popularization of science and not another kind. It is a good kind: nondidactic, indulgent of admitted flights of fancy, highly eloquent, and at the same time, conscientiously based on current professional consensuses. Scientists are fortunate to have such an interpreter, and the book deserves wide lay notice.

G. G. Simpson
Museum of Comparative Zoology, Harvard University

Medical Biology and Etruscan Origins. Ciba Foundation symposium. G. E. W. Wolstenholme and Cecila M. O'Connor. Little, Brown, Boston, Mass., 1959. xii + 255 pp. Illus. $9.50.

This volume is one of a series published by the Ciba Foundation to promote international cooperation in medical and chemical research. The 50th Ciba symposium departed from the narrower range of previous conferences and chose as its subject "The recent contributions of medical biology to ethnology; with special reference to the origin of the Etruscans." This book contains the papers read as well as the discussions which followed and spans the gap between science and the humanities, a bridge that archeology bitterly needs.

The choice of title was not very felicitous since it seems to promise more results achieved by medical science in the study of Etruscan origins than the book provides. Half the book deals with special phases of Etruscan archeology—for example, cities, origin of the culture, oriental characteristics of the religion, relationship of Etruscans to Villanovans and Umbrians—by outstanding scholars from Europe and America. The second half, however, is largely devoted to medical and anthropological investigations in ancient fields, written from a general point of view—for example, "The evaluation of metrical data in the comparison of ancient and modern bones" (N. A. Barnicot and D. R. Brothwell), "The use of genetical characters as indices of population distribution" (A. E. Mourant), "Blood groups and haematological data as a source of ethnic information" (R. Ceppellini)—with a minimum of data on the ancient Etruscans. The papers on the various topics are most illuminating and the discussions most interesting, but the results in terms of Etruscology are disappointing.

The difficulty of recognizing the ancient Etruscans in Italy, a difficulty enhanced by the lack of scientific digging in the early excavations, is clearly expressed. The further difficulty of identifying Etruscans in the mixed populations of ancient Cyprus, Syria, and Anatolia is scarcely touched upon. The development of the Etruscan culture in Italy and its relation to that of Central Europe is emphasized; the origins of the culture (art, techniques, language, and so forth) in the orient, except for the religion, is neglected. There emerges, however, the strong hope that great progress in the solution of the Etruscan problem may be attained if careful digging is combined with medical research and physical anthropology.

The papers are ably written, the archeology is admirably illustrated, and the book is excellently published. The price for the scholar, however, is high. The Ciba Foundation may be congratulated on taking a bold, forward step and in pointing the way to new fields of investigation.

Clark Hopkins
Department of Archaeology, University of Michigan

Group Theory. And its application to the quantum mechanics of atomic spectra. Eugene P. Wigner. Translated from the German by J. J. Griffin. Academic Press, New York, expanded and improved edition, 1959. xi + 372 pp. $8.80.

This volume is essentially a direct translation into English of the classic 1931 edition that was published in Geman. It includes, in addition to the original content, three new chapters; chapter 24, "Racah coefficients," chapter 26, "Time inversion," and chapter 27, "Physical interpretation and classical limits of representation coefficients, three- and six-*j* symbols." Much that is contained in these new chapters has not previously appeared elsewhere in print.

When the book was first published in 1931, and for a number of years after, many physicists were reluctant to accept group theory as an essential tool of theoretical physics. Just a few physicists, including Wigner, recognized that the theory of representations of symmetry groups provides a systematic method for obtaining those properties of the solutions of the Schrödinger equation which follow from the symmetry of the physical problem. Furthermore, almost every exact statement concerning solutions (exact or approximate) of the Schrödinger equation is a direct consequence of a general symmetry property. The importance of this point of view is now widely recognized among physicists not only in connection with the Schrödinger equation, but also in connection with relativisitic theories. Although group theory is not widely accepted as an essential part of the standard graduate course in quantum mechanics, it should be studied, at least by the prospective theorist, as supplementary material.

Wigner's *Group Theory* provides an excellent introduction to the subject for the physicist. It is very explicit in its handling of the theory of representations, as well as in its physical applications. A number of specific examples are treated in detail. The domain of physics encompassed by the examples is not very great; applications are limited (with one or two exceptions) to problems in atomic structure. The treatment of abstract group theory is purposely minimal. Therefore the book is probably more suitable for use as a supplementary rather than a primary source for study of the purely mathematical aspects of the subject. The basic ideas of quantum mechanics are reviewed, but, again, the book would not serve as a primary text of quantum mechanics. To reap the greatest value from this book, the student should already have a substantial knowledge of this subject. However, the sections devoted to quantum mechanics are well worth reading, for they provide an excellent and concise statement of the physical interpretation, and they give Wigner's perspective, which always has new and enlightening facets.

The rotation-inversion group in three dimensions along with some of its subgroups and the symmetric (permutation) group are treated in detail. The discussion of the representations of the symmetric group is limited to those irreducible representations which are significant in atomic structure; this does not include the complete set. Young's symmetry operators are not mentioned. This is unfortunate since, as Wigner was the first to show in his important 1937 papers on the symmetric Hamiltonian, some of the other representa-