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Book Reviews

Targeted: The Anatomy of an Animal Rights Attack. By L. O. LUTHERER & M. S. SIMON, with a foreword by J. M. OREM. Norman, OK: Oklahoma University Press (1992). Pp. xix+170. Price $22.95.

Despite its sensationalist title, this modest book is a sobering, factual, relatively dispassionate look at how animal rights groups harass and intimidate animal researchers and block research through destructive break-ins. The focus of the book is the 1991 break-in at the Texas Tech Health Sciences Center centred on the laboratory of John Orem, a sleep researcher working with cats. The authors' account will be of interest to researchers, but also to university administrators, news-coordinators, security officials, animal care staff, and members of the animal care committee. The book is worth examining if only because it begins with a series of questions that make clear that neither researchers nor their institutions are adequately prepared to prevent a break-in or deal with its aftermath. Providing this book to appropriate members of your institution may be an important contribution to the safety of your animals, data, laboratory, colleagues, institution, and yourself.

The book opens with a brief review of important changes in the dominant philosophy of groups concerned with animal research. Traditional animal welfare groups were concerned with preventing obvious cruelty; in contrast, animal rights groups have shifted their emphasis to the rights of animals. For many the attribution of rights precludes any scientific research with animals and requires their aggressive protection and defence by both legal and illegal means. This shift in emphasis from welfare to rights helps explain the depth and persistence of the current conflict with science. The issue for scientists is how to safeguard the well-being of animals within the context of promoting knowledge. Although animal rights groups are also concerned with the well-being of animals, many are working towards the ultimate elimination of research with animals.

The primary focus of this book is an account of the pattern of events leading up to and following a destructive break-in at a research facility. Break-ins are surprisingly sophisticated, carefully planned and coordinated affairs involving a variety of elements ranging from national groups to local advocates. Before the break-in, activities include: helping build an infrastructure of campus groups by providing encouragement, information, and issues; selecting a target; developing contacts within the facility; surveillance; and rehearsal. Following the break-in, attacks on the institution and individual scientists are sustained by a combination of tactics: legal suits directed at the university, the animal care committee, the investigator, and government regulatory agencies; the professional lobbying of local, state, and national governing bodies; demands for investigations by government agencies and university and legislative committees; national and local mailings to rights advocates soliciting letters and phone calls to congress, the legislature, institutional officials, and the investigator; inflammatory flyers hung on the doors of local homes; newspaper ads, billboards, letters to newspapers, demonstrations at the facility and at meetings and offices of university officials; attempts to influence university donors and parents of students to stop supporting the university; public meetings, newspaper, radio, and television interviews; bomb threats, and even threats of physical harm and death to the researcher and his/her family. Although I think the authors sometimes over-estimate the degree of coordination among these various efforts at harassment, the break-ins and the activities surrounding them are clearly better organized and much more media savvy than the vastly larger peace demonstrations of the 1960s. The numbers are not there, but the media effect is better planned and sustained.

The 'Animal Liberation Front' frequently provides experts for the actual break-in. Representatives of People for the Ethical Treatment of Animals (PETA) have subsequently provided publicity and press conferences by their national leaders, including statements by pro-rights physicians criticizing the worth of the scientific activities. They also compose, print, and mail inflammatory descriptions of 'crimes', which include the researcher's home phone number and call for massive mail campaigns threatening the university with loss of alumni contributions. The persistence and extremity of these attacks are stunning to scientists and academic officials used to dealing with the complaints of individuals. In the case of John Orem, despite no evidence of mistreatment or neglect based on multiple investigations, PETA ads and press releases have continued to attack his integrity while soliciting money to stop research.

A unique feature of this book is a chapter on the devastating effects of break-ins on the targeted scientist. Few are equipped to deal with the emotional trauma of being vilified by strangers,

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having their reputations impugned in the media, seeing the investment of their life disrupted and destroyed, losing animals they have been working with, having family members harassed at school and at home with letters and threatening phone calls, and feeling guilty that they could not prevent it. Perhaps the biggest shock is how the repeated accusations featured in the press and mailings isolate them as potential criminals. In part because only one investigator is targeted at a time, other researchers tend to keep a low profile, grateful that the break-in missed them and wondering if the target has done something to deserve the attack. Administrators may wait for the results of several investigations before providing needed support.

Without hysterics, this book makes clear that at least break-ins are not as much part of an effort to improve the well-being of animals in research as they are part of a war to stop research. I recommend you read this book, show it to your co-workers, send it to relevant institutional officials, and follow its advice. Discuss with colleagues, caretakers and administrators the research you do and why you do it. Make connections in your community. Create a climate of excellent animal care, beginning with informed respect both for the animals and for the knowledge and integrity of your colleagues.

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Evolutionary Ecology and Human Behavior. Edited by ERIC ALDEN SMITH & BRUCE WINTERHALDER. New York: Aldine de Gruyter (1992). Pp. xv+ 470. Price $59.95 hardback, $29.95 paperback.

A computer-search of *Animal Behaviour* articles keyword-coded as concerning 'foraging' turned up 143, but not one on *Homo sapiens*. Several chapters in *Evolutionary Ecology and Human Behavior* make it clear that optimal foraging theory has been taken very seriously by a small group of anthropologists, and several of their papers would be of interest to readers of *Animal Behaviour*. Foraging is not the only subject in this collection, but it is disproportionately represented considering all the topics of human affairs that might be addressed by an evolutionary ecological perspective.

This edited book is one volume in the *Foundations of Human Behavior* series. Smith & Winterhalder have produced what is clearly intended as a foundations book for anthropologists, and not for the readership of *Animal Behaviour*. The 12 chapters are written by 12 anthropologists and biologists. Many words are devoted to addres issues that are problematic in the disciplin anthropology and other social sciences, but sumably are not problems for animal behavic ists. For example, the editors thought it necess to include lengthy introductory discussions scientific methodology, of the value of modelli of contemporary evolutionary theories, and of t fallacy of what is aptly labelled 'greater-goodis by Helena Cronin (1992). The evolutionar minded anthropologists represented in this volun must have had plenty of reason to feel the need t introduce the conceptual and methodological too of behavioural ecology to their colleagues. And c course for anthropologists, there is a requisit chapter on culture (by Richerson & Boyd), albei not like anything produced by a traditional cultura anthropologist. As befits a book for biological anthropologists there is a chapter on non-human primates (Janson) and one on reconstructing our hominoid ancestry (Foley).

Almost every author in this collection has conducted sophisticated field studies of contemporary foraging/hunting populations, and yet there is disappointingly little discussion of their findings. In fact, among the 67 figures in the book only 25% portray data; the others are theoretical models. These authors are sophisticated modellers of evolutionary processes, but their unique contribution to science is not the modelling (which makes only minor addenda to what can be found in, e.g. Stephens & Krebs 1986), but their field studies. I wondered why they chose to focus so heavily on their models. Perhaps they thought anthropologists need to be persuaded of the value of models but not of field studies. Perhaps they feel that their empirical findings fall far short of ideal tests of the implications of their models. The book is filled with suggestions for further empirical research.

In my experience, many behavioural ecologists studying non-human animals are somewhat reluctant to apply the same models to *Homo sapiens* as they readily apply to other species, betraying an assumption that our sophisticated cognitive capacities, language and culture require other/additional kinds of explanations. Anthropologists, even evolution-minded anthropologists, often share this view, including authors in this collection. At the outset, Smith & Winterhalder warn 'If evolutionary ecology is to contribute to social science, it will have to come to terms with the role of intentionality' (page 47) where intentionality is defined as 'conscious elements of decision-making—beliefs and preferences . . .' (page 47). The importance of consciousness in decision-making is

developed further by Richerson & Boyd in their discussion of culture. They define culture as socially transmitted learning (to be distinguished from individual learning in which the specific information is acquired and lost within an individual's lifetime). They postulate biasing mechanisms which 'guide' who and what will be imitated (page 65) so that, for example, one would expect that children would be more likely to imitate the foraging practices of parents than of strangers depending on other considerations such as quality of the information and on ecological context. They also suggest that such direct biasing mechanisms might be more 'effective if naive individuals survey many models before they make up their minds whose trait to adopt' (page 76). (And not surprisingly Richerson & Boyd point out that some choices may be maladaptive.) But what this has to do with 'consciousness' is unclear. The whole complex issue of what it means to invoke conscious decision-making does indeed need to be addressed, as Smith & Winterhalder suggested, but none of the authors in this volume have given me any confidence that they are the right people to do the job. And to be fair, they probably have no such ambition. However, the failure to hypothesize explicitly the functional structure of information-processing mechanisms subserving evolved decision-making leads to ambiguity as to what exactly is being claimed about evolved adaptations.

It was amusing to see Darwin's list of reasons to marry or not, for example, but what was Borgerhoff Mulder suggesting by introducing her chapter on 'Reproductive Decisions' with this anecdote? That selection has shaped our information-processing mechanisms to attend to and respond to social, demographic and ecological cues of statistically expectable fitness returns in past environments? If so, no problem. However, I interpreted Borgerhoff Mulder to imply that people may be expected to be aware of and able to articulate the probable costs and benefits of different courses of action. My cynical psychological view of much of the sexual, marital and parental affairs of people is that there are a lot of post hoc rationalizing, revisionist history and other intellectual elaborations in the production of a coherent 'intentional' account of decision-making (see, e.g. Nisbett & Wilson 1977).

Ironically, despite what seem to this reviewer some naive and superfluous appeals to conscious decision-making the present authors seem excessively reluctant to exploit their subject species' talkativeness. The possible deceptiveness of people's self-reports is undoubtedly why many students of the behaviour of non-human animals are wary, and why many Darwinian-minded anthropologists such as the authors in this volume prefer to rely on foraging time, calories acquired, amounts and participants in food exchange, size of foraging groups, etc. as the currencies to evaluate their hypotheses. But in many ways this talking species might be very useful to test hypotheses derived from optimality and ESS models; the researcher does not need to set up elaborate discrimination conditioning procedures to discern how information is perceived and evaluated as is necessary with starlings, swallows, tits and bumblebees. People need not understand the determinants of their judgments and choices to provide useful verbal data (see, e.g. Cosmides 1989).

The chapters on foraging, collective action and sharing of resources in *H. sapiens* should be of great interest to anyone interested in social foraging. Chapters by Kaplan & Hill, by Cashdan, and especially by Hawkes and by Boone, all address adaptive problems associated with social action, including 'cheaters' in collectives of unrelated persons, competition, conflicts of interest and asymmetries in power, as well as the invalidity of modelling unitary 'strategy sets' (e.g. maximizing caloric returns when there is consequential social information to be gained at the same time).

I strongly recommend the book to readers of *Animal Behaviour* who study foraging and collective action, and to those who are interested in applying selectionist-thinking to *H. sapiens*. Even though the authors of this volume all share common assumptions about science, about evolutionary theories, and about the utility of optimality modelling, they do not represent a uniform 'voice'. Neither do they represent all contemporary adaptationist approaches to the study of *H. sapiens* (see, e.g. another edited volume published in the same year; Barkow et al. 1992).

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References

Barkow, J. H., Cosmides, L. & Tooby, J. 1992. *The Adapted Mind.* Oxford: Oxford University Press.

Cosmides, L. 1989. The logic of social exchange: has natural selection shaped how humans reason? Studies with the Wason selection task. *Cognition*, **31**, 187–276.

Cronin, H. 1992. *The Ant and the Peacock.* Cambridge: Cambridge University Press.

Nisbett, R. E. & Wilson, T. D. 1977. Telling more than we can know: verbal reports on mental processes. *Psychol. Rev.*, **84**, 231–259.

Stephens, D. W. & Krebs, J. R. 1986. *Foraging Theory.* Princeton, New Jersey: Princeton University Press.

Ecology and Natural History of Tropical Bees. By DAVID W. ROUBICK. Cambridge: Cambridge University Press (1992). Pp. x + 514. Price $27.95 paperback.

Roubick's impressive survey of tropical bees is now available in paperback. Perhaps the main impact it had on me was its demonstration of how very much there is yet to be learned about social bees other than honey bees, and how very fascinating this undiscovered natural history is bound to be. Beyond its incredible scope, the book's strengths are many: the description and analyses of the ecology and natural history of nesting; the discussion of bee genetics; the treatment of resource cycling and flow (who would have guessed that bees consume about 10% of primary production, and, in a square kilometre, produce thousands of kilos of faeces and apine corpses annually?); the detailed analysis of the effects on both other pollinators and the tropical flora as the Africanized honey bee spreads; and the evolution of sociality in tropical bees. The book does, however, have its weaknesses: the discussion of flower learning, though long, is very weak; the description of recruitment systems is equally slighted; and the pioneering work of Martin Lindauer is overlooked again and again. The book ends with an extensive rogues gallery of tropical bees; it is too bad they are not at a consistent scale, and that the publisher chose to print these (and the book's other photos) on uncoated paper, thus reducing their clarity and usefulness. The good news is that the long-overdue paperback edition sells for just over a third of the cost of the hardback.

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Behaviour and Social Evolution of Wasps. The Communal Aggregation Hypothesis. By YOSIAKI ITÔ. Oxford: Oxford University Press (1993). Pp. viii + 159. Price £13.50 paperback.

A nest of one million workers and 4000 queens may sound to you more like a story of ants rather than wasps, in which case you should probably read this book.

Of course many wasp species (in this context Vespidae) have colonies with a single queen supported by many workers. However, even these may have arisen not only from foundation by a single queen but also by a single queen accompanied by a swarm of workers (as in honey bees) or even in the company of other queens. So wasp colony biology exhibits a great deal of variety.

This variety has attracted a breed of researchers who combine a strong sense of natural history with a desire to account for this puzzling variation within an evolutionary framework. Yosiaki Itô has been among the most active field researchers on social Vespidae for more than 20 years and has contributed significantly to this evolutionary debate. He is therefore particularly well positioned to write this book.

Non-specialists will find themselves quickly familiarized with the cladograms of the Vespidae, the masonic peculiarities of social insect terminology (haplometrotic = colony foundation by a single queen, etc.) and the special hymenopteran variants of more general theories for the evolution of social cooperation. This introductory section is clear, economical and supported by helpful diagrams.

Itô is, however, not simply aiming to describe current knowledge and views but to change attitudes. First, he is concerned that there has been too much emphasis on the evolution of colonies with a single queen. He therefore uses a substantial part of the book to build up evidence of the widespread occurrence of multi-female (pleometrotic) colonies and of the varied ways in which such colonies may persist. This includes the building of satellite combs (*Ropalidia fasciata*) and the biting away of nest material physically to divide combs (*Ropalidia plebeiana*), as well as long-term tolerance by queens of each other. Itô also provides evidence of the adaptive significance of multi-female colonies of species in different habitats enabling them to recover rapidly from catastrophe whether it be wind, rain or predation. This allows Itô to develop his second theme, that insufficient emphasis has been given to the importance of mutualism in the evolution of insect societies particularly where the threat of predation puts smaller colonies at risk.

In the final chapters Itô brings these strands together to summarize the possible evolutionary routes to multi-queen colonies, contrasting selection pressures in the temperate regions, which favour the foundation by a single queen possibly accompanied by a swarm, with the tropics where pleometrosis is more advantageous. Within this scheme he then categorizes all the major taxa of Vespidae in a matrix whose axes are levels of social complexity and tendency to pleometrosis.

The result is a very valuable and enjoyable book, bigger than its 159 pages might suggest. The contention that mutualism has been neglected is perhaps overstated but the book is impressive in producing a comprehensive explanation of the evolution of varied vespid social systems. This, as Itô himself points out with reference to ants, bees

and termites, is of significance to all whose interest is the evolution of social behaviour.

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Diet Selection. An Interdisciplinary Approach to Foraging Behaviour. Edited by R. N. HUGHES. Oxford: Blackwell Scientific Publications (1993). Pp. x + 221. Price £32.50 paperback.

Metcalfe's (1991) review of Roger Hughes' book *Behavioural Mechanisms of Food Selection* (Hughes 1990) concluded with the statement 'It deserves a wide audience, but at this price sadly won't get it'. I had to wonder to what extent Hughes' present volume was an attempt to produce a more affordable version of his 1990 book. If this was Hughes' intent, then he has failed. Although the present book is about a third the price, it is a quarter of the size and not nearly as good (in terms of original research and novel ideas).

Metcalfe (1991) complained that 'Summarising 40 papers in 500 words is not easy'; my task is not as difficult. In chapter 1 Hughes reviews human foraging. This review largely consists of anecdotal, or at any rate very qualitative, evidence and his introduction to the topic of optimal foraging theory (OFT) is potentially misleading. In chapter 2, Houston explains how to construct and use dynamic programming models. The chapter is well written but not particularly novel. In chapter 3, Penry provides an excellent review of the different approaches to modelling the gut, but says very little about how digestive constraints influence diet selection (see, e.g. Alexander 1991). In chapter 4 Shettleworth et al. provide a review of the psychology of diet selection, but it is perhaps below the level of many graduate students. In chapter 5 Provenza & Cincotta review the role that secondary compounds play in learning about food. I prefer Provenza's 1987 (with Balph) review. Much of the chapter is devoted to a lengthy explanation about why the adaptionist view in general, and OFT specifically, are not useful in this case. They then go on to present a model of learning, apparently unaware of the current work in OFT on this topic (e.g. McNamara & Houston 1985, 1987; Stephens 1987, 1989; Mangel 1990). Chapter 6 is a good review, by DeMott, of diet selection by zooplankton. In chapter 7, Jumars presents a substantially different paper from the one he co-authored in the 1990 volume. He presents a 'meaty' review of diet selection by deposit feeders. In chapter 8, Illius & Gordon present largely the same work that they presented in the 1990 volume (review of herbivore foraging tactics and constraints). Finally, Sih in chapter 9 has largely improved on his paper from the 1990 volume reviewing the effects of ecological interactions on diet selection.

Although there are good chapters and parts of chapters, on the whole the book does not seem to be a good investment, regardless of whether or not you can afford Hughes (1990).

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References

Alexander, R. McN. 1991. Optimization of gut structure and diet for higher vertebrate herbivores. *Phil. Trans. R. Soc. Lond. B.*, **333**, 249–255.

Hughes, R. N. 1990. *Behavioural Mechanisms of Food Selection*. Berlin: Springer-Verlag.

McNamara, J. M. & Houston, A. I. 1985. Optimal foraging and learning. *J. theor. Biol.*, **117**, 231–249.

McNamara, J.M. & Houston, A. I. 1987. Memory and the efficient use of information. *J. theor. Biol.*, **125**, 385–395.

Mangel, M. 1990. Dynamic information in uncertain and changing worlds. *J. theor. Biol.*, **146**, 317–332.

Metcalfe, N. B. 1991. Book review: *Behavioural Mechanisms of Food Selection*. *Anim. Behav.*, **41**, 372.

Provenza, F. D. & Balph, D. F. 1987. Diet learning by domestic ruminants: theory, evidence and practical implications. *Appl. Anim. Behav. Sci.*, **18**, 211–232.

Stephens, D. W. 1987. On economically tracking a variable environment. *Theor. pop. Biol.*, **32**, 15–25.

Stephens, D. W. 1989. Variance and the value of information. *Am. Nat.*, **134**, 128–140.