many attempts to combine all the environmental factors involved into a single figure or index, inadequate attention has generally been paid to the importance of physiological variability. The monograph therefore has as one of its aims a quantitative examination of the importance of physiological differences between different subjects.

The first four chapters deal with the physical principles of heat exchange at the skin surface. This part of the book is particularly successful. Complex mathematical formulae and relationships are explained in simple language and the reader is encouraged to understand their meaning through a skilful use of analogies and illustrations. The non-mathematical reader may even begin to believe he understands the significance of those mysterious dimensionless numbers—Grashof, Lewis, Nusselt, Prandtl, Reynolds, Schmidt, and Sherwood.

For any readers of this journal interested in thermal comfort, the section on clothing will be especially welcome. This is an important area of knowledge where there are still large gaps and much uncertainty.

The chapter on physiological responses is perhaps a little disappointing; the author says it 'presents a personal and not necessarily orthodox view of the current position, an indulgence which will be justified if it provokes controversy'. The chapter is certainly limited in its scope but it gives a sound and authoritative account of the control of sweating and body heat conductance.

The latter half of the book is devoted to the problems of heat stress indices. The attributes of an 'ideal' index are first carefully examined and then some of the more important indices are reviewed. Those reviewed fall into three groups:

1. Indices based on analysis of heat exchange:
 - (a) Heat stress index of Belding and Hatch (HSI),
 - (b) Index of thermal stress (Givoni) (ITS).
2. Indices based on physiological observations:
 - (a) Predicted four-hour sweat rate (McArdle) (P4SR),
 - (b) Wet bulb globe temperature index (Yaglou) (WBGT).
3. Indices based on subjective preference:
 - (a) Effective temperature (Yaglou) (ET),
 - (b) Equivalences en séjour (Missenard) (ES).

Unfortunately, in view of its importance, Fanger's Thermal Comfort Equation is not discussed. This is presumably because the manuscript was written before Fanger's book had come to the author's attention.

An outstanding feature of this very impressive and important book is the use of SI units throughout, including the up-dating of older work by their application. There are likely to be many people who will decide to buy the book for this reason alone. It is strongly recommended reading for all thermal physiologists and those concerned with thermal comfort in industry and commerce and, because of its clarity and style, it can be confidently recommended to a much wider audience.

R. H. Fox

Clinical Aspects of Inhaled Particles. Edited by D. C. F. Muir. (Pp. 192; illustrated; £3.00). London: Heinemann Medical Books. 1972.

At a time when the prophets of ecodoom are gaining

increased attention this book provides an excellent review of the problems associated with breathing polluted air. It sets out to present information about the fate of inhaled particles in general and in that context to review current knowledge concerning some of the important pollutants found in nature and industry. This broad approach is always difficult to achieve and is particularly elusive when many authors are involved. Dr. Muir, who edits the book, has met these problems by his thoughtful choice of authors and by underpinning the book with three excellent chapters. In addition the book is directed towards clinicians and, by looking at the clinical aspects of inhaled particles, Dr. Muir has managed to contain the scope of a potentially enormous subject and to produce a book which is readable and of considerable interest at this time.

The authors and the clinical bias cannot, however, completely disguise the difficulties encountered in producing a book with such a diverse background. At its simplest level the contents threaten to split into two; thoracic physicians will find the chapters on particle deposition and the fate of airborne microbes and allergens of especial interest while industrial physicians might largely concentrate on the chapters concerned with industrial hazards. This potential fissure is also promoted by the apparent division in the state of knowledge with far less known or understood about the extremely complex problem of particle deposition and clearance. To this confusion Dr. Muir has brought considerable understanding and has clearly explained the problems but the non-industrial side remains more difficult to understand. Even if the clinician turns to the chapter on therapeutic aerosols he cannot escape from the fact that there is much to be learned about particle deposition, and consequently our therapy, hopefully based on the use of airborne methods, has a very shaky scientific basis which must make us look at inhalation therapy with a very critical eye.

The chapters on industrial dusts are more straightforward and excellently review current knowledge. Each chapter can stand on its own and because such autonomy is inevitable the lack of a single author can be felt. A summary or linking chapter might be added with profit to provide a consistent thread of argument throughout. The underlying problem is not peculiar to this book and is of marginal importance when such a book is as well written as this one.

The book is not only well written but is also well produced and of the right size to be read over a weekend and yet remain a source of reference. I can thoroughly recommend it and look forward to subsequent editions.

T. J. H. CLARK

Chromatography of Environmental Hazards, Volume 1. Carcinogens, Mutagens and Teratogens. By Lawrence Fishbein. (Pp. 499; illustrated; Dfl. 135.00; ca. \$42.25). Barking: Elsevier. 1972.

This book is not merely confined to the chromatography of potentially toxic substances but it contains valuable information also on the usual methods for the preparation of the substances, their common uses, and properties. Details of the applications of the methods selected are

given, too, and conclusions reached in the studies quoted are frequently included. Particular emphasis is given to general methods rather than to those developed for specific pollutants enabling a wide range of substances to be examined at the same time. Emphasis is given to the analysis of metabolites of the substances studied, and in some cases the details of the metabolic pathways are presented as well. The book includes an extremely valuable series of tables in which all the compounds considered are listed, together with their structure, biological properties, and literature references to the different methods of chromatographic separation.

A vast amount of information on the chromatography (primarily paper, thin-layer, and gas-liquid) of the compounds is given and a very large number of references (over 2,000) are quoted. The information given for each chromatographic procedure is in many cases in considerable detail and should be perfectly adequate for most readers to select a method suitable for their needs without referring to original papers. I somehow feel that the author with his extensive experience in this field could have given some guidance for readers less familiar with the subject to aid them in selecting suitable methods; the author, however, has not attempted to comment critically on the methods quoted.

This book is the first part of a four-volume work. This first volume incorporates information on (a) *Alkylating agents*: nitrosamines, aziridine, aziridine phosphine oxides, sulphide, and melamine, epoxides (ethylene and propylene oxides and their degradation products), glycidol, epichlorohydrin, di (2,3-epoxypropyl) ether, 1,2:3,4-diepoxybutane, aldehydes, lactones, trimethylphosphate, pyrrolizidine alkaloids; (b) *Pesticides*: maleic hydrazide, captan, hemel and hempa, aramite, 2,2-dichlorovinyl dimethyl phosphate, trichlorfon, 2,4,5-trichlorophenoxy acetic acid and dioxins, 3,4-dichloropropionanilide, 3,4-dichloroaniline and chloroazobenzenes, 3-amino-1H-1,2,4-triazole, chlorobenzilate, pentachloronitrobenzene, mirex, β -hydroxyethylhydrazine; (c) *Drugs*: chloral hydrate, antineoplastic drugs, monoalkyl methanesulphonates, antibiotics, N-hydroxyurea, isonicotinylhydrazide, thalidomide, vinca alkaloids, D-lysergic acid diethylamide; (d) *Food and feed additives and contaminants*: cyclamate and cyclohexylamine, dulcin, allyl isothiocyanate, safrole, EDTA, caffeine, nitrofurazone, cycasin, mycotoxins; (e) *Miscellaneous toxicants*: hydrazine and its derivatives, naphthylamines and their metabolites, urethane and N-hydroxyurethane, organic peroxides, hydrogen peroxide.

However, despite the title of the first volume 'Carcinogens, Mutagens and Teratogens', many important substances are omitted, e.g., DDT, benzpyrene, and organo mercury compounds, but the author in his introduction points out that these will be included in the second and third volumes where potentially toxic substances in air and water and of industrial concern together with metals and pesticide residues will be considered.

The final volume will be concerned with narcotics, psychotropic agents, hallucinogens, tranquillizers, and analgesics.

The first volume is well printed and presents very clear tables and diagrams and the information it contains should be of immense value to all persons wishing to determine potentially toxic substances, but because there

is not complete coverage in each volume of discrete classes of compounds, workers in even a specific environmental field should bear in mind that they may need to commit themselves to acquiring at least three volumes of this work.

B. T. COMMINS

NOTICES

Society of Toxicology

The annual scientific meeting of the Society of Toxicology will be held at the Waldorf-Astoria Hotel in New York City on March 18-22, 1973. Anyone interested may attend.

Programme, accommodation, and registration information for the meeting will be sent to all members of the Society and to those nonmembers presenting papers. All others should contact the Secretary for this information: Dr. Robert A. Scala, Secretary, Society of Toxicology, Esso Research and Engineering Co., P.O. Box 45, Linden, N.J. 07036, U.S.A.

VIIth World Congress on the Prevention of Occupational Accidents and Diseases

The VIIth World Congress on the Prevention of Occupational Accidents and Diseases will be held in Dublin, at the Hotel Burlington, from 20 to 25 May 1974.

The Congress is being organised by the National Industrial Safety Organisation (NISO) and other Irish institutions concerned, in collaboration with the International Social Security Association (ISSA) and the International Labour Office (ILO) with Headquarters at Geneva.

The Standing Orders of the Congress and other relevant information may be obtained from: The Secretary, World Congress, Ansley House, Dublin 4, Ireland.

American Academy of Occupational Medicine

The American Academy of Occupational Medicine will hold its 25th Annual Meeting in New Orleans, Louisiana at the Royal Orleans Hotel, 7-9 February, 1973. There will be a special programme in recognition of the 25 years of the Academy in addition to the scientific programme.

Laser Safety Course

The fourth bi-annual short course on laser safety will be held on March 5-9, 1973 at the University of Cincinnati, Cincinnati, Ohio. For further information please contact the Laser Safety Course, CONMED, 114 Medical College, Cincinnati, Ohio 45219, USA.

Alcoholism and Drug Dependence

The Second International Conference on Alcoholism and Drug Dependence will be held in Liverpool on April 1-5, 1973.

For further information please contact Miss M. C. Smith, Conference Secretary, B15, The Temple, Dale Street, Liverpool L2 5RU.