

silver from ammoniacal silver solutions, and uranium dioxide, prepared by reduction of the oxalate in a current of hydrogen, dissolves in silver nitrate with the separation of metallic silver. Molybdenum dioxide showed no reducing action upon copper and mercuric salt solutions.

Among the non-metals of Group VI we observe in the deportment of sulphites towards silver nitrate, in the breaking down of silver sulphite into metallic silver on the application of a gentle heat, a behavior analogous to that exhibited by molybdenum dioxide, and which we may consider as an additional contribution to the many already well-established analogies, existing among the derivatives of the elements constituting Group VI of the Periodic System.

UNIVERSITY OF PENNSYLVANIA,  
June, 1894.

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### NEW BOOKS.

PRACTICAL INSTRUCTIONS IN QUANTITATIVE ASSAYING WITH THE BLOWPIPE. CONTAINING ALSO READILY APPLIED QUALITATIVE BLOWPIPE TESTS. BY E. L. FLETCHER. pp. 142. 14 Illustrations. Price, 12 mo. cloth, \$1.25; morocco, \$1.50. New York: John Wiley and Sons. 1894.

The manual of blowpipe analysis contains 142 pages with numerous cuts showing apparatus. It is well printed on serviceable paper and is of convenient size to be carried in the pocket.

Chapter I consists of descriptions of apparatus and general directions for their use, also in some cases the price of special appliances.

Chapter II is devoted to reagents, those commonly used in assaying, etc.

Chapter III contains descriptions of the various colored coats and flame tests given by the volatile elements.

Chapter IV describes the colored beads produced by all of the common and many of the rare elements when dissolved in borax or salt of phosphorus, both with the oxidizing and reducing flames.

Chapter V gives the method of reducing oxides on charcoal with soda.

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