

Cognitive Archaeology and Human Evolution

Sophie A. de Beaune, Frederick L. Coolidge, and Thomas Wynn (eds.)

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C*ognitive Archaeology and Human Evolution* attempts to bring together archaeologists and cognitive scientists in what Sophie A. de Beaune describes as “a quickly growing discipline” (p. 2) that archaeologists have been slow to embrace. The editors, a French archaeologist, an American archaeologist, and an American psychologist have assembled a group of European and American archaeologists, linguists, psychologists, and physical anthropologists to address this field, which they call “evolutionary cognitive archaeology” or ECA.

This slim volume is largely the product of a 2006 colloquium at the Congress of the International Union for Prehistoric and Protohistoric Sciences organized by de Beaune. The book has the feel of a collection of conference papers—the contributions are rarely longer than ten pages each, and they rarely go into much depth. The questions posed by Carolina Maestro and Carmine Collina, both archaeologists, at the beginning of their contribution may shed some light on this: “[c]an an archaeologist, a specialist of material cultures, master the epistemological tools of the cognitive sciences and apply them to prehistory...?” and whether “a specialist of cognitive activities would be able to manage the theoretical and technical tools linked to analyses of material culture...” (p. 85). Maestro and Collina identify a number of potential problems, but ultimately decide that archaeologists and cognitive scientists can indeed have a productive dialogue. However, this book does not provide a convincing “yes” to these questions. Most of the contributors, even the archaeologists, fail to make clear links between archaeological data and cognitive theory.

The chapters are mostly very different, as one would expect from a group of researchers from multiple fields and diverse backgrounds. Certain elements are more frequent than others, however. Lithic technology is the most commonly-used material evidence, followed by visual imagery, particularly as it might relate to symbolic capabilities. Additionally, ethnographic analogy frequently is used, but mostly in uncritical ways that may reflect a lack of familiarity with using ethnography in archaeological interpretation. The authors also have different ideas of what the goals of cognitive archaeology might be. For some, it is identifying the emergence of the earliest glimmers of cognition (de Beaune, Rossano); for others (Tattersall, Wynn and Coolidge), it is what they call “modern” cognition, though “modernity” is defined differently by each contributor. A few authors focus on decision-making, particularly

through the use or critique of the *chaîne opératoire* approach (Haidle, Maestro and Collina, Pelegrin).

Many of the authors identify a behavior or a category of material culture they see as key to their conception of human cognition, then seek the earliest instances in the archaeological record where that trait may be seen. Stone tools are one of the major means of discussing cognition. The Acheulean biface is cited several times—as evidence of long-term memory and analogical reasoning (de Beaune); as requiring a high level of skill that indicates increased “cognitive fluidity,” aesthetic sensibility, and identity (Rossano, p. 29); as the earliest instance of handedness, which in turn is indirect evidence of language (Uomini); mental templates (Pelegrin); and, all of the above (Walker). Language use is obviously another key behavior for several of the authors, though different authors see evidence for language in different species, through different forms of material culture, and in some cases without any artifacts at all. Walker focuses on *H. heidelbergensis* as the first species to require at least a “protolanguage” (p. 83) for decision-making within the group; Pelegrin warns the reader of the limitations of lithic data as evidence of language rather than of more generalized cognitive abilities; Tattersall describes language as the innovation that separated anatomically-modern humans from previous hominins and gave us an advantage, though he notes that various cognitive capacities must have existed before they were exploited; and, Reuland creates a picture of what is required cognitively for language and when it might have emerged with almost no reference to the archaeological record.

This volume has much more breadth than depth, and the connecting threads of the chapters can be difficult to identify. There is little agreement on the goals of cognitive archaeology beyond the basic; the clearest definition of cognitive archaeology is provided in Wynn’s afterword, though many of the contributions to this book do not fit this definition well. Many of the arguments are circular. In Wynn and Coolidge’s contribution, “Implications of a strict standard for recognizing modern cognition in prehistory,” for example, the authors argue that a strict standard is best, and set out to define how one would see it. Not surprisingly, modern cognition is not seen before there are anatomical modern humans, although the authors write that appearance of anatomical moderns does not represent the appearance of modern cognition.

One of the biggest problems with this volume is that

use of the material record is very limited. One example is that of Kyriacou's contribution. He is a neuropsychologist who links expressions of innovation and creativity to increasing specialization of the brain, and genius to the same roots as schizophrenia. This contribution is very hard to judge as an archaeologist, because there is no archaeology used as evidence in his arguments. Kyriacou does write of earlier hominin species and brain size, but he does not base any of his arguments on archaeological materials. Another common flaw in these papers is the uncritical use of analogies. Several authors use apes as proxies for early hominins; hunter-gatherer groups as representatives of early modern humans; modern lithic producers as models for past lithic producers; and, earlier hominin species' cognitive levels as similar to modern human children's cognitive levels. While the use of analogy has been very useful in archaeology, it has also been misused and abused.

Interestingly, evolutionary psychology plays a very small role in this volume, with only one contribution from a self-identified evolutionary psychologist (Rossano). Wynn (indirectly) explains this in his afterword. He writes that evolutionary psychology has not gained much ground in cognitive archaeology because of "its sole reliance on reverse engineering (a method long held suspect by archaeologists), and its cultivated ignorance of the palaeoanthropological record" (p. 146). Unlike most of the contributors who are not archaeologists, Rossano explicitly attempts to

link changes in material culture, in this case from Oldowan to Acheulean techniques, to changes in consciousness.

Wynn's afterword is one of the most useful chapters of this book, as it has the clearest definition of the goals and methods of evolutionary cognitive archaeology, and what it cannot and should not do. Wynn sees no value in adding data at the margins of survival-of-the-fittest explanations of the evolution of human cognition, and would like to see this field develop further. However, he still describes the field as consisting of "eclectic" approaches and finds it difficult to unify some of the dominant approaches into a coherent body of work. If I were to use any of the chapters from this volume in the classroom, it would be in a very critical way. Wynn's chapter would be required, along with Maestro and Collina, before analyzing a chapter from an archaeologist and a chapter from a cognitive scientist.

This was a disappointing book in many ways, since so many of us would like to see innovative ways to interpret what often seems to be limited and fragmentary evidence of hominin evolution. Perhaps it represents the first steps of a field that will soon grow by leaps and bounds, or it reflects the structure of a conference symposium more than it represents the field. There were some tantalizing suggestions, but most of these were not adequately developed. If this volume is representative of the field, there is a lot of development yet to come.