

years 1849 to 1886. The concluding pages of the descriptive part give the bibliography of laboratory furnaces and the various works relating to them. From pages 38 to 72 there is presented an abundance of theoretical matter. As one reads, the impression is received that we have here in a condensed form the most important data for the electrochemist who may be working either in the laboratory or upon a large scale. If this first fasciculus is an indication of what may be expected in the fasciculi yet to appear, the publication of Professor Minet will prove a most valuable and helpful addition to the working library of all electrochemists.

In the second fasciculus is promised a very full discussion of the electro-metallurgy of aluminium, magnesium, glucinum, lead, zinc, etc., together with the electro-thermics of bauxite, quartz; the polymerization of carbon, carborundum, siloxicon, etc.

In the third fasciculus will appear steel, the alloys of iron and a section on aluminio-thermics.

The fourth fasciculus will be devoted to phosphorus, arsenic, the chlorides of carbon, carbides, borides, silicides, etc.

The fifth fasciculus will be devoted to general statistics on electric furnaces. It is proposed to bring the subject-matter down to 1906.

The first fasciculus is well illustrated and contains eight portraits of men who have been prominent in the development of electric furnace work. Under each picture is briefly stated the particular line of investigation pursued by the person whose face looks out upon the reader. The eight portraits are of A. Minet, Sir William Siemens, A. K. Huntington, Louis Clerc, W. Borchers, P. Hérault, Alfred H. Cowles and Charles M. Hall.

To American students this work will prove interesting because it shows very clearly the view taken by French electrochemists upon the now rapidly developing and very important field of electro-metallurgy.

EDGAR F. SMITH.

A SHORT INTRODUCTION TO THE THEORY OF ELECTROLYTIC DISSOCIATION.

By H. C. GREGORY. Longmans, Green & Co. 1905. 76 pp. Price, 1½ shillings.

This is a simple presentation of the subject as confined to aqueous solutions. It first considers the gas laws and the analogies found in these solutions. It briefly refers to osmotic pressure and connects this in the usual way with boiling- and freezing-point effects. The degree of dissociation as indicated by these phenomena is then introduced.

In the second chapter the general principle of precipitation from aqueous solutions as determined by the solubility product and the composition of the ions is discussed, and this in connection with well-chosen illustrations.

Chapter III is devoted to the hydrogen and hydroxyl ions and includes the theory of indicators.

Chapter IV deals with the results of electrolysis of various aqueous solutions as viewed in the light of the dissociation theory. It also includes a treatment of the color produced by ions in solution and general statements as to the dissociation of the different classes of compounds.

The work is a concise and readable treatment of the subject. The choice of method and the experimental illustration are both as well chosen as would be consistent with so brief an introduction to the theory.

W. R. WHITNEY.

PRACTICAL METHODS OF ELECTRO-CHEMISTRY. By F. MOLLWO PERKIN, PH.D., Head of the Chemistry Department, Borough Polytechnic Institute, London. New York: Longmans, Green & Co. 1905.

The present volume does not pretend to give a complete course in practical electro-chemistry. It gives examples in the determination of metals and also in their separation. It also gives a very good list of examples in inorganic and organic electro-chemistry. To have made it representative there should have been added experiments with the electric furnace.

The introduction of the book contains a number of very interesting points for the beginner in electro-chemistry. They have been set forth very clearly and certainly will prove helpful to those who are about to take their first step in this growing department of chemistry. It is right and proper that the author should emphasize the important points in the work of Michael Faraday. Those who are acquainted with the subject well know that he truly deserves the title of "Father of Electro-chemistry;" but, in these days there is a tendency—not intentional be it said—to ignore much of the work that we owe to that great master.

The writer's experience would lead him to differ as to the value of some of the methods suggested for the determination of the few metals which are given, and also, to some of the separations. For example, the author of the book seems to think that the old gravimetric method for the separation of silver from copper is preferable to any electrolytic procedure. This certainly is not correct,