

numberless experimental uses, among them lithographing with aluminum plates instead of zinc or lithographic stone. Some experiments in this direction in the map department of the Geological Survey indicate that the transfers obtained on aluminum are superior to those on zinc."

*Salt.*—"Notwithstanding the low prices which have prevailed and which have been due to keen competition among producers, there has been a laudable endeavor on the part of a number of manufacturers to improve the quality of their product. In this, signal success has been attained, and salt of American production has been so improved by new processes, which each producer holds secret, that importations of refined salt have almost ceased to be a factor in the industry. The competition in the production of fine grades of salt has become as sharp in its way as the competition in prices. Table and dairy salts are now prepared for commerce practically chemically pure—free from gypsum, calcium chloride, and magnesium salts."

Space will not permit of further extracts from this useful volume.

E. H.

SEVENTH ANNUAL REPORT AGRICULTURAL EXPERIMENT STATION OF NEBRASKA FOR THE YEAR 1893. pp. 206. Lincoln, Nebraska: State Journal Co. 1894.

The volume includes brief statements of the work of the year by the director and the heads of the different departments, a list of books in some of the sections, the usual roster of officers and the financial statements. With these are bound nine articles which have already appeared as station bulletins and the title page of one other.

Chemists will be most interested in the two articles on the culture of the sugar-beet by Prof. Nicholson and his assistants, and in the article on the influence of changes of food and temperature on the quantity and quality of the milk of dairy cows.

The work on the sugar-beet is planned to cover the subject thoroughly, including culture, yields, richness of the beet, value of rejected portions, study of physiological problems, effect of fertilization, cost of production, seed production, and injury from insects.

Since Nebraska has become the second beet-sugar producing state in the union, parties interested in the subject naturally look to the bulletins of the Nebraska station for reliable information on the subject. They will find much important matter in this report. The work has been carried out on a larger scale than is usual in experiment station work. Under the head of fertilizers for beets it is stated that the use of "guano" seemed to be injurious to the beet. It is to be regretted that the actual composition of this "guano" is not given, as the "guano" now sold is often very different in origin and composition from the guano of standard reference books.

All the articles are fully illustrated by cuts, plates, and charts which add very materially to the interest and value of the volume.

H. A. HUSTON.

ELECTRO-CHEMICAL ANALYSIS. BY EDGAR F. SMITH. pp. 139, 27 illustrations. 2d Edition. Price \$1.25. Philadelphia: P. Blakiston, Son & Co. 1894.

It is to Germany that we are accustomed to look for the scientific thoroughness which characterizes this little volume. Prof. Smith has long been known as an indefatigable worker in the field of electrolysis, and is a frequent and regular contributor to its literature. In this manual he presents, in clear and precise language, all that has stood the test of experience, and he deserves praise for avoiding to give undue prominence to his own methods. The very interesting chapter which he devotes to an historical sketch of the subject will doubtless serve to dispel erroneous notions that are entertained by many chemists regarding the authorship of certain methods.

In this new edition the character of the original work is preserved, but the additions show that the author has not allowed any recent publications of importance to escape his attention. Amongst others we note references to the interesting work of the Munich Polytechnic School, the valuable experiences of Elbs and of Oettel, and especially the excellent work that has been done in the laboratory of the University of Pennsylvania since the appearance of the first edition.

There is, no doubt, that we have here the most accurate, as well as the most complete work that has been written on electro-chemical analysis.

H. F. KELLER.