

region the nebula had presented its usual appearance, and that here was nothing stellar about it. By June 10 the star had vanished; but the cluster seemed to shine with unusual brilliancy, and a marked central condensation. Since that time the object has been closely watched by Schmidt at Athens, who examined it at least one thousand times between 1861 and 1877; but the star has never been seen. Spectroscopically observed by Col. John Herschel, on April 13, 1868, the nebula exhibited a continuous spectrum.

The only other similar case that I am aware of, is the variable R Monocerotis discovered by Schmidt in 1861. It is situated in the southerly end of a faint cometary nebula. The phenomena presented are, however, much less striking, more resembling those of an ordinary variable star. Schmidt has seen it as bright as 10th magnitude. I have never found it brighter than the 12th; and ordinarily it is invisible, or very near the limit of visibility (which I arbitrarily assume to be 13th magnitude) of the six and one-fourth inch Clacey refractor.

The future developments in regard to the new star in the Andromeda nebula will be followed by astronomers with the greatest interest. This event, too, should draw attention to a subject of observation which has been entirely neglected. Hitherto, the question of nebular variation has been confined almost entirely to examination of evidence of fluctuation in the apparent brilliancy of the nebulous appearance itself. But the peculiarities in telescopes and observers, and variations in personal, atmospheric, and other conditions, render it very difficult to decide upon such evidence. Consequently, while there are one or two nebulae in which, perhaps, a change appears somewhat probable, the subject is surrounded with uncertainty and difficulty. A more promising field, however, is opened in the examination of known nebulae to detect the existence, and estimate the brightness, of stellar nuclei; since we have satisfactory means of comparison and measurement of this kind. Fortunately, this is a kind of observation which needs for its proper prosecution only an ordinary telescope. In the investigation of the variable stars, Argelander's method of observation has proved, in precision, convenience, and fruitfulness, superior to any photometric apparatus yet devised. A new application of it is here suggested, which, it is hoped, will give employment to some of the idle telescopes in the hands of amateurs.

Cambridge, Sept. 7.

S. C. CHANDLER, Jun.

THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS.

THE second meeting of this association was held in Washington, Sept. 1-2. In the absence of the President, Prof. S. W. Johnson of New Haven, Dr. H. C. White of Georgia presided. Delegates were present from most of the states exercising control or inspection of fertilizers. A number of other chemists interested in agricultural analysis, but not occupying official positions, were present, and took part in the proceedings.

Commissioner Colman, in an introductory address, spoke of the importance of securing uniformity of action among chemists, not only in the analysis of fertilizers, but also in all analytical processes pertaining to agricultural chemistry. He referred to the impetus which scientific agriculture had received from the labors of Liebig and his successors. He believed that all experimental agricultural work should be accompanied by careful chemical control, without which its full value could not be secured. He thought that the general government ought to co-operate with the state governments in passing the most stringent laws against the adulteration of foods. Continuing, he said, "In so simple a matter as the adulteration of milk, it would be hard to secure a conviction in a court of justice for any person practising it, because of the absence of any official standard by means of which the extent of the adulteration could be measured. It should be the object of the chemical control of agriculture, not only that abundant crops should be produced, but also to see that the products of the fields should be delivered to consumers free of any cheap or deleterious adulteration. The frauds that are practised upon the public in adding cheap, and frequently harmful, ingredients to the food we eat, ought to be exposed in no uncertain way. To such an extent is the adulteration of butter, and the manufacture of a counterfeit article, carried on, that the great dairy interests of our nation are now almost prostrate. Many an honest producer has become bankrupt in trying to keep up with his unscrupulous competitor."

After the commissioner's address, Mr. E. H. Jenkins, chairman of the committee on the method of estimating phosphoric acid, reported the results of the labors of the committee during the past year. He gave first a review of all the new processes which have been suggested for determining phosphoric acid. Samples of various kinds of phosphates had been sent out to the different members of the association in sealed packages, and the results of the analyses had been received and tabulated. In general, the agreement of the analyses was very satisfactory, especially in the amount of total phosphoric acid estimated. In the so-called reverted phosphoric acid, or phosphate soluble in solution of citrate of ammonia, the agreement was not so perfect. Nevertheless, the deviations from the mean were not any greater than could be expected from the nature of the material analyzed, and the difficulty of securing perfectly uniform results with the reagent employed. The com-

mittee suggested a few unimportant changes in the method adopted last year at Philadelphia, and which had been practised by the members of the association with such success during the past year.

Dr. H. W. Wiley presented the report of the committee on the method of imitating potash. The first part of the report was devoted to a review of all the different methods of estimating potash which had been proposed during the text twenty years. After a discussion of the merits of the various methods examined, the committee decided that none of them was superior to the method adopted by the association at its Philadelphia meeting. They recommended, therefore, that with certain slight modifications, consisting more especially of the insertion of the details of the manipulation, The Philadelphia method should be continued. The only important changes which were introduced were in directing the treatment of the sample with hot water, for the extraction of the potash, instead of water acidulated with hydrochloric acid; in the addition of a small portion of oxalic acid to facilitate the conversion of nitrates into carbonates; in the recommendation to abandon the washing out of the double chloride by hot water after its first weighing, a process which, by experience, had been found to be unnecessary; and in recommending the continuance of the factor 30.56 for the conversion of K_2PtCl_6 to KCl instead of the factor 30.67, which would be the proper one if the atomic weight of platinum, as determined by Seubert, be the correct one. The committee, in making this recommendation, did not wish to be considered as in any way criticising the accuracy of Seubert's work. Prof. F. C. Clarke stated, that, in his opinion, 195 represented much more nearly the atomic weight of platinum than 197, and that, therefore, the larger of the two factors given above would be the more correct one for computing the amount of potassium chloride from the double platonic chloride. The report of the committee was adopted for the guidance of analysts during the coming year.

Mr. F. H. Gladding read a paper on a new method of estimating potash, which was ordered printed with the proceedings.

Mr. P. E. Chazal presented the report of the committee on determination of nitrogen. He stated that the committee was quite dissatisfied with the results of their work, and hoped that the association, without taking any action whatever, would refer the whole matter to another committee, to be presented at the next annual meeting. The recommendation was adopted.

The following officers were elected for the coming year: President, H. W. Wiley, Washington, D.C.; vice-president, C. W. Dabney, Raleigh, N.C.; secretary and treasurer, Clifford Richardson, Washington, D.C.

The following committees were also appointed: Executive committee in addition to the above officers,—H. A. Huston of Indiana, and W. J. Gascoyne of Virginia. On phosphoric acid: H. C. White of Georgia, E. H. Jenkins of Connecticut, W. C. Stubbs of Louisiana. On nitrogen: P. E. Chazal of

South Carolina, J. A. Myers of Mississippi, W. E. Moses of Tennessee. On potash: W. J. Gascoyne of Virginia, Clifford Richardson of Washington, N. W. Lord of Ohio.

The convention discussed the proposition of enlarging the scope of the association, and it was the unanimous opinion of all present that this should be done in harmony with recommendations made in the address of the commissioner. The association then adjourned to meet in Washington at the call of the executive committee in September, 1886.

THE HISTORICAL ASSOCIATION AT SARATOGA.

OF the three hundred members of the association, about fifty attended the recent meeting (Sept. 8-10). In addition to those who played a more or less prominent part in its organization last year (*Science*, No. 86), there were present at one or more sessions, Goldwin Smith, Gen. Cullum, Washington Gladden, Henry Adams, Henry C. Adams, Eugene Schuyler, Rufus King, Professors Gurney, Andrews, James, and Coman, Nathaniel Paine, S. S. Green, E. M. Barton, and Mrs. Lamb. The old officers were re-elected with the exception of George Bancroft, who took the place of Andrew D. White as president for the next meeting, and Professors Franklin B. Dexter and W. F. Allen, who succeeded to the places on the council left vacant by the retirement of Professors Tyler and Emerton. The finances of the association are in a flourishing condition, there being over a thousand dollars in the treasury at the close of the first year. The council elected the German historian Ranke, the first, and, for the present at least, its only honorary member.

The papers presented were mainly upon subjects connected with American history; and it is greatly to be desired, that the scope of the association's work should be enlarged, and that more essays should be presented dealing with European history. Apart from this, the most noticeable feature of the meeting was the great desire shown by the members to gather in small groups, and exchange ideas. This deserves encouragement; and it is hoped, that, at the next meeting, less time will be given to the reading of papers, and more opportunity be afforded for social intercourse.

President A. D. White opened the first session with some comments, or a syllabus of an essay on the influence of American ideas upon the French revolution. He was followed by Professor Goldwin Smith of Toronto, who endeavored to show by the history of Canada that the American revolution was a mistake, and that a peaceful separation, which time would have brought, would have been better. These two papers occupied the morning session. In the evening, Jeffrey R. Brackett, a graduate of Harvard, presented a report on certain studies of the institution of negro slavery, which he is now making at Johns Hopkins. He especially advocated the study of the blacks as a race, and laid particular stress upon the danger of