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# 'We have never been behaviourally modern': The implications of Material Engagement Theory and Metaplasticity for understanding the Late Pleistocene record of human behaviour

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ABSTRACT

The emergence of the human mind is a topic that has been of considerable interest to the disciplines of archaeology, cognitive archaeology and neuroscience in recent years. Most research in this regard has tended to focus on what material culture associated with early *Homo sapiens* might reflect in terms of the timing and nature of early cognitive capacities and 'behavioural modernity'. In recent years, however, both the concept of 'behavioural modernity' and its passive treatment of material culture have become highly criticised. Yet, until now, there has remained some confusion as to where to turn in its absence. Recently, Lambros Malafouris outlined the theoretical frameworks of Material Engagement Theory and Metaplasticity as a means to understand the active role of material culture in the constitution of the human mind. However, despite Malafouris' application of these theoretical frameworks to a series of case studies previously associated with human cognitive 'modernity' (including tool manufacture, early body ornamentation, and ritual art), the Late Pleistocene archaeological community has done little to engage with this work. In this paper I outline and then apply MET and Metaplasticity to two further case studies often considered pertinent to the development of human cognition in the Late Pleistocene – namely, long-distance resource sourcing and/or exchange and the development of composite technologies. In doing so, I hope to demonstrate that there is somewhere to turn in the wake of the statement 'we have never been behaviourally modern'.



## 1. Introduction

The abilities and origins of the kind of mind characteristic of our species, *Homo sapiens*, remain highly debated topics in anthropology, archaeology, and neuroscience. Since the late 20th century, many archaeologists and anthropologists have maintained something of a separation between fossil and genetic evidence for the emergence of the biological form of our species in Africa *c.* 200,000 years ago (Anatomically Modern Humans) (White et al., 2003; Trinkaus, 2005; Grine et al., 2007), and the emergence of an evolved 'modern' mind characteristic of our species as we understand it today (Behaviourally Modern Humans) (Klein, 1995; Mellars, 2005, 2006). This separation initially led to an intensive search in Late Pleistocene archaeology for the *when* and *where* of the earliest material evidence for 'modern' minds and behaviour in the form of a 'checklist' that has included symbolic behaviour, concern with ornament and personal display, subsistence complexity and diversity, and refined technologies (Mellars, 2006; Conard, 2010; Henshilwood et al., 2011). Once uncovered, these material traces were characterised as representative of either 'revolutions' (Bar-Yosef, 2002; Mellars, 2007; Klein, 2008) or gradual trajectories of behavioural change (McBrearty and Brooks, 2000; Gamble, 2007; Mellars et al., 2007).

In the last decade, a number of serious problems have emerged with the concept of 'behavioural modernity' as a threshold in *H. sapiens* (Wadley, 2001; Shea, 2011). These include: the association of certain material traces from the 'behaviourally modern' checklist with hominins other than *H. sapiens* (d'Errico, 2003; d'Errico et al., 2003; Zilhão, 2007; Joordens et al., 2014), evidence for the emergence and then disappearance of certain 'behaviourally modern' traits in Africa and elsewhere (Lombard, 2005; Lombard and

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Parsons, 2011), the apparent lack of 'behavioural modernity' in certain regions of the world even upon the arrival of *H. sapiens* (O'Connell and Allen, 2007; Petraglia et al., 2010), and preservation biases involved in the search for its 'earliest' material traces (Shea, 2011). Perhaps even more problematic is the way in which the conceptualisation of 'behavioural modernity' draws a dichotomy, not only between our species and other hominins (ancestral or otherwise), but also between 'behaviourally modern' humans and 'non-behaviourally modern' humans within the *H. sapiens* taxon. Such dichotomies seem strange from the perspective of Darwinian evolution and the rest of the animal kingdom, and also lend themselves to racial commentaries of biological haves and have-nots (Shea, 2011). It is perhaps unsurprising then that a number of archaeologists have concluded that research may advance more readily without the concept of 'modern human behaviour', looking instead at more nuanced understandings of 'complex cognition' (Wadley, 2001; Wadley et al., 2009) and 'behavioural variability' (Shea, 2011, and see comments).

However, there remains a fundamental problem with approaches to the Late Pleistocene record of material culture associated with *H. sapiens*. From a cognitive perspective, one of the primary issues with previous research has been the inference of unidirectional relationships between particular material traces and pre-existing, developed cognitive capacities. This approach has led to the archaeological use of material forms such as representational art, evidence for symbolism, reconstructions of tool-making behaviour, and complex technological systems to generalise about when certain capacities of the modern human brain emerged (Ambrose, 2001; Conard and Bolus, 2003; Henshilwood et al., 2009; Wadley et al., 2009). Contrastingly, neuroscientists have used MRI images and experiments undertaken on living human individuals to generalise capacities back across the archaeological record to explain particular behaviours or material forms (Dunbar, 2010a,b; 2012; Shultz et al., 2012). Although both approaches have provided a number of interesting insights into the development of the human mind, they have a tendency to fall into the 'modern' trap, critiqued by Latour (1993; Malafouris, 2010, 2013), that envisages an internal, omnipotent human mind that can act on a separate, external world. The idea that a given material trace can be passively reflective of an innate mental capacity suggests a static, unilinear association between defined internal minds and an external material world. Furthermore, ontologically, any imputed cognitive change becomes inextricably linked to a particular material result.

In the last few years Lambros Malafouris (2010, 2013) has developed the theoretical frameworks of 'Material Engagement Theory' and 'Metaplasticity' as ways to understand human material–mind relationships and produce a more fruitful collaboration of archaeology and neuroscience. He argues that the important changes in the "dynamic bio-cultural construct" of the human mind are constituted and brought forth by human mental and physical interaction with the material world. The human mind is an incomplete and unfinished project to be further shaped and developed by its own potency for material interaction (Latour, 1993; Malafouris, 2013). Although Malafouris (2007, 2008, 2010, 2013) has provided an intriguing application of these theoretical frameworks to particular case studies from the Late Pleistocene record of human, the wider archaeological literature for the Late Pleistocene is yet to fully engage with these concepts. This has meant that the implications and potential of his insights for studies of the earliest material culture produced by our species have been little-explored, despite this being the area in which they might result in the greatest theoretical shift. Indeed, these frameworks do not only provide a means to move beyond searches for 'behavioural modernity' in the archaeological record – they also allow us to move past our own 'modern' assumptions as to the relationship between the material record and the human mind.

In this paper, I first explore the historical context of 'behavioural modernity' along with its recent critiques and alternatives. I then present and discuss 'Material Engagement Theory' and 'Metaplasticity' in more detail before applying them, in turn, to two specific case studies (i.e. material correlates of long-distance sourcing and/or exchange and composite technologies) argued to have key implications for the emergence of human cognition during the Late Pleistocene, as well as to the Late Pleistocene archaeological record more broadly. I argue that these theoretical approaches are well placed to make sense of the Late Pleistocene archaeological record on a number of different temporal and geographical scales. Furthermore, I argue that in the vacuum left by the assertion 'we have never been behaviourally modern' these approaches facilitate a more productive relationship between archaeology and neuroscience where the human mind meets the material world.

## 2. The problem of 'behavioural modernity'

### 2.1. Historical context

The term 'behavioural modernity' was first used to describe a series of material changes seen in the European archaeological record at the onset of the Upper Palaeolithic period *c.* 40,000 years ago. These changes included a shift towards more varied and complex lithic technologies, the working of non-lithic media for tools, increasingly diverse subsistence strategies, long-distance procurement networks, and evidence for personal ornamentation and 'symbolism' (Mellars, 1973, 1996; Klein, 1992; Blades, 1999; Stiner et al., 1999; Valladas et al., 2001). The apparent dramatic florescence of these materials, and the fact that they only appeared with the arrival of *H. sapiens*, led to them being characterised as evidence for the influx of 'behavioural modernity' into Europe (Mellars, 1973). These novel traits were framed as crucial, 'revolutionary' adaptations to the harsh and oscillating environments of Europe, and intense interaction with indigenous Neanderthal populations, that facilitated human expansion and dominance across the European continent (Mellars, 2006; Mellars et al., 2013). Thus 'behavioural modernity' not only created a contrast between *H. sapiens* and indigenous *Homo neanderthalensis*, but also, by implying a behavioural change unique to the colonisation of Europe, formed a contrast between behaviourally modern European Upper Palaeolithic human populations and their ancestral, non-behaviourally modern, 'non-European' human populations.

However, during the 1990s and early 2000s, archaeological finds in Africa began to question the evolutionary of significance of the Middle to Upper Palaeolithic shift in Europe. The Still Bay and Howiesons Poort techno complexes of southern Africa demonstrate much earlier evidence in Africa for technological diversity, including osseous toolkits, and personal ornamentation. The Still Bay technocomplex consists of bifacially worked lithic points and is primarily characterised at the sites of Blombos Cave and Sibudu Cave (Wadley, 2007; Jacobs et al., 2013). Associated layers at Blombos Cave producing evidence for bone points, pierced *Nassarius kraussanus* shell beads, and engraved ochre dated to between 75.5 and 67.8 ka (Henshilwood et al., 2002; Henshilwood, 2007). Interestingly, more recently, Blombos has produced evidence for incised ochre and paint production as early as 100 ka (Henshilwood et al., 2009; Jacobs et al., 2013). Similarly, although the Still Bay dates to a similar period at Sibudu Cave, recent work has suggested complex heat-treated technologies, and symbolic pigment use could extend as far back as 164 ka at Pinnacle Point (Marean et al., 2007; Brown et al., 2009). Alongside the Still Bay,

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