

NEW BOOKS

Starch and Its Derivatives

J. A. RADLEY. John Wiley & Sons, New York, 1954. Volume I, xi + 510 pages; Volume II, xi + 465 pages. \$10.00 per volume. Reviewed by EUGENE F. PASCHALL, Corn Products Refining Co., Argo, Ill.

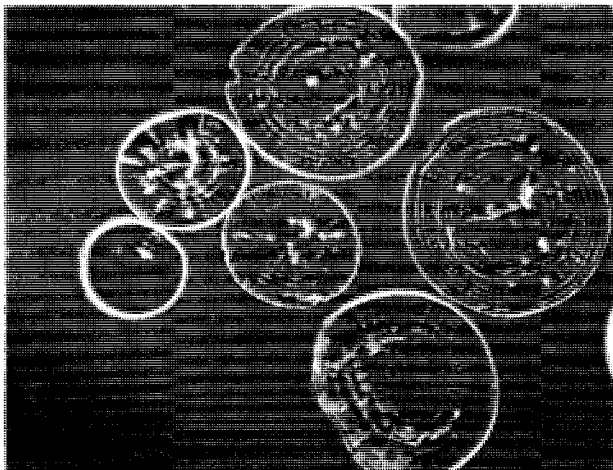
The third edition of "Starch and Its Derivatives" edited by Radley appearing for the first time in two volumes is in most respects an excellent review of the chemistry and technology of starch and its derivatives up to about 1948. Several new chapters by internationally known starch chemists have been added which greatly broaden the scope of the book particularly with respect to the more fundamental aspects of starch chemistry. The various viewpoints relating to the structural characteristics of starch and its components are adequately reviewed from both the English and American viewpoints.

Volume I deals primarily with the structure of starch and the physical and chemical behavior of starch and the starch fractions followed by a lengthy discussion of the amylases and their action on starch.

Volume II is devoted to the manufacture and industrial utilization of starch and starch products.

As may be expected, the chapters vary considerably in mode of presentation, coverage of material, etc., because of the many contributors. An informative and interesting introduction to the book concerning the occurrence, synthesis, and enzymatic hydrolysis of starch is ably presented by S. Peat in the chapter "The Biological Function of Starch." The

Structure of starch granules following enzymatic digestion revealed by micro-photography



excellent chapter "Structure of Starch from Chemical Evidence" by Hough and Jones adequately covers the more important contributions relating to starch structure to 1950.

The new chapter "Starch Fractions" by Schoch is undoubtedly the most comprehensive treatment of this subject yet presented; various methods used in starch fractionation and fraction characterization are presented in an interesting manner by an authority on this subject.

An extensive bibliography covering all phases relating to the subjects of starch fractionation is presented. The chapter by Hixon and Brimhall "The Waxy Cereals and Starches Which Stain Red with Iodine" is an outstanding feature of the book.

A historical review thoroughly documented with references of the genetics of waxy cereals and starches is presented which should be of interest to all starch chemists.

Bice and Geddes have contributed a valuable chapter concerning the perplexing and largely unsolved problem of the staling of bread.

Such topics as methods for evaluating bread staling, starch retrogradation as related to staling, and control of bread staling are discussed utilizing most of the related literature. Other chapters such as "Corn Starch Manufacture" by R. W. Kerr, "Production of Chemicals from Starch and Fermentation Processes" by Christensen and Underkoffer, "Starch and the Hydrogen Bond" by G. F. Caesar, "Starch Retrogradation" by Roy Whistler, and "Oxidized Derivatives of Starch" by E. F. Degering are commendable contributions.

About half of the two volumes was written by the editor, J. A. Radley, and the context in many instances has not been changed from the material contained in the second edition. The chapter on amylases and their action on starch are very informative and worthwhile reading.

The principal shortcoming of the book is the time elapse between preparation of manuscript and publication. In some instances, however, the contributing authors were able to write or revise their manuscript just prior to publication. This has been dealt with in the author's preface.

On the chapters, "Amylases and Their Action on Starch," the author may be criticized for not using consistent nomenclature when referring to the branched and unbranched fractions of starch. Such antiquated terms as amyloamylose, erythroamylose, α -amylose, and β -

amylose are employed which are confusing to the casual reader.

The chapter "The Esters of Starch" more appropriately should have been called "The Acetate Esters of Starch" since practically all of the material is devoted to starch acetates. In some instances experimental details are presented which would appear to defeat the author's purpose of a concise and authoritative presentation.

This third edition of "Starch and Its Derivatives" will be of value to graduate students of starch chemistry and industrial chemists alike. A thorough treatment of all phases of starch chemistry is available in this book.

Quality Control

NORBERT L. ENRICK, Second enlarged edition, 181 pages. The Industrial Press, 148 Lafayette St., New York, N. Y. 1954. \$4.00. Reviewed by HOWARD L. STIER, National Canner's Association, Washington, D. C.

This edition has been enlarged over the first edition, which was published in 1948, by the addition of Part II which contains a discussion of: Product Variability; Control Charts Computed from Center Lines; Acceptance Control Charts; Control Charts for Per Cent Defective Product; Analysis of Variance.

The addition, in Part II, of illustrations from continuous and semicontinuous processing operations extends the general scope and usefulness of the textbook.

Although the book is intended primarily for inspection personnel it will also be found to be a useful manual for anyone wishing to become familiar with the procedures of statistical quality control.

The addition of a chapter on analysis of variance makes this second edition especially useful for the inspector or other person who is not familiar with this very powerful tool of statistical analysis. As in the rest of the book, the presentation in this chapter is nonmathematical, and describes a simplified approach to the use of analysis of variance. This reviewer believes that much could have been added to the value of the chapter by the addition of other simplified analysis of variance techniques such as Tukey's procedure.

For one who wants to become familiar with statistical quality control techniques with a minimum amount of technical statistics and mathematical formulae, then this book can be a good starting point. It can serve as a manual for the

inspector who is concerned with controlling the quality in a piece-parts manufacturing operation. The direct value to chemists and those in related fields is somewhat limited because of the lack of coverage of such items as experimental design, and some of the more commonly used methods of analyzing experimental data.

For example, the book contains nothing concerning use of chi-square or correlation and regression, both of which might be quite valuable to a chemist or other biological research worker who is also engaged in quality control work. However, despite these limitations, the book has much of value and for the uninitiated chemist or research worker it offers a clear, understandable presentation of statistical quality control techniques.

Food Products and Processes

Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. \$1.00.

This publication contains a listing and abstracts of government owned inventions applicable to the food industry.

The listings are classified as to industrial listing in thirteen groups: meat products; dairy products; fruit and vegetable products; grain products; sugar; confectionary products; beverages; leavening compounds; fats and oils; starches; flavoring extracts and fruit juices; pectin derivatives; food product machinery and apparatus.

The government owned patents covered in the book are ordinarily available to the public on a royalty free license basis.

Quality and Stability of Canned Meats

Edited by ROBERT G. TISCHER, JAMES M. BLAIR, AND MARTIN S. PETERSON. A symposium sponsored by the Quartermaster Food and Container Institute for the Armed Forces, Quartermaster Food and Container Institute, 1819 West Pershing Road, Chicago 9, Ill.

The symposium discussed in this publication was set up to obtain information which would be of value in improving the quality of canned meats processed for the armed forces. Scientists from government, industry, and universities participated in the exchange of information covering the technical aspects of canning as well as practical discussions on manufacturing techniques.

Copies of the proceedings are available without charge to those who are concerned with the problems of stability of canned meats.

ASSOCIATIONS FORUM

Seaweed Symposium in Norway Next Summer

The second International Seaweed Symposium is being planned by the Norwegian Institute of Seaweed Research. It will be held, July 1 through 16, 1955, in Trondheim, Norway, at the Norges Tekniske Hogskole.

Papers on the following main subjects will be accepted, according to present plans: chemistry of seaweeds, including methods used in the study of seaweed products; technical subjects connected with harvesting and industrial exploitation of seaweeds; experimental studies of the nutritional value of seaweed products; and algological studies on species which are used or may be expected to be used in industry. The institute states that papers would preferably be read in English.

Scientific Editorial Conference To Be Held at Berkeley

The third Conference on Scientific Editorial Problems will be held Dec. 29 and 30 on the campus of the University of California at Berkeley, according to the chairman of the Conference, Marian Fineman, Chief, Editorial Branch, Dugway Proving Ground, Dugway, Utah. The conference is a permanent feature of the annual meetings of the American Association for the Advancement of Science. Sessions will be held in Room 125, Hilgard Hall, on the University campus.

Cereal Chemists Announce 1955 Meeting for May 15-19

The American Association of Cereal Chemists will hold its 1955 annual meeting during the week of May 15 to 19, at the Chase Hotel, St. Louis, Mo.

William B. Bradley, American Institute of Baking, Chicago, will be chairman of the technical program, and Emery C. Swanson, Pillsbury Mills, Inc., Springfield, will be in charge of local arrangements.

Chemurgic Council Schedules March Conference

The National Farm Chemurgic Council will hold its annual chemurgic conference at the Deshler-Hilton Hotel, Columbus, Ohio, March 22 to 24, 1955, it is announced by Henry T. McKnight, president. Latest developments in agricultural research will be the chief topic.

John W. Ticknor, National Farm Chemurgic Council, 350 Fifth Ave., New York, is conference chairman.

Southeast Weed Conference in St. Petersburg in January

The Southeastern Weed Control Conference has set its eighth annual meeting for Jan. 17 to 19 at the Hotel Soreno in St. Petersburg, Fla.

Although program details are not yet released, the agenda will include sections on weed control in field crops, cotton, and horticultural crops. Also planned are sessions on agricultural engineering problems in weed and brush control, physiological problems in herbicidal investigations, control of weedy plots, and special weed problems.

Brewing Chemists to Meet in May in Philadelphia

The American Society of Brewing Chemists has announced that its next annual meeting will be held in Philadelphia from May 1 through 5, 1955. Headquarters will be the Hotel Bellevue-Stratford.

CALENDAR

Chemical Specialties Manufacturers Association. New York. Dec. 6-8.

North Central Weed Control Conference. Gardner Hotel, Fargo, N. D. Dec. 6-9.

American Institute of Chemical Engineers. New York. Dec. 12-15.

Southwest Regional Meeting, American Chemical Society, Fort Worth, Tex. Dec. 2-4.

Agricultural Ammonia Institute. Jung Hotel, New Orleans, La. Dec. 5-8.

Entomological Society of America. Houston, Tex. Dec. 6-9.

Northeastern Weed Control Conference. Hotel New Yorker, New York, N. Y. Jan. 5-7, 1955.

Southeastern Weed Control Conference. Soreno Hotel, St. Petersburg, Fla. Jan. 17-19, 1955.

American Association of Cereal Chemists. Chase Hotel, St. Louis, Mo. May 15-19, 1955.

International Seaweed Symposium. Trondheim, Norway. July 1-16, 1955.