

Ways of being catty

Juliet Clutton-Brock

The Domestic Cat: The Biology of Its Behaviour. Edited by Dennis C. Turner and Patrick Bateson. Cambridge University Press: 1989. Pp. 222. Hbk £35, \$59.50; pbk £15, \$22.95.

It is probably because domestic mammals have been held in a certain disdain by zoologists that studies of their behaviour have been so neglected. To observe the behavioural patterns of the leopard, in the wild, will enhance status; it requires large sums of money, complicated equipment and personal courage; to watch the behaviour of the domestic cat requires only time, patience and experience in interpretation, yet the results may yield a greater knowledge of felid behaviour. Perhaps more importantly, they will yield information on the relationships between human beings and their animal companions, a subject that has been submerged for too long in pejorative terms such as 'anthropomorphism' and 'pet-keeping'.

This symposium volume, edited by Turner and Bateson, is the first work to bring together much of the research that has been carried out, in recent years, on the biological basis of behaviour in the domestic cat. It includes reports of studies on reproduction, social life, predatory behaviour, feral cats and house cats, all carried out with exemplary attention to the codes of ethology.

One aspect of research on the cat that is missing from the book is the connection between the patination and colour of the coat and temperament (as distinct from the link between breed and temperament which is discussed by Mendl and Harcourt, p. 48). Karsh (p. 173), when asking what influenced people's choice of a cat, was told by one woman that the personality of her cat was all-important to her. However, she later claimed not to be able to relate to a cat that was all white or all

black, and that she related better to a cat that was grey or striped. Perhaps experience enabled her to predict what the general temperament of the animal would be from its pelage. In his article "Cats and Commerce" (*Scientific American* 237, 100-107; 1977), Todd has postulated that black cats may be less aggressive and more tolerant of crowding than striped tabbies, which might therefore have a more distinctive temperament. Clearly, there is a need for more work on this topic.

An underlying thread in the book is the need to quantify the characteristics of individuality, and perhaps the greatest contribution to ethology that can be made

from domestic animals will come from studies of behavioural variation. For unless a population of wild animals has been habituated, it is very difficult to categorize individual responses. People who live with cats know them as individuals; Mendl and Harcourt (pp. 41-54) have made a start to defining individual variation and the biological significance of behavioural style.

The Domestic Cat is sure to become a classic in the study of behaviour in domestic animals. □

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Out in the open

J.R.S. Fincham

The Release of Genetically-Engineered Micro-Organisms. Edited by M. Sussman, C.H. Collins, F.A. Skinner and D.E. Stewart-Tull. Academic: 1988. Pp. 306. £29.50, \$59.50.

THE molecular cloning of genes and their transfer between different kinds of cells and organisms is now a standard analytical method, practised in almost every modern university biological department, and filling more than half of the pages of the leading biological journals. Anxiety about its safety was quite intense in some quarters in the late 1970s, but has largely died away.

Now we are faced with another wave of concern, this time arising from a wide range of schemes for putting genetically manipulated organisms to use outside the laboratory. Typically, this issue has generated less heat in Britain than in either the United States or continental Europe. This may, perhaps, have been a factor in the choice of Cardiff as the venue for the symposium from which this book stems. Sponsored jointly by the International Union of Microbiological Societies and three of its British and American constituents, it drew together contributions from a selection of the relevant university and institute-based scientists; scientists working in commercial laboratories were less well represented. The published proceedings include 13 papers, and about 100 pages are devoted to rapporteurs' accounts of eight round-table discussions.

The volume was hurried into print a mere seven months or so after the conference, and it suffers from most of the defects that make symposium proceedings (with a few distinguished exceptions) the most ephemeral and least worthwhile of library purchases. It lacks both the coherence of style and argument of a good book and the rigorous presentation of primary data that one expects in a good

journal. The articles are uneven in style, ranging from the unduly terse to the prolix. The round-table reports contain some of the most interesting information, but it tends to be reduced to the status of anecdote by the lack of references. The index is very inadequate.

Nonetheless, this particular symposium volume is likely to attract much interest as a source of up-to-date information about the kinds of environmental release that are in prospect and the purposes that they are intended to serve. The symposium was mainly concerned with three areas of application: agriculture (improved nitrogen fixation and better pest control); biodegradation of chemical wastes; and the development of safe live vaccines. There is only one article (by J.E. Davies) on the present and impending applications to chemical and pharmaceutical industry. Important as these undoubtedly are, they do not involve environmental release but rather scaled-up indoor containment.

A theme running through several of the contributions is the need to ensure that any introduced micro-organism does not persist indefinitely in the environment. Roy Curtiss III proposes various non-lethal mutations, such as deficiency in cyclic AMP, which may militate effectively against long-term survival of engineered bacteria. D.H.L. Bishop *et al.*, in tests of a baculovirus intended for use as a narrow host-range insecticide against a moth, found that a mutant unable to make the polyhedral viral coat was still infectious but did not persist in the soil or on plant surfaces. It is intended, by further engineering, to make the virus even more deleterious to the moth than it is already, but this aspect is not dealt with in the book.

The main point of the article by S.E. Lindow and N.J. Panopoulos is that the now famous ice-minus *Pseudomonas syringae* does not survive well in the soil. Studies on persistence of released bacteria depend, of course, on efficient methods for detection and monitoring, the theme of the article by R.R. Colwell *et al.* Enumeration of soil bacteria by colony

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- *Franklin of Philadelphia* (a biography of Benjamin Franklin) (Harvard University Press). Price is \$12.95, £10.50. For review see *Nature* 322, 23 (1986).
- *Schrödinger: Centenary Celebration of a Polymath* edited by C. W. Kilmister (Cambridge University Press). Price is £12.50, \$22.95. For review see *Nature* 326, 913 (1987).