Palaeolithic Landscapes & Archaeology of the Southwestern Arabian Peninsula: Preliminary Reconnaissance in Jizan Region, Saudi Arabia

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1. Introduction

The archaeology of the Arabian Peninsula is pivotal to understanding Pleistocene hominin dispersals from Africa. Emphasis on the Nile-Levant dispersal route has been challenged by evidence for a Southern Route out of Africa, through the Bab al Mandab Straits into Arabia (e.g. Beyin 2006; Petraglia and Alsharekh 2003). Despite recent key developments in our knowledge of the hominin occupation of the Arabian Peninsula (Armitage et al. 2011; Delagnes et al. 2012; Petraglia et al. 2011, Rose et al. 2011), our understanding of the Palaeolithic archaeology of the region remains patchy.

Dispersals into Arabia were probably controlled by global climate and sea level fluctuations, with low sea levels allowing dispersals across the Bab al Mandab Straits (Beyin 2007), and humid periods allowing the occupation of present-day deserts (Petraglia et al. 2011). Within broad-scale climatic reconstructions, the physical morphology of the landscape is key, it can alter wider climatic trends at the scale experienced by hominin populations, and dictates the distribution of resources vital to human occupation, such as water and raw materials. Landscapes with dynamic characteristics, such as tectonically active, or coastal, areas may have created attractive conditions for occupation through their potential concentration, and repeated renewal, of such resources (Bailey and King 2011).

The Dynamic Landscapes, Coastal Environments and Human Dispersals (DISPERSE) Project aims to develop methods for reconstructing dynamic landscapes in prehistory, and their impact on patterns of human evolution and dispersal. It will utilise remote sensing techniques, alongside archaeological and geomorphological field survey on land and underwater, to reconstruct landscapes around the western Arabian escarpment and the now-submerged territory of the southern Red Sea.

2. Preliminary Reconnaissance May-June 2012: Outcomes

The aims of the reconnaissance were:

1. To characterise landscape zones - from the coastal plain to the Arabian escarpment - as a function of the geology and geomorphology.
2. To identify areas for systematic archaeological survey based on observed archaeology and the sedimentary characteristics of each zone.
3. To locate stratified sediment sequences for local palaeoenvironmental and landscape reconstruction.

A. The Arabian Platform was only briefly explored, but contains landscape features that vary with the underlying geology, from sandstone valleys (Figure 3a), potentially containing rockshelters, to isolated granite hills. An extensive scatter of Palaeolithic artefacts and adjacent Neolithic structures observed within a wadi valley (WP110, Figure 3b) indicate significant archaeological potential.

B. The Escarpment is characterised by narrow valleys and steep slopes (Figure 4a), rising from the coastal plain to the Platform. Isolated sandstone areas, e.g. Wadi Labj (WP 164, Figure 4b), are associated with springs and tufa outcrops. The heavily eroded landscape appears unpromising for preservation of archaeological material, however, a few enclosed basins contain preserved sediments.

C. The Coastal Area pently rises from sea level to the foot of the escarpment, its landscapes varying as a function of the underlying tectonic and volcanic processes. The area can be divided into:

Upper Coastal Area and ‘Magmatic Line’ - A line of hills formed by Miocene and Quaternary volcanics (the ‘Magmatic Line’), divides the Upper from the Lower Coastal Area. The Upper Area has a steeper slope than the Lower, dissected by a dendritic pattern of small wadis. The Lower Area is a major tectonic feature, potentially formerly redirecting and damming wadis flowing from the escarpment, as well as providing raw materials in the form of volcanic lava flows (WP220, Figure 5a).

Multi-period artefact palimpsests, including basalt Palaeolithic endscrapers, were mainly found exposed on deflated surfaces, often on wadi terraces (WP157, Figure 5b). In Wadi Jizan, 6-10m of floodplain deposits were preserved beneath a lava flow (WP157, Figure 5c) indicating significant potential for palaeoenvironmental reconstruction as well as preservation of stratified archaeology.

The Lower Coastal Area, extending 20-30km inland from the coast and largely devoid of topographic features, is dominated by Quaternary fluvolacian and marine deposits incised by wadis, providing the wide, shallow wadi beds, dunes and sparsely vegetated landscape. Little surface archaeology was observed, probably due to the significant sediment cover. Future research will focus on areas that afford access to stratigraphy, such as wadi cuts and quarries.

3. Conclusions and Future Directions

This preliminary reconnaissance process has established a foundation for future research into the Palaeolithic landscapes of southwestern Saudi Arabia. The characterisation of landscape zones has provided a broad overview of sedimentary processes, and their bearing on archaeological taphonomy. This framework has informed the evolution of the landscape driven by tectonic, volcanic and sedimentological processes that were potently active over the time scale relevant to Pleistocene hominin occupation. Lastly, a number of locations with significant potential for palaeoenvironmental reconstruction have been identified.

Future research will focus on refining the classification of the landscape zones and dating their evolution. Parallel to the analysis and dating of palaeoenvironmental archives, systematic archaeological surveys will be undertaken, targeting areas of high potential for surface archaeology as well as preservation of stratified sites. Ultimately, the data from these investigations will be considered within wider-scale regional modelling to reconstruct landscapes of hominin occupation in Pleistocene Arabia, and to contribute to the DISPERSE’s aim to investigate the impact of dynamic landscapes on hominin evolution and dispersal.

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Figure 1. Map of Arabian Peninsula showing study area and potential dispersal routes out of Africa. Land exposed during periods of low sea level (fully glacial conditions) are also shown.

Figure 2. Scene of a platform, possibly Palaeolithic artefacts on a low mounded ridge in a quarry, extending 20-30km inland from the coast at WP164, possibly associated with earlier Kufiya culture. A deposit of 6-10m of floodplain deposits were preserved beneath a lava flow, indicating significant potential for palaeoenvironmental reconstruction as well as preservation of stratified archaeology.