

Textbook reprise — animal behaviour

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Unravelling Animal Behaviour. By Marian Stamp Dawkins. *Longman: 1985.* Pp. 159. Pbk. £6.50, \$12.95.

Animal Behaviour: Psychobiology, Ethology and Evolution. By David McFarland. *Longman/Benjamin-Cummings: 1985.* Pp. 576. Pbk £11.95; hbk \$28.95.

An Introduction to Ethology. By P.J.B. Slater. *Cambridge University Press: 1985.* Pp. 195. Hbk £22.50, \$39.50; pbk £7.95, \$12.95.

Animal Behaviour: A Concise Introduction. By Mark Ridley. *Blackwell Scientific: 1986.* Pp. 150. Pbk £8.80. To be published in the United States by Mosby.

THE arrival on my desk of four new undergraduate textbooks on animal behaviour prompted me to find out how many such books are currently in print: there are 34, not including books for the layman or more specialized volumes on, say, behavioural ecology. Obviously, to have any impact a new book must cover fresh ground or else be clearly better than its competitors. Of these four, one falls into the former category, one into the latter, and two into neither.

The book which breaks new ground is Marian Dawkins's *Unravelling Animal Behaviour*. To be fair to the other authors, this does not set out to be a conventional textbook or review. It is, rather, a collection of ten essays tackling conceptual problems in animal behaviour which have led to confusion in the literature and, in some cases, to controversy. Thus we find chapters on adaptation, optimality, inclusive fitness, the genetic basis of behaviour, the nature-nuture controversy, animal communication and sexual selection. Without exception Dawkins writes clearly and, more importantly, thinks clearly about these topics. I approached the book with a certain air of superiority, convinced that I understood the issues involved despite the author's admission that she herself had stumbled over many of them. How wrong I was. Particularly enlightening are the essays on inclusive fitness, where Dawkins discusses the mistake of using a simple weighted sum to calculate the benefits of helping relatives, and that on evolutionary stable strategies, where she sorts out the confusion between mixed and conditional strategies. There are few new ideas in this book, yet it makes explicit what was previously often implicit.

David McFarland's *Animal Behaviour*

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makes a substantial contribution to the behavioural literature. It provides us with a more modern version of Hinde's classic textbook of the same name. Like Hinde, McFarland's strength is in the integration of material from ethology and comparative psychology to give a very comprehensive treatment of the subject; unlike Hinde's book, however, it is easy to read and has the sort of supporting features that are standard in today's textbooks.

Each of the main sections of the book begins with a short historical profile of a scientist who made a major contribution in the particular field considered, and each chapter ends with a summary of salient points. Between them, the various sections cover everything one would expect from the title — genetics and behaviour, natural selection, evolution and social behaviour, animal perception, the animal and the environment, animal learning, instinct, decision-making in animals, and the mentality of animals. McFarland is at his best on the more psychological topics (the sections on learning and imprinting are especially good). More purely ethological subjects, such as communication and social behaviour, are dealt with less adequately, but surprisingly it is those areas in which McFarland has himself carried out research that are the weakest. This is because he tends to present his own and his students' work at the expense of that of others; for example, in the chapters on optimality and decision-making over 60 per cent of the references relate to work by McFarland and his co-workers. Whilst they have unarguably made an important contribution in this area, it has been overemphasized here. But this is a relatively minor criticism; overall *Animal Behaviour* is an excellent textbook.

The two remaining books, by Slater and by Ridley, are very similar. Both are introductory texts which are aimed, I would imagine, more at sixth-formers than undergraduates. Both are well written and enjoyable to read; both are well illustrated; and both tend to use the same classic (well-worn?) examples.

The title of Slater's book is the more honest as neither book contains much information about experimental psychology; Slater deals with learning in three pages and Ridley in two. In fact, Ridley has some rather surprising gaps: there is only a passing reference to motivation in one paragraph and little information on stimulus selectivity. In general he concentrates on functional explanations rather than causal ones. Slater's book is better balanced, being divided fairly equally between the two approaches. Slater's chapter on motivation is particularly good, and he explains clearly the developments in theory from Lorenz's psychohydraulic model to McFarland's "state space" approach.

The two authors have used different techniques to avoid cluttering the text with references. Ridley provides a brief review of sources at the end of each chapter, while Slater includes references in the figure legends but not the text. This latter strategy can prove irksome, however; if a particular example does not have a figure to accompany it, it is impossible for the reader to trace the paper concerned.

Ridley's book, too, has its irritations. First, his definition of behaviour as a



From *Animal Behaviour* by David McFarland

Following ethology: Konrad Lorenz trailed by imprinted goslings.

series of muscular contractions is too narrow, because it rules out colour changes which can play an important role in communication. Secondly, several of the figures are redundant: for example a whole page (Fig. 1.3) is devoted to a sequence of a gull swallowing a chick (which, incidentally, is not the black-headed gull referred to in the text). Finally, in trying to be concise the book tends to oversimplify, a pitfall that Slater manages to avoid.

Altogether, then, 1985 was a year in which students of animal behaviour were well served by the publishing industry. McFarland's book must rate as one of the best undergraduate textbooks on the subject currently on offer, while Dawkins's would be an excellent basis for a series of tutorials or class discussions. Slater and Ridley have both produced elementary accounts. The two are similar, although Slater provides a more even coverage of the subject. □

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