



# Initial insights into Aterian hunter–gatherer settlements on coastal landscapes: The example of Unit 8 of El Mnasra Cave (Témara, Morocco)



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## ABSTRACT

Coastal adaptations and the exploitation of marine resources are important topics in the study of the human evolution as certain other human behaviors may be linked to them: large group size, low mobility, complex technology and wide-ranging gifting or exchange. It is therefore essential to characterize the socio-economic organization of Aterian hunter–gatherers in coastal landscapes. The example of Unit 8 of El Mnasra Cave provides some initial insights into the economic organization of Aterian groups living on the Atlantic coastal landscapes of Morocco through a combination of zooarchaeological and stone tool industry data. The lithic industries include tanged tools, which in fact encompass a mosaic of tools (points, scrapers, unmodified edges, etc.) having a long use-life and high mobility. The lithic industries also present a fragmented reduction system associated with a large range of mainly local raw materials. The lithic assemblages are thus very flexible and include multifunctional-tools. Aterian hunter–gatherers consumed a broad range of terrestrial resources (small, medium and large ungulates, tortoises) as well as coastal ones (mollusks). The artifacts (faunal remains, lithic and osseous industries, hearths, ornaments in *Nassarius* sp. shells pigments) reflect diverse activities, showing that El Mnasra Unit 8 is not a single-activity site. The low density of archaeological artifacts, the small number of faunal species exploited by humans and the fragmented lithic reduction system indicate brief occupations.

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## 1. Introduction

Coastal adaptations and the exploitation of marine resources are important topics in the study of human evolution. Numerous studies highlight the role of marine resources in human brain evolution and demography (e.g., [Parkington, 2003, 2010](#); [Steele and Klein, 2005](#); [Marean, 2011](#)) and in *Homo sapiens* dispersion (e.g., [Stringer, 2000](#); [Walter et al., 2000](#); [Mellars, 2006](#); [Rose and Petraglia, 2009](#); [Boivin et al., 2013](#); [Erlandson and Braje, 2015](#)). Many publications focusing on site function and settlements on

coastal landscapes concern sites in southern Africa (e.g., [Marean, 2011](#); [Will et al., 2015, 2016](#)).

Several examples suggest that the adaptation to coastal areas (characterized by spending a large part of the year on the coast and eating a high proportion of mollusks) could generate specific economic organizations. In sub-actual hunter–gatherer communities, researchers have observed a reduction in mobility, a larger group size, and a social differentiation with more intensive and wide-ranging gifting or exchange, compared to inland groups (e.g., [Yesner, 1980](#); [Kelly, 1983, 1992](#); [Erlandson, 2001](#); [Álvarez et al., 2011](#); [Marean, 2014](#)). This context could therefore have led to the emergence of new mechanisms for the mediation of social relationships ([Marean, 2011](#)). In studies of the first Anatomically Modern Humans (AMH), researchers focusing on coastal

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adaptations have mainly considered sites in southern Africa (e.g., Volman, 1978; Henshilwood et al., 2001, 2011; Parkington, 2003, 2010; Klein et al., 2004; Steele and Klein, 2005, 2013; Avery et al., 2008; Jerardino and Marean, 2010; Marean, 2010, 2011, 2014; Langejans et al., 2012; Will et al., 2013, 2015, 2016; Kyriacou et al., 2014, 2015). However, several Middle Stone Age (MSA) sites in the coastal regions of North Africa also contain mollusk shells which indicate the exploitation of marine resources, such as the Témara caves (Ruhlmann, 1951; Aouraghe, 2001; Steele and Alvarez-Fernandez, 2011, 2012; Stoetzel et al., 2014; Campmas et al., 2015; Nouet et al., 2015), Mugharet el Aliya (Howe and Movius, 1947), Benzu Rock Shelter (Ramos et al., 2008, 2011, 2015) and Haua Fteah (McBurney, 1967; Klein and Scott, 1986) (Fig. 1). In addition, North Africa, just like southern Africa (d'Errico et al., 2005; Vanhaeren et al., 2013), has yielded ornaments in *Nassarius* sp. shells. In North Africa, such ornaments have been identified in the Aterian cultural context, a MSA techno-complex specific to North Africa, found at Oued Djebbana (Algeria; Vanhaeren et al., 2006), Taforalt (Morocco; Bouzouggar et al., 2007; d'Errico et al., 2009), Rhafas (Morocco; d'Errico et al., 2009), Ifri n'Ammar (Morocco; Nami and Moser, 2010), Bizmoune (Morocco; Bouzouggar and Barton, 2012) and the Témara caves (Morocco; Steele and Alvarez-Fernandez, 2011; Dibble et al., 2012a; El Hajraoui et al., 2012a) (Fig. 1). Most studies of human coastal adaptations focus on the use of mollusks and mollusk density (e.g., Jerardino and Marean, 2010; Marean, 2014). However, in this context of high behavioral complexity, it is necessary to consider the global economic organization of hunter–gatherer groups. This point was previously discussed by Marean (2010, 2011, 2014), Kyriacou et al. (2014, 2015) and Will et al. (2015, 2016) for the southern African MSA. Nonetheless, in Europe for example, characterizations of Middle Paleolithic (MP) economic organizations are mainly based on the combined analysis of zooarchaeological and lithic technology data (Delagnes and Rendu, 2011).

This paper focuses on the results of zooarchaeological analyses, mainly of macro- and meso-faunas, as well as the first data resulting from mollusk shell analyses, of Unit 8 at El Mnasra Cave (Témara), dated to MIS 5 (Jacobs et al., 2012; Janati Idrissi et al., 2012). As the analysis of the lithic industry from this site is still in progress, we combine the current data from coastal areas with broader data on Aterian technology in general. These data are also integrated into a wider background by considering results from

other disciplines in order to obtain some initial insights into the economic organization of Aterian hunter–gatherers on coastal landscapes in North Africa.

## 2. Cultural setting: Aterian lithic technology

In North Africa, tanged tools encompass a mosaic of blanks and tools (flakes, blades, points, scrapers, etc.) and several tanged pieces (Tixier, 1967). The tangs were manufactured through a bifacial thinning of the proximal end (Tixier, 1967). These tools often required the use high-quality raw materials. They were reshaped with or without the preservation of the point, through reduction strategy centered on the preservation of the edge and tang (Iovita, 2011). This reduction process suggests the production of new tools which could be hafted, transforming points into scrapers, for example. These elements indicate that these tools had a long use-life and high mobility, as well as diverse functions. There is, however, tanged tools with unmodified edges (Tixier, 1967). Use-wear analyses of tanged tools and tanged points from Taforalt show traces of cutting hard and soft animals parts (Bouzouggar and Barton, 2006, 2012). Some tanged points display distal cone fractures (Bouzouggar and Barton, 2006), indicating that they were used for activities such as butchery, and rarely as projectiles (Bouzouggar and Barton, 2012). At Jebel-Gharbi (Libya), the presence of short tangs (<0.5 cm) suggests that hafting can be excluded at this stage of transformation of the tools (Spinapolice and Garcea, 2014). A use-wear analysis of a sample of these tools showed wear coherent with scraping on many of the notches forming tangs, suggesting that these notches were the active zone of the tools, and were used for purposes other than hafting alone (Garcea, 2012; Spinapolice and Garcea, 2014). In the Aterian of western North Africa, Levallois and Discoid reduction systems dominate, with micro-Levallois cores (e.g., Bouzouggar, 1997; Bouzouggar et al., 2002; Bouzouggar and Barton, 2006, 2012; Nespoulet et al., 2008; Barton and d'Errico, 2012; Dibble et al., 2013; Scerri, 2013a,b; Scerri et al., 2014). Many non-tanged, reshaped tools (on Levallois, laminar or lamellar flakes) conform to the same “multi-functional” logic (R. Nespoulet pers. obs.). In addition, Aterian technology is very flexible, including Levallois flakes, Discoid flakes, blades, bladelets, sidescrapers, endscrapers, tanged tools, bifacial foliates, and occasionally pebble tools (e.g., Nespoulet et al., 2008; Bouzouggar and Barton, 2012; Spinapolice and Garcea, 2014).

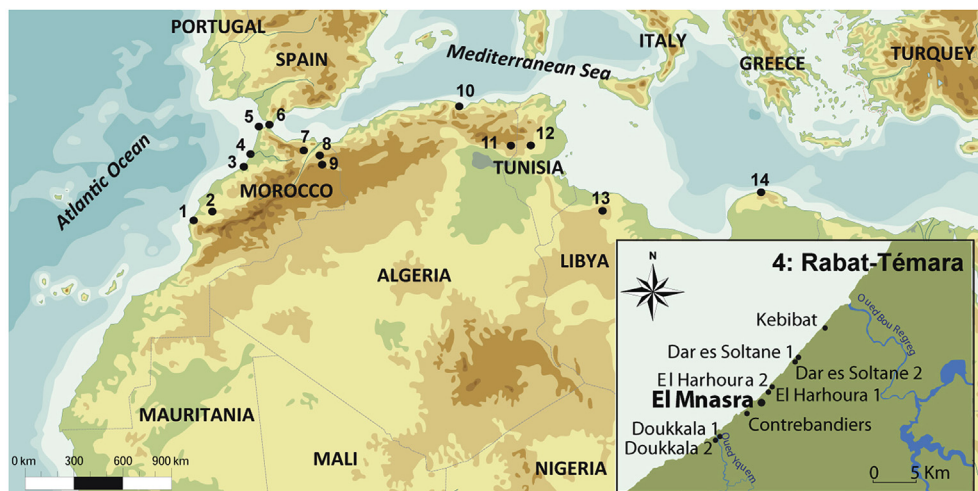


Fig. 1. North Africa main Middle Stone Age sites (1: Bizmoune, 2: Djebel Irhoud, 3: Casablanca Region [Felins Cave; Gazelle Cave], 4: Rabat-Témara Region; 5: Mugharet el Aliya, 6: Benzu Rockshelter, 7: Ifri n'Ammar, 8: Taforalt, 9: Rhafas, 10: Les Phacochères; 11: Oued Djebbana; 12: Aïn el Guettar, 13: Jebel Gharbi; 14: Haua Fteah).

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