

ing works were ahead of their times and have come to be understood and appreciated only rather recently. Since most of Wiener's later work is patterned after these early papers, they provide a key to much of his work. As such, the volume under review is very useful indeed.

Unfortunately, not much thought seems to have gone into the selection of some of the other papers. The note No. 9 is barely a page long, contains no references, and yet touches on the profound issues of entropy, information, Maxwell's demon, and light as a conveyor of information as well as the bearing of this last aspect on photosynthesis, enzyme action, and related matters. Obviously, what should have been included is Wiener's longer and more illuminating article on the same subject, which was published in *Scientia* (September 1952), a journal that is much harder to procure than the American Mathematical Society publication from which the note is reprinted. One also wonders why paper No. 7 is included but not its natural and important sequel "The discrete chaos" [*Amer. J. Math.* **65** (1943)], which Wiener wrote with A. Wintner. In view of H. Furstenberg's recent work, the inclusion of Wiener and Wintner's paper "Harmonic analysis and ergodic theory" [*Amer. J. Math.* **63** (1941)] would also have been useful. There is much interest today in the spectrum of the flow of Brownian motion, and on the explication of its "derivative," white noise. Wiener and E. J. Akutowicz published an interesting paper bearing on this question [*Rend. Cir. Math. di Palermo* **6**, 1 (1957)], which is not as well known as it should be. This paper, which is hard to procure, is not in the volume, but the volume does contain the rather dated paper No. 12, readily available in the *Indiana Journal*, the main result of which emerges easily from the general theory of isometric semigroups, as subsequent research has made clear [compare *Acta Math.* **107**, 275 (1962)].

The M.I.T. Press has maintained an unfortunate practice by reproducing Wiener's writings without correcting misprints. It has added its own bit of noise: at page 116, four pages from the memoir No. 4 have been accidentally omitted. Another unfortunate feature of the printing is the obliteration of all the original page numbers. These days, unlike the Middle Ages, artists tend to thrust their egos into their work, and it is common to witness unauthentic

portraiture and photography. The picture of Wiener appearing in the volume is one of the strangest I have seen. Although the Massachusetts Institute of Technology and the Society for Industrial and Applied Mathematics are to be commended for paying this tribute to the memory of Wiener, the volume does seem somewhat inadequate by itself. I hope that in due course the attempt will be made to publish Wiener's collected works, in keeping with the tradition set in the case of his great contemporaries G. D. Birkoff and J. von Neumann.

P. MASANI

Department of Mathematics,  
Indiana University

## New Books

### General

**The Algebra of Abū Kāmil: Kitāb fī al-jābr wa'l-muqābala in a Commentary by Mordecai Finzi.** Translated and edited by Martin Levey. Univ. of Wisconsin Press, Madison, 1966. 240 pp. Illus. \$10.

**Commercial Timbers of the World.** F. H. Titmuss. Technical Press, London; Chemical Rubber Co., Cleveland, Ohio, ed. 3, 1965. 285 pp. Illus. First published in 1948 as *A Concise Encyclopedia of World Timbers*.

**A Draught of Fishes.** F. D. Ommanney. Crowell, New York, 1966. 262 pp. Illus. \$6.95.

**Early Electrodynamics: The First Law of Circulation.** R. A. R. Tricker. Pergamon, New York, 1965. 227 pp. Illus. Paper, \$2.95. The Commonwealth and International Library.

**Molecules.** J. C. Speakman. McGraw-Hill, New York, 1966. 168 pp. Illus. Paper, \$1.95; cloth, \$4.95.

**The Phenomenon of Life: Toward a Philosophical Biology.** Hans Jonas. Harper and Row, New York, 1966. 315 pp. \$6.

**Philosophy of Social Science.** Richard S. Rudner. Prentice-Hall, Englewood Cliffs, N.J., 1966. 128 pp. Paper, \$1.75.

**Psychoanalysts in Training: Selection and Evaluation.** Henriette R. Klein. College of Physicians and Surgeons, Columbia Univ., New York, 1966. 131 pp. \$2.

**Speech and Man.** Charles T. Brown and Charles Van Riper. Prentice-Hall, Englewood Cliffs, N.J., 1966. 157 pp. Illus. Paper, \$2.25.

### Reprints

**Bacterial Metabolism.** Marjory Stephenson. M.I.T. Press, Cambridge, Mass., 1966. 412 pp. Illus. Paper, \$2.95. M.I.T. Paperback Series; reprint (ed. 3, 1949).

**Developmental Biology.** Reed A. Flickinger. Brown, Dubuque, Iowa, 1966. 267 pp. Illus. \$4.25. Brown Biology Readings Series. Sixteen papers reprinted from various sources—proceedings and symposia volumes and journals, 1933–1964.

**The Foundations of Mathematics: A Study in the Philosophy of Science.** Evert W. Beth. Harper and Row, New York, 1966. 769 pp. Illus. Paper, \$4.45. Reprint, 1959 edition.

**God and Golem, Inc.** A comment on certain points where cybernetics impinges on religion. Norbert Wiener. M.I.T. Press, Cambridge, Mass., 1966. 109 pp. Paper, \$1.45. Reprint, 1964 edition.

**Human Learning.** Edward L. Thorndike. M.I.T. Press, Cambridge, Mass., 1966. 214 pp. Paper, \$1.95. Reprint, 1931 edition.

**The Material Culture and Social Institutions of the Simpler Peoples.** An essay in correlation. L. T. Hobhouse, G. C. Wheeler, and M. Ginsberg. Routledge and Kegan Paul, London; Humanities Press, New York, 1965. 313 pp. Illus. \$7.50. Reprint, 1915 edition.

**The Nature of Life: The Main Problems and Trends of Thought in Modern Biology.** C. H. Waddington. Harper and Row, New York, 1966. 133 pp. Illus. Paper, \$1.25. Reprint, 1962 edition.

**The Pirotechnia of Vannoccio Biringuccio.** M.I.T. Press, Cambridge, Mass., 1966. 507 pp. Illus. Paper, \$3.45. Reprint of the translation from Italian by Cyril Stanley Smith and Martha Teach Gnudi, published by the American Institute of Mining and Metallurgical Engineers (1943).

**The Pocket Guide to Birds: Eastern and Central North American.** Allan D. Cruickshank. Washington Square Press, New York, 1966. 216 pp. Illus. Paper, 75¢. Reprint, 1953 edition (Dodd, Mead).

**The Quintessence of Irving Langmuir.** Albert Rosenfeld. Pergamon, New York, 1966. 369 pp. Paper, \$2.95. The Commonwealth and International Library. Reprint, 1961 edition.

**Space Travel and Exploration.** Sir Harrie Massey. Taylor and Francis, London, 1966. 121 pp. Illus. \$2.60. Six papers reprinted from *Contemporary Physics*, February 1964–June 1965.

**Symmetry Groups in Nuclear and Particle Physics.** A lecture-note and reprint volume. Freeman J. Dyson. Benjamin, New York, 1966. 334 pp. Illus. Paper, \$4.95; cloth, \$9. Mathematical Physics Monograph Series, edited by A. S. Wightman. Reprints of thirty-two papers published in various journals between 1937 and 1965.

**The Theory of Electric and Magnetic Susceptibilities.** J. H. Van Vleck. Oxford Univ. Press, New York, 1965. 396 pp. Illus. \$3.40. The International Series of Monographs on Physics. Reprint, 1932 edition.

**A Theory of Natural Philosophy.** Roger Joseph Boscovich. M.I.T. Press, Cambridge, Mass., 1966. 251 pp. Illus. Paper, \$2.45. Reprint, 1921 edition.