of the mechanism of nitrate reduction and no indication of the source of the reducing power which drives this important plant process. Neither is there any consideration of our extensive information on the biosynthesis of glutamine and asparagine—those two classical plant amides. The formation of fatty acids, the synthesis of peptide bonds, the biogenesis of alkaloids—these are all matters which could well be treated in a more modern way and would, if so treated, convey more understanding to the reader.

This little book (163 pages of text) may serve as an introduction to plant composition on the undergraduate level. It won't, however, be very informative to either the chemist or the plant scientist—that is, to the professional worker in the field.

JAMES BONNER
California Institute of Technology

Mathematics and Wave Mechanics. R. H. Atkin. Wiley, New York, 1957. xv + 348 pp. Illus. $6.

The most striking characteristic of this book is the wide range of topics covered. The first 130 pages deal with mathematical topics—from the laws of elementary algebra to Hilbert space and from the most elementary ideas of analysis to fairly extended discussions of special functions. Seventy pages are then devoted to classical mechanics and electromagnetic theory, plus supporting mathematical theorems. Finally, 145 pages are given over to a survey of quantum theory, including quantum chemistry, quantum statistics, and the theory of quantized fields.

In order to cover such a range of topics in a relatively limited space, the author has restricted himself to concise statements of many basic formulas and to brief and often superficial discussions of general principles, supplemented by extended presentations of selected topics. The resulting book would appear to have its greatest usefulness as a reference book for students reviewing for an examination. For this purpose the section on quantum theory is the least satisfactory, because of its loose organization and a lack of explicitness in the statement of fundamental principles.

As an introduction to quantum theory, the book suffers from the author's choice of the difficult approach through Heisenberg's formulation of matrix mechanics, which is not reproduced or discussed in sufficient detail to make it convincing. The Schrödinger equation is introduced with little discussion; its application to many-particle problems is insinuated rather than stated. Other important matters are introduced in such vague or indirect ways as to be subject to misunderstanding by the reader, or even to suggest a misunderstanding on the part of the author. (The significance of commutation of representative operators in wave mechanics is a case in point.) The book shows some other evidence of haste in preparation; in particular, errors in the discussion of the classical Poisson brackets (page 153) completely obscure the formal similarities of these quantities to their quantum analogs. On the whole, this book cannot be recommended as a class text or for self-instruction.

HUBERT M. JAMES
Department of Physics,
Purdue University

New Books

Rich Lands and Poor. The road to world prosperity. Gunnar Myrdal. Harper, New York, 1957. 188 pp. $3.

The Invertebrata. A manual for the use of students. L. S. Borradaile and F. A. Potts. Chapters by L. E. S. Eastham and J. T. Saunders. Revised by G. A. Kerkut. Cambridge University Press, New York, 1958. 812 pp. $8.50.

Surface Active Agents and Detergents. vol. II. Anthony M. Schwartz, James W. Perry, Julian Berch. Interscience, New York, 1958. 854 pp. $17.50.

The Annual Survey of Psychoanalysis. A comprehensive survey of current psychoanalytic theory and practice. vol. IV, 1953. John Frosch and Nathaniel Ross, Eds. International Universities Press, New York, 1957. 784 pp. $12.

The Annual Guide to Business Opportunities, Career 1958. For the college man. William H. Ottley, Ed. Careers Inc., 15 W. 45 St., New York, 1958. 224 pp. Free to official agencies in accredited colleges and universities.

Manometric Techniques. A manual describing methods applicable to the study of tissue metabolism. W. W. Umbreit, R. H. Burris, J. F. Stauffer *et al.*, Burgess, Minneapolis 15, ed. 3, 1957. 341 pp. $6.50.

Elementary Practical Organic Chemistry. Pt. II, *Qualitative Organic Analysis.* Arthur I. Vogel. Longmans, Green, New York, 1957. 330 pp. 21s.

XVIth International Congress of Pure and Applied Chemistry. Experientia Suppl. VII. Birkhauser, Basel, 1957. 355 pp.

Textbook of Virology for Students and Practitioners of Medicine. A. J. Rhodes and C. E. van Rooyen. Williams & Wilkins, Baltimore, ed. 3, 1958. 653 pp. $10.

The Neuroses and Their Treatment. Edward Podolsky, Ed. Philosophical Library, New York. 569 pp. $10.

A Manual of Paper Chromatography and Paper Electrophoresis. Richard J. Block, Emmett L. Durrum, Gunter Zweig. Academic Press, New York, ed. 2, 1958. 721 pp. $12.

Calculus. Edward S. Smith, Meyer Salkover, Howard K. Justice. Wiley, New York; Chapman & Hall, London, ed. 2, 1958. 532 pp. $6.50.

Trace Analysis. Papers presented at a symposium on trace analysis held at the New York Academy of Medicine, New York, 2–4 Nov. 1955. John H. Yoe and Henry J. Koch, Jr., Eds. Wiley, New York; Chapman & Hall, London, 1957. 685 pp. $12.

Physical Methods in Physiology. W. T. Catton. Philosophical Library, New York, 1957. 386 pp. $10.

Electrostatics in the Petroleum Industry. The prevention of explosion hazards. A Royal Dutch-Shell Research and Development Report. A. Klinbenberg and J. L. van der Minne. Elsevier, Amsterdam, 1958 (order from Van Nostrand, Princeton, N.J.). 196 pp. $8.

In Search of Reality. Viscount Samuel. Philosophical Library, New York, 1957. 237 pp. $7.50.

Palmer's Fieldbook of Mammals. E. Laurence Palmer. Dutton, New York, 1957. 321 pp. $3.75.

Studies on the Exo-Erythrocytic Cycle in the Genus Plasmodium. London School of Hygiene and Tropical Medicine Memoir No. 12. R. S. Bray. Lewis, London, 1957. 199 pp. £2 2s.

Biochemical Preparations. vol. 5. David Shemin, Ed. Wiley, New York; Chapman & Hall, London, 1957. 124 pp. $4.75.

Soviet Research in Catalysis. vol. 1, *Theoretical and Sundry Associated Effects,* 268 pp.; vol. 2, *General,* 260 pp.; Vol. III, *General,* 256 pp.; vol. IV, *General: Reduction, Oxidation, Fischer-Tropsch,* 228 pp.; vol. V, *Hydrogenation, Dehydrogenation, Cracking,* 300 pp.; vol. VI, *Isomerization, Alkylation, Dehydration,* 278 pp.; vol. VII, *Polymerization, Friedel-Crafts, Zeigler,* 132 pp. English translations. Consultants Bureau, New York 11, 1958. vols. I–VI, $50 each; vol. VII, $30; set, vols. I–VII, $200.

Flora Hawaiiensis or New Illustrated Flora of the Hawaiian Islands. Book 5. Otto Degener. The Author, Mokuleia Beach, Wailua, Oahu, Hawaii, 1958. $5.

Elements of Classical Thermodynamics for Students of Physics. A. B. Pippard. Cambridge University Press, New York, 1957. 172 pp. $4.75.

A Decade of Industrial Relations Research, 1946–1956. Neil W. Chamberlain, Frank C. Pierson, Theresa Wolfson. Harper, New York, 1958. 212 pp. $3.50.

Science and Human Values. J. Bronowski. Messner, New York, 1956. 94 pp. $3.

Land of the Tollund Man. The prehistory and archaeology of Denmark. Palle Lauring. Translated by Reginald Spink. Macmillan, New York, 1958. 160 pp. $6.

The Chemical Industry during the Nineteenth Century. A study of the economic aspects of applied chemistry in Europe and North America. L. F. Haber. Clarendon Press, Oxford, 1958 (order from Oxford University Press, New York). 302 pp. $7.20.

Die Biochemie der Tierischen Gifte. Erich Kaiser and Heribert Michl. Deuticke, Vienna, Austria, 1958. 266 pp.

Cunningham's Manual of Practical Anatomy. vol. I, General introduction. Upper limb, lower limb. Revised by James Couper Brash. Oxford University Press, New York, 1957. 406 pp. $6.