

Reviews of Recent Books



Calcium and Phosphorus Metabolism. Ann. N. Y. Acad. Sc. 64: 279-462, 1956, \$4.00.

Under the chairmanship of Franklin C. McLean, a two-day symposium was held at the New York Academy of Science, January 1956, on "Calcium and Phosphorus Metabolism." The topics covered by active workers in their fields included calcium balance and turnover studies, parathyroid hormone, calcium complexing agents, parturient paresis in dairy cows and special aspects of calcium metabolism including rickets, vitamin D, and osteoporosis.

It is difficult to select any one of the 18 papers for special mention: all are of high quality and fully documented and illustrated. Nevertheless, attention may be called to the report on the suppression of urinary calcium by oral sodium phytate by Henneman, Carroll, and Albright. In addition, Comar showed by radio-calcium studies that the fetal bones avidly take up calcium which is rapidly transferred across the placenta. Forbes' clinical studies on idiopathic hypoparathyroidism in children is very well done. All in all this particular conference seems to have produced much interesting and valuable information.

S. O. W.

Infant Metabolism, World Health Organization, The Macmillan Company, New York, 1956, pp. 435, \$8.00.

This book is a verbatim report of an international seminar on "Infant Metabolism" held in Stockholm, Sweden, in the fall of 1950 under the auspices of the World Health Organization. Participants were noted research workers in the field of infant nutrition from the Scandinavian countries and a visiting team from the United States. In the latter group were S. Z. Levine and H. L. Barnett from New York; O. A. Bessey, Chicago; Genevieve Stearns, Iowa City; and F. W. Clements, Geneva, Switzerland.

The purpose of the seminar was to bring together a selected group of medical investigators to permit an exchange of scientific information on the current physiologic, biochemical, nutritional, and clinical problems in infant metabolism. Each of the ten chapters represents a panel discussion on some specific topic. Included are panels on Water and Electrolyte Metabolism; Calcium, Phosphorous and Vitamin D; Protein Metabolism; Vitamins; Basal Metabolism; Metal Metabolism; Isotopes in Metabolism; Evaluation of Nutritive Status; Metabolism in Premature Infants; and Metabolism in Newborn Infants. Each topic is introduced by a formal presentation and followed by a general discussion.

Essentially the book is a review of the research work upon which many of the current practices in infant nutrition are based. Much of the material presented has been published previously, but in widely scattered medical journals. The comments, questions and discussions appear here for the first time. The reviewer found the different views expressed most intriguing and most informative.

The authors are to be congratulated upon bringing into one volume this wealth of material for the convenience of the interested reader. All pediatricians should find this a most valuable book and well worth reading from beginning to end.

One hesitates to include a criticism of any kind, but if one is justified, it would be that too long a time was permitted to elapse between the holding of the seminar (1950) and the publishing of the book (1956).

LEE FORREST HILL

Breads, White and Brown. Their Place in Thought and Social History, by R. A. McCance and E. M. Widdowson, J. P. Lippincott Co., Philadelphia, 1956, pp. 166, \$5.00.

The authors of this little essay are among the leading British nutritionists. (The senior author is an editor for this JOURNAL.) They have managed to encompass in a small volume a highly documented (720 references) account of bread, not only as a nutrient, but as a matter of wide social and economic importance. From the days of Greece and Rome to the recent Wuppertal experiments (in which the authors played leading roles), bread seems to have had a unique position in the social and economic life of the population.

The controversy of brown versus white, of enriched versus unenriched breads seems to have had a long and complex history. White bread for centuries symbolized wealth, position, and perhaps "purity." Wholemeal bread symbolized the good old days, the simple life and perhaps rugged health. The perspective developed in this book should help dispel the emotional overtones in the evaluation of bread as a nutritious food. For as Seneca wrote two thousand years ago "If I am hungry I must eat. Nature does not care whether the bread is black or white: she does not want the stomach entertained but filled." S. O. W.

Amino Acid Handbook. Methods and Results of Protein Analysis, by Richard J. Block with the cooperation of Kathryn W. Weiss and several contributors. Charles C Thomas, Springfield, Ill., 1956, pp. 355, \$10.50.

Dr. Richard J. Block who is the author with Diana Bolling of the well-known book *The Amino Acid Composition of Proteins and Foods* and of a recent monograph with Durrum and Zweig on Paper Chromatography, has incorporated in the *Amino Acid Handbook* in detail tried and proved examples of the most widely used methods of amino acid analysis, i.e., by micro-organisms, by column chromatography, by paper chromatography, as well as by chemical methods. The details of the methods are so clearly outlined that the reader has no need for recourse to the original literature. This handbook also has a complete bibliography and a comprehensive tabulation of the amino acid composition of proteins, biologically active polypeptides and foods. A novel feature of this publication is the amino acid content of hormones and bacteria, in indigenous foods and diets in different parts of the world, and in blood in various diseases. This book should prove invaluable to the investigator, biochemist, nutritionist, medical technologist, physician, dietitian and to all students of biochemistry and nutrition.

B. SURE

Ciba Foundation Symposium: Paper Electrophoresis, edited by G. E. W. Wolstenholme and E. C. P. Millar, Little, Brown and Company, Boston, 1956, pp. 224, \$6.75.

The relatively recent development of practical chromatographic technics has had a tremendous effect in accelerating the progress of modern biochemistry. The even more recent use of paper electrophoresis as a clinical tool bids well to revolutionize many of our laboratory procedures. Only time will tell how far this trend will go, but some idea of the usefulness and limitations of paper electrophoresis is provided by the contributors to this useful book. This volume contains the proceedings of the symposium held in London, July 27-29, 1955, and includes detailed comments by many of the leading authorities in the field. Through formal papers and informal discussions, the application of paper electrophoresis to protein chemistry is quantitatively explored in the hope of standardizing methods, results, and apparatus. Among the many topics covered are evaluations of albumin-globulin ratios of blood, analyses of hemoglobins, lipoproteins, and the physico-chemical aspects of paper electrophoresis. This volume should be most helpful to anyone engaged in the study or practical application of electrophoresis methods.

M. K. HORWITT

Vitamins and Hormones. Advances in Research and Applications, Volume XIV, edited by R. S. Harris, G. F. Marrian, and K. V. Thimánn, Academic Press, New York, 1956, pp. 432, \$10.00.

Scientists look forward to the publication of the annual edition of *Vitamins and Hormones*. The fourteenth volume maintains the standards of excellence set by the previous collections of reviews. Eight topics are covered. Those specifically nutritional are Mickelsen's survey of intestinal synthesis of vita-

mins and Lowe and Morton (Liverpool) on vitamin A metabolism. But special mention must also be made of the fine review of carbohydrate metabolism in isolated tissues by Renold Ashmore and Hastings, and of experimental hyperglycemias by Shull and Mayer. The many references and the detailed author and subject indexes add to the usefulness of the book.

Nutrition is a subject that crosses all clinical lines and is closely related to practically every branch of biology. It is fortunate, indeed, that there exist several excellent sources of integrated surveys, such as this book, for they are essential for future investigational work. The editors and authors are to be complimented for an excellent product.

S. O. W.

The Complete Book of Low Calorie Cooking, by Leonard Louis Levinson, with introduction by Leonid Kotkin, M.D., Hawthorn Books, Inc., New York, 1956, pp. 319, \$4.95.

There is indeed no shortage of books for the individual who wishes to lose weight, and the choice of a reliable guide is not easy for the uninformed. The author, a writer of radio and television scripts, short stories, and another cookbook, has consulted many physicians, dietitians, and home economists in the preparation of the book.

The purpose of this book is "to supplement the doctor's general instructions and to help you carry out his orders." Accordingly, the greater part is devoted to some 600 recipes for all kinds of foods.

The recipes, as a rule, are of family size and are sufficiently interesting to be acceptable by non-dieters as well. Caloric values for single portions are indicated. Within a food group there is a fairly wide range of caloric levels. With a nutritionally adequate diet pattern, it would be possible to use these recipes to plan widely varied menus at any one of several caloric levels as might be prescribed by the physician.

For the most part, the ingredients are those readily available, methods of preparation are clearly detailed, and time of preparation need not be great. Many recipes using artificial sweeteners are included.

An introductory chapter is concerned with desirable body weights, the importance of proper nutrition and the use of the Basic Seven food groups, and some concise "Do's and Don'ts" by past and present celebrities in various walks of life. The information on the whole appears to be correct, although the statement concerning the need for carbohydrate "because fat will not be consumed by the body unless there is carbohydrate to make it burn properly" (page 21) is no longer tenable. The caloric recommendations are those of the 1948 Recommended Dietary Allowances, and not the 1953 revision.

The list of artificial sweeteners, 50 sensible snack foods, a summary of spices, herbs and their uses, and a listing of some 800 dietetic foods should provide useful helps to many dieters. On the other hand, this reviewer questions whether space need be given to listing numerous appliances such as blenders, mixers, grinders, cook-



ing pans, etc. Certainly the success of a low calorie diet is not dependent upon gadgetry!

This book will have appeal to those dieters who have been unsuccessful in achieving variety and palatability, and it emphasizes once again that a low calorie diet need be neither difficult to prepare nor lacking in appeal.

C. ROBINSON

The Use of Chemical Additives in Food Processing. A Report by the Food Protection Committee of the Foods and Nutrition Board, National Academy of Sciences, National Research Council, Publication 398, 1956, pp. 90, \$2.00.

Intentional chemical additives have been defined by the Food Protection Committee of the National Research Council as those chemicals introduced for the purpose of imparting some desired quality to, or of serving a functional purpose in, a food product. Such materials as coloring agents, flavors, vitamins and minerals for food fortification, non-nutritive sweeteners, preservatives, antioxidants, emulsifiers, and bleaches are all *intentional additives*.

A survey of the food and chemical industries has been conducted by the Food Protection Committee to ascertain the identity and qualities of intentional additives used in food processing. In addition to the replies from the food and chemical industries, the definitions and standards for processed foods published by the Food and Drug Administration and the regulations for meat products and fats published by the Meat Inspection Branch of the Department of Agriculture have been used as source material.

The resulting lists incorporated in this publication represent the most complete available tabulation of additives used in processed foods. It is recognized that these lists are subject to several limitations: (1) they may contain additives permitted by regulations but not in actual use; (2) an additive may be used seasonally or by some segments of an industry but not by others; (3) amounts given may represent maximum usage rather than actual usage and thus not permit reliable quantitative estimation of consumption; (4) each class of additives represents a group of alternative ingredients from which a selection may be made for use in a particular product. It is the intention of the Food Protection Committee to revise these lists as new information warrants.

B. SURE

Internal Secretions of the Pancreas. Ciba Foundation Colloquia on Endocrinology. Vol. 9. Little, Brown & Company, Boston, 1956, pp. 287, \$7.00.

This book presents some 17 reports made at a symposium on the endocrine aspects of the pancreas held in London in 1955 under the aegis of the Ciba Foundation. A wide range of topics is covered by a group of internationally recognized experts. Because they represent diverse disciplines—biologists, clinicians, and physical, biologic, and organic chemists—their different viewpoints are refreshing and stimulating. That many

problems remain unsettled is, however, to be expected. Perhaps most interesting of all are the verbatim reports of the give-and-take discussions held after formal presentation of the papers.

The topics discussed are based on the actions and chemical characteristics of both glucagon and insulin. This field is under intensive investigation and therefore more questions are raised than answered. Because of the implications of this aspect of carbohydrate metabolism for clinical nutrition, the book will be of interest to all concerned with the triplets—nutrition, metabolism, and endocrinology.

S. O. W.

Ciba Foundation Symposium on Bone Structure and Metabolism, edited by G. E. W. Wolstenholme and C. M. O'Connor, Little, Brown and Company, Boston, 1956, pp. 299, \$8.00.

This volume represents the proceedings of an informal international get-together of workers interested in bone morphology and physiology. Such discussions are arranged in order to stress integration of views rather than presentation of new findings by the participants. Even though an undertaking of this kind has necessarily to be limited in scope, the book will serve as a useful and stimulating guide to the student and physician interested in the subject matter, and as a source of quick reference for those already familiar with the problems discussed.

Of the total of 20 papers eleven are devoted to basic aspects of formation and resorption of the mineralized tissues and their ground substance. The processes involved are reviewed and discussed from the morphologic, biochemical, and chemical angle with consideration of the results obtained by radio-autography, phase microscopy, electronmicroscopy, determination of the turnover of P^{32} and S^{35} , and the uptake and exchange of bone citrate. Only some highlights will be mentioned here.

Vitamin D metabolism and its systemic distribution as indicated by paper chromatography of tissue extracts and by studies with C^{14} are discussed by Kodicek, and the mode of action of vitamin D by Nicolaysen and Eeg-Larsen. Fanconi reports on variations in the sensitivity to vitamin D. A series of clinical disorders associated with varying degrees of sensitiveness are recognized ranging from vitamin D-resistant rickets to chronic hypercalcemia. The hypothesis is advanced that in most, if not in all, types of rickets renal function, particularly of the tubules, is impaired as indicated by the association of rickets with hypochloremic acidosis, hypercalcemia, and aminoaciduria. The disposition to rickets would thus consist in the disposition to tubular insufficiency. Clinically, reduced sensitivity to vitamin D would be indicated by familial disposition to rickets and to aminoaciduria, while such conditions as hypothyroidism, retarded growth and x-ray signs of hypercalcification of the provisional cartilage point to increased sensitivity. This theory certainly needs further substantiation before it can be accepted.

Blaxter demonstrated that in cattle, sheep, and horses

suffering from hypomagnesia as indicated by lactating tetany, Mg is removed from all parts of the skeleton, while calcium is retained in slightly increased amounts. Calcification of the cartilage however is not disturbed. The serum level of inorganic P is unaffected, and phosphatase activity at the site of mineralization seems to be normal. Magnesium is probably concentrated by osteoblasts, and depletion takes place by removal of Mg from the surface of the bone crystal. Bones of old animals seem to be more resistant to depletion than those of young animals.

Follis reports that in rats cessation of growth was induced by underfeeding. Subsequent treatment with growth hormone in amounts larger than necessary to promote growth in hypophysectomized rats failed to be effective in the underfed animals. This seems to indicate that the effect of underfeeding is not mediated through a hypoactive pituitary. The bone changes in lathyrisms which are due to the presence of β -amino-propionitrile in the diet are discussed. The effect of copper deficiency appearing in the long bones of animals grazing in Cu-deficient areas consists of thinning of the bones probably due to decreased osteoblastic activity. In the bones of rats, hypervitaminosis D manifests itself in formation of osteoid that fails to calcify in spite of the coexisting hypercalcemia and hyperphosphatemia.

A new syndrome in infants, osteodysmetamorphosis foetalis, is defined by Engfeldt and Zetterström. It is characterized by low serum and tissue alkaline phosphatase activity. In this type of hypophosphatasia, skeletal development is inhibited, bone formation decreased, and mineralization of the newly formed matrix is deficient. The coexistent hypercalcemia is considered secondary to increased calcium absorption from the gastrointestinal tract, and the nephrocalcinosis observed in some cases secondary to hypercalcemia. The parathyroids do not show morphologic changes. The cause of the syndrome is unknown, and may be under genetic control.

The clinical nutritionist will find the case studies and some of the experimental findings of interest. The dis-

cussions permit the reader a better evaluation of the data presented and of the views expressed by the various participants.

M. SILBERBERG

Books received for review by THE AMERICAN JOURNAL OF CLINICAL NUTRITION are acknowledged in this column. As far as practicable those of special interest are selected, as space permits, for a more extensive review.

Handbook of Biological Data, edited by William S. Spector, W. B. Saunders Co., Philadelphia, 1956, pp. 584, \$7.50.

The Physician-Writer's Book by Richard M. Hewitt, W. B. Saunders Co., Philadelphia, 1956, pp. 415, \$9.00.

Experimental Methods for the Evaluation of Drugs in Various Disease States, edited by O. V. St. Whitelock and F. N. Furness, Annals N. Y. Academy of Sciences, 1956, pp. 462, \$4.00.

Biochemical Individuality by Roger J. Williams, John Wiley & Sons, Inc., New York, 1956, pp. 214, \$5.75.

The Biological Basis of Human Freedom by Theodosius Dobzhansky, Columbia University Press, New York, 1956, pp. 135, \$2.95.

Communication by Roy Ivan Johnson, Marie Schalekamp, Lloyd A. Garrison, McGraw-Hill Book Co., New York, 1956, pp. 361, \$4.50.

Cortico-Surrenale et Diabete Humain by B. Bastenie, Masson et C^{ie}, Paris, 1956, pp. 506, 3,400 fr. francs (paper bound), 4,000 fr. francs (cloth bound).

Experimental Design by Walter T. Federer, The MacMillan Co., New York, 1955, pp. 544, \$11.00.

Soybeans for Health, Longevity and Economy by Philip S. Chen, The Chemical Elements, South Lancaster, Mass., 1956, pp. 238, \$3.00.

