lead metabolism, pathological effects of lead, diagnosis, prophylaxis, and treatment. The authors have rendered a valuable contribution to workers in this field by their summation of a large number of references, with the appropriate information suitably presented. The span of the subject covered is so wide that the authors at times reveal the limitations of their experience and knowledge in certain aspects of the field. For example, on page 81 they state that 'protoporphyrin may occasionally be detected in increased amounts in the urine in lead poisoning' (Waldron, unpublished data). The findings of a dicarboxylic porphyrin in the urine would indeed be such a unique event that the author should rush this into print as soon as possible. In their presentation of the symptomatology of acute intermittent porphyria and lead poisoning, they come to the conclusion that the common symptomatology is co-incidental and is not indicative of a common underlying metabolic disorder. In coming to this decision the authors have made an incomplete statement of the present enzyme defects in acute intermittent porphyria (e.g., depression of uroporphyrinogen synthetase) and they fail to recognize that we are unaware at present of the underlying metabolic disorder in both of these conditions, and therefore it would seem rash to come to their conclusion at this particular time. Their clinical and therapeutic appreciation, although competent, lacks a completeness of the knowledge of the literature which other aspects of the book show. A few spelling errors occasionally mar the script.

Nevertheless the authors have made many excellent points in their appreciation of the present problem of subclinical lead poisoning. They point out, for example, that the present threshold limit values apply only to adult males and thus their application to whole populations, especially children, is inadmissible when assessing health standards from airborne lead. Their appreciation of sources of lead and its effects on certain tissues is good, although recent work is moving so rapidly that it is partly and unavoidably out of date. Finally, they have summarized and adopted certain conclusions about the general problem of environmental lead pollution. The whole subject has become controversial and one which has been obfuscated by frenetic overkill at both ends of the spectrum of controversy. The reviewer believes that the truth might unfold somewhere between these two extremes. As the authors point out, 'there is no justification in assuming that individuals are in a state of lead balance in view of the unequivocal evidence that total body burdens of lead rise with age, due mainly to increasing skeletal deposition. Further, increased dissemination of lead into the environment is certain to add to the body burden by increasing exposure through the air and diet'.

The collection of evidence of metabolic and other effects, particularly in children, suggests that it is wise to keep lead exposure to a minimum. On balance this book therefore has made a significant contribution to environmental health.

A. GOLDBERG

The Practical Management of Head Injuries, 3rd edition. By John M. Potter. (Pp. 98; 8 figs; £2.00). London: Lloyd-Luke Medical Books. 1974.

This is the third edition of one of the most valuable small books on head injuries which is available. It is not intended for neurosurgeons but for doctors and senior nurses who on occasion are responsible for the care of these cases. The book is dedicated to one of the author's teachers, the late Sir Hugh Cairns, the pioneer of crash helmets for motor cyclists. As a direct result of his work protective helmets are now worn by many more workers in industry, with the consequence that the mortality and morbidity from head injury has fallen considerably. The majority of head injuries are due to road accidents but many cases still arise in the dockyards, mines, etc. Nursing staff in the ambulance rooms of these industries are likely to benefit by having a copy of this small treatise on head injuries close at hand. From their point of view Chapter 2, where the author describes the management in casualty departments, will prove to be the most valuable. The short chapter on convalescence, rehabilitation, and sequelae will appeal to the audience to whom the book is addressed. The considerable experience of the author is well displayed and also his ability to distinguish and emphasize the most important aspects of his subject.

The book is reasonably priced and well printed with a small number of excellent line drawings. Doctors and senior nurses who have contact with cases of head injury will find this book well worth buying.

L. P. LASSMAN

Forensic Toxicology. Proceedings of a symposium held at the Chemical Defence Establishment, Porton Down, 29-30 June 1972. Edited by B. Ballantyre. (Pp. 157; £4.25). Bristol: Wright. 1974.

Toxicology is the science of poisons and embraces many fields which are often compartmentalized. There is the impact of chemicals or drugs on man when exposure is occupational or environmental or during medical treatment. This report of a symposium is intended to cover forensic toxicology defined in the preface as 'a specialization dealing with the legal and medical aspects of the detrimental effects of chemicals on humans'. Of paramount importance for forensic toxicology, as for the other branches of toxicology, is the diagnosis of the cause of the poisoning. For gross exposure the analytical problems and clinical picture can often be definitive, but with the growing number of highly active chemicals the problems become very acute. Decisions on diagnosis or hazard require knowledge of mode of action, and often sophisticated biochemical and analytical methods are utilized. At this level forensic toxicology becomes almost indistinguishable from other branches which this volume illustrates well. The contributions range from discussion of techniques to the mode of action of hallucinogens or lead. The chemicals discussed include barbiturates, morphine, methadone, hallucinogens, anticholinesterases, paraquat, cyanide, carbon monoxide, lead, and mercury.

This small volume will provide interesting reading for all those concerned with exposure of man to chemicals. The papers are well written and, because they are not definitive reviews overlaid with references, easily read. The collection together in one volume of contributions with such diverse aims reinforces the view that only a

multidisciplinary approach allows real progress to be achieved.

W. N. ALDRIDGE

Industrial Toxicology, 3rd edition. By Alice Hamilton and Harriet L. Hardy. (Pp. 575; £20.00). Massachusetts: Publishing Sciences Group. 1974.

Forty years have passed since the first edition of this book and 25 years since the second. While this is a testimony to the great experience of the authors, it might prompt the critical reader to wonder if the authors will continue to incorporate information on the many new hazards and how they will reflect some of the new approaches to industrial diseases.

One does not have to look far for sections on new hazards. There are sections on lasers, microwaves, proteolytic enzymes, and other new topics. Equally, the authors have incorporated much new knowledge on well established diseases. Thus recent studies on the relationship between smoking and lung cancer in asbestos workers is carefully considered, so is much of the recent work on the disturbance of haem synthesis by lead.

The approach to the subject is essentially that of a clinician so that discussions on disturbance of function are introduced mainly for their contribution to diagnosis. There is little attempt to describe pathogenesis so as to derive from it the disturbances to be found not only in established cases of disease but also those disturbances to be found in the early (presymptomatic) states. It is on a consideration of these that the industrial physician will base his biological monitoring tests.

The purpose of this book is to provide an account by experienced clinicians of the clinical manifestations of occupational disease. It succeeds admirably. I shall use it frequently in the future. It should be available to students of industrial medicine and on the bookshelves of every industrial physician. Fortunately it is well and stoutly bound for it will probably be much used.

W. R. LEE

Dust Control in Building and Excavation Work. Proceedings of a Symposium in N.S.W., Australia, 27th July, 1973. Edited by E. Francis. (Pp. 98; no price stated). Health Commission of N.S.W., Division of Occupational Health and Pollution Control, Joseph Street, St. Lidcombe 2141. 1973.

This report, presented by the New South Wales Division of Occupational Health and Pollution Control, the Health Commission of New South Wales, and the Workers' Compensation (Dust Diseases) Board contains valuable and practical information on the hazards and control of silica dust as it affects building workers, a subject which has so far received comparatively little attention in the United Kingdom though the 1974 Acts for Health and Safety at Work and for the Control of Pollution may change this.

The symposium covered dangers to health, methods of dust control, new statutory regulations, and the practical difficulties of enforcement and compliance. Silicosis has been a severe hazard among builders in New South Wales for many years because cities such as

Sydney are based on sandstone, and recently demand for multi-storey buildings with their deep foundations has worsened the dust problems. In the United Kingdom, Liverpool might be comparable where at one time silicosis was an occupational disease among grave diggers.

One paper describes dust control in the mines from the second century and traces developments up to the present day when cases of coal miners' pneumoconiosis in New South Wales are rare. There is a clear account of the causes and pathology of silicosis, and of the particles (2 to 5 μm) which destroy lung tissue and lead to cardiac failure. The international maximum concentration of 200 particles/cm³ for a 40-hour week has in practice in New South Wales been exceeded by concentrations of 1000 to 12 000 particles/cm³ for a 50 to 60-hour week. The problems of control are exacerbated by the variety of tools and machines in use, and although a satisfactory method of directing water jets on to the point of a pneumatic tool has been devised, the efficient application of water to heavier machines is difficult to achieve. Water/detergent mixtures have had some success. The effectiveness of respirators and ventilation systems is discussed.

The new regulations are quoted in full and are worth serious study. There is a plea for clear, concise, and unambiguous regulations and that they should be administered by a single authority, which will be echoed in the United Kingdom. We may be approaching the latter by means of the Health and Safety at Work Act, 1974 but are still very far from the former.

A trade union speaker rightly reminded the conference that if the men on the job ignore the many regulations such safeguards are useless; they may object to the wet conditions and turn off the dust suppressing water without a thought for their own safety. Discipline is essential—self discipline of the individual as well as of those who direct and supervise the work.

The seminar lasted one day. On reading the mass of information in the report one wonders how much was absorbed in such a short time.

D. SHORT

Reliability and Safety. Factors for the Ergonomics of Systems in an Industrial Environment. Studies of Industrial Physiology and Psychology. Study No. 7. Edited by the Directorate General for Dissemination of Information. (Pp. 267; no price stated). Luxembourg: Commission of the European Communities. 1972.

This work was sponsored by the European Economic Community Coal and Steel Industry and outlines the principles of an approach which should be of general application. Safety is considered as one aspect of total system reliability which in turn is equated to the probability of a failure-free system.

Failures, that is, unreliability, can therefore be quantified and viewed from both production and human factors or safety standpoints, thus encouraging a common interest and methodology between functions which often are regarded as separate.

The treatment is largely mathematical, and terms are derived for 'technical confidence' related to system