the first or general part of the book, theory alone is considered, the ionic theory of electrolytic dissociation is clearly and concisely given, and the laws governing it are discussed. In the section following are described the various forms of apparatus for the measurement of current magnitudes and tension. The section on current sources is very complete, the best forms of primary and secondary elements being considered in detail, as well as numerous physical methods of producing the current. The section on accumulators is excellent, and the general rules for handling them precise. Numerous examples and tables of experiments are given, to illustrate the working of the apparatus described. The process of analysis under varying conditions is considered in full, and detailed descriptions of special forms of apparatus and the arrangements thereof are outlined. While the simpler arrangements are not slighted, more attention is given to a full description of the equipment of the Electrochemical Institute at Aachen, under the direction of the author. The second general division of the book is devoted to the quantitative determination of the metals, and herein lies the value of the work to the analyst. No criticism of the manner of detailing the various methods can be made, since all the weak as well as the strong points are carefully considered, and the directions are not involved. Full references to all the literature to date are given. Following this the work ends with an appendix of seventy pages containing schematic outlines of some applied examples of electrochemical analysis. Methods for the analysis of brass, bronzes, alloys of different compositions, iron ores, mattes, etc., are given. The work has two indexes, one of authors and one of subjects, and both are complete. The translators have done their work well, and throughout the work make frequent notations from their own experience. The illustrations are all of a high class. As a whole the work is commended either as a text-book or reference book. W. WALLEY DAVIS.

A MANUAL OF QUANTITATIVE CHEMICAL ANALYSIS. BY E. F. LADD, B.S. New York: John Wiley & Sons. vi + 82 pp. Price $1.00.

"This little manual is intended for the use of beginners in quantitative analysis * * * ."—*Preface.* For this reason the methods given should be correct if not elaborate. An ex-

amination of the work shows it to contain numerous errors, many of which would get the beginner into serious difficulties. Yet some of the methods were correctly described by the author ten years ago in the Geneva reports.

It is surprising that the reader for any responsible publishing house would recommend the publication of a work containing so many manifest errors. H. A. HUSTON.

## ERRATA.

In Vol. **19**, p. 886, line 9, "0.30" and "0.22" read "0.030" and "0.022," respectively; and on the same page, line 11, for "0.08" and "0.02" read "0.008" and "0.002", respectively.

In Vol. **20**, p. 115, line 34, for "10.2" read "31.8".

In Vol. **20**, p. 135, line 13, for "16.4" read "10.4".

In Vol. **20**, p. 465, line 5 from bottom, for "from the titration" read "private titration."

## BOOKS RECEIVED.

Potatoes. Bulletin No. 72. Strawberries. Bulletin No. 73. Kentucky Agricultural Experiment Station of the State College of Kentucky, Lexington, Kentucky, 1898.

Variety Tests of Fruits. Bulletin No. 52. Concentrated Feed-Stuffs. Bulletin No. 53. Hatch Experiment Station of the Massachusetts Agricultural College, Amherst, Mass. 1898.

Larkspur. Poisoning of Sheep. Bulletin No. 15. Montana Agricultural Experiment Station, Bozeman, Montana, July, 1897.

The Periodical Cicada in West Virginia. Bulletin No. 50. Commercial Fertilizers. Bulletin No. 51. West Virginia Agricultural Experiment Station, Morgantown, West Va., January, 1898.

Memorial of the National Pure Food and Drug Congress to the Congress of the United States. Copies of this pamphlet can be procured from the chairman, Wm. Frear, State College, Pa.

Sugar Beets. Summary of Investigation from 1888 to 1898. Report for 1897. Proposed Experiments for 1898. Bulletin No. 56. April, 1898. Chemical and Agricultural Divisions, Agricultural Experiment Station, Univ. of Minnesota, St. Anthony Park, Ramsey County, Minn.

Twenty-first Annual Report of the Connecticut Agricultural Experiment Station for 1897. Part IV. Experiments on Tobacco. Availability of Fertilizer. Nitrogen. Commercial Fertilizers for Forcing House Crops. Steam Sterilizer for Soils. Composition of Violet Plants and Flowers. Insect Notes. Analyses of Feeds, and of Milk and Butter. Legumin and other Proteids of Legumin. Proteids of Soy Bean. Feed