

At first I wasn't sure how well the first section of the book, 'Basic Issues' fitted with the remainder of the sections which offer more practical suggestions on matters such as environmental enrichment, social housing etc. 'Basic Issues' includes discussions on matters such as whether or not it is appropriate to use the proper pronoun when referring to an animal, whether animals are self-aware and what does 'humane' mean, to list but three of a grab bag of subjects. However, this front section really draws out the importance of creating a culture of respect for all life within research institutions and, although this may appear to be a less well-structured section, it does provide a solid foundation for the manner in which the more practical suggestions, later in the book, should be viewed.

After each section, a summary of the comments has been added. This is useful and may assist readers who want to refer back to suggestions that they had previously read. However, this is not really a reference book. Because the content was drawn from the discussion group, the text is a reflection of the discussions that were posted. Collecting the comments into a book form gives the illusion that the book provides a comprehensive coverage of the topics. That being said, given the context for the development of the content, the range of topics and the depth of coverage are appreciable. This is doubtless thanks to Viktor's careful steering of the discussion group, with his thoughtful interjections from time-to-time, to tease out some of the ways people have addressed particular problems. One of the most useful features of the book is the subject list at the back which should help readers quickly find topics that are of interest. There is also a comprehensive list of references, these were added during the editing process to further contribute to particular discussion topics and are a valuable addition.

The stated goal for the book is to make life easier for animals in research labs, thereby improving the scientific quality of the research data collected from them. As the 'writers' of this book are individuals responsible for caring for the animals used in research, the focus is on making animal lives more comfortable, rather than on the quality of scientific data. Sometimes, it appears that the discussions lose sight of the fact that the animals are being maintained in research labs to be used for experimental purposes. For example, on p 44, during a discussion concerning pair-housing macaques to prevent self-injurious biting (SIB), one discussion thread refers to the fact that the investigator returned a companion macaque to its cage-mate (rather than use him for an experiment), because the cage-mate had reverted to SIB. Presumably, the scientific data was not sacrificed as a result, but if the data from that animal had been necessary in order to provide statistical validity, the complete study (including the other animals in the group) would have been wasted. In other discussion threads, 'complaints' are made about investigators who do not want their animals to receive enrichment devices, or to be group-housed, because of a concern that these practices would increase the variability of the data and invalidate the results. I am always concerned when investigators and animal care staff are portrayed as sitting on two sides of the

same fence, rather than being viewed as working together. Animal care technicians need to have an understanding of the experiments that the animals in their care are being used for, and to work with investigators to improve the welfare of the animals. Similarly, investigators need to understand how housing and husbandry practices can be improved to meet the species-specific needs of the animals, and with the assistance of animal care staff, incorporate that knowledge into their experimental design.

I am hopeful that this book will assist animal care staff to work more effectively with investigators. Part of the difficulty in the acceptance of housing and husbandry refinement, is that these practical improvements are rarely published in the scientific literature and, therefore, remain unknown, except in the local environment or when passed on by word of mouth. If the LAREF discussion group is an excellent first step in this regard, then the publication of the LAREF discussions is an equally excellent second step. I am also hopeful that the publication of this book will assist in underlining the importance of defining husbandry and housing conditions in scientific papers. Publishing refinements in the materials and methods section of scientific papers could raise awareness of the impact of particular housing husbandry conditions on the subsequent animal-derived data, and could also assist in determining factors that may have contributed to the validity (or variability) of the published data.

Viktor Reinhardt, the editors, and everyone who contributed text and photographs to this book should be congratulated. This book should be on the shelf of all animal facilities in research institutions, and should be an inspiration for animal care staff to consider how best to meet the needs of the animals in their care.

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Dog Behaviour, Evolution and Cognition

Ádám Miklósi (2007). Published by Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK. 288 pp Hardback (ISBN 978-0-19-929585-2). £55.00.

This book by Ádám Miklósi provides an excellent overview of the scientific research to-date on the behaviour, evolution and dogs in particular. It starts with two chapters on the conceptual and methodological issues of studying behaviour in general and specifically the behaviour of dogs. The third chapter describes the place of dogs in the current human, or anthropogenic, environment followed by two chapters comparing the dog to the wolf and discussing the evolutionary history and current thinking on the domestication of the dog. The final section is comprised of four chapters on various cognitive aspects, including perception, social capacities and how behaviour develops in the dog. The book finishes with a thought-provoking afterword chapter that highlights the many potential avenues for future research.

One of the main aims of this book seems to be to bring the science of ethology back into the world of dog behaviour. Dogs are the subject of much popular literature and folk beliefs and, hence, their study can often be disregarded as unscientific. By starting with a discussion of the theories of ethology and the objective frameworks available for investigating behaviour, this book sets the scene of evaluating dog behaviour in a truly scientific manner. Throughout the book, the wealth of recent scientific literature now available on dog behaviour is evident and encouraging; providing support for the author's suggestion that dogs in their natural environment may actually provide an ideal model for behavioural research and should be afforded greater attention. The author also ensures that the gaps in current research are highlighted and discussed with enthusiasm, in order to inspire future investigation, giving the reader a sense that this subject is ripe for a renaissance-style stage of development.

Another consistent theme throughout the book is the use of a comparative perspective, most often comparing dogs to wolves and humans. The author believes strongly in the benefits of using a comparative approach to understand behaviour, not least to shed light on how evolution has shaped behaviour of species faced with ecological challenges. The evidence presented discusses many of the similarities and differences between dogs and wolves and explores how different ecological constraints could have driven evolutionary change. The chapter on social cognition is particularly interesting and insightful, especially in highlighting the difference between dogs and wolves in social competence. Furthermore, the comparative perspective is used to highlight the similarity of the ecological challenges faced by humans and dogs, in particular when discussing social cognition. Through the process of domestication, dogs have been faced with the challenge of succeeding in the social world of humans; as such, humans and dogs have shared some of the same pressures and hence potentially show a convergent evolutionary history.

The chapter on domestication tackles the, sometimes competing, theories of dog evolution and the different methodologies available to investigate evolutionary history.

This chapter is at times a little indigestible, as the subject is complex and the costs and benefits of using different methodologies are not immediately obvious, hence it is difficult as a reader to draw conclusions as to the true evolutionary processes. However, the following sections on how the physical attributes of dogs have evolved in different and sometimes surprising ways and a detailed discussion of the extremely focused experiments on fox domestication are engaging.

There is useful discussion of the challenges and benefits of studying the dog in its natural environment as a companion animal, pointing out one of the greatest benefits of studying dogs is the insights they can provide for understanding human behaviour and hence research must be conducted in the 'normal' anthropogenic environment as opposed to the sterility of a laboratory. The benefit of such research to the dogs themselves is also alluded to in the chapter describing the

role of dogs in society and situations where this relationship can become problematic, such as aggression between dogs and humans, roaming dogs and challenges faced by dogs in shelters. In general, more discussion of the potential to apply much of the behavioural research to real life problems would have been beneficial, and interesting to many readers.

The descriptions of cognitive abilities in chapters 6–8 were a very interesting read, especially the sections covering the more complex cognitive abilities such as those involved in social situations. By relating these findings to the ecological importance of these cognitive abilities, and comparing them to other species, the author gave these findings real relevance and context. Although potentially less interesting, some discussion of the more simple cognitive learning processes would have been good for completeness.

The summary of peer-reviewed scientific research and identification of potential avenues for new investigation make this book an ideal text for any student or researcher with an interest in the study of dogs themselves, or wishing to use dogs as a comparative species. As someone engaged in dealing with the challenges faced by dogs, in an applied practical sense, I found this text excellent for re-establishing my knowledge of the many recent advances in scientific research into dog behaviour, evolution and cognition and in general a very enjoyable and refreshing read.

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Where the Wild Things are Now: Domestication Reconsidered

Edited by R Cassidy and M Mullin (2007). Published by Berg Publishers, Angel Court, 81 St Clements Street, Oxford OX4 1AW, UK. 320 pp Paperback (978-1-84520-153-1). £19.99.

Most biologists will be familiar with the morphological and behavioural differences, such as gracilisation, reduced body size, and reduced flight responses, that distinguish domesticated animals from their wild ancestors. For example, Belyaev and Trut's 50-year experiment to domesticate the silver fox showing that intentional selection for tameness also produced unintentional selection of other neotonic characteristics, such as a shortened muzzle and begging behaviour, is now something of a classic. Some authors even suggest that the behavioural and somatic changes that characterise neotony are not just an outcome of domestication, but a prerequisite for it.

Anthropologists have a rich bank of literature that deals with much wider aspects of domestication than simply changes in behaviour or morphology. Juliet Clutton-Brock, perhaps one of the most widely-cited authors on the subject, emphasised the mastery of animals by humans for economic gain. She defined domesticated animals as those "bred in captivity for purposes of economic profit to a human community that maintains complete mastery over its breeding, organization of territory and food supply"