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. Interscience, 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-

resents a most informative and up-to-date summary of the dynamics of growth processes. Each of the articles is followed by a carefully selected list of references, and numerous diagrams and photographs illustrate the text. In my opinion it is regrettable, however, that the formal presentations are not followed by discussions, since the critical analysis of each topic by the other members of this highly competent panel would have been particularly informative. In any event, there can be no doubt that the proceedings of this symposium, like those of its predecessors in *Growth,* can be highly recommended to all those interested in growth phenomena.

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Progress in the Chemistry of Fats and Other Lipids. vol. 2. R. T. Holman, W. O. Lundberg, and T. Malkin, Eds. Academic Press, New York; Pergamon Press, London, 1954. 347 pp. Illus. + plates. $9.80.

The articles contained in this volume, like those in volume I, were originally intended for a new edition in English of the Hefter-Schoenfeld *Chemie und Technologie der Fette und Fettprodukte.* Each chapter is an authoritative survey of a specific area of research on lipids.

Physical aspects are discussed in "The polymorphism of glycerides," by T. Malkin, and "The surface properties of fatty acids and allied substances," by D. G. Dervichian. The first, a continuation of a chapter in volume I, discusses present views on glyceride polymorphism based on thermal and x-ray studies. The second surveys the studies on surface properties of fatty acids, salts, and simple esters of fatty acids, glycerides, and phosphatides. "Autoxidation of fats and related substances," by R. T. Holman, is concerned with the chemical aspects of this phenomenon. Possible mechanisms of autoxidation are discussed in detail.

Biochemical methods are represented by the chapters "Infrared absorption spectroscopy in fats and oils," by D. H. Wheeler, and "Countercurrent fractionation of lipids," by H. J. Dutton. The former is concerned with the utilization of infrared absorption in studying the structures of lipids. The latter is a discussion of the fundamentals of countercurrent distribution, a description of the apparatus used in this method, and a survey of the application of this technique to the fractionation of lipids.

In "Urea inclusion compounds of fatty acids," by H. Schlenk, the physical and chemical properties of these compounds are described. The use of these adducts in fractionating lipids and determining lipid structures is also discussed.

A very comprehensive survey is made by H. J. Deuel in "Nutritional significance of the fats." This deals primarily with the role of fats in physiological functions and with the factors affecting the nutritional value of fats.

This volume is generally well written and thoroughly documented. It would be an excellent addition to the library of anyone actively engaged or generally interested in lipid research.

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Organic Chemistry. Reynold C. Fuson and H. R. Snyder. Wiley, New York, and Chapman & Hall, London, 1954, ed. 2. viii + 544 pp. Illus. $6.50.

This new edition of a well-known college textbook in introductory organic chemistry is very similar to the first edition in size, in the arrangement and titles of its chapters, and in the presentation of a unified treatment of aliphatic and aromatic compounds. The plan of presenting in the early chapters a bird's-eye view of the general field of organic chemistry, followed by a more mature and well-rounded treatment in the subsequent chapters, is retained; but the new edition is not formally divided into part I and part II as was the first edition.

By eliminating sections on methods of preparation and by using cross references to reactions previously studied, rather than duplicating the reactions, space has been provided in the new edition for new material. In making these changes, the authors have given special emphasis to the inclusion of theoretical material and to the more extensive treatment of several topics, such as the reactions of halogen compounds and polymerization.

As in the first edition, much of the second half of this book is devoted to the reactions of certain functional groups. The reactions are grouped and treated according to type rather than discussed on the basis of common starting materials, end-products, or utilization in industry and allied fields of science. Whereas this feature of the earlier edition has been found attractive by teachers of organic chemistry, particularly those whose classes are made up mainly of students preparing for a professional career in organic chemistry, I feel that many of the students who take a full-year course in organic chemistry in preparation for medicine or engineering will find several of the chapters in this portion of the book too detailed and exhaustive in reaction coverage. Not enough attention is given to the development of the ideas and concepts that have become the basis for reasoning in structural and functional organic chemistry. Modern mechanistic concepts are used in explaining many of the reactions, but little or no basis for accepting such concepts is developed. For example, no clear exposition of the concept of resonance is offered; and the role of energy, varying bond strengths, and dipole moments in organic reactions is completely ignored. In my experience, most students, including prechemists, find that the development and use of such ideas and concepts in introductory organic chemistry are much more stimulating than the task of learning or cataloging all the many reactions of a particular functional group or type of compound.