

Behavioural ecology and the female

Tim Clutton-Brock

Social Behavior of Female Vertebrates.
Edited by Samuel Wasser.
Academic: 1983. Pp.395. \$35, £23.20.

MORE than most other areas of behavioural ecology, studies of social behaviour have suffered from the "Could Be" school of adaptationist interpretation. One of the principal accomplishments of this approach is the ability to transform introductory statements — "the pink coloration typical of flamingoes could be a form of camouflage which allows them to merge into tropical sunsets thus reducing the probability of twilight predation" — into firmer assertions without recourse to direct evidence by the time the Discussion section has been reached. ("By merging into the glaring highlights of tropical sunsets and thus reducing nocturnal mortality, flamingoes can afford to defer reproduction until the onset of senescence and thereby. . .").

The "Could Be" approach is used to float novel hypotheses, buoyed up by heavily selected references. Most of us have contributed to it at some stage, but the standards of evidence in behavioural ecology are rising fast and the general trend is towards the critical evaluation of existing hypotheses and away from the production of new theory. With one or two exceptions, the thirteen chapters of *Social Behavior of Female Vertebrates* reflect this development. The book includes thoughtful reviews of the evolution of polyandry (Erckmann) and the role of bird song in

New in paperback

NOTABLE among recent paperback editions of previously published books is a reprint of Steven Weinberg's classic, *The First Three Minutes*.

The book was first published in Britain in 1977, and was reviewed by John Barrow in *Nature* 267, 291; 1977. The reprint includes a brief Afterword by Weinberg, which brings the story up to date, and is published by Flamingo (an imprint of Fontana Books). Price is £2.50.

William Broad and Nicholas Wade's *Betrayers of the Truth: Fraud and Deceit in the Halls of Science*, which appeared earlier this year, is a more contentious book and had a mixed reception from reviewers. In *Nature*, however, Walter Gratzer called it "most captivating" (302, 774; 1983). A paperback edition has been issued by Touchstone Books, an imprint of Simon & Schuster, at \$6.95.

Among the best of the many books thrown up by the Creationism controversy was Philip Kitcher's *Abusing Science: The Case Against Creationism* (MIT Press, 1982). The Open University Press (12 Cofferdge Close, Stony Stratford, Milton Keynes MK11 1BY, England) has recently published the book in paperback, price £6.95. John Habgood, now Archbishop of York, reviewed *Abusing Science* in *Nature* 300, 118; 1982.

mate choice (Payne), detailed investigations of mate choice in sculpins (Brown and Downhower), altruism in coatis and elephants (Russell and Dublin) and an outstanding analysis of cooperation among Acorn woodpeckers (Koenig, Mumme and Pitelka). Two studies of female strategies in humans suffer from their proximity to the animal papers for this emphasizes the contrasting quality of data available to zoologists and anthropologists.

But why female vertebrates? In the two opening chapters, Hrdy, Williams, Wasser and Waterhouse point to a male bias both in the orientation of early behavioural research and in, the gender of the researchers. More recently, evidence of the extent to which breeding success varies among females has increased and the proportion of female researchers has grown. This, they argue, has been responsible for increasing interest in female reproductive strategies which has quickly shown how inaccurate was the early view of females as the passive subjects of male manipulation.

In places, their history of the sex bias is exaggerated and its attribution to masculine bias a shade too glib. While male bias has certainly been involved, there are reasons why it can be harder to collect detailed data on female breeding strategies than on those of males — female mammals are often less visible than males and their longer breeding lifespans and reduced variance in seasonal success complicate the study of breeding strategies.

However, it is not the past bias against studying females which justifies the focus of the book, but the fact that major insights can be achieved by considering the behaviour of the two sexes separately. The book makes an important contribution in synthesizing recent developments in the study of female behaviour and the next step, as Wasser points out, is to investigate how male and female strategies interact. □

Tim Clutton-Brock is in the Large Animal Research Group of the Department of Zoology, University of Cambridge.

Manna to manure

Richard Bradley

The Farming of Prehistoric Britain.
By P.J. Fowler.
Cambridge University Press: 1983.
Pp.246. £7.50, \$14.95.

SEVERAL years ago the British Broadcasting Corporation persuaded a group of volunteers to build and operate an Iron Age village. The experiment was not a success: some of their animals escaped, crops withered in the fields and replicas of prehistoric implements were difficult to use. To some extent these problems arose because archaeologists themselves were so uncertain how prehistoric Britain was farmed, but the greatest obstacle of all was the lack of a basic textbook setting out what was known and what seemed likely to have happened. Fowler's new book fills that need.

Its subject matter is vast. As late as 4,000 BC, when farming had developed in parts of Europe, the British economy was based on hunting, gathering and fishing. By the Roman Conquest the native population was exporting grain to the Continent. Fowler's book traces the development of prehistoric agriculture from the first clearance of the natural vegetation to the growth of complicated systems of land management. The balance between nature and the human population altered drastically during this time with the transformation of hunter-gatherers into hard-pressed farmers.

Fowler's book has an unusual history, although it hardly shows it. It is a revised and expanded version of his section in the *Agrarian History of England and Wales* (Cambridge University Press, 1981), an

uneven and expensive review of prehistoric farming. The revised text swallows up the fields discussed by other contributors to that volume and covers a longer period of time. The new book — and it is a new book — consists of the original text, a substantial series of additions, amendments and a number of still more recent footnotes. Despite these piecemeal changes, the end result is lucid, lively and convincing. It is less surprising that it is so up to date. Unfortunately, the figures are taken from the earlier volume and in some cases could have been replaced by more recent or more apposite examples.

The book does have certain weaknesses. The major emphasis is upon ecological factors; developments in prehistoric agriculture are caused mainly by population pressure and climatic change. A subsidiary influence may be immigration from abroad. The case is not entirely clear-cut and still more could have been made of internal social factors. For example, it seems likely that by the Iron Age grain supplies were being mobilized as tribute, and this must have influenced farming practice. Again, the text deals mainly with the Bronze and Iron Ages and too little space is devoted to the earlier development of agriculture. Perhaps there is room for a longer second edition.

It is easy to suggest other questions which deserve more attention, but the fact remains that Peter Fowler is the only person who has produced a book of this scope, and he has done it well. It is authoritative but it is never dull. The BBC's Iron Age Family would certainly have found it useful. □

Richard Bradley is Reader in Archaeology at the University of Reading, and author of The Prehistoric Settlement of Britain (Routledge & Kegan Paul, 1978).