he did not publish a scientific contribution. In essence, this is the biography of a medical scientist. We do learn that in 1845 he had a son out of wedlock by Maria Georgina Forbes, and that when the parents were married in 1869 their child was legitimated. But there is no further account of these events.

This book is recommended to anyone who is interested in the history of medicine, science, and French culture. One must point out, however, that the price is quite steep for a paperback, even one printed on coated stock. This is a pity, because the author has produced a book which should reach a wide readership.

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Uses of Labeled Compounds

International Conference on Radioactive Isotopes in Pharmacology. Geneva, Sept. 1967. P. G. WASER, B. GLASSON, A. BENAKIS, Y. COHEN, R. A. COLLET, H. KEBERLE, and R. STRAUB, Eds. Wiley-Interscience, New York, 1969. xiv + 492 pp., illus. $29.

Of the 60 papers in this volume, 42 are in English and the remainder are in French. About half of the papers are very brief summaries, about a page in length, which give only a few details. Many of the remainder, however, contain thorough and detailed discussions.

The conference was planned to survey the practical uses for radioactive isotopes in all branches of pharmacology. This goal was achieved; the book serves as a useful review of the current uses for isotopes in pharmacology. At least one of the papers reports a new technique in pharmacology accomplished without isotopes; it is suggested that the use of isotopes could make it more informative. The book is divided into four sections concerned, respectively, with problems of synthesis and methodology, electron-microscope autoradiography, specific receptors, and biochemical and pharmacological mechanisms.

Novel methods for labeling compounds and problems encountered in synthesizing and identifying labeled compounds are presented in the first section. A few papers concerning electron-microscope autoradiography emphasize that much still needs to be done in the development of a technique that will allow localization of soluble substances at the electron-microscope range of magnification. A satisfactory technique does not yet exist for the localization of labeled compounds which are not incorporated into large molecules and consequently are translocated by fixing solutions and processing for electron microscopy.

Pharmacologists concerned with the localization of specific receptors for drugs have conducted extensive studies on the localization of radioactive compounds in tissues and cells of experimental animals. The problems are the recognition of nonspecific effects such as metabolism, water compartmentalization, *p*H gradients, and active secretion which also may produce increased concentrations at various sites. These effects, of course, must be ruled out before specific affinities attributable to receptors can be identified.

The final section of the book includes reports on specific inhibitors of steroid synthesis, intermediary metabolism of phospholipids, and recent studies on the mechanism of induction of drug metabolizing enzymes. Several papers deal with kinetic studies. One concerns the effect of the presence of an isotope in the molecule on the rate of metabolic transformation of compounds.

Although much of the information in the book has been published elsewhere, pharmacologists, particularly those using isotopes, may find the book a handy source for the state of the art as it existed when the conference was given. The authors include those who are most active in the field.

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Scattering

Topics in Atomic Collision Theory. SYDNEY GELTMAN. Academic Press, New York, 1969. viii + 248 pp., illus. $13. Pure and Applied Physics, vol. 30.

This book develops certain portions of the theory of scattering which have significant applications in atomic physics. These topics include potential scattering, the many-channel theory of electron-atom collisions, and elastic and inelastic scattering of atoms.

The treatment of the scattering of a single particle by a static potential emphasizes bound-state and resonance effects and contains a thorough discussion of the properties of the Jost function in the complex k plane. Complex angular momenta, however, are not considered. Variational methods for scattering amplitudes and phase shifts are discussed.

Electron-atom scattering is described from the viewpoint of both the common simple approximations (Born, Born-Oppenheimer, and their modifications) used for inelastic processes and the close-coupling method for elastic collisions. The presentation of the theory of resonances and compound atom states employs the Feshbach projection operator method. The author has contributed significantly to this subject, and this section is a particularly valuable feature of the book. The applications described are concerned mainly with the electron-hydrogen system.

The difficult subject of atom-atom collisions is discussed in a manner that distinguishes between approaches valid in different energy ranges, including expansion in molecular states, the impact parameter method, the unitary approximation, and the Landau-Zener-Stuckelberg theory of the crossing of potential energy curves. There is a description of the problem of charge transfer in fast collisions which indicates the confused and incomplete state of present knowledge of this topic.

Although the book does not attempt a complete treatment of scattering theory, it will be valuable to readers who are interested in low-energy atomic processes, which are not developed with thoroughness in works directed toward nuclear and elementary particle physics. The strongest feature of the book, in this reviewer's opinion, is the presentation of the popular and reasonably successful close-coupling method. Other approaches to the electron-atom scattering problem which have been widely used in circumstances where a close-coupling treatment would be too difficult (the polarized orbital method) or which are of major conceptual interest (the diagrammatic method based on many-body perturbation theory) are not considered. Reference is made only to the most significant theoretical papers in the areas considered. Some, rather sketchy, experimental results are presented for purposes of comparison with theory, or to illustrate types of behavior that theory must attempt to explain.

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