

chosen for the comparisons of brightness, and the stars already known to be variable, all the positions being given in seconds of arc, and determined from the center of the particular cluster. In Plates VIII. to XII. are given reproductions from the original plates of fourteen clusters, on which the variables and comparison stars are marked. On these reproductions 1 mm. equals about 10". Especially interesting are the repeated enlargements of certain portions of some clusters, which are given in the last plate of the volume. These show clearly the change in appearance of the variables on different plates, and give an idea of the certainty with which the comparison with adjacent stars can be made.

From the materials given in the appendix one sees that there still remains a very great amount of labor to be done. We hope that the author will be able to carry out his plan, and to give as clear and exhaustive a discussion of the light changes in the other star clusters, as he has done in the present volume.\*

G. MÜLLER.

#### SCIENTIFIC JOURNALS AND ARTICLES.

THE contents of the *American Journal of Science* for November are as follows: 'Mineralogical Notes,' by C. H. Warren; 'Studies of Eocene Mammalia in the Marsh Collection, Peabody Museum' (with plates XVI. and XVII.), by J. L. Wortman; '*Tridenum Virginicum* (L.) Rafn,' a morphological and anatomical study (with figures in the text), by T. Holm; 'Ephemeral Lakes in Arid Regions,' by C. R. Keyes; 'Note on the Identity of Palacheite and Botryogen,' by A. S. Eakle; 'Colloidal Gold: Absorption Phenomena and Allotropy,' by J. C. Blake.

#### SOCIETIES AND ACADEMIES.

##### AMERICAN CHEMICAL SOCIETY. NEW YORK SECTION.

THE first meeting of the season was held at the Chemists' Club, No. 108 West 55th Street, on Friday evening, October 9.

\* Translated from *Vierteljahrsschrift der Astron. Gesellschaft*, 38. Jahrgang, Erstes Heft, 1903.

After a few remarks by the chairman, Professor Miller, outlining the policy of the section for the ensuing year, and requesting members to present papers in abstract as far as possible, so as to have more time for discussion, the following papers were read:

*The Volumetric Determination of Zinc*: W. J. WARING.

This paper was read by Mr. Stone and discussed by Messrs. Brenneman, Stone, Miller and Danziger. It called attention to the widely differing results which are obtained by different chemists in the determination of zinc by the ferrocyanide titration method, and pointed out the necessity of uniformity in the conditions of standardizing and titrating, so that the composition of the precipitate shall be uniform. The occurrence of cadmium in the ores of the Joplin District in amounts varying from 0.1 to 2 per cent. was shown to interfere with the accuracy of the method, so that the cadmium should be removed, best by aluminum foil, before the titration. A new cadmium ammonium ferrocyanide was also described.

*The Reduction of Lead from Litharge in Preliminary Assays and the Advantages of an Oxide Slag*: E. H. MILLER, E. J. HALL and M. J. FALK.

Professor Miller gave an abstract of an article which will soon appear in the *Transactions* of the American Institute of Mining Engineers. It was shown in making preliminary assays to determine the reducing power of an ore that, not only did the amount of lead reduced vary with the acid or basic character of the slag, but that the amount of lead oxidized by niter varied with the reducing agent present, even under uniform conditions as to charge, time and temperature. This was not anticipated, and explains the difficulty in the old preliminary assays.

The best results were obtained by using a charge of ore 3 grams, litharge 50 grams, soda 10 grams, no silica, no borax glass and no salt cover. With this charge and a temperature of over 900° C. the sulphur is completely oxidized to sulphate and forms an upper layer in the slag ( $\text{Na}_2\text{CO}_3$  and  $\text{Na}_2\text{SO}_4$ ), while the lower layer consists of a readily fusible mixture of oxide of lead, of iron, etc.

This style of charge was then tested with a quantity of ores containing sulphur combined with iron, copper, zinc and lead. The charge for the final assay was ore 1/2 assay ton, litharge 70 grams, soda 15 grams. Niter as calculated for a 20-gram button (from the results of the preliminary assay). The buttons were soft, malleable and weighed from 17-23 grams, while the results in gold and silver were slightly higher than the old methods and the loss in the slag slightly less.

*The Influence of Diet, Muscular Exertion and Loss of Sleep upon the Formation of Uric Acid:* H. C. SHERMAN.

Observations made in connection with metabolism experiments upon three professional athletes and one subject of sedentary habits showed the quantity of uric acid eliminated to be primarily dependent upon the quantity of meat products in the diet, and to be influenced very little, if any, by the abundance of a bread and milk diet, by a considerable loss of sleep, or (in the case of the professional athletes) by long-continued muscular exertion. With the subject of sedentary habits, a much smaller amount of exercise increased slightly the uric acid elimination. This paper will appear in the November issue of the *Journal of the American Chemical Society*.

H. C. SHERMAN,  
Secretary.

ELISHA MITCHELL SCIENTIFIC SOCIETY.

At the 150th meeting of the Elisha Mitchell Scientific Society, held in the Chemical Lecture Room of Person Hall, University of North Carolina, October 13, the following papers were presented:

*The Use of the Vector Diagram in Electrical Engineering:* Mr. J. E. Latta.

*Tanning (with specimens):* Professor CHARLES BASKERVILLE.

After outlining modern methods of tanning, especially by the use of chromium nitrite, a number of rare skins which had been done for Messrs. Tiffany & Co., of New York, were exhibited. The skins were presented to the Museum of the Chemical Laboratory.

*The Influence of the Spermatozoon on the Larval Development of the Sea-Urchin:* Professor H. V. WILSON.

*A New Indicator:* Professors E. V. HOWELL and A. S. WHEELER.

A new indicator extracted from the hulls of the muscadine or wild Bullace grape was announced. This coloring matter gives a red color with acids and green with alkalies, being purple in neutral solutions. The only solvents so far found which may be used for its extraction are alcohol and water. It responds to inorganic and organic acids and volatile and non-volatile alkalies. Carbon dioxide does not affect it.

On adjournment of the public session, the annual meeting was held for the election of officers and transaction of business. The proposed agreement with the North Carolina Academy of Science was approved. By this agreement the *Journal of the Mitchell Society* becomes the official organ of the North Carolina Academy of Science, its size being doubled and issued quarterly. The following officers were elected for the ensuing year:

*President*—Professor Charles Baskerville.

*Vice-President*—Mr. J. E. Latta.

*Recording Secretary*—Professor A. S. Wheeler.

President Venable retains the permanent secretaryship. CHARLES BASKERVILLE,  
Secretary.

DISCUSSION AND CORRESPONDENCE.

A HITHERTO UNDESCRIBED VISUAL PHENOMENON.

TO THE EDITOR OF SCIENCE: The phenomenon of apparent movement described by Dr. Gould (SCIENCE, XVIII., 536) was discussed in 1896 by Professor S. Exner in an article entitled 'Ueber autokinetische Empfindungen' (*Zeits. f. Psych. u. Physiol. d. Sinnesorgane*, XII., 313). According to Exner, the first observation on record was made by Alexander von Humboldt in 1799. Several authors (among them men as well known as Aubert and Charpentier) have occupied themselves with the phenomenon; and it forms the subject of an experiment in Sanford's *Laboratory Course*, 1898, 309.

E. B. TITCHENER.