

Contemporary microbiology

Two recently published microbiological textbooks are aimed at opposite ends of the student market. One comes close to the bull's-eye of its target. The other discharges its material with all the accuracy of a sawn-off shotgun. *Essays in Microbiology* (Wiley: Chichester, UK; £13.50), edited by J. R. Norris and M. H. Richmond, is a set of sixteen chapters (not, in my opinion, essays) of exactly equal length. The readership is expected to be "the early stage undergraduate student with some topics of relevance to the senior school pupil". *Companion to Microbiology* (Longman: London and New York; £12), edited by A. T. Bull and P. M. Meadows, consists of nineteen chapters of varying length and format covering a wide range of topics chosen for a readership of "advanced undergraduate and postgraduate students".

The editors of *Essays* have declared as one of their objectives a need to inform the undergraduate embarking on a microbiology degree course just what he is letting himself in for and they wisely achieve a balance between the descriptive and molecular aspects of the subject. The editors of *Companion* have solicited articles from experts in some of the growth areas of microbiology and have included topic neglected in recent textbooks "for discussion in broader perspective than is usual in review articles and in more depth than is possible in a general textbook". The latter formula sounds very much like that of an essay and, indeed, the chapters in *Companion* are very much more like essays than are the sections in *Essays*.

With new texts for the student market appearing with a frequency approaching that of new bacterial species in the hey-day of descriptive microbiology, the reviewer must clearly advise the potential consumer as to whether the various objectives of the editors and authors have been achieved and whether the publishers have been able to offer value for money. It is difficult to avoid a comparative approach when reading two books such as these and, at the risk of being unfair to *Essays*, I feel obliged to comment that *Companion* is more successful in achieving its stated objectives and much better value for money than *Essays*. Having made this judgement, and because the articles in *Essays* are on sale separately I shall devote more space to this volume than to the other.

Professor Stanier's contribution, "What is Microbiology?", maintains the high standard we have come to expect from this source and the article by one of the editors, Professor Rich-

mond, on "Genetic organisation in bacteria and its expression" is equally successful. Four chapters on form and function in bacteria, fungi, viruses and protozoa are of variable quality. Dr Murray's article on bacteria adopts a cytological and ultrastructural approach but there is some careless proof-reading which detracts from its intelligibility in places. The chapter on fungi (Dr Booth) is a dull, detailed descriptive survey which will not generate much enthusiasm for mycology amongst younger readers. The viruses are better served. Professor Watson succeeds admirably in presenting the intricacies of virus structure, particularly that of icosahedral viruses, in a lucid manner. Herpes may not be so simplex these days but the author manages to express the most complex geometrical concepts in a manner which would be understandable to an advanced school student and stimulating to a final-year undergraduate. Alas the protozoa suffer much the same fate as the fungi, although the authors (C. R. Curds and C. G. Ogden) are mercifully less obsessed with taxonomy than Dr Booth. The chapter begins rather well with the taxonomy compressed into a page of suitably small print, but one soon encounters phrases like "In tectinous allogromiid foraminifera . . ." without either warning or explanation. Such experiences tend to have a somewhat anaesthetising effect on the non-specialist.

One curious feature of these two books is that one of the co-editors of each has an article not in his/her own book but in the other, which all goes to emphasise what a small universe we microbiologists inhabit. Thus Professor Norris writes for *Companion* and Dr Meadows, a co-editor of *Companion* writes on "Chemistry and composition of micro-organisms" in *Essays*. Her contribution gets to grips with the structure/function relationship very well and a reader with a good background in structural biochemistry could gain much by reading it. However, readers with ordinary level German will be surprised to learn that the nomenclature of O and H antigens derives from "the German *ohne Hauch*, without whip"! I think that the intended readership would find Professor Tempest's approach to "Dynamics of microbial growth" rather dull and theoretical. He considers the ecological implications of substrate-limited growth only very briefly and some mention of the growth rates of organisms in their natural environments or the implications for industrial microbiology would have made the chapter more interesting. "Intermediary metabolism" is covered by Professor Clarke in a clear and interesting account which is well-directed at the target set up by the editors.

Professor Sneath has been permitted two bites of the cherry with separate chapters on "Classification of Microorganisms" and "Identification of Microorganisms". Both these articles are at an advanced level inappropriate for this collection. They would in fact have fitted in much more comfortably in *Companion*. Professor H. Smith's chapter on "Determinants of Microbial Pathogenicity" is a good summary of the field and its future prospects but is necessarily rather superficial. Some line drawings, diagrams or photographs would have added to its impact. The rather more specialised topics, "Interactions between phage and bacteria" (Kay), "Resistant forms" (Slepecky), "Symbiosis in the microbial world" (Smith) and "Bacterial nutrition" (Whittenbury) will find interested readers at several levels.

As the individual contributions to *Essays* were written to be available separately some duplication of material was inevitable and even desirable. Nevertheless there is too much of it. Some authors show an awareness of the content of the contributions of others, but in other cases there is needless repetition. In contrast there is little duplication in *Companion* and some useful cross-referencing between chapters. The editors of *Companion* did not impose fixed-length or other formats upon their contributors but the book achieves a remarkable cohesion. The print is small but very clear and the quality of the illustrations and photographs excellent. The nineteen topics chosen reflect to some extent the idiosyncracies of the editors (or those of their friends) but the book is none the worse for that. The topics range wide and most are of direct relevance to contemporary microbiology courses. It is a pity therefore, that they too cannot be purchased as separate offprints by students. However, I feel much more confident in recommending the whole of this book as a cohesive collection than I do about *Essays*.

At £13.50 *Essays* is rather poor value as the articles are of variable quality and aimed at too many targets, but I do recommend teachers and students to look it over and purchase the offprints which interest them. Best buys are Stanier, Richmond, Clarke, Watson and Slepecky. At the lower price of £12 *Companion* is excellent value. The size and format allow for the text to be approximately twice the length of that of *Essays* and the editors and publishers have turned out an attractive authoritative book.

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