

Chapter VI. This chapter is the best in the book; here the ordinary qualitative blowpipe tests are distinctly and succinctly described.

Chapter VII, Quantitative assaying, describes in considerable detail the operations of sampling and of making quantitative blowpipe assays for silver, gold, lead, copper, tin, mercury, nickel, cobalt, and bismuth.

The appendix contains tables of hardness, atomic weights, etc.

A defect in the book is that the weights of ore are given in grains while the divisions on the scale, used for measuring the size and hence determining the weight of the buttons, reads milligrams, thus making calculations necessary which would be simplified by the use of the assay ton system.

In regard to the accuracy of the results obtainable by the methods described, granting that the button can be measured accurately to a cross-line of the scale, the differences are so great as to render the method nearly useless for ordinary gold ores. Cross-line No. 1=18 cents a ton in gold, No 2=\$1.40 a ton, No. 3=\$4.80 a ton, No. 4=\$11.60 and so on.

The book may prove useful to prospectors, skilled in the use of the blowpipe, who have the good fortune to discover rich veins.

E. H. M.

MINERAL RESOURCES OF THE UNITED STATES CALENDAR YEAR 1893. BY DAVID T. DAY, 8 vo. pp. v, 810, Washington, D. C.: Government Printing Office. Price 50 Cents.

This annual volume so well known to those interested in the mining industry carries forward the statistics to Dec. 31, 1893, and gives much descriptive matter to a later date. The following statements are of especial interest to chemists:

*Aluminum.*—"The total production of aluminum reached 333,629 pounds. \* \* It can be said that nearly all the steel makers use a small proportion of aluminum with the result of less waste in castings. For example, the amount of waste in crop ends on steel rails is lessened profitably. Ingot aluminum also goes to manufacturers of aluminum cooking utensils and this industry is extending satisfactorily. The remainder of the product goes out as sheet and wire for many purposes including

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.