The book is well written and is eminently readable. If the style is almost too colloquial at times, it sustains a lively interest throughout. Good use has been made of contemporary writings, and the quotations, of which there are a number, are particularly well chosen.

Despite its shortcomings, the book fully justifies itself. It provides a useful introductory text for the student and can be recommended for its lucid presentation of the historical setting of some of the principal public health problems of the present day.

S. P. W. CHAVE

Kwantitatieve benadering van het verzuim door Neurosen bij Nederlandse fabrieksarbeiders. By Meindert J. W. de Groot. (Pp.vii + 231; 12 figures.) Leiden: Nederlands Instituut voor Praeventieve Geneeskunde. 1958.

This study of sickness absence attributable to neuroses is based mainly on data for three groups of workers, namely, (a) 57,000 employees of 31 industrial undertakings which submitted returns to the Netherlands Institute of Preventive Medicine (N.I.P.M.) for 1953; (b) 13,000 employees of Philips Works at Eindhoven for 1953; (c) 6,000 employees of the Royal Netherlands Iron and Steel Works for 1954.

Unfortunately different diagnostic groupings were applied to the data from each of these sources. The author has estimated the sickness absences in each group which would fall under the codes 310-318 of the International Statistical Classification, first from the distribution of the coding of the detailed diagnoses available with the N.I.P.M. data, and secondly from a study of the detailed case histories of samples of employees with neuroses from Philips and the Iron and Steel Works.

The N.I.P.M. data disclose an incidence of "definite neuroses" as defined in Russell Fraser's wartime study "The Incidence of Neurosis among Factory Workers", which is only about one sixth of Fraser's results for men and one quarter for women.

Within codes 310-318, the N.I.P.M. statistics show annual inception rates (spells) ranging from 8 to 12 per 1,000 men; the Philips data show rates of 8 per 1,000 men and 12 per 1,000 women. These results correspond closely with the experience of the London Transport Bus Overhaul Works, 1949-52, published in "Health in Industry" (1956). The iron and steel workers experienced a substantially higher rate of 45 per 1,000 men.

Examination of the samples of cases indicates that the above rates for Philips' employees may be underestimated and the rates for the iron and steel workers overestimated but that there is, nevertheless, a higher prevalence of serious neurotic disorders among the iron and steel workers.

The N.I.P.M. data falling in codes 310-318 show little variation of incidence with age, except that the rates are lower for the very youngest workers. The inception rates are higher for women than for men, especially at the younger ages. There is no evidence of seasonal variation.

One difficulty associated with this type of study is that it is of necessity related not to morbidity but to sickness absence, which is affected by the employee's criterion for stopping work, the medical standards of the

employer, working conditions generally, and the financial consequences of sickness absence. Variations in these factors may give a false impression of changes in morbidity. The author compares the increase in absences attributable to non-functional disorders of the nervous system and sense organs, where the morbidity is unlikely to have altered substantially. He concludes that there is no evidence of an increased prevalence of neurosis.

Another difficulty lies in the lack of consistency of diagnosis. For a study of neuroses, particularly, the allocation of symptoms to a system of codes can be a major disturbing factor. The author points out a number of serious defects in the International Statistical Classification in this respect. The impression given to the reader is that the problem is nearly insoluble, and this prompts the reflection that if separation of the symptoms does not in any event assist in a study of psychosomatic conditions, then in any broad grouping of diagnoses it would be better to relate symptoms to the associated physical diseases because this would undoubtedly aid the quantified analysis of the incidence of those diseases.

A third difficulty is the extension of the term "neurosis" to cover psychosociological troubles, not requiring treatment, among healthy people, the so-called "socioses". The author contends that these should be separated from morbid neurotic conditions but the reader may doubt whether this can in fact be done objectively.

This book is a valuable contribution to the literature, not only for the results achieved but as a study in methodology and an exposition of the philosophy underlying the analysis of sickness absence data.

C. J. CORNWALL

Practical Psychiatry for Industrial Physicians. By W. Donald Ross, M.D. (Pp. xx + 401. 57s. 6d.) Oxford: Blackwell Scientific Publications; Springfield (Illinois): Charles C. Thomas. 1956.

This is a much needed book, for although all physicians would be the better for some knowledge of psychiatry, the industrial physician needs it perhaps more than most. In spite of this, some mysterious occupational disease of those concerned with industrial medicine seems to cause them to be even more antagonistic to psychiatry than their colleagues in other branches of medicine. One could read through the books on occupational diseases, industrial hygiene, and the rest which have been published since the war without even suspecting that the worker possessed such a thing as a mind—except, of course, for the usual accounts of occupational cramps (do they still exist ?) and compensation neurosis.

Although the title of Professor Ross's book would seem to imply that he is solely concerned with the problem of mental disorders in industry, he in fact deals with a great deal more. He discusses absenteeism, accidents, fatigue, promotion, supervisors, trade unions, morale, the problems of new and old employees, of the woman worker, and—to delight the organically minded—neurological disabilities, head injuries, and industrial intoxications. The main emphasis, however, is on the everyday aspects of factory life, the everyday troubles of fairly ordinary people. He has written a useful com-

pendium of knowledge, not only of mental illness in industry, but of industrial psychology.

For the British reader the principal drawbacks of an otherwise excellent textbook are unavoidable owing to national differences: the problems of British trade unions, for example, are not those of American ones and alcoholism would hardly be considered a major problem amongst workers here as it appears to be in the United States. Addiction to neologisms is evident, such as "psychophysiological" in place of "psychosomatic".

One could wish, too, that Professor Ross, skilled as he is in the fields of psychiatry and psychology, might have recognized his limitations in the field of literature. Throughout his book are scattered quotations from the great—Plato, Shakespeare, Kipling, and Hippocrates, which, to say the least of it, are overworked. Presumably the point of introducing quotations is to produce a striking effect, but if they are such that even those with minimal knowledge can recognize them their point is wasted. One moves from "To be or not to be . . ." to "Malt does more than Milton can to justify God's ways to man"; the whole gamut of the emotions (as Dorothy Parker once said) from A to B.

Professor Ross's book, so long as he keeps away from Eng. Lit., is a most valuable contribution to industrial medicine, and particularly so since on the whole it emphasizes the normal rather than the abnormal.

J. A. C. BROWN

Lavorazioni che espongono all'azione del Piombo-Tetraetile (n.19—Tabella delle Malattie Professionali). By G. Giuliano and M. Rafanelli. (Pp. 64; 11 figures.) Milan: Edizioni I.N.A.I.L. 1957.

This slim volume of 64 pages is the fifth of a series written under the general direction of a committee of chemists and published by the Italian National Institute for the Prevention of Industrial Accidents and Diseases. Works already published include (1) "Nitrous Fume"; (2) "Noise"; (3) "Carbon Disulphide"; (4) "Naphthalene and its Homologues"; "Naphthols, Naphthylamines, and Halogenated, Sulphonated and Nitrated Derivatives of Naphthalene and its Homologues"; (5) "Tetraethyl Lead". The following are being prepared (6) "Phosgene"; (7) "Radiations"; (8) "Petrol and Petroleum Ether"; (9) "Glycol, Nitroglycerine, and their Derivatives".

The general physical and chemical properties, toxic action, and the maximum allowable concentration of lead tetraethyl are first described:

0.2 mg/m.³ produces evident symptoms in one hour.

0.1 mg/m.³ } is not tolerable for repeated exposures.
—0.14 mg/m.³ }

0.15 mg/m.³ is the American limit for an eight-hour working day but must not be regarded as more than the upper limit of toleration. In practice the atmospheric concentration should be well below this.

It is probably not generally known that lead tetraethyl was known over 100 years ago, its anti-knock properties being discovered only some 35 years ago. It is colourless, oily, strongly refractile, inflammable (yellow-orange flame with blue-green border), almost insoluble in water but easily soluble in fats, oils, and lipid solvents. The lead

in lead tetraethyl cannot be precipitated by alkalis but reacts with certain metallic and non-metallic chlorides and decomposes in the air and in sunlight.

The toxic effects depend upon the ready solubility of the compound in the lipid of the central nervous system. The L.D. 50 for mice is about 3 p.p.m.; deaths occur between the 14th and 20th days of daily exposures to this concentration of 10 minutes.

Daily skin applications of 0.1 ml. to dogs lead to nervous symptoms and great depression on the 12th day and death on the 21st day.

Although the vapour pressure of tetraethyl lead is low, the important point for the toxicologist is that air saturated with it contains about 5 mg. lead per litre. Tetraethyl lead poisoning nowadays occurs among cleaners and repairers (skin absorption and inhalation) of storage tanks for leaded petrols. Symptoms include insomnia, anorexia, restlessness, asthenia, nausea, hallucinatory and exalted states. Signs include loss of weight, hypotension, vomiting, tremor, ataxia, psychomotor disturbances (for some recent cases see Walker and Boyd, 1952, *Lancet*, 1467). The hazards of manufacture and blending are apparent from the stages in the process, namely, preparation and reaction in an autoclave of ethyl chloride and a granulated Na-Pb alloy; transfer from autoclave to a still and steam distillation of tetraethyl lead; washing, mixing with a calculated amount of ethylene chloride or bromide and a dye; pumping of product to a decanting apparatus: filtration; automatic drumming in the open air.

From the nature of the reaction

it is obvious that the lead remaining after distillation of the tetraethyl lead must be recovered from the sludges by removing the salt with water, fusing the lead, and casting it suitably for use in the preparation of fresh Na-Pb alloy. The authors, in an evaluation of the various hazards, give the general principles of safe working, illustrated by diagrams and photographs of process and plant, and give the M.A.C. for ethyl chloride as 1 p.p.m. which must be a mistake, but proper attention is drawn to the hazard of its escape carrying some tetraethyl with it from ducts, flanges, pumps, and storage vessels. In addition to the hazard of transfer of the alloy to the reactors, there is also the great hazard of temperature control in the latter. Safety pressure-valves, to obviate explosions, should discharge into stacks sufficiently wide and high to eliminate any possible danger to the plant and personnel.

The passage of the crude product from the horizontal reactor to the still below is, perhaps inevitably, attended by a certain very small diffusion of tetraethyl lead vapour into the atmosphere of the plant. Automatic control of temperature, pressure, and flow keeps the number of workers small but some operations must still be carried out by hand, *e.g.*, the emptying of the reactors, steam regulation and flow of cooling water, and above all, perhaps, the filling of drums. In an illustration of the latter operation a worker is shown, wearing long rubber gloves, top boots, overalls, and filter respirator. Automatic filling and weighing are followed by the delicate operation of emptying and detaching the filling pipe, the