

pp.) without appendix and index (about 300 pp.). The entire book would be accessible for reference use in libraries and such an edition could put the book in the personal libraries of many more scientists. This exhaustive, worthwhile appraisal of pyrimidine organic chemistry deserves to be widely owned by chemists without any restrictions due to its price.

ORGANIC CHEMICAL RESEARCH SECTION
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Comparative Biochemistry. A Comprehensive Treatise. Vol. IV, Constituents of Life—Part B. Edited by MARCEL FLORKIN, Department of Biochemistry, University of Liège, Liège, Belgium, and HOWARD S. MASON, Department of Biochemistry, University of Oregon Medical School, Portland, Oregon. Academic Press Inc., 111 Fifth Avenue, New York, N. Y. 1962. XXIII + 841 pp. 16 × 23 cm. Price, \$26.00.

This volume of "Comparative Biochemistry," like its predecessors, makes a determined effort to examine the conventional segments of biochemistry from the viewpoint of the distribution among living systems of enzymes, metabolites, and cellular structural elements. In some instances, the author has undoubtedly been assigned a Herculean task because of the paucity in the literature of truly *comparative* information. As a result, one is confronted in this volume primarily with a series of reviews, each covering an area of contemporary biochemistry overlaid to a greater or lesser degree with information on the distribution in nature of the systems under discussion. Some of the chapters are conventional in scope, *e.g.*, those concerned with cellulose, starch, and glycogen, nucleic acids, aromatic amino acids, porphyrins, pteridines, and carotenoids, and this, of course, tests the author's mettle to cover well-trodden paths in a new and interesting manner. In almost all of these cases, happily, the challenge has been met successfully.

Certain of the chapters are especially well worth reading because they consider somewhat off-beat topics or, even more to be commended, they deal with conventional topics in a novel manner. The opening dissertation, "The Optical Asymmetry of Metabolites" by T. L. V. Ulbricht, is an example of the former category. After a provocative introduction in which living systems are considered from the standpoint of optical activity (a theme which recurs at the end of the chapter), the author proceeds to describe in a straightforward and condensed manner: the concept of absolute configuration as related to L(-)-serine in the case of amino acids and D(+)-glyceraldehyde in the case of sugars; the natural occurrence of L-sugars and D-amino acids (in bacteria, in mammals, and in antibiotics); and the relation of optical asymmetry to protein structure. The author is on less certain ground, however, when he embarks upon a discussion of optical asymmetry and cancer. His speculation that carcinogenic substances might bring about a racemization of amino acids in proteins, while interesting, is not supported by the experimental data by Heidelberger and others on biochemical aberrations induced by chemical carcinogens. One is reminded in this connection of Kuhn's imaginative theory on the relation of optically active compounds to the aging process.

From the strict viewpoint of comparative biochemistry, the chapters on "Comparative Biochemistry of the Alkali Metals" by H. B. Steinbach, "Metamorphosis and Biochemical Adaptation in Amphibia" by T. P. Bennett and E. Frieden, and "Nucleic Acids" by G. Brawerman and H. S. Shapiro are each authoritatively written and show evidence of an exhaustive search of the literature. There is also a group of excellent chapters dealing generally with various aspects of protein structure, *i.e.*, "Protein Molecules: Intraspecific and Interspecific Variations" by A. Vegotsky and S. W. Fox, "Structure and Chemical Properties of Keratin-Forming Tissues" by A. G. Matoltsky, "Sclerotization" by M. G. M. Pryor, "Silk and Other Cocoon Proteins" by K. M. Rudall, and "Blood Coagulation" by C. Gregoire and H. J. Tagnon.

In still another category is a group of chapters which of necessity treat conventional classes of biochemical compounds primarily from a chemical or metabolic viewpoint interspersed with such data as are available on the distribution of these materials. Included in this collection are the massive review (81 pages, 540

references) on "Metabolism of Aromatic Amino Acids" by L. M. Henderson, R. K. Gholson, and C. E. Dalglish, "Cellulose, Starch and Glycogen" by J. S. Brimacombe and M. Stacey, "The Biochemistry of Lignin Formation" by F. F. Nord and W. J. Schubert, "Porphyrins: Structure, Distribution, and Metabolism" by C. Rimington and G. Y. Kennedy, "Pteridines: Structure and Metabolism" by H. S. Forrest, and "Carotenoids: Distribution, and Function" by T. W. Goodwin.

Altogether, the editors are to be commended for having persuaded this knowledgeable and literate group of authors to contribute chapters for this volume. If one reads the book completely and critically, it is of course possible to detect the inevitable overlapping of material between chapters, factual errors, and pertinent papers that have been omitted. The thoughtful reader may also wonder whether the rationale governing the sequence of chapters in Volume VI, Parts A, B, and C was not dictated, in part, by the alacrity with which the authors submitted their manuscripts. But this sort of intellectual nit-picking is not for the prospective general reader of the book and, therefore, is cheerfully omitted by this reviewer. All in all, the book provides many interesting hours of reading and is recommended *inter alia* for a summer vacation in the mountains or at the beach when one wishes to refresh himself on what his contemporaries are doing or to prepare for next year's lectures under the heading of "Special Topics in Biochemistry."

SCRIPPS CLINIC AND RESEARCH FOUNDATION
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Radiation Effects in Physics, Chemistry and Biology. Proceedings of the Second International Congress of Radiation Research, Harrogate, Great Britain, August 5-11, 1962. Edited by MICHAEL EBERT, Paterson Research Laboratories, Christie Hospital and Holt Radium Institute, Withington, Manchester, and ALMA HOWARD, British Empire Cancer Campaign, Research Unit in Radiobiology, Mount Vernon Hospital and Radium Institute, Northwood, Middlesex. North-Holland Publishing Company, P. O. Box 103, Amsterdam, Holland. 1963. x + 510 pp. 16 × 23 cm. Price, \$14.00.

The organizers of the Second International Congress of Radiation Research used the rapporteur method for the presentation of about half of the papers submitted. This volume consists of the twenty-five review papers, covering about 300 individually proffered reports. Each of these reviews is accompanied by a brief summary of the discussion which followed the presentation of the rapporteur. Selected references to previously published work have been made by all rapporteurs. Most of the discussions are also accompanied by pertinent citations of the literature.

Of the twenty-five sessions, the following may have more appeal to chemists than to biologists: Primary Species in Water, Solute Kinetics, Radiation Chemistry of Macromolecules, and Chemical Protection in Chemical Systems. A session on Electron Spin Resonance in Biology, as well as two sessions on DNA and one dealing with effects on enzymes, cover areas of mutual interest to chemists and biologists. The presentations of chemical protection at the cellular level and in mammals should also be called to the attention of chemists. The balance of the sessions are of primary interest to biologists, although some individual reports deal with biochemical alterations in radiated animals.

This book provides an up-to-date and representative sampling of the research now being carried on in laboratories throughout the world in the area often called Radiation Biology. It is of primary interest, therefore, to active investigators in this field. Of necessity, the historical aspects of the topics considered receive less attention than is desirable in a book intended to introduce a student to the field. In each case, however, the rapporteur has attempted a synthesis of the material presented at a particular session. The book is well illustrated, and shows skill in both editing and publishing. The editors and contributors are to be congratulated for their promptness in presenting this material.

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