

**An Introductory Course of Quantitative Chemical Analysis with Explanatory Notes and Stoichiometrical Problems.** By HENRY P. TALBOT, Professor of Inorganic and Analytical Chemistry, Massachusetts Institute of Technology. Fifth Edition, Rewritten and Revised. New York: The Macmillan Company, 1908. Pp. 176. Price, \$1.50.

The introduction of the electrolytic dissociation theory is the new feature of this edition. The notes at the end of each analytical procedure have been increased to include a consideration of the more important ionic changes involved, and a short chapter on the theory itself has been added in the Appendix. The author assumes, as stated in the preface, that the instructor will present much in the way of additional detail and illustration, and that the student should be encouraged to read other and more extended treatises on the subject.

In other respects the book has not been changed materially. The partial analysis of dolomite has been replaced by a complete analysis of limestone and the number of problems in the chapter on stoichiometry has been increased. The book has been largely rewritten, revised and brought up to date, the former standard of excellence prevailing throughout.

WILLIS B. HOLMES.

**Electroanalytische Schnellmethoden.** VON DR. ING. A. FISCHER. Technische Hochschule Aachen—Verlag von Ferdinand Enke in Stuttgart.

This little book, which constitutes IV/V Band of "Die Chemische Analyse" now in course of preparation by a large group of German chemists, presents, in an interesting form, the results obtained in electroanalysis since chemists have resorted to agitation of the electrolyte to hasten metal deposition. The author seeks to impress the reader with the idea that agitation of the electrolyte is a particular contribution of his German colleagues. v. Klobukow undoubtedly did first call attention to the advantage of agitation in analysis, and here and there in the writings of other Germans casual reference is made to it, but the real point, *viz.*, that with agitation of the electrolyte it is possible to use high current densities and pressures without impairing the character of the deposit, was not mentioned by any of them. This, however, was the point emphasized by American students and thereby the determination of metals in exceedingly short periods of time has been accomplished with great satisfaction.

Considerable space is given to a theoretical discussion of the changes occurring in the rapid precipitation of metals, but when all has been said the solution of the problem is found in the fact that, by rotation of the anode for example, hydrogen is swept from the cathode and there occurs in the vicinity of the latter a concentration of ions, hence rapid deposition. The author declares that Americans have developed their studies in a purely empirical manner whereas our German brethren have endeavored to follow and explain the course of the changes. To the mind of the reviewer this

is a bit of pure assumption. It is so much more easy to hastily plunge into a theoretical discussion with a paucity of data than to amass facts and thereon build a sound theoretical explanation. The author, in his endeavor to give full recognition to the labors of others, presents working conditions and results in tabular form indicating those which from his experience warrant the most confidence. However, the student will find nothing more recent on these points than has already appeared on the pages of *THIS JOURNAL* and other chemical journals of our own country.

He refrains from the use of the mercury cathode in a single cell, although it certainly has proved itself most valuable in the determination of metals. His thought seems to be that the small volume of the electrolyte militates against the procedure for practical use. Such, however, has not been the experience of the reviewer, under whose eye hundreds of metal determinations have been made in this way with ease, rapidity and complete satisfaction.

The double cup with mercury cathode, as used in the determinations of the halogens and other anions with simultaneous determinations of metals, *e. g.*, sodium, barium, etc., does find very full recognition. Its constant daily use is demonstrating its real value and helpfulness. With its aid most interesting separations are being carried out.

The technical problems, constituting the concluding part of the book, are suggestive.

There are many points in the text which the reviewer might discuss if space were not so precious; suffice to say that every student of electroanalysis will read it with interest. It is deserving of study. It is additional evidence that the domain of electroanalysis is far from being exhausted, and that its study will be fraught not only with many results of purely scientific interest but also with such as have an immediate practical bearing. The solution of such problems is now being the subject of most earnest thought not only abroad but here in America, where electroanalysis first began and where it has been prosecuted diligently for a period of forty years.

EDGAR F. SMITH.

**The Data of Geochemistry.** By FRANK WIGGLESWORTH CLARKE. 8vo. 716 pp. Washington, 1908. United States Geological Survey, Bulletin No. 330.

This is an important and useful book presenting a vast amount of well selected data concerning the chemistry of the earth, and summarizing in an able and thorough manner what is known at present concerning this broad subject. The references to the literature are very comprehensive and valuable.

The distribution of the chemical elements and their relative abundance are first considered. The composition of the earth's crust, to which the author has previously paid much attention, is very fully treated. Lakes and rivers, the ocean, waters of closed basins, mineral wells and springs,