

SCIENCE

EDITORIAL COMMITTEE: S. NEWCOMB, Mathematics; R. S. WOODWARD, Mechanics; E. C. PICKERING; Astronomy; T. C. MENDENHALL, Physics; R. H. THURSTON, Engineering; IRA REMSEN, Chemistry; J. LE CONTE, Geology; W. M. DAVIS, Physiography; HENRY F. OSBORN, Paleontology; W. K. BROOKS, C. HART MERRIAM, Zoology; S. H. SCUDDER, Entomology; C. E. BESSEY, N. L. BRITTON, Botany; C. S. MINOT, Embryology, Histology; H. P. BOWDITCH, Physiology; J. S. BILLINGS, Hygiene; J. McKEEN CATTELL, Psychology; J. W. POWELL, Anthropology.

FRIDAY, JANUARY 19, 1900.

THE CENTURY'S PROGRESS IN APPLIED MATHEMATICS.

CONTENTS:

<i>The Century's Progress in Applied Mathematics, II.:</i>	
PROFESSOR R. S. WOODWARD.....	81
<i>Cruise of the Albatross, II.:</i> DR. A. AGASSIZ....	92
<i>The Twelfth Annual Meeting of the Geological Society of America, I.:</i> PROFESSOR J. F. KEMP..	98
<i>Scientific Books:—</i>	
<i>Herschel on Frontinus and the Water Supply of the City of Rome:</i> PROFESSOR MANSFIELD MERRIMAN. <i>Blatchley's Gleanings from Nature:</i> S. H. S. <i>The Liverpool Marine Biological Committee's Memoirs:</i> PROFESSOR WM. E. RITTER. <i>General</i>	106
<i>Scientific Journals and Articles</i>	109
<i>Societies and Academies:—</i>	
<i>Section of Geology and Mineralogy of the New York Academy of Sciences:</i> DR. ALEXIS A. JULIEN. <i>The Anthropological Society of Washington:</i> DR. J. H. MCCORMICK.....	110
<i>Discussion and Correspondence:—</i>	
<i>Homologies of the Wing-veins of Hymenoptera:</i> CHARLES ROBERTSON.....	112
<i>Notes on Inorganic Chemistry:</i> J. L. H.....	113
<i>Current Notes on Meteorology:—</i>	
<i>The West Indian Hurricane of August, 1899; Recent Publications:</i> R. DEC. WARD.....	114
<i>Recent Zoopaleontology:—</i>	
<i>Adaptive Radiation of the Camels and Llamas; Pliocene Hyrax; Exploration for Dinosaurs; Ear Bones of Marsupials; The Fins of Ichthyosaurus:</i> H. F. O.....	115
<i>Agricultural Experiment Stations</i>	116
<i>Scientific Notes and News</i>	117
<i>University and Educational News</i>	119

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.

II.

ANOTHER question of widely general, and of peculiar mathematical interest, is the problem first attacked by Fourier, of the distribution and consequent effects of the earth's internal heat. The most interesting phase of this question is that which relates to the time that has elapsed since the crust of the earth became stable and sufficiently cool to support animal life. It is now nearly forty years since Lord Kelvin* startled geologists especially by telling them that Fourier's theory of heat conduction forbids anything like such long intervals of time as they were in the habit of assigning to the aggregate of paleontological phenomena. On several occasions since then Kelvin has restated his arguments with a cogency that has silenced most geologists if it has not convinced most mathematicians. Quite recently, however, the question has become somewhat less one-sided, since geologists and paleontologists are beginning to defend their positions† while that of

* In a memoir 'On the secular cooling of the earth,' *Trans. Royal Society of Edinburgh*, 1862. Republished in Kelvin and Tait's *Treatise on Natural Philosophy*, appendix D. Kelvin's latest paper on this subject is entitled 'The age of the earth as an abode fitted for life,' and is published in *Philosophical Magazine*, January, 1899; also in *SCIENCE*, May 12, 1899.

† See Professor T. C. Chamberlin's paper, "Lord