Rosenbloom. Some of the papers are the usual type of research papers, complete with detailed definitions and proofs; others give a review of recent advances made by their authors and their associates or announce results of work that is in progress. Most have extensive bibliographies appended to them.

Taken together, the papers give a fairly comprehensive picture of the progress that has been made in the theory of partial differential equations during the last 10 years, at least in this country. The progress is impressive. It is concerned with the classification of partial differential equations of higher order and of systems with respect to their type, roughly elliptic, parabolic, or hyperbolic, the appropriateness of various problems for each of these types, the function-theoretic behavior of the solutions, with the most emphasis on their regularity properties, but with some attention to their singular behavior, the "coherence" of the solutions with the coefficients of the equations and with the initial and boundary data. It is remarkable to what extent these specific problems of classical analysis are attacked by the concepts and the methods of modern abstract functional analysis. Although this volume will probably be studied only by those who work in this or a related field, it is an important guide to present research in this very active and fascinating branch of mathematics.

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Mosquitoes: Their Bionomics and Relation to Disease. William R. Horsfall. Ronald Press, New York, 1955. viii + 723 pp. $16.

William Horsfall has given, in this book, a general review of the literature on mosquito biology, with particular emphasis on studies of life-histories and behavior and on relationships with disease-producing organisms. The material is arranged by taxonomic categories. There is a discussion, some 40 pages long, of the general characteristics of the subfamily Culicinae, followed by summaries of the pertinent literature on each genus and species. The author's intention seems to be to supply a reference book for mosquito workers, rather than a review for general biologists. The book forms a sort of gigantic abstract and index of the mosquito literature, with little attempt at evaluation or generalization. This indeed is almost automatically precluded by the taxonomic arrangement of materials.

The coverage of the literature is thorough and the material, particularly in relation to phenomena of disease transmission, is frequently arranged in convenient tabular form. It is unfortunate, from the point of view of reference, that the bibliography is given in skeleton form, without titles of journal articles. This makes it difficult for the user of the book to decide which citations to look up when he is searching for further material on a particular topic. Further, there is no author index and no subject index to topics such as oviposition, food behavior, light reactions, and the like. The material is clearly enough arranged under each species, but the user, to find this, must know which mosquito species are likely to have been studied from this point of view. The book thus presupposes a considerable knowledge of mosquitoes on the part of the user; for people with such background, it will be a great convenience.

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Degradation of Vinyl Polymers. H. H. G. Jellinek. vol. III of *Physical Chemistry,* A series of monographs. Eric Hutchinson, Ed. Academic Press, New York, 1955. 329 pp. Illus. $8.50.

Synthetic polymers are extremely important to our modern civilization. This is evident when we consider the enormous amounts used as plastics, rubbers, and textiles. Unfortunately, their chief disadvantage is often a susceptibility to chemical changes in relatively short periods of time owing to heat, light, and oxygen or other chemicals in the air, which render them less and less useful. Considering the greatly increased production of these materials and our increasing dependence on them, it is apparent that investigations of the type reviewed in this book are of great value in promoting more intelligent and efficient utilization of such materials.

Numerous chapters on this subject have appeared in other books on polymers and related subjects during the period of the last 20 years. However, this book comes at a time when the number of studies on the decomposition of polymers by a variety of means—thermal, light, atomic radiation, ultrasonics, and chemical—is increasing at an accelerated pace.

This book attempts not only to review the formal kinetic theories of degradation but also to discuss possible actual mechanisms. Although it is quite free of trivial errors, it reveals apparent discrepancies and inconsistencies upon close inspection. The formal kinetics are fairly well presented, but the viewpoints subsequently expressed, such as the frequent implication that a rate of volatilization depending linearly on the mass of polymer (so-called "first order") proves chain end initiation, are often not tenable. In the appendix the afore-mentioned behavior suddenly means independence of rate of volatilization—that is, monomer formation—of chain length. An additional conclusion that the degradation of polystyrene initiates at chain ends is also on a highly tenuous basis in my opinion. It is felt that in view of possible variations owing to different methods of polymer preparation, all conclusions on decomposition mechanisms should have been extensively qualified. Although this consideration is mentioned, relatively briefly, it appears to have been forgotten in many cases.

The author, in general, makes many positive statements without qualification, ignoring in the process possible alternative mechanisms. In this respect, the book is somewhat superficial. For the worker new to the field it should provide an excellent starting point, the coverage of the literature being as complete as could reasonably be expected.

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Advances in Food Research. vol. V. E. M. Mrak and G. F. Stewart, Eds. Academic Press, New York, 1954. x + 538 pp. Illus. $11.50.

Like the preceding volumes in this series, volume V gives a masterful coverage of certain scientific and technologic aspects of foods. There are seven articles dealing with various fundamental and applied problems. These include the oxidative changes in fats and heme pigments that lead to rancidity and discoloration in meat, chemistry of the sugar-sulfite reaction and the use of sulfur dioxide in the preservation of fruit and vegetable products, flavonoids, color measurements, organic constituents of wines, and concepts in statistics and methods of calculation in food research. Each article is well organized and systematically presented, with a comprehensive bibliography that includes the titles. The article on wines contains approximately 1000 references.

Of the 11 authors, 10 are connected with academic institutions. One is an Englishman; the others live in the United States. Two of the writers belong to the editorial board of *Advances in Food Research.* All are specialists in the subjects for which they are responsible.

The format of the book and the quality of the writing are particularly good, but there are a few errors. Occasionally