humidity charts and the second to a bibliography related to drying solids and related topics.

Of particular interest to the food scientist or technologist would be the chapters on drying of foods, drying of agricultural products, evaporation and spray in the dairy industry, industrial spraying drying systems and energy aspects in drying. Food applications are also provided in the chapters on freeze-drying, solar drying and spouted bed drying. There is some discussion of nutrient losses in food dehydration but microbiological aspects are largely ignored. There is no mention of the problems encountered when drying sugars, or glass transition temperatures, although sticking temperature is defined.

The fundamental aspects are comprehensively covered, with particular reference to using enthalpy/humidity charts for following drying processes. In this section there is a good introduction to drying followed by chapters on experimental techniques in drying and basic process calculations in drying. For the most part, consistent symbol nomenclature is used throughout these theoretical chapters. My only comment would be that some of the diagrams could have been given slightly more explanation in the text. The sections on the different types of drier are very comprehensive.

The book is very well presented and offers a comprehensive review of all aspects of Industrial Drying. There is a useful index in which some foods are listed. This is a very important reference source for scientists and technolgists involved with drying applications.

Mike Lewis

Nutrient Availability: Chemical and Biological Aspects. Edited by D. A. T. Southgate, I. T. Johnson and G. R. Fenwick. Royal Society of Chemistry, Cambridge, 1989, 404 pp. ISBN 0-85186-856-8. Price: £45·00.

Bioavailability is becoming an increasingly important subject in the field of nutrition. Although it is well known that dietary minerals are badly absorbed, this aspect has received greater attention in recent years owing to the realisation that encouraging the population to increase the fibre content of their diets may also reduce mineral availability. Although minerals are perhaps a dominating theme of this book, the availability of other nutrients is also discussed, including major and minor nutrients. As an example of the latter, beta-carotene has been one area which has occupied that attention of nutritionists over recent years because of suggestions that high levels in the diet may reduce risk of some cancers. The forms of this (*cis* versus the natural *trans* form), and therefore its potential value as provitamin A, are covered.

The book is based on the proceedings of a multi-disciplinary conference (*Bioavailability '88*) organised by the AFRC Institute of Food Research at the University of East Anglia, Norwich, England, 21–24 August 1988. It comprises about 100 separate contributions written as short papers organised into 7 broad subject groups and workshop reports. Each separate paper has between 1 and 8 authors. The broad subject headings are:

(1) The concept and significance of nutrient bioavailability.
(2) Physical and chemical techniques for the measurement of bioavailability.
(3) Analytical techniques.
(4) The importance of speciation.
(5) The bioavailability of the trace minerals iron and zinc.
(6) The bioavailability of other minerals and toxic metals.
(7) The bioavailability of organic nutrients and energy.

Each section is started by a review and is followed by papers of original work. The authors come from many European and Third World countries with representatives from North America, Japan, Australia and South America. Their contributions bring together a unique monograph of expertise on the state-of-the-art research on nutrient availability. Each article is short, out of necessity with so many contributors, but nearly every paper contains either one or more figures and/or tables of data. References are given at the end of each paper and are limited in most cases to 5 or 6 key papers. However, to save on space, the editors have opted not to put in titles of articles, which makes references so much less useful. In my view the extra space taken up by titles is more than compensated for by their usefulness to the reader. There is a well thought out index provided, which is so essential for a book like this with so many contributions.

This is a valuable reference book in a field of growing importance for compiling food composition tables, for food labelling and the setting of Recommended Daily Amounts (RDAs) of nutrients. Food processors may be particularly interested in the effects of processing on bioavailability—a point dealt with by many authors. The studies included in the book range from in-vitro work to rat assay, farm animal studies and clinical trials.

Although this is not a book for the uninitiated, it will provide an excellent reference source for the researcher and provide simulating ideas for the technical teams in the Food Industry. It is perhaps not unexpected, with so many authors, that the presentation should be in camera-ready style, which always detracts from the integrity of a book. Nevertheless, the editors are to be congratulated on completing such a compendium which must have been aided immensely by this means of presentation.

Ann F. Walker