

name, whereas it is meant that he was the first to use it, and not that he at first used it and afterwards abandoned it.

The translation is accurate even to the point of being somewhat too literal. Some proper names are given in the German spelling; for Silesia and Olympiodoros we read Schlesien and Olympiodor. Some technical terms are simply transliterated; we read of "magnet stone" and "iron saffron." Such simple cases as these it is perhaps hypercriticism to mention. But when we read that "any intelligent grouping of these facts was deemed useless" by the school of Gmelin, or that certain extravagant speculations were received "on the ground of Aristotle's weighty testimony" (rather than on the ground of his authority) we feel that literalism has its limitations.

Imperfections of this sort are, however, not obtrusive, for Dr. McGowan's revision is careful about accuracy and verbal felicity; witness that the phrase "the energetic Phenicians" of the second edition has now become "the enterprising Phenicians."

To chemists and others interested in the story of an important phase of the intellectual progress of the race, as well as to junior students of the science, Dr. McGowan's work may be heartily commended. It is a translation of so high an order, whose excellence is so sustained and continuous, that it is as pleasant reading as is the original.

The type is large and clear and the paper and presswork are good.

EDWARD W. MORLEY.

A HISTORY OF CHEMISTRY BY F. P. ARMITAGE. LONGMANS, GREEN, AND CO. 1906.

The XX + 266 pages of this book contain a readable account of the progress of chemistry from the earliest times. Nineteen pages bring the story to the time of Boyle, and twenty-seven more, to the time of Lavoisier. Then seventy-four pages are given to inorganic chemistry and the atomic theory, and 110 to organic chemistry. The concluding twenty-two pages are entitled "Inter-relationship of atomic weights, Cannizzaro's reform, and the periodic law."

The work is to be much commended as being a well balanced and systematic short history of chemistry, written in English, and not too large to be mastered by a good number of junior students. It is a welcome addition to the several histories and historical essays in which English-speaking chemists have depicted the progress of chemistry or of some particular section of chemistry.

Few positive errors have been detected in the course of a somewhat careful examination of the earlier pages of the book. The writings of Geber are ascribed to the eighth century, rather than to the time of the pseudo-Geber, in the fourteenth century. Cavendish is said to have adopted the eudiometric method of Priestly, instead of that of Volta.

Such slips are few, but not a few sentences fail to express precisely what the author doubtless intended. "Sal mirabile, in which, as he believed, lay extraordinary medicinal virtue" requires to be amended by the student so as to read, "sal mirabile, in which he believed that there lay extraordinary medicinal virtue." Not a few words and phrases are infelicitous, as in case of the fourth words in the two following citations: "His work, though rendered in the most learned and convincing scientific publication of the period, was immediately forgotten" : "Complete success had awarded his efforts." To speak of "the carbonic acid salts of chalk" is an oversight; to refer to Berthollet's *Essai de Chimie Statique* now as the *Essai Chimique* and now as the *Essai Statique* annoys the scholarly reader and misleads the novice.

Lesser slips of much the same kind make the style of some parts of the history less direct and clear and luminous than is desirable. Improvement in a future edition may be confidently expected, for the style of sentences in which the author records, not the conclusions of others, but his own convictions, is not only forcible, but clear and precise.

A passage in the preface well expresses the spirit and aim of the book:—"I hope that whatever the faults [of this book] may be, the student of chemistry may derive profit by learning something of the mind, the method, the enterprise, and the energy of the great fathers of the science. . . . The domain of chemistry is so vast that much of our information must necessarily be at second hand. And the terms of the chemist—his alkali, his acid, his atoms, molecules, equivalents, his valency and basicity—are each the product of many a life's work. To have used them, and used them often, is not necessarily to have understood them nor to have become emancipated from the dogmatism of the elementary text-book. For the young student, a little dogma is expedient and even essential; but for the serious student, there can be no substitute for some knowledge of Lavoisier, Dalton, Berzelius, Liebig, Gerhardt and Kekulé."

EDWARD W. MORLEY.

VAN NOSTRAND'S CHEMICAL ANNUAL, 1907, BY JOHN C. OLSEN. FIRST YEAR.
D. VAN NOSTRAND CO., NEW YORK. x + 496 pp. \$2.50 net.

This annual "has been limited in its scope almost entirely to numerical data." Thus no schemes for chemical analysis or methods for making physical or physico-chemical measurements are contained in it. "All tables and numerical data have been quoted from the original source wherever possible, notwithstanding the labor which this involved." The editor has secured the cooperation of A. F. Tucker, E. E. Reid, C. A. F. Kalilbaum, Allan Rogers, V. J. Chambers, J. L. R. Morgan, G. B. Pegram and C. H. Lips, who share with him the responsibility for certain parts.

The tables useful in analytical work (60 pp.) are very clear and com-