

Reviews of Recent Books

Food in Health and Disease (fifth edition) by K. Mitchell, B.A., and M. C. Bernard, B.S., F. A. Davis Co., Philadelphia, 1953, pp. 688, \$4.25.

The preface to the fifth edition of this book contains a statement which says: "this text is designed primarily for student nurses; the subject is approached from its relation to the nurse in her work in the hospital and in the community. As an aid to the young instructor an outline of classes is given." This is the reason why this book can be recommended highly for the purpose for which it was written. Only the necessary material which will be of value to the student nurse is included in the text. Preceding every chapter is a very useful outline of the material to be found in that chapter. This will save time for the instructor and the student. The charts used in the text have been reproduced from large wall charts which are familiar to, and are used by, many instructors.

The book is divided into 5 parts. The first 3 parts are divided into units. These units make the book useful in teaching. Food Exchange Lists used in the calculation of the diet for the diabetic are those recommended by the American Diabetes Association, the American Dietetic Association, and the U. S. Public Health Service. The Composition Table for Short Method of Dietary Analysis should be of value to students. The latest and most accurate figures for the sodium and potassium content of foods are given. The Diet History and Outline for Dietary Case Study found on pages 590-591 should prove a labor-saving device for the dietitian. The section on Community Nutrition reminds the student nurse of her responsibility to the community, as well as to herself and her patient.

S.M.B.

Essentials of Infant Feeding for Physicians by Herman Frederic Meyer, M.D., Charles C Thomas, Springfield, 1952, pp. 252, \$6.75.

This book contains a compilation of information and ideas on infant feeding which is based on long experience. Obviously, a great effort has been expended in assembling details concerning the composition and use of the great variety of commercial preparations. The author states in his preface that the purpose was to provide a concise manual which would be of use in the practical aspects of infant feeding. The book does not contain any original data and is not intended for those interested in the scientific basis of infant nutrition. The basic facts of nutrition are reviewed superficially to give some

understanding of the rules which are provided for the composition of infant diets.

The book is devoted almost entirely to the feeding of normal infants. The feeding of sick infants is considerably more complicated and controversial, and a practising physician would be disappointed not to receive more help in this regard.

The author considers this book to be needed because of a supposed deficiency in the training of physicians in preparation for the feeding of normal infants and children. The information provided in most curricula on this subject is now very simple and adequate. If the student were led to believe that all the information in this book was necessary for successful feeding of infants, he would not only be considerably more confused than he may be at present, but the complexities encountered in infant feeding decried by the author would be perpetuated.

Great reliance is placed upon the "art" of infant feeding and this apparently is difficult to teach. It is possible that the complex state of affairs which exists concerning the multiplicity of foods and feeding arrangements proposed for infants is the result of a former era when there was intense preoccupation with minor variations in infant feeding and great faith in the "art" of infant feeding. As the author points out, infants are expected to thrive on the uniformly composed milk from the breast almost without exception; but he insists that when they are being fed artificially every infant presents a very individual problem. There are many reports of a large series of babies, representing a random sample of the population, thriving on an artificial formula of fixed composition without any need for individualization. This seems more in keeping with the laws of science which must govern the baby's physiology and digestion when artificially fed as surely as when the baby is fed at the breast.

The book contains many excellent statements of common sense practice in infant feeding and a thoroughly proper appreciation that breast feeding is preferable, though failure in this need not spell tragedy for the baby. It is a great relief from the dull prose of ordinary scientific writing to find the author has preserved a colorful and spirited style and the courage to express his opinions emphatically.

The book will be useful if one wishes to find out the details of a commercially prepared feeding upon which a baby has been placed. If more babies were fed on the simple programs utilizing whole cow's milk, the bulk of the book devoted to the analysis of commercial preparations would be unnecessary.

On the other hand, the convenient and carefully controlled preparation of complete infant formulae by commercial companies is becoming increasingly popular with the busy mother. She is less and less inclined to compound individually prescribed infant formulae on the back of the stove, just as she no longer finds it profitable to bake her own bread. That there should be intense competition between purveyors of the commercially prepared infant feedings would seem highly desirable from the point of view of obtaining quality products at economical prices. The only cure for extravagant claims in advertising is to turn out properly prepared doctors from the medical schools so that such advertising would not find a fertile soil.

In conclusion, this text is not recommended for use in medical schools and is not a fundamental manual of the scientific aspects of infant nutrition. For these purposes, standard texts and other excellent monographs would be preferable. C.D.M.

The Chemistry and Technology of Food and Food Products (three volumes, second edition) edited by Morris B. Jacobs, Interscience Publishers, Inc., New York, 1951, pp. 2580, \$42.00.

This is the most complete and authentic publication in the English language on the chemistry and technology of food and food products. It was prepared by a group of 39 food technologists, chemists, chemical engineers, biochemists, bacteriologists, sanitary engineers, public health officers, food inspectors, and entomologists. In this second edition the editor and collaborators, who deserve to be congratulated for their excellent job, revised all the chapters of the first edition (1944) in the light of progress made in the intervening years. In addition new chapters have been added covering such topics as instruments in the food plant, essential oils, and the use of enzymes in food production. The new material has necessitated a third volume.

The three volumes are divided into six parts. In the first volume, the first part deals with the aspects of food chemistry, which are common to all foods; in part two, unit operations and processes applicable to most foods are described; and part three deals with maintenance and sanitary and quality control. The second volume, which comprises part four, concerns the descriptive aspects of particular food groups and includes some account of the history, statistics, definitions, standards, composition, and chemistry of these food products. In the third volume, the principal methods of preserving food are delineated in part five, and part six is concerned with production methods for the principal foods. Throughout the entire three volumes the role played by adequate nutrition in modern life is stressed.

There is, in certain respects, an overlapping of the subject matter, but as a rule, a food group is treated in two separate but closely integrated chapters. The

editor maintains that in a collaborate effort it is always difficult to avoid duplication. Such duplication has been permitted when required to maintain the continuity of a chapter or to simplify an explanation.

Within the past six or seven decades great advances have been made in the application of scientific knowledge to the preparation, processing, preservation, and transportation of foods, so that it is possible to have foods in season throughout the year. The methods of production of our staple foods are much the same as in former years, despite vast improvement in the methods with consequent increase in yield, but it is in their distribution and packaging, and in the variety of processed foods produced and developed that great progress has been made recently. These changes are recorded in great detail in these books.

Food technology has made great achievements in all these years, but despite this progress, and despite the millions of people killed in the 1939-1949 period by war, famine, and pestilence, there is an ever-increasing world population. During the past decade there was an increase of 260,000,000 people in the world population. This increase is almost in accord with the theory of Malthus and the population is increasing much faster than available food supplies. Therefore, it must be the aim of the food technologist to increase the supply of food by fuller utilization of food from both land and sea sources, and by making palatable many wholesome foods not used at present because of lack of palatability.

In the chapter on proteins and amino acids the statement is made that, because arginine and histidine are not essential for the maintenance of nitrogen equilibrium in the adult man, it is questionable if these amino acids are needed in human diets. Amino acids are essential for many vital physiological functions in addition to their requirements for nitrogen equilibrium i.e., for hematopoiesis, for synthesis of hormones and enzymes, for respiration, for spermatogenesis, for maintenance of the osmotic pressure of the blood, and for antibody formation. For instance, Holt and Albanese* found diminished spermatogenesis in human subjects on an arginine-deficient diet. Furthermore glycine and glutamic acid are generally considered as non-essential amino acids for growth of mammals, but both of these, being components of glutathione, are essential for vital oxidation-reduction reactions in the animal body. One must, therefore, be very cautious in pronouncing certain amino acids as not being needed for human welfare until convincing clinical evidence is available that they can be synthesized for all vital physiological processes, including reproduction and lactation.

The term *vitagen* used in chapter VII should be

* Holt, E. L., Jr., and Albanese, A.: Observations on amino acid deficiencies in man. *Trans A. Am. Physicians* 58: 143, 1944.

made clear, since it is not often used in the nutritional and medical literature. The author refers this term to the essential fatty acids, essential amino acids, choline and related compounds, the essential transferable methyl group, and the essential organic sulfur-containing compounds. Vitagens are differentiated from vitamins according to the function of these compounds in the organism. The vitagens are essential not only as transformers of energy or regulators of the metabolism of structural units, but also as suppliers of energy or as structural units. On the other hand, the vitamins act as catalysts in vital metabolic reactions, and not as structural units of the animal body.

In chapter XXIV there is considerable valuable information on the thiamine, riboflavin, and niacin content of cereal grains but data are lacking on the distribution of other B vitamins, such as pyridoxine, pantothenic acid, choline, and folic acid, which are now available in the nutrition literature. B. SURE

Blood Cells and Plasma Proteins: Their State in Nature, *Memoirs of the University Laboratory of Physical Chemistry Related to Medicine and Public Health, Harvard University, Number II* edited by James L. Tullis, Academic Press, Inc., New York, 1953, pp. 436, \$8.50.

This is a scholarly book dealing with blood cells and plasma proteins. It clearly and thoroughly reviews our present information about blood coagulation, immune processes, origin, properties, function, and preservation of red and white blood cells, and the enzymes of plasma. There are many references and a convenient author and subject index. There are chapters by twenty-nine authorities in the field of hematology and physical chemistry.

Although some chapters will be of interest primarily to investigators in the particular field, some may be read with profit by all physicians.

In this "coordinated picture of the current state of knowledge about blood and its component parts" the interested reader will find the best summary of current data on the subject. S.O.W.

Physiologic and Therapeutic Effects of Corticotropin (ACTH) and Cortisone by D. J. Ingle and B. L. Baker, *American Lectures in Metabolism* (edited by P. György, L. Leiter, and S. O. Waife), Charles C Thomas, Springfield, 1953, pp. 139, \$5.50.

This little book is the most complete current summary of the clinical and experimental aspects of ACTH and cortisone that has appeared. With 324 references the book covers all the aspects of the effects of these hormones that would be of interest to clinicians or investigators. An interesting feature is the inclusion of photographs of eleven outstanding students of this phase of endocrinology.

As an authoritative, readable survey of the field, the book can be highly recommended. A.E.S.

Diseases of Metabolism (third edition) edited by G. G. Duncan, W. B. Saunders Co., Philadelphia, 1952, pp. 1179, \$15.00.

The third edition of this well-known standard work continues to be the most thorough on the subject available today. Several chapters have been rewritten and enlarged. The twenty contributors are all prominent in their field and there are many references to the current literature. Vitamins are covered by Spies and Butt, obesity by Evans, undernutrition by Keys, diabetes by Duncan, to mention but a few sections.

The boundaries of "metabolism" are diffuse, as are the boundaries of "nutrition." Thus there is a 78-page chapter on diseases of the thyroid, presumably because the thyroid regulates metabolic activity. By the same token, the pituitary and adrenal glands could have been included. Similarly, there are chapters on diseases of the kidney and diabetes insipidus. One might therefore expect a discussion on liver diseases. These comments in no way are meant as criticism, since each section is very well done. The interrelations between metabolism, nutrition, and endocrinology are apparent from the contents of books on these subjects.

Although written with emphasis on clinical application, there is also a more than adequate discussion of basic physiology and biochemistry.

The book can be highly recommended to all physicians caring for patients with metabolic disturbances. S.O.W.

Man's Foods by L. B. Jensen, Ph.D., The Garrard Press, Champaign, Ill., 1953, pp. 278, \$4.50.

Athenaeus observed that "every investigation which is guided by principles of Nature fixes its ultimate aim entirely on the gratification of the stomach." One may take exception to the word "ultimate," but it can scarcely be denied that the gratification of the stomach must precede all other aims. The whole history of man and man's societies can only be understood in terms of his food—how he obtained it, how he used it. The very names used by anthropologists to describe the various types of human societies are indicative of the way food defines a culture: "hunting," "food-gathering," "agricultural." The gradual perfecting of tools by the primitive hunter was the first stage in the development of man's mechanical genius. The anonymous women who experimented with baking and brewing techniques were the world's first chemists. And the first people to think of domesticating animals to insure their food supply laid the foundations for the more stable societies of the future—societies in which the arts of leisure became possible.

The search for food not only led to basic practical discoveries; it involved the whole of man's life, spiritual as well as physical. The magnificent art of the cave man grew out of his concern with hunting



magic, and primitive man's relationship to his gods was largely that of a petitioner for his "daily bread"—in the next life as in this.

It is not surprising, then, that a book should have been written which treats man's history as the history of man's foods. In Dr. Jensen's volume, the nutritional background of human life—tacitly accepted by all the disciplines concerned with the study of man—is placed in the foreground, where it quite properly belongs.

Much of the nutritional record is, of course, dim, and the evidence is fragmentary. Mammoth meat, deep-frozen for 10,000 to 15,000 years, has been consumed with impunity by contemporary diners; well-preserved Neolithic grains have been analyzed and classified; bone counts have indicated the proportion of each type of animal in the diet of various prehistoric peoples; and ancient garbage heaps have been instructive. But often the prehistoric diet has had to be inferred from what is known of the flora and fauna of the era, and from unsatisfactory analogies with the diet of contemporary primitives. Attempts to correlate past diet with anthropometric or other evidence of health and longevity are still more difficult. In Paleolithic times the diet seems to have consisted of nutritionally excellent items (including human flesh), but the food supply was uncertain and the hunter might alternately gorge and starve. In more advanced periods, the diet might be steadier and better, but village and urban life increased the hazard of infection, thus cancelling the possible effects of good nutrition on longevity. It is therefore hard to disentangle from the total picture of an era and environment any clear correlation between type of diet consumed and type of human being produced. Certain facts are, at least, suggestive: that the Classic Greeks ate all of the "basic seven" foods, abhorred overeating, and lived longer lives than any population till modern times; that certain Mesolithic groups subsisting largely on shellfish (with its thiamine-destructive enzyme) were "puny" and culturally stagnant, compared to earlier meat-eaters; that the Jews, with their strict dietary laws, managed to outlast their less hygienic contemporaries; and that democracy has never appeared where the food supply was inadequate.

One thing emerges clearly from the record. When we consider how various has been the fare of mankind since first he appeared, we are forced to the chastened recognition of the fact that the modern western diet is as much the result of "taboos" as is that of any primitive group—since there is no basis in nutrition or health for the rejection of horse meat, dogs, grubs, caterpillars, locusts, or many other foods consumed without scruple by other peoples, past or present.

When an author is dealing with so many different specialties, he is sure to excite the objections of one

or another specialist. The anthropologist may frown at the statement that the Maya and the Incas were the only "civilized" groups in pre-Columbian America. (How about the Aztecs? We have seen, quite recently, that "civilization" does not preclude cruelty.) Nor would all nutritionists subscribe to the categorical statement that "The actual cholesterol content of man's diet is of no importance in developing arteriosclerosis." One also dislikes to criticize an author for what is probably the result of over-enthusiasm for his background subjects, but there are so many "interesting asides" that the main topic gets lost occasionally and one finds oneself digesting extraneous archeological or philosophical matter instead of "food." Sometimes, too, the leaps backward and forward in time are a bit disconcerting; a recent experiment with a rat population is apt to intrude suddenly on a consideration of a prehistoric human population. More careful organization of the material and elimination of repetition would have made the reader's task a little easier; but with patience he can follow the nutritional thread through the volume's somewhat labyrinthine course.

The subject index is a helpful guide, and there are 21 pages of references, where anthropologists, archeologists, and explorers consort with biochemists and nutritionists.

The interested reader—and no reader could fail to be interested—will certainly collect a lot of fascinating facts and acquire a heightened appreciation of the role of food in shaping human life. Food has always been man's basic problem and it is still his major one. The millennial war against hunger is not yet won, and our future history will depend to a great extent on how—and by whom—the gratification of the world's stomach is assured.

C.-J.H.

Books received for review by the *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.

Current Therapy 1953, edited by H. F. Conn, W. B. Saunders Co., Philadelphia, 1953, pp. 835, \$11.00.

The Low Sodium Cook Book by A. S. Payne and D. Callahan, Little, Brown & Co., Boston, 1953, pp. 477, \$4.00.

Food Science, edited by E. C. Bate-Smith and T. N. Norris, Cambridge University Press, New York, 1952, pp. 319, \$8.00.

General Biochemistry by J. S. Fruton and S. Simmonds, John Wiley & Sons, Inc., New York, 1953, pp. 940, \$10.00.

Refrigeration in America by O. E. Anderson, Jr. Princeton University Press, 1953, pp. 344, \$6.00.

