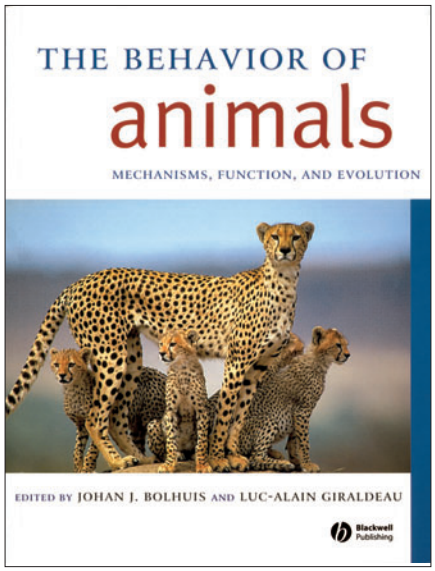
Book Review

AN ARRAY OF ANIMAL BEHAVIOUR



The Behavior of Animals: Mechanisms, Function, and Evolution

Edited by Johan J. Bolhuis and Luc-Alain Giraldeau

Blackwell Publishing (2004)
536 pp. ISBN 0631231250
$69.95/£24.99 (pbk)

The Behaviour of Animals: Mechanisms, Function, and Evolution is designed to give a broad overview of the current status of animal behaviour studies (or, as Robert Hinde puts it in his foreword, 'the growing points in animal behaviour at the start of the 21st century'; p. xvi), for use on undergraduate and postgraduate courses in, among other subjects, biology, psychology and neuroscience. In their preface, the editors justify producing another textbook on animal behaviour (and an edited volume at that) on two, related grounds. In the first place, the discipline of animal behaviour is a rapidly developing one, and an effective textbook should incorporate new sub-disciplines as well as covering established ones. Secondly, since the discipline is now very broad ('the science of animal behaviour has become a victim of its own success'; p. xvii), the editors argue that a textbook written by a single author cannot be comprehensive and authoritative; hence, the need for a new book that takes a broad approach and is written by a team of invited experts. The first point is indisputable; the second is debatable.

The text of the book is clearly printed and its layout spacious, and, flicking through the pages, one sees a tempting mixture of text, figures and tables. Each chapter has a common and attractive design, the heading being printed over an image of the cheetahs that grace the cover of the book, now running at full speed. Each starts with an introduction, and the text ends with a summary and conclusion. The latter sections are variable, ranging from brief reminders of the topics covered to insightful and thought-provoking comments on their implications. Finally, each chapter has a section recommending good jumping-off points for students wishing to do some further reading. In addition, there is a very thorough bibliography, a glossary of terms at the end of the book and an extensive and useful index.

As far as content is concerned, much of the book is structured around Tinbergen's famous 'four questions'. The first two questions (about causation and development of behaviour) are covered in the seven chapters that comprise Part I (Mechanisms of Behavior). The last two questions (about the function and evolution of behaviour) are covered in six chapters in Part II, while the three chapters in Part III (Animal Behavior and Human Society) present newer aspects of the study of behavioural biology. I can see no better way of giving readers a feel for the book's coverage than by simply listing the topics covered in the main chapters. These are: stimulus perception, motivation, biological rhythms, development, learning and memory, cognition, function of behaviour, communication, mate choice and sexual selection, sperm competition and sexual conflict, evolution of behaviour, social systems, applied animal behaviour, animal welfare, behaviour and conservation biology and, finally, biological approaches to human behaviour. Arguably, behavioural endocrinology, a particularly active and exciting part of modern behavioural biology, receives rather little attention but, overall, the structure works well. The coverage is indeed broad and the claim in the advertising blurb on the cover that the book ranges across the subject at all levels (from molecules and neurons to individuals and populations) is most certainly true.

Bolhuis and Giraldeau have assembled an extremely impressive team to write the book, the authors being established and highly regarded experts, many of whom have carried out trail-blazing work in their chosen research field. The level at which the material is treated is variable. Some chapters give a very broad overview of the topic in question (e.g. A. Pusey's chapter on social systems), while others are largely based on a detailed review of a

specific, narrower research field (e.g. J.-P. Evert on stimulus perception). Both are valuable approaches and it is a matter of taste which one prefers; in this context, comparisons are odious, but my personal favourites include N. J. Emery and N. S. Clayton on animal cognition, P. K. McGregor on communication, T. Caro and J. Eadie on conservation biology and M. Daly and M. Wilson on human behaviour.

The effect of such a difference in approach is a somewhat uneven style as one passes from chapter to chapter. This, together with relatively little cross-referencing among chapters, is the price one pays for the high level of specialist expertise in such a multi-authored book. This point aside, *The Behavior of Animals* offers a collection of authoritative reviews that, as the editors intended, give the reader an up-to-date picture of the current status of the study of animal behaviour. This does not necessarily mean that the book is an easy read – it is not one to use to try to grab the attention of newcomers to the discipline – but the student who has read it and assimilated its contents (as advanced undergraduates and postgraduates will readily do) will be an extremely well-educated behavioural biologist.

I entirely agree with Bolhuis and Giraldeau when they say (in their preface) that a good textbook on animal behaviour must be at once comprehensive and authoritative. I also agree that one way to achieve this is the multi-author volume, in which each contributor writes a separate chapter and only has to be top of her/his particular subject area. I do not agree with them that nowadays this is the only way to get both breadth and depth in a textbook. I happen to have on my desk as I write the second edition of Goodenough, McGuire and Wallace's *Perspectives on Animal Behaviour* (Goodenough et al., 2001). This monograph (or perhaps oligograph) also succeeds extremely well in giving a thoroughly researched, authoritative and comprehensive review of the modern discipline of animal behaviour. The truth is that we need both kinds of book, as shown by successive editions of *Behavioural Ecology: An Evolutionary Approach* (Krebs and Davies, 1978) and *Introduction To Behavioural Ecology* (Krebs and Davies, 1981), another successful publishing venture by Blackwell, in which Krebs and Davies both edited the multi-author volume and wrote the 'monograph'. The editors and authors of *The Behavior of Animals: Mechanisms, Function, and Evolution* have done us a good service by producing an excellent example of the multi-author model, which I shall certainly recommend to my undergraduate and postgraduate students.

10.1242/jeb.01674

References

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