

you will know where you are in chemistry, and afterwards you can leave the chief paths and find out more about the by-ways. And you will see that learning chemistry is just as good fun as walking in a wood."

The following, on the possibility of new laws being discovered, is brief enough to quote:

*Pupil*—Then every one must be able to discover laws of nature?

*Master*—And so they can, if they find things in conditions not sufficiently discovered. But that is rather difficult, because the common and ordinary conditions of things are already discovered; and it is hard to acquire enough exact knowledge to find undiscovered spheres to examine. For instance, it would be quite easy to discover the north pole if you could only get to it. The difficulty is not to see the North Pole, but to get a place from where it can be seen."

In the preface to the second part Professor Ostwald admits that he wrote not alone for children. If the text-books that we read represent the state of mind of the average chemist then there is not one of them who would not profit immensely if, by reading the book under review, he could catch the sane philosophy, the genial pedagogy, or the rational chemistry in which the dialogues abound.

Miss Ramsay, the translator, may be congratulated on the success with which she has accomplished a task of unusual difficulty.

A. S.

LE FOUR ÉLECTRIQUE. Par ADOLPHE MINET, Paris, 1905, 6 et 12 Rue de La Sorbonne. Price, 5 francs for the first part.

In this volume Professor Minet evidently purposes to give the student of electro-chemistry a very full account of the work possible with an electric furnace. The book will consist of five fasciculi. The first, which is before the reviewer, consists of 72 pages of closely printed matter. The history and development, as well as the classification of electric furnaces, receive pretty full consideration in 11 pages. There then follows a descriptive section of 21 pages in which early laboratory furnaces are discussed, after which there is a pretty full account of the electro-metallurgy of aluminium with reference to the various forms of apparatus used in its isolation. The electro-metallurgy of magnesium, of lithium, of sodium, of potassium and the alkaline earths is discussed. Reference is also made to furnaces of various classes which appeared from the

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 aluminothermics.

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. Héroult, 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.