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Short communication

Middle Palaeolithic occupation in the Thar Desert during the Upper Pleistocene: the signature of a modern human exit out of Africa?

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ABSTRACT

The Thar Desert marks the transition from the Saharo-Arabian deserts to the Oriental biogeographical zone and is therefore an important location in understanding hominin occupation and dispersal during the Upper Pleistocene. Here, we report the discovery of stratified Middle Palaeolithic assemblages at Katoati in the north-eastern Thar Desert, dating to Marine Isotope Stages (MIS) 5 and the MIS 4–3 boundary, during periods of enhanced humidity. Hominins procured cobbles from gravels at the site as evidenced by early stages of stone tool reduction, with a component of more formalised point production. The MIS 5c assemblages at Katoati represent the earliest securely dated Middle Palaeolithic occupation of South Asia. Distinctive artefacts identified in both MIS 5 and MIS 4–3 boundary horizons match technological entities observed in Middle Palaeolithic assemblages in South Asia, Arabia and Middle Stone Age sites in the Sahara. The evidence from Katoati is consistent with arguments for the dispersal of *Homo sapiens* populations from Africa across southern Asia using Middle Palaeolithic technologies.

1. Introduction

The path of hominin dispersal from Africa to Asia is commonly illustrated as a coastal corridor (e.g. Stringer, 2000; Field and Lahr, 2005). However, recent field investigations in the Sahara and the Arabian Peninsula have begun to illustrate how Middle Stone Age and Middle Palaeolithic populations expanded along continental corridors during periods of enhanced humidity (Armitage et al., 2011; Drake et al., 2011, 2013; Dennell and Petraglia, 2012). The Thar Desert (Fig. 1), which ranges across western India and south-eastern Pakistan, is part of the mid-latitude arid belt, which appears to have shared similar palaeoenvironmental responses to global climatic change through the Upper Pleistocene. Hominin colonisation of the central Thar may have been impossible during periods of increased aridity, effectively preventing continental routes of dispersal through this region (Field et al., 2007). However, the presence of dense networks of palaeo-channels across the Thar Desert (Gupta et al., 2011) suggests continental routes of dispersal may have existed during periods of enhanced humidity.

The Palaeolithic archaeology of the Thar Desert is predominately known from the results of surface surveys, which indicate repeated associations between humid landforms, such as palaeochannels and pedogenised dune deposits, and Middle Palaeolithic artefacts (Allchin et al., 1978; Misra et al., 1982; Raghaven and Courty, 1987; Blinkhorn, 2012). Secure and reasonably well-dated evidence for hominin occupations in the Thar Desert during the Upper Pleistocene is limited to the site of 16R Dune (Misra and Rajaguru, 1986; Raghavan et al., 1989). At this large sand dune, overlooking Didwana Lake, a Middle Palaeolithic occupation horizon is constrained by dates of 80–40 ka, with non-diagnostic occupations stretching back to ca 180 ka (Gaillard, 1993; Achyuthan et al., 2007; Singhvi et al., 2010; Blinkhorn, 2013). Here, we report the initial results of an excavation at Katoati, ca 50 km from 16R Dune, which have identified Middle Palaeolithic occupations in Marine Isotope Stage (MIS) 5 and at the boundary between MIS 4 and 3.

2. The Katoati study site

Katoati is located in Nagaur District, Rajasthan in the north-eastern Thar Desert at (E74°11′35.44″, N27°13′19.38″). The Jayal Formation, a tectonically uplifted boulder-conglomerate horizon (of Early or Pre-Quaternary origin) overlying a ferricretised sandstone basement, provides the major source of topographic relief in

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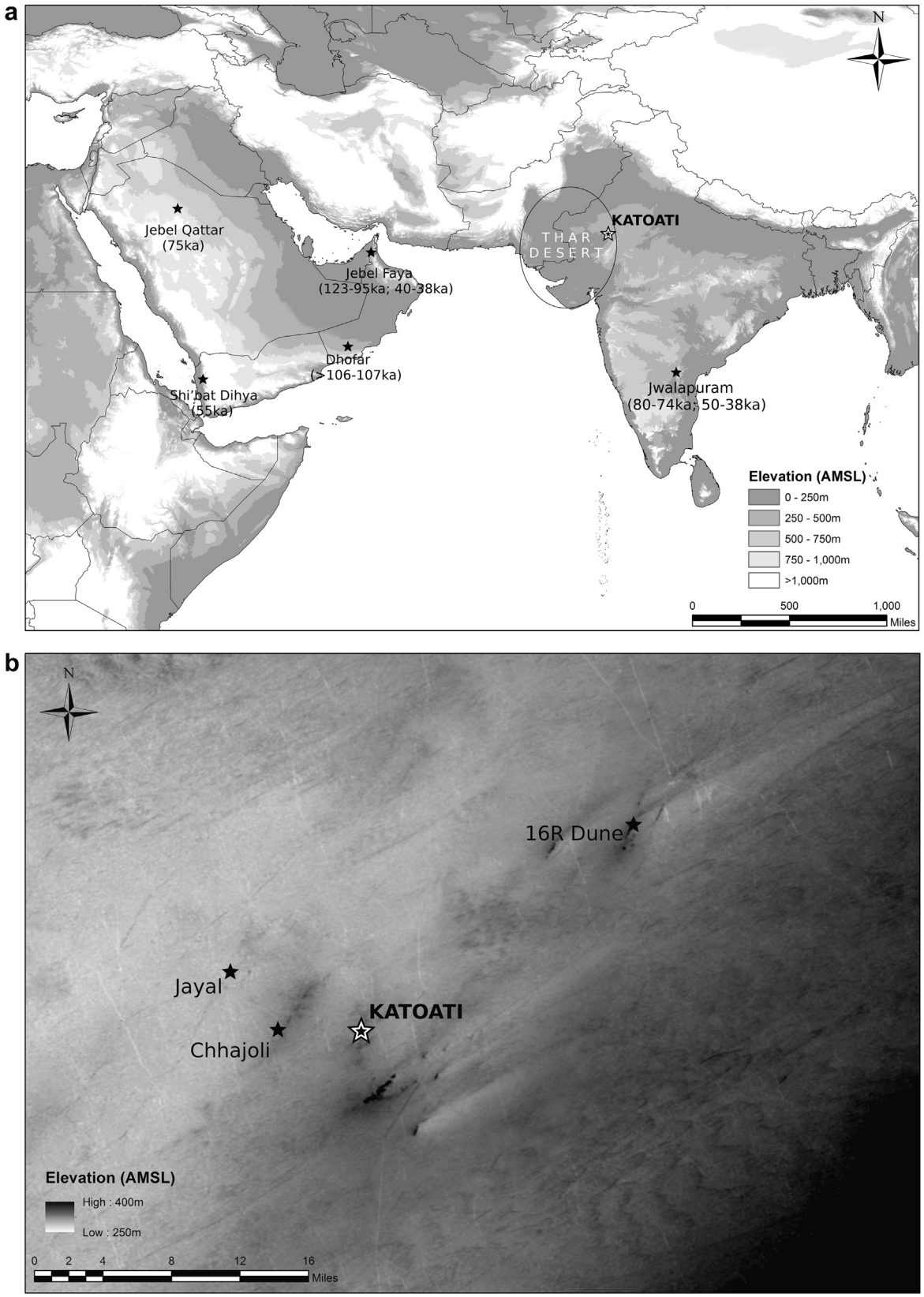

Fig. 1. a) Map indicating the position of Katoati and the Thar Desert with respect to contemporary Middle Palaeolithic sites in southern Asia; b) Map indicating the position of Katoati in relation to other Palaeolithic sites in the north-eastern Thar Desert.

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