BOOK REVIEWS


Until 1933 the yearly number of certificates issued to miners in Britain on account of respiratory dust disease was less than 100. Partly owing to alterations in legislation dealing with workmen's compensation, partly because of a real increase in the incidence, the number of certifications has risen greatly since then, reaching a peak of 5,754 in 1945. Of that number 5,180 were issued to men in the South Wales coalfield. From the beginning of 1931 until the middle of 1948 over 22,000 new cases of pneumoconiosis of miners were certified in the whole country, and of these 19,000 were in South Wales. As the number of coal miners in South Wales is only about a sixth of all British coal miners, the incidence there is about 40 times greater than in the rest of the country. This excessive incidence, still largely unexplained, has led to the development of important sociological problems. These, as well as the purely medical aspects of the disease have been studied by the Pneumoconiosis Research Unit of which the authors are members, Dr. Fletcher being its Director.

It is estimated that the number of certified men alive today in the South Wales area is 16,000 and of these, 5,000 are known to be unemployed. The effects are felt by the individual and by the community. The affected man suffers an impairment in his general health, with consequent curtailment of his ability to work and his freedom to enjoy leisure. The loss of employment means considerable loss of income, and there are often serious psychological effects. The coal mining industry suffers a loss of skilled workers, added to which are the costs of paying compensation, unemployment benefit, and the maintenance of government departments for these and other functions.

The Memorandum contains a chapter giving statistical information, and another containing 12 case histories of patients chosen to represent different facets of the social problem. In addition, there are three useful appendices. The first gives a description of pneumoconiosis, principally for those who do not know much about the disease; the second, entitled "Administrative Aspects of Coalworkers' Pneumoconiosis", deals with the different compensation schemes and their working. Appendix III gives some results of two hitherto unpublished sampling enquiries, one by H.M. Social Survey in 1945, and the other a report by Doig and Hillier to the National Joint Pneumoconiosis Committee in 1947. It includes information about various matters such as age distribution, degrees of disability, reasons for leaving jobs, and travelling difficulties.

The authors emphasize that the greatest need of these disabled men is suitable work. They quote evidence showing that some 75% of the unemployed pneumoconiosis cases are for medium or light work under ordinary conditions of employment, and this figure is even higher if men fit for sedentary work are included. Unfortunately the obstacles in the way of these men finding suitable employment are serious. Until recent years, little alternative work was available, and much of that was unsuitable. Even now that a variety of industries have been introduced into the district, the difficulties are still formidable in view of physical disability, age, the geographical configuration of the district, and other factors such as the reluctance of employers to engage men with a potentially serious disease. Even their sex was a disadvantage to them in the competition for light work against cheaper female labour. Administrative efforts to improve conditions and reduce unemployment are mentioned, with reasons for their partial failure.

The authors expect that eventually there will be a lessening of the incidence of the disease owing to improved methods of dust suppression, and also a decrease in the numbers leaving the industry as men with pneumoconiosis are now permitted, subject to conditions, to continue to work in the mines. For some years, however, the number of unemployed pneumoconiotic miners is likely to remain constant and the social and economic problem will continue to be one of the same magnitude.

Apart from advocating the provision of suitable work, the authors make only one recommendation: that there be instituted an adequate follow-up system for certified men. The report being almost entirely concerned with presenting the facts, one experiences disappointment at not being given some constructive proposals for a solution of the grave problem which is outlined. Rightly or wrongly, the authors do not consider this their responsibility. Nevertheless they are to be congratulated on placing on record their observations of the great social evil that exists in this comparatively circumscribed community.

A. T. DOIG


This book contains a mass of data on the subject of chronic carbon monoxide poisoning, and presents the conclusions of a great deal of careful, painstaking work. It begins with a discussion of the definition of chronic carbon monoxide poisoning, and indeed with a summary
of the controversy which has raged over the existence of such a clinical entity.

The author defines the condition as "a syndrome developing in a characteristic manner following moderate exposure to carbon monoxide for some length of time". A patient giving a history of severe acute poisoning is thus excluded, and a distinction made between chronic poisoning and the sequelae of acute poisoning.

Attention is devoted to methods of detecting and determining carbon monoxide in air and in blood, and many differing methods are critically discussed. The author puts forward a colorimetric method for the determination of carbon monoxide in blood, developed by himself, as a satisfactory field method.

The factors governing the rates of absorption and of elimination of carbon monoxide are considered in some detail, with references to the more important original papers in this field.

Some new data are presented regarding the "normal" proportion of circulating haemoglobin found combined with carbon monoxide in individuals not subjected to industrial carbon monoxide hazards. The proportion of haemoglobin thus combined was found to be higher in winter than in summer, and at any season higher amongst smokers than amongst non-smokers.

The symptoms of acute poisoning are described and discussed in some detail, together with data on the incidence of each symptom in the series of cases investigated by the author.

The greater part of the book, however, is devoted to a detailed description and analysis of the author's series of cases of chronic poisoning, comprising a group of factory workers examined during the period 1941 to 1947, and a group of drivers of cars or vans using producer gas as fuel, who were examined during the years 1943 and 1944. Seven hundred and twenty-nine drivers answered a questionnaire, and on the basis of the information thus obtained 151 men were selected who reported symptoms suggestive of chronic poisoning. These men were interviewed, and 100 of them were clinically examined. The commonest symptoms were headache, insomnia, fatigue and irritability, dyspnoea on exertion, and digestive disturbances. The initial symptoms of chronic poisoning usually did not appear until two to three months after the beginning of the exposure to carbon monoxide. Heavy smoking did not appear to increase the risk of chronic poisoning despite the increased proportion of haemoglobin combined with carbon monoxide. It is not clear, however, whether heavy smokers exposed to the same air concentration of carbon monoxide as non-smokers, did in fact, exhibit a greater proportion of carboxyhaemoglobin at the end of a day's exposure than did the non-smokers.

In addition to this large group of drivers of cars fueled by producer gas, a small number of garage mechanics, traffic officers, and tunnel and locomotive shed workers were examined. There was a considerable incidence of chronic poisoning in some of these groups, specially among the producer gas mechanics and the tunnel and locomotive shed workers. Foundry workers showed a low incidence of chronic carbon monoxide poisoning, but amongst boilermen and welders no cases were found. Men and women employed in the production of coal gas, or who used appliances operated by gas, showed a considerable incidence of chronic carbon monoxide poisoning.

Work involving intermittent brief exposures to considerable proportions of carbon monoxide, as in cleaning the producer gas equipment of cars, did not result in chronic poisoning.

Symptoms of chronic poisoning persisted for two to four weeks after removal from the source of carbon monoxide when poisoning was mild, and for one to three months when it was severe. After this period recovery was complete.

The author considers that human experiments and clinical findings provide no evidence of acclimatization to carbon monoxide. Considerable variation was observed in the proportion of carboxyhaemoglobin in the blood at which symptoms appeared, but individuals more susceptible in this sense did not appear to be more liable to chronic poisoning.

E. M. Killick


This book is a further addition to the steadily increasing number of volumes on atomic energy from the American point of view. It consists of 18 articles delivered by American experts to a gathering of American industrialists, scientists, engineers, sanitary engineers, and insurance company officials, at a conference held in New York in January, 1950.

The articles deal with four subjects: (1) the policies, development work, collaboration with industry, and patents procedures of the United States Atomic Energy Commission; (2) radiochemistry and isotopes; (3) layout and design of the radiochemical laboratory, instrumentation, planning of isotope "tracer" experiments; and (4) hazards, safety, and insurance.

This is clearly a wide range of subject matter, and the book suffers the natural fault of having only restricted space. Nevertheless, there are many parts which should prove of great interest to industrial medical officers, particularly those who are now or may be called upon to supervise the health of persons handling radioactive substances. Several of the articles are well and concisely written, and many of the principles expounded, for example on hazard control, are refreshingly apt for any industry. The book is educational in at least two other senses; it does describe, possibly unintentionally, the vast effort in America on the technology of civilian atomic energy usage, and it provides a highly readable account of what an abrupt increase in scientific knowledge we are likely to see from the use of radioactive isotopes as tracers in medical, chemical, physical, metallurgical, and agricultural problems. The book is well produced, and diagrams, tables, and photographs illustrate the text. Some parts of the book are clearly applicable only to America; the title, although possibly suitable for the conference, is not very apt for the