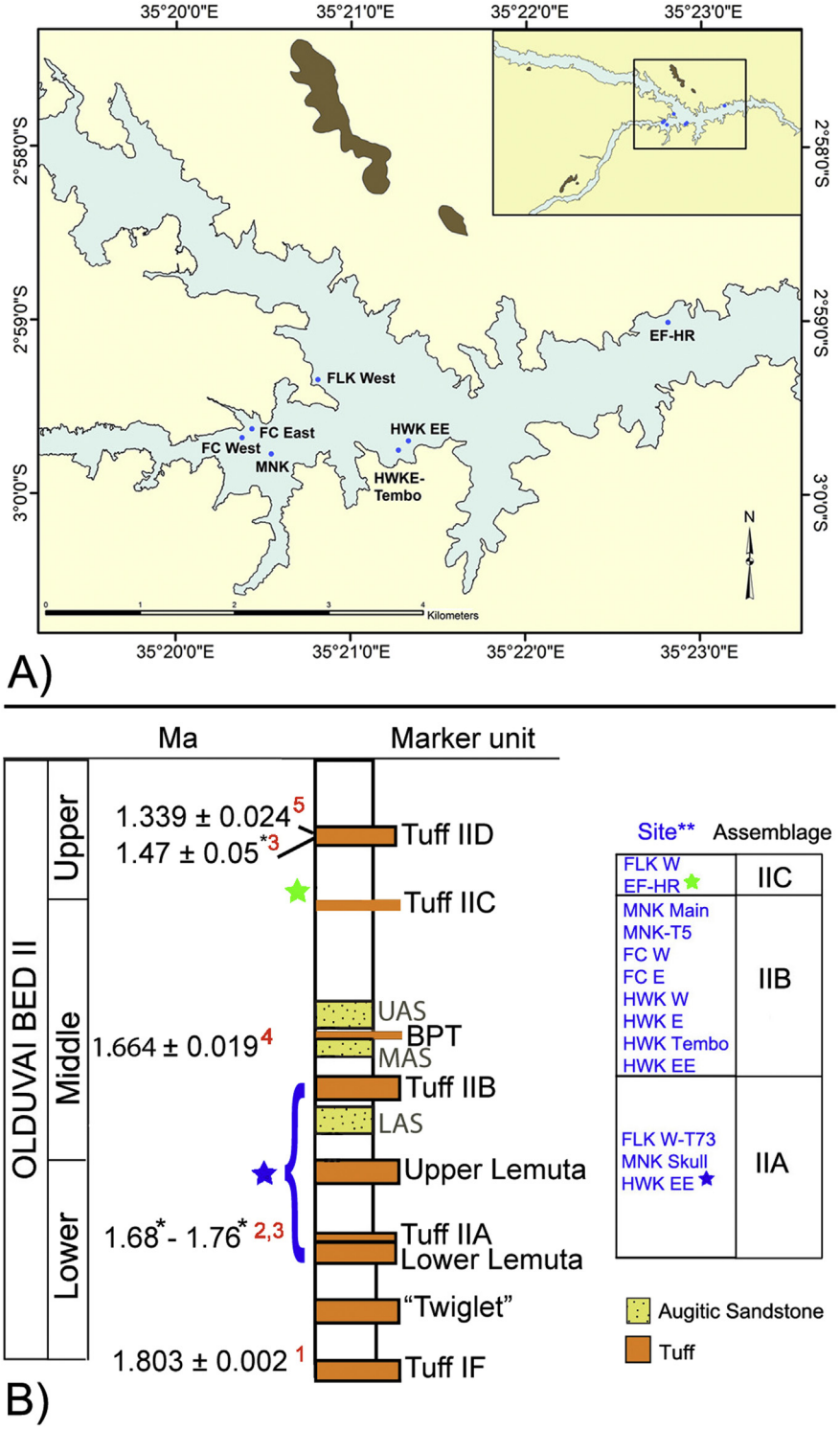

Figure 1. A) Map with localities excavated by OGAP at Olduvai Gorge (base map after Jorayev et al., 2016). B) Simplified stratigraphy of Bed II (composite section), with the stratigraphic position of localities investigated by OGAP. * Dates from: (1) Deino (2012); (2) Curtis and Hay (1972), updated in McHenry and Stanistreet (2018); (3) Manega (1993), updated in McHenry and Stanistreet (2018); (4) Diez-Martín et al. (2015); (5) Domínguez-Rodrigo et al. (2013). ** Archaeological sites within each assemblage are not plotted in stratigraphic order.

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