

*Metal Contamination of Food: Its Significance for Food Quality and Human Health.* Conor Reilly. 3rd ed. 2002. Oxford: Blackwell Science. pp. 266 + xviii. £79.50. ISBN 0 632 059273.

The past 25 years have seen a remarkable increase in public concern about the contamination of food, probably fuelled by the significant advances in our capability to detect such contamination. Nowhere is this more notable than in the area of metal contamination. Since the publication of the 1st edition of this book in 1980, measurement capability for the determination of metals in food has improved by approximately three orders of magnitude. Indeed, the concept of contamination would appear to be a little dated, as most metals can now be determined at naturally occurring levels. Yet there is an undoubted need for such measurements to assure the public of the safety of food and to understand the significance of trace metals to human health and nutrition. Sensibly, the author has added a new subtitle to acknowledge this.

The advent of new routine analytical methodologies, particularly inductively coupled plasma–atomic emission spectrometry and inductively coupled plasma–MS, which are both multi-element techniques, has necessitated extensive rewriting of the text compared with previous editions. This is essentially a new book with a new publisher, Blackwell Science, replacing Elsevier Science. With the exception of the introduction, which by its very nature tends to look at the past, the book is up-to-date and clearly shows the extent of the rewriting undertaken.

The book is organised in two parts. The first concerns general aspects and the second part considers the individual metals in turn. The author is properly cautious in classifying the metals we consume in our food as essential or non-essential, toxic or non-toxic, for it is often difficult to distinguish these categories and the classification depends to some extent on the amounts consumed. This is not a treatise about food safety and nutrition and the author moves speedily into a discussion of analytical techniques. The chapter outlining these techniques is sound, if not particularly detailed. Pleasingly, the importance of sample preparation is stressed and references to original papers abound for those wishing to locate more detail. Perhaps the author might have given more indicators as to the limitations of some techniques. The important and growing field of speciation, i.e. the determination of the different chemical forms of the metals in question, which determines, of course, issues such as toxicity and bioavailability, is introduced. The importance of analytical quality control is also mentioned, but given the significance

of this to regulations, health and safety, I would have wished to see more than one page on this important aspect.

Chapter 4 describes how metals get into foods and is an excellent review of this area. The following chapter deals with legal aspects. The discussion of the historical aspects is fascinating and a reminder that a relatively brief text covering such a diversity of areas could easily be expanded to be a series of books.

Reilly manages to sustain the readability of the book when dealing with the individual metals by linking the metals discussed in logical group, e.g. Pb, Hg and Cd. In each case the history, properties, sources, effects, occurrence and analysis are considered. It is a real achievement to get so much detail into a book of less than 300 pages. This necessarily means if the text is to be comprehensive there are some restrictions on detail: this can be particularly frustrating as regards the analytical details. Mention is made of a number of metals increasingly found in food but not usually covered in general texts.

It is fascinating to note that, even with the inclusion of formerly 'exotic' metals such as Zr, less than half the metals and/or metalloids known to man are covered. One suspects a 4th edition would have to extend the list of metals considered still further.

This book is clearly targeted at a general audience in the food industry, including those working in food processing, regulation and general analytical laboratories. Libraries will be anxious to have this comprehensive text on their shelves if only for the authoritative overview that Reilly demonstrates in his subject area. As might be expected, Professor Reilly is particularly strong in his consideration of Se and implications for human health. This reviewer would have welcomed more discussion and detail about metal speciation. The book suggests that the study of speciation is still in its infancy, whereas one could argue that regulators need to take speciation more seriously; texts such as this could aid those not in the forefront of research to appreciate the importance of speciation.

The text is well presented and lucid throughout. It is a worthy successor to the previous editions.

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