

attention at home and abroad, and it would seem the part of wisdom to have the student of chemistry acquaint himself with some of the ordinary procedures in electrochemistry, which he can do by performing the experiments offered in a volume like this of Elbs. Examples in inorganic preparations, in organic preparations, in physico-chemical methods and problems form part of nearly every student's curriculum, and why not include a brief course, such as is here presented, from an equally important and instructive field? Nor should work with the electric furnace be omitted. However, the purpose of this review was not to offer a dissertation on the teaching of electrochemistry, but to indicate the character of the book so that to what has already been said of it may be added: it is well written, accurate in statements and the result of laboratory experience. The author and translator deserve much praise for their labors in the preparation of a suggestive and helpful book. EDGAR F. SMITH.

KALENDER FÜR ELEKTROCHEMIKER SOWIE TECHNISCHE CHEMIKER UND PHYSIKER. 1904. 8th year, 575 pp, with a Beilage of 416 pp. By DR. A. NEUBURGER, Editor of *Electrochemischen Zeitschrift*. Berlin: M. Krayn. Price, 4 marks.

This is the most complete electrochemical calendar known to the reviewer. It contains the general electrotechnical information found in technical calendars, but includes over 300 pages of chemical and electrochemical data, including information on quantitative analysis by electrolysis, technical electrolysis, electroplating, etc. Over 100 pages are devoted to accumulators. The Beilage contains data on hardness, elasticity, tensile strength and other mechanical data, together with 250 pages on German laws relating to electrochemical industries, including patent laws of the principal countries. W. R. WHITNEY.

UEBER DIE BASISCHE EIGENSCHAFTEN DES SAUERSTOFFS UND KOHLENSTOFFS. VON DR. JULIUS SCHMIDT. Berlin. Gebrüder Bornträger. 1904. iv + 111 pp. Price, 3.20 marks.

This interesting brochure gives a general, connected review of all the recent literature on the basic and tetravalent nature of oxygen and also on the trivalent and basic nature of carbon. Although the work done along these lines is all of very recent date, yet the literature is already sufficiently voluminous to justify the publication of the above-mentioned monograph. One need

but to glance over the pages of this little volume to see what a wealth of suggestion for new work there still is in the old idea of valence. What if we do find that our old notions in regard to the limited and fixed valence of oxygen, and perhaps that of carbon, have to be altered to some extent? By such an extension of our ideas we are enabled now to better correlate many phenomena which previously found no adequate explanation. The subject treated by Dr. Schmidt, to use his own words, "is of equal importance for the organic, inorganic, and physical chemistry. Nor is it devoid of practical interest, for the idea of the tetravalence of oxygen gives us, already, a new insight into the constitution of such important dyestuffs as the oxazines, the thiazines, the pyronines, rosamines, rhodamines, etc."

The book is divided into two parts: About 90 pages are devoted to oxygen, and 15 to carbon. The first part includes, among others, the work of Collie and Tickle on the salts of dimethylpyrone; the investigations of Baeyer and Villiger on the salt-forming properties of oxygen compounds in general; the azoxonium and azothionium salts of Kehrmann; the carboxonium and carbothionium salts of Werner, and, finally, a very readable summary of the several physical-chemical investigations that bear upon this subject. The second part is, of necessity, much smaller; it presents a brief summary of the literature relating to triphenylmethyl, to the salt-like nature of its compounds, the effect of methoxyl groups upon that, etc.

The presentation of the subject is entirely non-critical; the references to the original literature are very full.

M. GOMBERG.

QUANTITATIVE CHEMICAL ANALYSIS. By the late DR. C. REMIGIUS FRESSENIUS. Authorized translation of the greatly amplified and revised sixth German edition, by ALFRED I. COHN. New York: John Wiley & Sons. 1904. Two volumes. xii + 780 and xxii + 1255 pp. Price, \$12.50.

The preface to the first American edition of this work bears the signature of Samuel W. Johnson and is dated December, 1869, that edition being a translation of the greater part of the fifth German edition. The second American edition bears a preface signed by O. D. Allen, dated February, 1881, and it is there stated that the first volume of the sixth German edition of