

Cultural modernity: Consensus or conundrum?

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The development of the Out of Africa model for the origins and dispersal of modern humans in the 1980s and 1990s led the field of paleoanthropology to drop other approaches to the evolution of modernity. Earlier models suggesting a gradual evolution from archaic to modern human morphology and cultural behavior simultaneously across the Old World have been replaced by models pointing to Africa as the only continent where modern humans evolved and modern patterns of cultural behavior emerged. The important paper by Texier et al. (1) in a recent issue of PNAS is the latest of a number of recent papers pointing to South Africa as a key area for studying the origins of cultural modernity. The authors present the most convincing data yet recovered documenting that Middle Stone Age people lived in a world characterized by symbolically mediated social and cultural relationships. The study presents numerous unambiguous examples of engraved ostrich eggshells (OES), including fragments that come from containers. The repetitive depiction of motifs, including a hatched band motif, suggests a behavioral tradition similar to that practiced by recent populations of hunters and gatherers. The use of OES flasks for storage and transport represents an important innovation. Excavators recovered these finds from multiple Howiesons Poort strata at Diepkloof, in the Western Cape, which have been dated using optically stimulated luminescence and thermoluminescence to about 60,000 years ago. Much of the scientific community will view these finds, which document the storage of symbolic information, as further proof that cultural modernity evolved exclusively in Africa.

The publication of the engraved OES from Diepkloof also provides the scientific community an opportunity to consider the strengths and weaknesses of the near consensus on the exclusively African origin of anatomical and cultural modernity. The mainstream view of the human fossil record that sees African origins of anatomically modern humans is convincing, although debate continues about whether modern humans of African origins interbred with indigenous hominins as they spread across the Old World. Here, I address the archaeological record and discuss how the new findings from Diepkloof fit into the overall picture of Paleolithic cultural evolution.



Fig. 1. Four classes of symbolic artifacts that are first documented outside Africa. Examples from the Swabian Jura dating to ~35,000 years ago. (A) Mythical images; "Lionman", Hohlenstein-Stadel, height 29.6 cm. (Photo by Thomas Stephan, © Ulmer Museum). (B) Musical instruments; bone flute, Geißenklösterle, length 11.7 cm. (C) Ornaments formed in three dimensions; carved beads, Hohle Fels, maximum dimensions 7–11 mm. (D) Figurative art; mammoth, Vogelherd, length 3.7 cm. (B–D, Copyright University of Tübingen.)

First, it is necessary to define terms and establish a few parameters relevant for addressing the origins of cultural modernity. What is cultural modernity? Simply put, this term is used to imply a point in human evolution when people became like us. Implicit in this definition is the view that all living people are cognitively equal regardless of their physical appearance or the kind of technology they use. This Boasian view of the unity of humankind forms the cornerstone of cultural anthropology and the basis of how civilized society deals with cultural diversity (2). This view is closely related to the observation that the cultural patterns of modern humans reflect traditions and learned behaviors rather than genetically dictated predispositions. Thus, how people live today is, above all, a function of social and cultural reproduction and learning, rather than a result of innate biological differences between human populations.

Not surprisingly, defining such a fundamental threshold in human evolution leads to debate and discussion that has filled many pages of journals and books over the course of the past decade. To address this question, researchers need to focus their attention on the material record that archaeological excavations have brought to light. Assumptions about hypothesized

cognitive capacities of past humans, neurological modeling, or linguistic speculation cannot answer this question without explicit links to the archaeological record. Hard data about the material culture of the past, like that from Diepkloof, provide the key source of information needed to make progress on the debate over the origins of modern behavior.

The dominant views in the field suggest that modern humans, after evolving anatomically roughly 200,000 years ago in Africa (3), gradually (4), or suddenly (5), became culturally like all living people today. Most researchers point to important finds of new technology, evidence for changed patterns of subsistence and demography, and especially symbolic artifacts as critical pieces of the puzzle. Given the research done in recent years at sites like Diepkloof, Klasies River, Blombos, and Sibudu (1, 6–8), it comes as no surprise that the important finds of innovative technology, abstract depictions, and personal ornaments have led many scholars to see coastal southern Africa as the homeland of people who, starting no later than 60,000 years ago, were behaviorally like recent hunters and gatherers as well as all living people today. Evidence for personal ornaments, burials, and the use of pigments from North Africa and the Levant (9–11) dating to around 100,000 years ago raises some questions about the specific timing and geographic setting of the rise of cultural modernity, but few researchers question models for exclusively African origins of modern behavior. This consensus view, which is the result of several decades of research in Africa, is seen by some as having purged the discourse on modernity of what is often called a Eurocentric bias and having brought us to the fitting and seemingly correct position that modern anatomy and modern culture originate exclusively from Africa. However, it makes sense to look at the lines of argument that suggest the picture could be more complex, and that models for a monocentric African origin of cultural modernity may not reflect the unshakable bastion of verity researchers often claim. In this context students of human

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evolution should note that Africa is a vast and ecologically diverse continent. Thus, the rise and spread of modernity in Africa must have been a complex process that took place within and among multiple populations and across multiple ecological and demographic frontiers.

For decades, the debate on modernity has been defined in the context of a dialectical opposition between Neanderthals and modern humans. Simply put, the alleged primitiveness of Neanderthals provides the baseline by which we define modernity. This approach was defensible as long as there were only two hominins on the archaeological landscape of the Late Pleistocene. But now, the terms of the debate are starting to shift. Were Neanderthals and modern humans really alone? The unexpectedly archaic hominins from Flores represent a third character in this drama (12), and this diminutive, small-brained hominin was certainly not modern. To the enigmatic *Homo floresiensis*, evolutionary geneticists now have added the newest Late Pleistocene hominin based on mitochondrial DNA from Denisova Cave in the Altai (13), suggesting that still another hominin inhabited northern and perhaps eastern Asia. If rather than two, at least four hominins survived into the recent past, the questions connected to the evolution of cultural modernity become more complex. Instead of confirming the binary oppositions between anatomically modern humans and Neanderthals, these developments create possibilities for new models reflecting less naive demographic scenarios for the rise and spread of cultural modernity. Researchers can critically examine new models, or alternatively, they can adhere to the straightforward dogma that all good things come from Africa, and cultural development in Eurasia and Sahul were trivial and after the fact.

Even if scholars stick to the established storyline of exclusively African origins and

reconsider the role played by Neanderthals, some uncomfortable questions arise. The publications by d'Errico and Zilhão (14, 15) warrant examination. For years they have argued that late Neanderthals can be viewed as behaviorally modern, and they have mustered evidence to make this point of view a plausible alternative. But fortunately for the proponents of the mainstream paradigm, their position can be dismissed as an oxymoron, because, by definition, archaics cannot be culturally modern. Or can they?

The use of OES flasks for storage and transport represents an important innovation.

If, for the sake of argument, we accept the proposition that only anatomically modern humans can be behaviorally modern, researchers must ask the question: Did modern humans always out-compete archaic humans on the playing field of human evolution? The simple answer to this question must logically be: yes. This raises the question of why, if anatomical modernity is well documented in Africa by 200,000 years ago and cultural modernity by 100,000 years ago, or at the latest 60,000 years ago, it took so long for modern humans to penetrate deeply into Neanderthal territory? Furthermore, if the people from Skuhl and Qafzeh in the Levant 100,000 years ago were fully modern with their burials, use of pigments, and personal ornaments, why did Neanderthals later reoccupy this region and continue to live there for tens of thousands of years? At a minimum, these two hominins must have been on fairly equal evolutionary footing.

Additionally, if we wish to put stock in the current state of the archaeological record, at least four kinds of symbolic artifacts are known at an earlier date in Eurasia than in Africa (16). These are (i) ornaments with culturally dictated, three-dimensional form, (ii) figurative art, (iii) depictions of mythical imagery, and (iv) musical instruments (Fig. 1). All of these classes of symbolic artifacts, as well as many classes of organic and inorganic technology, evolved among populations of modern human as they made ever further inroads into the range of archaic hominins. It was these frontier settings outside Africa that often served as the evolutionary laboratories for developing modern symbolic behavior (17). Once these patterns of complex symbolic behavior, as well as a range of technological and social innovations, evolved, Late Pleistocene people can be seen as being culturally like ourselves. Subsequently, they quickly drove archaic hominins to extinction as they spread across the entire Old World. These observations open the possibility that processes such as competition at the frontiers between modern and archaic humans contributed to the development of symbolically mediated life as we know it today. Rather than being monocentric and exclusively African, the origins of modern behavior would be polycentric and mosaic in nature (16).

Researchers can regard the important new results from Diepkloof as a confirmation of the consensus view of exclusively African origins, or they can view them as an opportunity to scrutinize the issues behind the conundrum of the evolution of behavioral modernity. This commentator would argue that the latter skeptical approach is more likely to advance our understanding of the rise of modernity than the former feeling that we have it all figured out.

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