and it is easiest then to transfer the solution and precipitate to a graduated flask, fill to the mark, mix, filter through a dry paper, and take an aliquot part for the zinc determination. The hydrogen peroxide in the solution may be effectively removed by boiling off about half of the liquid before acidifying. The addition of hydrogen sulphide water after the addition of the acid destroys any trace that may have been left after boiling.

The solution is now ready for the zinc determination, unless the ore contains copper or cadmium, which must, of course, be removed.

PERCY H. WALKER.

CHEMICAL LABORATORY, INTERNATIONAL TEXT-BOOK CO.,
SCRANTON, PA.,
January, 1904.

NEW BOOKS.

ANNUAIRE POUR L'AN 1904, PUBLIE PAR LE BUREAU DES LONGITUDES. 16mo. 732 + 80 pp. Price, 1 fr. 50 centimes. Paris: Gauthier-Villars.

Exactly one-half of this volume is an almanac, with nothing in it of chemical interest. The latter half contains physical and chemical tables, and the reviewer is pleased to be able to modify his criticism of the former volume (1903), and to say that *this* volume is well worth its price to the chemist because of the careful revision and the addition of 13 new tables, the thermochemical tables contributed by Berthelot (47 pages) being alone well worth the cost of the book. These physical and chemical tables will, in future, be published only on alternate years, so that the volumes issuing on the even years will be the only ones of value to the chemist.

JOSEPH W. RICHARDS.

THE TECHNOLOGY OF SUGAR. BY J. G. MACKINTOSH. London: Scott, Greenwood & Co.; New York: D. Van Nostrand Co. 1903. 402 pp. Price, $4.50 net.

A better title would have been "The Technology of Beet Sugar, with Some Supplementary Notes on Cane-Sugar Manufacture." The book will be welcome as a commendable treatise on the technology and history of continental beet sugar-house methods. As a review in English of the classic works of Horsin-Deon and other eminent European sugar-house engineers, it will be useful in the library of the sugar-house and technical school, if only to

inspire a reading of the originals. Evidently the author has no practical acquaintance with beet-sugar work in this country, which has been appreciably modified to suit local conditions, a fact which European experts here seem slow to learn. The use of sulphurous acid ("sulphitation"), practiced widely here and abroad as a vital part of clarification, gets but a passing mention (p. 273).

Following the custom of the foreign treatises, the author gives scant space to cane-sugar technology, although it is his avowed wish, as stated in the preface, to aid those interested in that industry. He gives much of his 50 pages to a discussion of diffusion experiments, but he should know that, aside from any intrinsic advantage of diffusion as an extraction method, prevailing conditions in most tropical sugar regions make that method impracticable. Cane-sugar manufacture, uninfluenced by government paternalism which has so stimulated beet-sugar production and unified methods, exists to-day in all stages of evolution, but in its highest development, as in Cuba or Hawaii particularly, the results have been as successful and the technical attainments as great as in the European industry. It is true, peculiar economic conditions, well worthy of discussion in a sugar technology, have necessitated a sharply defined division of processes between sugar-house and refinery, so that the development in extraction of sugar directly from the plant, being diverted from improvement of product, in late years has been solely in economy of production in field and factory and in increased yield of (designedly crude) sugar.

The improvements of the Stillmans in evaporating and clarifying, in steam economy and general engineering of the refinery and sugar-house, the clarifying process of Deming, the factories of Hedeman and Williams in Hawaii, the cane-handling machinery of Gregg, and many other successful works equally deserving, are worth study in sugar technology.

The Soledad and Trinidad houses in Cuba and the Ewa[1] in Hawaii can be instanced as among those of which each has a yearly output of 10,000 tons of cane-sugar or more, showing a uniformity and economy of production unexcelled anywhere. This has been attained only by high technical development of process

[1] Ewa's output for last crop is reported to be 35,000 tons.

and machinery in house and field, largely by American engineering genius. The mass of data on cane-sugar technology is yet to be collected. It cannot be extracted from the present literature of Europe.

Practically all of the first and last chapters could be omitted to advantage, the subject-matter being far better treated in the text-books on sugar analysis. Some of the methods given are obsolete, and there is much that is unintentionally misleading and misstated. The space could be much better utilized in discussing from a purely technological standpoint the chemistry of beet and cane juice bearing on a comparative study of beet- and cane-sugar technology—simple and well-known principles, so often ignored, even by experts—and the general economic conditions which have been vital in the shaping of the two industries.

Naturally, some misprints have been found, most of them obvious from the context. GEO W. ROLFE.

ELECTROLYTIC PREPARATIONS. Exercises for Use in the Laboratory by Chemists and Electrochemists. BY DR. KARL ELBS, Professor of Organic and Physical Chemistry at the University of Giessen. Translated by R. S. HUTTON, M.Sc., Lecturer in Electrochemistry, Owens College, England. New York: Longmans, Green & Co. Price, $1.60.

This little work of 100 pages is divided into three parts. The source of current, resistances, measuring apparatus and apparatus for electrolysis are clearly and attractively presented in the first part. Thirteen examples from inorganic chemistry constitute the second part. They are arranged so that some of the experiments are made with unattackable and others with soluble anodes. The directions in each case are full and explicit. The third part consists of thirteen examples selected from the domain of organic chemistry. Three of these deal with the electrolysis of organic acids; the remainder consider electrochemical reduction and oxidation methods. Only two examples present the oxidation methods.

The reviewer was on the point of saying that this is regrettable, but instead would substitute that in this particular direction there exist great possibilities, awaiting the attention of those who will devote themselves to a study of this most promising field of research. At present, practical electrochemistry is receiving much