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Edited By Academician D. V. Skobel'tsyn, Director, P. N. Lebedev Physics Institute, Academy of Sciences of the USSR, Moscow

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the book to discussions of specific areas of nuclear physics. For example the next two articles, by R. J. Blin-Stoyle and by E. K. Warburton and J. Weneser, elaborate on the role of isospin in beta and electromagnetic transitions, respectively. These are followed with chapters on the isospin purity of low lying nuclear states (J. M. Soper), isospin distributions (J. Bruce French) and the systematics of Coulomb energies (Joachim Jänecke). The latter examines the behavior of Coulomb energies for a wide range of nuclei and concludes with a compilation of experimental Coulomb displacement energies (between ground states and their analogues) and excitation energies of isobaric analogue states. There is a discussion by G. R. Satchler on the isospin dependence of the optical model potentials used in describing nuclear scattering. The theoretical character of some of Satchler's treatment complements rather well the more experimentally oriented article of J. P. Schiffer on the role of isospin in transfer reactions.

This relation between the contributions of different authors is, in fact, typical of the entire book. For example, the work of Warburton and Weneser provides a good theoretical framework for the later discussion by Stanley S. Hanna of the electromagnetic decay of isobaric analogue states. Similarly the remaining articles of D. Robson, A. M. Lane and G. Temmer on various facets of analogue resonances and states show a refreshing awareness of each other's contributions.

The obvious care and coordination that Wilkinson and his colleagues have displayed in the preparation of this volume make it a readable and relatively self-contained work of value to any serious graduate student or researcher in nuclear physics.

Henry S. Valk

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Methods of Molecular Quantum Mechanics

R. McWeeny,
B. T. Sutcliffe, eds.

298 pp. Academic, New York, 1969.
\$13.50

This book is concerned with the methods available for finding approximate electronic wave functions for isolated molecules in stationary states, and with some application of these functions. It is intended to be complete enough to achieve this goal without constant reference to the journal literature, and I feel that it has accomplished this end.

The first four chapters are introductory in nature, and form a general dis-

cussion of electronic behavior in isolated molecules. Succeeding chapters deal with calculational techniques and the application of these to particular molecular problems. Thus, after the material in the first four chapters is understood, the remainder of the book can be used as a reference work for the calculation of molecular properties.

It is unfortunate that the authors of this book, in common with many other authors, feel it necessary to preface their work with so much introductory material. Most of this material is covered in courses in quantum mechanics, and it seems redundant to be constantly repeating it in various books. It certainly delays, and reduces, the presentation of the useful material in the book. Even so, I feel that this book will be useful as a summary of theoretical methods of dealing with electronic wave functions of molecules.

G. O. Brink

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Nuclear and Particle Physics

By E. B. Paul

494 pp. American Elsevier (North Holland), New York, 1969. \$15.00

If the reader construes from the title that he will be presented with an integrated development of the facts and theories of nuclear physics and particle physics, he will be disappointed. The major structural flaw in this work is that it continues the accepted but artificial bifurcation of the fields of nuclear and particle physics. This may be understandable, because each field is so vast in facts (if not in unifying principles, that is, theories) that it is too much for one man to chronicle, let alone integrate.

The presentation is unbalanced. A description of nuclear phenomena constitutes, by volume, a full 60% of the text. Thirteen percent is devoted to particle properties, and 6% is assignable to either, as it is a description of nuclear forces by means of the two-nucleon problem. The relative emphasis on nuclear physics, although it probably underestimates E. B. Paul's research interests, does not detract from the merits of his concise description, as an interested spectator, of particle physics.

Nonessential material is included in distressing amounts. The author devotes 20% of the book to discussing certain physical phenomena and their engineering ramifications, which do not directly contribute to the orderly development of the subjects at hand. An understanding of energy-loss phenomena and the detection devices that use these physical phenomena and accelerators is necessary for a critical