Analytical Chemistry

Titrimetric Organic Analysis. pt. 1, *Direct Methods*. M. R. F. Ashworth. Interscience (Wiley), New York, 1964. xx + 501 pp. Illus. $17.50.

This book, the first part of a two-volume treatise on titrimetric organic analysis, covers direct methods; part 2 will be devoted to indirect methods. Although primarily concerned with titration as an analytical procedure, the volume's use in other fields is mentioned—for example, in physicochemical studies. Emphasis has been placed on providing an extensive bibliography (more than 3300 references). This has limited critical evaluation of the methods and experimental details. Most readers, however, should be able to criticize and evaluate the various methods by consulting the references.

There is a short introduction on definition, types and purposes of titration, and the aim and contents of the book, the latter being divided into sections rather than chapters.

In section 1 the following topics are treated briefly but adequately for a book of this type: measurement of the amounts of reagent and sample, mixing procedure, preliminary reaction yielding an intermediate, realization of a reaction, speed of reaction, avoidance of side and other reactions, end-point (by light absorption, electrical properties, temperature, and other physical properties such as fluorescence, chemiluminescence, flame-emission spectra, optical activity, light refraction, crystal form, density, viscosity, surface tension, freezing point, magnetic susceptibility, nuclear magnetic resonance, dielectric constant, smell, taste, sound, vapor or gas pressure of reaction mixture, and radioactivity), automatic titration, reactions used in the direct titration of organic compounds, and examples.

Section 2 (398 pp.) comprises four-fifths of the book and lists 117 reagents in alphabetical order (with cross references). The list does not include all dyes and surface-active compounds used; only those appearing in several references are given (comparatively unimportant titles are thereby avoided). The examples are given in tabular form with the following column headings: Titration of, Reagent, Solvent or Titration Conditions, End-point, and References.

Section 3 is an alphabetical list of functional groups and compound classes, presented in the form of tables that give the reagent for each example and reference.

The paper, printing, and binding are of good quality. The book, together with its companion volume on indirect methods, will be useful and timesaving to those who wish to use titrimetric methods in organic analysis.

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Botany

Orchids of the Western Great Lakes Region. Frederick W. Case, Jr. Cranbrook Institute of Science, Bloomfield Hills, Mich., 1964. xii + 147 pp. Illus. $7.

Almost every other month the market is flooded with books on orchids, dealing especially with species of horticultural interest, which are written in seemingly great haste and are based on insufficient experience and knowledge. Fortunately, Frederick Case's book does not belong to this unworthy category.

Case's elegant presentation of our native orchids from the western Great Lakes region provides much needed information, especially on ecology and distribution. His ability to discuss and to present technical information in a direct and concise manner, understandable also to nontechnical readers, is one of the great assets of the book. Although he has a fine detailed insight into the complexity of the orchid family, his readers are not confused with unimportant minutiae in the enlightening discussions of the basic structures of flowers, their evolutionary development, and of the significance of structures in adaptation through various pollinating mechanisms for the perpetuation of species.

Much useful information is given in the chapters that deal with such ecological aspects as seed germination and development, soil and habitat relationships, changes in wild orchid populations, and orchids and conservation. The chapter entitled "Growing native orchids" is a unique feature of this book, and the information that it contains can prevent many frustrations for orchid hobbyists.

I cannot fully agree with the ideas expressed in the chapter "The origin and distribution patterns of Great Lakes orchids," but I find the discussion quite stimulating.

The remaining part of the book is devoted to descriptive aspects of the orchids of the region. This includes keys to both genera and species as well as descriptions of each orchid, supplemented by a photograph. The photographic illustrations are all excellent; eight of them are in full color, and all are correctly named, except *Cypripedium* × *Andrewsii* which should be *Cypripedium* × *Favillianum*.

At the end of the book the author presents a very useful set of distribution maps, a glossary, and an index to both Latin and common names.

I wish to congratulate Case for his masterly presentation and to thank him for sharing his knowledge with the botanical world.

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Handbook of Drug Action

Drug Dosage in Laboratory Animals. A handbook. C. D. Barnes and L. G. Eltherington. University of California Press, Berkeley, 1964. xx + 302 pp. Paper, $8.

This long-needed reference handbook on pharmacodynamic and toxicological dosages was compiled from 819 selected references that date from 1880 to 1963 and cover a broad spectrum of literature on drug actions in seven species of laboratory animals. The volume will become as common an inhabitant of desk and shelf in the biological world as the investigator's tea cup. It is *not* a handbook for treating diseases in laboratory animals. The excellent sections on anesthetics and endocrine maintenance and replacement dosages skirt some therapeutic areas and cover them effectively, but this is not the primary purpose of the manual.

Drug responses have been classified according to (i) toxicity data, (ii) primary use or activity, and (iii) secondary uses or activities. A brief treatment of the factors that modify drug responses is included (primarily, this will be useful to students). Drugs are listed according to the World Health