# Book Reviews

**Fluorine Chemistry.** vol. II. J. H. Simons, Ed. Academic Press, New York, 1954. x + 565 pp. Illus. $13.50.

Volume II of *Fluorine Chemistry,* like volume I, is composed of contributed chapters. Some of these are excellent. Perhaps the most outstanding chapter in this book is the one contributed by Philip J. Elving, "Anlaytical chemistry of fluorine and fluorine-containing compounds." This chapter is new to this two-volume series, and it covers the analytic aspects of fluorine chemistry very well. The most modern methods for the determination of the fluoride ion, the detection and identification of fluorine, and the determination of fluorine in fluorine compounds are presented in an elegant manner. Also, an extensive bibliography is given as a part of this chapter and should be of value to those interested in the analytic aspects of fluorine chemistry.

H. J. Emeléus is the author of two of the chapters, one of which is on "Halogen fluorides," giving recent advances with these substances. This chapter is interesting but short, since a more extensive discussion of the subject occurs in volume I. The other chapter by Emeléus is an excellent one on "Metallic compounds containing fluorocarbon radicals and organometallic compounds containing fluorine." There has been a great deal of excellent work on these substances in recent years. A number of compounds, such as trifluoromethyl derivatives of mercury, phosphorus, arsenic, sulfur, magnesium, and zinc, have been prepared, and some of their properties have been determined. A number of alkyl and aryl silicon fluorides are reported. It is interesting to note that the chapter is devoid of perfluoro alkyl silanes.

A chapter by Alan G. Sharpe on complex fluorides of groups 1–8, inclusive, shows that there is a great deal now known on fluorine-containing complex salts and acids. Methods of preparation and chemical properties are discussed.

The chapter by Paul Tarrant on "Organic compounds containing fluorine" is an interesting review of selected researches with fluorine-containing organic substances. Derivatives of hydrocarbons, alcohols, ethers, aldehydes, acids, amines, dyes, drugs, pesticides, and polymers are taken up as separate sections. It would not be practical to cover completely this subject matter in one chapter, but Tarrant has given some of the most interesting and significant achievements on the preparation and properties of these substances. In addition, he has given a table on the properties of organic fluorine compounds. This table includes a method of preparation and a literature reference for each of the compounds listed. The bibliography, which covers 556 references, should be of value to those doing research in this field of fluorine chemistry. Unfortunately, at least two types of nomenclature are used in this chapter, one of which has no basis for acceptance.

The chapter on "Fluorocarbon chemistry" by the editor presents some valuable information on the preparation and properties, especially physical properties, of fluorine-containing organic substances, including fluorocarbons. Most of the compounds in this chapter are given by structure or molecular formula. When compounds are named, it is frequently by a system of nomenclature used seldom except by the author himself.

Infrared spectra are given for a large number of fluorine-containing organic substances. This chapter by D. G. Weiblen discusses, among other things, stretching frequency for several groups of atoms, such as C=C, C=O, C≡N.

EARL T. MCBEE
*Department of Chemistry,*
*Purdue University*

**An Introduction to Plant Taxonomy.** George H. M. Lawrence. Macmillan, New York, 1955. viii + 179 pp. Illus. $3.25.

This is largely a distillation, designed "for the adult amateur botanist and the student of a local flora course at the college level," of the same author's excellent *Taxonomy of Vascular Plants* (1951). The core of the *Introduction* consists of a beautfiully illustrated compendium of external plant morphology that should prove most welcome to the student. One might quarrel with the retention of the pre-evolutionary and outmoded term *pistil,* and of an artificial classification of fruits, but the chapter is doubtless designed to match the terminology in current manuals. Only slightly less central is the chapter on important plant families, in which 42 groups are represented by thumbnail descriptions and, frequently, by line drawings.

Supplementary chapters include a terse history of the development of plant classification and a history of plant taxonomy in the United States based largely on the books of Rodgers, respectively. The former stresses the phylogenetic systems of Engler (with an uncredited diagram that I recognize as that prepared several years ago by Thomas Morley), Bessey, and Hutchinson. The "modern" aspects of taxonomy are treated very sketchily and serve principally to inform the student that such matters may deserve consideration. The author's abridged remark that "phylogeny . . . is not essential to the demands on taxonomy as a functional science," does not seem calculated to stimulate such interest.

Lawrence's books should be given full credit for elevating textbooks in this field to the level of teaching. The *Introduction* will command a wide audience, and its limited scope and lower cost should encourage its adoption as a textbook.

LINCOLN CONSTANCE
*Department of Botany,*
*University of California*

**The Gyroscope Applied.** K. I. T. Richardson. Philosophical Library, New York, 1954. 384 pp. Illus. $15.

The author states in the introduction that the purpose of this book is to describe what the gyroscope is, how and why it works and to indicate how and why it has come to play such an important part in scientific progress, especially in marine and aeronautical transportation and military operations. The book is divided into five sections, the first being a general statement of the basic principles and describing some of the wider known applications of gyroscopic properties. This is followed by individual sections devoted, respectively, to marine navigation and stabilization, aeronautical navigation and automatic control, military weapon control and sighting, and finally the use of gyroscopes on land for such devices as monorail and two-wheeled vehicles and for surveying. As would be expected, most of the contents deal with British-manufactured equipment.

The section on marine applications describes the Sperry, Brown, Anschütz, and Plath gyro compasses, the application of the gyro compass to automatic steering control, and the gyroscopic stabilization of ships. All instruments and apparatus are carefully and clearly described and are illustrated by excellent diagrams and by many halftone reproductions of photographs. (The book is