

knock out and mutation studies. Clearly, there is a need for well-informed ethical decisions. Sandøe *et al* discuss the need for a dialogue based on a clear understanding of the issues, and the considerations that need to be taken into account. Some researchers take the view that existing legislation in Europe covers the development and use of transgenic animals but there is public concern, and some disagreement on this matter. There is, perhaps then, reason for cautious encouragement to read in the chapter by de Greeve and de Leeuw that the Committee of Ministers are considering a conference which ‘...could prepare the way for determining the need to draw up a new Convention covering bio-ethical aspects of biotechnology’. The mills of Europe certainly grind slowly!

This booklet is expensive for its size (approximately £60), but will be useful for those who are developing policy, or are teaching on transgenic animal use.

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***Animal Consciousness and Animal Ethics: Perspectives from the Netherlands***

Marcel Dol, Soemini Kasanmoentalib, Susanne Lijmbach, Esteban Rivas and Ruud van den Bos (eds) (1997). Van Gorcum & Comp bv: The Netherlands. 252pp. Paperback. Obtainable from the publishers, Industrieweg 38, P O Box 43, NL-9400 AA Assen, The Netherlands or Books International Inc, P O Box 605, Herndon, VA 22070, USA (ISBN 90 232 3215 1). Price Dfl59.90 or US\$33.

In the preface of this book, a number of questions are present: ‘Are non-human animals really conscious? And if so, is their consciousness radically different or relatively similar to human consciousness? On what grounds may one infer consciousness in other animals? What is the relationship between consciousness and welfare of animals?’ The aim of this book is to discuss these questions and to present possible solutions to the associated problems.

Sixteen Dutch authors attempt to do this in the fifteen essays in the book. The chapters are arranged in three major sections. In Part I – Philosophy and Animal Consciousness, the authors of the five chapters attempt to define consciousness and to discuss its implications for animal welfare. The arguments and solutions that are suggested are varied and often conflicting. Several of the essays contain reviews of past philosophical debates of consciousness, but despite the complex and multi-faceted arguments presented it seems that on the subject of animal welfare, most authors fall back on the old ‘benefit of the doubt’ approach.

In Part II – Science and Animal Consciousness, a further five authors turn their thoughts to the evidence for consciousness. These chapters focus more closely on the contribution of science to animal welfare, each author drawing on specific studies and theories to support his/her particular thesis. The result is an entertaining mixture of opinions, some of which are completely diametrical. The theses range from Piet Wiepkema’s argument that all vertebrates are so closely homologous in their strategies and mechanisms of homeostasis that they must share motivation and emotion, to Bob Bermond’s proposition that only anthropoid apes and dolphins have well developed pre-frontal cortexes, so only these animals can suffer. The most detailed discussion of the use of scientific research to improve animal welfare is given by Francien de Jonge in her description of the Stolba Family Stall system for the group

housing of sows and piglets. She argues that there is a need for knowledge of the wild and feral behaviour of the animal in order to draw boundaries within which more detailed research can be conducted. She reasons that ethological studies are of great value when designing housing systems that allow a natural behavioural repertoire. Although this case study is interesting, it has little to do with the consciousness debate, for as de Jonge points out, ethology can identify 'emotional behaviour' which is visible, but to infer the relevance of this behaviour to animal welfare it must be assumed that emotional behaviour is the outward expression of subjective emotional experiences. So in any assessment of animal welfare we assume, rather than know, that behaviour is indicative of feeling.

Part III (Ethics and Animal Consciousness) is the section in which attempts are made to provide practical guidelines for animal welfare. Unfortunately there is as much debate and controversy on this issue as on those in the previous sections, and there is no sign of a universally accepted policy for animal welfare. Estaban Rivas suggests using a strictly egalitarian ethic towards the treatment of animals – but softens the implications of this view by including the words 'conscious animals' in his summary: 'Basically, the current egalitarian treatment of humans in society should be extended to all conscious animals', this just passes responsibility back to the scientists and philosophers to decide which animals fulfil this criterion. Tjard de Cock Buning, however, advocates giving conscious animals control of their situation in order to be sure that their welfare is not compromised. By this he means that consciousness is an awareness of the world around an animal, and that 'a vital focus of attention for an animal trying to survive is to stay in control of its situation'. Prolonged inability to escape from undesirable circumstances results in stress, for in these cases things are beyond the animal's control. To ensure the welfare of the animals we use, he says, we should 'imagine, in advance, in what manner our proposed acts will disturb the feeling of control the animal under our dominion' (sic). He concludes by asserting that we should guarantee full control to all animals which we encounter. Admirable as all these views may be, they are doomed to remain idealistic dogma, for they are too impractical for animal welfare legislation, which needs less extreme measures in order to have them accepted by policy makers. Frans Brom's suggestion of 'good animal life' is perhaps the most sensible recommendation, but it relies on the scientists to identify such situations.

This book is less informative than it is a catalogue of beliefs, each author arguing with evangelical fervour that it is their view which is right. The clearest picture of the current state of the animal consciousness question is given, not by any single essay, but by the very fact that there is so much disagreement. Although it is an interesting book, it is hard to draw any firm conclusions on the issues addressed at the start.

It is difficult to say who the target audience for this book should be. The preface suggests that it should be 'of interest to all scientists and philosophers, policy makers and public officials, as well as the general public'. I think this is rather ambitious, but I do think that the arguments presented here would be read with interest by those working in animal welfare, and could provide lively debate for undergraduate seminars and tutorials. My final caveat is that most of the chapters contain some spelling errors and grammatical mistakes which could lead to negative subjective experiences for some readers.

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