whole operation being done either in the open air or in a strongly draughted chamber. The smallest splash of tetraethyl lead on a worker is immediately treated with petroleum and neutralized with CaCl_2 .

Great stress is laid on the provision in the factory of a daily meal of about 1,700 calories; the rotation of workers so that intervals of 24 hours between exposure periods are assured; routine clinical and urinary examination; immediate treatment on the least sign of intoxication; provision of protective clothing and appliances, baths, showers; washing and sterilizing of working clothing; continuous chemical analysis of the atmosphere (the method is given for atmospheric samples, for biological liquids and for fuels).

With a discussion of the theory of anti-knock agents and of the hazards to be met with in places other than tetraethyl lead factories where leaded fuels are used, this monograph gives an indication of perhaps the most useful way in which the technology of hazardous industrial processes can be brought to practitioners of industrial medicine without over stress to the already busy mind.

M. W. GOLDBLATT

Industrial Toxicology, 2nd ed. By Lawrence T. Fairhall. (Pp. xii + 376. 80s.) London: Ballière, Tindall & Cox; Baltimore: The Williams & Wilkins Company. 1957.

The review of the first edition of this book (*Brit. J. industr. Med.*, 1950, 7, 146) described it as an extremely valuable and well-documented summary of information on a great variety of compounds. The second edition has repaired some of the omissions to which attention was drawn in the above review.

While faults on matters of detail are easy to find in a book of this kind, the major criticism of this edition is that it is not up to date. Surprisingly perhaps, this applies especially to the sections on analytical methods, to which subject the author had made so many contributions. There is little reference to the literature after 1950. For example, there is no mention of modern and improved methods for estimating copper.

On the toxicological aspects, condensation is particularly difficult but on the whole an adequate picture is presented so that the reader gains the correct general impression of the potentialities of a particular compound. It is perhaps surprising to find that the author was still not convinced that beryllium itself is a toxic ion despite the wealth of experimental evidence to the contrary. His comparison between TEPP and parathion suggests that he was not fully conversant with the mode of action of these poisons. No reference is made to recent papers on nickel carbonyl or dimethylnitrosamine. It is difficult to see why a paper describing the ineffectiveness of BAL in treating experimental chloroform poisoning earned a niche. Clearly there is a place for a book of this kind and it is to be hoped that someone will take up the torch, for Dr. Fairhall's death was reported soon after this edition appeared.

J. M. BARNES

Particulate Clouds: Dusts, Smokes and Mists. Their Physics and Physical Chemistry and Industrial and Environmental Aspects. (Pp. xix + 425; 8 plates and text figures. 70s.) London: E. & F. N. Spon. 1957.

A complete understanding of the behaviour of suspensions of fine droplets and particles in gases is a highly specialized study, demanding a wide knowledge of mathematical physics. The literature extends over a great many years and is widely scattered in journals and reports published in many parts of the world. Some of it is not readily accessible to the majority of workers, and the authors are to be congratulated in bringing together such a wealth of information in one book. They start by clarifying our ideas about the somewhat confusing terminology in this field, and make use of the term "particulate clouds" to describe "any type of suspension of particles in a gaseous medium regardless of the nature of the suspended material but excluding particles of such large size that they settle very rapidly." It is interesting to learn the original definition of the term aerosol, and to find a proper interpretation of the various uses of the word "smog".

Part I deals with the basic physics and physical chemistry of particulate clouds, covering their production, physical characteristics, optical properties, coagulation, deposition and filtration, sampling and estimation and diffusion into the atmosphere. It requires a fairly extensive knowledge of mathematics to follow through the theory presented in this section, but research workers and those engaged in the measurement of dust in industry will find within it a valuable exposition of the development of all types of sampling apparatus. The authors and their colleagues at Porton have in fact played a large part in this work, and whilst the research at this establishment was started primarily for defence purposes, this book illustrates how wide its applications have been.

Part II, which takes up approximately one-third of the text, illustrates the practical implications of Part I, and will be of more immediate interest to industrial workers. In Chapter 9 the principles of deposition and filtration dealt with earlier are applied to collecting plant such as cyclones, scrubbers, electrostatic precipitators, and ultrasonic agglomerators. The treatment is rather brief, but as in other chapters, many references are given. There is a useful table listing the filtering efficiencies of various types of dry fibrous filters. The chapter on health hazards occupies some 40 pages and deals chiefly with industrial dusts. The literature on inhalation and particle size is critically examined, and the need to consider the shape of particles as well as their size is mentioned. The individual protection of workers is considered in some detail, and the data given here on the performance of respirators is not easy to find elsewhere. Several pages are also devoted to the study of airborne infection. Chapter 11 summarizes observations which have been made on atmospheric pollution in Great Britain up to recent years and refers also to environmental studies carried out in America. The authors suggest that sulphuric acid mist should be considered as a potential toxic agent in smog. Chapter 12 deals with condensation nuclei and the drop size distribution in clouds and fog. The authors discuss experiments which have been carried out on the artificial nucleation of clouds, and consider methods of fog dissipation. They emphasize that although from a theoretical viewpoint fog dissipation by means of surface active agents may be