

and related beta-lactam antibiotics from 3-hydroxybutanoic acid (G. I. Georg).

All of the reviews are reproduced from camera-ready copy, but are of a uniformly high print standard. There is a comprehensive index of 28 pages. The book thus contains a wealth of interesting and varied chemistry, and many libraries will be asked to purchase a copy by synthetic chemists who cannot afford the high price of a personal copy.

J. Mann

Micronutrients in Milk and Milk Based Food Products. Edited by E. Renner. Elsevier, Amsterdam, 1989. ISBN 1-85166-309-6. xiv + 311 pp. Price: £48.00.

This book reviews the quantitatively minor components present in milk, the concentrations in most cases being below 1000 ppm. The approach concentrates on the physiological and nutritional implications rather than on the analytical methodology that has been employed in obtaining the wide spectrum of information summarised and discussed in the reviews. The book is presented in the form of four major sections.

Chapter 1, contributed by Renner *et al.*, is a general review of micronutrients in milk, including comparisons between cow's milk, human milk and milks of other species. Major subdivisions, virtually chapters in themselves, cover the lipid, protein and carbohydrate micronutrients, minerals and trace elements, vitamins, enzymes, organic acids and hormones. With the extensive referencing of such a wide field a variety of units are used, though in many sections the authors have sought to help the reader by quoting equivalents, e.g. mg/litre and μM .

Chapter 2, contributed by Scott, reviews micronutrients in milk products, dealing with the interaction between the processing and the components. This section is primarily concerned with cow's milk.

Chapter 3, by Harzer and Hasche, contributed a major section (114 pages) on micronutrients in human milk. This section complements and considerably extends the review in the first chapter.

The final chapter, by Hurrell *et al.*, reviews the application of the body of knowledge to the provision of micronutrients in infant formulae. This covers the modification of cow's milk to provide micronutrients at levels more closely approximating to those in human milk and, in feed for preterm babies, to provide a feed that should more closely meet these special needs. The nutritional considerations form a major part of this review.

The text is extensively referenced, covering the period up to and including 1987. Summary tables and graphs are used extensively but chemical structures are omitted.

This book provides a very useful reference source for dairy scientists and technologists, and for those with an interest in nutrition. It is particularly recommended to those with an interest in infant feeding, especially the production of substitutes for human milk.

R. Andrew Wilbey

Food Additives Handbook. By Richard J. Lewis Sr. Chapman & Hall, London, 1989. ISBN 0-442-20508-2. xxxi + 592 pp. Price: £45.50.

This book serves a similar purpose to the Food Chemicals Codex, listing synonyms, properties, purpose, CAS (i.e. Chemical Abstract Series) number, where used, regulations, safety profile and toxicity (if any) of the food additives. Some additives have DOT (i.e. US Department of Transport) numbers, which are codes for safe shipping. It differs from the Food Chemicals Codex in numbers of additive per page (several), readability and extent of content. In comparison to the Food Chemicals Codex the book is stronger on the toxicity, safety and regulating side, and contains more information. However, this is at the expense of readability as the Food Chemicals Codex has only one or two substances in sight on any page opened.

The book is very well organised with a guide to its use, key to abbreviations and final section, which contains four different indices:

- Purpose Served in Foods Cross-Index
- Food Type Cross-Index
- CAS Number Cross-Index
- Synonym Cross-Index

The book ends with a 'Codex Bibliographic Citations'. Its valuable and extensive compilation of data on over 1350 food additives makes it a formidable contribution to modern food science and technology. The price is very modest and it is highly recommended.

Gordon Birch