

## Book Reviews

### *The Social Dog: Behaviour and Cognition*

Edited by J Kaminski and S Marshall-Pescini (2014). Published by Academic Press, 32 Jamestown Road, London NW1 7BY, UK. 404 pages Paperback (ISBN: 978-0-12-407818-5). Price £36.99, US\$59.95.

The domestic dog has come to be labelled as ‘the new chimpanzee’, as research groups around the world, some of them former primatologists, turn to a more accessible species for their investigations of animal intelligence. This multi-author work draws together several different research strands, including the effects of domestication, how dogs interact with one another, how they interact with humans, and how scientists currently think that they think. Unlike most previous books on dog behaviour, the authors are exclusively drawn from the ‘new generation’ of canine scientists in whose hands studies of dog behaviour have escalated in the past fifteen or so years, and almost all are based in Europe, breaking the earlier domination of the field by US-based scholars: no Fox, Coppinger, Serpell, Hart, Bekoff, Wynne or even (from the ‘new generation’) Hare or Horowitz. Not all the chapters are particularly easy to read, perhaps because many of the authors are not writing in their first language. About one-quarter of the authors hail from Budapest, reflecting the funding that the Hungarian government appears to have poured into this field over the past few decades: inevitably, this means that there is significant overlap with the second (2016) edition of Ádám Miklósi’s book *Dog Behaviour, Evolution & Cognition* (Oxford University Press).

I’ve had *The Social Dog* on my shelves for a couple of years now, and have found it to be a useful source of references — the literature on dog cognition can crop up in some unlikely journals, and also, as is commonplace in such books, quite a number of otherwise unpublished studies are featured. My prompt for producing a review of this book now is the appearance of a paper (Arden *et al* 2016) which re-analyses over 250 recent studies into canine cognition and concludes, based on statistical arguments, that in all but a minuscule few the number of dogs included would have been inadequate to produce reliable conclusions — perhaps accounting for the many passages in *The Social Dog* that attempt to reconcile apparently conflicting findings.

Studies of dog behaviour are notoriously difficult to replicate, not only because in morphological terms the dog is the most variable mammalian species on the planet, but also because its social behaviour is unprecedentedly plastic — dingoes and ‘handbag dogs’ belong to the same species and differ little in their DNA. One bias which may be a hangover from a training in primatology — or simply betray scientists’ anthropomorphic biases — is the lack of attention to the dog’s superior nose when designing and interpreting studies: dogs may be able to solve all sorts of problems using olfactory information when the observer is presuming that only visual and auditory cues need to be

controlled for. Also drawing on the tradition of primate studies, sample sizes of one are not unheard of in canine science (Chaser, Rico, Sophia and Bailey being examples of dog ‘geniuses’ whose abilities have featured in high-profile papers). It’s therefore unclear which cognitive skills are characteristic of dogs as a species, and which are only possessed by a handful of highly unusual (perhaps because highly and specifically trained) animals.

There are real implications for welfare in such misapprehensions: several canine scientists have actively promoted the idea that dogs understand human language, unwittingly empowering dog owners to punish their dogs for failing to comprehend verbal instructions for which no training has been done. Thankfully, these issues are carefully dissected in Chapter 5 of *The Social Dog*, with the conclusion that while dogs are capable of label learning (‘Sit’ means an action, ‘Teddy’ means an object), and can recognise both the identity and emotional state of the human uttering the words, there is no good evidence that they process our utterances in the much more sophisticated ways that humans do.

The main contributions that this book makes to animal welfare can be found in the two concluding chapters, which describe new methods of assessing the welfare status of dogs: the use of the ‘cognitive bias’ paradigm to detect ‘mood’, and external signs of the lateralisation of some brain functions. Comparing the well-being of one domestic dog with another is far from straightforward: at the population level, common sense behavioural indicators correlate only loosely with putative physiological indicators, and urinary cortisol levels are nigh-on uninterpretable, except when they are found to change within an individual dog between one situation and another (Rooney & Bradshaw 2014). Novel approaches are therefore to be welcomed but may turn out to be as difficult to interpret as their more conventional counterparts. The ‘cognitive bias’ test, which measures motivation to achieve uncertain goals, has been found to work as well with honeybees as with dogs, raising the possibility that the test does not measure emotional states directly, but rather reflects the output of a much simpler system that merely “tracks... experiences of rewarding and punishing events in the environment” (Mendl *et al* 2011). Lateralisation may be equally difficult to interpret: Professor Gregory Berns of Emory College in New York, the world’s leading expert on the use of fMRI on dogs “We see lateralization all the time in our dog studies, as well as human studies, but we don’t usually ascribe any functional significance to it” (Neuroskeptic 2016).

A third chapter with some welfare significance, by Professor Daniel Mills and colleagues at the University of Lincoln, examines problematic behaviour, and its unexpectedly complex relationship with the bond between dog and owner, noting, for example, that one dog’s annoying attention-seeking behaviour is another’s cherished display of affection. Those who attempt to resolve the behavioural clashes between dogs and humans know only too well that ‘the bond’

is much more complicated and internally contradictory than the rose-tinted version portrayed by the popular press: this chapter provides a useful dissection of its many facets.

Several chapters mention the long-running controversy over whether dogs living in groups form dominance hierarchies: for example (from Chapter 3 by Robert Bonanni and Simona Cafazzo) “there have been many claims that dogs’ social relationships cannot be *described* in terms of a dominance-subordination paradigm” (my italics). No self-respecting ethologist would claim that no attempt should be made to *describe* relationships within any social group in hierarchical terms but by ethologists who understand that their ‘hierarchy’ is a mathematical abstraction and not a *de facto* invitation to mete out punishment. The more important questions are: is a hierarchical system the most comprehensive way of summarising how the group typically interacts (with dogs, the answer may be sometimes, but by no means always); and, are the animals themselves aware of their position in any ‘hierarchy’, and if not, whether training methods based on ‘status reduction’ are (a) likely to be effective and (b) cruel?

The remainder of the book may be of less interest to animal welfare scientists, but contains some useful summaries of several research areas. The chapter on vocal communication is particularly well constructed, both in its coverage of the literature and in considering various contentious issues, such as which aspects of human language the average dog might or might not comprehend, and how the basic canid repertoire of vocal calls may have been modified by domestication. Hence, it’s a pity that coverage of visual and especially olfactory communication is notable by its absence. Other chapters betray the anthropocentric biases in much cognitive testing of dogs, such as the need to make comparisons with the capabilities of human infants of different ages (why would anyone expect the canid brain to develop in parallel with the human brain?) and the use of the Ainsworth Strange Situation Test (why is it so important to demonstrate that dogs use familiar adult humans as a ‘secure base’ in the same way as children do, when their attachment to their owner is, according to Chapter 1, likely derived from canid pair-bonding?). Chapter 9 rehearses the dubious conclusion that when dogs yawn they are displaying ‘emotional contagion’, despite other authors considering that it can be an indicator of motivational conflict and hence stress, or (in pet dogs) a behaviour that is regularly repeated because it has been rewarded by the owners’ attention.

Research into canid cognition is still a fast-growing field, but perhaps because it is often the subject of much media interest, individual studies can be given far more emphasis than perhaps even their authors intended. It can therefore appear to advance as a progression of ‘breakthroughs’, each of which may, with hindsight, turn out to have been somewhat overblown, even misleading. *The Social Dog* provides a useful snapshot of several aspects of the field as it was a few years ago, but those interested in a more rounded version of the behavioural biology of dogs might

also wish to consider the long-overdue second edition of James Serpell’s *The Domestic Dog: Its Evolution, Behaviour and Interactions with People* (Cambridge University Press), or for those with deep pockets, Alexandra Horowitz’s *Domestic Dog Cognition and Behavior* (Springer).

## References

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## **Common Diseases of Companion Animals, Third Edition**

A Summers (2014). Published by Elsevier Mosby, Elsevier’s Health Rights Sciences Department, Philadelphia USA. 602 pages Paperback (ISBN 978-0-323-10126-4). Price £44.99.

Now here’s a bold statement: “the era where individual clinical expertise across all topics and all species is assumed for veterinary professionals is dead”. Let’s repeat and rephrase that one: veterinary professionals no longer need to pretend or even aspire to know everything about everything. Omniscience is no longer a fundamental veterinary requirement in the modern world. Nowadays, there are just too many things to know; keeping up-to-date and mentally retaining every new development is no longer possible. Once upon a time, the public assumed that every veterinary professional, be they a veterinary surgeon or a veterinary technician/nurse, could be relied upon to instantly know the answer to any and every medical question thrown at them. But we are now in the new digital age where the volume of data available on the matrix of species/diseases/diagnostics/treatments is ever-widening. This means that it is far more sensible for individuals to retain a working core of clinical facts and to rely on recourse to a reliable reference source to confirm and extend these facts as and when needed. Consequently, veterinary patients will always receive the best possible clinical care and every new clinical case offers a new learning opportunity to the clinical team (Haynes *et al* 2002).

However, for the modern veterinary technician/nurse, this raises the thorny question about where to find the optimal source of information that is relevant and reliable for the