

obvious. There is also lacking a discussion of the variety of organelles (ribosomes, mitochondria, etc.) in which distinct types of biochemical reactions take place in the living cell. How much is known about the extent to which the architecture of these organelles has varied in the course of biological evolution?

Despite this criticism, the charm for the biologist of Professor Baldwin's book cannot be denied. It is still a worthwhile *entrée* to comparative biochemistry, if for no other reason than its emphasis on the biological importance of phenomena studied at the molecular level. All too often, both in research and in teaching, biochemistry becomes an end in itself, with the result that the biological problems originally stimulating biochemical analysis are forgotten. One cannot accuse Professor Baldwin of such oversight of the biologically significant. Indeed, much of what is contained in this book often passes as physiology (the regulation of osmotic pressure, the conservation of water, digestion), and the morphological aspects of adaptation (pigmentation, type of eggs produced, food-gathering mechanisms) have the prominent position they should in a book on comparative biochemistry. The theme running through this book is evolution and adaptation to different ecological niches. The conclusion finally reached is that "... there exists a common, fundamental chemical ground-plan of composition and metabolism to which all animals, and very probably other living organisms also, conform, and that, superimposed on these foundations, there are numerous secondary, specific and adaptational variations, some of addition and others of omission." This is a lesson worthy of deep consideration by the beginning student of biochemistry.

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**Theorie und Praxis der Gravimetrischen Analyse. Band II. Bestimmung der Metalle.** By LÁSZLÓ ERDEY, Professor an der Technischen Universität Budapest, Mitglied der Ungarischen Akademie der Wissenschaften. Akadémiai Kiadó, Alkotmány U. 21, Budapest V, Hungary. 1964. 802 pp. 18 × 24 cm. Price, \$18.00.

The literature of analytical chemistry is a well-tilled field. In fact, some of its areas are beginning to show signs of overcultivation. Gravimetric analysis is not one of these, however. In some quarters, resort to precipitation processes is looked upon as something reprehensible, especially if the precipitate is finally weighed. Be that as it may, we have here, in the second volume of the German translation of Professor Erdey's three-volume treatise on the theory and practice of gravimetric analysis, a good account of such methods for the determination of the metallic elements. Adequately detailed directions are given for important procedures, and separation methods are included. A commendable feature is the inclusion of many thermoanalytical curves and tables showing the accuracy and precision of determinations, both from work in the author's laboratory.

If any fault is to be found, it is that some omissions of determination methods, or modifications of value, occur. More extensive bibliographies dealing with the determination of each metal would be helpful. Perhaps a full treatment of separations cannot reasonably be asked for—the field is too large. In a work of this size, errors are bound to be made, but not many were noticed (p. 396, the solubility of dimethylglyoxime in water at 25° is 63 mg. per 100 ml., not 0.4 mg.).

The last volume in the series will cover the anions.

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**Gas Analysis by Gas Chromatography.** By P. G. JEFFERY, Principal Scientific Officer, and P. J. KIPPING, Senior Experimental Officer, Warren Spring Laboratory, D.S.I.R. The Macmillan Co., 60 Fifth Ave., New York 11, N. Y. 1964. xi + 216 pp. 15 × 22 cm. Price, \$10.00.

This book is Volume 17 of the International Series of Monographs on Analytical Chemistry, edited by R. Belcher and L. Gordon. The analyses considered are those performed by the gas, mining, petroleum, iron and steel, and related industries. There is only one reference to gas analysis of a biological sample. Therefore this book will be of little interest to those in the biochemical and medical fields.

The introductory chapter and, indeed, all theoretical material is so briefly treated that the book cannot be compared to other books on gas chromatography which may be used as texts. The sections on sample transfer systems, detectors, and gas sampling should prove useful to gas analysts.

Although there are a number of recent references in this volume, certain significant recent developments are not included. For example, the section on detectors might have included some information on the recent advances in micro thermal conductivity cells, and in microcoulometric methods of detection. The tables listing separating columns and retention times for various gases provide a handy source of useful data.

The price of this volume is rather high for a brief book printed on inexpensive paper. Almost all of the information presented, with the exception of the unpublished references of the authors and their associates, is available in other more comprehensive volumes such as those written by Purnell, Littlewood, Dal Nogare and Juvet, and Keulemans. However, the practicing analyst in the industries cited above may wish to have a copy for use in the laboratory.

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**Porphyryns and Metalloporphyryns. Their General, Physical and Coordination Chemistry, and Laboratory Methods.** By J. E. FALK, Division of Plant Industry, Commonwealth Scientific and Industrial Research Organization, Canberra, A.C.T. (Australia). American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York 17, N. Y. 1964. xii + 266 pp. 17 × 24.5 cm. Price, \$13.50.

This excellent monograph may be characterized briefly as "poly-functional." One function intended by the author is to bring up to date the review of the porphyrin and metalloporphyrin portion of the book published by Lemberg and Legge fifteen years ago. In particular, the attempt has been made to correlate experimental observations with newly developed basic concepts in the field. A real effort has been made, however, to provide enough background material to permit the book to stand alone. This will make it valuable to organic, inorganic, and physical chemists, biologists, and medical students. Both experts and beginners in the field will find this a useful compilation of the literature.

The monograph is divided into two sections, a general and theoretical section and one on laboratory methods. The section on laboratory methods will give other laboratories the benefit of the long experience of the Australian investigators in the manipulations involved in porphyrin chemistry and will be a great time saver for investigators in the chemical and biological aspects of porphyrin studies.

The work also serves the useful purpose of providing an up-to-date insight into the theoretical and experimental advances in the field of porphyrin chemistry made in the Australian laboratories. In particular, the extensive work on the properties of porphyrin derivatives in detergent solutions is presented in several sections. It is stated (p. 117) that detergent solutions of porphyrins are essentially aqueous, yet arguments are presented and observations recorded (pp. 29, 37, 46) showing the strong contrast in the environment of the porphyrins in detergent micelles from that in truly aqueous media. While the detergent technique is one of great value, Falk's own observations raise objections which must temper interpretations of its ultimate significance.

A brief section appears (pp. 24 and 25) which mentions clinical use of porphyrins. Since this may well be used as an introduction by medical men, it is unfortunate that the author did not draw upon his extensive experience to sound a warning about the hazards involved in clinical use from undesired photosensitization of patients.

The position is taken (p. 59) that both the visible and ultraviolet bands of metalloporphyrins are shifted by a change from low-spin to high-spin bonding. Examination of the spectra shows, however, that the change in the ultraviolet is due to a change in ligandcy, not in spin-state. The figure of 300 m $\mu$  should read 30 m $\mu$ .

The section on hemoglobin (pp. 106–108) relies on the X-ray evidence from the ferric series for structural conclusions regarding the ferrous series. As more chemical and X-ray evidence has accumulated, it is apparent that this conclusion is not tenable and will have to be revised.

The value of the well-selected bibliography at the end is limited by the lack of an author index. Whatever the cause of this deficiency,