

## Book Reviews

*Practical Exercises in Parasitology*. By D. W. Halton, J. M. Behnke & I. Marshall pp. 461. Cambridge University Press, 2001. ISBN 0 521 79104 9. £30.00  
DOI: 1017/S003118200221183X

Parasitology is, at its heart, a practical discipline. For it to be taught at an undergraduate level in a serious and engaging way, the learning experience of students must contain elements of that hands-on, practical core of the subject matter. This book, which has emerged largely from the teaching expertise of members of the British Society for Parasitology, attempts to provide a manual to help the academic parasitologist mount such practical learning exercises. In a teaching context in the UK where such provision is circumscribed by general academic economies, the cost of maintaining animal hosts, COSHH regulations and Home Office regulations for the use of laboratory animals, the manual succeeds admirably. It should encourage lecturers to confront those constraints and complexities and put on more practicals!

Edited by experienced teacher/researchers from Queen's University of Belfast, the University of Nottingham and the Liverpool School of Tropical Medicine, "Practical Exercises in Parasitology" seems to have thought of everything. The main sections provide details necessary for setting up, running and understanding 50 different practicals. These descriptions are grouped under seven methodological categories, Observational Exercises, Ecology, Physiology & Biochemistry, Pathology & Immunology, Chemotherapy, Molecular Parasitology and Behaviour. In each case the degree of detail and ancillary information is exceptional, including, for instance, "ideas for further exploration" extending beyond the central objectives of each exercise.

Checking on the practical minutiae in exercises closely allied to those I have run myself, I have been impressed by the direct and appropriate focus of the advice given. It clearly comes from those who have been through years of exercise "debugging" to squeeze out those technical glitches that attempt to force their way into the best-laid practical plans. The core material is helpfully buttressed by additional sections on topics such as health and safety, good laboratory practice, advice to students, assessment of student reports, student feedback methods and appendices on the contact details of appropriate suppliers in the UK and US.

The book's Foreword suggests that it should be an essential purchase for all teachers of parasitology at undergraduate level. This reviewer agrees with that assessment. The Foreword also considers that stu-

dents taking parasitological laboratory practical classes will also find it indispensable. This is a vain hope. Only a tiny minority of such students will actually carry out more than a few of the 50 exercises in this manual during their degree programme. It is not likely that many of them will be prepared to pay £30.00 for a personal copy to aid them in that work. This is essentially a text for teachers. It works impressively at that level.

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*Parasitism: The Ecology and Evolution of Intimate Interactions*. By C. Combes, Translated by I. DeBuron & V. A. Connors pp. 522. The University of Chicago Press Ltd, Chicago, USA, 2001. ISBN 0 226 1145 7. \$US 55. (Originally published as *Interactions durables: Ecologie et evolution du parasitisme*. Masson, 1995.)  
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Claude Combes's 'Parasitism: The Ecology and Evolution of Intimate Interactions' is an extremely impressive and important book, recently translated from French, encompassing the intricate interactions between parasites and their hosts.

The book is divided into three parts across 21 chapters: The first part explores the diversity of parasites, which takes us through the whole story of what is a parasite, why are there parasites, what are the advantages and disadvantages of a parasitic life, and is there such thing as an ideal parasite. The second part examines the genes involved within host-parasite interactions, with an emphasis on arms races between parasite infectivity and/or virulence and host resistance. Finally, the third part discusses the parasites role within the Biosphere, their population and community ecology and evolutionary history, together with their broader implications such as that for the evolution and maintenance of sex. Each part finishes with its own original and valuable 'Reflections' section, where thought-provoking hypotheses and suggestions for further research are posed.

Combes's definition of a parasite covers a broad taxonomic spectrum under the concept of the 'durable interactions' from viruses (and even 'parasitic molecules' of nucleic acids, or that of the viroids), to bacteria, protozoa, helminths and certain

ecto-parasites (such as ticks) – rather than the classic protozoa, helminth or arthropods restriction, thereby broadening the books appeal to all readers. Likewise he utilises a wide coverage of data from both plant and animal parasitic systems (with perhaps a slight bias towards *Schistosoma spp.* and/or French research), and from parasite-induced gross pathology to the subtle and specific parasite manipulation of host behaviour. Indeed, he emphasises how the very subtlety of most parasite interactions may account for their general neglect amongst biologists [at least until recently], and indeed he should include medics in this as in, for example, the previous assumptions that latent toxoplasmosis in humans and animals is asymptomatic. Excellent individual accounts of the evolution and cost-benefit trade-offs of parasite virulence and host resistance are presented, although perhaps my personal bias would have liked to see a little more in terms of where and in what specific host-parasite associations coevolution may be predicted (such as that relating to the differential generation times between associations) and/or its applied implications. The text is presented within the framework of recent technical and analytical developments. Basic concepts and definitions are included, where appropriate, as

footnotes to enhance ease of reading. Likewise its use of terms such as ‘supergenome’ has interesting parallels with that of Dawkin’s extended phenotype. Most importantly, one of the books greatest strengths is in terms of its clear, original, and highly informative figures that illustrate each key issue raised.

All in all I thoroughly enjoyed this timely and valuable book – it has the scientific background of an important text-book, but with the ease of reading and interest of a novel – highly successfully combining the two without scarifying either. It is the only, so comprehensive, of its kind that I am aware. As well as being of interest to all in the field, I think it is an essential book to be placed on Parasitology and Biology of Disease (and ideally also medical) undergraduate and graduate course lists, and I will certainly be adding it to ours – and hopefully a less costly paperback edition will come out in time to enhance the accessibility of this excellent book.

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