Reviews of Recent Books

Food for Life, edited by Ralph W. Gerard, The University of Chicago Press, Chicago, 1952, pp. 306, $4.75.

This presentation of the science of nutrition is especially excellent because it includes the necessary background of physiology and biochemistry, making for a complete story rather than the usual type of fragmentary picture.

Not a nutritional handbook, this is an exposition of the scientific bases of nutrition. The text is written and beautifully illustrated with dramatic cartoons and graphs, so that the various aspects of nutrition such as digestion, metabolism, control of metabolism by enzymes and hormones, bioenergetics, and the fundamental concepts of human nutrition may be understood by the lay reader. Throughout the text the authors have compared the complex human engine with the mechanical engine. The analogy cannot hold in many instances, but that fact alone permits the reader to appreciate the wonders of the animal body and the relationship of physiological and biochemical function to nutrition. This is further emphasized by demonstrating what the body needs, what foods supply these needs, and how the body converts these foods into its own substance and into energy for life's activities.

The introductory chapter, *The Basic Questions of Nutrition,* poses for the lay reader those questions which have guided research workers in their investigative activities along the bypaths of nutrition. The succeeding chapters attempt to answer these questions in the light of modern knowledge. The nutrient materials of foods are discussed in detail. This is followed by a discussion of the methods by which the human body prepares the ingested food for absorption by the cell and to take part in the multiple metabolic activities of the cell. Of course the authors, rightly enough, do not neglect the role of food selection, food preparation, and food supply in the overall problem of nutrition. The intermediate metabolic processes inside the cell are discussed next. Of particular importance is the introduction of the basic concept of the *Metabolic Pool.* The chapter is concluded by a discussion of the interrelation of carbohydrate, fat, and protein metabolism.

The two chapters which follow deal with the regulation of cell metabolism. The role of enzymes and hormones in the control of biochemical reactions is discussed in detail. The dietary sources of coenzymes and the relationship of malnutrition, undernutrition, and cellular metabolism are presented. In this way the authors develop the idea of the dietary deficiency and the metabolic block. Finally, the level of regulation reaches the steering stage. The body has been set in motion by energetic and enzyme mechanisms, and now the hormones are discussed as the physiological forces which tend to keep the cell along the proper metabolic pathway.

Finally, the authors consider the purpose of nutrition: to provide energy for life processes, and to provide raw materials for tissue growth and tissue repair. Along with these fundamental aspects they present information on the requirements for energy, the expenditure of energy, and the methods for measurement of physiological energy exchange during normal physiological activities. Here again the authors discuss the role of hormones and the endocrine glands in controlling biochemical equilibrium during periods of growth or of the steady state.

The closing chapters of the book discuss nutritional problems confronting man. The chapter on the food of man discusses the evolution of the human diet. The final chapter, *The Improvement of Human Nutrition,* discusses the present trends in human nutrition—how our diet compares with the known recommended requirements. It also considers how our diet will relate to our physiological well-being in our later years, that is, over 65 years of age. The book closes with a realistic discussion of food problems for the future and the universal need for nutritional educational programs throughout the world.

This book with its clear exposition and superb diagrams should be found in every physician's bookcase for his own use and his patients'.

CARL ALPER

General Biochemistry by W. H. Peterson and Frank M. Strong, Prentice-Hall, Inc., New York, 1953, pp. 469, $8.65.

This textbook is a good introduction to the subject of biochemistry for the student of nutrition. Although the text is brief, the subject matter covers the whole field of biochemistry, encompassing mammalian, plant, and microbiological biochemistry. The presentation is assisted by a text replete with tables and figures. In addition, the authors provide material for future study by incorporating at the end of each chapter a set of review questions and references to other textbooks, monographs, review articles, and current periodicals.

Interestingly enough, the authors take note of the primary role of water in metabolism and structure by discussing it first in their consideration of the composition of tissues. A substance which comprises 70 per cent of the lean body mass deserves this emphasis.

From the point of view of nutrition, the chapter on acidity contains an excellent discussion of acid- and base-forming foods. The chapter also contains a résumé of the method of analysis for a given constituent in biological materials.

The chapter on mineral composition contains a very useful table of the specific organic compounds of mineral elements in plant and animal materials and some excellent pictures of mineral deficiencies in plants and animals.

The section on enzymes contains a very interesting table of enzyme classification in which many important biochemical reactions are discussed, indicating the substrate, product formed, and the necessary cofactors. The discussion on coenzymes is up to date and contains information on lipoic acid, lipothiamide pyrophosphate, and coenzyme A.

The chapters on animal metabolism, plant metabolism, and metabolism of micro-organisms are brief but exceedingly well done. The diagrams of the metabolic cycles indicate the required cofactors and the equilibrium of each individual reaction where known. The authors discuss not only the metabolic cycles but also the fundamental biochemical and bioenergetic significance of each set of reactions. Finally, they discuss the overall net effect of each metabolic cycle.

The section on metabolism is followed by a chapter on Biological Energetics which is not usually included in an elementary textbook. The authors discuss the relationship of bioenergetics to muscle contraction, the generation of high energy phosphate bonds in metabolism, and the determination of energy exchange in biological systems from calculations of heats of combustion of essential metabolites.

The four tables contained in the appendix are of special value to all nutritionists. The tables describe the composition and energy value of foods.

CARL ALPER

The Year Book of Endocrinology, edited by G. S. Gordon, M.D., Ph.D., The Year Book Publishers Inc., Chicago, 1954, pp. 390, $6.00.

In this volume can be found many of the important contributions from foreign and domestic journals dealing with endocrine and metabolic disorders. The abstracts prepared from the original articles are quite thorough, providing the essential details of studies performed or treatments employed. The usefulness of the book is enhanced by the inclusion of the actual dosages of the preparations, making it unnecessary to refer to the original paper in most instances. In addition to providing a review of the endocrine literature from 1953, there are running commentaries on the contributions prepared by the editor, presenting his authoritative opinions upon the subjects under discussion. This feature aids in the crystallization of the reader's thoughts on a given topic by presenting data from older literature or by comparing the principles outlined in the abstract with those of other workers in the field. Preceding each section devoted to a specific endocrine organ, the editor has discussed in general terms the most recent advances relating to the gland, its functions, and metabolic interrelationships. An additional section on the endocrine treatment of neoplastic diseases is included. This book will serve as an excellent reference source for practitioners and students of endocrinology, providing a well-integrated coverage of the recent literature in this field.

C. R. SHUMAN

Symposium on Protein Metabolism (*Nutrition Symposium Series No. 8*), edited by E. W. McHenry, National Vitamin Foundation, Inc., New York, 1954, pp. 103, $1.50.

This is a report of seven of the papers given at the Nutrition Foundation Symposium on October 30, 1953. Papers reported include: The Relation of Vitamin B_6 and Riboflavin to Protein Metabolism; The Interrelationship Between Vitamin B_{12}, Steroids, and Proteins; Role of the Vitamins in Antibody Production; Effects of Growth Hormone Preparations on Protein Metabolism; The Amino Acid Requirements of Man; Factors Influencing Amino Acid Utilization in Tissue Protein Synthesis; and Amino Acids and Protein in Therapy.

For the subjects covered, this is an excellent little review of vitamins and protein metabolism. The articles are concise, the original work is presented clearly, and the references in a few of the papers are comparable to those of standard review articles.

PAUL GYÖRGY

Colloque sur les Acides Aminés by A. Vannotti, E. J. Bigwood, G. Frontali, M. Polonovski, and C. Remington. S. Karger, Basel, 1954, pp. 333, Sw. fr. 25.

This is a report of a symposium on amino acids held in Lausanne April 16 to 19, 1953.

The papers were presented in three parts: (1) *Methods.* This included discussions of columns of ion exchangers, and a new microbiological test for amino acids. (2) *Physiopathological problems.* This included papers on absorption and intermediate metabolism, amino acids in the synthesis and structure of proteins, and aminoaciderma and aminoaciduria. (3) *Clinical and therapeutic problems.* This included hydrolysates in the treatment of prematures and full term infants, pancreatic fibrosis, pulmonary tuberculosis, ulcers, and kwashiorkor.

The book is a good review of amino acids in these three fields, although some of the articles are only summaries. The references are valuable.

PAUL GYÖRGY