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

Industrial and Safety Problems of Nuclear Technology. Edited by Morris H. Shamos and Sydney G. Roth. 1950. London: Hamish Hamilton; New York: Harper Bros. Pp. 368. Price 28*s*.

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

published version, and there is virtually no reference to the important subject of nuclear energy as a source of power for industry, for transportation, or eventually for the whole community. Nevertheless, this book should be in the possession of industrial medical officers directly concerned with radioactive substances, and could well be seen by others wishing to keep abreast of modern developments in industrial methods and attendant occupational health problems. E. F. EDSON

Notes on the Diagnosis of Occupational Diseases Prescribed under the National Insurance (Industrial Injuries) Act, 1946. From the Ministry of National Insurance. 1950. London: His Majesty's Stationery Office. Pp. 52. Price 1*s.* 6*d.*

This is an interesting and modest little book in which every doctor will find much valuable information. It has no pretensions to being exhaustive, but within its scope of the scheduled occupational diseases it is unique. It suffers from the evils and advantages of condensation, and also unavoidably from the method of presentation which, as it must discuss each individual disease separately, does not allow of a grouping of these diseases. Nor does it stress the relative importance of the diseases described. In its original form it was designed to give guidance to those medical practitioners who were asked by the Ministry of National Insurance to examine and report on claimants to benefit under the National Insurance (Industrial Injuries) Act. Now that it has been made available to a wider public it might have been more successfully adapted. Such phrases, for example, as "a claimant for benefit in respect of this disease will be referred to an ophthalmologist for examination" could easily have been omitted without impairing the value of the book. Although there is evidence of correction from the first edition, it is unfortunate that certain mis-spellings have been perpetuated.

Apart from such criticisms, the book shows ample evidence of an intimate knowledge of industry on the part of the author or authors, and certain subjects—notably those on "poisoning by a nitro or amido derivative of benzene or of a homologue of benzene" and "nitrous fumes", are treated more efficiently than in many textbooks. This book is undoubtedly worth having. R. MURRAY

Microdiffusion Analysis and Volumetric Error. By Edward J. Conway. 1951. London: Crosby Lockwood and Sons, Ltd. 3rd edit., revised. 66 plates. Pp. 391. Price 25*s.*

The number of publications dealing with analytical problems, like the literature in other fields of science, is increasing at a phenomenal rate. A considerable proportion of journals, and particularly biochemical journals, is devoted to a description of methods, many which have not been adequately tried out. It is, therefore, most helpful and perhaps should be considered essential that any textbook on analytical methods should not only bring newer methods to the notice of the reader, but should also carry the author's guarantee that these methods work. The book under review fulfils this requirement admirably; the techniques have been well tried out and are described with all the details necessary for the successful use of the particular method. The theoretical aspects of microdiffusion techniques are thoroughly dealt with, thus enabling the research worker, wishing to develop a method, to obtain the necessary theoretical background. In a few instances one feels the detail is rather overdone. For instance, on page 154, it is not necessary to give in detail two methods for the preparation of urease. On pages 105–6 two methods for the determination of ammonia using the phenate-hypochlorite reagent are given with little indication which is the more reliable. The chapter on colorimetry might well have been omitted; there are many books on this subject.

An aspect of microdiffusion which does not appear to have been sufficiently emphasized is the separation of substances from complex biological material. The reviewer was recently made aware of the possibilities of this technique when it was found possible to determine dimethylamine in liver homogenate after four hours incubation; this had proved almost impossible when using conventional protein precipitation techniques.

The section on volumetric error is a model of the way in which errors in analytical practice can and should be sorted out.

This book should be available in every biochemical laboratory; for the routine pathological laboratory, methods are described which will allow a reliable and rapid routine to be worked out; for the research worker, microdiffusion is one more tool to help to solve his own peculiar problems. W. N. ALDRIDGE

The Day Hospital—An Experiment in Social Psychiatry and Syntho-Analytic Psychotherapy. By Joshua Bierer. 1951. London: H. K. Lewis & Co. Pp. 56. Price 6*s.*

Many industrial medical officers must have felt the need for some such unit as that described here, where a patient could not only receive the benefits of expert psychiatric consultation, but also many of the amenities of a well-equipped mental hospital without the additional complications of segregation from the patient's domestic, working and social milieu. This whole field is still relatively new and such an experiment must be welcomed.

The "Social Psychotherapy Centre" is included in the North West Metropolitan Region of the National Health Service, and its aim is to provide an answer to the limitations of the existing treatment centres for psychiatry whether they are out-patient departments or hospitals. The methods of treatment available include individual and group psychotherapy; physical, occupational and recreational therapy; psychodrama, art and social club therapy. Patients dealt with have been psychotic (discharged from mental hospital, leucotomised), neurotic (unable to work, acute forms of neurosis, requiring re-adaptation and after-treatment), and delinquent (on probation, discharged prisoners requiring psychotherapy). Case histories illustrating all these categories are given and make interesting reading.

Having dealt with practice, the author goes on to propound rather speculative theories. He considers

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