Book Reviews

Crust of the Earth. A symposium. Arie Poldervaart, Ed. (Geological Society of America Special Paper 62) Geological Soc. of America, New York, 1955. viii + 762 pp. Illus. $6.50.

In October 1954 the department of geology of Columbia University had a symposium on "The crust of the earth" to mark Columbia's bicentenary. The Geological Society of America published the symposium this July just in time for the Geophysical Year. There are 44 papers dealing with the crust of the earth, and these papers are put into four parts: "Nature of the earth's crust," with 12 papers; "Recent deformation and sedimentation," with 9 papers; "Structural synthesis and petrogeneses," with 13 papers; and "Historical development of the earth's crust," with 10 papers. The authors were selected by a committee from geologists "still actively engaged in research on the particular subject allotted to them . . . who would be readily available." The selection has brought papers from widely scattered students, both in the United States and abroad, and from university, government, and industrial geologists.

Just what limits the crust of the earth is left to the authors. However, V. Meinesz suggests the Mohorovicic discontinuity be abbreviated to *M discontinuity,* and this abbreviation is used throughout. Walter Bucher would limit the term *crust* to a chemical-petrologic meaning and suggests the term *sterosphere* for that which lies above the *asthenosphere.*

In part I Ewing and Press lead off with the geophysical contrasts between continents and ocean basins and their paper is followed by other papers that consider the geology, seismism, physics, and chemistry. Part I closes with Ahrens' "Oldest rocks exposed." Part II considers deformation and sedimentation and necessarily deals with various geographic areas. The first four papers consider very large areas such as the Pacific Ocean; others discuss smaller areas such as the Tonga Trench. In part III a good many readers will be interested in H. H. Read's "Granite series in mobile belts"; as Read says, there are granites and granites. Part IV, dealing with the historical development, starts with R. C. Moore's consideration of invertebrates and the geologic time scale. Two other papers cover plants and vertebrates, and one deals with isotropic dating. Two discuss aspects of atmosphere and hydrosphere, and the last four consider the development from a nonlife angle.

This is a stimulating book. The various papers do not attempt to give the final answer to the material discussed; their purpose is to arouse interest and to show the extent of our current knowledge on the crust of the earth.

E. Willard Berry
Department of Geology, Duke University

Adrenal Cortex. Transactions of the fifth and final conference. Elaine P. Ralli, Ed. Josiah Macy, Jr., Foundation, New York, 1954. 187 pp. Illus. $3.75.

This volume records the transactions of the fifth and final Josiah Macy conference on the adrenal cortex. The subjects reported are "The salt and water factor of the adrenal cortex," by H. L. Mason; "The metabolism of adrenal steroids," by R. I. Dorfman, and "ACTH—a single substance or a mixture of hormones," by F. G. Young.

Mason outlines some aspects of his studies that contributed to the isolation of the adrenal steroid that has since been identified by Reichstein and his associates as 11β,21-dihydroxy-3,20-diketo-4-pregnene-18-al, and has been termed *aldosterone.* The ability of aldosterone to promote sodium retention is approximately 100 times that of desoxycorticosterone.

Dorfman points out that the steroid hormones possessing biological activity contain in ring A, an α, β-unsaturated ketone. A characteristic feature in the metabolism of these steroids is the reduction of the ketone group to a secondary alcohol and the saturation of the 4,5 double bond. He presents evidence indicating that the stereoisomeric form that results from the reduction of the double bond is influenced by the substituent groups at carbon atoms 11 and 17.

Young opens his remarks with a brief summary of the data published by contemporary workers that suggest that ACTH may be two or more substances. Experimental results obtained in his own laboratory indicate that one adrenocorticotrophic substance is effective in reducing the ascorbic acid content of the adrenal glands, while another is predominantly active in increasing the weights of these organs. The presentation and discussion advance our knowledge of this interesting problem, but the central question remains unanswered. The physiological response to exogenous ACTH is modified by the rate at which it is absorbed from the injection site. C. H. Li points out that ACTH administered in saline may have little effect on adrenal gland weights but that the same material administered in beeswax-peanut oil produces a marked increase in the weights of adrenals. In view of these findings the possibility remains that the procedures to which ACTH is subjected do not fractionate it but change its physical characteristics and thus alter its rate of absorption and the physiological response.

This volume contains very little material that is of direct interest to the clinician. The speculations and suggestions arising during the discussions are provocative and should prove stimulating to those who are interested in the fundamental aspects of the biochemistry and physiology of the adrenal gland.

James Salter
Charles H. Best
Department of Physiology, School of Medicine, University of Toronto

Industrial Inorganic Analysis. Roland S. Young. Wiley, New York; Chapman and Hall, London, 1953. vi + 368 pp. 36s.

The author, who is employed by International Nickel Company of Canada, Ltd., New York, has collected a series of his notes on industrial analytic procedures related to 43 elements, many of them the so-called "less familiar" elements, such as beryllium, fluorine, molybdenum, niobium, tantalum, platinum metals, selenium, tellurium, thorium, titanium, tungsten, uranium, vanadium, and zirconium. In addition to these and some of the common elements, he has also included methods of analyzing for oxygen, nitrogen, and water. A section on gas analysis is placed in the last chapter on "Miscellaneous analyses and data." The book is concluded with a good list of reference books. There are adequate author and subject indexes.

The methods reported have been taken mostly from readily available journals and standard treatises. Some use has been made of company brochures like those of the Burrell Technical Supply

Company, G. Frederick Smith Chemical Company, Solvay Process Company, Aluminum Company of America, and the Dow Chemical Company, to mention only a few. Of the methods developed on the Manhattan Project, the author refers only to those that were collected by C. J. Rodden and published as part of the National Nuclear Energy Series. No direct references are given to the less readily available USAEC documents.

The procedures recommended are those that have been tried and found to work in an industrial laboratory. They are given in considerable detail, with suggestions regarding manipulative techniques, methods of standardizing reagents, and methods of computing the results. Where details are omitted, reference is made to a reliable published method. For example, the vacuum fusion method of determining oxygen in metals like titanium or zirconium is only outlined, but a good method published in 1951 in *Analytical Chemistry* is cited.

A useful list of absorbents for gases is given in Table 5, on page 324. Methods of standardizing acids and bases are included.

Although this is not an encyclopedic treatise, it is nevertheless a very valuable collection of analytic methods that work. Inorganic and analytic chemists will find it to be a very handy guide.

LAURENCE S. FOSTER
Belmont, Massachusetts

Précis d'Ecologie Animale. F. S. Bodenheimer. Payot, Paris, 1955. 315 pp. Illus. F. 1200.

The author's point of view, as expressed in his *Problems of Animal Ecology,* (which was published in 1938), is not greatly different in this revised French version (translated directly from an English manuscript). While rejecting community concepts other than those of statistical aggregation and regarding some of the newer ideas of community metabolism as akin to Pythagorean mysticism, Bodenheimer nevertheless concedes that some of these concepts may be fruitful ways of thinking about ecological conditions. His objection is that there is a tendency to consider them to be based on scientific induction rather than as loose analogies. His primary concern is with the influence of physical and biotic factors on individuals and populations (with a minimum of mathematics), and on the whole, little seems to have been added since the original edition. Unfortunately there is no index, although there is a fairly complete table of contents.

JOEL W. HEDGPETH
Scripps Institution of Oceanography, University of California

Solvents Manual. With solubility chart. Compiled by C. Marsden, Ed. Cleaver-Hume, London; Elsevier, Houston-New York, 1954. xii + 429 pp. $12.95.

This book contains a very useful compilation of physical and chemical data on organic solvents and related substances, a field that has expanded rapidly during the last 10 years. A great deal of information that has been released by numerous industrial organizations is widely scattered in the literature and in company pamphlets.

The author should be commended for having achieved the tremendous task of collecting all these data in a concise and easily accessible form so that the user knows where and how to find them with ease and convenience.

H. F. MARK
Polytechnic Institute of Brooklyn

Chemistry of Carbon Compounds. vol. III, pt. A, *Aromatic Compounds.* E. H. Rodd, Ed. Elsevier, New York–London, 1954. xxiv + 685 pp. Illus. $17.50.

Volume III, part A, *Aromatic Compounds,* of the *Modern Comprehensive Treatise on Chemistry of Carbon Compounds* treats specifically the benzene derivatives. [Volume I A, *Science* **116,** 181 (1952); volume I B, *Science* **117,** 422 (1952); volume II, *Science* **120,** 256 (1954)] Volume III B, to follow later, will be concerned with the more complex derivatives, including multinuclear aromatic compounds.

A comprehensive treatise on so broad a field as organic chemistry demands an approach that is both analytic and authoritative. Furthermore, to be of real value to the professional organic chemist, it must be up to date and complete in its reference to the pertinent literature. *Aromatic Compounds* answers these requirements in almost every detail for the benzene series. The imposing list of contributors, which includes experts in their own specific fields, adds greatly to the contribution of this outstanding work. The contributors to the present volume are C. K. Ingold, W. J. Hickinbottom, Neil Campbell, J. Chatt, R. E. Fairbairn, D. H. Hey, E. Hoggarth, Z. E. Jolles, and Gareth H. Williams.

Chapter I begins with a historical treatment of the theory of aromatic character, followed by current theories on orientation and substitution, and a section on the formation and fission of the benzene nucleus. The later chapters follow the familiar order of presentation of Richter, with chapters on the expected derivatives of benzene through the carboxylic acids. Chapter VII, "Aromatic metal and metalloid compounds," will be of special interest to many organic chemists. Each chapter presents the methods of formation and the chemical reactions of the given class of compounds, together with references to the original literature. The most significant members of a series are presented separately with the physical constants of the original compounds and those of the most important derivatives. Pertinent literature references are included also.

This treatise on benzene derivatives will be welcomed especially by seasoned organic chemists, since it presents fundamental concepts, together with fundamental properties of the most significant members and derivatives of the benzenoid hydrocarbons. The authors have been very successful in the difficult task of maintaining a good balance among the many topics, theories, and compounds that demand treatment in a work of this kind. The inclusion of references to the original literature throughout the treatise adds greatly to its value to the research chemist. The carefully compiled index also enhances the value of the treatise. Finally, the publishers have presented an attractive volume, free from errors, well printed, and with consistently good formulas.

ROY G. BOSSERT
Ohio Wesleyan University

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Forest Research Institute and Colleges, Dehra Dun. Govt. of India, Ministry of Food and Agriculture, 1954. 28 pp.

Indigenous Cellulosic Raw Materials for the Production of Pulp, Paper and Board. pt. XXV, *Wrapping Papers from* Acacia decurrens *Willd (Wattle Wood).* Indian Forest Bull. No. 195. R. V. Bhat and H. K. Kaushik. Manager of Publications, Delhi, 1955. 10 pp. 1s. 3d.

Old Akkadian Inscriptions in Chicago Natural History Museum. Texts of legal and business interest. Fieldiana: Anthropology, vol. 44, No. 2. Ignace J. Gelb. 177 pp. $5. *Revision of the Hawaiian Members of the Genus Tetraplasandra A. Gray.* Fieldiana: Botany, vol. 29, No. 2. Earl Edward Sherff. 93 pp. $1.50. Chicago Natural History Museum, Chicago, 1955.

Statistics of State School Systems: Organization, Staff, Pupils, and Finances, 1951–52. Chapter 2, Biennial Survey of Education in the United States, 1950–52. Samuel Schloss and Carol Joy Hobson. U.S. Office of Education, Washington, 1955 (Order from Supt. of Documents, GPO, Washington 25). 105 pp. $0.35.

Efficiency and Selectivity of Commercial Fishing Devices Used on the Mississippi River. No. 4. William C. Starrett and Paul G. Barnickol. 41 pp. The Survey, Urbana, Ill., 1955.