Mr. Beric Wright's rules for travellers suggest a suitable topic for any management conference, and a pamphlet on this theme would be helpful—perhaps one is already available?

Few would agree with the views of Mr. Dickson Wright, a surgeon, who is out of sympathy with the contribution that medicine makes to industry and commerce, albeit they have been expressed forcibly, and for this reason if none other, this pocket-size booklet should be read by all industrial medical officers.

J. C. GRAHAM.

Detoxication Mechanisms. The Metabolism and Detoxication of Drugs, Toxic Substances and Other Organic Compounds, 2nd ed. By R. Tecwyn Williams. (Pp. x + 796. 126s.) London: Chapman & Hall. 1959.

The first edition of this book, less than a third of the weight of this volume, was packed with useful information. The ratio of information to mass remains the same and the style of the new edition does not depart materially from that of the original one. The work is essentially a book of reference and is more of a dictionary than a discussion. Anyone who wishes to try to understand the mode of action of a foreign chemical that may be ingested either as a drug or in food or during occupational exposure should start by referring to this volume. With an excellent index and references at the end of each chapter, the original information is easy to trace. It is a book of chemistry and the subject is one which owes much to the work of the author and his colleagues. The occasional references to medicine and statements such as "organic nitrites . . . have been used for many years in the treatment of hypertension" or "menthol . . . is a compound of great importance in medicine" or that "synthalin is used in diabetes" do not enhance the value of the chemical information provided. Problems of industrial toxicology are not enlarged upon. The metabolism of benzene is fully discussed but no reference is made to its unique toxicity to the bone marrow of mammals when compared with related aromatic hydrocarbons. The toxicity of benzene and chlorobenzene are compared only on the basis of their narcotic action (p. 251).

Although documentation is on the whole excellent there are occasional gaps such as the metabolism of cyclohexylamine (p. 119) and there is no reference for the statement that vitamin B₁₂ relieves the poisonous effects of carbon disulphide (p. 40).

Having completed this masterly compilation the author might consider a smaller volume discussing the significance of the information he has presented. A single chapter at the end stimulates the appetite for more. Thus the enzyme systems in liver are mentioned briefly in many places but no general account is given of the ability of the liver to transform foreign chemicals reaching it. For technical reasons the rabbit or larger species has been used in work on the excretion of metabolites yet most toxicity testing is done on rats or mice. There is probably enough information now available to make some useful generalization on species differences.

Much of this work described so far has been of necessity done on chemicals that may be administered in relatively large quantities. Refined methods for the isolation, purification, and identification of chemicals will enable more work in the future to be done on more toxic drugs and chemicals.

It seems probable that further editions of this book will be called for at much shorter intervals than the 12 years that separate the first from the second edition.

J. M. BARNES

Recherches sur la Toxicologie du Thallium. By René Truhaut; Foreword by René Fabre. (Pp. 272; 54 figures.) Paris: Institut National de Sécurité pour la Prévention des Accidents du Travail et des Maladies Professionnelles. 1958.

This is a more complete study than any hitherto on the mechanism of thallium poisoning. Previous reports and theories are fully cited. The author stresses the importance of covering the different fields of analytical chemistry, biochemistry, physiology, and cytology when attempting to penetrate the mechanism of action of toxic substances. This monograph is thus divided into five parts incorporating experimental results obtained under these headings. A survey of this nature tends to be superficial in many respects. However, the spectrophotometric method described for measuring thallium in biological media, the data on distribution of thallium in animals together with those obtained using radioactive thallium are very valuable.

Among the many and varied investigations made, the section on the appearance of alopecia in animals suffering from thallium poisoning is the most striking. Contrary to some earlier reports thallium was found to be without effect on the thyroid in spite of an accumulation of the metal in this organ.

Of the substances tested to alleviate thallium poisoning certain sulphur-containing amino-acids showed some degree of efficiency while B.A.L. was without effect.

From results in the more biochemical and pharmacological sections no mode of action is, or can be, suggested for thallium poisoning. In fact, the author concludes that the mechanism of the toxicity of thallium is as equally complex as the chemical properties of the metal, termed "métal paradoxal" by early workers.

J. E. CREMER

Bibliography of Cancer Produced by Pure Chemical Compounds. A Survey of the literature up to and including 1947. By Otto Neubauer. (Pp. xxvii + 604. 42s.) London: Oxford University Press. 1959.

All cancer workers will welcome this compilation of the literature starting from the first induction of tumours by a pure chemical compound by Kennaway, in 1930, using 1:2:5:6-dibenzanthracene (considered at the time to be the 1:2:7:8-dibenzanthracene).

The value of such a bibliography depends on its reliability, completeness, and ease of perusal. Though

the author stresses that absolute completeness has not been attempted, yet the coverage is impressive. The material was collected from 480 journals and other publications, listed on pp. xi-xx.

The relation of arsenic to cancer already reported by Professor Neubauer in a bibliography (*Brit. J. Cancer*, 1947, 1, 192-251) is excluded. Papers dealing with the carcinogenic action of ultra-violet and sunlight are included, but not those dealing with other ionizing radiation.

The material is listed in two parts, consisting of (1) an authors' index in alphabetical order, 270 pages, and (2) a subject index, 326 pages, divided into 32 sections, each comprising several subsections. Each entry consists of the names and initials of all the authors, the name, volume, and page of the periodical and the year of publication, full title in the original language (except when this is printed in Japanese or Cyrillic characters) and its English translation.

There is a key (pp. xxi-xxvii) to the arrangement of the subject index in the various sections dealing with individual aspects of the carcinogens, their physical, chemical, and biological properties, metabolism, modes of administration, local and systemic effects in various species, including man, the influence of intrinsic and extrinsic factors. The subsections deal with the particular classes of the carcinogens, polycyclic compounds, azo compounds, acetaminofluorene, aromatic amines, sterols, and so on. A valuable feature is the collection of general reviews in section 31.

This bibliography allows a quick survey of the older literature on any particular aspect of carcinogenesis with chemical compounds, and it is to be hoped that it will be followed on similar lines by subsequent volumes on the literature published since 1947.

The criteria by which the author selected the "pure chemical carcinogens" appear rather arbitrary. Thus, papers dealing with heated fats and cholesterol are included, but not all those dealing with carcinogenic fractions of tar. However, with such a diffuse and complicated subject as carcinogenesis the problem of selection is extremely difficult.

It is sad that neither the author, nor Sir Ernest Kennaway, who suggested the compilation of this bibliography and helped to secure financial support for it, first from the Donner Foundation and since 1947 from the British Empire Cancer Campaign, lived to see the completed work. The completion of the final stages of this book is due to Miss Phyllis M. Coombs, of the library staff of the Chester Beatty Research Institute.

R. SCHOENTAL

Harmful Effects of Ionising Radiations. By Ethel Browning. (Pp. xii + 158; 5 figures. 15s.) Elsevier Publishing Co. Amsterdam, 1959. London: D. van Nostrand. 1960.

There should be a great demand for a small book of this size on this subject. The number of people—industrial medical officers, health physicists, safety officers, executives—with a need to know the basic

principles must be multiplying rapidly with the increasing use of ionising radiations and radioactive materials.

No single person, one would have guessed, would have been more fitted to be the scribe than Dr. Ethel Browning, who is so widely respected by the medical profession and by "industry" for her guidance over nearly a generation as H.M. Medical Inspector of Factories and for her personal researches in this field. Nevertheless, to the reviewer the material presented has characteristics in common with the curate's egg. The good bits are where the author is definitely discussing her own field—the observed clinical features of men and women, who in the past were for one reason or another over-exposed to radiations, and the haematological findings in "luminizers". The historical aspects now so often neglected make very rewarding reading to a new generation (which includes the reviewer). On the other hand where the non-physicist tyro must be inducted firmly and accurately, for instance, in the basic physical laws and in definition of physical units of dose, the presentation is disappointing. Neither the concepts nor the expression of them are made clear. For instance (p. 17) "Since some forms of radiation differ in their biological effects another unit, the rem, has been introduced for comparison in this respect with the rad; and still another the R.B.E., for comparing the biological destructiveness of the different types of radiation." It is doubtful if R.B.E. can be considered in theory a unit; certainly it is not in practice, and the rem is purely a calculation, the product of rad and R.B.E.

If, alas, it is not possible to get the perfect primer from a single author, a second edition written jointly with a health physicist having the gifts of balance and clarity of exposition might produce it.

JOHN F. LOUTIT

Paraplegie Traumatique. Edited by Africoa Serra and Ettore Tranquilli-Leali. (Pp. xxxvii + 964; 279 figures, 37 colour plates. Price not given) Rome: Edizione I.N.A.I.L. 1959.

This book is attractively presented and, as is necessary for most readers, has an excellent opening in which the anatomical and physiological implications of traumatic paraplegia are made clear.

The chapters on ossification of the spine, its blood supply, and the lymphatic system are very clear.

Having classified the various lesions which may occur, the writers proceed to consider, one by one, their sequelae. A chapter on oedema after spinal injury is of much interest. The writers note that the oedematous fluid contains large amounts of phosphatides and conclude that this is evidence of increased capillary permeability which, associated with paralytic vasodilatation, explains much of the condition. The rapid appearance of decubitus ulcers is due in part to local ischaemia and may result in a superimposed infection. As muscular atrophy progresses, the patient has an increasing handicap and this atrophy is aggravated by the lack of movement and thus, lack of nutrition. Protein katabolism keeps well ahead of the anabolic processes and, to