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quiries. Each section is valuable and every reader will find little gems particularly to his liking. For teaching purposes, the section on angular momentum and spin is especially helpful. A section heading is provided on the top of each page but not the number of the section; this makes the answers hard to find.

As a parting blow, a remark is included about appearance versus costs. The book has been photo-reproduced in Great Britain from a typewritten manuscript with the formulae and figures taken from the Russian original. Because of this, the margin on each page is unattractive, and a small dictionary of notation had to be provided. These things would not matter if the book were less expensive. To ask \$12 for 394 pages, when the original is in Russian (royalties ?) and the printing is done in Britain with no typesetting costs involved, seems to be the height of greed. (Compare this price, e.g., with *Orthogonal Functions* by G. Sansone. Interscience; 1959; 423 pp.; \$11.75; printed beautifully, in the USA, with lots and lots of typeset formulae.)

Problems in Quantum Mechanics. By I. I. Gol'dman and V. D. Krivchenkov. Edited by B. T. Geilikman. Revised and transl. from Russian by E. Marquit and E. Lepa. 275 pp. (Pergamon, London) Addison-Wesley Publishing Co., Inc., Reading, Mass., 1961. \$8.50. Reviewed by Wendell G. Holladay, Vanderbilt University.

THE first forty-five pages of this book list 283 problems in the area of nonrelativistic quantum mechanics. The remainder of the book presents the solutions to these problems in varying amounts of detail. It is stated in the preface that these problems were solved at seminars or given as home assignments to fourth-year students at Moscow State University, where the book of Landau and Lifshitz, *Quantum Mechanics*, is the basic textbook. Since practically all of the problems are stated and solved in quite standard quantum-mechanical notation, this book could equally well be used in conjunction with any of the other widely used textbooks on quantum mechanics.

The problems are presented under nine different headings. The first two concern the energy spectrum and barrier penetration, respectively, for one-dimensional motion. For the latter topic, emphasis is placed on the quasi-classical (or JWKB) approximation, with a short appendix also being devoted to a discussion of this approximation. The next section presents problems involving uncertainty relations and dynamical aspects of the theory, followed by a lengthy section of fifty-three problems on the quantum theory of angular momentum. Three-dimensional problems with central symmetry are discussed in Section 5. Before the last section on scattering theory and its applications, there are three sections on specific types of physical systems, namely, the motion of a particle in a magnetic field, atoms, and molecules. A number of problems involving perturbation theory are presented under the latter two headings. The book closes with another short appendix

on the theory of isotopic spin for pions and nucleons, which is used in some of the scattering problems. The attention that is devoted to purely nuclear topics is contained in the section on scattering.

The problems are clearly stated; the reader would have little reason to suppose that this is a translation. There are misprints, not an uncommon number, but some of them should certainly have been discovered by an alert proofreader.

The choice of problems is remarkable in that purely pedantic considerations are given little weight; rather, practically every problem has intrinsic physical interest. Some of the problems are quite simple and their answers are simply presented. Some are quite complex, and their solutions show considerable skill in mathematical technique. Given the large number of pitfalls that one could easily imagine in the construction of a book of this sort, one must account this effort as a success. Indeed, it may very well be that this book is a forerunner of a number of similar volumes devoted to other areas of physics. If so, it can be hoped that their authors show the wisdom and judgment comparable to that manifested here.

Basic Nuclear Physics. By I. R. Williams and M. W. Williams. 280 pp. George Newnes, Ltd., London, 1962. 42s. Reviewed by Robert L. Weber, *The Pennsylvania State University*.

THE publisher of some two dozen books on nuclear energy offers *Basic Nuclear Physics* as a link between two series of books: those on radioisotopes and those on nuclear-reactor technology. The authors had in mind the people who come to the Isotope School, AERE Harwell and Wantage, to learn of the peaceful uses of isotopes. In presenting the background knowledge required by them, the authors have produced a book at approximately the level of those written in the United States by such authors as Blanchard, French, Halliday, and Murray.

The Williams' book is unpretentious, using as far as possible a nonmathematical approach to basic concepts. Yet it has been thoroughly planned. The writing is lucid and coherent. Definitions are clean (e.g., parity, p. 37). The line drawings are generally small and unobtrusive but clear. Some 16 photographs are reproduced nicely to show the appearance of particle tracks and the appearance and size of certain reactors and accelerators. The reader is encouraged to test his analytical skill and to use concepts quantitatively in some 84 exercises, for which answers are provided in the Appendix.

Each chapter is introduced by a statement of its plan or salient ideas. For example, Chapter 3, Models of the Nucleus, starts: "... The limitations of the use of models to aid understanding are the same for both atomic and nuclear phenomena. Because the nature of nuclei is so different from our everyday experience, no one model is perfect. Some facts about nuclei seem best explained by one model, while other facts are best



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