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

there is lack of sufficient clarity and accuracy, as if the authors had referred to reports in the literature without verifying their sources or without thinking critically about some of the findings reviewed. For example (p. 457), it is stated that one investigator has found that "grapes supply (on the average) only 3% of the daily nutritive requirements (of vitamins, calcium, and iron) for adults." In the context of the book this has no meaning. Also, it is stated in a few places that grapes and wines contain some vitamin A. It would have been more accurate to distinguish vitamin A from precursors of this vitamin.

This volume adheres to the general objective of the series, which is "the coordination and integration of food research to promote an orderly and systematic development of scientific knowledge in this important field." The articles should be of interest and great value to a rather wide variety of persons with chemical training who are concerned with food research and technology.

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Connective Tissues. Transactions of the Fifth and Final Conference. Charles Ragan, Ed. Josiah Macy, Jr., Foundation, New York, 1955. 222 pp. Illus. + plate. $4.25.

The fifth and final Josiah Macy, Jr., Foundation conference on connective tissue is presented in three excellent chapters: "The exchange of materials between blood vessels and lymph compartments," by Benjamin Zweifach; "Interstitial water and connective tissues," by Mario Gaudino; and "Hormonal effects on connective tissues," by Gustav Asboe-Hansen.

There are actually four chapters in this volume, since a section devoted to introductory remarks consumes 24 interesting pages of repartee. In this section the participants discuss their current avenues of research and the ideas behind them.

This conference is presented in the usual verbatim form of the preceding volumes. It differs, however, in that the questions asked of the speaker, and the facts inserted by the participants are much more pertinent and informative than in some of the other conferences.

The factual and speculative material presented is so diversified and yet so relevant to the problems being discussed that I find it next to impossible to amplify upon or summarize the data given. The lists of references after each chapter are quite adequate. An index to subjects covered in all five conferences is included in this volume.

In contrast to the report of the Fourth Conference on Connective Tissues, *this* volume is a definite contribution to the general field of connective tissues.

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New Books

Trees and Shrubs of the Upper Midwest. Carl Otto Rosendahl. Univ. of Minnesota Press, Minneapolis, rev. ed. 2, 1955. 411 pp. $6.

Essentials of Biological and Medical Physics. Ralph W. Stacy, David T. Williams, Ralph E. Worden, and Rex O. McMorris. McGraw-Hill, New York–London, 1955. 586 pp. $8.50.

Highway to the North. Frank Illingworth. Philosophical Library, New York, 1955. 293 pp. $7.50.

Laboratory Studies in Biology: Observations and Their Implications. Chester Lawson, Ralph Lewis, Mary Alice Burmester, and Garrett Hardin. Freeman, San Francisco, 1955. 328 pp. $3.50.

Everything and the Kitchen Sink. How the first century of industry created our first century of good living. Farrar, Straus & Cudahy, New York, 1955. 160 pp. $4.

Horticultural Science. A reading and laboratory manual. Gordon T. Nightingale. Horticultural Publications, Rutgers Univ., New Brunswick, N.J., 1955. 111 pp.

Dielectric Behavior and Structure. Dielectric constant and loss, dipole moment and molecular structure. Charles Phelps Smyth. McGraw-Hill, New York–London, 1955. 441 pp. $9.

The Pharmacological Basis of Therapeutics. Louis S. Goodman and Alfred Gilman. Macmillan, New York, ed. 2, 1955. 1831 pp. $17.50.

Chemical Properties of Organic Compounds. An introduction. Elliot N. Marvell and Albert V. Logan. Wiley, New York; Chapman & Hall, London, 1955. 326 pp. $4.75.

Hydraulic Operation and Control of Machines. Ian McNeil. Ronald, New York, 1955. 324 pp. $7.50.

Technical Supplement to the Bomb Survival and You. Fred N. Severud and Kurt Bernhard. Reinhold, New York, 1955. 45 pp. $2.50.

The Interpretation of Dreams. Sigmund Freud. Trans. by James Strachey. Basic Books, New York, 1955. 692 pp. $7.50.

Scientific Method in Psychology. Clarence W. Brown and Edwin E. Ghiselli. McGraw-Hill, New York–London, 1955. 368 pp. $6.

Alcoholics Anonymous. The story of how many thousands of men and women have recovered from alcoholism. Alcoholics Anonymous, New York, ed. 2, 1955. 575 pp. $4.50.

A Statistical Study of Livestock Production and Marketing. Cowles Monogr. No. 15. Clifford Hildreth and F. G. Jarrett. Wiley, New York; Chapman & Hall, London, 1955. 156 pp. $4.50.

Miscellaneous Publications

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

Training Highway-Department Personnel. Highway Research Bd. Bull. 103. Natl. Acad. of Sciences–Natl. Research Council, Washington, 1955. 16 pp. $0.45.

Irrigation of Cotton in Arkansas. Bull. 552. D. A. Brown, R. H. Benedict, and B. B. Bryan. Agr. Expt. Sta., Univ. of Arkansas, Fayetteville, 1955. 40 pp.

National Sanitation Foundation. Ten year report, 1945–54. School of Public Health, Univ. of Michigan, Ann Arbor, 1955. 96 pp.

Hydrocarbon Losses from the Petroleum Industry in Los Angeles County. Rpt. No. 5. Air Pollution Foundation, Los Angeles, 1955. 22 pp. $1.50.

Asia Is Our Business. Studies in business and economics, vol. 9, No. 1. Bur. of Business & Economic Research, Univ. of Maryland, College Park, 1955. 15 pp.

Amphipoda Collected at the Arctic Laboratory, Office of Naval Research, Point Barrow, Alaska. G. E. MacGintie. Smithsonian Misc. Coll., vol. 128, No. 1. Clarence R. Shoemaker. 78 pp. **Sixty-Year Weather Forecasts.** No. 3. C. G. Abbot. 22 pp. **Periodic Solar Variation.** No. 4. C. G. Abbot. 20 pp. Smithsonian Institution, Washington, 1955.

Allergy and Anaphylaxis. Keizo Nakamura. Nippon Medical School, Tokyo, Japan, 1954. 114 pp.

Unified Symbolism for World Understanding in Science, Including Bliss Symbols (Semantography) and Logic, Cybernetics and Semantics. Oliver L. Reiser. Semantography, Sydney, Australia, 1955. 52 pp.

Comparative Cost Studies of School Buildings. vol. XLVIII, No. 7. Clinton H. Cowgill. Virginia Polytechnic Inst., Eng. Expt. Sta., Blacksburg, Va., 1955. 42 pp.

Credit Courses by Television. American Council on Education, Washington 6, 1955. 50 pp. $1.

Investigations on Genetic Aspects of Carcinoma of the Stomach and Breast. Publ. in Public Health, vol. 2, No. 4. Charles M. Woolf. 85 pp. $1. **A Systematic Study of the Genus Aphytis Howard (Hymenoptera, Aphelinidae) with Descriptions of New Species.** Publ. in Entomology, vol. 10, No. 4. Harold Compere. 49 pp. $0.75. **Morphology and Biology of Sturmia harrisinae Coquillett (Diptera), a Parasite of the Western Grape Leaf Skeletonizer.** Publ. in Entomology, vol. 10, No. 5. Owen J. Smith, Paul H. Dunn, and John H. Rosenberger. Univ. of California Press, Berkeley, 1955.

Insects of Micronesia Bibliography. vol. 2. Teiso Esaki, E. H. Bryan, and J. L. Gressitt. Bernice P. Bishop Museum, Honolulu, 1955. 68 pp.

Government in Economic Life. 35th annual report. Solomon Fabricant. Natl. Bur. of Economic Research, Inc., New York, 1955. 78 pp.

Proceedings of the Third Medical Conference of Muscular Dystrophy Associations of America, Inc. The Associations, New York, 1954. 324 pp.