

Book Reviews

Comprehensive Inorganic Chemistry. vol. 4. M. Cannon Sneed and Robert C. Brasted, Eds. Zinc, cadmium, and mercury, by Howard M. Cyr and the eds. Scandium, yttrium, and the lanthanides series, by Thomas D. O'Brien and the eds. Van Nostrand, New York, 1955. xii + 193 pp. Illus. \$5.

The fourth member of this projected 11-volume reference work on the chemical elements and their inorganic compounds retains the simplicity of style and clarity of presentation that were characteristic of its predecessors. Although the series title suggests an encyclopedic work à la Mellor, the editors state that their aim is extensiveness in fields covered rather than fullness of treatment.

This volume presents a balanced but clearly limited survey of its subject matter. Part 1 ("Zinc, cadmium, and mercury") devotes more attention than usual to the industrial aspects of the inorganic chemistry of the IIb elements—as is consistent with the aims of a reference work written in part for the chemist in industry.

Chapters on the individual elements are preceded by an introductory section, containing an extensive table of physical properties of the metals, as well as an up-to-date table of isotopes. Each chapter contains a list of compounds in alphabetical order, with a description of properties, methods of preparation, and uses.

One rather puzzling feature of these chapters is the apparently random inclusion of crystallographic data, which in some cases is incomplete or erroneous, and in other cases redundant.

The introductory section of Part II ("Scandium, yttrium, and the lanthanide series") contains an extensive table of isotopes as well as a list of physical properties of the elements. The melting and boiling point data probably should be regarded with a good deal of skepticism, for most are at variance with recent observations.

Individual chapters on scandium, yttrium, and the lanthanide series are excellent within the limited range of subject matter considered. Some chemists probably will be disappointed that

there is no detailed discussion of the magnetic or spectroscopic properties of the lanthanides, although recent work in these fields has been rather extensive.

Many chemists, however, will welcome these brief, authoritative and modestly priced volumes, in which the basic facts of inorganic chemistry are clearly and compactly assembled, leaving esoteric and doubtful material to references.

BURRIS B. CUNNINGHAM
*Department of Chemistry,
University of California, Berkeley*

Primates: Comparative Anatomy and Taxonomy. vol. 2, *Haplorhini: Tarsioida*. W. C. Osman Hill. Interscience, New York; University Press, Edinburgh, 1955. xx + 347 pp. 49 illus., 14 plates. \$9.50.

The first volume of this review of the *Primates* by the prosector of the London Zoo was published in 1953; it dealt with the grade Strepsirhini (suborders Lemuroidea and Lorisoidea). Of the several volumes planned to complete this project, the second has now appeared. It is concerned in its first 100 pages with a general introduction to the grade Haplorhini, under which Osman Hill classes the remainder of the primates; the rest of the book is confined to a detailed treatment of the suborder Tarsioida (three species of the single living genus *Tarsius* and 31 genera of Tertiary fossils). Succeeding volumes will cover the final haplorhine suborder Pithecoidea, which contains the platyrrhine and catarrhine primates.

One can now examine Hill's reasons for using Pocock's seldom adopted bipartite division of the primates—namely, into the Strepsirhini and Haplorhini—since he here deals with the tarsioids, the assignment of which is controversial. Throughout the volume he frequently has to exclude *Tarsius* from general statements about "the haplorhines." The author prepares the reader for this on his second page and defends his inclusion of *Tarsius* in the grade with platyrrhine and catarrhine primates by the statement that "*Tarsius* would also prove an exception to most of the rules had it been included

with the lemurs." This will probably only reinforce many readers' convictions that this reference work might better have used the more common tripartite division of the order, which gives independent status to the tarsioids, in recognition of the fact that we know too little of them to settle the disputed question of their alliances with the other great suborders of the primates.

The coverage is more broadly biological than the subtitle suggests, but the major part of the volume is anatomical, presenting a compendium from the widespread literature and the personal researches of the author. The first section, reviewing the Haplorhini, repeats much that was presented in the general coverage of the primates in volume 1, and is in turn repeated in the discussion of the genus *Tarsius*. The 150 pages on the tarsioid represent a fuller treatment of one genus than will probably be possible for any other. This reflects Hill's interest in this animal, and his review here embodies much personal research. It does not represent a full anatomical monograph to supersede Burmeister's classic treatise or Woollard's paper, but rather reviews and supplements them; the illustrations are devoted largely to features in which Hill has himself taken special interest.

The section on fossil tarsioids reviews the fragmentary record of 48 Paleocene, Eocene, and Oligocene species. The evidence from dental and skeletal fragments is summarized, and about one-third of the genera are illustrated by figures redrawn from the original publications. The taxonomy is inevitably controversial; in the main, Simpson is followed. Thirty-one genera are given tarsioid status, and all but three are assigned to five subfamilies of the family Microchoeridae (Lydekker's name, which Hill prefers to the older and nearly universally used Anaptomorphidae of Cope). A new subfamily, Microchoerinae, combines the old Necrolemurinae and two genera (*Nanopithecus* and *Periconodon*) heretofore regarded as too poorly known to permit even family designation. Another genus (*Yumanius*), usually classed as of uncertain family alliance, is placed in the Anaptomorphinae. Three Oligocene genera, the North American *Macrotarsius* and the Chinese *Hoanghoni* and *Adapidium*, are admitted to the Omomyinae, although their status as primates is admittedly precarious. A chart of Tertiary chronology has had the benefit of criticism by Simpson and is a real improvement on the one that was used in the earlier volume.

All interested in the biology of the primates will be thankful to Hill for this review of the Tarsioida and for his arduous labor in this multivolumed project. Those who have tried for themselves to

gather from the widespread literature some part of this organized synthesis will appreciate the size and complexity of the task. These volumes will represent a milestone in the progress of primatology, but this is not to say that they will constitute a definitive work—too little has been studied for that, and what has been done is too varied and dispersed for one worker to produce a perfect synthesis. Yet each generation needs a current summary, and Hill is preparing the best and most inclusive review to date.

G. E. ERIKSON

Harvard Medical School

Lehrbuch und Atlas der Anatomie des Menschen. Rauber-Kopsch. vol. I, *Allgemeines, Skelettsystem, Muskelsystem, Gefäßsystem*. vol. II, *Eingeweide Nervensystem-Sinnesorgane*. Thieme, Stuttgart, Germany, ed. 19, 1955. vol. I, vii + 736 pp.; vol. II, vii + 768 pp. Illus. \$15.35 per volume.

This 19th edition of one of the standard German works on the anatomy of the human body represents an extensive revision. It again appears in two volumes, as in the time of the original author, Rauber. Volume I comprises the histology of the epithelial, connective, muscular, and nervous tissues, a discussion of the body as a whole, the skeleton and joints, the muscular system, and the vascular system. Volume II deals with the thoracic and abdominal viscera, the nervous system, and the organs of special sense.

All the illustrations have been reproduced *de novo* and are now included within the text, and the text itself has undergone extensive alteration. Since the illustrations are truly magnificent and the text is authoritative, the result is an outstanding combined atlas and textbook. The rather high cost of these books, however, seems likely to limit their use in this country. This is unfortunate, since anatomical books of this superior quality are all too rare.

WILLIAM L. STRAUS, JR.

Johns Hopkins University

Progress in Organic Chemistry. vol. 3. J. W. Cook, Ed. Academic Press, New York; Butterworths, London, 1955. viii + 273 pp. \$7.80.

This welcome addition to the "Progress series" consists of five chapters entitled: "Total synthesis of steroids," by J. W. Cornforth of the National Institute for Medical Research, London (43 pages, 56 references); "Non-benzenoid aromatic compounds," by W. Baker and

J. F. W. McOmie of the University of Bristol (36 pages, 129 references); "The fulvenes," by E. D. Bergmann of the Hebrew University, Jerusalem (90 pages, 359 references); "Organic compounds of lithium," by E. A. Braude of the Imperial College of Science and Technology, University of London (45 pages, 201 references); and "Indole alkaloids," by V. Boekelheide of the University of Rochester and V. Prelog of the Swiss Federal Institute of Technology, Zurich (48 pages, 170 references). The physical aspects of the book, including type, formulas, paper, and binding are good.

Although it could be argued that some of the topics have recently been reviewed—for instance, parts of Chapter 2 by P. L. Pauson [*Quart. Revs. London* 9, 39 (1955); *Chem. Revs.* 55, 9 (1955)]—I find the selection attractive and useful. Chapter 1 is a readable and comprehensive account of total synthesis in the steroid field from the early work of Bachmann and coworkers on equilenin to the recent successful efforts of various groups. Considerable attention is devoted to the work carried out at Oxford, although the Harvard, the Merck ("which has the distinction, so far unique, of being stereospecific"), the Ciba, and the two Wisconsin syntheses are extensively discussed. It should be noted that the publication date is 1955, but no references to papers published later than 1953 are included (important papers in 1954 are, for instance: *J. Am. Chem. Soc.* 76, 5014 and 76, 3353). Obviously, the recent work of still another group engaged in steroid synthesis could not be included [compare Stork *et al.*, *J. Am. Chem. Soc.* 78, 501 (1956)].

A review on nonbenzenoid aromatics is timely, and Chapter 2 provides a valuable survey of a fascinating field through 1953; yet, in some respects, the chapter is somewhat disappointing. The treatment is sketchy; for example, under the promising heading of "Heterocyclic benzenoid compounds," one finds 21 lines of discussion (the use of the term *penta-valent nitrogen* on p. 47 is surprising). The cyclobutadiene problem is treated, without critical comments, in ten lines, although a more adequate coverage (two pages) is given for diphenylene. Incidentally, the recent preparation of benzocyclobutene [Cava, *J. Am. Chem. Soc.* 78, 500 (1956)] does not bear out the implied instability (p. 51) of this structure. Some of the arguments concerning stability, or lack of it, in certain systems—for example, those on pages 63 and 76—are not very enlightening.

The review on fulvenes is excellent and truly comprehensive. In addition to dealing with the preparative aspects of fulvene chemistry, the author devotes considerable attention to the theory of

the structure of these compounds; in this respect, the author stresses the results from molecular orbital theory. Regardless of his individual degree of competence in, and inclination toward, these approximate calculations, the reader will find the emphasis on physical data that follows from this approach highly rewarding.

Lithium alkyls, alkenyls, alkynyls and aryls, as well as heterocyclic lithium derivatives and dilithium compounds are treated in Chapter 4. A commendable attempt to rationalize the reactions of organolithiums is made, although in some cases—such as in dealing with additions to unconjugated olefins—the explanations are of necessity vague. This chapter will undoubtedly be widely consulted.

The discussion of indole alkaloids includes the yohimbine, corynantheinalstonine, cinchonine, and erythrina types. The selection of topics is dictated by sound reasons, and the limited scope of the coverage permits a detailed and fruitful treatment. It is of interest to note that considerable attention is given to structural relationships and biogenetical schemes, in keeping with current trends in alkaloid research.

FAUSTO RAMIREZ

Department of Chemistry,
Columbia University

Official Methods of Analysis of the Association of Official Agricultural Chemists. William Horowitz, Ed. H. J. Fisher, A. H. Robertson, and Helen Reynolds, Committee on Editing Methods of Analysis. Association of Official Agricultural Chemists, Washington, D.C., ed. 8, 1955. xvi + 1008 pp. Illus. Domestic, \$12; foreign, \$12.50.

The editorial board charged with the revision of the 1950 edition of this book undoubtedly had a mandate to stay within the confines of a single volume. This they accomplished by the free use of abbreviations and cross references, which sometimes makes the book more difficult to use than it would be if more space had been available.

The book covers methods for the analysis of agricultural materials ranging from fertilizer and cattle feeds to cosmetics, hormones, and drugs. The general coverage is nearly the same as that of the 1950 edition, but the field in each category has been somewhat broadened. Many of the older methods have been discarded, and newer techniques have been introduced. Practically every chapter shows important changes and improvements. Methods have been simplified or improved by the introduction of