rinsing the last particles of fiber from the funnel to the dish by means of a fine jet of distilled water. Evaporate off the water thus used, dry to constant weight, and complete the determination as usual.

I prefer this mode of operation to the use of a paper filter, with correction for loss of weight sustained by the paper in a blank determination, as suggested by Winton,[1] for the reason that in addition to the possibility of obtaining additional fiber from the paper used in the acid filtration, I have found that duplicate determinations of the correction to be applied do not always give concordant results, probably because of variations in the weight or composition of individual filters in any given pack of them. Hence, the correction as obtained from a blank determination may not always be a true one and a corresponding error may be introduced in the final computation.

I have used the method outlined above for several years and upon a great variety of samples, with uniformly satisfactory results. In the cases where filtration is slow it proceeds without attention from the analyst, thus relieving the tediousness of the operation very materially. This method of procedure is especially well adapted to the filtration of the glycerol-sulphuric acid mixture used in the König method for determining crude fiber, since in this case hot filtration is imperative.

R. W. THATCHER.

WASHINGTON AGRICULTURAL COLLEGE AND SCHOOL OF SCIENCE,
PULLMAN, WASH., September 18, 1902.

A Rapid Method for Separating Zinc and the Alkaline Metals from Iron.—The separation mentioned by J. W. Rothe[2] has long been used in the determination of aluminum and nickel and I find that it is equally applicable to the separation of zinc, calcium, magnesium, sodium and potassium from large percentages of iron.

Determination of Zinc.

Having the sample (thoroughly oxidized) in solution in the minimum amount of hydrochloric acid (sp. gr. 1.1), transfer to a separatory funnel, add ether and shake well for about eight

[1] Connecticut Agricultural Experiment Station Report, 1893, p. 189; also Bulletin 65, Bureau of Chemistry, U. S. Department of Agriculture, pp. 58, 154, and 155.

[2] Mittheilungen aus den Königlich. Tech. Versuchs-anstalten zu Berlin," 1892, Part III.

minutes. On standing, the lower solution will contain all of the copper and zinc together with a small amount of ferric chloride. Draw off the lower solution, precipitate the copper with hydrogen sulphide, oxidize with a little bromine and precipitate the small amount of iron. The solution is then ready to determine zinc by any approved method. As many zinc ores contain lead, the effect of sulphuric acid was determined. An excess of 3 cc. had no effect on the separation as long as hydrochloric acid was present. In the presence of lead it is better to separate the lead as lead sulphate before making the ether separation, otherwise lead chloride is liable to clog the cock of the separatory funnel. This single separation is very rapid and more effective than a double basic acetate or triple ammonia separation. The separation of the alkaline metals and aluminum from large amounts of iron, as in the complete analysis of iron ores, is made in the same manner as the above. It has the advantage of rapidity and accuracy, and avoids the excessive amount of salts which are always present when basic acetate or ammonia separations are made. H. C. BABBITT.

NEW BOOKS.

THE MINERAL INDUSTRY: ITS STATISTICS, TECHNOLOGY, AND TRADE IN THE UNITED STATES AND OTHER COUNTRIES TO THE END OF 1901. Founded by the Late RICHARD P. ROTHWELL. Edited by JOSEPH STRUTHERS, PH.D. Vol. 10, xxx + 932 pp. New York and London: The Engineering and Mining Journal (Inc.). 1902. Price, $5.00.

This valuable annual publication has appeared since 1892, and is a treasury of information for those interested in the economic side of chemistry and metallurgy. A somewhat extended account of the contents of the present volume would seem, therefore, to be not out of place here.

The total value of the mineral and metal output for 1901 was $1,372,826,102. Among these products pig iron takes the lead, then follow bituminous and anthracite coal, copper, clay products, gold, iron ore, crude petroleum, stone for building, silver, lead, ferromanganese, cement and natural gas in the order named.

It is stated that there has been a falling off in the production of bauxite, but the total consumption was greater than that of 1900. The Pittsburg Reduction Company is erecting a large plant at