diagnosed in 44%. Thus there are a larger proportion of men from the coal mining industry turned down at both scrutinies and boarding than from other industries as a whole. Is this because in a relatively close knit industry, such as coal mining, men are more aware of the possibility of an occupational origin for their respiratory trouble or does it reflect occupationally caused respiratory disease not covered by legislation?

More than 15 years ago a distinguished American worker in the field of pneumoconiosis remarked privately 'silicosis is licked'! However, pneumoconiosis is still the occupational disease easiest to find in order to demonstrate it to medical students, particularly in certain parts of the country. Although the numbers and severity of most forms of pneumoconiosis except asbestosis have markedly diminished, it is still far from being licked.

R. I. MCCALLUM

Occupational and Environmental Cancers of the Urinary System. By W. C. Hueper. (Pp. 465; 35 figures; 89 tables). New Haven and London: Yale University Press. 1969.

The first of Dr. Hueper's many publications on the problems of cancer was in 1923. In this book the reader can profit from his experience of upwards of 53 years in the vanguard of environmental cancer pathology and research. In the 65 years since occupational bladder tumours were first identified, a large number of compounds has been incriminated. A great deal of uncertainty still exists about the carcinogenicity of many of them; a few, especially some aromatic amines, have been proved to be carcinogenic. Although the increase of occupational bladder cancer has been modest during recent decades compared with that of lung cancer in most industrial countries, it is still, potentially, a formidable problem. Dr. Hueper estimates that the total recorded cases in the literature amount to 2,500 to 3,000 cases (and probably by no means all have been recorded), and that this makes it next in rating to skin cancer as an occupational tumour.

It is not only as a pathologist and experimenter that Dr. Hueper is authoritative. His presentation of the epidemiological evidence and geographical distribution of bladder cancer is the most comprehensive which has yet been published. His critical examination of the complicated history and present state of knowledge of the carcinogenic mechanism is unsurpassed and, if at times it is difficult to distinguish what is scientific and what is emotional, one can understand his concern and one can support much of his militant crusading – but not all. For example, how is one to assess at pre-employment examination, as he advocates, 'evidence of a past prolonged regular or habitual use of cosmetics (hair pomade, lipsticks, ointments, powders, lotions, etc.), coloured or synthetic dyes derived from carcinogenic amines'? He states that Professor (then Dr.) Case's data for his survey were not obtained without resistance from the industries concerned, when, in fact, Case was appointed by and paid by the Association of British Chemical Manufacturers, in fact the industries concerned, and it is wrong of Dr. Hueper to suggest that such restraining influence extended into recent times. Nor will everyone agree with his view

that regular cystoscopy is an acceptable means of supervision of workers when cytology offers an equally reliable but much simpler method.

The author is at his best on the mechanisms and the biological pathology of cancer causation. The original experiments, of which he was a pioneer, are described with first-hand knowledge, and recent work is presented with a critical attitude. The section on tryptophan and its role as a possible cause or synergist of bladder cancer shows how a provocative new approach to the study of cancer mechanism has appeared, especially in his sober appraisal of the role of tryptophan metabolites. The theory that tobacco smoking may be a prime cause of bladder tumour comes in for scant credibility despite some evidence that in smokers the tumour may be due to an inability to convert 3-hydroxyanthranilic acid into nicotinamide and so resembles the suggested mechanism in tumours due to faulty tryptophan metabolism. He considers (and I agree) that the evidence is mainly statistical and of a dubious nature. Schistosomiasis as a possible cause of bladder tumour is also extensively reviewed.

If the author is strong on pathology, some may consider him weak on the industrial side and might think that three and a half pages on technological preventive measures in a work of this comprehensive size and scope rather scanty consideration for the highly important matters of prevention at factory level, but nevertheless the principles of substitution and, failing that, elimination of contact between operator and material are clearly presented.

In this book there is something for everybody and much for the expert in this field which the author claims is much wider than is generally supposed. Here his emotion creeps in; maybe he sees the ghost of induced cancer in too many factories, in too many beauty salons, on too many tables for our comfort. Yet if it had not been for this kind of militant enthusiasm in many countries, one wonders how long any advance would have been delayed. Dr. Hueper was a pioneer in this difficult field. Now retired, he is still a pioneer.

T. S. SCOTT

The Health Check in Practice. The Glasgow Postgraduate Medical Board. (Pp. 32; 6s.) Hemel Hempstead: Educare. 1969

This report contains an account of eight contributions to a discussion of the place of health checks in preventive medicine. The contributors were drawn from various sources such as administration, general practice, and contributions from Finland and Ireland. Most speakers spent some time examining the principles underlying these screening procedures. There was general agreement on the research value of population screening carried out for the purpose of determining the range and frequency of various physical, physiological, chemical, immunological and other parameters in the population and to determine the frequency and severity of defined illness or disability. In these investigations the subjects would know that it was a research exercise and there would be no obligation to provide advice and no expectation of receiving it.

It was generally recognized that the real problem arose in providing a screening service which benefits those

found to be suffering from defined illness or disability. There are grave objections to screening for a disease for which there is no really effective treatment and, therefore, no possible benefit to the patient. It is a grave disservice to inform a person prematurely of the existence of disease for which no treatment can be offered. In greater or less degree these arguments centre around surveys for such conditions as diabetes and hypertension.

Allowing for the considerable repetition and the spoken rather than the written style, this is a useful collection of views of interest to both clinicians and epidemiologists.

W. MELVILLE ARNOTT

Radionuclides in Medicine. By C. F. Barnaby. (Pp. 170; 24 figures; 42s.) London: Souvenir Press. 1970.

This book is based on a series of papers which appeared in 'World Medical Electronics'. The author sets out to produce a book which will be of value in the instruction of medical staff in the use of radioactive isotopes. The routine use of radio isotopes for both diagnostic and therapeutic purposes is described. Much of the subject matter is covered at a superficial level but the use of radioiodine, the clinical use of radioactive iron and cobalt together with the legal aspects of the use of radionuclides are covered in some depth.

The book contains material which could mislead an absolute newcomer to the subject and it is doubtful whether the book will be of much value to workers well involved in the subject.

B. R. PULLAN

Elementary Radiation Physics. By G. S. Hurst and J. E. Turner. (Pp. 166; illustrated; 70s.) Chichester: Wiley. 1970.

The authors intend this book to be of use in college level physics courses in radiation physics for students of pre-medicine, pre-dentistry, biology and also as teaching material for introductory courses in health physics and radiological health specialties.

The first half of the book covers basic atomic and nuclear physics in a very clear and interesting way, producing excellent teaching material for any of the intended groups. The second half of the book deals with the calculation and measurement of radiation dose, the control of radiation exposure and some aspects of x-ray technology.

The last chapter covering the applications of radioactive isotopes is disappointing after the excellent standards set by the rest of the book, and the authors' description of the use of a Geiger counter for the measurement of thyroid and cardiac function would be misleading to anybody who did not know better. With this one exception, however, the book is clear and full of interesting and useful material and is an excellent book for students in this field.

B. R. PULLAN

La Trielina: Tecnologica Manifestazioni Morbosi e Prevenzione. By Nicoló Castellino. (Pp. 103; 119 references; L 3000.) Milan: Franco Angeli Editore. 1969.

The greater part of this book is taken up with a review of the work of other researchers, who have investigated the metabolism and toxicity of trichloroethylene. The book is divided into sections dealing with the chemical and physical characteristics of this solvent, its industrial uses, metabolism and toxicology, together with an account of the diagnosis, treatment and prevention of poisoning. At the end, a full description is given of the laws and regulations in force in Italy. These require the periodic examination of workers in certain industries and provide for compensation in cases of intoxication. The section dealing with the industrial uses of the solvent is well written, there being a fuller description of processes than is usually found in reviews of this kind: this is particularly true in the case of dry cleaning. Almost 70% of the papers referred to were written in 1950 or afterwards, but only a few of the total number of references dealt with the work of Italian authors, in contrast to the review written by Canale and Cataldi in 1964, and therefore the work does not give such a comprehensive picture of the work done on trichloroethylene in this country.

In the section on metabolism the reference to the findings of Rubine, Scansetti, Trompee and Gaide (1959) is of particular interest. They demonstrated that the ambient trichloroethylene concentration correlates first with the level of trichloroethylene in the blood and secondly with the trichloroacetic acid level in the urine, a point about which there has been considerable divergence of opinion between different authorities.

The section on trichloroethylene toxicology includes the work of most authors investigating the effects of trichloroethylene on those occupationally exposed and of those investigating human and animal subjects of controlled laboratory investigation. Whilst acute and chronic poisoning are carefully described, and the concept of subacute poisoning is detailed, the possible part played by breakdown products in industry received scant attention. Similarly, there is little mention of trilene anaesthesia, which has provided experience of human acute exposure both to trichloroethylene of a known high degree of purity and to trichloroethylene containing a known contaminant such as dichloroacetylene, which used to result from the use of carbon dioxide absorbers and which had damaging results on the nervous tissue. Personal researches on 116 operatives working in 30 dry cleaners and 8 workshops repairing office machinery are described. In this the author confined himself to eliciting complaints, and there was no unexposed control group, which might have provided a comparison of the incidence of the symptoms and findings among workers not occupationally exposed to trichloroethylene. Although helpful in establishing the relationship of symptoms and findings to ambient trichloroethylene concentration and to trichloroacetic acid level in the urine, there is no great advance in the investigation of the effects of this solvent.

One of the concluding chapters of the book deals with the methods of estimating the metabolites trichloroacetic acid and trichloroethanol. Reference is made to the most