He discusses dislocations as acceptors, and their effect on carrier lifetime.

J. Volger's paper on "Dielectric Properties of Solids in Relation to Imperfections" discusses not only semiconductors, but also ionic conductors. Effects due to polycrystalline samples and trapped carriers are described.

A. F. Ioffe and A. R. Regel discuss properties of "Noncrystalline, Amorphous, and Liquid Electronic Semiconductors." They also review limitations of common theories of electronic conduction and theories of the electrical properties of liquids and liquid semiconductors. Several oxide, sulfide, halide and elemental compounds are included.

The papers are generally of a review type, with 726 references. The book is not intended to be read casually by those unfamiliar with the field, but provides an excellent opportunity for persons already engaged in semiconductors or solid state technology to broaden their knowledge.

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Basic Principles of Nuclear Science and Reactors. By ALAN M. JACOBS, Research Associate, Nuclear Engineering Department, The Pennsylvania State University, DONALD E. KLINE, Staff Research Physicist, HRB-Singer, Inc., and FORREST J. REMICK, Acting Director, Nuclear Reactor Facility, The Pennsylvania State University. D. Van Nostrand Co., Inc., 120 Alexander Street, Princeton, New Jersey. 1960. viii + 262 pp. 16 × 23.5 cm. Price, $6.50.

As an elementary book, which makes a very clear phenomenological presentation of fundamental reactor physics, this book should fill a very urgent need in our literature. It should prove of value to all who are interested in obtaining an understanding of the various separate neutron physics parameters (*e.g.*, resonance escape) which have become a part of a language of reactor technology. These concepts are developed one by one and combined until, finally, a reasonably satisfying understanding of the simpler real reactors is achieved. This is done without attempting to prove mathematically each of the relations used.

The phenomenological development occupies the first seven chapters and terminates with a good discussion of elementary reactor kinetics. Chapter 8 is then devoted to the description of about ten different types of reactors, with very little relationship to the reactor physics understanding previously developed. Only in the case of the graphite moderated reactor (Oak Ridge X-10) is there any significant tie-in with the methods previously developed. The main orientation is toward reactors which might be used in university research, but it is apparent that the objectives of this chapter are not clear. The photographs and sketches are not of the best quality, were obtained largely from a single source, and make little contribution to the development of a technical understanding of the various reactor concepts described. Even at the college level, it would seem that the descriptive material could be obtained in more stimulating form from current literature. The final two chapters deal with related subject matter such as shielding, instrumentation and the uses of radioisotopes in various different applications. Particularly, the biological and industrial applications of radioisotopes are aimed at very different technologies than the reactor technology developed in the major part of the book.

This book undoubtedly was prepared as a text and for its used would require only an understanding of the concepts of calculus and the equivalent of college physics. However, one is tempted to claim that it is not a text, perhaps on the basis of old fashioned concepts of pedagogy, since the two halves of the book are based on quite different levels of foundation. Neither half develops its subject matter to the point at which the student could effectively use the material, but the first is based on fundamentals, while the latter chapters are primarily descriptive.

Nevertheless, this book gives a clear, elementary presentation of the fundamental reactor concepts and in this respect is a valuable contribution. An excellent selection of problems has been made; the two prevalent extremes—trivial problems and thesis problems—have been avoided, while the selected problems effectively test and contribute to the understanding of the subject matter.

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Selective Toxicity. By ADRIEN ALBERT, D.Sc. (Lond.), Ph.D. Medicine (Lond.), F.R.I.C., Fellow of the Australian Academy of Science, Professor of Medical Chemistry in the Australian National University. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N.Y. 1960. x + 233 pp. 14.5 x 22 cm. Price, $5.50.

The relationship of chemical structure to biological activity is one of the most elusive subjects in medicinal chemistry. Difficult as it is, it is slowly being untangled, with amazing commercial results ranging from new and specialized weed killers to increasingly efficient chemotherapeutic materials.

Professor Albert has made this book a milestone in the reporting of information on this subject. The original edition, first published in 1951, has been revised and enlarged. Starting out as a course of postgraduate lectures, the subject matter has been expanded from eight chapters to thirteen. Part I, containing the first four chapters of general interest, is intended for undergraduates. This may be slightly optimistic since this part takes for granted certain chemical and biological information not usually attained at the undergraduate level. This part covers a description of selective toxicity, a bird's-eye view of the mechanisms of absorption, distribution and excretion with a discussion on receptors, a background of chemotherapy with an account of the contributions of Paul Ehrlich and a chapter on pharmacodynamics. Part II, with nine chapters of a more advanced character, is clearly written. It contains information of a fundamental nature covering many of the numerous theories on the subject. In this part, Professor Albert takes the opportunity to describe several of his own experiments and findings, particularly his work on the acridine series. This part of the book covers theories involving metabolites, enzymes, ionization, metal-binding agents, various chemical bonds, surface chemistry and steric factors.

The book is well organized, containing an adequate index and also a reference bibliography. The latter, as is common with Commonwealth authors, prefers British to American references. However, this is not overdone. The chapter headings contain informative summaries which are useful. The subject matter is presented in logical manner, although in several instances somewhat repetitiously. This has the effect of overemphasizing certain subjects.

In general, this book is another step forward in the structure–biological activity relationship field. It should be read by all scientists interested in the subject.

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