The book is easy to read on a 5-in. line, set in Times Roman type face and printed on a non-gloss paper. The pictures are good, too.

OWEN MCGIRR

A Symposium on Industrial Pulmonary Diseases. Edited by E. J. King and C. M. Fletcher. (Pp. viii+273; 98 figures. 32s.) London: J. and A. Churchill. 1960.

This is a valuable contribution to existing knowledge on a subject which has attracted much intensive research especially during the last decade. It comprises the 21 papers contributed at a symposium held at the Postgraduate Medical School of London in September, 1957 and March, 1958, and, by virtue of the coordinated arrangement of the papers, it presents a clear statement of the present position of thought and practice in this field in Britain.

Coalworkers' pneumoconiosis occupies a prominent place in many of the papers and a few deal specifically with it. This is to be expected: for it is the most prevalent disease due to dust and the object of much research carried out in Britain and sponsored by the Medical Research Council and the National Coal Board as well as other bodies.

In a general survey of industrial pulmonary diseases in Britain, A. Meiklejohn reviews some of the statistics available and indicates the need for special investigations into the significance of variations in prevalence. The pathology of the pneumoconioses is dealt with by J. Gough and A. G. Heppleston and special reference is made to characteristics of the disease found in workers in coal, asbestos, and talc. The reaction of the lung to dust is studied by E. J. King and C. V. Harrison in a brief paper on experimental evidence in favour of the hypothesis that massive fibrosis in miners is due to a combination of dust and tuberculous infection. The physical process of deposition of dust in the lungs is described by C. N. Davies in a lucid examination of the process and its results. G. Nagelschmidt reviews the theories on the origin of the silicotic nodule and the experimental evidence underlying them. Ultra-histological work by French observers points to changes in the mitochondria and the death of the cell apparently resulting from the action of silica fume, the test substance. Radiology occupies three papers: G. Simon writes on problems in taking and reading chest radiographs; C. M. Fletcher recapitulates the radiological diagnosis of pneumoconiosis and discusses the differential diagnosis; P. J. Chapman, on radiography in the field, gives details of equipment and techniques required for a high and consistent standard. In epidemiology of coalworkers' pneumoconiosis A. L. Cochrane refers to research work carried out by the Pneumoconiosis Research Unit in South Wales. In this area too the Miners' Chest Diseases Treatment Centre gives hospital treatment for advanced cases of the disease.

Normal lung function and its measurement is discussed by P. Hugh-Jones. The disturbance of pulmonary function in industrial pulmonary disease is discussed by J. C. Gilson; an important and significant distinction is made between pneumoconioses fitting the International Labour Office radiographic classification and those

which do not fit; other conditions considered are byssinosis, cadmium smelters' emphysema, and late effects of acute exposure to irritant gases. The general principles in the use of pulmonary function tests in epidemiological work are described by C. B. McKerrow.

The pneumoconioses of tin-miners, granite workers and china clay workers in Cornwall are described by L. W. Hale. A. I. G. McLaughlin writes on iron and other radio-opaque dusts encountered in several occupations. A. John Robertson describes the processes of tin smelting and gives an illustration of a radiograph of a tin smelter's lungs. The epidemiology of byssinosis is described by R. S. F. Schilling.

Other notable contributions are studies on bronchitis in industry by I. T. T. Higgins; occupational lung cancer by Richard Doll; and a well illustrated article on rheumatoid disease and pneumoconiosis by Anthony Caplan. The final paper on the prevention of silicosis, by Donald Hunter, contains the essential principles of this most important approach to all the problems of pulmonary disease due to dust.

The volume is well presented by the publishers; a relevant bibliography accompanies each paper; and there is an excellent index.

E. L. MIDDLETON

Guide to Hygiene and Sanitation in Aviation. (Pp. 51; 18 figures, 3s. 6d.) Geneva: World Health Organization. London: H.M.S.O.

This report is based on that of the W.H.O. Expert Committee on Hygiene and Sanitation in Aviation, 1959. It is a considerable improvement on previous publications of this nature including that of the U.S. Department of Health, Education, and Welfare, whose handbook on Sanitation of Airlines (1953) is now seriously outdated.

This well written handbook deals with three abiding principles, which hold true on the ground and in the air.

(a) Food and water and the utensils or vessels used for services must be free from both living organisms of disease and toxic substances of any origin.

(b) Persons must be kept from contact with infected wastes, particularly human wastes.

(c) Persons must be kept from contact with infected insects, rodents, or other vectors of disease.

Accordingly, subsections are devoted to and specific recommendations made on, the sanitation of water, drinking fountains, disinfection of water, aircraft water systems, water service outlets, water hoses, water carts, food preparation, food handlers, building and premises for food preparation, cleansing and germicidal treatment, food sanitation on aircraft, toilet waste disposal, sewage disposal, refuse disposal, aircraft toilet fluids, and finally insect control, mosquito proofing, fly control, and rodent control. This is a comprehensive list of subjects for a small handbook and the matters raised are dealt with firmly, accurately for the greater part, and with clarity.

There is still no attempt to lay down international standards for aircraft toilet fluids. Economics aside, some international agreement on this subject is urgently required. Aircraft in this day and age may be handled by a large number of countries on an agency basis, so

that toilet fluids and antiseptic powders (all vastly different and even chemically non-compatible) are poured willy-nilly into the toilet systems. Eventually this potent brew of germicides may be poured down the sewage system of a small tropical or sub-tropical airport's sewage farm in the middle of the dry season, with disastrous results on its biological working.

Although written with such small airports in under-developed lands in mind (as well as the large international airfields), this otherwise excellent account fails to mention the sort of practical difficulties outlined above.

OWEN MCGIRR

Data Sheets on Dust Collectors. By British Steel Castings Research Association. (Pp. 38 + Index; illustrated. 30s.) Sheffield. 1960.

This compilation of data sheets relating to the performance of commercial dust collectors available in this country is one that will be extremely useful to industrial hygienists and works engineers.

Each data sheet states the type classification of the dust collector, and a sketch illustrates the principle of operation. The pressure drop, and where applicable, water usage, are stated and examples of installations with volume of air handled are quoted.

An endeavour has been made to provide data on collection efficiency, in terms of particle size but for some products this information has not been available. However, a series of collection efficiency curves for the basic types of dust collectors are given, so that the performance of a particular collector can be predicted to some extent.

The variation in the availability of manufacturers' data, however, indicates the desirability of the formulation of a standard testing procedure, and for users to require the results of such tests as an essential part of the specification of the equipment they are purchasing.

D. E. HICKISH

Air Sampling Instruments for Evaluation of Atmospheric Contaminants: American Conference of Governmental Industrial Hygienists, Cincinnati (1960). (Illustrated. \$7.50.) Ohio, U.S.A. 1960.

The United States of America leads the world in industrial hygiene, so one looks somewhat humbly at her latest production in this field. This is a descriptive manual of air sampling instruments which are readily available in America. It deals comprehensively with instruments for gases, vapours, mists, fumes, and dusts.

The book opens with a group of seven papers which discuss in general terms the ways in which air sampling should be done, and how instruments are devised to meet these requirements as nearly as possible. There is a first-rate opening paper by Silverman, giving a systematic review of the methods used for sampling and analysing air contaminants. This is followed by an enthusiastic contribution on "home-assembled" instruments by Setterlind, who apparently can make anything with a syringe, a piece of plywood, and a couple of elastic bands. The remaining opening papers are dull.

The introductory papers are followed by full technical descriptions of over 100 different air samplers, ranging from a \$1.00 "do-it-yourself" dust sampler to a magnificent \$7,100 machine which produces a continuous record of the concentration of three different gases simultaneously. As the information on each sampler has been compiled from descriptions provided by manufacturers and designers, it is inevitably somewhat uneven; but there has been a considerable effort to give a systematic account of the uses and operating principles of each instrument, together with a description of the performance, construction, and operating instructions. Notes are also given on the maintenance and calibration of the instruments. Especially helpful is the information on where each instrument can be bought or who designed it.

This unusual book, with its rather unattractive print and loose-leaf paper-covered back, gives a false impression of being poorly finished. It would have been well worth an extra dollar or so to have a stiff cover. Even so, it manages to stand erect when supported on one side by Patty's "Industrial Hygiene" and on the other by Drinker and Hatch's "Industrial Dust"! I recommend it to every industrial hygienist.

S. A. ROACH

Individuelle Vorbeugungsmassnahmen gegen Berufliche Augenschadigungen. By A. S. Schafranowa. (Pp. 132; 29 figures. DM. 14.20.) Berlin: VEB Verlag Volk und Gesundheit. 1959.

This book, a German translation from the original Russian edition, gives a comprehensive review of the protective appliances used in the U.S.S.R.

The first chapter deals with the anatomy of the eye and the basic principles of optics are discussed. The second chapter gives the general principles for construction of individual eye protections. The protective appliances are designed to meet the following three hazards: (1) Protection of the eye against small particles flying off from machines at high speed; (2) Radiation, infra-red and ultra-violet light; (3) Chemical agents. The author also describes an appliance for testing the protective value of the lenses supplied in goggles and masks. A steel ball in an adjustable tube is held by an electro-magnet. The ball is released and it falls on the lens to be tested from various heights.

The types of protective goggles which are used in the U.S.S.R. are enumerated and filter absorption curves are given. Masks which protect the whole face are also described.

The author gives a very full Russian bibliography. All the references most of which are pre-war (1930-1941) are taken from Russian journals, especially the Soviet Ophthalmological Journal. There are several references dealing with the recent work (1953, 1954 and 1955) on protection of the eye in the U.S.S.R., but the author gives no references from international ophthalmological literature, nor from international industrial medicine.

JOSEPH MINTON