

The qualitative tests presented, comprise, with a few additions, the principal ones given in Bulletin No. 65, of the Bureau of Chemistry, U. S. Department of Agriculture, and in Leach's "Food Inspection and Analysis." Frequently, the descriptive language has been condensed. While brief introductory notes are given stating the principal adulterants to be found in the several classes of foods treated in the respective chapters, there are few cautionary and explanatory notes—a defect in a text for beginners in this field of applied chemistry. At a few points, the work is not up to date. Thus, in speaking of the doubledyeing test, on page 35, the author states that "nothing but coal-tar will color in this second dyeing;" whereas, it is now well known that lichen dyes also possess this power. The chapter on honey does not mention the newer tests for invert sugar. The book will doubtless, however, serve well the purpose for which it was written. There is a good general index and an index of tests by authors, so that convenience of reference is secured.

WM. FREAR.

Medico-Physical Works, being a translation of *Tractatus quinque medico-physici* by JOHN MAYOW. Alenbic Club Reprints, No 17. Chicago: The University of Chicago Press. 1908. pp. xxiii + 331. Price, \$1.36, post-paid.

"How true it is that the value of truth is not absolute; there is a time and place for everything, including a new truth. If a discovery is made before its time, it withers up barren, without progeny, as did Mayow's." Thus wrote Sir Michael Foster in his lectures on the history of physiology. It is astonishing to learn how adequately some of our present views on chemistry and physiology are foretold in the writings of Mayow, whose observations were allowed to remain unappreciated for nearly a century and until Lavoisier had contributed his researches on oxidation. The existence and functions of oxygen were foreshadowed in Mayow's nitro-aërial spirit which he recognized as that part of the atmosphere which supports combustion; it is present in nitre and enters the blood in respiration. With a few verbal changes Mayow's description of the mechanism of respiration might serve as a text-book account of the physical features of the process to-day. The fundamental characteristics of muscular metabolism were also clearly appreciated, and that at a time when the nature of gases was obscure. "We may then suppose," wrote Mayow, physiologist and chemist, in the essay on respiration (1668), "that nitro-saline particles (*i. e.*, oxygen) derived from the inspired air constitute the one kind of motive particles, and that these, when they meet the others, the saline-sulphurous particles (*i. e.*, combustible substances) supplied by the mass of the blood and residing in the motor parts, produce the effervescence from which muscular contraction results" (p. 208).

If the discussions on animal spirits, which Mayow identified with his nitro-aërial particles, are less suggestive to-day, they are none the less interesting as a record of contemporary chemical and physiological progress. As a specimen of these early views the following quotation is of interest: "If the stomach be quite empty of food, its internal membranes are, as is probable, pinched by the nitro-aërial particles, and hunger seems to arise from this."

It is a pleasure to have a thoroughly readable English translation of these classic papers by Mayow. They can be recommended as entertaining specimens of scientific imagination and critical acumen, as well as striking illustrations of an appreciation of the experimental method long before the modern period of discovery in chemistry.

LAFAYETTE B. MENDEL.

Descriptive Biochemie mit besonderer Berücksichtigung der chemischen Arbeitsmethoden.

By DR. SIGMUND FRÄNKEL. Dozent f. med. Chemie an der Wiener Universität, Wiesbaden: J. F. Bergmann. 1907. pp. 639. Price, 17 Marks.

This book contains a description of the substances occurring in the animal body together with the methods for their isolation, their synthesis, and their quantitative determination and also their degradation products. Special chapters are devoted to the ferments and to the chemistry of the organs, secretions and excretions. The book is intended to serve as an aid to workers in physiological chemistry. In the preparation of the book, the literature up to the end of the year 1907 was consulted and numerous citations are made.

The facts of physiological chemistry are given in the book in the most compact sort of way but not to the detriment of the subject. Some exception, however, may be taken to the very free use made of abbreviations of names of common things which will require the reader to learn quite a number of abbreviations devised by Fränkel himself. In some parts of the book there appears evidence of haste in the preparation of the manuscript as shown by inaccuracies of statement and incorrect formulas. The book contains a vast amount of valuable information brought up to practically the latest date, and is a rich mine to physiological chemists.

JOHN MARSHALL.

Studies in Plant and Organic Chemistry and Literary Papers. By HELEN ABBOTT MICHAEL (Helen C. DeS. Abbott), with Biographical Sketch. Cambridge, Mass.: The Riverside Press. One vol., pp. 423. 1907. Price, \$2.50 net.

Although the subject of this appreciation had a "genius" for music she deserted it to study Helmholtz's work on optics. From physics her "interest ran to zoology and the dissecting of animals." Next she enters a medical college and passes "the first year's examination in chemistry, anatomy and physiology with a record of one hundred in