be followed with difficulty if at all. Hall makes the reading easy not by the expedient of omitting rigorous development but by interpolating explanatory sentences between the mathematical steps. As the author says, he is "less concerned with providing the answers for passing emergencies than . . . in providing the means for finding answers in general." For this purpose, he gives first a rigorous background which should develop the ability to discuss problems (130 pp.), then he discusses current electron microscope construction (90 pp), then the nature of images obtained (80 pp.), then a detailed section covering most of the many methods that have been developed for preparing specimens (85 pp.) and, finally, gives some selected examples of studies that have been performed (35 pp.). The last section does not have the completeness of the preceding ones but the examples given are enough for illustrative purposes. The volume impresses me as an excellent textbook.

In summary, both books seem to me valuable additions to the literature but they are for different people and different purposes.

A. GLENN RICHARDS
Division of Entomology and Economic Zoology
University of Minnesota, St. Paul

Biochemical Preparations, Vol. 3. Esmond E. Snell, Ed. New York: Wiley; London: Chapman & Hall, 1953. 128 pp. $3.50.

Volume 2 of *Biochemical Preparations* appeared three years after the first volume, but the third volume was released about one year after the second. The style of the other volumes is followed. The methods include isolation from natural sources and syntheses by biological and organic methods. A large number of the preparations have been checked in the laboratory of the editor.

The preparation of two crystalline enzymes, muscle phosphorylase and ribonuclease is reported in detail, and the method for determining the former is included. The extractions of DPN from yeast and TPN from sheep liver and their purification by anion exchange chromatography are described. Pyridoxamine phosphate is prepared from the dihydrochloride and oxidized to pyridoxal phosphate. Protoporphyrin dimethyl ester is prepared from hemin. *d*-Isocitrate is prepared from the leaves of *Bryophyllum calycinum,* and *dl*-isocitric acid lactone from sodium succinate. Specific organisms are used in the synthesis of D- and L-lactic acids by fermentation, and L-citrulline from L-arginine. Enzymic preparations are used for the synthesis of sodium D- and L-isocaproate from D- and L-leucine, of D-glucose-6-phosphoric acid from the fructose derivative, and of L-kynurenine from L-tryptophan.

Organic synthetic methods are described for elaidic acid, 2,4-dinitrofluorobenzene, dihydroxyfumaric acid, oxalacetic acid, D-galacturonic acid, β-2,5-dihydroxy-DL-phenylalanine, L- and DL-citrulline from ornithine, and L- and D-penicillamine hydrochlorides. In the description of the latter, direct references to the original articles would have been better than indirect references to a book. In the preparation of isoleucine, the four stereoisomers are obtained with an optical purity of greater than 99.9 percent. Hydrolysis of L-arginine with sodium or barium hydroxides yields DL- or L-ornithine, respectively.

The purity and criteria for measuring the purity of the compounds are described. References are given to other methods of preparation. The volume contains a cumulative index and references to 64 compounds of biochemical interest appearing in 32 volumes of *Organic Syntheses.*

ALBERT A. DIETZ
Toledo Hospital Institute of Medical Research
Toledo, Ohio

New Books

The Papers of Wilbur and Orville Wright; Vol. I, *1899–1905;* Vol. II, *1906–1948.* Including the Chanute-Wright letters. Marvin W. McFarland, Ed. McGraw-Hill, New York–London, 1953. 1278 pp. Illus. + plates. $25.00 the set.

Advances in Protein Chemistry, Vol. VIII. M. L. Anson, Kenneth Bailey, and John T. Edsall, Eds. Academic Press, New York, 1953. 529 pp. Illus. $10.50.

Structure Reports for 1945–46, Vol. 10. A. J. C. Wilson, Gen. Ed.; C. S. Barrett (Metals), J. M. Bijvoet (Inorganic Compounds), and J. Monteath Robertson (Organic Compounds), Section Eds. Oosthoek, Utrecht, 1953. (For the International Union of Crystallography.) 325 pp. Illus. $12.00.

Lehrbuch der Botanik für Hochschulen. 26th ed. Hans Fitting *et al.*, Eds. Gustav Fischer, Stuttgart, 1954. 651 pp. Illus. DM 28.

Human Embryology. 2nd ed. Bradley M. Patten. Blakiston, New York, 1953. 798 pp. including 1400 drawings and photographs.

Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds. Comprising the Tables of the American Petroleum Institute Research Project 44 Extant as of Dec. 31, 1952. Frederick D. Rossini *et al.* Carnegie Press, Carnegie Inst. of Technology, Pittsburgh, Pa., 1953. (Published for the American Petroleum Institute). 1050 pp. $7.00.

Mitosis. The movements of chromosomes in cell division. 2nd ed. Franz Schrader. Columbia Univ. Press, New York, 1953. 170 pp. Illus. $4.00.

A History of the Theories of Aether and Electricity: The Modern Theories, 1900–1926. Sir Edmund Whittaker. Thomas Nelson, Edinburgh–London; Philosophical Library, New York, 1954. 319 pp. $8.75.

Principles of Polymer Chemistry. Paul J. Flory. Cornell Univ. Press, Ithaca, New York, 1953. 672 pp. Illus. $8.50.

Rh-Hr Blood Types. Applications in clinical and legal medicine and anthropology. Selected articles in immunohematology. Alexander S. Wiener. Grune & Stratton, New York, 1954. 763 pp. Illus. $11.50.

Mechanical Vibrations. 2nd ed. William Tyrrell Thomson. Prentice-Hall, New York, 1953. 252 pp. Illus. $4.50.

Introduction to Dynamics. L. A. Pars. Cambridge Univ. Press, New York, 1953. 501 pp. Illus. $6.00.

Imidazole and Its Derivatives, Part I. The Chemistry of Heterocylic Compounds. Klaus Hofmann. Interscience, New York, 1953. 447 pp. $13.50.