

can be far more readily ground than the one Geschwind described containing 16 per cent.  $Al_2O_3$ .

In the chapter describing the method of purifying aluminum sulphate, it is stated that the introduction of zinc sulphate is disadvantageous. On the contrary, it is very advantageous with animal-sized paper, and is specifically required by many paper-makers in this country. If the author had included American practice, this chapter would have been much more interesting.

The method described for making crystal alum is essentially the same as that used in this country. The figures which are given are of much interest to any alum-maker.

The method given for analyzing bauxite for alum purposes is open to criticism. It will give too high results. The method of attack used in analysis to determine the alumina available for alum-making, should as nearly as possible correspond to the reaction which takes place in the mix tank.

The chapter on the uses of the sulphates is very interesting and instructive. No one who is interested in these manufactures should be without this book.

Notwithstanding its omissions the book is of sufficient importance to make it very valuable to those engaged in these manufactures, and to the chemical student.

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VORLESUNGEN UEBER THEORETISCHE UND PHYSIKALISCHE CHEMIE. ERSTES HEFT—DIE CHEMISCHE DYNAMIK. BY J. H. VAN 'T HOFF. Second Edition. Braunschweig: F. Vieweg und Sohn. 1901. xi + 251 pp. Price, 6 M.

Hardly three years and a half have elapsed since the appearance of the first edition of this part of the "Lectures." Its rapid succession by a new edition—or rather, a reprint—bears eloquent testimony, if any had been needed, to the conspicuous merits of the work. In this part of the subject, dealing with chemical equilibrium and reaction speed, the author is particularly at home, for references to his own or his pupils' investigations appear in almost every section. Whether we consider the original arrangement of the material or the masterly handling of the details, the book must be declared eminently successful. The characteristics of the treatment are so familiar to those who possess the first edition, or the English translation by Dr. Lehfeldt, that they need not be described here. In the present edition the only change,

beyond merely verbal ones, which we have noticed, is the omission of about a page dealing with Mallard and Le Chatelier's theory of the speed of propagation of combustion in gases. It is unfortunate that the statements in regard to the work of Helier and of Pelabon (pp. 207 and 232) on false equilibria have not been modified in view of Bodenstein's conclusions published two and a half years ago. It appears, however, from the preface that the revision was completed before that time, so that recent work of importance had to remain unnoticed. Besides the work does not profess to be exhaustive and the selection made presents all the types most admirably.

ALEXANDER SMITH.

THE CHEMICAL ESSAYS OF CHARLES WILLIAM SCHEELÉ. Translated from the transactions of the Academy of Sciences at Stockholm with additions. First published in English by J. Murray, 32 Fleet St., London, in 1786. With a sketch of the life of Karl Wilhelm Scheele, by John Geddes McIntosh. Reissued by Scott, Greenwood & Co., 19 Ludgate Hill, London, E. C. 1901. xxx + 294 pp. 8vo. Price, 6 shillings.

The first collection of the chemical essays published by Scheele in the *Memoirs of the Royal Academy of Sciences*, Stockholm, was issued at Dijon in 1785, and filled two small volumes; the translation from the Swedish and the German (for Scheele wrote and published in both languages) was made by Madame Picardet, and her manuscript was revised by the prominent chemist Guyton de Morveau. It is interesting to note that the lady afterwards became Madame de Morveau.

Then appeared the English edition of 1786 named in the title-page of the book under review; this was followed by a Latin edition by E. B. G. Hebenstreit (Leipzig, 1788-1789), and finally by a German edition edited by S. F. Hermbstädt, published at Berlin in 1793, and reissued in 1891. As Scheele died May 21, 1786, the only one of these collections published in his lifetime was the French edition of 1785.

None of these contain, however, one of Scheele's most important researches "On Air and Fire," in which he describes the discovery of oxygen; this appeared in German, at Upsala and Leipzig in 1777; an English translation (with notes by Richard Kirwan and Joseph Priestley) followed in 1780. Finally in 1892, A. E. Nordenskiöld published, at Stockholm, Scheele's "*Nachgelassene Briefe und Aufzeichnungen*," a sumptuous volume of 491 pages royal 8vo, illustrated with portraits and facsimiles.