authority to undertake it. This he gave without hesitation, and in the most liberal manner, leaving me free to act with the specimen as if it were my own. * * * The work of removing the necessary plates and debris from above the base of the specimen was tedious and difficult, being performed entirely under a ten-power microscope, with tools specially fashioned out of needles and fine steel pens. It was completely successful, however, without any mishap, and disclosed a structure most extraordinary and anomalous, unlike any of the previous suppositions, and wholly at variance with that of any other known crinoid.

It is finally concluded that the genus is intermediate between the great groups of Flexibilia and Camerata; nearest, apparently, to the Reteocrinidæ. The memoir is illustrated by a beautiful plate of drawings by K. M. Chapman and E. Ricker, showing not only all aspects of *Cleiocrinus,* but also *Reteocrinus* and *Glyptocrinus* for comparison.

T. D. A. C.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Journal of Experimental Medicine* established by Dr. W. H. Welch, of the Johns Hopkins University, will hereafter be published under the auspices of the Rockefeller Institute for Medical Research, and will be edited by Drs. Simon Flexner and Eugene L. Opie. The scope of the *Journal* will suffer no alteration by reason of the change of management, and it is hoped that it may continue to cover, as heretofore, the field of experimental medicine. It is proposed to issue numbers of the *Journal* at bimonthly intervals, six numbers to constitute a volume, which will contain not less than six hundred pages.

THE opening (January) number of volume 6 of the *Transactions of the American Mathematical Society* contains the following papers:

P. F. SMITH: 'On the linear transformations of a quadratic form into itself.'

E. V. HUNTINGTON: 'A set of postulates for real algebra, comprising postulates for a one-dimensional continuum and for the theory of groups.'

W. A. MANNING: 'On the primitive groups of class $3p$.'

L. E. DICKSON: 'The minimum degree τ of resolvents for the p-section of the periods of hyperelliptic functions of four periods.'

G. A. MILLER: 'Determination of all the groups of order 2^m which contain an odd number of cyclic subgroups of composite order.'

E. D. ROE: 'On the coefficients in the quotient of two alternants.'

E. J. WILCZYNSKI: 'General theory of curves on ruled surfaces.'

O. VEBLEN: 'Theory of plane curves in non-metrical analysis situs.'

The Museums Journal of Great Britain for January contains the second part of an article on 'School-Children and Museums,' by Henry Coates and Alex. M. Rodger, and 'The School Nature-Study Union,' under which is given a list of the museums, zoological and botanical gardens, in and about London and the facilities they afford teachers and students. There are a description of the Liverpool Museum as now arranged and a large number of notes about museums. Like *Nature* the *Museums Journal* is particularly strong in its notes, which form a most important portion of any scientific journal.

SOCIETIES AND ACADEMIES.

THE NEBRASKA ACADEMY OF SCIENCES.

THE fifteenth annual meeting of the Nebraska Academy of Sciences was held in the Hall of Mechanic Arts, State University, Lincoln, January 27–28, and included a business session, sessions for the reading of papers and a social session on the evening of the latter date.

The following papers were presented:

PROFESSOR H. B. DUNCANSON: President's Address: 'The Relation of the State to Scientific Investigation.'

DR. H. H. WAITE: 'The Duty of the State to the Public in the Prevention of Certain Diseases.'

DEAN H. B. WARD: 'Some Observations on the Biological Conditions of Elevated Lakes' (with lantern).

PROFESSOR O. V. P. STOUT: 'An Economical Design for Measuring Flumes.'

DR. G. E. CONDRA: 'The Possible Development of Nebraska's Stone-quarrying Industries.'

PROFESSOR F. D. HEALD: 'Preliminary Note on a Black Rot of Apples.'

DR. R. H. WOLCOTT: 'A New Mite Affecting Greenhouse Plants.'

PROFESSOR B. E. MOORE: 'A Color Study of Cobalt Solutions.'

Professor L. Bruner: 'Some New Nebraska Orthoptera.'

Professor G. E. Chatburn: 'The Quality of Nebraska Timber.'

Dean Chas. Fordyce: 'Additional Notes on the Cladocera of Nebraska.'

Professor F. D. Heald: 'A Convenient Incubator for Student Work.'

Professor W. A. Willard: 'The Zoology of the Bermudas' (with lantern).

Professor W. W. Hastings: 'A Preliminary Report on the Respiratory Function.'

Mr. F. D. Barker: 'Some New Avian Parasites' (with lantern).

Professor F. D. Heald: 'A Disease of the Cottonwood.'

Professor G. R. Chatburn: 'Thoughts on Highway Improvement.'

Dr. S. R. Towne: 'How Typhoid is Spread.'

Professor J. H. Powers: 'Causes of Color Variation in the Amblystoma.'

Dean C. E. Bessey: 'Observations on Planted Forests in Europe.'

Mr. G. A. Loveland: 'The Effect of the Rotation of the Earth on Wind Direction.'

Dean E. W. Davis: 'How the Wind Changes its Direction.'

Mr. A. E. Sheldon: 'Some Prehistoric Indian Fire-places in the Bad Lands' (with lantern).

Dr. R. H. Wolcott: 'Some Observations on the Fauna of Nebraska' (with lantern).

Mr. E. E. Blackman: 'New Types of Nebraska Flint Implements' (with lantern).

Dr. G. E. Condra: 'Delimitation of Nebraska's Coal-bearing Formations' (with lantern).

Aside from the routine business which was transacted, resolutions were offered and passed endorsing legislation for the protection of non-injurious large game and other animals and also approving of the setting aside of forest and game reserves under government control.

The following officers were elected for the ensuing year:

President—Dr. R. H. Wolcott, University of Nebraska, Lincoln.

Vice-President—Dr. S. R. Towne, Nebraska State Board of Health, Omaha.

Secretary—Professor F. D. Heald, University of Nebraska, Lincoln.

Treasurer—Mr. A. E. Sheldon, Lincoln.

Directors—Mr. William Cleburne, Omaha; Dr. James B. Hungate, Weeping Water; Professor G. R. Chatburn, University of Nebraska, Lincoln; Professor G. A. Loveland, University of Nebraska, Lincoln.

Robt. H. Wolcott,
Secretary.

THE NORTHEASTERN SECTION OF THE AMERICAN CHEMICAL SOCIETY.

The fifty-seventh regular meeting of the section was held Friday evening, January 27, at the 'Tech Union,' Massachusetts Institute of Technology, with President Norris in the chair. About sixty members were present.

Professor Frank H. Thorp, of the Massachusetts Institute of Technology, gave a paper entitled 'Some Notes upon Recent Foreign Literature of Chemical Technology.'

Mr. Arthur D. Little gave an eulogistic address on the 'Life and Work of the late Dr. Carl Otto Weber.'

Arthur M. Comey,
Secretary.

THE GEOLOGICAL SOCIETY OF WASHINGTON.

The 163d meeting of the society was held on Wednesday evening, February 8, 1905. Messrs. David White, M. L. Fuller and W. T. Schaller presented informal communications, and the regular program was as follows:

Notes on the Fossils of the Bahamas: Mr. W. H. Dall.

The rocks of the Bahamas, apparently all Pleistocene, are of two kinds, marine sedimentary and æolian calcareous sands. The former contain the common marine West Indian shells now living about the Bahamas, with no extinct species. The æolian rocks proved to contain quite a fauna of land shells, especially characterized (like the recent land fauna) by the profusion of *Cepolis* and *Cerion*. In this respect it recalls the Oligocene land shell fauna of the Tampa silex beds, of which the Bahama Pleistocene shells are an analogue but not a derivative. The latter unexpectedly proved to contain a number of extinct species, doubtless the ancestors of the present fauna. Curiously enough, these ancestral forms are more like existing species of Haiti and Cuba than they are to their actual descendants, which may be accounted for on the hypothesis that a great increase in variability accompanied their invasion of the newly elevated

land where there were no competitors, while the Haitian and Cuban forms from which they sprang have been kept true to type by the competition of the rest of the fauna by which they are surrounded. If there were any way of determining approximately the time which has elapsed since the elevation of the Bahamas above the sea in the Pleistocene epoch, we should have a means of determining the rate at which evolution and specific differentiation may proceed in such an assemblage of pulmonate mollusks placed in a suitable environment and not subjected to serious competition.

Pre-Cambrian Rocks of the Franklin Furnace Quadrangle: Mr. A. C. SPENCER.

The view held by Rodgers, Cooke and Britton that the gneisses of the New Jersey Highlands are mainly metamorphosed sediments, has not been seriously challenged up to the present time, though two of the more recent investigators of the field (Nason in 1890 and Wolff in 1896) have left the way open for accepting an igneous origin for these banded feldspathic rocks. Field work in the vicinity of Franklin Furnace carried on during the summer of 1904 warrants the conclusion that, so far as this particular field is concerned, the only sediments are the white limestone and a few patches of quartzite, the several types of gneiss being undoubtedly igneous and in large part demonstrably intrusive. For the purpose of the geologic map five divisions of the pre-Cambrian rocks will be recognized: (1) the Franklin white limestone; (2) a complex of diorites and granites showing more or less gneissic structure; (3) black hornblende or pyroxene gneiss; (4) white granite gneiss, and (5) coarse granite or pegmatite.

Age relations have been established as follows: The pegmatites cut all the other rocks; the white gneiss cuts (2) and (3); the black gneiss cuts (1) and both phases of (2); and finally the granite phase of (2) cuts the limestone (1). The relation of the diorite phase of (2) to the limestone has not been observed.

Consanguinity in the Eruptive Rocks of Cripple Creek: Mr. L. C. GRATON.

Mr. Graton showed that three magmatic groups may be distinguished, of which the most important is the series of rocks from the Cripple Creek volcano. All the rocks of this group possess certain characteristics in common and are of particular interest in having a constant ratio of silica to alumina—a proof of their derivation from a single magma. By making certain assumptions based on the field observations, the relative volumes of these rocks were computed, and by that means an analysis was obtained which was considered to approximate the composition of the total product from the magma reservoir, *i. e.*, the average rock of the Cripple Creek volcano.

The Big Sink on the Lucin Route across Great Salt Lake: Mr. J. M. BOUTWELL.

Mr. Boutwell described the construction of the long trestle extending across Great Salt Lake, and presented observations which have an important bearing on the question of the character and depth of the intermontane rock basins beneath the Pleistocene sediments. The author will later communicate a more complete statement to SCIENCE.

GEO. OTIS SMITH,
Secretary.

THE SCIENCE CLUB OF NORTHWESTERN UNIVERSITY.

THE Science Club of Northwestern University held its regular monthly meeting in the physical lecture room of Science Hall, on Friday evening, February 3, 1905, at 7:30 P.M. Papers were presented by J. W. Goldwait on 'Post-glacial Land Movements in New England,' and by Professor U. S. Grant on 'Recent Contributions to Metamorphism.'

FLOYD FIELD,
Secretary.

DISCUSSION AND CORRESPONDENCE.

A NEMATODE DISEASE OF GRASSES.

IN Europe there have been known for many years certain diseases of grasses, including wheat, caused by nematodes, which penetrate, in the larval state, the ovaries of the flowers and there reach maturity and lay their eggs. The resulting larvæ reach a certain degree of development and then, with the drying up of