

of the collisions of electrons with molecules, which is the subject of the last article by Craggs and Massey. The article is an excellent survey of both theory and experimental results. Of particular interest is the extensive discussion of experimental data for ionization of polyatomic molecules.

This volume will be a welcome addition to the reference shelves of all investigators primarily concerned with molecular structure. It will be of especial use to the physical chemist, uninformed of the power and potential usefulness of the techniques exposed in the first and third articles.

Power Unlimited! The Story of Power—from Windmill to Nuclear Energy. By Abraham and Rebecca B. Marcus. 152 pp. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1959. \$3.50. *Reviewed by Peter L. Balise, University of Washington.*

SINCE a basis of modern civilization is the use of energy from sources other than men and animals, a well-written book on power should be of interest to many laymen. Such a book is *Power Unlimited*. Although the jacket describes it as "entertaining", this reviewer would classify the book as a clear explanation for the layman interested in a little serious reading; rather than describing dramatic examples of power, the authors have emphasized understanding the basic operation of energy-conversion devices.

The coverage is quite complete, beginning with diagrams showing why a windmill turns and concluding with lucid explanations of the present state of fusion and solar power research. Little if any prior knowledge is assumed; for example, the rather thorough discussion of electric motors is preceded by an explanation of a graph in terms of a hospital patient's temperature chart.

The book is recommended for high-school students or others who would like to understand "how things work".

Fourier Transforms and X-Ray Diffraction. By H. Lipson and C. A. Taylor. 76 pp. (G. Bell & Sons Ltd., England) The Macmillan Co., New York, 1958. \$4.50. *Reviewed by I. Fankuchen, Polytechnic Institute of Brooklyn.*

FOURIER transforms were proposed about twenty years ago for use in crystal structure determination but their use has never really become widespread. The senior author of this book has probably done more than anyone else to call the attention of crystallographic workers to the potentialities of the Fourier transform method of working out crystal structures. Almost everything in this small book can be found in the published literature but nevertheless it will be a useful contribution if it succeeds in making more structure workers realize the potentialities of the Fourier transform approach to structure determination. The pertinent theory is presented precisely and clearly. While Professor Lipson is naturally very interested in the use of optical

methods for studying the Fourier transform of assumed structures, it will probably be true that the real utility of this book will be getting people to think in terms of Fourier transforms rather than in stimulating the use of the optical approach.

In a sense this book appears some years too late. The optical methods which have so far been proposed lend themselves only to two-dimensional analyses. Structures which can be solved with the two-dimensional approach can today more easily be solved by using the high-speed computers now available. Even five years ago this statement would not have been quite so true.

It is a pity that the thought and care which went into the writing of the book did not extend to its proofreading. A rather cursory first reading of the book showed many typographical errors, all of them so obvious they need not be listed.

In spite of these critical comments this book is recommended to both students and structure workers. A thorough study of this volume will be repaid by a better understanding of the relation between the intensity of diffraction phenomena and the diffracting structure.

The Physics of Intermediate Spectrum Reactors. Edited by J. R. Stehn. 38 chapters. UC-81. Naval Reactors Branch, Div. of Reactor Development, US Atomic Energy Comm., 1958. Paperbound. *Reviewed by David Okrent, Argonne National Laboratory.*

INCLUDED in this volume is a fairly complete compilation of the work performed by a very productive reactor physics group in the course of design of the intermediate reactor which powers the submarine *Seawolf*. As such, a somewhat more appropriate title might be "The Physics of an Intermediate Reactor". However, many interesting and practical theoretical and experimental techniques are described under one roof, herein, providing a volume of some value. In addition, as a record of the extensive efforts required for the design of a high-performance, mobile reactor, this volume serves a useful purpose.

The volume is divided into four main parts, as follows: (1) Investigation of Reactor Characteristics by Critical Assemblies, (2) Reactivity Effects Associated with Reactor Operation, (3) Heat Generation and Nuclear Materials Problems, and (4) Reactor Kinetics and Temperature Coefficients.

The first part includes a discussion of a variety of techniques of general interest for critical experiments such as inverse multiplication measurements, rod drop and other methods for control rod calibration, and foil activations for flux and spectral determinations. The second part consists primarily of calculations and experiments pertinent to a specific reactor design, except for a brief treatment of the prediction of fission product poisoning by the statistical model of the nucleus and a fairly extensive study of the burnable poison problem for intermediate reactors. In Part 3 extensive