procedures for the preparation of the alcohols and some of their derivatives. The interrelation of carbohydrate and fat metabolism is reviewed by Deuel and Morehouse, who not only present evidence for the conversion of carbohydrate to fat and the alleged reverse transformation but also include a rather complete discussion of ketolysis versus antiketogenesis. In the review of mucopolysaccharides and mucoproteins, by Stacy, an excellent classification of the various complexes is presented. Evans and Hibbert, in their review of bacterial polysaccharides, emphasize the complexity of the problems, although indicating that definite progress is being made in this difficult field. The chemistry of the pectic materials is reviewed by Hirst and Jones, while McDonald discusses polyfructosans and difructose anhydrides. Many properties of these sugars and their derivatives are listed. The final review, contributed by Haskins, concerns cellulose ethers of industrial interest.

The book is especially valuable because the authors are actively working in the fields concerned. Each reviewer gives an historical background in the subject discussed. Such information is, of course, available in the literature, but a concise summary is always to be desired. The volume is well edited and contains a wealth of material essential to anyone interested in the field of carbohydrate chemistry.

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Advances in enzymology and related subjects of biochemistry. (Vol. VI.) F. F. Nord. (Ed.) New York: Interscience Publishers, 1946. Pp. x + 563. (Illustrated.) $6.50.

Like its predecessors, this volume contains critical documented summaries of the advances in the borderland between physical and biological chemistry, physiology and microbiology.

In "The Bacterial Amino Acid Decarboxylases," E. F. Gale discusses the conditions necessary for their formation, the cell-free preparation of them, their properties, and their resolution into apo- and coenzymes. Pyridoxal phosphate appears to act as coenzyme for the four known decarboxylases; in acid solution it may have a protective function. M. G. Sevag reviews "Enzyme Problems in Relation to Chemotherapy, 'Adaptation,' Mutations, Resistance, and Immunity." "Adaptive" enzymes do not exist; unfavorable metabolic environment merely reduces the activity of enzymes already present. The biochemical changes in increased resistance to unfavorable conditions appear genetically to be regressive processes; the development of new strains implies acquisition, by a recessive cell, of genetic factors from cells of a higher order. D. W. Wooley, writing on "Biological Antagonisms Between Structurally Related Compounds," states that these can in most cases be explained by the displacement hypothesis.

"Adenosine Triphosphate Properties of Myosin" is the contribution of V. A. Engelhardt. These are such that all of the ATP in muscle could be split by myosin in one second. Conditions responsible for the inaccessibility of ATP are considered, and a tentative scheme for the sequence of events is proposed. In "States of Altered Metabolism in Diseases of Muscle," by C. L. Hoagland, are included atrophy, hypertrophy, and diseases of voluntary muscle in man. "Acetyl Phosphate," discussed by F. Lipmann, plays a role in the metabolism of bacteria and of animal tissues; the chemical and energetic relations are surveyed. In "Microbial Assimilations" C. E. Clifton includes those of carbon, carbon dioxide, and nitrogen, as well as the influence of poisons and of genetic factors. W. G. Frankenburg writes on "Chemical Changes in the Harvested Tobacco Leaf." In the curing process these changes affect the static, nitrogen, and dynamic groups in the leaf and are the result of the action of the leaf enzymes. "The Actions of the Amylases," by R. H. Hopkins, and "The Amylases of Wheat and Their Significance in Milling and Baking Technology," by W. F. Geddes, survey the properties of the amylases, their occurrence and assay, and their significance in breadmaking. K. C. D. Hickman and P. L. Harris, in "Topocopherol Interrelationships," suggest a general shortage in the American diet, as well as many synergistic relations which warrant greater consideration, but it is difficult to disentangle fact from theory and vitamin from covitamin.

An author index (22 pp.) and a subject index (13 pp.) add to the usefulness of the book.

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Vitamins and hormones: advances in research and applications. (Vol. IV.) Robert S. Harris and Kenneth V. Thimann. (Eds.) New York: Academic Press, 1946. Pp. xvii + 406. (Illustrated.) $6.80.

This volume will undoubtedly enjoy the same wide acceptance and use as have the preceding volumes. It is not a review in the usual sense, since only a limited number of subjects are treated. However, each subject is covered comprehensively, aiming to give both detail and a broad understanding of the subject. Cross indexing and extensive bibliographies increase its value as a reference book.

Many of the subjects treated are quite timely because of widespread interest in their practical applications. The section on "The Newer Hematopoietic Factors of the Vitamin B Complex" is especially timely because of the recent demonstration that pteroylglutamic acid (folic acid, *L. casei* factor, etc.) has antianemic activity in man. It is unfortunate that this review was written before many of the clinical results became available. However, the authors were able to append a few paragraphs summarizing these recent developments.

The section on "Thyroactive Iodinated Proteins" is also quite timely, since the use of these substances to increase yields of milk and eggs is receiving considerable attention in agricultural circles. Details as to methods of preparation, properties, and methods of assay are given.

To those who have been confused by the many apparently conflicting results the section on "Nutrition and Resistance to Infection" should be of help. The author has reviewed the available evidence in a critical fashion and has indicated certain basic considerations important to a general understanding of the problem.

The volume includes a unique article on "Manifestations of Nutritional Deficiency in Infants." The author has apparently had unusual opportunities to study this subject and has collected information which should be useful to both nutritionists and pediatricians.