text intended to introduce the student to chemical studies has been undertaken by the author of this work with boldness and discretion. The theory is not separated from the facts to which it belongs, but it is in every instance treated as an intimate part of them.

The concept of atoms and molecules is developed at an early stage, after a brief treatment of the properties and composition of water. The kinetic theory, dissociation, law of mass action, methods of determining molecular weights and several related topics are discussed, hand in hand with the description of the elements of the halogen group, and are treated with admirable precision and clearness. The question forces itself, however, upon the reader, whether it is wise to compress so large a part of the theory into the first eighty pages.

The presentation of the principles of thermochemistry is very satisfactory and that of the periodic system is adequate, the customary atomic volume curve being reproduced according to recent data.

A good deal of space is devoted to technological processes, eight pages being given, for example, to the manufacture of sulphuric acid. The few words relating to spectrum analysis could scarcely be improved upon.

The book as a whole has a marked air of scholarly distinction, for which part of the credit belongs to the translator. Very few passages bear any of the ear-marks of translation which too often disfigure American editions of foreign scientific books. While the descriptive matter is subordinated to the consideration of principles, it does not seem to the reviewer that the author has gone too far in this direction. It would not be impossible for some college classes to cover the entire ground of the text in a year's work. LAUNCELOT W. ANDREWS.

A BIBLIOGRAPHY OF THE ANALYTICAL CHEMISTRY OF MANGANESE, 1785-1900. BY HENRY P. TALBOT AND JOHN W. BROWN. City of Washington: Published by the Smithsonian Institution. 1902. pp. viii+124.

This is the fourteenth of the bibliographies pertaining to chemical subjects published by the Smithsonian Institution on recommendation of a Committee of the American Association for the Advancement of Science of which Dr. H. C. Bolton is Chair-

man. For the portion 1785 to 1830 the present Bibliography is based largely on "An Index to the Literature of Manganese, 1596-1874," published by Dr. Bolton in 1875. The present work is, however, confined to the analytical part of the subject and is, apparently, very complete for that field. W. A. N.

JAHRBUCH DES VEREINS DES SPIRITUS-FABRIKANTEN IN DEUTSCHLAND, DES VEREINS DER STÄRKE-INTERESSENTEN IN DEUTSCHLAND UND DER BRENNEREI-BERUFSGENOSSENSCHAFT. Zweiter Jahrgang, 1902. 8vo. xvi + 471 pp. Berlin: Paul Parey. 1902.

This second volume of the Jahrbuch is edited by Dr. Delbruck and its high value to the fermentation and cereal products industries is thereby assured. And this volume certainly establishes the success of the undertaking to publish it.

The editor states in the preface that "the compass of the work has considerably extended this year, not because of prolixity on the part of reporters but because of the enormous increase in material to be treated, and in his oral report to the societies in their general meeting he says "the object of the yearbook is that the members may have the work of the year not in the detached parts of our Journal (Zeitschrift für Spiritus-Industrie) but in a complete volume at the close of the year. * * * * In connection with the Kalendar we publish, this presents a complete compendium of the developments of each new year."

Dr. Delbruck has not exaggerated. It is almost a handbook as well as a yearbook, for nearly every operation in the fermentation, starch and starch derivatives industries is discussed with some suggestion for improvement. From the culture of the potato and barley, the production of malt and yeast, the control of the fermentation and distillation processes, to the separation and utilization of the finished products and wastes, each step has had the attention of specialists appointed to study them and the report in each case is full of valuable information. In addition to the reports from the different sections into which the works of the societies is divided, we are offered most interesting stenographic reports of the general meetings. It would be impossible to recapitulate here what is set forth in the book It is enough to say that it is filled from cover to cover with facts of the highest scientific and practical value.