The major elements of the conference are:

- Current legislative requirements and practice by industry (views from the USA, Switzerland, and EU member states)
- Theory and practice of in-house limit setting (examples of approaches to setting in-house stands)
- Workshops (topics covered: carcinogens, mixtures, uncertainty factors, consultation and communication with workers)
- Poster session and technical display

For further details please contact: SCI Conference Office, 14/15 Belgrave Square, London SW1X 8PS. Tel 0171-235-3681; Fax 0171-823-1698.

IOSH '95: Health and Safety Conference and Exhibition. 4–6 December 1995. The Royal Hall, Harrogate, Yorkshire.

Standards of competency and management systems are two of the issues currently dominating the health and safety profession, and the United Kingdoms leading professional health and safety organisation has assembled an impressive programme of speakers to consider these and other pertinent topics at its annual conference. Last year's conference fees have been frozen, with non-members paying only £340 + VAT for the three day event. Conference delegates will have free access to the IOSH '95 exhibition. Exhibitors include the consultants AEA Technology, fire extinguisher experts Chubb Fire, health and safety sign supplier Focal Signs, and training companies such as Osteopaths for Industry, RoSPA, Safa, the University of Portsmouth and SETA.

For futher IOSH '95 details, contact the organiser, Deborah Fisher, tel: 0116 257 1399, extension 115.

BOOK REVIEWS

Book review editor: R L Maynard

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Comparative Biology of the Normal Lung (treatise on pulmonary toxicology, volume 1). Edited by RICHARD A PARENT. Price £120.00). 1992. Boca Raton: CRC Press. ISBN 0–8493–8839–2.

This comprehensive volume is the first of a planned series of four dealing with pulmonary toxicology. As a source of information on the comparative biology of the mammalian lung it is unrivalled.

The book is divided into four parts:

I) structural and cellular diversity of the mammalian respiratory system;
II) comparative respiratory physiology of the normal lung;
III) comparative biochemistry of the normal lung;
IV) comparative defence capabilities of the respiratory system.

The sections are covered in 830 large and elegantly laid out pages with electron micrographs and other illustrations of the highest quality. The authors have obviously been encouraged to be concise and the 38 short chapters (average length 20 pages, though some in section I are much shorter) are provided. The style is reminiscent of the *Handbook of Physiology* published by the American Physiological Society.

In reading selected parts of this large book, I concentrated on areas I rather fancied I knew a good deal about and also on areas of which I know I do not know enough. The second category expanded at the expense of the first during this review.

Take, for example, the chapters on morphology, edited by Crapo and Pinkerton. Here a wealth of detail is provided, much of which I have not seen collected before. Dimensions of the nasal passages in humans, monkey, dog, rats; the size of the human intrinsic laryngeal muscles laryngeal morphomotometry in big cats are all covered in the first chapter by Gross and Morgan. Of the chapters in this section, I particularly enjoyed the following: Tyler and Julian have dealt with the gross and sub-gross anatomy of the lung. This chapter seems to be an updated and expanded account of the same area covered by Tyler in the well known ARRD (as was) supplement on the *Comparative Biology of the Lung* published in 1983. It should be read by all those who plan inhalation toxicology studies and hope to use animal models to predict defects of xenobiotics in humans. McBride on the architecture of the tracheobronchial tree has also made an important contribution. This chapter deals with a complex and under-studied area. Studies in this field are perforce slow but results of fundamental significance are produced by careful examination of the lung casts. The discussion of asymmetry in the lung branching patterns is illuminating although more of Horsfield's work on the underlying physics of gas flow and optimal branching angles could have been included. This is a difficult field for the anatomist and an extended non-mathematical exposition of the theoretical background would have been welcomed. Mariassy in one chapter and Plopper and Hide, have contributed a valuable account of the epithelial cells of the airways. The tables of cells populations in defined parts of the airways across a handsome range of species are fascinating and show the work that has yet to be done in this area. Shishami and Evans have dealt well with the kinetics of pulmonary cells. Here again the tables of data are unusually comprehensive, although many gaps still remain to be filled in by further research.

The chapters of the section dealing with physiology present an advanced account and some readers, like this reviewer, will find the mathematical presentations rather hard going. Some 17 pages of tables of baseline data on resistance and compliance across a range of species (and strains) are provided. Of these chapters that by Porcelli on pulmonary haemodynamics is outstanding both in terms of coverage and in the clear way in which many difficult concepts are presented. Details of gas exchange (again with comprehensive tables) are presented by Jones and Longworth. The authors explain facilitated diffusion by oxygen and carbon dioxide through solutions, making clear the role that this may play regarding the movement of oxygen in erythrocytes. An area usually ignored in elementary accounts is the aging of the lung. Sahebjami has contributed an interesting chapter on this that deals with changes in mechanics and gas exchange with age. A short account of biochemical changes is also provided.

In the section dealing with biochemistry, an excellent chapter by Simon on the biochemistry of alveolar epithelial cells is included. This chapter repeats some of the work covered in the first section but goes on to discuss cell to cell adherence, secretion, antioxidants, and briefly the metabolism of xenobiotics.

The sections dealing with defence mechanisms are helpful and that on pulmonary macrophages by Valberg and Blanchard, which provides more than 500 references, is outstanding. Inevitably the chapters dealing with inflammatory mediators and immunological mechanisms will date more rapidly than those dealing with classic physiology and some aspects of morphology. The book concludes with not one but two indexes. The second is standard, but the first is an index of tables of comparative data: a valuable innovation.

There is no doubt that this is an excellent book: but who should buy it, given that it is not cheap at £120? Anybody who is professionally concerned with the biology of the lung should have access to a copy. For the inhalation toxicologist is it probably essential if only for the tables of comparative data. If the next three volumes are as good as this then the series will be a benchmark publication in inhalation toxicology.

R L MAYNARD

Epidemiology of Clinical Allergy. By M BURR. (Pp 216, price £137·50). 1993. Berlin: Karger. ISBN 3805556012.

This interesting monograph gives a useful broad view of the epidemiology of the common allergic conditions. Although it is widely accepted that allergy is genetically controlled it is now increasingly thought that environmental factors may unmask the conditions and contribute to variations in incidence, prevalence, and mortality.

The common factor through the book is that allergic conditions are getting more common. Even conditions such as atopic dermatitis has increased fourfold since 1960.

The chapter on the epidemiology of allergic rhinitis is excellent. It carefully examines the complex factors associated with increased rhinitis such as race, socioeconomic conditions, and living in urban and rural areas. The author concludes that studies on the relation between air pollution and seasonal allergic rhinitis are eagerly awaited.

The chapter on epidemiology of asthma by Michael Burr highlights the difficulties in epidemiological studies in view of a lack of operational definition of asthma. It stresses that in spite of these difficulties several epidemiological variables indicate that asthma is becoming increasingly common. The

chapter carefully examines, among other factors, the role of the house dust mite and the increased use of β_2 agonists as potential causes.

There is an increasing public awareness of the relevance of diet to health and the possible role of added ingredients in causing a wide range of physically and psychologically distressing symptoms. The chapter on epidemiology of food sensitivity in childhood is therefore fashionable and nicely written. The author examines the reasons for lack of accurate data about the prevalence of food allergy and concludes that well controlled population based prospective studies are required to shed light about problems related to food allergy.

The monograph ends with a very enjoyable and stimulating two chapters on why it is that allergic diseases are becoming common and the genetic basis of allergy. The authors conclude that studies on environment and genetic predisposition will contribute to understanding the illness.

This is a timely and very stimulating book which is well produced and carefully compiled. Each chapter is well referenced providing an easy access to key epidemiological papers. I highly recommend it to all those who have a concern about the environment and an interest in clinical allergy.

NABIL JARAD

Asthma at work: Causes, Effects and What to Do About Them. By RORY O'NEILL. (Pp 133; price £6). 1995. 37 Exchange Street, Sheffield S2 5TR: Trades Union Congress/Sheffield Occupational Health Project Co-op. ISBN 1-874751-021.

This book's intended readership is wide, including politicians, safety representatives, and patients. The explicit aim is to show how asthma may be prevented at work. It would have needed well illustrated detail on industrial architecture, safety engineering, and occupational hygiene to achieve this goal. Eliminating or reducing causal exposure could achieve substantial reductions in incidence of asthma. Instead, its strength is in describing the consequences of work related asthma. Moving case histories illustrate the poor health, impoverishment, depression, and social isolation that many patients experience. The book's particular merit is discussion of the current social security provision for work related asthma and I think it has no competitor in this field.

There is rather too much information for the patient who simply wants to navigate the benefit shoals, and some of the information is confusing. Without a careful textual reading and some background knowledge it would be possible to muddle sensitiser-induced asthma with irritant-induced asthma, asthma caused by work with asthma exacerbated by work, and asthma with other conditions. The book's scope is wide. These distinctions are important because exposure-response relations probably differ, as do the long term consequences.

Rory O'Neill's style is readable and journalistic. The wide range of sources include useful literature from the National Asthma Campaign and the Health and Safety Executive. This range has also led to repetitions and unresolved contradiction. For example, there are contradictory statements about the benefit position for patients with irritant-induced asthma. It is an inexpensive book and will be informative for patients and their advisors, at least as long as the social security legislation continues in its present form.

K M VENABLES

Science and Judgement in Risk Assessment. By US NATIONAL RESEARCH COUNCIL (Pp 650, hardback). 1994. Washington: US National Academy Press. ISBN 030904894-X.

The Clean Air Act of the United States was amended in 1990 and, in one of the new provisions, the Environment Protection Agency (EPA) was required to arrange for an independent review of the methods that it uses to estimate toxicological risks. This book is the report of this review, prepared by members of expert groups that advised the Agency and by EPA officials. The EPA is required by United States law to establish the risks posed by environmental chemicals in numerical terms, and methods for quantitative risk assessment are, rightly, given much attention in the report.

Although the report runs to 650 pages, 350 of which comprise appendices, it is not indigestible. Before it was released for publication, the text was subjected to repeated processes of approval and editing. It presents with clarity the assumptions made by the agency when applying quantitative risk assessment, as well as the standard operating procedures upon which the agency relies when confronted by the common problems of inadequate data and limited scientific understanding.

The report offers two views of EPA operations. The first presents the current approach to the assessment of toxicological hazards, to the estimation of population exposures, and to quantitative risk assessment. The second promises to consider ". . . how EPA can improve the validity and credibility of its risk assessments by more fully utilizing scientific data and more fully divulging the limits of knowledge".

In some areas of public safety, such as air travel, quantitative risk assessment has a sound basis. Detailed records are kept of all incidents involving passenger aircraft and it is therefore possible to estimate the likelihood (probability) of future incidents involving each type of aircraft: risk can be expressed quantitatively for each type of aircraft, for example, as the probability of a fatal accident per passenger-mile. Chemical toxicology, however, is a different matter.

One of the duties of the EPA is to estimate the probability that individual chemical contaminants in the environment cause cancer in the population. Data on the effects of earlier human exposures are usually inadequate or non-existent, and the agency is forced to rely on the results of testing at high doses in laboratory rodents. Although such studies give useful information about the default, criteria should be developed to determine when alternative models are appropriate. Finally, the authors reiterate a plea that has been expressed often: when announcing estimates produced by quantitative risk assessment, the EPA should also provide clear details of the relevant sources and the uncertainties.

G DIGGLE

Paraquat Poisoning: Mechanisms, Prevention, Treatment. Edited by CHANTEL BISMUTH, ALAN H HALL (Pp 384, $150). 1995. New York: Marcel Dekker. ISBN 0824793706.

When the structure of paraquat was first described in the 1880s by German chemists or when it was first used in the 1930s as a redox indicator, few could have suspected that this simple, stable molecule, would have such an economic, social, or toxicological impact by the end of the millenium.

Its herbicidal properties were discovered in the mid-1950s, and after it was first marketed in 1962, paraquat established itself as the most widely used contact herbicide, available in more than 130 countries throughout the world. During this time, there have been thousands of fatalities worldwide resulting from the ingestion of paraquat, with most of the cases occurring as a result of suicide. This recently published book offers 21 chapters, describing various aspects of paraquat poisoning including a historical perspective, description of human poisonings, treatment of poisonings, and safety in use through the safety management policy.

The editors have included contributions from those who have (or have had) direct experience of working on various aspects of paraquat poisoning. The reader is left in no doubt about the size and importance of the problem and of the extensive clinical and experimental research that has attempted to develop effective treatment regimens. There is, however, considerable overlap between the individual contributions, which is certainly unnecessary and irritating to the reader. Repetition of the pathogenesis of lung damage, the biochemical mechanism of toxicity, and the possible treatment regimens, seems to reduce clarity and, in some instances, create confusion. For those not familiar with paraquat poisoning, the critical morphological changes in the lung associated with the active accumulation of paraquat into specific cell types offers an important insight into the value of mechanisms of toxicity. Also the importance of oxygen free radicals to tissue damage is explained in simple terms. From a clinical perspective there is a completely realistic assessment of the value of treatment regimens.

Although the book was published in 1995, it is apparent from the references that there has been a delay of several years from the production of the manuscripts to publication. This creates some problems, since at present, issues such as the regulation of paraquat have changed in several countries. For example, paraquat has been reclassified as a non-carcinogen in the United States and it seems from more recent literature that the number of cases of paraquat poisoning have been falling in various countries throughout the world. Nevertheless, the pathology, mechanism of action and, most importantly, the treatment of paraquat poisoning, has changed little to date this text. For those initiating research into paraquat toxicity, either as experimentalists or as clinicians, this book provides a useful introduction to the problem. It explains why various approaches to treating paraquat poisoning have been undertaken, even if they have not proved successful. Most importantly, the book offers a single source reference covering many important aspects of human paraquat poisoning and (with the caveat expressed above) provides a useful bibliography of the literature on this challenging scientific and important clinical problem.

The book is priced at $150 and it is likely to be more popular to borrow than buy.

LL SMITH