

## Book Reviews

*The Freshwater Fishes*. vol. I. Key to the game and commercial fishes of the Province of Quebec. Vianney Legendre. Quebec Biological Bureau, Montreal, Engl. ed. 1, 1954. 180 pp. *Les Poissons d'Eau Douce*, Tome 1. Deuxième édition française.

This is an excellent book dealing with the identification of the fresh-water fishes of the Province of Quebec. The key characters are splendidly illustrated. There are 74 full-page illustrations of species, mostly reproduced from the State of New York Biological Survey. The distribution of some of the species in the Province is shown on page-size maps. There is a detailed glossary, a partial bibliography, and a complete index. The printing is well done on good paper.

Some ichthyologists may take exception to the systematics, which are apparently based largely on the work of L. S. Berg. Although I am in sympathy with "condensation," I am inclined to be reluctant to make changes until substantial data are presented in support of such. For example, I accept "*Salvelinus namaycush*" in view of the paper by Morton and Miller in *Copeia* [No. 2, 5 May 1954]. On the other hand, I hesitate in regard to the suppression of the family Coregonidae and the genera *Leucichthys* and *Prosopium*. However, these are matters that are open for discussion among specialists and do not detract from the great usefulness of the publication.

The author is to be congratulated on the production of a contribution of outstanding merit.

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*Advances in Protein Chemistry*. vol. VIII. M. L. Anson, Kenneth Bailey, and John T. Edsall, Eds. Academic Press, New York, 1953. 529 pp. Illus. \$10.50.

The arrival of a new volume of *Advances in Protein Chemistry* has become an important event in the biochemical year. The latest of a worthy line, volume VIII maintains the quality of its predecessors. The number of contributors is not large, but the scope ranges from virus reproduction to physical methods. Perhaps the most dominant theme is that of protein synthesis. In three of the papers, those by Borsook, Putnam, and Gale, this vital problem is approached from quite different viewpoints.

Bricas and Fromageot give an exhaustive account of naturally occurring peptides of bacterial, plant, and animal origin. Glutathione is treated in some detail as well as the pteroylglutamic acid family. A useful table of uncommon amino acids is included.

Borsook's study on peptide-bond formation examines the energetics of the process in different classes of peptide synthesis. The question of amino-acid incorporation into proteins by exchange or by synthesis of new protein is discussed.

Putnam contributes a fine article on the nature and reproduction of bacteriophages. As a point of convergence of so many different disciplines, the phages are a fruitful, if difficult, field for survey. Biochemical studies of the infected cell are correlated with the results of electron microscopy and cytological studies, with an emphasis on the isotopic tracer technique.

Gale summarizes the work of his school on the assimilation of amino acids by bacteria and its relation to protein and nucleic-acid synthesis. On the basis of the effect of drugs and antibiotics on these processes, Gale has been able to put forward a tentative integrated scheme.

In an article unusual for the series, Arthur discusses the properties and economic importance of the peanut proteins. Since the annual crop contains about 3 million tons of these proteins, and new applications of this abundant raw material are increasing, particularly in the artificial fiber field, the article is well warranted.

Weber gives the most comprehensive account of his new fluorescence polarization method yet published. The relative experimental simplicity of the method and its independent approach make it a valuable addition to the methods already available in the field of protein molecular shapes and sizes and should insure a far wider application than it has so far enjoyed.

In their paper on zone electrophoresis, Tiselius and Flodin summarize recent developments in the separation of ions on paper by an electric field, a technique that is assuming an importance comparable with paper chromatography. The application to proteins, which is discussed, shows signs of becoming a precise method.

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*A Monograph of the Fungus Genus Cercospora*. Charles Chupp. Charles Chupp, Ithaca, N.Y., 1954. 667 pp. Illus. \$10.

This long-awaited monograph of the genus *Cercospora* is the culmination of more than 30 years of painstaking study by Charles Chupp in field, laboratory, and herbarium in the United States and Europe. Chupp, a distinguished plant pathologist and former president of the American Phytopathological Society, is the recognized authority on *Cercospora*.

The book is prefaced by an exceptionally clear discussion of the characters that define the genus and its species and by definitions of the taxonomic criteria employed in the species' descriptions. More than 1900 species of *Cercospora* are listed according to the principal host attacked; the hosts are arranged alphabetically by family. Each species is fully described, its hosts listed, the type collection identified, the geo-

graphic distribution given, and significant features noted. Wherever several species are reported on a single host genus, a key is given. Many new species, with Latin descriptions, are recorded, as are a number of new combinations. Separate and complete indexes by host and by *Cercospora* species conclude the book. This important treatise, which has been prepared with exceptional care, should be a part of the working library of all plant pathologists and mycologists.

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***The Collected Papers of Peter J. W. Debye.*** Inter-science, New York-London, 1954. xxi+700 pp. Illus. \$9.50.

Debye's classical papers are scattered among many journals covering a period of almost 50 years. The collection in a single volume of 51 of his papers, selected by Debye himself, is an important and welcome addition to the literature of science.

It is almost impossible for present-day natural scientists to be unaware of Debye's work; his theories are included in standard books on many phases of physics and chemistry. An acquaintance with these theories is greatly enriched by reading the original papers. Debye's treatment of a problem, from its historical background to its final solution, displays the refreshing clarity familiar to those who have heard his lectures. Through reading the original papers, one gains an appreciation of Debye's unique ingenuity and resourcefulness in attacking problems where methods more conventional than his had failed.

The book is divided into several sections. The division on "X-ray scattering" contains 11 papers, including the Debye-Scherrer treatment of scattering from crystal powders. The seven papers under "Dipole moments" contain the theories that relate molecular structure and intermolecular forces to the basic electric properties of the molecules. Under the heading "Electrolytes" are 11 papers that develop the famous Debye-Hueckel theory and some of its consequences.

The section on "Light scattering" consists of papers on the development and application of the technique that, in the last 10 years, has probably become the most useful method for obtaining absolute values of molecular weights and dimensions of macromolecules. Somewhat unexpectedly, papers on hydrodynamic properties of polymers and on reaction rates in ionic solutions are also included in this section.

Among the 10 articles in the "Miscellaneous" group are the well-known papers on the specific heats of crystals and on the possibility of reaching very low temperatures by adiabatic demagnetization. These sections also contain two papers that, as technical reports to the Rubber Reserve Company, were hitherto relatively inaccessible: one on the angular dissymmetry of light scattering, the other on the determination of molecular weights by the application of inhomogeneous electric fields.

An introductory section includes a biographic

sketch by R. M. Fuoss, followed by brief introductions to the various sections by H. Mark, C. P. Smyth, and R. M. Fuoss.

Papers originally published in Dutch or German have been translated into English and were reproduced from typescript. Those papers originally in English were reproduced directly from the journals in which they appeared. Typographically, this volume is adequate; the translation is almost flawless. In the very few places where I found the translation awkward, the type uneven, or oversights in proofreading, the meaning of the text was never affected and the clarity never obscured.

*The Collected Papers of Peter J. W. Debye* is highly recommended to the serious student, the teacher, and the research worker interested in gaining an insight into the workings of nature on the molecular level. It is probably no exaggeration to state that these papers have stimulated, directly or indirectly, the greater part of modern research on molecular structure and interactions. Contained in this convenient collection, Debye's papers will be readily available to inspire additional exploration.

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***Dynamics of Growth Processes.*** L. M. Kozloff *et al.* Edgar J. Boell, Ed. Princeton Univ. Press, Princeton, N.J., 1954. vii+304 pp. Illus.+plates. \$7.50.

The Society for the Study of Development and Growth organizes annual symposiums in its field of interest. The 11th Growth Symposium was held in June 1952 at Williams College, in cooperation with the Committee on Developmental Biology of the National Research Council. This volume presents the papers given at that meeting on the subject of dynamics of growth processes. It will be recalled that the earlier symposiums of this series appeared as supplements in the journal *Growth*, and the continuity of the present volume with these earlier publications is especially emphasized by E. J. Boell in his foreword.

The extraordinarily wide range in the scope of the 13 papers that constitute this volume makes the reviewer's task rather difficult. The symposium deals with growth phenomena in viruses (L. M. Kozloff), bacteria (A. Novick and L. Szilard), the cytochemistry of protein synthesis (A. W. Pollister), interactions between nucleus and cytoplasm during growth (G. Fankhauser), differentiation in relation to growth among animals (K. R. Porter) and plants (D. S. Van Fleet), the physical (F. W. Went) and chemical (F. Skoog) regulation of growth in plants, the chemical control of growth in animals (R. Gaunt), the relationship between skeletal growth and development in children (W. W. Greulich), growth rhythms and allometry (D. A. Sholl), hereditary mechanisms in animal growth (G. E. Dickerson), and the mathematical aspects of population growth (F. E. Smith).

Since all the contributors are eminent authorities in their respective fields, the volume undoubtedly rep-