

the transition amplitude. A careful discussion of time reversal as well as the more usual considerations on unitarity is included. The familiar channel spin expression for the angular distribution and polarization in reactions is derived. Photon-induced reactions are also discussed. A useful set of graphs and tables is given in the appendix. An idea of the range of applicability of the text can be gathered from the reactions for which graphs are given. These, by the way, have mainly been collected from the literature. There are graphs on neutron-producing reactions, on Compton scattering by protons, photomeson production, photodisintegration of the deuteron, nucleon-nucleon scattering, meson plus deuteron production in nucleon-nucleon scattering, (K, p) scattering, (K, p) production of Σ particles, and finally meson-nucleon production of K and Λ particles. The appendix also contains tables of the Racah coefficients, the associated Z coefficients, and of the Wigner $9j$ coefficient and formulas for these coefficients, as well as the Clebsch-Gordon coefficients.

It is clear that this is a useful book and this reviewer would have been happier if, for this reason, the publisher had refrained from the apology on the flyleaf and, instead, had made the quality of the production (as he states) as "high as the public have come to associate and expect from Pergamon Press". The reasons given for not doing so are speed of production and the prevention of a further increase in price.

Elements of Hamiltonian Mechanics. By D. ter Haar. 191 pp. North-Holland, Amsterdam) Interscience Publishers, Inc., New York, 1961. \$4.00. Reviewed by Jacques E. Romain, *General Dynamics/Fort Worth*.

WRITTEN for physicists by a theoretical physicist, this textbook covers those aspects of classical mechanics that the theoretical physicist may have to use. As is apparent from the title, the emphasis is on the Hamiltonian formalism (which is introduced very early in the book), obviously for the purpose of preparing for quantization. That purpose is also apparent in several features of the book, namely: the way the author introduces continuous media, starting from the Fourier components of the continuous variables, and the discussion of classical perturbation theory, where the advantage of the Hamiltonian formalism over more straightforward methods is stressed. Another difference from most existing textbooks is the procedure of introducing constraints through "freezing in" degrees of freedom. On the other hand, the restriction of the phrase "mechanical system" to a system in which the virtual work done by the forces of constraint vanishes is perhaps not very fortunate.

A short chapter on Newtonian mechanics is followed by the introduction of the Lagrangian equations of motion (holonomic constraints) and their general consequences. Small vibrations and the dynamics of rigid bodies are then studied with the help of the Lagrangian formalism. The canonical

FRONTIERS IN PHYSICS

George Pake

has written a fundamental and comprehensive introduction to **Paramagnetic Resonance** with emphasis on the physical basis of the subject. The treatment of crystal field is non-group-theoretical, and the text contains a rather complete discussion of the fundamentals of magnetic resonance. About 325 pages; August.

Paper \$4.95 Cloth \$6.95

Leo Kadanoﬀ and Gordon Baym

have written a lecture note volume which covers recent developments in **Quantum Statistical Mechanics**—particularly the Green's function theory of Martin and Schwinger. Since this theory is capable of handling a wide range of problems in either equilibrium or nonequilibrium situations, the authors indicate how the reader can understand Green's function calculations in physical terms. About 225 pages; July.

Paper \$4.50 Cloth \$6.50

W. A. BENJAMIN, INC.

2465 Broadway New York City