

SCIENCE

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FRIDAY, SEPTEMBER 15, 1899.

CONTENTS:

<i>The American Association for the Advancement of Science:—</i>	
<i>The Fundamental Principles of Algebra:</i> DR. ALEXANDER MACFARLANE.....	345
<i>Proceedings of the Botanical Club:</i> A. D. SELBY.....	364
<i>The American Microscopical Society:</i> PROFESSOR HENRY B. WARD.....	367
<i>Proceedings of the Sixteenth Annual Convention of the Association of Official and Agricultural Chemists:</i> DR. H. W. WILEY.....	368
<i>A Card Centralblatt of Physiology:</i> DR. WILLIAM TOWNSEND PORTER.....	370
<i>Scientific Books:—</i>	
<i>Green on the Soluble Ferments and Fermentation:</i> DR. OSCAR LOEW. <i>Annals of the South African Museum:</i> F. A. LUCAS. <i>Bolton's Catalogue of Scientific and Technical Periodicals:</i> PROFESSOR J. McKEEN CATTELL. <i>General. Books Received</i>	373
<i>Scientific Journals and Articles</i>	377
<i>Discussion and Correspondence:—</i>	
<i>The Proper Name of the Polar Bear:</i> DR. LEONHARD STEJNEGER. <i>The Mental Effects of the Weather.</i> DR. H. HELM CLAYTON.....	377
<i>Notes on Physics:—</i>	
<i>Photography of Sound Waves; The Hydrolysis of Stannic Chloride; The Specific Heat of Solutions; Magnetism and Stretch Modulus of Steel:</i> W. S. F.....	378
<i>The Bacillus Icteroides as the Cause of Yellow Fever</i>	379
<i>International Congress on Tuberculosis</i>	380
<i>Scientific Notes and News</i>	381
<i>University and Educational News</i>	384

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE FUNDAMENTAL PRINCIPLES OF ALGEBRA.*

THIS section of the Association, over which I have the honor of being called upon to preside, may be said to be a double section, for it comprises both mathematics and astronomy; as a consequence, the addresses which have been delivered by my predecessors fall into two distinct groups, the mathematical and the astronomical. Of the former class I have had the pleasure of listening to three: Professor Gibbs on Multiple Algebra, Professor Hyde on the Development of Algebra, and Professor Beman on a Chapter in the History of Mathematics. Each of these addresses was devoted to one feature or other of the development of Algebra, and the subject which I have chosen for to-day is another aspect of the same wonderful phenomenon. It is a subject which interests alike the mathematician and the philosopher, and indeed all thinking men, for it concerns the foundations of that science which is generally acknowledged to be the most perfect creation of the human intellect.

I propose then to review historically and critically the several advances which have been made respecting the fundamental principles of algebra. Here I am mindful of the advice which Horace gives a young

* Address by the Vice-President and Chairman of Section A., Astronomy and Mathematics, of the American Association for the Advancement of Science, Columbus meeting, August, 1899.

be edited by 'A. S. Packard, Jr., and Edward D. Cope.' SCIENCE is said to be edited by a committee consisting of 'S. Newcomb, I. Remsen, O. C. Marsh, C. H. Merriam, J. W. Powell.' There are also serious omissions, *e. g.*, *The Bulletin of the American Mathematical Society* and *the Bulletin of the Torrey Botanical Club*.

The value of this compilation to the scientific worker is so great that the destruction by fire of the plates and sheets would not be regretted if this should lead to a new edition.

J. McKEEN CATTELL.

GENERAL.

THE newly formed Harper-McClure combination of New York City announces the publication of an encyclopædia which is intended to surpass even the Encyclopædia Britannica in range. It is to be hoped that the scientific articles will be entrusted to men of science as competent as the writers for the *Britannica*.

MESSRS. D. APPLETON & Co. announce for early publication the 'Comparative Physiology and Morphology of Animals,' by Professor Joseph Le Conte, and 'The International Geography' by Nansen, Markham, Bryce, Davis and others.

MESSRS. HARPER & BROTHERS have in press the 'Elements of Physics,' by Professors J. S. Ames and H. A. Rowland of the Johns Hopkins University.

BOOKS RECEIVED.

A Manual of Psychology. G. F. STOUT. London, W. B. Clive; New York, Hinds & Noble. 1899. Pp. xvi + 643.

Text-book of Vertebrate Zoology. J. S. KINGSLEY. New York, Henry Holt & Company. 1899. Pp. viii + 439.

The Teaching Botanist. WILLIAM F. GANONG. New York and London, The Macmillan Company. 1899. Pp. xi + 270.

The Elements of Blowpipe Analysis. FREDERICK HUTTON GETMAN. New York and London; The Macmillan Company. 1899. Pp. ix + 77. 60 cts.

SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of Geology. May-June, 1899. Vol. VII., No. 4. The number opens with a symposium of three papers dealing with the Permian of the states west of the Mississippi.

C. R. Keyes writes of the 'American Homotaxial Equivalents of the Original Permian,' pp. 321-342. A comparison is drawn between the American Permian and that of Russia as seen by the author during a recent Russian trip. C. S. Prosser follows with a paper on 'Correlation of Carboniferous Rocks of Nebraska with those of Kansas,' pp. 342-357. The author determines the relations of the Nebraska Carboniferous with the horizons which had been previously established by his careful, faunal studies in Kansas. W. C. Knight, 'The Nebraska Permian,' pp. 357-375. The writer's conclusions are that the Kansas Permian extends as a triangular area northward into Nebraska. Some tables of fossils are given W. H. Hobbs, 'The Diamond Fields of the Great Lakes,' pp. 375-389. All the known finds of diamonds in the drift of the region of the Great Lakes are recorded and plotted with the intention of locating their probable source and home, and of arousing interest in the subject. W. H. Turner, 'Replacement Ore Deposits in the Sierra Nevada,' pp. 389-401. A number of gold-bearing deposits in California are described, which are in contrast with the usual quartz veins and which give ground for an explanation by replacement. Editorials, reviews, and a valuable summary of current North American Pre-Cambrian literature by C. K. Leith conclude the number.

THE *Educational Review* for September opens with an address given by Dr. W. T. Harris before the recent meeting of the National Educational Association, outlining an education policy for our new possessions, and an article on the educational progress of the year by Professor Nicholas Murray Butler, presented to the National Council of Education. The number also contains articles on the educational system in Chicago, women in the public schools, English in Regents' schools and the teaching of German in Germany.

DISCUSSION AND CORRESPONDENCE.

THE PROPER NAME OF THE POLAR BEAR.

TO THE EDITOR OF SCIENCE: Under this heading in SCIENCE for August 15, 1899, Mr. James A. G. Rehn states that the name of the Polar Bear should be *Thalarctos marinus* (Pal-