



Book reviews

Biochemical Engineering and Biotechnology Handbook, 2nd Edition. Edited by B. Atkinson and F. Mavituna, Macmillan Publishers, UK, 1991. xxix + 1271 pp. Price £75.00. ISBN 0-333-42403-1.

The field of biotechnology and biochemical engineering is a vast and ever increasing one, involving the production of valuable products both by traditional biological methods and genetic manipulation. The scope of such biotechnological interest is broad, from creating products to compete with petroleum and coal as primary sources for fuels, to sources for the production of commodity chemicals or substitutes, to the development of natural products such as proteins and lipids for the agricultural industry. The largest area of application of biotechnology is in the brewing industry.

This book initially involves a mainly biochemical approach in discussing microbial activity and kinetics, general information on a variety of microorganisms (e.g. morphology and life cycles of bacteria, fungi, algae, protozoa, etc.), as well as nucleic acids, genetic techniques, and how they can be applied to improve fermentation. Having considered such things as microorganisms, microbial metabolism and growth and yields, this book goes on to consider the industrial application of such processes and the considerations involved, such as flow behaviour, mass transfer and mixing, heat transfer, product recovery, measurement and instrumentation, and costing and economic evaluation. Having taken into account all such considerations, the final chapter outlines specific industrial microbial processes, such as the production of amino acids (e.g. L-lysine), antibiotics (e.g. cephalosporin-C, penicillins), polysaccharides (e.g. xanthan gum, dextran) and vitamins (e.g. cyanocobalamin, riboflavin).

This book contains a wide range of information, showing many biochemical processes and how they are applied on an industrial scale. It is well presented, and expanded with respect to the first edition to account for new research and developments. It makes an ideal reference book, and is worth the price.

**Charles J. Knill
John F. Kennedy**

The International Biotechnology Directory 1992: Products, Companies, Research and Organizations. Edited by J. Coombs and Y.R. Alston, Macmillan Publishers Ltd, UK, 1991. 697 pp. Price £115.00. ISBN 0-333-56552-5.

The biotechnology industry is an increasingly important area of scientific industry as a whole. As its importance climbs, it is logical that the number of exponents of biotechnological services and products grows. It would be useful for anyone in the field to have a directory of organizations working worldwide within biotechnology, and this is exactly what Coombs and Alston have produced.

The directory is divided into three sections which list International Organizations and Information Services, Companies, Universities, Government Department, Institutes and Societies, and finally a Buyers' Guide to Products and Services. All of the information is presented in a clear, concise manner and is, most importantly, easily accessible. This is by no means an easy task when one is dealing with over 10 000 entries; dividing the entries into countries was a master stroke in saving the reader time (American entries are further subdivided into States).

It should be pointed out that 'The International Biotechnology Directory' is more than an expensive telephone directory, because it gives an outline of the work performed by each organization or company. A very useful tool if you require a specific skill or task to be performed. This is made even easier with the 'buyers guide' which has a 'product category' section where one can look up the required product and find a list of suitable producers, together with their location.

This directory will be an essential purchase for any company involved in the biotechnology industry, or for those involved with purchasing products from the industry. A 5% increase in the number of entries is probably enough to encourage purchasers of the previous (seventh) edition to purchase this eighth edition, although this will be a matter of personal discretion or company budget.

**John F. Kennedy
David W. Taylor**