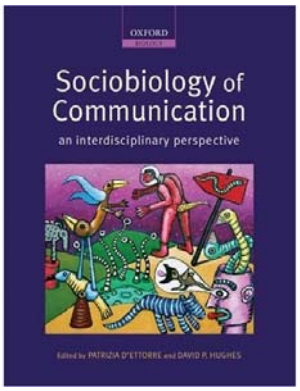

Book review

D'ETTORRE, P. & HUGHES, D.P. (Eds.) 2008: Sociobiology of communication: an interdisciplinary perspective

Oxford University Press, Oxford, UK, 320 pp.; Paperback, ISBN-13: 978-0-19-921684-0, Price: £37.50; Hardback, ISBN-13: 978-0-19-921683-3, Price: £ 75.00

Prof. Dr. Anna Dornhaus, Ecology and Evolutionary Biology, University of Arizona, P.O. Box 210088, Tucson, AZ 85721, USA. E-mail: dornhaus@email.arizona.edu

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Communication, or information exchange, is at the heart of any social behavior. But beyond thinking about the classic cases of honest signals of mate quality and kin recognition, this interesting book covers a much wider spectrum of social interactions. Do bacteria communicate and live in cooperative societies? When are signals cooperative among competing individuals, or competitive between cells of a single organism? How can understanding the evolution of complex signals inform our understanding of human evolution? The chapters in this multi-authored book deal with questions across an impressively broad range. Although several of the chapters go into detail on modern approaches to studying the mechanisms and modalities of communication, this book's strength lies in its broad scope, and its attempt to draw parallels in the evolution of signaling across all taxonomic levels, from microbes to humans to superorganisms.

Generally the book contains a mixture of chapters that are either mainly conceptual synthesis, academic review, or textbook-like with detailed explanations of all terms and concepts used. Nevertheless, except for minor quibbles (too many repetitions of sections in chapter 2; after a few chapters, I didn't want to hear another definition of communication), all chapters are reasonably easy to read for the committed reader, and the book would make excellent material for a graduate student journal club or any students of communication who want to take a peek at the wider field, and get a new perspective on their own research. All chapters, no matter how general their conceptual discussions, are rich with detail and examples. A host of bird and insect species (especially ants and their social parasites) and their particular modes of communication are mentioned, along with bacteria, lizards, rodents, and people. The reader will also get a comprehensive introduction to neural and sensory mechanisms involved particularly in olfactory signals, and to the measures that can be used in analyzing communication networks.

On the subject of definitions: the editors point out that definitions don't matter, but in spite of that, many chapters do spend considerable time talking about them. This is partly because "communication" is in fact hard to define – but partly for the more interesting reason that evolutionary biologists usually differentiate between "signals" (evolved for the purpose of transferring information) and "cues" (information that is gathered by a receiver without a fitness benefit for the signaler). Not all fields use these definitions, though, and I found the chapters on bacterial and cell-cell communication particularly interesting for that reason, because the authors here tried to inject a thorough discussion of evolutionary trade-offs into these research areas. For example, both the chapter by ZAHAVI and the one by DIGGLE & al. discuss that bacterial communication may in fact be described as use of cues or coercion rather than cooperation, and more studies are needed to be able to state that "signalling" in the evolutionary sense takes place; and the chapter by HAIG emphasizes that even cells within the same body can experience conflict (in the end, a result of intragenomic conflict), which can shape communication both within the body and between individuals. A very similar point, pertinent particularly to ant colonies, is made by HUGHES, who says that conflict within the superorganism of a social insect colony can shape communication within and between colonies.

A book that brings together experts from widely disparate fields always has to struggle with getting everyone to explain their terms, but also to discuss those of others, to make a two-way interaction possible. Several of the chapters in this book succeed admirably in both of these respects; nevertheless, there are also rough edges. For example, in attempting to explain linguistic diversity, chapter 14 uses some evolutionary language ("speciation" and "trees"), but fails to recognize the actual advances in evolutionary biology and animal communication: horizontal transfer tends to reduce diversity and not increase it; and adaptation is not just to a physical environment, and indeed there may be selective pressure to diverge for divergence's sake, for example if unfakeable identification of group membership is relevant for fitness. Nevertheless, this and other chapters will allow students of animal communication to learn the language of linguists – and a new generation of scientists with broad training and rigorously defined concepts can be expected. Understanding other disciplines, and using their advances to critically examine your own premises is often the way to progress in science. Buy this book if you want to be part of that progress.