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