reviewer may be permitted to doubt whether the most elementary treatment of the chemistry of life can, for instance, afford to neglect such substances as the amino-acids, or to omit from its vocabulary the word "metabolism." The fact that amino-acids appear sometimes to be vaguely referred to among the "amides" does not diminish the seriousness of the first defect; nor is the second excused by the author's peculiar use of the word "digestion." Digestion, it would seem, is employed to signify not merely the preparation of food for its absorption, but also its subsequent fate within the organism. When this has been grasped it is possible to understand such remarkable statements as that "in order that digestion may proceed in a normal way, a liberal supply of air is necessary to oxidize the nutrients," or that when carbohydrates are "completely digested, carbon dioxide and water are the final products," or that "during . . . digestion, heat is produced in proportion to the calories contained in the food . . . digested."

In discussing the "Nitrogenous Compounds of Plants" the author retains the term "proteid," now generally abandoned by English-speaking chemists. He classifies casein as an "albuminate," vitellin as a "globulin-like body," nuclein and mucin as "albuminoids." The system of protein nomenclature adopted by the American Society of Biological Chemists and the American Physiological Society receives, indeed, no recognition whatever. The doctrine of ferments and fermentation is another theme that might with advantage have been cast in a more modern form. The concept of a ferment does not to-day include such things as the "tubercular organism," and the once important distinction between "organized" and "soluble" ferments has now little more than a historical interest. It is to be regretted that a "revised edition" should perpetuate terminologies and methods of presentation that, to say the least, are obsolescent.

If the weight of these criticisms be allowed to depend to some extent upon the individual point of view, it is otherwise with the actual misstatements that are occasionally encountered. Some of these, to be sure, are mere slips, as when nitrogen is said to constitute "23 per cent." of the atmosphere; others argue chiefly a lack of precision, as when carbon is said to be "present in plant and animal bodies in larger amounts than any other element." But there are several positive blunders. Wax is stated to contain "an ethyl radical in place of the glycerol radical" of fat. The globulin of wheat is called "edestin." Meat is described as containing 0.07 to 0.32 per cent. of an "amide," which bears the name of "keratin." It is obvious enough what substance is being spoken of; but the name is not apparently a simple misprint, for it is thrice employed in one paragraph, and is to be found unaltered in the index.

In spite of the blemishes noted, the book, as a whole, is capable of filling a useful place, and there are many sections which deserve ungrudging commendation. This is especially true of the chapters dealing with the various important food crops, and with their application to the scientific feeding of animals and men. Here the author, speaking often as a first-hand authority, makes a discriminating selection of essential facts, and presents them in a manner at once accurate, lucid and interesting. Many tables of useful data are incorporated, and excellent diagrams illustrate graphically the comparative composition of important foods.

The reviewer can not approve the construction of a sentence like the following: "Iron . . . readily undergoes oxidation and rusting, due to the joint action of oxygen and water, and results in the production of a basic oxid of iron." Fortunately such lapses are infrequent, and the style of the book is in the main straightforward and readable.

ANDREW HUNTER
CORNELL UNIVERSITY

Household Bacteriology. By ESTELLE D. BUCHANAN, M.S., Recently Assistant Professor of Botany, Iowa State College, and ROBERT EARLE BUCHANAN, Ph.D., Professor of Bacteriology, Iowa State College and Bacteriologist of the Iowa Agricultural

Experiment Station. The Macmillan Company. Cloth, 8vo. xv + 536 pp., index. $2.25 net.

During the last decade, the science of household bacteriology has made very wonderful progress as an independent study and as a result we feel to-day a very clear and constant demand for suitable text-books and manuals for use in this new but important field of bacteriology.

The book as presented by the Buchanans consists of a neatly bound volume of 536 pages clearly but simply written. The text is profusely illustrated by original drawings and photographs which add greatly to the attractiveness and usefulness of the book.

"The volume has been divided somewhat arbitrarily into five sections," by the authors. The first three chapters are of an introductory nature and cover the general topic of bacteriological technique. In Section II. more emphasis ought to have been laid on standard methods for the preparation of culture media and more space should have been allotted to the discussion of the cultural characteristics of the yeasts and molds.

Section IV. is given over to fermentation or zymotechnique, as it is called by the authors, and is the best chapter of the book. This section consists of 114 pages and covers the subject of enzymes and their fermentative activities and is characterized by its clear descriptions and explanations of this most complex but interesting subject. The book closes with a section entitled "Microorganisms and Health," consisting of a general discussion of the theory of disease followed by a detailed description of the pathogenic bacteria yeasts and molds. The chapters of this section dealing with the examination of air, water and food might have been elaborated upon and formed into a new section. The volume is supplemented by an appendix containing a key (37 pages) to the families and genera of the common molds which is fully illustrated and must be very useful as a ready means of identifying the common molds of the laboratory.

The main criticism of this volume lies in the title "Household Bacteriology." It is inadequate for two reasons. The book in its present form is too broad to be called a bacteriology and should have been called a microbiology or by some other suitable title. The authors have realized this narrowness of title by using the term microorganism in the heading of every section. Then again this volume is merely a general bacteriology whose title has been extended to cover the field of household bacteriology. With the exception of the poor choice of title, the volume is well written and well adapted for courses in general bacteriology.

William W. Browne
The College of the City of New York

Elements of Water Bacteriology. By Professor S. C. Prescott and Professor C. E. A. Winslow.

Prescott and Winslow's "Water Bacteriology" is the best known book on the subject in America, and it may also be added that it is the best book. This third edition has been entirely rewritten and very much enlarged. The authors state that the revision has been made necessary by the newer ideas on the effect of temperature upon the viability of bacteria in water, the new methods of isolation of specific pathogenic organisms, and the recent recommendations of the Committee on Standard Methods of Water Analysis of the American Public Health Association. The authors do not approve of the recent recommendation of this committee to replace the 20 deg. gelatine count by the 37 deg. agar count. This recommendation has received unfavorable comment at the hands of many American bacteriologists, and has resulted in producing an unfortunate condition of confusion. The authors hold that both the 20 deg. gelatine count and the 37 deg. agar count should be used, and this idea was approved by the Laboratory Section of the American Public Health Association in 1912.

The authors also take issue with the Standard Methods Committee on the subject of the test for *B. coli*. The discussion is too long to be referred to in this review, but it is one of great interest and importance to every bacteriologist and sanitary engineer, and should be