purification of water and the treatment and disposal of sewage appear with discussions on the microorganisms of air, water, and sewage. There is an excellent section on the microbiology of foods, methods of preservation, milk and milk products, quality, and control of contamination. The book contains very adequate chapters on the nature and transmission of the infectious diseases of animals and plants, immunity, and the defenses of the host against disease. A final, brief presentation of the origin and development of microbiology is followed by three appendixes containing classification outlines of microorganisms in general, bacteria (according to Bergey), and yeasts and yeastlike fungi.

The interesting, readable style of *Microbiology* should appeal to all who desire accurate, nontechnical information about microorganisms and their activities. The book is so logically organized and well integrated that there is a feeling of continuity throughout. Key words are printed in bold-faced type that provides a real aid to one learning or reviewing the material. Also, new words are followed by a very brief definition in parentheses (often only one word) that introduces new terminology without interrupting the reader's train of thought. References are made to other books and reviews on specialized subjects rather than to the original articles that few beginners are capable of comprehending.

There has been a real need for just such a book. The authors are to be commended for furnishing microbiologists with this excellent survey of the field.

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Protein and Amino Acid Requirements of Mammals. Anthony A. Albanese, Ed. New York: Academic Press, 1950. 155 pp. $4.00.

Numerous attacks on the problem of elucidating protein and amino acid requirements have been in progress during the past few decades. The present volume summarizes the approaches that have been fruitful and reports the present status of the problem. As with all collaborative publications, it has inherent in it both the strength and weakness of the approach by different authors from different viewpoints to the same broad problem. Careful editing has minimized duplication, however, although it has preserved the disparities that focus attention on the unresolved problems.

Awareness of the role of amino acids in protein composition led to the recognition that protein evaluation, in the nutritional sense, is a greatly diversified problem. As the concept developed, this problem came to be regarded as one involving a limited number of variables—the "essential" amino acids. More recently, amino acid interrelationships as well as vitamin-amino acid interdependence and appreciation of the importance of the "nonessential" amino acids have increased the number of variables with which modern investigation must cope. Moreover, nonchemical factors have pressed for attention to the point where considerations of species, function, and nutritional level strive with factors such as treatment of proteins before ingestion and route of ingestion in an over-all determination of requirements.

All these considerations are presented here in an admirably written series of reports from six individuals who have been among the leaders in the current attacks on this most complex and intriguing problem. Revisions in thinking elicited by their investigations are summarized by Mitchell in "Some Species and Age Differences in Amino Acid Requirements"; by Frost in "Method of Measuring the Nutritive Value of Protein Hydrolysates and Amino Acid Mixtures: The Rat Repletion Method"; by Silber and Porter in "The Laboratory Evaluation of Amino Acid Mixtures and Protein Hydrolysates"; by Chow in "Dietary Proteins and Synthesis of Tissue Proteins"; and by Albanese in "The Protein and Amino Acid Requirements of Man."

This reviewer is struck by the fact that most of the contributors to this volume have participated in one or another of two major cooperative projects that have occupied the attention of workers in the field the past few years. The importance of such cooperative efforts is amply manifest in their contributions to advancing knowledge, as revealed in these monographs. To their sponsors, the U. S. Pharmacopeia, through its Amino Acids Advisory Committee, and the Bureau of Biological Research of Rutgers University, all interested in this field are much indebted.

The book is well printed and bound, and apparently free of typographic errors.

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Human Physiology. Bernardo A. Houssay *et al.*; trans. by Juan T. Lewis and Olive T. Lewis. New York–London: McGraw-Hill, 1951. 1,118 pp. $14.00.

Written by experts for medical students and physicians, this English edition (and revision) of the original 1945 Spanish edition, is a significant contribution to medical education and medical progress in the English-speaking countries. The senior author, Dr. Houssay, a Nobel prize laureate in medicine, has been internationally known for his significant biological investigations for many years. This textbook reveals him and his associates as first-class teachers, by accuracy in facts, clarity of style, excellence of illustrations, and scientific objectivity in judgments and conclusions. Medical students, both graduate and undergraduate, will be aided, guided, and challenged by the references on nearly every page, and at the end of each of the 89 chapters, to pertinent publications on the particular problem discussed.

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