The balance mentioned on page 314 I believe to be the "Steinke Matador, Pracisionswaage ohne Benutzung von Gewichten." We have tried this balance in this laboratory for the purpose mentioned and have found it to be wholly inaccurate and useless for this purpose.

On page 309, the authors of the paper are led to make an unjust criticism of the method proposed by Walawski, because of a typographical error made by us in the translation of Sachs' paper. Walawski recommended the addition of a weight of water equal to 3 times the weight of the pulp and not 3.6 times the weight of the pulp as stated.

In the closing paragraphs of their paper, the authors describe an application of their method to the analysis of beet juices, which needs a word of comment.

They state that "A water factor of 85 per cent. was adopted." This implies that the beet juices were assumed to contain 15 per cent. of total solids, which corresponds to a specific gravity of 1.06133. 26.048 grams of juice of this density measure 24.54 Mohr's cc. at 17.5° C. At 30° C. the specific gravity would be somewhat less; the volume would be approximately 24.63 Mohr's cc. It is difficult to understand how the excellent comparative results would have been obtained by the authors of this paper by allowing only 22.14 cc. for the increase in the volume of the mixture due to the beet juice.

E. E. EWELL.

DIVISION OF CHEMISTRY, U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C., March 20, 1901.

NEW BOOKS.

THE TESTING AND VALUATION OF RAW MATERIALS USED IN PAINT AND COLOUR MANUFACTURE. By M. W. JONES, F.C.S. A book for the laboratories of colour works. 88 pages. Price, $2.00.

Excepting a chapter on oils, this book is devoted to a general survey of the most important inorganic raw materials used by the trade. The subjects treated under separate headings are: China clay, ammonium hydrate, acids, ultramarine, oils, and the compounds of aluminium, iron, potassium, sodium, chromium, tin, copper, lead, zinc, manganese, arsenic, antimony, calcium, barium, cadmium, mercury, cobalt, and carbon.

Suitable tests are given for the detection of impurities and adulterants; and the schemes of analysis are familiar ones, simple,

accurate, and precisely described. Gravimetric methods are given in nearly every case supplemented in many instances by volumetric. The chapter on oils is confined to the estimation of fatty acids in Turkey-red oil, and to the detection in linseed oil of mineral, resin, raw or boiled oils.

The book is an excellent compilation which will undoubtedly find favor in the laboratory. It has an index.

C. W. PARMELEE.

CHRISTIAN FRIEDRICH SCHÖNBEIN, 1799–1868. Ein Blatt zur Geschichte des 19. Jahrhunderts, von GEORG W. A. KAHLBAUM und ED. SCHAER. 2 vols., Leipzig, 1899–1901. Vol. I, 230 pp. Portrait; Vol. II, 326 pp. (Viertes und sechtes Hefte Monographien aus der Geschichte der Chemie, herausgegeben von Georg W. A. Kahlbaum.)

These two volumes contain the life history of that remarkable man who will always be remembered as the discoverer of four notable things of diverse nature in their physical and chemical aspects, the Passivity of Iron, Ozone, Guncotton and Collodion.

The author, who occupies the chair of chemistry in the University of Basle, has enjoyed the best opportunities for gathering the data needed for his work; from the three living daughters of Schönbein, from his friends both in Germany and in England, he has had for study not less than 1600 letters, and through libraries and personal friends he has consulted 350 of Schönbein's printed papers. And with these aids he has portrayed the man in his scientific pursuits and social life.

Schönbein, who was born 18th October, 1799, in what is now known as the kingdom of Würtemberg, inherited a love for chemistry from his father, who was a dyer and as such occupied with problems requiring chemical knowledge. At the age of twenty-one he entered the manufactory of chemicals of Dr. J. G. Dingler, in Augsburg, where his daily labor extended from 6 A.M. to 7 P.M., leaving him only from 4 to 6 A.M. and from 7 to 10 P.M. for private study and recreation. For this he received board and lodging and 200 to 300 florins a year. Dingler had just begun to publish his *Polytechnisches Journal.* (1820–1901).

After studying some semesters at the Universities of Tübingen and Erlangen, he secured a position as teacher of physics, chemistry, and mineralogy in the educational institution founded a few years before by Friedrich Fröbel, of kindergarten fame. In 1826 we find him a teacher in London, and in 1828 again on the con-