Book reviews


Until very recent years the view prevailed in the United States that silica alone was the harmful dust in mining and this misconception fostered complacency in devising effective legislation to deal with health hazards. Now things are changing rapidly and this book, with contributions by 18 authorities, of whom 17 are from within the United States, is evidence of the increasing scientific and social awareness of the problems. The volume opens with a chapter on the historical aspects, emphasizing the slow chain of events leading to the major advance of the Federal Coal Mine Health and Safety Act of 1969 which laid the foundation for effective inspection of mine conditions, periodic examination of miners, and improved compensation. It was not until this Act that any unified attempt could be made to relate environmental conditions to the prevalence of disease in different parts of the country. Such a unified attack is necessary if any adequate data on the effects of different types of dust are to be collected. Now data from the survey by the U.S. Public Health Service, centred chiefly in the Appalachian, Illinois-Indiana, and Utah coalfields, will be supplemented by that from a much more sophisticated study covering the whole country on the broad principles of the British Pneumoconiosis Field Research of the National Coal Board and envisaging a study of some 7 500 miners at intervals of five years.

In addition to these broadly based epidemiological studies, there have been many attempts to study individual problems in pneumoconiosis by pathological and physiological techniques. A detailed morphological study of heart and lung structure in necropsy material of over 300 Appalachian miners was undertaken by Naeye. This showed the common occurrence of right ventricular hypertrophy over the age of 50 and discusses the development of the coal macule, suggesting that silica content may be more important than rank of coal.

Lapp and Seaton review studies of respiratory function in the United States, particularly recent work by the Appalachian Laboratory for Occupational Respiratory Diseases (ALFORD). Results follow broadly those of European studies and have failed to substantiate the claim of Rasmussen and co-workers that there was substantial hyperventilation on exercise in disabled miners without radiological abnormality but it did confirm a slight increase in oxygen (A-a) gradient and a decrease in arterial oxygen tension at rest.

On reading the book one naturally asks if all this new effort is necessary in the light of past work. I am convinced that it will be valuable, particularly those parts related to fundamental problems. Here is an opportunity for a new look with improved techniques built on the successes and failures of past European work. This book can be read with benefit by all workers in the field of pneumoconiosis as reviewing past and present work and suggesting a course for the future.

C. B. MCKERROW

Toluene Di-Isocyanate in Industry. Operating and Medical Codes of Practice. A Report of the Isocyanate Sub-Committee of the British Rubber Manufacturers' Association Ltd. Health Advisory Committee. BRMA, Health Research Unit, Scala House, Birmingham. 1971. (Pp. 52; British Isles £2.00; overseas £3.00 a copy available from the above address.)

This Code of Practice was produced to define work procedures for TDI workers, which should ensure reasonable standards of safety, and to recommend medical selection, supervision, and screening methods.

The Code contains a brief description of the principal health hazards caused by di-isocyanates. In addition to primary irritant effects leading to immediate respiratory symptoms and sensitivity reactions producing severe asthma-like attacks in some workers, there is a possibility of chronic effects from long-term low-level exposure.

A comprehensive section on the design of production equipment stresses the importance of regarding efficient fume extraction as an integral part of the plant. Methods of handling and storing TDI are described, as are disposal techniques, spillage procedures, and the use of respirators and protective clothing.

Methods of atmospheric monitoring by manual and automatic methods are discussed, and some simple hints on sampling techniques are given. The Threshold Limit Value for TDI is a 'ceiling value', and the TLV of 0.02 ppm cannot be regarded as a safe average concentration. The actions which should be taken when atmospheric concentrations exceed the TLV are listed, and it is stressed that there should always be someone having the authority to order total evacuation in the workplace.
Minimum standards of job training and working rules are defined, and the need for adequate arrangements for washing and changing is discussed.

The suggested methods of medical control make use of the short MRC respiratory questionnaire, together with measurements of FEV\(_1\) and FVC using a dry spirometer. Pre-employment screening and periodic health checks are recommended. The standards of acceptability for work with TDI are stringent and may sometimes be difficult to achieve in practice. The possible significance of a fall in FEV\(_1\) and notes on the practical limitations of simple spirometry are helpful. A useful inclusion is a concise but clear set of recommendations for first-aid treatment.

The comprehensive appendices contain the text of the MRC questionnaire and notes on its use, much practical information on the use of spirometers, and a list of the names of manufacturers of protective respirators.

This book is more than a simple Code of Practice but rather a valuable collection of information on many practical aspects of working with di-isocyanates. It should prove to be of great value to all who have to deal with these materials.

K. S. WILLIAMSON


Volume IX in this highly important series of historical publications was designed to close many of the gaps left by the earlier and more highly specialized volumes, especially at the administrative level, and in this it achieves its purpose admirably.

In a lucid foreword Lieutenant General Leonard D. Heaton, who held the appointment of Surgeon General for longer than any other officer in modern times, points out that not only was the army the largest employer in the U.S.A. of civilian and military workers in plants of all types, ordnance shops, and a vast variety of manufacturing enterprises but that disabilities due to environment and climatic factors were recognized to assume a new and unprecedented importance, more than in any other campaign in modern times. Chapter IV, which contains invaluable statistical material not available hitherto, recounts how cold injuries were very largely confined to the front lines in Europe, whereas, perhaps surprisingly to some people, heat injuries (excluding sunburn and burns) were three times as numerous in the continental United States as they were in foreign theatres of the war.

A remarkable chapter (VII) on Medical Laboratories, re-written relatively recently by Professor G. J. Dammin of Harvard, with 196 references and an addendum listing 92 outstanding papers, which are representative of the wide scope of the studies completed by the army’s laboratory investigators in time of war, turns what could have been a relatively humdrum account into a fascinating story of how the conditions of war put army medicine on a true scientific basis.

Chapter V describes the arrangements made for the collection of medical intelligence to assist in the medical and strategic planning and conduct of operations which laid the foundations of the post-war organization for handling this important aspect of military medicine.

General Bayne-Jones is the author of chapter VI on preventive medicine for enemy prisoners of war, an important and humanitarian topic largely neglected hitherto by medical historians. Chapters I, II, and III, on Training, Health Education, and Occupational Medicine and Industrial Medicine respectively, should become required reading for all with a special interest in the development of preventive medicine.

This very attractively produced miscellany has many messages for many people and, in these days of ever more expensive texts of every sort, it is remarkably cheap at $8. It should not only be on the shelves of all medical libraries and departments of preventive medicine but would be a valued addition to the private libraries of all with more than a superficial interest in preventive medicine and the history of military medicine.

F. P. ELLIS


This is a brief and comprehensive assessment of the whole problem of occupational exposure to cadmium and its salts and is a good review of the current problem of cadmium poisoning. The authors stress that occupational poisoning by cadmium is almost invariably due to inhalation of either freshly formed fume or cadmium oxide dust, while non-occupational cadmium poisoning usually follows ingestion. The sources of cadmium in industry and the various processes in which exposure may occur are listed together with the common names of various alloys containing cadmium. Apart from commenting on the occurrence of environmental cases of an obscure disease in Japan ascribed to cadmium exposure this pamphlet refers only to occupational cadmium poisoning.

There is an excellent account of acute poisoning in which the causes are listed and methods of prevention and treatment are given. A full account of two typical cases of acute cadmium poisoning is included as an Appendix.

Threshold Limit Values for cadmium are discussed but it is not clear whether these refer exclusively to the prevention of acute poisoning or whether chronic cadmium poisoning is also considered. Chronic cadmium poisoning is fully described, together with suggested significant blood and urinary cadmium levels. In discussing the typical low molecular weight proteinuria no mention is made of its being accompanied by aminociduria and hence its significance in indicating tubular dysfunction. There would not be universal agreement with their suggestion that in certain cases there is a regression of the symptoms of the chronic form of the disease, but their cautious approach to the question of administering