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## Journal of Human Evolution

journal homepage: [www.elsevier.com/locate/jhevol](http://www.elsevier.com/locate/jhevol)

# A hidden treasure of the Lower Pleistocene at Olduvai Gorge, Tanzania: The Leakey HWK EE assemblage

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## ARTICLE INFO

## Article history:

Received 19 January 2017

Accepted 21 June 2017

Available online xxx

## Keywords:

Oldowan

*Homo habilis*

Early Stone Age

Bone surface modifications

Taphonomy

Lithic technology

## ABSTRACT

HWK EE is a little-known archaeological site from the top of Lower Bed II and the basal part of Middle Bed II, Olduvai Gorge, Tanzania. The site was originally excavated in the early 1970s by Mary Leakey, but the excavations and resulting lithic and fossil assemblages were never described. Here we report for the first time on the lithic and fossil assemblages that were recovered by Mary Leakey from the site. The lithic assemblage is one of the largest of any Oldowan site and is characterized by a core-and-flake technology with simple flaking techniques and minimal reduction of cores. Retouched flake frequencies and battered tools are higher than those reported for Olduvai Bed I and Lower Bed II assemblages, but flaking schemes are poorly organized. The fossil assemblage is well-preserved, taxonomically-rich, but dominated by bovids, and includes abundant feeding traces of both hominins and carnivores. Hominins are inferred to have broken the majority of limb bones at the site for access to marrow, while both carnivores and hominins likely had access to at least some flesh. HWK EE may represent one of the last *Homo habilis* sites at Olduvai Gorge, and is important to understanding the behavioral and cultural mechanisms that led to the emergence of the Acheulean and *Homo erectus* in the region.

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## 1. Introduction

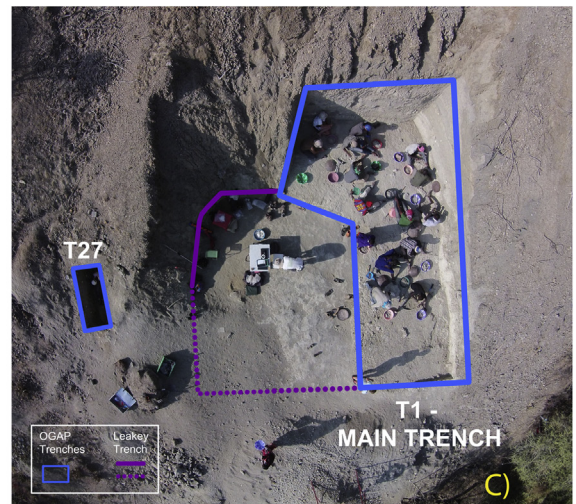
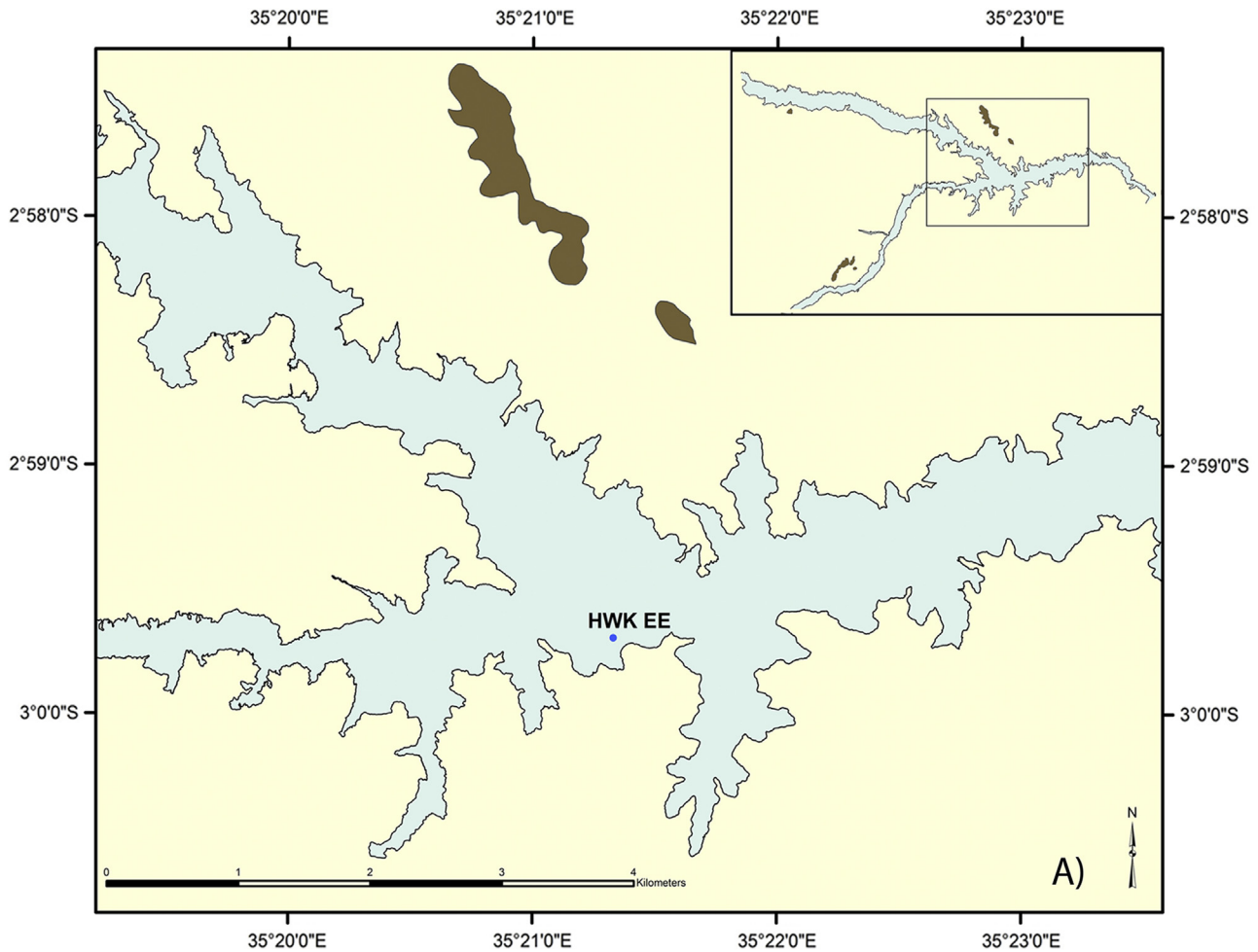
Olduvai Gorge remains one of the most important paleoanthropological regions in the world, and has produced dozens of archaeological sites covering the last two million years of human prehistory (Leakey, 1971; Leakey and Roe, 1994). HWK EE (Henrietta Wilfrida Korongo East East) is one of these sites in Bed II, and was excavated by Mary Leakey in the early 1970s. She never published her excavations, perhaps influenced by the fact that her fieldwork at HWK EE was conducted after the publication of the classic monograph on Olduvai Beds I and II (Leakey, 1971). The lithic and fossil assemblages from the site remained in a lab at Olduvai Gorge along with other collections (see Pante, 2010), while the material from most other Bed I and II sites was, until recently, housed by the National Museums of Kenya (and is now at the Museum of Dar es Salaam). As a result, HWK EE has received little attention in the literature with references limited to the well-preserved bovid specimens it has produced (Gentry and Gentry, 1978) and its stratigraphic position (Hay, 1976).

Although the assemblages from HWK EE remained hidden for decades, the treasures they offer are no less important. The site is stratigraphically positioned just prior to the appearance of Acheulean technology at Olduvai Gorge dating to roughly 1.7 Ma (McHenry, submitted), and is one of the largest collections of Oldowan lithics from anywhere in the world. It also produced a large and well-preserved fossil assemblage that reflects the feeding ecology of hominins and carnivores at the site. It is likely that HWK EE represents the behavior of *Homo habilis* near the end of its existence, and is an invaluable reference point for understanding the cultural and behavioral mechanisms that may have led to the appearance of *Homo erectus* and its more advanced Acheulean technology at Olduvai Gorge.

Here, we present the first detailed analyses of the lithic and large mammal fossil assemblages recovered by Mary Leakey from HWK EE. Our analyses are contextualized by the Olduvai Geochronology and Archaeology Project's (OGAP) own excavation of the site (Fig. 1; de la Torre et al., submitted, 'a'), and will focus on providing an understanding of the lithic technology, paleoenvironment and subsistence patterns of hominins at the site. These interpretations are expanded upon elsewhere based on the lithic (de la Torre and Mora, submitted; Arroyo and de la Torre, submitted) and fossil (Pante et al., submitted) assemblages recovered by OGAP's excavation of the site.

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**Figure 1.** A) Location of HWK EE in Olduvai Gorge (map template after [Jorayev et al., 2016](#)). B) The Leakey Trench at HWK EE, before beginning of excavations by OGAP in 2009. C) Aerial view of two OGAP trenches at HWK EE (T1-Main Trench and T27) and the estimated shape of Leakey's trench.

## 2. Materials and methods

The lithic and fossil collection excavated by Mary Leakey at the HWK EE locality and housed in the Leakey camp at Olduvai Gorge in Tanzania, is complemented by a catalogue of findings

archived in the National Museum of Nairobi, Kenya. This catalogue, hand-written by Mary Leakey, contains the accession numbers of fossils and lithics as they were unearthed during her excavation at HWK EE, and includes the lithology and spit each item derived from ([Fig. 2A](#)), thus enabling us to

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