NEW BIOLOGICAL BOOKS

The aim of this section is to give brief indications of the character, content, and cost of new books in the various fields of biology. More books are received by The Quarterly *than can be reviewed critically. All submitted books, however, are carefully considered for originality, timeliness, and reader interest, and we make every effort to find a competent and conscientious reviewer for each book selected for review.*

Of those books that are selected for consideration, some are merely listed, others are given brief notice, most receive critical reviews, and a few are featured in lead reviews. Listings, *without comments, are mainly to inform the reader that the books have appeared; examples are books whose titles are self-explanatory, such as dictionaries and taxonomic revisions, or that are reprints of earlier publications, or are new editions of well-established works.* Unsigned brief notices, *written by one of the editors, may be given to such works as anthologies or symposium volumes that are organized in a fashion that makes it possible to comment meaningfully on them.* Regular reviews *are more extensive evaluations and are signed by the reviewers. The longer* lead reviews *consider books of special significance. Each volume reviewed becomes the property of the reviewer. Most books not reviewed are donated to libraries at Stony Brook University or other appropriate recipients.*

The price in each case represents the publisher's suggested list price at the time the book is received for review, and is for purchase directly from the publisher.

Authors and publishers of biological books should bear in mind that The Quarterly *can consider for notice only those books that are sent to The Editors,* The Quarterly Review of Biology, *E-5340 Frank Melville, Jr. Memorial Library, Stony Brook University, Stony Brook, NY 11794-3349 USA. We welcome prepublication copies as an aid to early preparation of reviews.*

A NEW NARRATIVE ON HUMAN COOPERATION

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A review of

ORIGINS OF ALTRUISM AND COOPERATION. *Developments in Primatology: Progress and Prospects.*

Edited by Robert W. Sussman and C. Robert Cloninger. New York: Springer. $179.00. xvi + 439 p.; ill.; index. ISBN: 978-1-4419-9519-3 (hc); 978-1-4419-9520-9 (eb). 2011.

Narrative defines knowledge, and for several decades the narrative surrounding primate sociality has focused around conflict, dominance, exploitation, and violence. Give credit to William D. Hamilton and George C. Williams (and their popularizer Richard Dawkins) for clearly articulating the argument in favor of a "selfish" bent to the evolutionary process, or blame it on V. C. Wynne-Edwards and his naive depiction of group selection for presenting such a vulnerable cooperative straw man. Put science into the social context of rising global hypercapitalism and the Randian imperative that "greed is good." Or, digging for deeper roots, consider the historical notions of the early human as a dominant, violent super-predator. Whatever the cause, since the mid-1960s, most biologists have pos-

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ited a self-interested origin of social group dynamics. From this prevailing narrative human beings receive no pass: our behavior is assumed to be just as self-serving as the rest of our social primate brethren.

Origins of Altruism and Cooperation seeks to redefine this narrative and establish a "more optimistic and realistic view of human nature" (p. viii). What the diverse contributors to this broad collection share is the opinion that prevailing evidence from a range of fields suggests that human behavior has been shaped by the need to cooperate. The hypothesis that runs throughout the book is that cooperative behavior is the product of healthy people in healthy societies, and that violence and exploitation are symptoms of both unhealthy people and unhealthy environments. Rather than denying our propensity for violence, the volume considers violence as a predictable alternative strategy to our favored strategy of altruistic cooperation.

This 24-chapter edited volume is the product of a 2009 conference entitled "Man the Hunted and the Origin and Nature of Human Sociality, Altruism and Well-Being." The conference attracted evolutionary biologists, anthropologists, primatologists, neuroscientists, philosophers, psychologists, and medical doctors, yielding an interdisciplinary perspective that appears unprecedented for this field. Their collective work is broken into five fairly distinct parts that assess: the evolutionary history of human cooperation; cooperation in nonhuman primates; ethnographic evidence for widespread human cooperation; the neurological and hormonal basis for human cooperation; and the relationship between cooperation and human health in modern-day societies.

Our interpretation of contemporary human behaviors, including altruism, is influenced by our interpretation of our evolutionary past. What kind of primate were early humans, and how has that evolutionary history shaped our current behavior? This is the question addressed in Part I of this collection, which begins with a chapter that suggests that early human cooperation evolved in response to predation pressure. Rejecting the paradigms of "Man the Hunter" or "Man the Scavenger," the chapter suggests that humans gained a behavioral tendency to cooperate as "Man the Hunted." A pivotal chapter by Telmo Pievani argues that an exclusive emphasis on competitive models—even when applied at multiple levels of biological organization—is inadequate to explain human cooperation, which is better understood as an exaptation rather than strictly as an adaptation. This section also includes a lengthy chapter that reviews the phylogenesis of humans, coming to the conclusion that the development of new brain structures along the evolutionary pathway to humans has allowed for our extraordinary abilities to cooperate (while not completely eliminating competitive and exploitative tendencies).

Although humans have arguably achieved the most extensive cooperation among social animals, human altruism is not unique: our cooperative behaviors are built on an ancestral platform shared by many of our mammalian relatives. Part II considers how studies of altruism among other animals can help us understand the origins of our own altruism. Mostly based on case studies of particular primate species, these chapters focus on the importance and prevalence of nonkin cooperation, the role that social niche construction has played in fostering cooperation, and the importance of group cohesion as a metric of social success.

Primatology yields clues into the deeper roots of our altruism, but to better understand contemporary cooperation we need to know more about the behavior of our most recent ancestors. Anthropologists have looked to aboriginal cultures in order to understand how our human ancestors might have behaved. Levels of conflict observed in these societies have been used to argue that—in the absence of larger social control structures—humans are inherently violent. Part III takes this argument to task, suggesting that in both industrialized and aboriginal human societies, contemporary rates of homicide are sensitive to fluctuations in ecological and social conditions rather than being fixed by any inherently violent tendencies. Like their industrialized contemporaries, aboriginal societies display strong social selection in favor of cooperation and conflict mediation, and against antisocial behaviors (especially murder). The chapters in this part suggest

that when violence becomes more common, it often can be attributed to disruptions of normal social and/or economic conditions. In a particularly forceful chapter, R. Brian Ferguson suggests that the warlike behaviors of chimps and humans alike can be attributed to such disruptions, and that most contemporary human violence results not from our instinct to fight, but the social manipulations of powerful leaders.

Although behaviors are the ultimate determinant of social evolution, reconstructing evolved behavioral patterns is difficult. One way to figure out what behaviors might have been favored in our evolutionary past is to look at the extant drivers of our behavior. This is the realm of neuroscience and psychology, which are the focus of Part IV. Considering a diverse array of primate models (including humans), these chapters explore how neurological and physiological systems have evolved to provide immediate psychological rewards for behaviors that lead to delayed ultimate payoffs; in a sense, social primates have developed a proximate reward system that overcomes the "delayed gratification problem" associated with altruistic behavior. We learn that these psychological rewards are very sensitive to epigenetic effects, which can—depending on the nature of the social environment—either support or suppress the development of the neurological mechanisms that promote altruistic behavior. As such, social primates are depicted as being psychologically adapted to negotiate social dilemmas, both through negative reactions to free-riding and through positive response to affiliative behaviors (ranging from grooming to nonconceptive sex).

There is increasing recognition that social well-being is a critical component of overall human health. The final part of this volume is dedicated to understanding human health in light of our reliance on cooperation. Chapters in this section consider well-being in relation to our educational systems, our healthcare systems, and our overall cultural worldview. There is strong advocacy for educational systems that address individual and collective social well-being (and not just place in the economy), as well as for health programs that acknowledge the importance of social interactions to mental and physical health (the "bio-psycho-social" model of human well-being). David Hay provides one of the most provocative chapters in the entire volume, asserting that human beings have evolved a "relational consciousness" that allows us to be exceptionally cooperative by means of a versatile spirituality. Paralleling much of the thought in this collection, Hay contends that our natural state is to perceive a connection to our external environment that enables us to be concerned with the welfare of others; contemporary cultures espousing individualism serve to undermine this predisposition, leading to the illusion that we are by nature competitive and self-focused.

Although *Origins of Altruism and Cooperation* presents an avalanche of information and perspectives that can at times be overwhelming, a number of important themes emerge from the diverse material discussed by these many authors. First and foremost, evidence provided throughout the book makes it clear that new evolutionary theories are needed to explain the nature and extent of cooperation in the primate lineage, most prominently among human beings. Consistently, these authors question the explanatory value of incremental, reductionist, gene-centered theories of social evolution; there is a call for models that consider larger scales of organization and the role of overall social stability, although not a single chapter in this volume suggests an explicit alternative to traditional population genetics models. This gap between the evolutionary models we have and the evolutionary models we need has lurked in the background of a number of prominent evolutionary debates, and the material presented in this collection certainly provides plenty of "pattern" to which the "process" of a novel model of social evolution could be compared. As such, this book should be of particular interest to anyone seeking to formulate new evolutionary models. We desperately need an evolutionary theory that explains the remarkable stability of extant cooperative social systems.

This collection also provides broad-based commentary on the importance of incorporating behavioral plasticity and environmental context into our explanations of altruism.

There is no optimal social behavior, and so we can expect that the nature and extent of altruistic behavior will vary radically from environment to environment. Given that human beings can, to a large degree, make explicit choices about the social, political, and biophysical environments we live in, it is especially critical to understand how environmental variation affects altruism and the overall potential for cooperation. *Origins of Altruism and Cooperation* includes an impressive array of both theoretical and applied perspectives on the interaction between our evolved biology and our ever-evolving social environments.

Although a few of the chapters allude to the complexity of current-day human cooperation, one element that was conspicuously missing was an assessment of the many levels at which modern-day humans cooperate. Human cooperation has gone well beyond the local, tribal levels described in the ethnographic analyses presented in Part III, and in order to make sense of modern-day behavior we need a better theoretical understanding of how multilevel selection operates in globalized societies. Clearly, we do not simply live in larger groups: humans have created an integrated web of group identifications that vary in scale from the local family to massive transnational regional affiliations. Although we cooperate at an unprecedented scale, cooperation is also frequently coerced, and has led to large-scale imbalances of power. In order to understand how our propensity to cooperate translates into modern societies, we need to answer some questions. At which levels is cooperation most prominent? What levels of cooperation matter most to the welfare of individuals? And how might large-scale cooperation affect the trajectory of human evolution? These important questions are not fully addressed in this book; theorists seeking to explain human cooperation will need to address these questions.

Overall, *Origins of Altruism and Cooperation* is a partisan volume, and I make that appraisal with a deep respect for what partisanship can do to move science forward. Rather than attempting to provide a balanced assessment of all evidence relevant to social evolution, the chapters found here mostly present evidence that supports the idea that humans (and many of our primate relatives) are inherently cooperative. The volume aspires to "help to formulate a new paradigm" (p. 7). Does it succeed? Perhaps for some it will, although I doubt that it is likely to shift the entire fields of anthropology and evolutionary psychology away from selfish-gene approaches. More modestly—and perhaps more productively—what this collection does is demolish the foundational assumptions about what motivates cooperation among primates, including humans. The evidence presented here makes simplistic evolutionary narratives based solely on individual fitness seem as naive as the early group-selectionist explanations of cooperative behavior, counterbalancing the prevailing narrative about human altruism and stirring up new ground for scientific inquiry. What I hope emerges is a more nuanced view of human cooperation, one that departs from simplistic ideas about whether we are inherently cooperative or inherently exploitative, focusing instead on the social and ecological conditions that foster either cooperation or exploitation. Although I find the overall perspective of this book to be compelling and convincing, it will be really valuable to science if it inspires new inquiry into when we do and do not cooperate.

The volume's overall organization has a rationale—starting with our evolutionary past and moving toward extant evidence—but I find it more instructive to establish and understand the proximate drivers of behaviors before considering their ultimate "reasons for being." As such, I found the placement of Part IV (Neurological and Hormonal Mechanisms for Cooperation and Altruism) to be a bit late in the book; I would have preferred for it to be presented with the chapters on the off-neglected motivators of altruistic behavior first, as understanding the nature of these extant proximate drivers of behavior makes it easier to consider the validity of competing ultimate explanations of how cooperation evolved.

As is to be expected from any large edited publication, the quality of the writing varies from chapter to chapter. Some are concise, compelling, and well organized, while others are fairly obtuse, descending into the eye-

glazing zone of a poorly edited review article. This inconsistency is in part the result of the conflicting goals that appear to have structured this collection. Is it a book designed to provide provocative new perspectives on the evolutionary origins of human cooperation? Certainly in many places it is. Is it a volume designed to provide broad background on the evolutionarily origins of human cooperation? Certainly in many places it is, but these chapters lack the organization, conceptual clarity, and conciseness of a valuable textbook. Different chapters also carry dramatically different weights, allowing there to to be—for instance—two empirically based chapters on very specific howler monkey behavior alongside a chapter reviewing the neurological evolution of species ranging from hagfish to humans.

I found the "new perspectives" component of this volume to be far more important than the "broad review" component. At a list cost approaching $200, this publication is as expensive as a major introductory textbook, so I was hoping for a more consistent and crafted set of chapters; perhaps for a volume dedicated to a niche topic (such as altruism and cooperation) it is unrealistic for me to expect textbook-quality organization and explanation. I realize that there is a limit to the coherence that can be expected from conference proceedings, but this collection certainly hints at the potential for a better-designed book on this topic. The value of the more thought-provoking elements of this collection had me wishing for a smaller, cheaper version of this volume, one that would end up being read by more people and perhaps have a larger impact on prevailing evolutionary thought.

Overall, this collection is very readable, but this is also quite far from being an entry-level textbook. Anyone who lacks a significant background in evolutionary theory, behavior, primatology, anthropology, neuroscience, or medicine may not find it all that accessible. It is hard for me to imagine this collection being the course textbook for anything but a very specific advanced graduate seminar. Realistically, this volume is most likely to find itself on a library shelf within a comprehensive biological anthropology collection, and this is appropriate: for those looking for a broad-ranging counter-narrative to the "neo-Darwinian" view of human evolution, there exists no more valuable go-to resource.