fers a detailed development of the Breit-Wigner formula, and gives evidence well provided with experimental results.

Finally, A. Wattenberg examines nuclear reactions at high energies (87 pages). After a summary account of data which can be obtained from such reactions and from the theoretical concepts useful for the understanding of experiments of this type, the author explains the techniques of neutron production and detection which are involved and reviews the relevant methods and the experimental results.

Solid State Physics: Advances in Research and Applications, Vol. 5. Edited by Frederick Seitz and David Turnbull. 455 pp. Academic Press Inc., New York, 1957. $11.00. *Reviewed by Robert W. Hellwarth, Hughes Aircraft Co.*

The very excellent and ambitious series of volumes on solid-state physics edited and planned by F. Seitz and D. Turnbull continues with the appearance of Volume 5. The five articles contributed to this volume display quite well the editor's intended balance among theoretical, experimental, introductory, and advanced material.

The most extensive section of Volume 5 is one by M. H. Cohen and R. Reif on Quadrupole Effects in Nuclear Magnetic Resonance Studies of Solids (117 pp.). This section deals quite exhaustively with the "high field" case of interactions where the nuclear magnetic dipole Zeeman splitting is large. (The "low field" case will be treated by T. P. Das and E. L. Hahn in a separately published supplement to this volume.) The theory of quadrupole interactions and line shapes and intensities is developed from scratch and used to discuss many important classes of experiments and results in this field. Crystal structure, bonding, imperfections, and phase transformations are among the topics treated.

Three of the four remaining articles, all under one hundred pages each, treat other experimental fields. Galvanomagnetic and Thermomagnetic Effects in Metals by J.-P. Jan clearly outlines the bewildering array of independent coefficients which describe conductors in magnetic and thermal fields and discusses their relation to the many experimental effects. Although the approach is mainly phenomenological and experimental, some important theoretical results are mentioned. Probably all of the various effects suggested by the title are discussed here with emphasis on Hall and magnetoresistive effects.

C. C. Klick and J. H. Schulman in Luminescence in Solids give a lucid account of the application of modern investigative techniques and concepts of solid-state physics to this technologically important field. The article is primarily concerned with inorganic phosphors whose luminescence either involves single centers, cooperating centers, or charge carriers. The illustrative material is well chosen to stress the physical principles involved. The technology of phosphors is mentioned only when it is germane to the understanding of the basic mechanisms involved.

Most progress in the study of impurity states in semiconductors has been accomplished through the research with germanium and silicon whose impurities can be most easily controlled over the widest ranges. W. Kohn reviews Shallow Impurity States in Si and Ge with emphasis on the "shallow" states because they are more easily understood by present-day solid-state theory. This section, as those mentioned above, provides a clear introduction to the material as well as a useful reference to workers in the field.

With Space Groups and Their Representations, G. F. Koster contributes the more mathematical part of Volume 5. This monograph brings together a summary of the general theory of space groups and their irreducible representations with tables, diagrams, and physical examples of many specific results. A fairly firm grasp of group-theory concepts is prerequisite for the study of this section. This section is especially valuable in that the author has contributed much of his own in coordinating the methods for finding the irreducible representations for various space groups.

The author and subject indexes round out the considerable value of this volume as a reference and text in these several fields of the diverse body of solid-state physics.

Lectures on Nuclear Theory. By L. Landau and Ya. Smorodinsky. Translated from Russian. 83 pp. Consultants Bureau, Inc., New York, 1958. Paperbound $15.00. *Reviewed by E. M. Henley, University of Washington.*

This translation of a series of lectures on nuclear theory given by Landau in Moscow in 1954 should prove a decidedly worth-while addition to any experimental nuclear physicist's library. The book will also appeal to the specialist in other fields who desires insight into the problems of nuclear physics, and should be highly recommended to all physics graduate students. It is thus a pity that the book is so expensive. (Students can obtain it at a special discount price, if it is ordered in quantity.) The lectures, originally given to experimental physicists, are lucid presentations of some of the more important underlying concepts of nuclear physics. The emphasis is on clarity of physical ideas and on the relation of experiments to theoretical interpretation. Experiments that should be carried out to clarify various aspects of nuclear theory are often suggested directly or indirectly. The authors also attempt to point out pitfalls to which hasty generalizations can lead, even though they themselves make a few categorical assertions that do not seem too well founded.

The first three lectures discuss nuclear forces and the two-nucleon problem at low and at high energies. Here, as throughout, physical insight is emphasized rather than rigor or completeness. Nevertheless there is ample discussion of such topics as exchange potentials and isotopic spin, which is introduced in a very natural manner. The meaning of virtual level is clearly given,