

or pulsed liquid-phase, mass spectrometry or manual procedures, and structure prediction.

The editors have chosen a cautious, comprehensive approach which presents some techniques which are no longer generally recommended. For example, a set of specific stains are described (p. 51) 'for completeness'; the dansyl-Edman procedure is explained (p. 138) although 'it has generally been superseded'; a potential method for disulphide determination is given (p. 52), presumably because there was no actual modern example of such an investigation; requests for extravagant amounts of material, 100 nanomole for carboxypeptidase digestion (p. 142) or 1 micromole for a mass spectrometric investigation (p. 101), are admitted without comment. However, the majority of the material is about current practice in the authors' laboratories and is usually well-written. Repetition between articles is almost inevitable in such a multi-author book but is kept to an acceptable level. Users of particular apparatus may also experience a repetition of the manufacturers' recommendations, but in general each chapter is enlivened with comments based on experience. The descriptions of HPLC microscale purification techniques by

Wilson and Yuan and of DABITC procedures by Yarwood were notable and generally useful.

The final chapter 'provides methods which can be used without recourse to sophisticated computer programmes' according to the Preface. Well, there is at least one such, but most of the chapter outlines very specialised pattern recognition procedures. The obvious first test of new sequence data is comparison with the known data in one of the large collections. This interesting, simple and informative process is only mentioned briefly 'as it has been comprehensively reviewed in a previous volume in the series' (p. 148). Sequence data analysis is now dealt with in at least three volumes of the series and the Series Editors need to plan carefully to avoid further dispersal of similar material into many volumes.

A number of other 'how-to' books notably those edited by A. Darbre and by J.E. Shiveley, cover similar topics. 'Protein sequencing' in the spiral-bound hardback form lies flat when open and can be read while holding test-tubes, pipettes etc. It is a convenient laboratory manual, but not an indispensable book on the subject.

Christopher J. Bailey

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**Fermentation: A Practical Approach;** Edited by B. McNeil and L.M. Harvey; Oxford University Press, Oxford, 1990; xiv + 226 pages; £19.00 (paperback), £29.00 (hardback)

This volume is the latest in the Practical Approach Series published by IRL Press. In the words of the editors, the emphasis of the book is upon 'laboratory scale practical applications with only a minimal coverage of the relevant theory'. In this respect, the book differs from most others on the subject, which tend to concentrate upon theory, industrial-scale applications and individual processes. The scope of this book is comprehensive, dealing with such subjects as strain preservation, inoculum development, laboratory fermenters and ancillary equipment/services, sterilisation, sensors, instrumentation and control, fed-batch and continuous culture, fermentation modelling and animal cell culture.

The book contains a wealth of practical information and guidance, which would be of great value to newcomers to fermentation, bearing in mind the multidisciplinary nature of the subject. The chapter on Fermentation Modelling, by C.E. Sinclair and D. Cantero, is worthy of particular mention. A knowledge of mathematical modelling is highly desirable, if not essential, if available facilities for fermentation development work are to be utilised with maximum efficiency. The article succeeds in its principal objectives, namely to acquaint the reader with the basic procedures involved and to illustrate

the potential value and applications of the technique. It is encouraging that such an article should have been included in a book which is, by its nature, introductory.

A less satisfactory aspect of the book is that it strikes a somewhat uneasy and inconsistent balance between theory and practice. In the reviewer's opinion, some of the contributions could have been improved, and rendered more comprehensible and useful to the reader, if a little more time had been devoted to the basic theory and principles involved, at the expense of some practical detail; this could have been accomplished without compromising, in any way, the stated intentions of the editors. Two topics, which could have been profitably included in the volume, are the formulation of industrial fermentation media and culture aeration-agitation; however, the difficulty in embracing all relevant subjects is recognised.

Despite the above reservations, the book should prove extremely useful to those entering the field of fermentation technology, particularly with respect to the conduct of laboratory-scale fermentations; as an introduction to the subject, it can be thoroughly recommended.

G.T. Banks

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**Protein Production by Biotechnology;** Edited by T.J.R. Harris; Elsevier Applied Science; London and New York, 1990; xiv + 243 pages; £45.00, \$81.00

Biotechnology, which can be defined as 'the application of biological organisms, systems and processes to manufacturing and service industries', has clearly been influenced greatly by the recombinant DNA techniques of genetic engineering,

especially in the production of useful proteins by cellular systems. The book contains 17 chapters that were originally presented as papers at the Biological Council symposium held in December 1988 on 'Protein Production: the exploitation of