

cussed under the individual groups may be easily referred to for confirmatory tests. The analysis for the anions is treated in a similar manner. In this section the division into groups has been slightly altered, and a number of new tests added.

The subject is treated from the standpoint of the Electrolytic Dissociation Theory and the Mass Action Law, which are developed in the first part of the book. M. S. SHERRILL.

**BET SUGAR MANUFACTURE AND REFINING, Vol. I. Extraction and Eparation.** By LEWIS S. WARE. New York: John Wiley & Sons. xxvii+543 pp. 262 figures. Price, \$4.00.

Notwithstanding the rapid developments of the beet-sugar industry in this country during the past twenty years, those desiring a satisfactory treatise upon the subject have been obliged to consult the various foreign works, such as that of Horsin-Deon in French, or the volumes of Stohmann or Claassen in German. We now have in the forenamed book, Volume I of what promises to be the first complete work in the English language upon the beet-sugar industry. No one is better qualified than Mr. Ware to undertake a task of this kind. As editor of the "Sugar-beet" he has long been prominent in the sugar world, and his numerous visits during the past thirty years to hundreds of beet-sugar factories in various European countries have given him a more impartial command of the subject than the numerous French and German authorities who so frequently argue, to quote from the writer's preface, "from the bias of their respective national standpoints." The book is written entirely from European observations, the author remarking somewhat ironically that he makes no mention of American methods, his "intention being to avoid any attempt at criticising some very glaring blunders."

In Part I of the volume the preliminary operations of beet delivery, siloing, washing, etc., are taken up. Part II is devoted to extraction, and discusses methods of slicing, working of the diffusion battery and the exhaustion and drying of cosettes. Part III, the largest division of the volume, gives eight chapters to the subject of eparation and treats of liming, carbonatation, filtration, and sulphuring. A chapter is also given to the less common methods of clarification. The author's introductory remarks upon practical considerations form one of the best

points about the book. A careful perusal of these 14 pages will cause those inclined to be overzealous to think seriously before embarking upon the beet-sugar enterprise.

A very complete bibliography of the various works and journals consulted is given, and the references made to these in the text are indicated at the bottom of the page. We are glad to see that an index has been provided, the lack of this in the first volume of uncompleted works being often a source of annoyance.

The publishers have performed their part of the work most satisfactorily, the typography and illustrations being excellent. The succeeding volume of Mr. Ware's book will be awaited by the sugar world with great interest. C. A. BROWNE, JR.

TECHNICAL METHODS OF ORE ANALYSIS. By ALBERT H. LOW. New York: John Wiley & Sons. 1905. x+273 pp. Price, \$3.00.

This is a book of 273 pages, and according to the preface is designed as an aid "to the technical chemist," but it is hoped by the author that it "may also prove useful to the student desiring to become acquainted with technical methods." Both of these intentions seem to have been quite satisfactorily carried out.

The first chapter of 7 pages describes some special forms of well-known apparatus which the author has found particularly desirable. Following this is a chapter on electrolysis, giving briefly the apparatus necessary to carry on electrolytic methods and the general precautions and procedure required. Chapter 3 is a short one on the use and advantage of logarithms in chemical calculations. Following this is the main part of the book, in which are described methods for the determination and separation of the various metals and elements ordinarily required in metallurgical work, beginning with aluminum and including antimony, arsenic, barium, bismuth, cadmium, calcium, chlorine, chromium, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel and cobalt, phosphorus, potassium and sodium, silica, sulphur, tin, titanium, tungsten, uranium and vanadium. These are treated in separate chapters.

Chapter 30 suggests methods for separating the elements when more complete analyses from one sample are desired.

Chapter 31 treats of the analysis of boiler waters, and chapter 32 the analysis of coal and coke. There is also a short chapter on testing crude petroleum.