

“Acheulean gaps” in Africa between ~1.3 and ~1.0/0.7 Ma: questioning the absence during a key-period of human evolution

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The Acheulean is the longest-lasting cultural record, spanning over approximately 1.5 Ma and over three continents. The most comprehensive sequences are found in East Africa, where the Acheulean emerges and is known from a number of well-dated sites between 1.76 and ~1.50-1.40 Ma.

Conversely, the development of the Acheulean after 1.3 Ma is still poorly documented and understood. From then onwards and up to the Early/Middle Pleistocene Transition (1.0/0.7 Ma) the long stratigraphic sequences of East Africa include a limited number of sites, and several with a low-resolution chronostratigraphy. Vice versa, new areas in East Africa were settled for the first time around 1.0-0.7 Ma. This is notably the case of Olorgesailie, Kariandusi, Kilombe, and Isenya.

At the same time Acheulean emerges in North Africa (~1.0 Ma) at Thomas Quarry I-L (Morocco; First Regional Acheulean, FRA) and Ternifine (Algeria), then disappears and reappears at ~0.7 Ma (Second Regional Acheulean, SRA) and continues without interruption, as documented by the long Casablanca sequence.

In large-scale syntheses about Acheulean development and human dispersals, these gaps in the Acheulean chronostratigraphic record have been mostly overlooked. This lack of data is particularly unfortunate, because during this period some of the major changes in human bio-cultural evolution occur and the following questions deserve to be addressed:

- A broader knowledge of the lithospaces, technological innovations, and more complex skills in the Acheulean technology occurred in East Africa at 1.0 Ma. The relationships between these new technical behaviors (middle Acheulean) and those of the early Acheulean are not clear, whether they document a linear conceptual evolution or a strong discontinuity;
- The late Early/early Middle Pleistocene record displays significant morphodimensional variation in African *Homo erectus sensu lato* and the gradual emergence of a new and more encephalized type of hominin: *Homo heidelbergensis/rhodesiensis*, whose ancestor has been dated in East Africa at ~0.85 Ma. Is it possible to link technical innovations and the evolution of *Homo erectus* or the emergence of a new humankind?
- Does the first Acheulean of North Africa share common features with the East African Acheulean? If so, are these features shared with the early or with the middle Acheulean? What are the relationships at a regional scale between the FRA and the SRA?

The main aim of this session is to bring together researchers currently working in Africa in order 1) to update data from sites dated to ~1.3-0.7 Ma; 2) to discuss what this poor information depends on, if it is the outcome of incomplete fieldworks or if it is related to geological, climatic, and/or paleo-environmental mechanisms; 3) to discuss environment-human connections (if any) identifying temporal and geographical correspondences between the novel hominin behaviors and shifts in climate, landscape and overall biota related to the Early/Middle Pleistocene Transition.