Book Reviews

Parasitic Diseases 5th Edn. By D. D. Despommier, R. W. Gwadz, P. J. Hotez and C. A. Knirsch, pp. 363. Apple Trees Productions, LLC, New York, 2005. ISBN 0 97000 27 7 7. US$69.95.
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Although the target audience is not specifically indicated, this is a textbook aimed at medical practitioners and medical students. It will also be of some interest to medical technologists, marginal interest to biologists who want a clinical perspective on their parasitological studies, and of little interest to veterinary parasitologists.

After a brief introduction to eukaryotic parasites, the clinically important parasites of humans are described, species by species, under the headings of 'Protozoa', 'Nematodes', 'Cestodes' and 'Trematodes'. Following a brief consideration of medically important arthropods, there are essays on medical ecology, travel medicine and the mode of action of antiparasitic drugs.

Sixty-eight species are listed in the Table of Contents, though many more are included incidentally. Under each specific heading are a brief, informative introduction, a well-informed historical review, an outline of the relevant life-cycle, and sections on pathogenesis, clinical disease, diagnosis, treatment, and prevention and control with, finally, a useful, if americocentric, bibliography. There is an extensive collection of relevant illustrations, not invariably well reproduced in the new edition; there are numerous informative life-history diagrams, which sometimes include non-human hosts. Unfortunately the latter are not named, and are barely mentioned in the main text.

As the authors point out, it is hardly possible for a single person to master all the information necessary for a book like this. This is all the more true for a single reviewer, so this review concentrates on those parts that will be of interest to readers of *Parasitology*, of which I have personal experience.

Earlier editions were 1982, 1989, 1995, 2000. Superficially, the fifth edition closely resembles the fourth: the table of contents is almost unchanged, but the section on the mode of action of antiparasitic drugs is doubled in size, and the new edition is on poorer quality paper.

Useful addenda contain a comprehensive account of antiparasitic treatment, and a list of drug manufacturers. A similar list of commercially available immunological and biochemical diagnostic tests might also be valuable. The section on medical ecology of parasitic diseases is little more than a collection of anecdotal musings. It does refer to a useful web site (not, however, listed in the 'websites of interest' (p. 361). I particularly enjoyed the rapidly-becoming-outdated statement: ''Western medicine adheres to the tenant (*sic*) that we should live our lives without [parasites]'' (p. 289).

To present the material in a compromise sequence, between a proper zoological classification and a clinical sequence or series of syndromes, organ by organ is understandable. But to ride roughshod over numerous conventions of zoological terminology is not. For example, the abbreviations of 'species': 'sp.' (singular) and 'spp.' (plural) are used indiscriminately; diacritical marks, outlawed by the ICZN, are still used for *Iodamoeba bütschlii* (*sic*; = *Iodamoeba buetschlii*) but, thankfully, not for *Strongyloides fuelleborni*; citations of authors are given (unnecessarily) for headline species names, invariably in parentheses, even when this is incorrect. Generic names are freely vernacularized, and are indiscriminately capitalized or not, and italicized or not. Many clinicians, like molecular biologists and other biochemists, may see little relevance in such supposedly trivial quibbles, but any real zoologist will be seriously affronted.

A few other points that a copy-editor might have picked up include: *Cyclospora cayatenensis* (p. viii); dracunculiasis (p. ix), but: dracunculosis (p. viii); I was delighted to see that the charming phenomena of sporogany (p. 52) and schizozony (p. 53), whatever they might be, remain unaltered from the fourth edition.

The entries on *Strongyloides stercoralis* indicate that the authors are no less confused than most people on the life-history details: Second instar larvae are supposedly passed in the stools, then there are four moults (so five larval instars), before free-living adults develop; it is implied that, under ideal conditions, free-living reproduction may continue indefinitely; the assumption is perpetuated that the lungs are part of the normal migratory pathway, rather than a blind alley as suggested (for *S. ratti* at least), by Wilson and more recent authors.

Under *S. fuelleborni*, our belief that transmission to infants must be transmammary is based on much more than 'speculation' (p. 132).

Many, especially those involved in the recent correspondence about false reports from Antigua, will be surprised to learn that diagnosis of all forms of cutaneous leishmaniasis due to Leishmania (*sic*) depends on PCR (p. 21); the argument in favour of the continued use of *L. infantum chagasi* is long outdated; the 'prevention and control' of leishmaniasis, by 'eradication of sand fly breeding sites near urban and suburban centres' might be fine:- if only we had any real idea where to find them!

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I suppose the fact that this title has reached its fifth edition indicates that many people like it, and that it is, at least, commercial. Personally, I would strongly urge the authors to seek the advice of a pedantic zoologist/parasitologist before embarking on a next edition, and would urge students to try to find a copy of Beaver Yung and Cupp, Belding, a recent edition of Manson or, best of all, splash out on the latest edition of Topley and Wilson.

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Biotechnology Applications in Animal Health and Production. Coordinated by A. A. MacKenzie, pp. 456. Revue Scientifique et Technique **24**(1) 2005. ISSN 0253 1933. US$ 55. 50.
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Veterinary medicine is being overwhelmed. We are losing our ability to control existing diseases, while new diseases that we cannot currently control are emerging. Governments are spending more on animal and human health; the veterinary training and research initiative in the UK is particularly helpful. But money is limited and there is a need for increased efficiency and effectiveness, especially in veterinary science. Biotechnology offers some hope. This volume describes some of the most promising applications of biotechnology in animal health and production, including assisted reproduction, better vaccines, enhanced diagnostic capabilities, transgenic animals and plants as well as the use of genetic markers to enhance selection. The reviews are written by invited authors who provide their opinions about current and future developments. There is a lot of overlap as different authors stray into overlapping areas. This overlap enhances the book by providing different perspectives; generally the more remote the author the more rosy the assessment. The reviews do not provide instructions on how to use biotechnology but they do provide a comprehensive set of references that contain detailed instructions. There is not a lot of detail on parasitological diseases and, in general, the book lacks detail and bite on specific problems. But the manual is well worth reading. I certainly learned a lot and intend to pursue some of the applications mentioned in this manual.

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Parasitism and Ecosystems (ed. Thomas, F., Renaud, F. and Guégan, J.-F.), pp. 221. Oxford University Press, UK, 2005. ISBN 0 19 852987 2. £34.95.
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This book, of 221 pages and 12 chapters, is a step forward for ecological parasitology. It starts with an introduction by P. Hudson followed by chapters on (1) ecosystem and parasite ecology by M. Loreau, J. Roy, and D. Tilman, (2) community ecology and spatial parasitology and epidemiology by J.-F. Guégan, S. Morand, and R. Poulin, (3) parasitism and regulation of host population by A. P. Møller, (4) food web patterns and the parasite's perspective by M. V. K. Sukhdeo and A. D. Hernandez, (5) ecosystems and parasitism: the spatial dimension by R. Holt and T. Boulinier, (6) parasitism and hostile environments by R. C. Tinsley, (7) parasitism and environmental disturbances by K. D. Lafferty and A. M. Kuris, (8) parasitism, biodiversity and conservation by F. Thomas, M. B. Bonsall, and A. P. Dobson, (9) an evolutionary modelling perspective by S. P. Brown, J.-B. André, J.-B. Ferdy, and B. Godelle, and (10) parasitism in man-made ecosystems by F. Renaud, T. De Meeüs, and A. F. Read. Finally there are conclusions and perspectives by G. G. Mittlebach. Each chapter gives an overview of the state of the art, identifies the most important remaining problems, and points out directions for further research.

The contributors are some of the most influential scientists in their fields, and the book has a good coverage of newer literature, with many references to publications as recent as 2004. The book links parasite ecology to 'general' ecology more strongly than is often done in parasitological texts. This is especially true for chapter (1), but many of the others do this in relation to their special fields. The references to and descriptions of ideas in general ecology as well as parasitology are well up to date. Possibly chapter 3 might have gained even more if additional authors, as in most of the other chapters, had contributed from their expert fields.

The individual chapters may be scored as very good or excellent, but a book like this also has 'emergent properties' that deserve some comments. For the purpose of illustration we may think of the single host with its parasite as the common origin of two axes. Along a downwards axis the increasingly more-reduced aspects of the host and parasite develop from organ to cell and molecule, and along an upwards axis the increasingly integrated levels of ecology develop from populations to ecosystem. As traditions in parasitology lay along the axes pointing down and traditions in ecological lay along the axes pointing up, texts in parasite ecology tend to be on a rollercoaster journey

up and down these axes. This book suffers to some extent from this problem. Books covering other fields of ecology seem better at avoiding this by focusing on the emergent properties of the ecological levels.

The ecosystem concept has proved useful in politics and management, but it has been difficult to make operational for empirical research and there is a lack of data. The usual understanding of the ecosystem concept is as in chapter 1: 'ecosystem ecology has traditionally focused on the ''big picture'' of stocks and flows of mass and energy at the whole system level'. And it is pointed out that 'Parasites are rarely considered in ecosystem studies' (p. 13). It is doubtful if the use of ecosystem in the title of the book is the best way of attracting ecologists to it, and many of the chapters could have been more factual, and with less speculation, if the intention of having the ecosystem as a common platform, had been relaxed. The lack of good empirical data is unfortunately a wider problem in ecological parasitology, particularly regarding processes rather than patterns. Probably because of this, the same examples are used in several chapters, and this leads to some repetition. This is compensated for by cross-references among the chapters, but some repetition may have been avoided with an even broader use of existing literature.

The concluding chapter claims that most ecologists harbour a classic, taxonomic view of parasites and that parasites are not included in the everyday thinking of most community and ecosystem ecologists. This is probably still true but, since the first edition of Begon, Harper, and Townsend 'Ecology' (Blackwell Scientific Publications, 1986), parasitism has been well covered in the basic textbook in ecology. One can observe an increasing number of papers on ecological parasitology in ecological journals, and they are often written by scientists who have not primarily been trained as parasitologists. Further progress will come when ecological parasitologists deal even more directly with the problems, patterns, processes, and parameters that ecologists study. This book takes things a good way down this road.

The book is well-written and produced, and there are few misprints. Illustrations are in black and white which suits the content. Particular effort has been placed on writing legends that explain the figures well. The book is highly recommended.

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Human Parasitology 3rd Edn. By B. J. Bogitsh, C. E. Carter and T. N. Oeltmann, pp. 459. Elsevier Academic Press, 2005. ISBN 0 12 088 468 2. £39.99.
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Human parasitic disease continues to pose a serious problem worldwide, especially in developing countries. Not only are the poorest countries of the world disproportionately affected, but the burden of human parasitic disease in those countries prevents their social and economic development. The lack of infrastructure, rudimentary sanitation and inadequate healthcare facilities favours the uncontrolled spread of disease, including parasitic disease. Thus, poverty and human parasitic disease go hand in hand, and are locked in a cycle which perpetuates and exacerbates the problem.

The intricacies of parasitism and the elegance of parasite–host interactions have attracted scientific attention for more than 100 years. Despite the plethora of excellent parasitology research performed worldwide, there is still a paucity of relevant clinical expertize, especially in endemic areas where the need is greatest. Thus, I applaud the authors of '*Human Parasitology*' for their aim of producing a textbook which combines clinical parasitology with some parasite biology; to inform medical and biological education with the wealth of knowledge available from many years of parasitology research.

However, the reality failed to meet my expectations. The authors have produced a textbook with an impressively wide breadth, attempting to cover the Protozoa, trematodes, cestodes, nematodes and arthropods. And this breadth has perhaps been their undoing: it is nigh impossible to do each parasite justice in the space of 16 relatively short chapters. Admittedly, there are some aspects which I felt were well done: there are many beautiful micrographs and clear line drawings which illustrated the complexities of the parasites themselves and their sophisticated life-cycles. The labelling of the diagrams was less consistent and could be confusing, especially to a non-expert. For instance, the line drawing of the trophozoite of *Giardia lamblia* would have benefited from a more thorough annotation, designating the various pairs of flagella. On occasions, the terminology used was not consistent: the tsetse stage of *Trypanosoma brucei* was referred to in the text as procyclic (the term used most commonly in *T. brucei* research) but as trypomastigotes in the diagrams. I dread to imagine the confusion this kind of inconsistency would provoke in undergraduate students.

Despite the flaws in the delivery of the basic parasitology, it was relatively well done, albeit at a superficial level. The main failing of this book was in the medical aspects of parasitology. I acknowledge that medicine is a constantly evolving discipline

and that textbooks outlining medical practice are inevitably out-of-date before they hit the shelves, but the information in this book pertaining to chemotherapy of parasitic disease was woefully obsolete. There was little mention of the novel chemotherapies which were in the pipeline (if not on the market) whilst this book was in preparation: for example miltefosine for leishmaniases (registered for use 2002) or artemisinin derivatives for malaria (first derivatives registered for use in 1997). The map illustrating the regional recommendations for malarial prophylaxis (from the WHO) is dated 1997, whereas the map demonstrating the global distribution of malaria is dated 2003. If the authors had the ability to modify the manuscript up until 2003, I cannot understand why they did not update the malarial prophylaxis figure. Providing information which is 8 years out of date is completely worthless. The authors have made some attempt to include more recent developments, by their inclusion in the appendices at the rear of the text book, but these sections lack detail and do not correspond to the sections on chemotherapy included in each chapter.

In short, despite the authors' claim that they intended this book for ''premedical, medical technology and biology students'', I cannot identify the target audience for this book. In my opinion, it is not detailed enough to convey the full complexity and elegance of human parasitehost interactions for biology students. Nor does it provide a useful almanac for teaching pre-medical students or for use in the field by laboratory technicians, because it is so out of date. I fear the authors' wide-ranging remit has been their downfall: by attempting to cater for all audiences, they end up satisfying none.

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