BOOK REVIEWS

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Environmental Epidemiology Exposure and Disease. ROBERTO BERTOLLINI, MICHAEL D LEBOWITZ, RODOLFO SARACCI, DAVID A SAVITZ. (Pp 238; price £49) 1996. Copenhagen: World Health Organisation Regional Office for Europe, Lewis Publ. ISBN 1-56670-067-1.

There is a clear need for text books in environmental epidemiology. They should help those who organise courses to come closer to an international understanding of methods used in environmental epidemiology and to help those who attend these courses to understand and judge literature in this field. This new book is one step in this direction. However, its ambitions are different: it therefore gives a very useful overview about problems in the field but does not concentrate on how these problems can be solved. As the book is a collection of different papers by different authors, the level of the contributions is also different. General statements on environmental epidemiology are practically found in every chapter. While it is probably necessary to say that environmental epidemiology looks for weak associations and it is therefore necessary to conduct large studies, more details on methodology would be helpful to the reader.

The book has three chapters, one on exposure which includes health effects, the second on disease (neoplastic diseases with a special chapter on lung cancer and non-carcinogenic respiratory diseases) and a methodological chapter. Non-respiratory outcomes other than carcinomas are not covered and the methodology chapter is limited in its approach; which makes it clear to the reader that it was not the intention of the authors to write a text book. However, each chapter gives an extensive list of references. This can be helpful to the informed reader but is difficult for somebody who wants to get a first impression. The reader looking—for example, for proved effects of pesticides on cancer will be surprised to see a table which only gives names of authors of references and not the names of the pesticide studied or the cancers linked by the specific studies to this type of exposure.

The extensive review of literature given in this volume can be useful to supplement the lack of publications in textbooks on environmental epidemiology. A very important con-

tribution is table 2 in the introduction, which defines priorities for research in environmental epidemiology. The individual papers, however, do not always respect this particular consensus, which apparently was decided during the meeting on which this book is based.

An informed reader would have liked a clear division between short term and long term effects of environmental pollution and this in relation to exposure and to disease.

The book is a useful addition to the library for those who teach environmental epidemiology. The introduction should be read by all those who fund research in environmental epidemiology and the book can be used as background for this particular purpose. In this perspective I wish the book a very wide readership.

URSULA ACKERMANN-LIEBRICH

Air Pollution and Lung Disease in Adults. PHILIP WITORISCH, SAMUEL V SPANGOLO eds. (Pp 320; price £175.) 1994. Boca Raton, Florida: CRC Press. ISBN 0-8493-0181-5.

The editors direct this expensive book at a broad multidisciplinary audience. They aim to describe general approaches rather than specific conditions, so that the reader can gain a broad understanding which will not date rapidly.

This is a wide and worthwhile remit. I found the book narrower in two principal ways. Firstly, its focus on general approaches is overridingly medical—for example, on medical measurement of outcome; on pathology; on mechanisms of disease (including dosimetry); and on treatment. As a non-physician I found some of this very interesting, for example "*Principles of carcinogenesis; oncogenes and suppressor genes; and DNA damage and repair mechanisms*" or "*Immunologic mechanisms in immediate hypersensitivity*". But there is little here on less medical aspects such as the principles of assessment of exposure, establishing exposure-response relations, control strategies; and these are at least as important for a multidisciplinary audience.

The second limitation is a focus almost entirely on *occupational* lung diseases with some reference to indoor air pollution. None of the chapters is directed principally towards the cardiorespiratory effects of ambient air pollution. Given the title, and inclusion of arguably irrelevant material like a section on radiation and leukaemia, this is a major omission. Introductory remarks on ambient particles are based on the United States Environmental Protection Agency Guidelines of 1976 and so are seriously out of date.

I was asked to focus on chapter 5 "Causality assessment: causal inference in toxicology". It is good to have such a chapter, which is consistent with the book's overall aims. I liked the chapter's structure, based on a three question framework attributed to Lane (1983):

(1) *Can it?* Is there sufficient evidence in general, from epidemiology and animal studies, to support a (causal) relation? This is a simple version of a key question. (More challenging, and arguably necessary for policy, is the quantitative corollary: and if so what is the shape of the environment-risk relation? How big are the risks?). The evalu-

ation is correspondingly simple, focusing on simple exposed *v* non-exposed contrasts, with no attention to varying degrees (intensity, duration) of exposure. There is a short and generally adequate introduction to biases and confounding, including for example differential misclassification of response. There is also some wisdom—for example, that criteria for causality be used to help to interpret evidence, not as rigid rules; and that Popper's philosophy of science to reject hypotheses is inadequate for public health policy.

(2) *Did it?* Causal inference as applied to specific people, as in compensation cases. There is a good focus on giving weight to the particularities of each situation. This includes a short section on exposure assessment, with a perhaps overoptimistic faith in biomonitoring. Probabilistic inference based on Bayes' theorem is described in some detail as a framework for assessment, with an acknowledgement that subjective interpretation is unavoidable.

(3) *Will it?* Quantitative risk assessment of future impacts, links between environment-risk information and the at risk profile of a population (or person) at risk. There are brief discussions of animal to human scaling and low dose extrapolation.

Overall, I found this chapter quite heavy going for not very great reward. The style is dense and so the material, although good in parts, is not easily accessible. Indeed, the same could be said for the book as a whole. Given its price and narrow focus, I see it as a useful addition to libraries that have avoided budget constraints.

FINTAN HURLEY

Pollution: Causes Effects and Controls 3rd edition. ROY M HARRISON. (Pp 480; price £35.) 1996. Cambridge: The Royal Society of Chemistry. ISBN 0-85404-534-1.

Pollution has become a preoccupation of contemporary society and scholarship. Thus it is understandable that books on pollution require frequent reprinting and new editions several times a decade. Nevertheless, it remains relevant to consider whether this new edition is needed and should those who own earlier editions purchase the new one, because it is all too easy to claim that rapid advancements demand new editions. Harrison has shifted the balance of the third edition and aimed to remove more specialist chapters to achieve a wider general coverage. There is no doubt that the scope is wide and it was pleasing to find well written chapters on aspects of pollution such as sewage, soils, and toxic waste treatment, which are not often dealt with so fully in general works on environmental chemistry. The editor thought it important to include material on air pollution and public health, giving us an important and timely chapter.

I was occasionally uncertain about the criteria adopted for revisions. To claim that there is "an increasing interest in the problems of acid rain" seems like a trace fossil left from an earlier era, given the declining media attention and scientific publication in this area.

The first four chapters of the book cover aspects of water pollution that include marine pollution, drinking water, and biological aspects. These represent good introductions to the area and the seemingly

specialist chapter on pollution of drinking water quality and health has the merits of introducing the reader to such well debated topics as: nitrates and gastrointestinal cancer, water hardness and cardiovascular disease, and aluminium and Alzheimer's disease.

There are effectively seven chapters on air pollution. The United Kingdom, or at least European bias of many of these chapters, is understandable, but at times the very specific examples offered could make the book seem unnecessarily parochial to non-United Kingdom readers. A chapter on the effects of air pollution on trees and crops was suitably detailed. Road traffic is now seen as one of the most important sources of air pollution and an excellent chapter on this covers technical and sociological aspects in a vein that rightly questions issues such as inspection and maintenance programmes. The chapter on radiation did not seem to offer anything especially new, although it does give examples of individual releases. Both this chapter and the one on health effects of environmental chemicals were valuable because they covered incidents, whose outcome and investigation failed to be reported as avidly in the media as the initial event.

The chapter on the legal control of pollution was at once philosophical, yet balanced with detail on specific legislation.

Like any book with 20 chapters under different authorship; it is open to the criticism of unevenness in style and approach. And of course one yearns for synthesis, but I know that is too much to ask for here. We can all find particular gaps between the chapters, but students of environmental medicine will not fail to grasp the breadth of the field by reading this work. The expert will, no doubt, find it useful to have as a reference work in those less familiar areas. It represents a volume that is excellent value for money even for those who own the first edition. Evolution means that the third edition stands taller than most of its competitors.

P BRIMBLECOMBE

The Merck Index: 12th edition 1996. (\$US 25.) 1996. New York: Merck. ISBN 0911910-12-3.

The Merck Index is the most widely used single volume encyclopedia of chemicals, drugs, and biological products. At less than

£30.00 for a well made book of 8 cm thickness providing information on more than 10 000 substances it is a real bargain. "Merck" is also available on CD-ROM although the hard-copy still offers a unique opportunity to those who have not completely adapted to the computer age for browsing from compound to compound.

Each substance is treated by a short monograph providing the essential data. There seem to be more structural formulae in this edition than in earlier ones. The range of substances covered is awesome as is the detail packed into each monograph.

Has this book any drawbacks? Inevitably one would like more toxicological information. Providing this would mean either a second volume (this should be resisted) or a more selective coverage. Given that the book cannot expand indefinitely I think the editors should consider moving to dividing the compounds into those needing better toxicological data and those for which some shortening of the monographs could be acceptable. This sounds like nit picking and to some extent it is. *The Merck Index* is an indispensable book and its editor and publishers should be congratulated.

R L MAYNARD