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Review

Reviewed Work(s): *The Cultural Origins of Human Cognition* by Michael Tomasello

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chapter in the book to these foundational principles. For example, “while many of the applications of the comparative method in evolutionary biology essentially use the Joint Method of Agreement and Difference,” the method of phylogenetic contrasts in comparative biology is shown to parallel Mills’s Method of Residues. Some readers will appreciate the historical context that this chapter provides.

The book is organized into three sections. The first, “Comparative Methods,” emphasizes different techniques for the statistical manipulation of comparative data—attempting to move closer to a consensus on which techniques are appropriate for specific analyses and questions. Kate Robson-Brown explores homology and analogy and the potential to determine separate evolutionary events by cladistic analysis, and Andrew Purvis and Andrea Webster present and discuss problems with CAIC (Comparative Analysis by Independent Contrast) in their chapter on phylogenetically independent comparisons and primate phylogeny.

Section 2, “Comparative Life History and Biology,” consists of six chapters that present recent work in the area of life history and reproduction, with an emphasis on evolved constraints on the organism. In a chapter titled “Socioecology and the Evolution of Primate Reproductive Rates,” Caroline Ross and Kate Jones provide an overview of life history theory (including Charnov’s model) and then explore primate data in light of these ideas. The volume editor, Phyllis Lee, describes patterns of postnatal growth and weaning and tries to identify behavioral and ecological factors that may account for variation among haplorhine primates. Nicholas Blurton Jones, Kristen Hawkes, and James O’Connell apply life history theory in biology to data on contemporary hunters and gatherers, such as the Ache and the Hadza, and provide a current view of the evolution of the human life history, including the evolution of postreproductive life. Robert Barton takes on the difficult question of the evolutionary ecology of the primate brain, trying to sort data from speculation and to identify methodological principles and problems in the currently popular question of the nature of primate intelligence and the selection pressures that have shaped it. In a chapter titled “Sex and Social Evolution in Primates,” Carel van Schaik, Maria van Noordwijk, and Charles Nunn make further arguments in favor of their position that sexually selected infanticide by adult males is a (the?) primary force determining primate sexual behavior, physiology, and association patterns. Following this, J. Michael Plavcan continues to emphasize the role of males as the primary actors in sexual selection with his discussion of sexual dimorphism in primates.

In section 3, “Comparative Socioecology and Social Evolution” a final six chapters, taking a broad evolutionary and ecological approach, are dedicated to the question of why various primate social systems have evolved. Peter Kappeler explores the evolutionary forces that have shaped lemur societies and points out that lemurs differ from anthropoids in several basic features of their behavioral ecology and life history. Karen Strier considers the rarity, in primates, of what was once considered to be a typical primate pattern—social organization characterized by male dispersal and female philopatry resulting in social groups based in female kinship—by looking closely at the behavioral ecology of the few female-bonded New World monkeys. Daisy Williamson and Robin Dunbar tackle the issue of the determinants of group size in primates, such as lower limits

set by environmental risks and upper limits set by resource availability and time budget flexibility. They consider as well possible cognitive constraints on group size imposed by the species-specific ability to maintain relationships. Allison Bean explores sex differences in great ape foraging, concluding that they are the result of local conditions, resource availability, and daily energetic requirements, as well as species and subspecies characteristics. Robert Foley uses the fossil record to determine the evolution of ecological strategies and behavioral adaptations for the approximately 15 species of extinct hominids, thereby considering evolution in an explicitly temporal framework. Dutifully moving along from prosimian to monkey to ape to human, the book ends with a final chapter by Ruth Mace and Clare Holden who look at evolutionary ecology and cross-cultural comparison in the case of matrilineal descent in sub-Saharan Africa, using phylogenetic comparative methods to explore the incidence and function of a descent system. These authors bravely apply the principles of evolutionary ecology to human society where it is (unfortunately) bound to be controversial. Phyllis Lee wraps up the volume with a short editor’s conclusion that restates the importance of the exploration of primate sociality in all its variation. ♦♦

The Cultural Origins of Human Cognition. *Michael Tomasello.* Cambridge, MA: Harvard University Press, 2000. 248 pp.

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Michael Tomasello in his latest book has offered a new perspective for the way one may think about the evolution of the human mind and the debate that six million years of natural selection may not account for the emergence of human language and tools. His solution is to build on the ideas of Leslie White by asserting that cultural mechanisms abbreviate the time span of species development and permit change at a rate that biology alone would not allow.

This book is well written, and its strengths are organization and the attention the author directs toward nonbiological causes of social-cognitive adaptation in humans. Tomasello provides the reader with powerful concepts that act to sequester temporal domains into evolutionary, historical, and ontogenetic time. In doing so, he offers a method by which one may thoughtfully negotiate the assumptions and contradictions that attend the genus *Homo*. Unfortunately, the author argues that humans are different in kind among the primates, because human society is characterized by “an especially powerful form of collaborative inventiveness or sociogenesis.” He supports this view with statements such as “only human beings engage in cultural learning,” “nonhuman primates do not have the ability to understand conspecifics as beings like themselves,” and “socialization of attention is unique to human culture” (p. 6). These assertions ignore the significant evidence to the contrary and are likely to be seriously challenged by others.

The author also attempts to persuade the reader that non-human primates do not have an understanding of intentionality of conspecifics because examples of this behavior have not been reported in the wild. Thus, he argues that, in their natural habitats, nonhuman primates:

- do not point or gesture to outside objects for others;
- do not hold objects up to show them to others;
- do not try to bring others to locations so that they can observe things there;
- do not actively offer objects to other individuals by holding them out;
- do not intentionally teach other individuals new behaviors. [21]

This is a particularly etic perspective. While the author mentions that some apes raised in human cultural environments do some of them, it is curious that he would not question why captive apes do these things and feral apes appear not to do them. It is just as likely that observers in the field simply have not possessed sufficient cultural bias to observe what is happening on the inside of feral primate societies.

Perhaps the most troubling issue of all is that Tomasello seems to imply that cultural inheritance is transmitted *exclusively* through emulation learning, ontogenetic ritualization, and teaching (p. 33). His view precludes the idea that multiple classes of mechanisms facilitate cultural transmission. Considering that the time problem for Tomasello is “acute” (p. 55), it would seem advantageous to his idea of recasting culture as one of the many forms that nature takes if cultural forces were to act upon the biological platform during impressionable and highly plastic critical periods, particularly in prenatal ontogeny. The notion of culture as a fundamental class of phenomena that prepares and fashions the neurological substrate in various nonconscious ways, as Fields and Savage-Rumbaugh describe in their current theoretical work, offers another dimension to the many facets of culture.

To his credit, the author emphasizes that “it is important to note that human cognitive ontogeny is not a replay of chimpanzee ontogeny with a ‘terminal addition’ on the end” (p. 212). This view supports the idea that chimpanzees and bonobos may tell us more about our modern humanness rather than serve as a model for our ancestors. Regrettably, Tomasello’s limited precept of culture simply answers the problems of time with respect to one genus, ignoring the Cambrian explosion and the question of speciation.

Tomasello agrees that “chimpanzees clearly create and maintain cultural traditions broadly defined” (p. 37). However, he infers that the potential for culture in nonhumans is different from the class of culture that is characteristic of humans because primates do not have the capacity to possess culture, which is empowered by the synergy of cultural learning. He argues that sociogenesis driven by the ratchet effect of cumulative cultural evolution is uniquely human. He explains that there is slippage in the ratcheting effect of the cultures of nonhuman primate societies because novel solutions by individuals to problems spawned by exigent circumstances do not have a way of accumulating in the cultural set. This is an interesting argument for his mode of cultural transmission and should be considered; however, we are reminded that bonobos and chimpanzees are sophisticated tool users who pass these traditions on to their offspring. Because tools endure over time, the material culture

itself ratchets the process for the next generation. With extended observations, across generations, we would predict that hunting strategies and traditions would show similar, if not more powerful, ratcheting effects.

Chapter 6 is most impressive and tackles some very sophisticated and often ignored aspects of ontogeny. It is entitled “Discourse and Representational Redescription” and almost exclusively addresses human development and the structuring role of language and the role of internalized discourse upon desire and behavior. It is a dense construction covering a broad range of perspectives regarding issues, which seek to inform, among other things, the nature of the emergence of ethical and moral agency. The race across many ideas to capture the author’s point includes ideas from Sapir, Whorf, Lakoff, Johnson, Vygotsky, Piaget, Kelemen, and Bruner, to mention just a few. The delightful intellectual momentum of this chapter is diminished as the author remarks that “there is no good evidence that non-human animals or prelinguistic human infants categorize or perspectivize the world in [an] hierarchically flexible manner, [that is,] to understand this object as both a rose and a flower” (p. 167). This position disregards significant portions of the data on captive great apes.

Tomasello’s new book is worthy of study and is well justified as a complement to graduate and undergraduate courses in cultural, physical, and linguistic anthropology, as well as psychology. Fascinating quotes and conjectures inform this volume and it is rich in its cross-disciplinary approach. The author has evoked the inspiration of Wittgenstein, Vygotsky, and Bakhtin and has offered an interesting weave of ideas elucidating the intellectual ambiance in which his thoughts have flourished. The elegant seven chapters present complex ideas aphoristically and nontechnically when possible. Tomasello astonishes and constructively provokes the reader in the concluding chapter stating, “The point is thus that language is special, but not so special” (p. 209) and what really matters is “evolution, history, and ontogeny” (p. 215). These ideas deserve our attention and may not be passed over quietly. ➤

Children of Prometheus: The Accelerating Pace of Human Evolution. Christopher Wills. Reading, MA: Perseus Books, 1998. 310 pp.

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The premise of *Children of Prometheus* should intellectually stimulate the professional anthropologist and enthrall the non-specialist—human evolution has proceeded, and continues to proceed, at a fast, breakneck speed. This premise is contrary to the expectation of some evolutionists and the general public—that human evolution is slowing and, perhaps, has ceased as a result of abundant material culture and complex societies.

The text consists of three sections, subdivided into 14 chapters. There are 19 illustrations that usefully supplement the text. The author provides a glossary of 73 terms and 167 notes at the end of the book. Each note is referenced to an earlier page number, and each note has one or multiple citations. The overwhelming majority of citations are of books and articles