ters are omissions to the proper historical development of the subject, although they do not militate against the usefulness of the text and do not distort the over-all perspective and design of the subject matter treated.

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Air Pollution Handbook. Paul L. Magill, Francis R. Holden, and Charles Ackley, Eds. McGraw-Hill, New York, 1956. 720 pp. Illus. $15.

The growing problem of air pollution in urban environments has resulted in increased demand for information from scientists, air-pollution control officials, engineers, manufacturers, and, in some instances, the lay public. The introduction of a handbook on this subject therefore is very timely, and the present volume fills this need in a comprehensive manner.

This handbook is divided into 14 sections covering major items, such as the importance of city planning and plant location and the physical and chemical aspects of the problem. There are also three chapters covering biological aspects —namely, the epidemiology of air pollution, the effects of air pollutants on farm animals, and the effects of air pollutants on plants. From the evaluation standpoint, sections are provided on sampling procedures and analytic methods and experimental test methods; from the control standpoint, chapters are provided on equipment and processes, legislation, and meteorological aspects.

The book is well organized in spite of the fact that it has a large number of contributors. The contributors are well qualified in their phase of the problem. The material is covered in a direct manner as in technical handbooks, but each chapter is extremely well documented with references. Because of the new information rapidly being developed in this field, it is difficult for any such comprehensive handbook to be completely up to date upon release. Fundamentals and background for each problem are well covered in this book. Information on all types of pollution sources is included and discussed in detail. Of particular interest, from a fundamental standpoint, are the chapters on the physics of the atmosphere and the evaluation of weather effects.

Epidemiology of air pollution which is discussed by Phair is perhaps the only major area in which extended quantitative information is lacking. The chapter indicates this lack to be a serious problem. Essentially, the material presented in this section is a statement of the problem. Quantitative information is limited to localized incidents, such as those at Donora and in London.

The sections on analytic methods, sampling procedures, and the experimental test methods provide enough information for new workers entering the field or those desiring further knowledge in far more detail than the customary handbook. In these areas the book approaches a textbook and should, therefore, be very useful for teaching advanced students in the field of community air pollution.

The section on abatement of air pollution is perhaps more descriptive than applied in terms of design of air and gas cleaning equipment. It provides fundamental knowledge and references, however, which enables those interested to pursue the subject in greater detail. Considerable discussion of combustion problems, as related to incinerator design and operation, is included which will be very useful.

This recent book is highly recommended for those interested in the air-pollution field in general and as a working handbook.

LESLIE SILVERMAN
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Determination of Organic Compounds. K. G. Stone. McGraw-Hill, New York, 1956. 233 pp. Illus. $5.

This book appears to have been designed as a textbook for courses in quantitative analysis of organic compounds. With the growing importance of organic chemical technology, some departments of chemistry have felt that training in such methods should be offered to their students. For such courses K. G. Stone's book should be popular. It is carefully and logically organized and contains much discussion of both the theoretical and practical aspects of organic quantitative analysis.

I was struck by both the breadth of the theoretical discussions and the many references to contemporary literature. Thus, the author, in discussing the use of lithium aluminum hydride in the quantitative determination of active hydrogen in organic compounds, includes a table with references describing the action of the reagent on a large number of organic functional groups as well as that of immediate interest; and, under the methods for the determination of weak acids by titration in nonaqueous media, he seizes the opportunity to introduce the reader to general acid-base theory and the "leveling effect." From these two examples chosen at random, it should be apparent that the text represents far more than a mere catalog of analytic methods with a discussion of sources of error.

Only two procedures of importance were omitted: the use of ultraviolet and infrared absorption spectroscopy in organic quantitative analysis, and the Kuhn-Roth determination of carbon-linked methyl groups, which is very useful in work with natural products.

RICHARD H. EASTMAN
Stanford University

Computers. Their operation and applications. Edmund C. Berkeley and Lawrence Wainwright. Reinhold, New York; Chapman & Hall, London, 1956. 366 pp. Illus. $8.

This book is offered as a successor to Berkeley's 1949 book *Giant Brains or Machines That Think*. It is a general description of analog and digital computers and their elementary principles. The section on applications is very general, and almost all of ten pages of comments by prospective users are 5 to 7 years old. Little information is given on the experience of the many companies who have bought or rented computers. The section describing Berkeley's miniature computer, Simon, is longer than that describing recent large-scale computers. No information is given on any of the numerous medium-sized computers now available. Apparently the book's "Checklist of characteristics," pages 65–71, has been reprinted without acknowledgement from the *Electronic Digital Computer Survey* by the Vitro Corporation of America.

WILLIAM W. YOUDEN
National Bureau of Standards

The Image. Kenneth E. Boulding. University of Michigan Press, Ann Arbor, 1956. 175 pp. $3.75.

This monograph is the by-product of a year spent by the author, an economist, at the Center for Advanced Study in the Behavioral Sciences, Stanford, California. It is an exercise in abstraction, an attempt to indicate the relatedness to varied fields of study of a single conception; and it bears both the virtues and defects of being a memorandum, as Kenneth Boulding himself describes it, dictated without interruption in "a certain atmosphere of intellectual exaltation . . . which no sober editing can quite remove." It proposes, with modesty but certainly no less than half-seriousness, the creation of a new science.

Boulding's central idea is that of "the image," and its study he names *eiconics*. While he draws generously on the biological, as well as behavioral, sciences, his own intellectual habitat would seem to fall most naturally within the soci-