

## **FROM INSECTS TO NAKED MOLE RATS TO GOD: AN ADAPTATIONIST'S VIEW OF HUMAN SOCIAL EVOLUTION**

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*A Review of the Book*

***Human Social Evolution – The Foundational Works of Richard D. Alexander***

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On its face, this collection of essays, journal articles, book chapters, and poems written by Richard Alexander (and colleagues) is a valuable resource for anyone interested in the progression of ideas associated with the evolution of social behavior in humans. Alexander (born in 1929), along with William Hamilton, E.O. Wilson, and Robert Trivers, was largely responsible for the growth of sociobiology in the 1960s and 1970s. Unlike the others, who in their early careers tended to be more pointed, Alexander employed a more well rounded approach to the evolution of behavior. Spanning over 40 years, the pieces featured in this book highlight his big picture approach, as well as the development of a man who thinks deeply about insect and mammalian behavior, connects socio-ecologic environments with natural selection, understands culture as biologically driven, and applies it all to human social evolution. The book is divided into two parts and each chapter begins with one of Alexander's poems followed by a chapter introduction written by one of Alexander's former colleagues or students.

In Part I-General Foundations, we get a glimpse of Alexander's early thinking and research credentials. In the first chapter, *Insect Behavior and Social Evolution*, Alexander espouses the benefits of the comparative method, stresses the phylogenetic link between morphology and behavior (now standard thanks to scholars like Alexander), and explains how behavior can be described as an adaptation. His plunge into "the problem of insight" (p. 33.) should be read by everyone wrestling with the benefits and limitations of what is today called *Evolutionary Psychology*, as it addresses hereditary influences on behavior and predicts the more recent concept of evolved mental modules (Cosmides & Tooby, 1992).

The second chapter, "Cooperation", is a section snipped from Alexander's second book, *The Biology of Moral Systems* (1986). The risks taken by Alexander in this chapter hint at his future work. His focus is on the repression of competitive components in the genome and theoretical comparisons to large-scale human societies. In Alexander's mind, those mechanizations that insure fair meiosis and the recurring grouping of large clusters of genes is analogous to how morality, monogamy, and equal opportunity mating expand inclusivity and decrease within-group competition. While grand in scope and intrigue, as is common in his writings, these sweeping assertions stand on a fragile bedrock of assumptions and untested hypotheses. However, as one progresses through his work, it becomes clear that Alexander is not concerned with these issues. His goal is to provide a wide view of human evolution and to let others test his hypotheses. My sense is that he is less worried about being right and is instead more focused on expanding ideas and concepts.

The third chapter finds Alexander in top form and is amongst my favorite parts of the book. Simply titled "Eusociality in Naked Mole Rats", the chapter ends up being so much more in terms of depth. It is an astonishingly refined, yet easy to comprehend description of sociality in general. The reader leaves this chapter more able to apply its knowledge to any number of species so long as the ecology is understood. His ability to glean the relationship between diet, predation, niche construction, and kinship has enabled researchers to predict other behaviors if just some of these variables are known. This is a powerful (and fun) tool, useful in many ways (i.e. Janson & Goldsmith, 1995), but wielded by Alexander et al. in a manner that represents an elegant and holistic approach to the evolution of a species.

The fourth chapter is the last of Part I and is entitled "Parent-offspring Conflict and Manipulation." Here, Alexander demonstrates his evolutionary acumen and range of understanding when it comes to fitness maximizing behavior in insects. The detail with which he treats the complex relationship between genes (diploid vs. haploid), sterility, altruism and selfishness, kinship, and the environment advertises Alexander's foundational strength. Together these four chapters represent the patience and discipline that Alexander summoned in order to ascertain the level of comprehension he has crafted. Part Two of this book, entitled *Human Social Evolution*, will see his depth applied to humans.

Part Two kicks off with Alexander addressing the relationship between evolution and culture. The problems with defining culture have been well chronicled and Alexander frames these difficulties well. To him and others in his camp, culture is entrenched in our biology and selection acts *directly* on an individual's phenotype and is responsible for the bulk of our

brain growth. More specifically, Alexander considers cultural behavior as a symbol of genotypic quality. These behaviors often provide cultural solutions to social or ecological problems, subsequently increasing the complexity of the world, which in turn increases various culturally induced selective pressures, leading us back to cultural solutions as a requirement. This runaway view of culture and its affect on human behavior links behavior and selection in humans.

It is clear that this is the base from which Alexander builds upon in subsequent offerings. Most importantly, this is how Alexander bridges his early work, which is firmly rooted in genetic determinism via the forces of evolution and what is to come in the following chapters. It is the crux of his worldview and the most likely idea to be critiqued. If the issues presented in Chapter 5 fall, specifically the idea that cultural behaviors are linked to certain genes and those genes undergo selection, then many of the behaviors that Alexander dives into (religion, morality, and art for example) cannot be contemplated from an evolutionary perspective. As Paul Turke points out in the introduction to Chapter 8 (and as Alexander certainly realized), however, his career broke rules, often lacked testable hypotheses, and significance values were conspicuously absent. This may lead critics to say that many of his explanations that attempt to explain human behavior are 'just so' stories. Luckily for us, Alexander plants his flag firmly upon the concept that behavior is evolutionarily determined, makes a number of compelling claims, and is backed by years of experience.

The remaining chapters tackle the relationship between behavior and selection in humans in earnest, and demonstrate the deft touch with which he has treated everything from hairlessness and altriciality to humor and intelligence. While I, like many individuals, have concerns when it comes to comparing insect behavior and development (where Alexander is clearly expert) with human behaviors, there are many areas highlighted in this book where his ideas have the potential to be long lasting and pivotal to our general understanding. For example, his analysis of the evolution of morality, reciprocity, and game theory (Chapter 9) exemplifies extraordinary breadth and depth. Additionally, his understanding of the forces driving human intellectual abilities is on full display in Chapter 10, as he lays out his theory of socially derived selective forces. And while more recent research (i.e. Brosnan, 2006; Pruetz & Bertolani, 2007) has shown that the gap between our nearest primate relatives and us may not be as wide as once perceived, those traits that we are endowed with (i.e. self awareness, language, logic, reasoning) clearly have firm roots in the development of complex social systems. This, for Alexander, is the jumping off point for wide ranging thoughts related to the evolutionary influences on human emotions, morality (Chapter 11), humor (Chapter 12 and a favorite of mine!), competition and cooperation (Chapter 13), sports and religion (Chapter 14), and art (Chapter 15). Alexander and several of the other contributors to this volume frequently hedge, as if they know better than others the potential flaws in their hypotheses, especially concerning these last few subjects. However, the provocative ideas presented here, whether right or wrong, are valuable and should be scrutinized further.

While the causal observer of human social evolution is likely familiar with Dawkins and Wilson and maybe Hamilton and Trivers, the work of Richard Alexander is less well known and that is a shame. Richard Alexander has contributed every bit as much to our theoretical understanding of evolutionary biology as any of these other giants. That, as I mentioned at the onset of this review, is the face of the book. The heart of the book is something different - it is a celebration of a thinker who has clearly influenced the lives of several people who have come to be successful and far-reaching scholars themselves. It is hard to come away from this novel and not believe that the people who worked with him did not love him in some way. The all-too-brief glimpses of Alexander's life made me wish for a more straightforward biography. Still, this volume allows the reader to enter into the mind of a thorough investigator of human social evolution and that should be celebrated.

## ABOUT THE AUTHOR

**Michel T. Waller** is an assistant professor and instructor of anthropology at Central Oregon Community College and the University of Oregon, respectively. He has recently published articles on aggression in chimpanzees and vocalizations in bonobos. His present research includes the evolution of peaceful behavior in bonobos and an ethnoprimateological study on the effects of harvesting non-timber forest products.

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