

thermal chemistry, periodic law, etc., are discussed. All this is of course done very briefly, and in connection with these two chapters, in particular, the explanatory lectures mentioned above will no doubt be very essential. Chapters III and IV are not unlike chapters on the same subjects found in other texts. In the 45 pages devoted to organic chemistry only a number of groups of such compounds as are of the utmost practical importance to the particular student for whom the text is intended could be considered. The applications of chemistry in the last chapter include calorific value, explosives, fixed oils, dyeing, and the manufacture of glass, pottery, coal-gas, beer, distilled liquors, wine, bread, soap, leather, and cheese. While this chapter is devoted to practical applications exclusively, the author has not neglected to seize the opportunities of pointing out numerous practical applications in the chapters preceding.

The author has earnestly endeavored to incorporate recent discoveries and theories into his book. While his statements are generally clear, they are unfortunately not always free from inaccuracies. Only a few instances of this will here be mentioned. So on p. 69 the author neglects to point out that the assumption of electrical charges on the ions is a salient part of the theory of electrolytic dissociation, but simply adds in a footnote that the ions are probably electrically charged. On p. 71 heat of formation is confused with the thermal change that accompanies a chemical reaction. On p. 99 the statement is made that the form of the crystal is due to water of crystallization.

The book as a whole is good for the purpose for which it was written. The selection of the topics treated (upon which so much depends in a case like this) is wise; and the presentation is good considering the very condensed form necessitated. There can be no doubt that the book will meet the special needs of the students at the Military Academy better than any other textbook that is available at present.

LOUIS KAHLENBERG.

LEITFADEN FÜR DEN UNTERRICHT IN DER ANORGANISCHEN CHEMIE. BY DR. JOACHIM SPERBER. Zürich: Verlag von E. Speidel. 1899. 119 pp.

This is the first part of an extended treatise on inorganic chemistry. It treats of the usual gaseous elements, the halogens, and the non-metals. The author has applied the

inductive method to the teaching of inorganic chemistry. From simple and well chosen experiments, the fundamental principles are derived. Each set of experiments is chosen with the idea of illustrating some particular law, and is given in advance of the statement of the law itself. The laws of definite and multiple proportions, and Avogadro's law, are all established by experiment before the detailed study of the elements is begun. The order in which the separate elements are taken up is unusual. Beginning with hydrogen, the elements fluorine, chlorine, bromine, and iodine are studied, and then their hydrogen compounds. Subsequently oxygen, sulphur, selenium, and tellurium are taken up, and followed by their hydrogen compounds. Then comes the group of trivalent elements, nitrogen, phosphorus, arsenic, followed by the tetravalent carbon and silicon.

The statements in regard to the occurrence, preparation, properties, and uses of the separate elements are concise, accurate, and comprehensive. Separate theoretical considerations such as the dissociation of substances by heat, the determination of molecular weights, etc., are discussed in appropriate places, which tend to emphasize them and to show their applicability. The book contains the most recent discoveries. The illustrations are frequent, and exceptionally good. HENRY FAY.

LEXIKON DER KOHLENSTOFF VERBINDUNGEN. VON M. M. Richter. Zweite Auflage der "Tabellen der Kohlenstoff-Verbindungen nach deren empirischer Zusammensetzung geordnet." Hamburg und Leipzig: Leopold Voss; New York: G. E. Stechert. pp. about 3100. Price, 39 Lieferungen at M. 1.80 each.

It is, apparently, impossible to secure the adoption of a uniform system of nomenclature for carbon compounds. Indeed some chemists claim, and with good reason, that complete uniformity is not desirable. It becomes, therefore, every year more difficult to be sure of finding, in chemical literature, what is known about particular compounds. The work before us furnishes a lexicon of the carbon compounds arranged in accordance with their empirical formulas. The order is, first, that of the number of carbon atoms, second, that of the number of elements, third that of the elements other than carbon in the order:

H O N Cl Br I F S P Al.....Zr.

The only exception to a rigid use of the above classification