theories of gravitation. As for the conceptual simplicity of source theory in the form offered here, the reviewer was not impressed; the theory is too plastic.

A. S. WIGHTMAN
Joseph Henry Laboratory of Physics, Princeton University, Princeton, New Jersey

Physics and Ontology

Atomic Order. An Introduction to the Philosophy of Microphysics. ENRICO CANTORE. M.I.T. Press, Cambridge, Mass., 1969. xiv, 338 pp., illus. $12.50.

The development of the modern theories of microphysics (kinetic theory, atomic and molecular physics) is viewed by the author of this book as a continuous fulfillment of the program of imposing an order upon observations. The subject is approached by the so-called inductive-genetic method: inductive because it starts from the detailed study of individual theories, genetic in the sense that it follows the development of individual theories as they "gradually unfold and develop in time."

This methodology does not imply, however, according to the author, any strict adhesion to the historical development of science—a subject of research which is considered as encompassing also priorities, mutual influences between discoverers, and controversies—because, "when occasion arises, the scholar goes beyond history in his investigation of orgins," having recourse for instance "to psychogenetic studies of the kind that have made famous Piaget's school at Geneva."

In the laying out of the development of theories, however, extensive use is made of secondary historical sources; since these sources, as is well known today, are not always reliable, this description is sometimes flattened, "linearized," if not distorted. This is the case, for instance, with the reported reconstruction of the discovery of Pauli's principle, which can be confronted with the more complex, if not essentially different, pattern described by Pauli himself in his "Exclusion Principle and Quantum Mechanics."

The role of philosophy relative to science consists, according to Cantore, in making the philosophically relevant aspects of science come to the surface, because "science has an immanent philosophical structure." The ontological implications of atomic physics are, among others, that "the recognition of universal intelligibility in the specificity and intrinsic order of matter is now a peaceful acquisition." The almost complete lack of reference to professional philosophers of science is justified by the consideration that discussion of their ideas would have made the book "insufferably long," owing to the "painstaking examinations and comparisons" that such a discussion would require.

The more physically oriented sections of the book, the description of the outlines of the atomic structure and periodicity of the elements, molecular structures, and macroscopic aggregates, reveal a remarkable effort toward clearness and conciseness. No use is made of mathematical formulas, but many graphs, diagrams, tables, and pictures illustrate the description. The principal conceptual features of modern theories are illuminated with penetration and acuteness. In this respect the book might be useful to those students of physics or scholars in general science whose aim is to grasp the main features of physical theories, which sometimes are hidden, in more specialized texts, under the burden of mathematical developments.

S. D'AGOSTINO
Instituto di Fisica, University of Rome, Rome, Italy

Biophysics from Japan

Advances in Biophysics. Vol. 1, 1970. MASAO KOTANI, Ed. University of Tokyo Press, Tokyo, and University Park Press, Baltimore, Md. 1970. xii, 184 pp., illus. $11.50.

This volume is the first in a yearly series to be published under the auspices of the Biophysical Society of Japan. The editor considers biophysics to be the study on the basis of the physical sciences of the various biological processes essential to life. This definition is probably as good as any other and allows a free choice of topics. The purpose of the series is not to present comprehensive reviews but to give "complete accounts of the authors' works on specified subjects that will be understandable to interested readers without the necessity of their referring to other papers."

In the first volume the subjects discussed are the lateral line organ of sharks, the structure and function of ribonuclease T_1, polymerization of flagellin, and spin changes in hemoproteins. In general an effort has been made to make the papers understandable to an interested reader. As an example, the article on the lateral line organ is introduced by a section on the structure and distribution of the various types of specialized receptors which is very helpful in understanding the physiology to follow. In all cases the papers are amply illustrated and clearly presented, although there are a few instances in which the text might have benefited from scrutiny by an English-speaking editor.

Since each article is primarily a review of its author's work, rather than of the whole field, the result may seem somewhat unbalanced, but it has the advantage of being reasonably short. As many of the authors chosen for this and forthcoming volumes are important contributors to their respective fields, the series promises to be an interesting addition to the biophysics literature.

EDWIN TAYLOR
Department of Biophysics, University of Chicago, Chicago, Illinois

Books Received

Advanced Calculus. Problems and Applications to Science and Engineering. Hugo Rossi. Benjamin, New York, 1970. xii, 732 pp., illus. $17.50.

Advances in Applied Microbiology. Vol. 13. D. Perlman, Ed. Academic Press, New York, 1970. xx, 488 pp., illus. $24.

Advances in Computers. Vol. 10. Franz L. Alt, Morris Rubinoff, and Walter Freiberger, Eds. Academic Press, New York, 1970, xviii, 314 pp., illus. $14.50.

Agenda for Survival. The Environmental Crisis—2. Harold W. Helfrich, Jr., Ed. Yale University Press, New Haven, Conn., 1970. xii, 234 pp., illus. Cloth, $10; paper, $2.95.

Algebraic Topology. C. R. F. Maunder. Van Nostrand Reinhold, New York, 1970. x, 376 pp., illus. $25. New University Mathematics Series.

American Images of Soviet Foreign Policy. An Inquiry into Recent Appraisals from the Academic Community. William Welch. Yale University Press, New Haven, Conn., 1970. xvi, 316 pp. $10.

Among Animals of Africa. Gernhard Grzimek. Translated from the German edition (Frankfurt, 1969) by J. Maxwell Brownjohn. Stein and Day, New York, 1970. 368 pp., illus. $12.50.

Analyse tridimensionelle des éléments cranio-faciaux d'une population de mélanésiens en orientation vestibulaire. Comparaison avec le crâne européen. Thèse pour le doctorat en chirurgie dentaire. Pellerin Claude. Faculté de Médecine, Paris, 1970. xxii, 70 pp. + plates. Paper.