merely presented as an addition to the somewhat restricted literature upon the addition products between haloid salts and alcohols.

Sodium iodide is very soluble in absolute methyl alcohol and is not precipitated therefrom upon the addition of a considerable volume of absolute ether, while wet ether produces immediate separation. On cooling a warm solution, rather large plate-shaped crystals separate out, while a solution saturated at room temperature and then cooled below 0°, becomes thoroughly permeated with brilliant white felted needles; although differing markedly in appearance, these two kinds of crystals are identical in composition.

The iodine was determined by Volhard's method; the methyl alcohol, by heating in a current of air and absorbing the vapors in sulphuric acid; the gain in the weight of the latter corresponding accurately to the loss experienced by the crystals. The results agreed very closely with the formula $NaI.3CH_4O$: 38.91 and 38.55 per cent. of methyl alcohol and 51.50 per cent. of iodine. Calculated for $NaI.3CH_4O$, 39.06 and 51.58 per cent.

Potassium iodide, while fairly soluble in alcohol, crystallizes free from it and this seems to be quite a characteristic distinction between the two salts. Sodium iodide crystallizes from ethyl alcohol, forming an addition product, although not quite so readily as with the methyl alcohol. The analysis gave 64.22 per cent. I; calculated for $NaI.C_2H_6O$, 64.91 per cent. This, therefore, seems to be the formula of the addition product with ethyl alcohol.

Normal propyl alcohol dissolves nearly one-third of its weight of sodium iodide and, on evaporation at low temperatures, deposits crystals which appear to have the formula $5NaI.3C_3H_8O$, as two distinct preparations gave 68.26 per cent. and 68.22 per cent. of iodine, against 68.27 per cent. required by theory. Apparently, therefore, the molecular proportion of alcohol assimilated decreases as the series ascends. MORRIS LOEB.

NEW BOOKS.

CONVERSATIONS ON CHEMISTRY: Part I, General Chemistry. By WILHELM OSTWALD. Translation by ELIZABETH CATHERINE RAMSAY. New York: John Wiley & Sons. 1905. vii + 250 pp.

A chemistry in dialogue form without diffuseness, a chemistry vividly up to date, yet within the comprehension of the youngest

pupil, a chemistry hand in hand with experiment and its ungrouped occurrences, yet by ingenious digestion and elaboration organized into a consistent structure, a chemistry in which the common obscurities instead of being handed on in the "original package," according to tradition, are made abundantly plain, all this and far more is Professor Ostwald's latest volume.

The present book contains the first part of the treatise and deals with the application of scientific observation and reasoning to simple physical and chemical phenomena. Substances, their recognition and separation through the use of physical properties, solutions, phenomena of melting, freezing and of boiling, measurement, and state of aggregation are followed by oxygen and combustion. The other materials discussed are hydrogen, water, nitrogen, and carbon and its oxides. At convenient places there are introduced subjects like the conception of elements, the nature of a law and of an hypothesis, the conception of continuity involved in the statement of many laws.

The homely illustrations in the mouth of the teacher and even the school-boy slang of the pupil, which assist materially in holding the attention of the reader, would not harmonize with any other background than that of familiar dialogue which the author has chosen. A discussion as to whether sugar and knitting needles and scissors and paper are all substances closes as follows:

"*Pupil*—Then there are an awful lot of different kinds of substances?

Master—Yes, certainly there are many; far more substances than you can name. And chemistry has to do with all such substances.

P—Oh, then I shall never be able to learn all about chemistry—it's hopeless. I'd rather not begin.

M—Do you know the forest near here?

P—Yes, rather; you could put me where you like in it and I should always know where I was.

M—But you don't know every single tree in it? How can you help being lost?

P—But I know the paths.

M—Now, look here; that is what we are going to do with chemistry. We will not learn every single substance that there is, but we will learn the paths which divide up the countless substances into different groups, and by help of which we can find our way from one place to another. When you know the principal paths

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