be very elastic, and every concession should be accorded that may tend to secure to us the essential features of the metric system, even if we discard a good deal that its founders thought desirable for the sake of consistency. There is plenty of time yet to give this subject mature consideration without undertaking the rôle of either the optimist, the pessimist or the prophet.

W. LE CONTE STEVENS.

WASHINGTON AND LEE UNIVERSITY,
July 8, 1904.

The Development and Structure of Vegetation. Studies in the Vegetation of the State [of Nebraska], III. By FREDERIC E. CLEMENTS. Lincoln, Neb., published by the Botanical Seminar of the University of Nebraska. 1904. Pp. 175.

In the present work Professor Clements has had a double purpose, first, to give an account of our present knowledge of the cardinal concepts in the study of vegetation, viewed in the light of their historical development, and second, to give more exact organization and classification to those ideas as well as greater definition to their terminology. He treats the idea of the association in its various phases, and with its diverse bases; of invasion, with its elements, migration, ecesis (or adjustment to the habitat), influence of barriers, endemism, polygenesis, kinds and manner of invasion; of succession in its various phases; of zonation; and of alternation, involving competition. Each section has its bibliography. Many interesting views are presented in the course of the paper, among others the opinion that competition in plants has a purely physical basis, or, in other words, that competing plants influence one another only as physical, and not as physiological, agents. This view, which it must be admitted is the only one justified by facts at present at our command, would make associations and other groups of this nature merely physical mixtures of plants with no organic connection between the members (excluding parasites, etc.); but it is not improbable that further research will show this view to be incorrect. Another feature of the paper is the attempt of the author to give greater definition to the terminology of the subject, to which end he proposes many new terms, all of which have the positive merit that they are etymologically appropriate and consistent. Whether or not these merits will result in their adoption remains to be seen, but Professor Clements's proposals in this as in his earlier works have the great advantage of being first in the field. The author also emphasizes the need for accurate experimental and statistical field study as a basis for further ecological advance, a matter in which ecologists seem now to be in full agreement. Altogether, Professor Clements has given us a valuable and timely contribution to the study of this increasingly attractive subject, and his work is likely to exert no small influence in its development.

W. F. GANONG.

Mineral Tables. For Determination of Minerals by their Physical Properties. By ARTHUR S. EAKLE, Ph.D., Assistant Professor of Mineralogy, University of California. New York, John Wiley and Sons. 8vo. Pp. 72.

The new features in these tables are the prominence given to color as a classifying character and the restriction to the consideration of two hundred (approximately) common species. Lustre is made very subordinate, the divisions are by the 'streak,' color of the fine powder, and the subdivisions by 'color,' color of the mass.

For minerals which crush to a colored powder this affords an easy and generally accurate separation. But the silicates of all colors and many light-colored minerals yield white powders and their distinction by physical characters alone is not easy in average massive specimens, and this division extends over two thirds of the entire book. No resource is made to blowpipe tests, the inference to be drawn from a paragraph in the introduction being that 'blowpipe analysis' should follow as a separate feature of the course. The time allotted to mineralogy in many colleges would hardly permit this, however.

The omission of the rarer species and the limitation of the necessary apparatus to knife, magnet, lens, streak-plate and hardness scale

make the tables valuable for short courses or for field work. A. J. Moses.

SCIENTIFIC JOURNALS AND ARTICLES.

The July number (volume 5, number 3) of the *Transactions* of the American Mathematical Society contains the following papers:

E. B. Van Vleck: 'The convergence of algebraic continued fractions whose coefficients have limiting values.'

W. Findlay: 'The Sylow subgroups of the symmetric group.'

E. W. Brown: 'On the smaller perturbations of the lunar arguments.'

E. V. Huntington: 'Sets of independent postulates for the algebra of logic.'

H. F. Blichfeldt: 'On the order of linear homogeneous groups (second paper).'

J. B. Shaw: 'Algebras defined by finite groups.'

O. Veblen: 'A system of axioms for geometry.'

The contents of the *American Journal of Science* for July are as follows:

B. B. Boltwood: 'Ratio of Radium to Uranium in some Minerals.'

F. M. McClenahan: 'Constitution of Hydrous Thallic Chloride.'

E. H. Sellards: 'Study of the Structure of Paleozoic Cockroaches, with Descriptions of New Forms from the Coal Measures.'

W. A. Parks: 'Remarkable Parasite from the Devonian Rocks of the Hudson Bay Slope.'

C. R. Eastman: 'Asterolepid Appendages.'

A. B. Plowman: 'Electrotropism of Roots.'

O. C. Lester: 'Oxygen Absorption Bands of the Solar Spectrum.'

The Journal of Nervous and Mental Diseases of July, 1904, contains two articles dealing with Multiple Sclerosis, one by Drs. W. G. Spiller and C. D. Camp of Philadelphia containing a report of two cases and some general observations on the nature of the condition, and the other by Dr. Smith Ely Jelliffe, of New York, on the occurrence and etiology of multiple sclerosis, as observed since the opening of the Neurological Department in the Vanderbilt Clinic of New York City. The interesting fact is brought out that this disease is less frequent than in foreign countries. There is also a discussion of Uremic Hemiplegia, by Dr. T. H. Weisenburg, of Philadelphia, in which he gives reports of several cases, and the results of various experiments. The Periscope contains extended abstracts from *The American Journal of Insanity, Revue de Psychiatrie and Nouvelle Iconographie de la Salpêtrière,* as well as miscellany and reviews of the latest psychiatrical and neurological books, published in this country and abroad.

SOCIETIES AND ACADEMIES.

THE AMERICAN CHEMICAL SOCIETY.

NEW YORK SECTION.

At the last meeting of the season, held June 10, at the Chemists' Club, 108 West 55th Street, the section elected as officers for the ensuing year:

Chairman—Wm. Jay Schieffelin.

Vice-Chairman—F. D. Dodge.

Secretary-Treasurer—F. H. Pough.

Additional Members of Executive Committee—E. H. Miller, M. T. Bogert, Wm. McMurtrie and T. J. Parker.

The following papers were read:

Alloys (Illustrated): William Campbell.

This paper gave the results obtained in a continuation of the work reported at the January meeting. The work will appear in full in an early number of the *Journal of the American Chemical Society.*

The Optical Rotation of Some Cyclic Compounds: F. D. Dodge.

Dr. Dodge called attention to the fact that many of the constituents of the volatile oils contain ring-nuclei of three, four, five or six atoms, with varying degrees of saturation. These compounds are most frequently asymmetric; which is shown by the optical activity.

The questions as to how far the observed rotation phenomena are in harmony with the formulæ which have been proposed, and as to whether the van't Hoff hypothesis is universally applicable, were discussed. It is shown that in single ring nuclei, racemism is generally theoretically possible, and often observed. In the cases of some double nuclei (as the camphor group) racemism appears to be impossible owing to the peculiar molecular structure. The exceptional optical properties of *menthone* were discussed, and a possible explanation found in a peculiar isomerism