plete and occupy 380 pages of a total of 453 pages. The last part is relatively short and, in the words of the author, "is meant to give only typical examples of practical problems in which the preceding theories have proved important." The three domains from which such examples are chosen are chemistry, meteorology, and astronomy. References to important literature are distributed lavishly throughout the book; it closes with a 5-page index of names and an 11-page subject index.

Characteristic of the book is the fact that the subject of light-scattering is treated exclusively from the "particle" point of view. This means that the discussion is deliberately limited to cases in which the scattering can be considered as a superposition of radiations emerging without interdependence from separate particles, whereas cases like the scattering by an inhomogeneous medium with local fluctuations of its optical properties are omitted from the discussion.

Within the range defined by these restrictions the treatment is excellent. In part I everything is said which is necessary to characterize the scattered light in the most general way. This will be evident from the titles of the two last chapters in this part: "Wave propagation in a medium containing scatterers" and "Polarized light and symmetry relations." Specifically, it is shown in this part how any scattering problem can be solved if the four components of a four-component matrix are known for each individual particle with a particular orientation in space. Part II, which occupies the main portion of the book, shows, for special types of particles, how to find these components and the simplifications which are possible in many cases. Here special attention is devoted to particles that are either very small or very large by comparison with the wavelength of the light. The classical case of spherical particles, in which a rigorous calculation (G. Mie) is possible for any ratio of the diameter to the wavelength and for any optical constants of the material of the sphere, is treated extensively. As a special case, a whole chapter is devoted to the "optics of a raindrop" and the theory of the rainbow. Part II closes with two chapters treating "Particles of other forms" and "Edge phenomena and surface waves."

In summary, this is a book which can be highly recommended to anyone who wishes to be informed about all the details and the sometimes surprising implications of the disturbing effects which particles have on the propagation of light. It is a book which is not always easy to read, but the effort involved in doing so is highly rewarded.

PETER P. DEBYE
Raytheon Manufacturing Company

The Terpenes. The triterpenes and their derivatives. vol. IV, *Hydrocarbons, Alcohols, Hydroxy-aldehydes, Ketones and Hydroxy-ketones.* The late Sir John Simonsen and W. C. J. Ross. Cambridge University Press, New York, 1957. ix + 524 pp. Illus. $13.50.

Progress in the elucidation of the structures of the triterpenoids has occurred mainly in the last 20 years and culminated recently in the establishment of the biosynthetic link between the triterpenes and the steroids. This volume by Simonsen and Ross represents a collection and critical survey of an already large and rapidly expanding literature. It would be welcome in any event but is the more so since the authors have been able to include the most recent advances in the understanding of the biosynthesis and stereochemistry of the triterpenes and closely related sterols.

The organization of the new volume follows that of its predecessors in the series, commencing with a brief description of the broad structural features of the triterpenes and progressing from the hydrocarbons to alcohols and polyfunctional triterpenes. Each compound is discussed within the classical framework of source, proof of structure, and chemical reactivity. Extensive use is made of infrared and ultraviolet absorption spectral data in support of the structure assignment, so that the work contains a wealth of valuable, general information of this sort.

Large as is the catalogue of triterpenes of established structure, the authors' listing of an almost equal number of compounds of unknown constitution gives promise of continuing activity in meeting the challenges presented by structure variations within the triterpenoid framework.

The large size of triterpene molecules has forced the extensive use of outline formulas in this most recent volume of the series. Most organic chemists will welcome this departure from earlier practice. However, some will take offense, and others may even be confused somewhat by the apparent disregard shown by the authors in this case for the beautiful geometric regularities of hexagons and pentagons.

The acknowledged interest and contributions of outstanding English chemists in the preparation of the volume gives assurance that the consistent effort to organize the literature on the terpenes which has been so successful in the hands of Sir John Simonsen will not cease with his death.

RICHARD H. EASTMAN
Stanford University

New Books

Thrombelastography. Pietro de Nicola, Chauncey Leake, Ed. Thomas, Springfield, Ill., 1957. 120 pp. $5.50.

Elements of Modern Abstract Algebra. Kenneth S. Miller. Harper, New York, 1958. 196 pp. $5.

Economic Analysis and Policy in Underdeveloped Countries. P. T. Bauer. Commonwealth-Studies Center, Duke University Press, Durham, N.C. Cambridge University Press, London, 1957. 158 pp. $3.

The Spectrum of Atomic Hydrogen. G. W. Series. Oxford University Press, New York, 1957. 87 pp. Paper, $2.

Ordinary Difference-Differential Equations. Edmund Pinney. University of California Press, Berkeley, 1958. 274 pp. $5.

Archeological Investigations at the Mouth of the Amazon. Bulletin 167, Bureau of American Ethnology. Betty J. Meggers and Clifford Evans. Smithsonian Institution, Washington, 1957. 692 pp.

Finding Fossil Man. Robin Place. Philosophical Library, New York, 1957. 126 pp. $7.50.

An Introduction to Scale Coordinate Physics. An introduction to the formalization of the macro operational point of view. William Bender. Burgess, Minneapolis 15, 1958. 349 pp.

Louis Pasteur. A great life in brief. Pasteur Vallery-Radot. Knopf, New York, 1958. 212 pp. $3.

The Beetles of the Pacific Northwest. pt. II, *Staphyliniformia.* Publ. in Biology No. 16. Melville H. Harch in collaboration with Milton W. Sanderson and Gordon A. Marsh. University of Washington Press, Seattle, 1957. 393 pp. $7.

The Pharmacologic Principles of Medical Practice. A textbook on pharmacology and therapeutics for medical students, physicians, and the members of the professions allied to medicine. John C. Krantz, Jr. and C. Jelleff Carr. Williams & Wilkins, Baltimore, ed. 4, 1958. 1324 pp. $14.

Resources for the Future, Annual Report. For the year ending 30 Sept. 1957. Resources for the Future, Washington 6, 1957. 89 pp.

Trephine Technique of Bone Marrow Infusions and Tissue Biopsies. Henry Turkel. The author, 8000 W. Seven Mile Road, Detroit 21, ed. 8, 1957. 84 pp.

Rapport Annuel sur le Fonctionnement Technique. Année 1956. Institut Pasteur du Viet-Nam. Saigon, Sud-Viêtnam, 1957. 138 pp.

A Practical Guide to Plant Sociology. For foresters and agriculturists. F. R. Bharucha and W. C. DeLeeuw. Orient Longmans, Bombay, India, 1957. 46 pp.

Expert Committee on Malaria, Sixth Report. WHO Tech. Rept. Ser. No. 123. 84 pp. $0.60. *Joint FAO/WHO Expert Committee on Milk Hygiene, First Report.* WHO Tech. Rept. Ser. No. 124. 54 pp. $0.60. *Juvenile Epilepsy, Report of a Study Group.* WHO Tech. Rept. Ser. No. 130. 44 pp. $0.30. *Treatment and Care of Drug Addicts.* WHO Tech. Rept. Ser. No. 131. 19 pp. $0.30. World Health Organization, Geneva, 1957.