

by Paul Hemsworth and others. Andrew Fisher notes that, whereas animals may need time to adapt to experimental housing and procedures that can affect the results of physiological experiments, the reverse could be true for experiments examining, for example, the effects of handling.

A particularly interesting contribution from Deborah Middleton describes the potential to reduce pain and suffering by applying the 'humane end points' that have been developed by CSIRO (the Commonwealth Scientific and Industrial Research Organisation). The example given considers the development of vaccines for classical swine fever. By carefully and systematically recording behaviour and other parameters, the clinical outcome was compared against these records. It was found that three clinical outcomes inevitably led to death some time later. In subsequent experiments, once animals reached any of those states they were euthanased and saved from prolonged pain and suffering without compromising the scientific objectives.

Neville Gregory points out that "understanding the breadth of attitudes towards animal welfare will assist us in deciding what society considers is right or wrong for animals". He also notes that there are some examples of paradoxes in attitudes towards animals amongst the public. One example of this is provided by a paper that describes how medics had moved on to farm animals such as sheep and pigs when public attitudes hardened against the use of primates and dogs as surgical models. In his excellent philosophical consideration of the topic as a whole, Andrew Brennan argues for consistency in the standards (particularly of health and welfare) applied to animal work.

The book is clearly set out with logical sections, and fulfils its aim of providing a balanced and wide-ranging analysis of the theme. It is a good read not only as an overview but also in that it provides a well-referenced entrée to any of the areas considered. With industries ranging from farming to pharmaceutical multinationals, animals ranging from crocodiles to fish, and topics ranging from animal rights to xenotransplantation, there is bound to be something new for everybody.

Claire Weeks

School of Veterinary Science

University of Bristol, UK

Introduction to Animal Technology, 2nd Edition

Revised by S W Barnett (2001). Published for the Institute of Animal Technology by Blackwell Science Ltd, Osney Mead, Oxford OX2 0EL, UK. Distributed by Marston Book Services Ltd, P O Box 269, Abingdon, Oxon OX14 4YN, UK, or Iowa State University Press (A Blackwell Science Company), 2121 S. State Avenue, Ames, Iowa 50014-8300, USA. 128 pp. Paperback (ISBN 0 632 05594 4). Price £24.95, or £19.95 for IAT members.

This book has been written specifically as an introduction for animal technicians and closely follows the syllabus for the animal technology unit of the Institute of Animal Technology (IAT) Certificate examination. The subject matter of the book, however, will be of interest to all those working with the species covered. There are 15 chapters with a total of 142 photographs and nine line drawings. Fifty-seven of the photographs are in colour in a section illustrating handling and sexing. Some of the chapters are very brief, such as that entitled 'The animal house' which has only three pages, whereas the chapters on 'Safety' and on 'Feeding and watering' are each 13 pages long.

The first chapter covers 'Animal health', providing a good guide for recognition of the various signs of ill health and detailing of some of the actions that can be taken to ameliorate the conditions described. Most of the text and all of the helpful illustrations in this chapter concern rabbits; although some of the conditions described are found in other species as well, it would have been useful to also include some information and illustrations covering problems in other species.

The chapters on 'Caging and housing' and on 'The animal house' contain fairly standard material with nothing new, and they show very little evidence of the environmental enrichment that is now considered an important part of the care of caged animals. The control and monitoring of the animal house environment is well covered and is right up to date, with an illustration of a computer screen showing the building management system. The chapter headed 'Routine animal house procedures' is confusing, as it is devoted entirely and comprehensively to bedding and nesting materials for animal cages. Four illustrations show some degree of environment enrichment for a dog, mouse, ferret and some rabbits, but a better description than 'Des Res' would have helped the uninitiated to understand what the mouse was peering out of.

Fittingly for a book for animal technicians, hygiene is well covered, with details of all the commonly used methods of cleaning, disinfecting and sterilising. The reader is constantly reminded to follow the manufacturer's instructions when using disinfectants, but a few words about the limitations of the various types of disinfectants, such as the common materials that inactivate some of them, would have been useful.

Feeding and watering is comprehensively covered, with tables showing typical diets for rats, mice, guinea pigs and rabbits and useful information about diet storage. Common food pests are described and well illustrated. The various ways of offering water are described, but a few more illustrations here would have been helpful.

The chapter on 'Breeding common laboratory animals' gives adequate information for the species covered, which, as the title says, are the common species and are those that young technicians are expected to know about for their IAT Certificate examinations. In some chapters marmosets get a mention and it is not clear if these are on the syllabus or not. The next chapter on 'The physical development of young animals' hardly qualifies as a chapter as it comprises one page of text, two useful tables and a graph showing growth curves. This is all useful information, but one wonders why this was not included in the previous chapter.

The next chapter covers methods of marking animals for identification, which is essential for experimental work. The subject is well covered with illustrations of many of the marking devices used. It is right up to date, with details of electronic tagging and illustrations of an applicator for the subcutaneous placing of transponders and of a transponder reader. 'Experimental procedures' are the next topic and, although intended for experimental animal technicians, veterinary nurses would find the information on routes of administration of fluids and on sample collection useful in their field of animal care. Euthanasia is an important topic for animal technicians as they are so often the people to carry out this unfortunately necessary task wherever animals are involved. It is well covered in this book, starting with the reasons why an animal may have to be killed, followed by various methods, and ending with details on recognising the signs to ensure that the animal is dead.

Chapter 13 is necessarily long as it comprehensively covers the Animals (Scientific Procedures) Act of 1986 — the Act that now controls all experimental work using animals. By the very nature of their position, laboratory animal technicians are the correct people to ensure that the conditions of this Act are observed and because of this they often, and quite

rightly, have a good working relationship with the Home Office Inspector. It is most important that they have a good knowledge of the conditions set down in the Act.

The chapter on 'Handling and sexing' above all others justifies a wider readership than just laboratory animal technicians. The subject is well covered in the text and aided by an excellent set of coloured illustrations. Anyone whose job involves handling animals would do well to read this chapter. There is a certain philosophy that suggests it is better to attempt to handle an animal not knowing that it may bite. The reader is not told that ferrets and rabbits can inflict nasty bites — perhaps this is the correct approach.

A few years ago, a chapter devoted to safety would not have been found in any technical manual. It is, quite rightly, now considered to be a vital part of any technician's training programme. This chapter covers all areas of risk that are likely to be encountered by animal technicians, including biohazards and electrical, chemical and animal-handling hazards. Although most of these are specific to the laboratory environment, there are parts of this chapter that would be useful to anyone working with animals. The book ends with a useful glossary that will help trainee animal technicians understand some of the written information they will be expected to read.

This book lives up to its title in as much as it is a good introduction to animal technology. It covers, sometimes rather briefly, most of the material on the syllabus of the Institute of Animal Technology Certificate examination. Perhaps in the future it may be combined with the information covering the more advanced qualifications of the IAT. If so, the result would be a book that would appeal to a much larger readership in much the same way as does the UFAW Handbook.

Alan Mowlem
Water Farm Goat Centre
Somerset, UK