different fibre types in lung cancer may be small and can probably be safely overlooked. This assumption cannot be made for mesothelioma where consistent evidence has been obtained that almost all peritoneal and the great majority of pleural mesotheliomas are caused by exposure to amphibole rather than chrysotile asbestos. A further difficulty in the use of extrapolation to estimate mesothelioma risk is the absence of dose–response data on which to base the extrapolation. The authors of this report faced a difficult task but I fear their conclusions have not been sufficiently informed by much relevant, albeit recently obtained, information. Their method of risk assessment seems likely to have over-estimated the dose–response data the risk of ambient concentrations of amphiboles and the possible risks posed by exposure to non-asbestos fibres remain uncertain and in need of data on which informed opinion can be based.

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L. O. NABORS and R. C. GELARDI (eds) Alternative Sweeteners Marcel Dekker, New York, 1986. 355 pp. $64.75 Hard cover

This interesting book provides information on a wide variety of alternative sweeteners, ranging from those available today to those undergoing investigation for final approval and successful use. The volume is very well organized. The first chapter establishes the human’s innate desire for sweet taste and introduces the general procedure that sweetness of a given substance is evaluated in relation to sucrose. It describes the purposes of using alternative sweeteners and the requirements for an ideal sweetener; the regulatory demands for the evaluation of food additives associated with the control of additives and related health aspects. All these topics bear directly on the information presented later on specific sweeteners.

The remaining compilation deals with each alternative sweetener in separate chapters, commencing with the better-known saccharin, aspartame, and cyclamate, to the other less familiar alternative sweeteners. Each discussion usually begins with a historical view on how a sweetener was first discovered and used, and proceeds to discuss aspects such as physical and chemical properties, production/manufacture, use, economics, safety evaluation—toxicology and metabolism, and regulatory status. The format is orderly and consistent throughout the volume. This makes it extremely easy for the reader to find selected subjects of interest pertaining to any specific alternative sweetener.

Although the editors declared that the various factors presented were discussed in depth and that the information provided was comprehensive, a reading of the text did not provide such an impression. Varying degrees of detail are given for the alternative sweeteners considered in the book. For example, the information on ‘Carcinogenicity and Toxicity’ for saccharin is afforded more than three pages of discussion, whereas the information on the same topic ‘Toxicology and Carcinogenicity’ for aspartame is only discussed in a 6-line paragraph, summarized from six studies. On the other hand, the coverage is adequate and the information is sufficient for an interdisciplinary reference book. The chapters are generously referenced so that the interested reader will be able to obtain more details on selected subjects of specific alternative sweeteners through the use of the extensive bibliographic references.

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THOMAS E. HAMM Jr. (ed.) Complications of Viral and Mycoplasmal Infections in Rodents to Toxicology Research and Testing (Chemistry Institute of Toxicology Series). Hemisphere Publishing, Washington 1986. 191 p. $49.95. Hard Cover.

The adverse effects of unrecognized infections in laboratory animals on the results and interpretations of experiments or studies being done can be serious, and should be anticipated by any researcher. This collection of nine brief review articles (each a chapter in the book), which were presented at the Sixth Chemical Industry Institute of Toxicology (CIIT) Conference in 1983, is a useful addition to the literature on this important subject. Although the book addresses only viral and mycoplasmal infections of rodents as they affect toxicology research and testing, the general principles and quality control recommendations have broader applicability.

Chapter 1 is a review of murine viruses and mycoplasma that are potential or actual problems, with a summary of antibody prevalence data from commercial breeding colonies over a two-decade period up to 1982, abstracted from the records of Microbiological Associates, Bethesda, Md. Chapter 2 is a similar review based on records from the National Cancer Institute Biosay Program. Chapters 3–5 are more comprehensive summaries of the state of knowledge and significance of particularly important individual agents (Sendai virus, rodent coronaviruses, and murine mycoplasmas). Chapters 6 and 7 briefly cover serologic and virus isolation methods for detecting the presence of specific viruses and mycoplasma in laboratory rodents. The final two chapters review procedures for breeding and monitoring laboratory rodents free of these diseases, including the preventive program at CIIT.

This information is important for anyone involved with the use of laboratory rodents for research, from administrator to laboratory technician. The book is a good general review, not a detailed laboratory test procedure manual or comprehensive treatise on rodent diseases. Each chapter is documented by appropriate references, and the print and photographs are of reasonable quality. Unfortunately, the high price ($49.95) for a book of only 191 pages may limit its distribution to the many research institutions which should have and utilize this kind of information and advice.

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Toxic Susceptibility: Male/Female Differences John Wiley & Sons, New York, 1986, 336pp. $59.95. Hardcover.

Owing to the changing gender in the work environment, occupational health workers have been scouring the literature for relevant information on the differences in toxic responses between the sexes. This book by Edward Calabrese should therefore be a boon to the researcher concerned with this topic because the author has already performed the preliminary literature search up through the late 1970s and early 1980s and condensed the information into this handy volume. While the information is somewhat dated, Chapter 2 on the biochemical and physiological differences between the sexes is particularly valuable. It provides a basic understanding of the etiology of these sex differences and therefore a mode of possibly predicting that there may be a sex difference for the compound under consideration. Known differences in gastro intestinal tract absorption, plasma binding, biliary excretion and enzyme activities, to mention a few, are topics that are discussed to the extent possible from the gleaned information.

Specific chemicals are used to illustrate these differences and the data on humans or animal species (usually the mouse or the rat) are presented. Chapters 3, 4 and 5 further elaborate on the biochemical and physiological changes that occur during pregnancy; the reported inherent difference in the activity of liver toxins and the reported inherent difference in nephrotoxins. The next five chapters discuss the sex-related differences in toxicity for a variety of inorganic and organic contaminants, as well as drugs, oral contraceptives and endogenous substances (biochemistry and physiology of the hormones). The final
chapter is relatively brief but does a creditable job on presenting a coherent overview of the prior discussions.

The organization of each chapter is designed to provide all the available information on a sex difference for a given topic or designed to provide all the available information on the differences in kidney structure or the component references follows each such discussion so the reader needn’t look far for the references. This uniform format is very useful to the beleagured toxicologist because the discussion on a particular chemical can be quickly located and expeditiously reviewed.

Although the price of this relatively small book seems high it is probably a worthwhile addition to the bookshelf since it provides a quick check for what may be already known or save time when mounting a preliminary literature search.

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D. E. RICKERT (ed)
Toxicity of Nitroaromatic Compounds
Hemisphere Publishing Corp., Washington, 1985. 295pp. $58.

Nitroaromatic compounds are important materials in the chemical manufacture of dyes, explosives, drugs, pesticides, and plastics. In addition, polycyclic aromatic nitro compounds have been identified as potentially hazardous environmental pollutants. This book is an intensive review of the toxicology of a wide variety of industrial nitroaromatic compounds. There are eighteen chapters, contributed from 47 authors/co-authors who are specially interested in the toxicology of nitroaromatic compounds.

Although the book has only 295 pages, the contents of the book cover a wide range of toxicology including in vitro and in vivo mutagenicity studies, evaluation of teratogenic potential, carcinogenicity, percutaneous penetration, sex/strain/species differences, metabolisms, mechanisms, epidemic studies on fertility of workers and subclinical effects. In addition, structure–activity relationship studies and risk assessment models on nitroaromatic compounds are also discussed. The editor has well organized the contents with little overlap throughout the chapters. It is definitely a valuable reference for toxicologists, pharmacologists, dye and other research and development chemists, epidemiologists, and environmental scientists who are interested in the toxicology of nitroaromatic compounds.

R. JOLLY, R. BULL, W. DAVIS, S. KATZ, M. ROBERS, Jr. and V. JACOBS (Eds)
Water Chlorination—Chemistry, Environmental Impact and Health Effects
Lewis Publishers New York, 1575 pp., £64.35, Vol. 5

This compilation of 116 papers from the 5th Conference on the subject covers 1526 pages. It is well edited, easy to read for the most part, despite the numerous authors, covers almost all aspects of use of disinfectants in the aqueous field except for leisure and swimming pools which is disappointing as there is evidence of adverse health effects, e.g. Legionella from whirl pools, skin infections from swimming pools. However, for those involved in water treatment, effluent disinfection, and public health effects of chlorination of water, and researchers, it is an essential reference book, presenting a balanced overall view of the necessary advantages and the undesirable ill effects of disinfection by chlorine and some of its alternatives. There is some straying from the main theme of chlorination but it is to the benefit of the reader, since chlorine dioxide, chloramine and ozone are also discussed in appropriate sections and they are currently of considerable interest.

The book is a well-indexed volume with lists of references to each paper to make it of great value to researchers. Despite its slant towards US standards, the book has universal application.

The first 96 pages on basic issues set the scene, ably demonstrating the continuing need for disinfection of water supplies to protect public health. This and the following 35 pages on Risks contain many useful data. However, ozone is viewed optimistically as no mention is made of its generation of bromine or chlorine from their salts so it can give rise to haloform production. A short section on epidemiology describes few case histories, and leads to 200 pages on Carcinogenicity, Mutagenicity and Toxicity of disinfectants and their by-products, which are up to date and present a generally consistent set of results giving powerful evidence of presence of potentially harmful substances but which require sensitive mutagenicity tests for detection. No direct clues on likely effects on humans appear.

While chloroform production has been a major concern so far in water, it may be a surrogate indicator for possibly more hazardous chlorinated compounds. There is a suggestion that some chlorophenolic compounds may be co-carcinogens or immunotoxic after reaction in the liver. The toxicity of chlorine dioxide is given in some detail. It is also suggested that toxicity of chlorination may be masked by beneficial effects of other water characteristics. 80 pages are used to describe use of fish and aquatic models to study tumour initiation. Another 70 pages cover environmental effects of chlorinated discharges on oysters, mayflies, and phytoplankton.

One third of the book is devoted to mechanisms, dynamics of disinfection processes even in the presence of proteins and amino acids. Virus inactivation and Legionella are not neglected. Optimum generation of chlorine dioxide, decay of chloramine in the presence of nitrite, haloform production, with the lesser realised chlorination may be masked by beneficial effects of other water characteristics. 80 pages are used to describe use of fish and aquatic models to study tumour initiation. Another 70 pages cover environmental effects of chlorinated discharges on oysters, mayflies, and phytoplankton.

Finally, experiences of chlorine treatment of drinking, cooling and waste-waters in Holland, USA and France are described together with reports of work using granular activated carbon, novel treatments and attempts at reducing levels of mutagenic activity. The value of ferrate as an oxidant and its potential for use with drinking water was not tried. Environmental impacts of chlorinated cooling and wastewaters are described. These last 400 pages are the least well edited part of the book. The most valuable part for UK readers is the earlier part concerned with health effects.

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