



Review

On the origins and significance of Pleistocene coastal resource use in southern Africa with particular reference to shellfish gathering



Antonietta Jerardino

ICREA/Department of Experimental & Health Sciences, Universitat Pompeu Fabra, Ramon Trias Fargas 25-27, 08005 Barcelona, Spain
 Department of Anthropology & Archaeology, University of South Africa, PO Box 392, UNISA, Pretoria, South Africa

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ABSTRACT

The search for human origins in Africa has partly narrowed down to probing into the origins of the modern human lineage and the identification of a set of behaviours that characterises it. Much research effort is now dedicated to coastal southern African Middle Stone Age (MSA) sites. This record is still relatively small compared with the Middle Palaeolithic of Europe, and much of the original sites have been lost due to erosional sea level changes tied to glacial to interglacial cycles. However, more explicit conceptual frameworks for understanding coastal adaptation and its evolutionary role in this region have recently been put forward. Partly stimulated by human nutrition studies, coastal resources, especially shellfish, have acquired an unchecked high status in research agendas. Limited local ethnography on coastal foragers and a lack formalised methodologies for inter-site comparison on coastal resource procurement are evident. In this paper, aspects unique to coastal adaptation with particular reference to shellfish collection are explored. Models on the origin and evolution of coastal adaptations must consider cross-cultural ethnographic studies, move away from the simplistic use of shell densities for evaluating procurement intensity and use the much richer Later Stone Age record as a profitable source for testing hypotheses.

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1. Introduction

That humankind originated in Africa is now an axiom, and when searching for the origins of coastal subsistence the gaze turns to Africa again where also the earliest evidence for the exploitation of coastal aquatic habitats is found (Marean et al., 2007; Avery et al., 2008; Langejans et al., 2012; Kyriacou et al., 2015). Early hominid ancestors may have used marine and aquatic resources opportunistically for millions of years, but palaeoanthropological evidence shows that the use of coastal resources increased significantly in intensity, diversity and technological complexity with the appearance of anatomically modern humans sometimes around 160 ka (Erlandson and Fitzpatrick, 2006; Marean et al., 2007; Rick and Erlandson, 2008). The South African late Pleistocene coastal record has played a particularly crucial role in this respect (Deacon and Deacon, 1999; Avery et al., 2008; Jerardino and Marean, 2010). The search for the origins of this adaptation has become even more compelling in the last few years as research on human nutrition has identified aquatic foods and their high fatty-acids contents as part of a crucial combination of factors that led to hominin brain size increase and perhaps even to speciation (Parkington, 2010; Compton, 2011; Joordens et al., 2014). It is perhaps not surprising that previously described as marginal foods, fish and particularly shellfish, as well as the habitats that sustain them, are now considered as almost top-ranked in human's evolutionary journey to modernity.

Once the homeland to prolific Later Stone Age (LSA) studies, the South African coastline is being increasingly targeted by research programs focussing on Middle Stone Age (MSA) sites dating to the mid and late Pleistocene. As a growing number of MSA and associated fossil sites began to be sampled and a better chronological control was gained in the last 30 years for time depths beyond radiocarbon dating, the knowledge on MSA socio-ecological systems has advanced considerably as a result of various findings and their detailed scrutiny. The discoveries have been many: from the recovery of early modern or archaic *Homo sapiens* skeletal and dental remains, evidence for the early use of coastal resources, documentation of technological changes through dozens of millennia to uncovering early expressions of symbolic behaviour and use of bone technology, reconstruction of site life-histories, taphonomic contexts and palaeoenvironmental settings, examining with greater detail MSA human hunting proficiency and general resource procurement, as well as the use of pyrotechnology in stone artefact manufacture (e.g., Voigt, 1982; Deacon and Deacon, 1999; Klein et al., 2004; d'Errico and Henshilwood, 2007; Deacon, 2008; Jacobs et al., 2008; Brown et al., 2009; Steele and Klein, 2009; Fisher et al., 2010; Karkanas and Goldberg, 2010; Faith, 2010, 2013; Vanhaeren et al., 2013; Thompson and Henshilwood, 2014). Similar evidence for MSA cultural complexity and foraging adaptation has also been found from well preserved peri-coastal contexts (e.g., Clark and Plug, 2008; d'Errico et al., 2012; Parkington et al., 2013). Given this major emphasis on coastal sites and the discoveries around them, conceptual models around the implications of an MSA coastal way of life are also being developed in order to make sense of the considerable array of evidence and, in so doing, allowing the formulation of predictions for advancing future research (see Parkington, 2010; Fisher et al., 2013; Marean, 2014).

As with many other themes in archaeology, researchers are required to present logical and intelligible narratives through fitting scientific reconstructions when presenting likely scenarios on how coastal adaptations evolved. But because archaeologists want to tell a story well, details can be overemphasized, others might be glossed over, while ignorance and alternative interpretations can be underplayed (Terrel, 1990), particularly when faced

with data gaps or sparse information. Much work has been done so far, but the MSA record remains relatively thin and has many temporal and sampling gaps. Theory building is essential in archaeological research and MSA studies benefit enormously from it (e.g., d'Errico and Banks, 2013). As with other cases, reliable reconstructions of mid and late Pleistocene southern African coastal adaptation(s) would not only require a good ecological knowledge of the species involved and the technology used to procure them, but also more extensive comparison with LSA data, and the use of ethnographic as well as undertaking actualistic/experimental studies. With regards of marine resource exploitation, we lack particularly of the latter two kinds of observations in South Africa. Actually, there is no ethnographic record of hunter-gatherer groups deriving a living at the coast in southern Africa. The much cited work by Bigalke (1973) on coastal foraging is based on agro-pastoralist communities, descendants of Bantu-speaking groups that made their arrival to southern Africa 2000 years ago. In the near absence of relevant local ethnography, researchers could either search for broad ethnographic patterns and/or turn to the more recent and local archaeological observations. Unfortunately, world ethnography has been used selectively and the LSA record has not received enough attention by fledgling explanatory models of MSA coastal adaptations. It is thus opportune to start rectifying this situation early on to avoid possible skewed growth in the interpretation of a corpus of data that is bound to increase exponentially with years to come.

The purpose of this paper is thus to address several related issues with the aim of contributing towards building conceptual models of MSA coastal life ways that ought to be grounded on as many sorts of relevant observations as possible. In doing so, aspects unique to coastal adaptation and its material record with particular reference to shellfish collection are explored. The consideration given to these issues is by no means through a comprehensive review of the ethnographic record, as it would be nearly impossible to do so. Instead, the range of published ethnographic case studies is expanded considerably in comparison with that previously employed when discussing southern African MSA or LSA coastal archaeology. Hence, the inter-related issues identified to build better supported conceptual models of MSA coastal way of life touch and build on: (1) cross-cultural ethnographic observations on shellfish foraging, (2) methodological aspects intrinsic to shell midden archaeology and discussion around definitions of systematic use of coastal resources and of coastal adaptation, and (3) milestones in the evolution of marine coastal adaptations in southern Africa. A final discussion identifies related factors and areas where more observations are needed in terms of geographic emphasis, topics of research, and comparison with LSA record, as well as consideration of different approaches and interpretative frameworks. The following three sections headed by relevant questions present this proposal.

2. What is involved in the procurement of marine resources, particularly shellfish from hard and soft-bottom shores?

2.1. The collectors

The ethnographic literature on shellfish collection and subsistence fisheries world-wide identifies women as the primary collectors, often assisted by children (young girls) and occasionally by elderly people and men (e.g., Bigalke, 1973; Bigalke and Voigt, 1973; Meehan, 1982; Siegfried et al., 1985; Gusinde, 1986; Waselkov, 1987; Hockey et al., 1988; Poiner and Catterall, 1988; Moss, 1993; Kyle et al., 1997a, 1997b; Lasiak, 1997; Bird and Bliege Bird, 1997; De Boer et al., 2002; Tomalin and Kyle, 1998; Thomas, 2007; Aswani and Vaccaro, 2008; Aswani et al., 2015).

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