



## Book Reviews

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## BOOK REVIEW . . .

**Zoonoses and Communicable Diseases Common to Man and Animals, Second Edition**, Pedro N. Acha and Boris Szyfres. Pan American Health Organization, Scientific Publication 503, Washington, D.C. 20037, USA. 1987. 963 pp. \$20.00 U.S.

The second edition of this paperback book has been updated, expanded to include additional and newly recognized diseases, and broadened to provide worldwide coverage of the common zoonotic and communicable diseases of humans and domestic animals. This comprehensive book contains information on 176 diseases divided into five sections: bacterioses, mycoses, chlamydioses and rickettsioses, viroses, and parasitic zoonoses. The various diseases are not covered in equal detail because of the availability of information, the frequency of occurrence, the distribution of the disease, and possibly the interests of the authors. Many of the important diseases, such as brucellosis, rabies, Venezuelan equine encephalitis, trypanosomiasis, and schistosomiasis, are described in depth, but a few important diseases, such as Lyme disease, Rocky Mountain spotted fever, Colorado tick fever and Chikungunya fever, are not well described.

Diagrams of the modes of transmission are presented for many of the diseases, although some are oversimplified; distribution maps and disease frequency charts and tables are included where necessary. The description of each disease includes information on synonymy, etiology, geographic distribution, occurrence and manifestations in humans and animals, source of infection and mode of transmission, diagnosis, control, the epidemiologic role of animals, and a limited bibliography. Comprehensive summary tables are provided at the end of each main section, and the appendix includes a thorough summary table of food-borne diseases and a glossary of epidemiologic terms.

The primary emphasis of the book is on disease in humans and domestic animals and less on disease in wildlife species, although for a few diseases such as rabies and hydatidosis, the involvement of wildlife species is covered more thoroughly. In general, the species of wildlife involved as reservoirs and infected by the pathogens are listed, but information on the ecology of the diseases and on the role of the vertebrate hosts is limited. In the sections on diseases with which I am most familiar, I noted a few minor mistakes (e.g., wild fowl instead of wild passerines as the natural vertebrate hosts for eastern equine encephalitis virus and a tree squirrel instead of a ground squirrel or a chipmunk as the vertebrate host in the simple diagram of the virus cycle of Colorado tick fever virus). Some of these inaccuracies may result from having used secondary sources instead of original publications. The book contains only a few spelling and typing errors and a few misused terms; in general, the book is very well written.

This book, which brings together a vast amount of information on a large number and variety of diseases found throughout the world, will be a handy reference for researchers and public health workers concerned with this array of diseases. The book will be useful as a text in courses on zoonotic diseases and vector and vector-borne diseases and as a supplemental text in courses on wildlife diseases. This excellent summary of the current scientific and technical knowledge will help many countries study some of their significant zoonotic diseases and solve their public health and veterinary health problems.

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## BOOK REVIEW . . .

**Colour Atlas for the Diagnosis of Bacterial Pathogens in Animals**, Wolfgang Bisping and Gunter Amtsberg. Translated into English by Walter Siller and James Phillips. Paul Parey Scientific Publishers, Lindenstr. 44-47, D-1000 Berlin 61 and Spitalerstr. 12, D-2000 Hamburg 1, Germany. 1988. 339 pp. DM 248.

This book, say the authors in their Preface, is designed as "a manual for the diagnosis of . . . the great variety of bacterial pathogens that can affect animals," for use by "the practising veterinarian, the laboratory worker and the student," with preference given to "methods which could be performed with relative ease in routine laboratories." In this design, the authors have succeeded admirably. Even though the book consists throughout of parallel texts in German and English, it has been kept to a manageable size; yet at the same time it contains a thorough coverage of almost all the bacteria that may adversely affect domestic animals, including the Rickettsiae, *Chlamydia* and mycoplasmas. For each organism, or group of organisms, there is concise up-to-date information on the veterinary significance, morphology and culture together with details, as appropriate, on biochemical, antigenic or other properties used for identification.

For most organisms there are illustrations of colonial morphology on at least one medium, while microscopic appearance in lesion smears or in culture is shown for a few, and some tests, such as the CAMP test, are also illustrated. There are tables for differentiation of species, and also flow charts showing the procedures to be followed from receipt of samples to ultimate identification. Captions of photographs are in German and English, while tables and charts are in English only. For each group there is a bibliography, which the authors say was "chosen from readily accessible sources wherever possible," although a good proportion of these are in German and may not be easily available outside Europe.

Different users may disagree as to the value of the photographs. Certainly the photographers (presumably the authors themselves since there is no other acknowledgment) have done a magnificent job. Colonies on agar are notoriously difficult to photograph well; yet most of these pictures are very clear. Nevertheless, no picture can give an adequate idea of what a culture plate is really like; perhaps the ultimate book

will be one that manages to incorporate smell as well as sight. Another difficulty is the choice of media. Many of the cultures are shown on Zeissler agar, while the Gram-negative aerobic rods are shown on Gassner agar, and neither of these media is in common use in any laboratories with which I am familiar. One might also quibble about some of the choices of illustration. For example there are four pictures, three of them not very enlightening, of *Pseudomonas aeruginosa* which must be one of the first organisms any bacteriologist learns to identify, whereas there are none of *P. mallei* or *P. pseudomallei* which are far less familiar to most people but at least as important to recognise. In general, the photomicrographs of the bacteria seem less helpful than the illustrations of colonial morphology.

The appendices include a tabulation of the taxonomy of bacteria of veterinary importance, adapted from the 1984 Bergey's Manual, and instructions for dyes and staining solutions. There is, however, no list of recipes for media. The authors state that this was deliberately omitted since the recipes are readily available elsewhere, but many of the book's users may consider this a defect, since it is convenient to have all information in one place; this may be a particular problem in some Third World countries where references and manufacturers' catalogues are difficult to obtain.

The book is, of course, directed towards people working with the conventional domestic animals, although where the organisms under discussion are known to affect wild or laboratory animals these often rate a passing mention. Several fish pathogens are covered, including *Aeromonas* spp., *Vibrio* spp., *Edwardsiella* spp. and *Renibacterium salmoninarum*. Surprisingly, *Yersinia pestis* is not included. In general, wildlife workers will need to rely on their own knowledge, and specialised texts, in order to apply the information in this book to the species they are dealing with. Nevertheless, anyone working with bacterial diseases in any animal should find this book a useful addition to their library and possibly even an indispensable item on their laboratory bench.

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## BOOK REVIEW . . .

**Dirofilariasis**, P. F. L. Boreham and R. B. Atwell (eds.). CRC Press, Inc., 2000 Corporate Boulevard, N.W., Boca Raton, Florida 33431, USA. 1988. 249 pp. \$135.00 U.S. (within U.S.); \$159.00 U.S. (outside U.S.).

"Dirofilariasis" is a multi-authored book which discusses the filarioid nematode *Dirofilaria immitis* (Leidy, 1856) and the disease it causes in dogs, namely canine cardiovascular dirofilariasis. The title of this book is somewhat misleading since the genus *Dirofilaria* contains many species in addition to *D. immitis*. The latter is known also as dog heartworm and the book was finalized after the 1986 Heartworm Symposium. The editors anticipate "Dirofilariasis" will be a "bench text" for undergraduate and postgraduate students, researchers (both veterinary colleagues and other biologists) and practicing veterinarians. With some exceptions, the book is an excellent source of information about canine heartworm. Eleven pages are devoted to *D. immitis* in cats and 10 pages to *D. immitis* and other *Dirofilaria* spp. in man.

The book is divided into 13 chapters: 1. Taxonomy and Distribution; 2. Biology of *Dirofilaria immitis*; 3. The Biochemistry of *Dirofilaria immitis*; 4. Clinical Signs and Diagnosis of Canine Dirofilariasis; 5. Radiology of Heartworm Disease; 6. Pathology and Pathogenesis of Dirofilariasis; 7. Therapy Decisions in Relation to Aspects of Pathophysiology; 8. Chemotherapy and Chemoprophylaxis; 9. Adverse Reactions to Diethylcarbamazine in the Treatment of Dirofilariasis; 10. Immunology to Canine Dirofilariasis; 11. Caval Syndrome; 12. Feline Heartworm Disease; and 13. Dirofilariasis in Man. Each chapter has a Table of Contents and a list of references. Twelve authors (including the two editors) were involved and 11 of the chapters are single authored. An appendix by one of the editors contains 13 flowcharts or lists.

Most chapters are well organized and clearly written, the authors drawing upon their own expertise as well as the literature. The identification of references in text by number makes it difficult to determine to what extent different authors have consulted similar literature. The relevance of this latter point lies in the redundancy with which, among chapters, some topics are discussed. Some redundancy is probably unavoidable in a multi-authored work but it is annoying when contradictions occur, as four examples will illustrate. The first pertains to the importance of wildlife hosts in the epizootiology of *D. immitis*. Chapter 1 states "Numerous reports . . . of *D. immitis* in wild canids in the

U.S. and Canada suggest an increasingly well-entrenched sylvatic reservoir of infection." In contrast, Chapter 2 states "... only the coyote appears to have any potential as a reservoir host. . . . Whether coyotes actually play a significant role in maintaining heartworm infections in dogs remains a question." The second example involves reference to *D. immitis* in Chapter 2 as a "blood feeding anaerobe" whereas Chapter 3 states "there is considerable evidence of a substantial aerobic component in the respiration of the filarial worms" and "there is no evidence that the respiratory metabolism of *D. immitis* is markedly different from that of other filarial nematodes." The third example pertains to the "wedge-shaped" cephalic hook on the microfilaria referred to in Chapter 2. Chapter 1 fails to mention such a structure in *D. immitis*. Finally, the Preface states that Bancroft in 1901 "was the first person to complete the life cycle of a filarial worm when he demonstrated that the infective larvae of *D. immitis* were transferred to the host during the act of mosquito feeding" whereas Chapter 2 states that Grassi and Noe in 1900 "showed that dogs could be infected with *D. immitis* by an infected mosquito's bite."

There are some factual errors. Chapter 1 states "The lateral chords are prominent in cross sections with well-developed musculature and numerous cells." This error may be due to poor English as it is well known that muscles in the body wall of nematodes are confined to the dorsal and ventral fields. Chapter 2 refers to "a 4-2-4 configuration of papillae" on the anterior end of the third-stage larva. In fact, the larva has four pairs of papillae and one pair of amphids. The distribution maps in Chapter 1 are misleading. For example, the depiction in Figure 9 of an enzootic area north of Lake Huron extending to a point halfway between the lake and James Bay does not correspond to information in text. The text is relatively free of typographical errors (Winnipeg is misspelled on page 7). There are inconsistencies in the quality of photographs; some are excellent but others are blurry, lack contrast, or appear to have come from overexposed originals. Use of standardized terminology (Margolis et al., 1982. Journal of Parasitology 69: 131-133) would be preferable to "prevalence rates," "infection rates," and "adult worm burdens."

The strength of this book lies in the wealth of detail brought together in one place. In particular, Chapters 4 to 11 provide valuable discussions of heartworm disease in dogs. Most information given is up-to-date, although it must

be recognized that many subjects covered do not have a long history of investigation. However, some topics did not receive up-to-date treatment [e.g., the illustrations of the gross morphology of *D. immitis* in Figure 1 are reprinted from a textbook published in 1962 (revised in 1974) but actually date to 1924, 1931, and 1950!]. The book would have benefited from a chapter discussing species of *Dirofilaria* in hosts other than dogs, cats and man.

In summary, this book will be a useful, albeit

greatly overpriced, aid to workers requiring detailed information about disease aspects of heartworm in dogs. It should not, however, be considered a consistently reliable source of information about morphology and epizootiology of the parasite.

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## BOOK REVIEW . . .

**Black Flies, Ecology, Population Management and Annotated World List.** Ke Chung Kim and Richard W. Merritt (eds.). The Pennsylvania State University Press, University Park, Pennsylvania, USA. 1988. 528 pp. \$48.50 U.S.

Black flies of the family Simuliidae impact upon many populations around the world ranging from humans and their domestic animals to wildlife. These flies function as biological vectors of a myriad of parasites. They attack vertebrates and can cause severe blood loss and hypersensitivity. Anyone who has studied them (short of the true simuliid taxonomists) has been perplexed by the difficulty in identifying them. It is an extremely large family, encompassing over 2,000 taxa. Such a diversified assemblage has enabled this group of flies to adapt to a variety of habitats and behaviors. With the possible exception of regional monographs, no publication has attempted to deal with the ecology of the black flies as completely as this book. It has surpassed the restricted geographical approach and has approached the Simuliidae on a worldwide basis.

This book is an outgrowth of the International Conference on Ecology and Population Management of Black Flies (Diptera: Simuliidae) held at Pennsylvania State University in 1985. Contributors are from six countries and three continents and each is a recognized authority in his or her own area of specialization. Many years of research experience with black flies are summarized in the text of this book. It is organized into eight sections and 32 chapters. Most chapters have either a summary or a conclusion subchapter.

The biology of the immature stages is discussed in two sections. Some of these chapters deal primarily with the larvae, but others also include eggs and pupae. Topics reviewed include: the role of the immature stages in riparian systems; ecological problems caused by sibling species co-existing; each riparian system has a unique set of limnological features (both biotic and abiotic factors) that influence the species present, their distributions and their population sizes; the effect of food quality and quantity on larval populations as well as the resultant pupal and adult populations; the importance of larval behavior including feeding strategies; and the influence of hydrodynamics on immature stages, a subject starting to yield interesting and important information.

In a section on the ecology of adult simuliids, a variety of topics essential to the development of control programs for black flies are discussed. Methods of adult sampling vary from highly selective procedures such as bait trapping to

unbiased approaches including the use of vehicle mounted traps. The method applied is determined by the exactness of the information sought. Adult behavior including swarming to facilitate mating, reproductive strategies and resultant life table construction, the presence or absence of migratory behavior, oviposition behavior and the sensory structures which allow the adults to find mates, hosts and oviposition sites are all covered with current literature citations.

One section is devoted to population management. This section deals with the ecology of black fly parasites including host specificity, host-parasite interactions and the need for further research on these important components of the riverine communities. It also discusses the potential biocontrol of black flies by such pathogens as bacteria, fungi, protozoa and nematodes. Laboratory colonization, which is essential for hypothesis testing and host-parasite interaction studies in a controlled environment, is detailed. Systems, such as the African onchocerciasis program, are examined as an example of control programs underway and how they are succeeding.

Two sections summarize our knowledge on the epidemiology and control of black fly-borne diseases. These include chapters on human onchocerciasis in Africa and Central America, poultry and livestock simuliid-transmitted diseases, models to aid in the understanding of onchocerciasis and how to control this scourge, and industrial development of delivery systems for *Bacillus thuringiensis*.

The remaining two sections deal with black fly taxonomy. These introduce modern taxonomic approaches and their benefits as cytogenetics and biochemical applications to separating taxa within species complexes which have caused concern to ecologists since these complexes were discovered. The need to be able to recognize and separate these sibling species is documented throughout the book. The final chapter is a culmination of the present status of the taxa in the family and it is well organized and cross indexed.

The completeness of the final chapter makes this book invaluable to those working on black flies. The book is nicely organized and edited. The information presented and the literature citations included in this book make it an excellent reference and one that entomologists and parasitologists interested in black flies should possess.

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## BOOK REVIEW . . .

**Urban Vector and Pest Control.** Eleventh Report of the WHO Expert Committee on Vector Biology and Control. Technical Report Series, No. 767, World Health Organization, Geneva, Switzerland. 1988. 77 pp. \$7.20 U.S.

This book is a report by the WHO committee responsible for assessing the present status and current trends in vector biology and control. The aim of this publication is to determine what impact increasing urbanization might have on vector-borne diseases, populations of pest species and problems associated with control efforts. This WHO technical report represents advice given by a panel of experts, assembled by WHO, and is not an exhaustive treatise on the subject of vector and pest control.

The first segment of this book deals with existing and future trends toward urbanization. Along with defining the urban environment and explaining the global transition that is occurring, this section establishes the argument that burgeoning human populations will continue to expand urban areas and place inexorable pressure on basic services. For example, it is predicted that by the year 2000 about one-half of an estimated 6.3 billion global human population will be living in urban areas. It is anticipated that approximately one-fourth of these urban dwellers will be poor. Economic, social and environmental factors associated with impoverished living conditions set the stage for a discussion of vectors, pests and control programs that constitutes the remainder of this book.

In the next section, major urban vectors and pests are briefly reviewed and include: mosquitoes, sandflies, fleas, triatomine bugs, lice, tsetse flies, black flies, ticks, mites, synanthropic flies, bedbugs, cockroaches, ants, rodents and snails. Each species, or group of species, is discussed in terms of the most important diseases that a particular taxon is known to transmit. In addition, breeding habitats in urban areas are portrayed for each vector and pest group. Although discussion of disease transmission and annoyance potential in this section may seem superficial to vector biologists, it is a helpful review that will provide nonentomologists with sufficient background to appreciate the material that follows in subsequent sections.

The remaining two-thirds of this book focuses on control issues. Each WHO region is discussed in terms of urbanization trends and the types of vector and pest problems that pertain specifically to every district. The sources of problems in each zone are briefly described relative to available water supply, sanitation and other spe-

cial aspects of that area. A brief review of the kinds of control programs most frequently found in each region also is presented. Control methodologies currently available are briefly summarized. However, emphasis is placed on the development of community based programs that employ active local participation and the formulation of integrated control strategies suitable for each geographic location and environmental situation. After stressing attributes of an ideal control program, a list of practical problems that might constrain implementation of a well-structured plan is presented.

A section describing various types of urban vector and control programs is joined with criticism by the expert committee on the establishment of single disease control schemes, such as a malaria eradication program. The formation of multidimensional intergovernmental programs is urged and the role of municipal governments in developing vector and pest control procedures is carefully delineated. Information in this section is especially useful to those contemplating the organization of a control program.

The final section on control features a discussion about the crucial need to plan future urban vector and control efforts, particularly in light of the consequences imposed by increasing urbanization. Recognized is the need for a comprehensive program capable of dealing with all vector and pest problems in a given geographic region. Also stressed is the need for unified vector and pest control programs that are committed to sound environmental management, while still being cost-effective. Guidelines for the organization and training of managerial and technical staff are featured, as well as ways to cope with the problem of inspiring active voluntary community participation. This book concludes with a series of recommendations which touch on topics covered in previous sections.

Although this book is somewhat lacking in profundity, a wide array of topics are covered. This book is written in a clear concise manner and presents a good overview of the subject that can be easily understood, regardless of prior scientific knowledge. The low price (\$7.20) makes this book rather attractive; however, in reality the value lies in its succinct nature. It is a most useful book for anyone involved with the establishment or improvement of a vector and pest control program.

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