

depending on their particular use of the land, and their views of elephants. The authors also contrast the views of conservationists, who want to establish boundaries between human and elephant populations in the landscape with those of hunter gatherers, who may advocate mutual tolerance and co-existence on the landscape. This latter viewpoint has not commonly been considered, and incorporating it might help to broaden the range of possible resolutions to human/elephant conflict.

The organisation and progression of the book chapters reflects the presentations given at the symposium, so coherence in subject matter between chapters is not always tight, and there is overlap on topics across different chapters. This results in some repetition but also has the benefit that it presents different points of view.

This book provides a fairly comprehensive overview of the relationships and conflicts between humans and elephants in south and south-east Asia. The cultural context approach offered by some of the authors is unusual and intriguing and could be useful in informing more effective strategies for intervention by land use planners and policy-makers. However, cultural context can either be limiting or enabling, depending on how that culture regards elephants. The authors advocate making use of that aspect of the culture which supports a better relationship with elephants. If there is more effort to work with people that are invested in the elephants, either through their work (eg as mahouts or harvesting timber) or through their beliefs about elephants, this could be used as an avenue for change, to improve the well-being of elephant populations in the region.

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Efficient Livestock Handling: The Practical Application of Welfare and Behavioural Science, First Edition

BV Beaver and DL Höglund (2015). Published by Elsevier, Kidlington, Oxford OX5 1GB, UK. 234 pages Paperback (ISBN: 978-0124186705). Price £36.54.

The thesis of this text is clearly outlined on the back cover: in order to handle livestock effectively and safely, one needs to understand the underlying basis of animal behaviour; particularly how livestock learn. The authors contend that such an understanding will require that stockpersons question their existing practices, and that they should be prepared to change from what they have previously done (or been told to do) to handling methods that have a sound scientific basis. In my view, these are admirable objectives; for example, the national statistics in the UK show that, on average, five people die and

many others are seriously injured each year by livestock, suggesting that there is still a need for better handling and management of livestock. So, my key question when reading this text was: to what degree have the authors achieved their goal?

The book is structured in two broad parts. Chapters 1-4 consider the history of livestock handling; and, respectively, the underlying roles played in handling by: the senses and behaviour; genetics, environment and hormones; and learning. The second part, Chapters 5-9, applies the science to handling different animal groups: horses; dairy cattle; beef cattle; swine; sheep and goats. The authors do not make a clear statement about the potential audience, but I would guess that it is students on university or college courses who are likely to pursue careers in livestock handling.

I was pleased to see that several chapters include many references for the curious reader who wishes to explore the literature further, but I have a few issues with the sources that were cited. In my opinion, there were some key gaps and some citations to sources that were worthy when first published, but which have now been superseded (eg Hafez 1975). I am a strong supporter of citing landmark publications to provide contextual background, and the authors acknowledged the impact that Ruth Harrison's book, *Animal Machines*, and the subsequent Brambell Report had on animal welfare priorities (Harrison 1964; HMSO 1965); but they did not cite the sources. Also, on a few occasions, general points about behaviour and sensory perception were made about all livestock on the basis of a single source that was focused solely on horses; and the use of a particular equine behaviour textbook as a key source continued through the species-specific chapters. I think that the authors could have used the framework of Tinbergen's four questions to their advantage as the subject matter required consideration of mechanism, learning, evolution and function. Tinbergen is mentioned, but it is his 1951 book, *On Instinct*, that is used by the authors to reinforce the notion that the discussion of emotions or subjective experience in non-human species is not scientific. This was certainly his view, and is still held by some, but others, including many who have published in this journal take a different stance. The authors were right to identify that the behaviour of livestock had its origins in the species that were the source of our current domesticated livestock; but there was no mention of the work of researchers such as Jensen, Stolba, Wood-Gush (pigs) and Hunter and Milner (sheep) who, respectively, explored the behaviour of those livestock species in extensive systems in order to provide scientific underpinning of livestock husbandry (Hunter & Milner 1963; Jensen & Wood-Gush 1984; Stolba & Wood-Gush 1989). Also, on a number of occasions in the later chapters, I think that a reference to the question of ontogeny would have been helpful in reminding the reader about the importance of early experience in influencing later behaviour.

Whilst the authors are very clear on the need to encourage practitioners to move toward evidence-based practice, I found too many generalities, loose language and lack of clear definitions to the extent that I do not think that they have achieved their goal. For example, the authors expressed the view that it was not possible to define stress (although they did state that distress was worse than stress). They frequently referred to cortisol as the stress hormone but did not explain that it is secreted at times of arousal and, therefore, its secretion may be indicative of either positive or negative affective states and thus require behavioural observations to confirm their valence of such responses (Mason & Mendl 1993); indeed, the notion of affective states was generally absent throughout the book. Similarly, while I wholly agree that an understanding of genetics is valuable as an animal's genotype affects its behaviour, the entire discussion seemed to revolve around single gene effects: there was no mention of some variability being due to the combined effects of several genes; and only a couple of paragraphs on some extremely specific gene-environment effects.

Given this journal's subject matter, I was disappointed that there was not a greater consideration of the impact of handling on animal welfare (nor was it defined along with many other key terms); I was also particularly concerned at the emphasis on negative reinforcement (particularly in relation to horses), and the use of electric prods in cattle-handling without any significant questioning of such practices.

I was impressed by the coverage of loading horses; and, also, the emphasis on planning, before starting, any handling operations. Having been involved as an expert in numerous legal cases in which people have been injured or killed by livestock, this particular point cannot be stressed enough in my experience. Indeed, if there is no planning before handling, this implicitly leads to an uncritical continuation of old practices — and that would be at odds with the goal of this book.

The book contains many diagrams that clearly illustrate the process of moving livestock, and a website has been created by one of the authors that includes some useful video clips. However, some of the diagrams are not consistent with the text. For example, the text associated with Figure 5.5 states: "... the handler... staying no farther forward than the shoulder and no farther back than its hip"; but the diagram shows the handler well behind the horse. Similarly, Figure 2.12 included a time budget for dairy cattle that did not include rumination (the beef cattle time budget did). The lack of adequate proof-reading really distracted my reading of the book: there are inconsistencies and far too many typographical errors, a few of which rendered sentences impossible to understand.

In summary, I feel that the objectives of the book were extremely worthy; and I am sincerely disappointed that it did not entirely achieve its goals. As a consequence of its various deficiencies, I think that naïve readers of this text would experience some confusion and thus not be ready to move forward in evidence-based efficient livestock handling.

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The Domestic Dog: Its Evolution, Behavior and Interactions with People, Second Edition

Edited by J Serpell (2017). Published by Cambridge University Press, Shaftesbury Road, Cambridge CB2 8BS, UK. 422 pages Paperback (ISBN: 978-1-107-69934-2). Price £34.99.

The first edition of *The Domestic Dog* was a hugely popular text featuring on the bookshelves of many with an interest in and enthusiasm for dogs and will undoubtedly be well-thumbed and dog-eared by those who have the pleasure of studying them. This, the second edition, is therefore a long-awaited and anticipated update. In the last 22 years, there have been significant advances in our understanding of the domestic dog and this book presents an impressive overview of the vast body of knowledge collated throughout that time, offering an up-to-date and comprehensive text.

The book is organised into four different parts. The first part comprises three chapters describing the origins and evolution of the dog. Part II, the largest of the four, hosts eight chapters exploring behaviour, cognition and training. The three chapters forming part III explore the relationships between dogs and people and how each impacts upon the other. The final five chapters of part IV: 'Life on the margins', focuses on dogs on the periphery of society, the problems they face and how they might be managed. Of the 20 different chapters, seven are entirely new; reflecting research areas which did not exist twenty years ago, or which at the time, were in their infancy. Contributions are made by both original and new authors. The multitude of different breeds fulfilling roles from companionship through to those upon whom certain parts of human society are heavily reliant, eg dogs serving in assistance or service roles, are featured. As well as these, the book also features dogs living wild or feral on the fringes of human society.