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The Bab al-Mandab Paleoanthropology Project in Yemen

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Introduction

Given its geographic location, the Arabian Peninsula has often been highlighted as a major hominin dispersal corridor from East Africa to Asia during the Plio-Pleistocene. However, this region (particularly southern Arabia) has not been tested adequately in order to confirm that inference. Our current knowledge regarding a land-bridge at the Strait of Bab al-Mandab remains equally unclear. The known Early Palaeolithic evidence in the Arabian Peninsula records both Oldowan and Early Acheulian occupation, indicative of multiple early dispersal events (Petruglia 2003). Palaeolithic sites here are known to occur in a variety of ecological and topographic settings, often on the surface of terraces and volcanic landscapes, but occasionally in stratified contexts. Yemen represents the eastern terrestrial boundary of this zone and is thus the closest to East Africa. Unfortunately, very few Palaeolithic sites have been systematically excavated and most have yet to be accurately dated, thus remaining ambiguous for overall dispersal paradigms. As a result, such information as hominin subsistence, technological abilities, raw material exploitation, climatic adaptations, and the rate and success of dispersals into these areas is also poorly-understood. That being said, there is ample scientific potential for inter-disciplinary palaeoanthropological investigations in this region for direct correlations with the East African record (Chauhan, in press).

Preliminary results

Systematic surveys by us in south-western Yemen (Figure 1) in August and September (2007) yielded numerous open-air sites with Lower, Middle and Upper Palaeolithic assemblages produced on basalt, rhyolite, quartzite and chert. The goal of the project is to re-examine some previously-published sites (e.g. Whalen & Schatte 1997) and also discover new ones for long-term study of Lower Palaeolithic dispersals from Africa. We initially surveyed the coastal zones checking wadi (stream) sections and associated terrace formations for artefacts in fine-grained contexts (Figure 2). Subsequently, we shifted our attention away from the coastal zones and where sedimentary deposition is generally more common. Some of the most prominent localities where rich assemblages were observed include the Magadil near the hills, Al Mesmarah, Al Haimah, Jebel Faqaa and two localities on Perim Island. Their different lithic assemblages variably included atypical bifaces, choppers, cores, whole and broken flakes, scrapers with variable levels of retouch, blades and debitage. Many Middle and Upper Palaeolithic sites appear to be spatially linked to the underlying bedrock as they have a greater number of artefacts and are relatively less disturbed. Other occurrences, particularly Lower Palaeolithic ones, were found to be geomorphologically deflated and preserved comparatively lower artefact densities (e.g. Magadil, Jebel Al Umari, Wadi Tharaak, Mawza). Although several boulder cores with large flake scars were documented in the study area, typical Acheulian bifaces were not observed. Al Mesmarah is one of the richest sites we discovered, unlike most of the other surface sites. This Middle Palaeolithic workshop site (Figure 3) is thought to be in semi-primary context due to the collective presence of flakes, cores, debitage and associated finished tools such as diverse scrapers, for example. Almost all artefacts at this site are in fresh condition and careful mapping, recording and piece plotting is required before further collections can be made.



Figure 1. The location of our study area in SW Yemen (right) in relation to the Arabian Peninsula and East Africa (left).
Click to enlarge.



Figure 2. A Palaeolithic site at the Bab al-Mandab and some associated artefacts.
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Figure 3. The location of Al Mesmarah at the foot of the hills and two examples of the artefacts.
Click to enlarge.



Figure 4. The chert specimen from Perim Island (mainland Yemen visible in the background).
Click to enlarge.

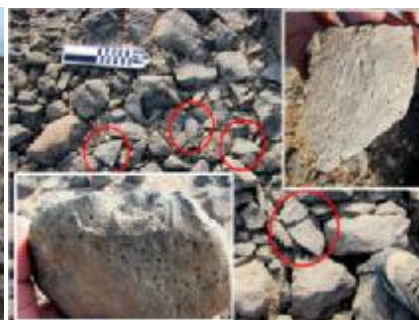


Figure 5. Basalt artefacts (circled in red) on Perim Island. Enlargements show flake with diffused bulb (right) and core/chopper (left). *Click to enlarge.*

Our most significant and exciting discovery was on Perim Island between Djibouti and mainland Yemen, where we documented lithic assemblages possibly for the first time. Their presence suggests that the island was connected to mainland Yemen (c. 3.2km away) via a land-bridge during hominin presence here. Whether Perim Island shared similar terrestrial connections with Djibouti (c. 24km away) requires further research. On Perim Island, we documented one chert flake-blade (Figure 4) and several core-and-flake assemblages. The latter assemblages (presumed to be the older based on raw material and typology) were produced from local basalt boulders and cobbles and are morphologically similar to some nearby coastal assemblages on mainland Yemen. The stone tools on basalt were difficult to identify due to the subtle preservation of diagnostic technological attributes (i.e. diffused positive bulbs, weathered flake scars) (Figure 5).

Long term projects may prove to be useful in also identifying new adaptive patterns such as changing resource exploitation and subsistence strategies from west to east (i.e. Africa to Arabia) as hominins gradually moved from fluvio-lacustrine and forested or grassland zones into arid and semi-arid areas. Until this region is properly tested, our perceptions of the directions and environmental contexts of early dispersals and associated adaptive strategies will continue to remain hypothetical. Most of the Early Palaeolithic sites are primarily distributed on the wadi terraces of the Tihama zone including the foothills slopes and interior hill slopes, but the younger sites are found in almost all the zones mentioned above. The

geological background coupled with general field observations, indicate that the Tihama plains and associated alluvial fans/terraces contain limited fine-grained Plio-Pleistocene sediments. Instead, the foothills and the intermontane zones such as Taiz Valley (Figure 6) have greater potential for yielding primary-context Palaeolithic sites within dateable contexts and for the reconstruction of Plio-Pleistocene environments. The Wazi'a valley for example appears to preserve extensive fine-grained sediments of Upper or Late Pleistocene age where we may be able to recover Middle and Upper Palaeolithic sites in stratified and dateable contexts. Our future objectives involve more detailed investigations at Al Mesmerah, Jebel Al Faqaa, the Bab al-Mandab zone, and Perim Island. In addition, a re-investigation of the alleged Oldowan cave site of Al-Guza (Amirkhanov 1999) in the Hadhramawt valley is also required.

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Figure 6. Pleistocene geological exposures near Taiz.
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