

Cover illustration from David Brewster's
Treatise on Optics (1831)



• DAVID BREWSTER

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losses of charged particles mention Whaling's article. It would be helpful if a bibliography could be appended to the second part of the book.

Modern Atomic and Nuclear Physics. By C. Sharp Cook. 296 pp. D. Van Nostrand Co., Inc., Princeton, N. J., 1961. \$7.75. *Reviewed by William F. Meggers, National Bureau of Standards.*

THIS is an introductory textbook intended for college or university students who have completed at least one year of classical physics, and mathematics through calculus. Twentieth-century physics is presented in fourteen chapters, each of which is followed by references to many modern treatises and texts, and by 8 to 24 problems (212 in all). Nine appendices and an index complete the book. The volume contains 148 line drawings and one halftone (a reproduction of a stellar spectrum showing hydrogen).

Cook's *Modern Atomic and Nuclear Physics* is confined to facts, formulas, and figures; it contains no historical or biographical material—obviously the student is supposed to find this in other books. Also, the presentation is almost entirely theoretical; many important physical experiments are mentioned, but usually with an absolute minimum of experimental details. Consequently, this textbook will be better suited to training theoretical than experimental physicists, but this introduction to atomic and nuclear theory is probably a minimum requirement for the latter.

Kinematics of Nuclear Reactions. By A. M. Baldin, V.I. Gol'danskii, I. L. Rozenthal. Transl. from Russian by William E. Jones. 303 pp. Pergamon Press Ltd, Oxford and New York, 1961. \$6.50. *Reviewed by Herman Feshbach, Massachusetts Institute of Technology.*

AS used in this volume "kinematics" may be very broadly defined as those consequences of the Schrödinger equation which can be drawn without specifying any but the most general properties of the Hamiltonian. The simplest of these are just the conservation of energy and momentum. The term "kinematics" as it is often employed is limited to the application of these two principles. However, there are many other invariances and the writer agrees with the authors that "kinematics" should also include the consequences of conservation of angular momentum, conservation of parity, and time-reversal invariance.

The first third of the book is devoted to the consequences of conservation of energy and momentum. This includes the energy-angular correlations which are involved when a particle decays into two particles, when two particles interact to form two other particles, when there are three secondary particles, and finally for multiple secondary particles. The transformations to laboratory coordinates for differential cross sections as well as the momenta and energy are given.

The second part of the volume is concerned with the properties of the *S* matrix and their corollaries for