

chooses here to overlook recent reviews by Richard Wrangham and Michael Wilson that provide patient, detailed, and persuasive refutations of his claims. Instead, the authors refer only to Wrangham's ten-year-old popular book, *Demonic Males*, as though it provides the sole evidence for lethal intergroup aggression in chimpanzees.

Exasperating omissions of this kind are so frequent in *Man the Hunter* that portions of the book almost seem to exist behind glass. The penultimate chapter offers a lengthy critique of sociobiology that could have been written in 1976. Modern students of behavioral ecology will find this section almost embarrassing to read, so grossly anachronistic is the authors' apparent understanding of the field. And it's hard to know what to make of statements like: "many scientists, scholars, and members of the general public have a view of our ancestors as bloodthirsty brutes, not just defending themselves but aggressively entering into combat with every living creature" (p. 190). Do they really? Or was this just true in 1965? Never mind. What's the point in actually engaging with the modern anthropological literature when one can kick around Raymond Dart and Robert Ardrey?

Regardless of one's sympathies toward Hart and Sussman's general approach, it may ultimately prove irrelevant to the underlying question of what effects a history of

hunting might have had on human evolutionary psychology. For whether australopithecines and their immediate successors were hunters or hunted, even Hart and Sussman concede that by 400,000 years ago there is ample evidence of hunting in the fossil record. And if 50,000 years is sufficient for a new species to evolve, then surely 400,000 years represents adequate time for natural selection to have shaped novel psychological and cognitive adaptations in the human lineage. What these might be—and the extent to which they were influenced by a hunting and gathering lifestyle—is the focus of much current research. But readers interested in these issues will find little to draw them to the current volume. And those seeking a historical perspective on "Man the Hunter" will find an infinitely more nuanced and interesting treatment in Matt Cartmill's excellent *A View to a Death in the Morning*.

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DOI 10.1002/ajpa.20538

Published online 18 December 2006 in Wiley InterScience
 (www.interscience.wiley.com).

COOPERATION IN PRIMATES AND HUMANS: MECHANISMS AND EVOLUTION. By Peter M. Kappeler and Carel P. van Schaik. New York: Springer. 2006. 349 pp. ISBN 3-540-28269-6. \$149.00 (hardcover).

Cooperation is a topic that has long been of interest to biologists, anthropologists, and economists. Such interdisciplinary attention prompted Peter Kappeler and Carel van Schaik to organize the Fourth Göttinger Freilandtage (German Primate Center, December, 2003), which brought together theoreticians, primatologists, and students of human behavior to discuss recent developments in the complex field of primate cooperation. This book, a collection of chapters written by selected conference attendees, has two stated goals: "It documents and summarizes the range of cooperative behavior among non-human primates...[and]...identifies] mechanisms of, and prerequisites for, cooperation that are uniquely human" (pp. v–vi). Each chapter provides a thorough review of a cooperative behavior or mechanism, and some present new analyses. Several introduce novel frameworks to guide future thinking. Laudably, most authors emphasize the importance of proper tests of alternative hypotheses and analytical rigor.

In Chapter 1, van Schaik and Kappeler begin with a brief history of cooperation research, organized according to the three classic explanatory models: kinship, reciprocity, and mutualism. This provides a framework for the remainder of the volume. Next, chapters by Joan Silk and Bernard Chapais evaluate the role of kin selection in the evolution of cooperation. Silk argues that competition between relatives may counteract some of the positive effects of kin selection and points out that mechanisms other than kin selection may generate kin-biased behavior. Similarly, Chapais cautions against the temptation to explain all forms of kin-based interactions in terms of inclusive fitness. He challenges the tradi-

tional assumption that kin and nonkin make equally valuable cooperation partners by investigating the role of competence in the evolution of cooperation.

A section on reciprocity is headlined by a chapter by Robert Trivers, which provides a fitting, if somewhat wordy, summary of the complex evolution of reciprocity theory within and outside the prisoner's dilemma. Some of these complexities are subsequently addressed by Frans de Waal and Sarah Brosnan, who argue that a reciprocal pattern may arise from mechanisms that fall along a continuum from simple symmetry-based to calculated reciprocity. They emphasize the need to rule out simple mechanisms before accepting more complex alternatives. This is a point of critical importance, yet in some cases the authors appear to disregard their own advice. In their studies of food sharing, they effectively control for symmetry-based reciprocity but rather hastily discount the importance of other alternative mechanisms. Nevertheless, they provide a well written and detailed description of two decades of research on reciprocity in coalition formation, grooming, and food sharing in captive macaques, capuchins, and chimpanzees. Next, John Mitani presents careful analyses of new data from the Ngogo chimpanzee community at Kibale National Park, Uganda. Here, Mitani builds on previous work, providing solid evidence of a reciprocal pattern of exchange of grooming, coalitionary support, and meat sharing among adult males. A chapter by Filippo Aureli and Colleen Schaffner rounds out the section with a discussion of the role of cooperation in postconflict reconciliation.

The discussion of wild chimpanzees continues in a section on mutualism, where Christophe Boesch, Hedwige Boesch, and Linda Vigilant focus on cooperative hunting at Tai National Park, Côte d'Ivoire. Using new analyses of genetic data, they conclude that males do not make kin-biased hunting decisions. Instead, they present previously published data supporting a mutualistic mechanism. They claim that group hunts are more energetically

profitable to an individual than are lone hunts, and that hunters have greater net caloric intake than bystanders. While there is little doubt that this is a crucial piece of the puzzle, more discussion of the reliability of energy expenditure estimates is warranted. Next, Carel van Schaik, Sagar Pandit, and Erin Vogel distill two mathematical papers into a slightly more digestible presentation of a model explaining interspecies differences in the formation of male-male coalitions. They argue that the relationship between rank and fitness is the key factor in determining whether or not there is selective pressure for males to form coalitions. In the subsequent chapter, Tim Clutton-Brock provides a succinct review of cooperative breeding in mammals. While there is not much data from primates in this chapter, Clutton-Brock makes it clear that our understanding of cooperative breeding in other taxa is applicable to primates. In an elegant illustration of this point, Barbara König then presents data from several of her experiments on communal nursing in house mice. By measuring the fitness consequences of communal rearing, König concludes that females gain direct, mutualistic benefits from nonoffspring nursing.

Next, in the first of two chapters on biological markets, Louise Barrett and Peter Henzi highlight the importance of incorporating the broader utility of grooming into analyses of interchange of goods and services. Then, Ronald Noë assesses whether mechanisms of cooperation and trading in modern humans can be traced back to homologous mechanisms in our primate relatives. This leads nicely into the final section of the book, which addresses the extraordinary sophistication of human cooperation. Manfred Milinski reviews recent findings on the impact of personal reputation on human cooperation, and Simon Gächter and Benedikt Herr-

mann review the extent to which human cooperation can be explained by traditional economic models.

Like many volumes emerging from a conference, this book suffers from some discontinuity. For example, several chapters use different definitions of cooperation. It would have been more informative (but admittedly challenging) for the authors to have approached each section with a common definition in mind. However, this is more a criticism of the field than of the editors or authors. Additionally, there is some needless repetition of detailed descriptions of certain terms and mechanisms (e.g., prisoner's dilemma, indirect reciprocity, etc.). While this helps emphasize important points and allows each chapter to stand alone, it disrupts the continuity of the book as a whole. Nevertheless, the narrative style contributes to its readability and, in most cases, helps make an often confusing and complicated subject easier to grasp. Finally, the relaxed tone appears to have encouraged the authors to make bold and sometimes controversial suggestions, which are wonderful for stimulating discussion. Without a doubt, this volume will be of value to biological anthropologists and behavioral ecologists with an interest in cooperation in primates and other taxa.

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DOI 10.1002/ajpa.20523

Published online 28 November 2006 in Wiley InterScience
 (www.interscience.wiley.com).

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DOI 10.1002/ajpa.20526

Published online 28 November 2006 in Wiley InterScience
 (www.interscience.wiley.com).