

now easily obtained; partly by the addition of one hundred and fifty pages to the book. The larger part of the new experiments pertain to electrochemistry, but there have been included, also, experiments with liquid air, Goldschmidt's process for obtaining high temperatures and a considerable number of experiments to illustrate the principles of the newer physical chemistry. One finds, also, experiments with hydroxylamine, hyrazine, hydrazoic acid and with fluorine. The new experiments as well as the old are, in general, well selected and clearly described. Only occasionally is an error to be noted, as where the decomposition of ammonia gas by electric sparks is spoken of as an electrolysis. Every one who has occasion to give experimentally illustrated lectures in chemistry will find in the book a storehouse of valuable material.

W. A. N.

A Treatise on Chemistry. By Sir H. E. ROSCOE and C. SCHORLEMMER. Vol. I., The Non-metallic Elements. New edition completely revised by Sir H. E. ROSCOE assisted by Drs. H. G. COLEMAN and A. HARDEN. London, Macmillan & Co., Ltd.; New York, The Macmillan Co. Pp. xii + 931.

This book has been so well and so favorably known since its first appearance more than twenty-five years ago that an extended notice is not necessary. Those features which made the first edition such delightful reading have been retained, while, at the same time, the authors have incorporated with painstaking care the results of a very large amount of experimental work which has enriched our science during the past quarter of a century. The completeness and accuracy with which this has been done are really surprising.

A rather brief discussion of the properties of solutions from the modern point of view is given, but in matter pertaining to the newer physical chemistry the book can not be considered as altogether satisfactory. The omission of the chapter on crystallography is to be regretted. It also seems unfortunate that the double standard for atomic weights should be used at a time when chemists seem to have decided pretty generally in favor of a single standard.

A very good though rather brief account of the gases of the helium group is given.

W. A. N.

Cours de Chimie. A L'Usage des Etudiants du P. G. N. Par R. DE FORCHAND. Paris, Gautier-Villars. 1905. Vol. I., 325 pp.; Vol. II., 317 pp. Price, 10 francs.

These books, according to the author's statement, are intended for the use of students who are intermediate in attainment between those who are candidates for the bachelor's degree and for the degree of master of arts. They are intended to furnish the basis for three exercises a week for one year. The plan followed is that of presenting an outline of the more important theories of chemistry first before considering any details with regard to the elements or their compounds—a method which may answer for students who have already acquired a considerable knowledge of the subject, but one which is wholly unsuitable for beginners. The theoretical point of view of the book corresponds more nearly to that of the average chemist fifteen years ago than to the present condition of the science. One is surprised to find the long-abandoned 'principle of maximum work' presented as one of the fundamental principles of chemistry; also the old formula Cl-O-O-OH for chloric acid. The portions devoted to organic and to analytical chemistry are so brief as to be quite unsatisfactory. In the former many structural formulæ are given, but no attempt is made to give the student an idea of the means by which such formulæ are developed.

By an oversight the author has retained the old value for the density of hydrogen. Less excusable is the value 15.84 for the atomic weight of oxygen on the hydrogen basis, calculated from the value 1.01 for hydrogen, as given by the international committee, and that too with the statement that the ratio is very accurately known.

The volumes contain no index.

W. A. N.

STRABO ON CLIMATOLOGY.

Klimalehre der alten Griechen nach den Geographica Strabos. Von Dr. HANS RID. Kaiserlautern, 1904. 8vo. TPp. 62.