

Throw the precipitate back upon the same filter and wash three times with hot water. Drain, dry, and ignite in a platinum crucible and weigh as chromium sesquioxide.

Another method of determining the chromium in the yellow solution of ammonium chromate, and one which many chemists may consider the more expedient, is as follows :

Moderately acidify the ammonium chromate solution with acetic acid and warm. Add an excess of a clear solution of plumbic acetate and allow the precipitate of plumbic chromate to settle in a warm place for several hours : then collect on a weighed filter (previously dried at 100° C.) and wash with cold water.

Dry at a temperature of 100° to 110° C. and weigh. The increase of weight is the weight of the plumbic chromate, from which the percentage of chromic oxide may be calculated.

The choice given to either of these methods for the final precipitation of chromium is purely arbitrary.

In a future article the method employed in the estimation of chromium in chrome steel and ferro chrome will be dealt with.

NEW BOOKS.

PROCEEDINGS OF THE ELEVENTH ANNUAL CONVENTION OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS, BULLETIN No. 43, U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF CHEMISTRY, EDITED BY DR. H. W. WILEY. pp. 403. Washington : Government Printing Office. 1894.

This bulletin issued annually through the courtesy of the U. S. Department of Agriculture, contains, as usual, the results obtained by the various reporters appointed by the Association, a general discussion of their reports, and a complete summary of the methods of agricultural chemical analysis which are now almost universally used in this country and which have official recognition.

Some sixty chemists participated in the meeting, and the very full discussions denote a lively interest in the work. For the first time a committee was appointed to consider the changes of method recommended by the various reporters and to approve the same before submitting them for action. Most of the changes recommended were approved by the committee. It is, however, gratifying to note that these changes were, as a rule, unimpor-

tant. The analyses made for nitrogen by the official methods agree closely and the only change made was in the wording of the Gunning method modified to include nitrates. The Tiemann-Schulze method for nitrates alone, was adopted as a provisional method until a better could be found although the reporter was instructed to continue his efforts in this direction. The use of two and five-tenths per cent. acid and alkali was dropped from the method of crude fiber determination leaving the one and one-fourth per cent. solution alone official. The dilute ammonia for washing magnesium pyrophosphate was made more definite in strength by prescribing a two and five-tenths solution, and Pemberton's volumetric method for estimating phosphoric acid appears quite promising and bids fair, after further study, to become official. No co-operative work was done on dairy products either from satisfaction with our present methods or from lack of interest. One or two changes in the methods for potash were made for the sake of uniformity. The report on soil and ash analysis was quite full and an unusually large number of chemists took part in the investigation. This is the more surprising as the analyses are very tedious and a large outlay of time was necessary. The results too are unsatisfactory both on ash and on the soil solutions, in view of which the question may well be raised as to how our general methods of mineral analysis would compare in the hands of different analysts. The changes of method adopted for soil analysis have already been printed in this JOURNAL, **16**, 792. One noteworthy point brought out by the reporter as a result of his work and that of other chemists is that the best glass is fully as good as the best porcelain for the solution of silicates and that no appreciable error will be introduced by its use. A reporter on tannin was appointed for next year and provisional methods adopted. The reporter on fermented liquors was also instructed to include the analysis of distilled liquors in his next year's investigations. Nearly 150 pages of the bulletin are covered with abstracts of agricultural chemical articles and represent the year's work of the abstract committee.

There seems to be a growing conservative feeling among the members in regard to alterations of method as a result of some

past mistakes. This is to be commended but should not be carried so far as to become prohibitive. The best results will be reached when good judgment and conservatism go hand in hand. Many will doubt the wisdom of the change made in the constitution itself, prohibiting any change, except by unanimous consent, in the methods of fertilizer analysis until an opportunity shall have been given all official chemists to try the same. This gives to any one member a power to delay action which many will think should be held by the majority alone. The appointment of reporters for two years, and associates who shall fit themselves to become reporters on the special lines of work, should meet the approval of all chemists and may be far-reaching in its results. The Secretary of the Association has not felt himself impowered to make any alterations whatever in the wording of the methods; and it is pleasing to learn that a special committee has been appointed to rewrite the methods and put them in creditable English.

There is a growing feeling in the Association that it is reaching the point where it can well enlarge its scope. In the past it has confined itself strictly to analytical processes, but the desire seems to be increasing for investigations along the line of availability in fertilizer and food material and to make more of a study of proximate constituents. General dissatisfaction is expressed with the present "citrate-soluble phosphoric acid," "crude fiber," "nitrogen-free extract," etc., and it is to be hoped that dissatisfaction will lead to renewed investigations. The Association has an additional and unlimited field of usefulness for itself along this line.

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BIBLIOGRAPHY OF ACETO-ACETIC ESTER AND ITS DERIVATIVES. BY PAUL H. SEYMOUR, M.S., INSTRUCTOR IN CHEMISTRY, LAKE FOREST UNIV. Smithsonian Miscellaneous Collections, No. 910. pp. 147. Washington: Smithsonian Institution. 1894. Price 75 cents.

The rapidly increasing literature of aceto-acetic ester makes this volume of great value. The author has given brief abstracts of the articles that have appeared upon the subject of the bibliography from 1840-1891, "omitting what had no relation to aceto-acetic ester." The abstracts are clear, and full enough to