

used in different situations, eg sports, entertainment, exotic animals in captivity, shelters, etc. There is an interesting section on sentience in amphibians, reptiles, fish and invertebrates. Finally, methods of euthanasia are discussed and summarised in table form. The authors recommend the UFAW series as: “perhaps the best reference material” for “current thinking concerning welfare”.

Part C, on methodology, provides lists of methods and background information, such as regulations on euthanasia. Elaborating on the applications of these methods appears to be beyond the scope of this book. The animal welfare implications are once again addressed here. For instance, the chapter on clinical examination (chapter 6) includes sections on euthanasia, abuse of animals, sexual assaults, starvation, obesity, neglect, injuries and wounds and transportation. This part of the book also provides more detail about clinical work, pathology and post mortem examinations, and applications of various disciplines, such as forensic entomology, paleopathology, forensic odontology, and others. Different types of laboratory investigations are discussed. A table presents a comprehensive list of techniques/methods. Other topics in this section include site visits, fieldwork, record keeping, collation and analysis, storage, labelling and presentation of material. The chapter on ‘Serving as an expert and appearing in court’ (12), is clearly and concisely written, and is particularly useful for veterinarians as it fills a common gap in veterinary education. It also provides good advice on preparing to act as a veterinary expert witness. Abundant further reading for each subject in the text is provided.

Part D contributes practical help as it presents a collection of suggested formats of submission forms, certificates, expert witness reports, and other paperwork which all serve as documents in court. Although these are to be taken as examples mostly suitable to the UK, they provide suggestions and guidelines for other situations and countries. In line with the style of the rest of the book, comprehensive lists of societies, organisations, useful addresses, publications and sources of information are presented. There is also a glossary list which will be of particular interest to non-veterinarians. An appendix (D) shows 11 case studies as examples of applied forensic medicine and includes equipment lists and a table with a simple list of English and scientific names of several animal species. The code of practice of The Council for the Registration of Forensic Practitioners is reproduced in an appendix. Finally, a list of references and further reading is provided.

This volume is a pleasure to read. The layout is clear and consistent throughout all the chapters. Additional help is included via the glossary, the list of abbreviations and definitions. Tables and figures summarise and classify information. Some topics, though, are repeated under the various chapters and some figures are slightly oversimplified and may not be necessary as the contents are explained in the text.

Readers of *Introduction to Veterinary and Comparative Forensic Medicine* are provided with a profound insight into the general aspects and diversity of disciplines

involved in forensic medicine. This book provides general knowledge, guidelines, comments and simplified explanations of the various techniques involved but without elaborating on them in detail. It appears not to be the aim of this book to report any new data or provide specialised or detailed information on particular disciplines. Instead, plenty of references show the reader where to find further information on specific topics. This book not only informs but also stimulates thinking as it presents concepts from all points of view. In this way, it also helps widen the understanding of different cultures. This book serves the purpose of providing a comprehensive overview and, indeed, an excellent introduction to veterinary and comparative forensic medicine.

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### **Manual of Animal Technology**

Edited by S Barnett (2007). Published by Blackwell Publishing Ltd, 9600 Garsington Road, Oxford OX4 2DQ, UK. 440 pp Paperback (ISBN 978-06-3205-593-7). Price £49.50, €82.00.

The objective of writing a manual covering topics of importance to technical staff in laboratory animal facilities is good and worthwhile. It is a pity, however, that this book seems to have had such a long gestation period as the majority of the references are outdated (some seem to be updated only up to 1995). Up-to-date topics such as environmental enrichment and the revised CoE appendix A are hardly mentioned. Some chapters are overloaded with information that is overly specialised while others are lacking important items; the result being that contents come across as unbalanced.

The book contains 42 chapters and one appendix. Chapter 1 deals with the supply and production of protected animals and describes different breeding systems and record keeping.

Chapters 2–13 are the chapters on specific species: mouse, rat, hamster, Guinea pig, rabbit, ferret, cat, dog, marmoset, old world primates (with focus on *Cynomolgus* spp and Rhesus macaques), zebrafish and *Xenopus* spp. Unfortunately, pictures of handling and sexing (useful for the target group) are missing. The information is inconsistent, eg it is mentioned that rats can develop stereotypies when individually housed but, in the following chapter, the same case is not made for mice despite the fact that mice show stereotypies more frequently. In the Guinea pig chapter it is advised to cover the top cages in the rack to protect albino animals from excess light but this should apply to all albino animals such as mice and rats.

The warning for damage to the ear due to fighting, thereby making ear punching invalid for identification, is mentioned only in the rat chapter whereas mice fight even more than rats.

The chapters on marmosets and old world primates are fine, mentioning the importance of training animals to co-operate in procedures and the need for environmental enrichment.

It is refreshing to see that attention has been paid to zebrafish as their usage is steadily on the increase. The

chapter on *Xenopus laevis* is excellent, with up-to-date references and a separate section on environmental enrichment and reference to the revised CoE Appendix A.

Chapter 14 deals with genetically-altered animals. I cannot imagine that after 1997 no major publications on this subject could be found, eg concerning welfare aspects. Only a paper published in conference proceedings in 1995 has been referred to and many have been published since, including a special issue of *Laboratory Animals*!

Chapters 18–25 deal with cattle, sheep, goats, pigs, horses, chickens and quail. Although it is reassuring that these animal species warrant mention, as they are used as experimental animals and often neglected in handbooks, these chapters would have been better suited immediately following the small animal species.

Chapter 18 on cattle is disproportionately long (12 pages) when compared to the rat and mouse chapter (4 pages each!). The method of castrating male calves by means of the rubber-ring method should not have been recommended for welfare reasons.

The chapter on sheep is also relatively long (8 pages) and no environmental enrichment is mentioned for indoor housing, not even for individually-housed sheep. It is advised that castration under anaesthesia should only be carried out after three months of age! The same principle is in evidence in the pig chapter where it is recommended that only pigs older than 7 days should be castrated by a veterinarian. Although these practices might still be common in farming, in a manual dealing with laboratory animals, welfare aspects should be taken into account.

Chapter 28, concerning ‘Transport of animals’ is useful, providing information on regulations, health and welfare and transport containers for the various animal species.

Chapter 32 deals with the environment and pays a lot of attention to air distribution and filters, although not much attention is paid to IVC systems. It provides good information on light, sound and climate (macroclimate) but not to the environment in the cage (microclimate). One would expect at least some lines on cage contents, such as bedding, nesting material and environmental enrichment in general. The most up-to-date reference is dated 1999 and at this point the Revision of the CoE Appendix A should have been mentioned.

In a positive sense it is good to see that the importance of the relationship between man and animals is emphasised.

Chapter 33 deals with ‘Disease’ and is a short chapter where risk factors causing disease are discussed with some examples. Once again it is relatively old references that have been used and the possible impact of diseases mentioned on experimental outcome is missing.

Chapter 34, ‘Parasitology’, is of interest, but possibly too detailed with every single class of parasite being mentioned.

Chapter 35 concerns the Animals (Scientific Procedure) Act 1986. Undoubtedly notable for UK technical staff, it seems to cover all interesting items from grading the severity of procedures to conditions for project/personal licence and ethical review process.

In chapter 36 the ethical implications of the use of animals in scientific procedures are discussed and ethical theories such as utilitarianism are covered. Here the ethical review process and the 3Rs are nicely explained with an array of examples, although here, also, the publication would have benefited greatly from more up-to-date references.

Chapter 38 ‘Experimental Procedures’ relates to all the species mentioned in the book but does not mention the specific problems per species. It is a pity that also here, restraint of animals needed for a procedure is not shown in a picture. Notwithstanding some typing errors in the tables, this chapter is useful although, again, some very old references could have been omitted.

Chapter 39 is an introduction to telemetry in laboratory animals. As telemetry is a very valuable tool, this chapter should have been more extensive and up-to-date and a number of well-known authors in this field have been omitted from the references.

Chapters 40 and 41 deal with surgical techniques and anaesthesia. Both are informative but it is disappointing that intradermal suturing has not been described for several species as it requires less skin suturing and the risk of wound nibbling by the animal is reduced.

The book ends with an Appendix containing calculations for the administration of substances, measuring food intake, breeding, etc (useful for the target group of readers) and a glossary.

In summary, although in this book the majority of references are outdated and a number of chapters are of disproportionate length relative to their importance, this belongs on the bookshelf in the laboratory as it brings together sufficient information to make it interesting for technical staff.

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### **Elephants: Diseases and Treatments**

G Villa-Garcia and D Bourne (2007). Issued by Wildpro<sup>®</sup> Multimedia, Wildlife Information Network (WIN), East Midland Zoological Society, Twycross, Warwickshire CV9 3PX, UK. Price £29.95. Elephants: Diseases and Treatments is available to members of WIN on CD-ROM and via the web-based encyclopaedia. For further information contact [info@wildlifeinformation.org](mailto:info@wildlifeinformation.org)

The CD-ROM ‘*Elephants: Diseases and Treatments*’ is easy to use. The CD-ROM will autorun from most computers and the Wildpro<sup>®</sup> (the electronic encyclopaedia and library for wildlife) homepage will open in your internet browser. As soon as you accept the disclaimer, you are brought to the homepage of ‘*Elephants: Diseases and Treatments*’.

From here you can access the table of contents but you can also directly choose between species information, drug data, diseases, techniques and further reading. During the review process, this CD-ROM was often used as a tool for everyday clinical work on the elephants kept at our institution. The direct links to these different areas of content have proven to be very useful and time-saving. The