

the publication of symposium volumes. The advantage here is of a more methodical approach to the topic, with a series of chapters which more or less follow on in a sensible sequence. Thus in the first half of the book Michael Wink discusses the physiology of accumulation of alkaloids and then J. Guern and his co-workers from Gif-sur-Yvette consider compartmentation in tissue culture in some depth. This is followed by chapters on the regulation of synthesis by R. K. Ibrahim and on cell growth and secondary metabolite accumulation by M. Sakuta and A. Komamine.

The second half of the book covers such predictable topics as cell cloning, selection of mutants, genetic mani-

pulation, immobilised plant cells, plant regeneration, cryopreservation, continuous cell culture and immunoassays for the detection of cell products. However, the most notable contribution in this section to my mind is the one on elicitation of secondary metabolites in culture by U. Eilert, a topic which is reviewed in considerable detail. Almost every chapter contains summary tables and there are appropriate illustrations throughout the book. The references are nicely up-to-date and the book can be thoroughly recommended to the phytochemical reader.

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Experimental Phycology: A Laboratory Manual: edited by C. S. LOBBAN, D. J. CHAPMAN and B. P. KREMER, 1988, Cambridge University Press, New York, 295 pp. \$44.50 HB; \$16.95 PB.

The current interest in the biology and biochemistry of the algae, previously a somewhat neglected group, can be attributed possibly to a recognition of their potential for biotechnological exploitation. The publication of a laboratory manual on the topic of algae is, therefore, opportune. This text describes 32 experiments for undergraduate classes, some suitable for entire classes, others for groups or individual students. These experiments cover a broad range from microbiology through physiology to biochemistry. Some are suitable for a three hr practical session in a first year course while at the other extreme some experiments would only be appropriate for senior undergraduates and could involve three practical sessions. A classification of the experiments on this basis, perhaps as an appendix, would have been useful.

The truest assessment of an experimental manual is whether the procedures work in practice and thereby justify the confidence of the contributors, incidentally mainly from Canada, Germany and the U.S.A. and thus reflecting the origins of the editors. This test was for the most part beyond the purview and time of this reviewer whose judgement is to that extent subjective.

There is much to commend this book, not least the inclusion of useful information on a range of topics. It is well-presented and by current criteria represents good value. Nevertheless, there are some general criticisms and in some instances omissions or errors in definitions, explanations and procedures. In the first category, it is evident that the book is aimed at the U.S.A. market; this is seen in the listing of equipment and culture collections, where European sources are generally, though not al-

ways, overlooked. It is also arguable whether in all cases the organisms recommended are the best for undergraduate classes, though in this context the criticism is balanced by inclusion of a significant number of experiments using macrophytes, which is to be commended. It would also be unreasonable and carping to list all the errors though some should not pass unnoted. Here, the statement (Exp. 21) that a problem with K_s as a kinetic parameter is that its value is not independent of V_{max} , the implication of optimum temperature for an enzyme (Exp. 14) and the reassurance in an enzymic assay (Exp. 24) that a "reaction *need not* be completed" rather than "reaction *must* be linear over the time period of the assay" are notable. Elsewhere, the consistent use of 'g' forces for centrifugations rather than speed settings (Exp. 4) or rpm (Exp. 18) for unnamed centrifuges would have been far preferable, whilst the error in structures of the phycobiliproteins (Exp. 11) is not an uncommon mistake in books and reviews even by pioneers in the field; here, a survey of all the variants which appear in the current literature would be a salutary exercise!

Inevitably, readers with a background of working with algae will sometimes have different, and maybe better, methods than some of those included but on the whole the experiments appear well-designed and the materials and procedures comprehensively described. The most notable omission was that of the rigorous purification of an algal protein, where several suitable examples are now in the literature.

These criticisms do not detract from my overall view that this is a useful text, one which all teachers of phycology will want to consider seriously, and also students in departments where this is a major option.

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