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# The Evolution of Thought

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Review: The Puzzle of Human Evolution Still in Pieces

Reviewed Work(s): The Evolution of Thought by AnneE. Russon and DavidR. Begun

Review by: Jennifer Vonk

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tional Monetary Fund restructuring policies and Ivorian state practices.

*The Afterlife Is Where We Come From* contributes to the field of anthropological research on children at many levels, revealing above all that children can be imagined by adults in ways that differ markedly from Western popular, religious, and scientific models alike. The book implicitly makes a further, daring argument regarding the failure of mainstream anthropology to ascribe to children and infants any cultural knowledge or agency of their own. Provocatively, Gottlieb goes so far as to look for the evidence of agency, enculturation, and social action in such phenomena as the breast-feeding habits of neonates and the naps of tiny infants. Some might think that she is confusing the Beng model of children as fully formed cognitive beings with her own analytical model, but she has nonetheless fired the first volley in what will no doubt prove to be an ongoing debate regarding from what point we can look to children, infants, or even neonates and fetuses as social beings and as informants on a par with adults.

Finally, though there is no room to do so adequately here, questions must be asked regarding Gottlieb's practice of acting as a medical practitioner during her periods of field research. She does not mention having received any formal medical training, but she nevertheless dispenses drugs and administers treatment in a daily clinic she runs in her compound when in the field. As she describes in a final harrowing chapter how one of the infants she is caring for dies, the question inevitably arises whether the child was correctly diagnosed, whether it received the right treatment, and whether it might have survived if it had gone to the nearest hospital (25 miles away) instead. Mixing roles like this in the field, regardless of the unimpeachable intentions of the ethnographer, inevitably raises methodological and ethical questions regarding the power relations between anthropologist and informant. Gottlieb addresses some of these herself in the introduction to her book, but she has opened a Pandora's box that cannot adequately be dealt with in the context of a book review.

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## The Puzzle of Human Evolution

### Still in Pieces

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*The Evolution of Thought*. Edited by Anne E. Russon and David R. Begun. Cambridge: Cambridge University Press, 2004.

*The Evolution of Thought* represents a unique and important effort to probe the many forces responsible for the nature of great ape cognitive "intelligence." It is the first volume to bring together contributors working in such diverse fields as paleontology and psychology in an attempt to describe the cognitive and related morphological adaptations of the great apes and their ancestors to their environments. This ambitious effort makes a worthy contribution and is recommended for any advanced researcher interested in the factors leading to the emergence of specialized cognitive abilities in the great apes.

However, this book is not easy reading and not recommended for novice investigators or for those interested in establishing what it is that makes humans (or other apes) unique. There is little discussion of human or monkey cognition. Moreover, the contributors accept that many facets of cognition are prevalent in the great apes without a thorough examination of the empirical evidence for such traits. Abilities such as theory of mind, self-awareness, imitation, teaching, and logico-mathematical abilities are granted to our ape relatives without much proof that all or any great apes have such abilities or that the abilities of great apes in these domains differ substantially from those of their nonape primate relatives or, for that matter, nonprimate species. A more thorough and updated consideration of such comparisons would have provided an excellent platform from which to extend speculations regarding the evolution of unique capabilities. The editors do allude to controversies regarding the assessment of such abilities in nonhumans but dismiss opposing views. Given that the viewpoints expressed in this book are somewhat biased toward a possibly inflated view of great ape abilities relative to those of other species, more empirical reinforcement for such conclusions and the inclusion of contributions expressing opposing viewpoints would have given the book a more well-rounded perspective.

Although theory of mind, self-awareness, meta-cognition, counting, abstract concept formation, imitation, and teaching are all attributed to apes and not monkeys, there are no chapters focusing on the recent evidence for or against such arguments. In fact, some recent studies not cited here show that monkeys may also be capable of imitation when imitative tasks are not confounded with motor skills (Subiaul et al. 2004), that non-symbol-trained apes and monkeys may also represent second-order relational concepts (Fagot, Wasserman, and Young 2001; Vonk 2003), and that apes may not be capable of reading mental states (Povinelli and Vonk 2004), although others claim that even monkeys are (Flombaum and Santos 2005). In sum, much of the information regarding the cognitive attributes of various species is now out of date. In addition, the lack of coverage of such topics makes it less clear how the precipitating factors outlined as essential for great ape cognitive development account for such abilities.

The editors implicitly endorse the prevalent viewpoint that great apes fall on a hierarchy of intelligence with humans

placed anthropocentrically atop the heap. Much could be gained, however, from viewing the unique specializations of each species as equally important and adaptive. At least one contributor points out that each species has continued to evolve since diverging from the last common ancestor, and another raises the interesting question whether similar capabilities emerged in the various extant apes through different mechanisms. More exposition of such a prospect would have made a fascinating addition to the text.

Cognitive development is generally viewed as phylogenetically following human ontological development, but comparisons of great ape abilities with those of human children at various ages neglect consideration of each species's unique constellation of attributes and present the misguided image of apes as undeveloped humans. Indeed, the contributors assume that living great apes provide the best model for early hominid abilities, largely ignoring that many abilities deemed indicative of "higher levels of cognition" have now been attributed to species outside the primate order such as cetaceans, canines, and corvids. Whether or not one finds these claims convincing, in-depth consideration of the merits of relevant studies would be beneficial to any attempt to determine the origins of unique cognitive abilities of any particular taxon. Factors suspected of being critical precipitants of the growth and expansion of anthropoid brains are not considered with regard to species outside the primate order. If the goal of the volume is to lay out a unique set of circumstances that led to the exceptional development of the anthropoid brain, then it would seem prudent to consider whether those same factors were present in the evolution of other species that do or do not exhibit comparable cognitive abilities.

The book focuses on the following generally accepted hypotheses for great ape intelligence: social intelligence, diversity of diet, extractive foraging, and problems in locomotion. Evolutionary factors include larger body size, larger brain mass, greater EQs, longer life spans and juvenile periods, and seasonality. These topics are organized into three sections: Cognition in Living Great Apes, Modern Great Ape Adaptation, and Fossil Great Ape Adaptations. The latter sections are readable and informative, especially for nonpaleontologists. Some cover very little new ground but are helpful, integrative reviews, while others offer some novel new theories and insights. It is gratifying to see several serious and well-informed attempts to evaluate the previously neglected clambering hypothesis outlined by Povinelli and Cant (1995). This is the first volume to delve deeply into analyses of the environment and morphology of our last common ancestor and to attempt to reconcile details from the fossil record with behavioral and mental characteristics of our living relatives. In each section the editors do an impressive job of weaving the pieces together in an attempt to depict a clear picture. Unfortunately, as many contributors point out, there are many missing pieces because of the paucity of fossil specimens and the speculative nature of re-creating history. In the end it remains unclear what special pressures faced apes and not monkeys. Although the

bulk of the conclusions seem founded as much on speculation as on hard data, leading to some conflicting theories between contributors, there is enough detail here for the reader to emerge with a much better appreciation of how the factors may have interacted to support human cognitive evolution.

Indeed, the overall impression is that no one factor or constellation of factors can account for the broad range of cognitive feats achieved by the great apes. Furthermore, achievements cannot be viewed as modular or generative alone, adding to the complexity of the editors' daunting task. This complexity may be unavoidable when dealing with such a nebulous topic, and the editors have avoided glossing over such complexities for the sake of often overrated parsimony. Unfortunately, the paucity of solid facts has prevented them from creating as clear and coherent a picture as they set out to do. Instead one is left somewhat overwhelmed by the myriad possible explanations for a wide range of abilities that we may not yet clearly understand. This volume is an important step forward in our understanding of human evolution and points to the long road ahead as we attempt to elucidate a more coherent interpretation.

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## Animal Cognition and Animal Rights

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*Do Animals Think?* By Clive Wynne. Princeton: Princeton University Press, 2004.

In *Do Animals Think?* the psychologist Clive Wynne sets him-