persons and the left-hand page in red type is for medical and allied persons.

The idea is commendable. The Hazard Data Sheets are useful and authoritative, the notes on the medical data may be useful to industrial first aiders. However, medical staff in industry and postgraduate centres should have something more full.

There are a number of unfortunate inaccuracies in the book. One general point is that it does not make clear the difference, pointed out by Munn, between the toxicity of a substance and the toxic hazard of a process. It is an important point for managers and trades unionists to grasp.

W. R. LEE

Heavy Metals as Air Pollutants: Lead, Zinc and Cadmium. VDI Commission Report No. 203. Proceedings of a Colloquium held in Dusseldorf, 1973. (Pp. 98; no price stated.)

The colloquium was set up so that German and overseas experts could express their views and provide evidence for the setting of the maximum emission concentration (MIK).

This document should be read by all who have an interest in the subject of pollution. Those with clinical and practical environmental experience will readily recognise the many excellent papers providing sound scientific data and revealing areas where knowledge is incomplete.

On the other hand there are also a number of papers which make unwarranted assumptions and calculations from inadequate data to support what sometimes appear to be preconceived ideas. Who then is to guide the politicians who will make the laws and regulations? Knelson and Bridport state that only after deliberate and unbiased examination of available data can judicious choice of standards be made. Their references would seem to be selective and the statement that Moncrieff *et al.* in the *Archives of Diseases in Childhood* (1964, 39, 1-13) reported clinically overt lead poisoning is incorrect.

Piscator's contribution on cadmium is sound and a good deal of useful information on the effects of heavy metals on plants and domestic animals is included.

The lack of a clear basis on which to make a politically sound judgement for legislation or regulations, lends considerable weight to the pragmatic approach

of the British Alkali Inspectorate of 'best practical means'. This approach has already resulted in more uniform standards and a better standard of control than is being achieved in most other countries. The levels are set in accordance with up-to-date knowledge by experts with practical experience of control methods. Standards can be altered quickly in the light of new knowledge without further legislation.

There is a strong lobby to reduce the MIK for lead in air and this would be justified if there was any real evidence of harm to the health of populations, but no adequate evidence is produced in these papers. As Dr Symanski points out, there is no evidence of ill health in the population of the Meza valley where very high lead in air concentrations have existed for 80 years.

D. MALCOLM

Current Approaches in Toxicology. Edited by Bryan Ballantyne. (Pp. 310; illustrated; £8.50.) John Wright & Sons Limited: Bristol. 1977.

The aims of this book, as defined in the Preface, are to present an overall approach to the requirements for toxicity tests, to discuss the interpretation of the results of such tests, to emphasise the influence of different factors on the reactions between chemicals and biological materials, to analyse particular aspects of toxicology of current interest and to indicate future trends and developments. Not all of these aims are realised, partly because of imbalance in the selection of topics and partly because, as with many multi-author works, the chapters vary considerably in standard and coverage of the subject matter.

Five of the 19 chapters are devoted to inhalation toxicology and respiratory irritants and at least some of these should be particularly relevant to occupational medicine. General principles in the design of suitable protocols for long-term inhalation studies, for example, are discussed clearly and in detail by D. G. Clark, while D. Poynter selects epidemiological and experimental investigations to illustrate attempts to determine the health hazard of different chemicals introduced into the human lung.

Important aspects of current toxicological testing are covered by essays on ototoxicity and ophthalmic toxicology. Under the former heading P. F. D'Arcy

and E. S. Harpur give a detailed account of the search for simple effective screening methods and, while they implicate antibiotics as the principal offenders, present a case for the introduction of a requirement for routine clearance of new drugs from ototoxic side effects. The scope and limitations of acute eye irritation tests are reviewed by B. Ballantyne and D. W. Swanston, who stress the lack of a suitable animal model for the human eye and critically assess the current use of the rabbit for such investigations. In a further detailed chapter, B. Ballantyne, M. F. Gazzard and D. W. Swanston cover the methodology of applanation tonometry in ophthalmic toxicology and the significance of measurements of intraocular pressure. Diurnal (temporal) variations, which complicate the evaluation of changes in intraocular pressure are discussed in relation to general toxicological methods by D. Gall in a separate chapter.

The design and evaluation of reproductive toxicological studies are covered by J. P. Griffin, and by A. K. Palmer in two interesting and clearly presented chapters, while F. Beck considers the ferret as a possible standard for teratology studies. Also of interest is a brief review by P. Grasso and D. Grant of short-term toxicity tests for carcinogenicity, which provides a critical evaluation of the current state of the art and illustrates the limitations of the methods at present available.

Other chapters, of more restricted interest, are provided by M. Sharratt (Evaluation of the safety of chemicals), J. A. Styles (Use of tissue culture in toxicological testing), S. H. Curry (Principles and importance of drug metabolic studies in toxicology—a chapter that contains a number of mistakes in chemical formulae), J. R. B. Williams, J. P. Griffin and E. Maughan (The influence of species, dose and route on the metabolism of rimeterol), A. Richens and G. W. Houghton (Influence of dose in metabolic studies with phenytoin) and M. F. Cuthbert (Adverse reactions to anti-rheumatic drugs, some correlations with animal toxicity studies).

M. WEBB