

are especially good. On the whole, the book can be heartily recommended.

J. H. LONG.

Introduction to the Theory and Practice of Qualitative Analysis by Solution. By F. W. MARTIN, PH.D., Lynchburg, Va. J. P. Bell Co. 1907. pp. 64. Price, \$0.75.

In this small guide to qualitative analysis the first three chapters are devoted to general matters related to the theory of solutions, such as osmosis, vapor pressure, ionization, chemical equilibrium, hydrolysis, etc. The fourth and fifth chapters deal with the classification of the bases and acids into groups. A few reactions of the members of each group are given. Chapters 6 and 7 give the systematic procedure for the identification of acidic and basic ions. Chapter 8 contains a list of 27 exercises to be carried out according to the directions given in the preceding chapters.

The appendix contains a list of reagents with brief directions for making them. It is not intended that the treatise should be used without the personal instruction of the teacher. As the author says in the preface, "He (the instructor) is the one indispensable feature of a laboratory."

EDWARD H. KEISER.

Electro-Analysis. By EDGAR F. SMITH. 4th edition revised and enlarged, with 42 illustrations. Philadelphia: Blakiston's Son & Co. 1907. Price, \$2.50 net.

Since the last edition of Professor Smith's book was published in 1902, the rotating electrode has been introduced into electro-analysis, with the result that in many cases the time required to complete an electrolysis has been reduced from hours to minutes. The present work is the first to give full details of the conditions under which satisfactory results may be obtained with this new tool, and is thus the only really "up-to-date" treatise on electro-analysis in existence.

Many of the new methods have been worked out in the laboratory of the author, and their accuracy and speed are attested by numerous trial analyses; particularly interesting are those in which both anion and cation are determined in a single operation with mercury cathode and silver anode.

In many instances, no doubt, the slower methods will still remain in use—to leave the current on over night is a very easy method of making an analysis—and the author has done wisely in retaining the descriptions of the older methods side by side with those of the new. One hundred and thirty pages have thus been added to the book; if in a future edition it should prove necessary to economize space, it might be a good idea to cut out the pictures on pages 64 and 97 in which a milliammeter worth thirty dollars or so is represented as tilted against an accumulator cell filled with sulphuric acid. There are laboratories where a student could get himself into trouble by attempting to carry this suggestion into practice.

W. LASH MILLER.