SCIENTIFIC JOURNALS AND ARTICLES.

THE November-December number of *The Journal of Geology,* which is the final one of Vol. XII., contains as the leading article Professor Wm. M. Davis's address before the Department of Earth Sciences in the World's Congress of Science and Arts at St. Louis on 'The Relations of the Earth Sciences in View of their Progress in the Nineteenth Century.' Dr. S. W. Williston contributes a 'Notice of Some New Reptiles from the Upper Trias of Wyoming' which were secured by the University of Chicago paleontological expedition of last summer. Four new genera and species are described. Messrs. S. R. Capps and E. D. K. Leffingwell describe the 'Pleistocene Geology of the Sawatch Range, near Leadville, Colo.' Professor Rollin D. Salisbury describes 'Three New Physiographic Terms' which are topographic unconformity, topographic adjustment and superimposed youth. O. W. Wilcox has an article 'On Certain Aspects of the Loess of Southwestern Iowa' and Miss I. H. Ogilvie describes 'The Effect of Superglacial Débris on the Advance and Retreat of some Canadian Glaciers.' The conclusion is 'that the débris covering, and that alone, is responsible for the advance, and indeed for the continued existence, of the glaciers of the eastern Rockies.'

The American Geologist for January contains a 'Biographical Notice of William Henry Pettee' with plate by Professor Israel C. Russell. Mr. George F. Becker's address before the Geophysical Section at the International Congress of Arts and Science at St. Louis on the 'Present Problems of Geophysics' is published. Professor J. F. Whiteaves contributes an article entitled 'Notes on the Apical End of the Siphuncle in some Canadian Endoceratidæ, with Description of Two Supposed new Species of Nanno,' which is illustrated by two plates. 'The Progress of Vertebrate Paleontology at the American Museum of Natural History, New York,' is reported by Mr. O. P. Hay. 'The Comparative Accuracy of the Methods for Determining the Percentages of the Several Components of an Igneous Rock' is discussed by Mr. Ira A. Williams. Mr. W. C. Morgan considers 'The Origin of Bitumen,' and from the discovery of a fossil egg partly filled with asphalt concludes that 'natural conditions are thus demonstrated to be sufficient to transform animal matter into bitumen during long periods of time without the aid of heat.' There are also given abstracts of papers presented at the Philadelphia meeting of the Geological Society of America by Professors Cumings, Tarr and Willis and Mr. Fuller.

The Popular Science Monthly for February contains the following articles: 'An Address on Astrophysics,' W. W. Campbell; 'The Metric System of Weights and Measures,' E. A. Kennelly; 'A Botanical Laboratory in the Desert,' Francis E. Lloyd; 'How Immigrants are Inspected,' Allan McLaughlin; 'On the Relations of the Land and Fresh-Water Mollusk-Fauna of Alaska and Eastern Siberia,' William Healey Dall; 'Examinations, Grades and Credits,' J. McKeen Cattell. In 'The Progress of Science' are to be found accounts of 'Convocation Week,' 'The American Association,' with portraits of the vice-presidents, 'The Presidential Address' and 'The Affiliated Societies.'

Bird-Lore for January-February has 'A New Year's Suggestion' on nesting trays for robins, by Mabel Osgood Wright; 'Nesting Boxes'—illustrated—by E. H. Forbush; Nest-Box Suggestions; 'On the Construction of Houses for the Purple Martins,' J. Warren Jacobs; and Nest-Box Notes. There is *Bird-Lore's* Fifth Christmas Bird Census and the eighth paper on 'The Migration of Warblers' by W. W. Cooke. The number contains the Report of the National Association of Audubon Societies, which includes a History of the Audubon Movement, Report of the National Committee for 1904 and the State Reports.

The American Museum Journal for January bears the subtitle Fossil-Carnivore Number, over one half its sixty pages being devoted to a synopsis of fossil carnivores, marsupials and small mammals in the American Museum of Natural History. The article, which is by W. D. Matthew, is well illustrated and accompanied by a list of important books of reference. The number contains a description of 'The Cape York Meteorites,'

notes on the additions in various departments and lists of the various lecture courses.

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES. SECTION OF ASTRONOMY, PHYSICS AND CHEMISTRY.

THE regular monthly meeting of the section was held at Fayerweather Hall, Columbia University, on Monday evening, November 7, with Professor Charles L. Poor in the chair. Abstracts of the papers which were presented before the section are as follows:

The Relation of Kathode Resistance to the So-called Saturation Current in the Discharge through Gases: F. L. TUFTS.

In this paper it was pointed out that the so-called saturation currents obtained by Wilson and other investigators of the phenomena of electrical conduction through flame gases were not true saturation currents, but only apparently so, owing to the development at the kathode of a high resistance when the impressed electromotive forces were over a few volts. By the use of a kathode coated with calcium oxide and heated by a separate flame it was shown that the resistance of a flame connecting this with the anode remained practically constant; that is, the current through the connecting flame increased directly as the potential gradient for gradients ranging from a few tenths of a volt to the centimeter, up to gradients of as much as fifty volts to the centimeter.

Experiments were made with the ordinary luminous gas flame as well as with flames rendered non-luminous by the admixture of air, and the relation between current and potential gradient was found to be the same for both kinds of flames.

The Duration of the Afterglow Accompanying the Electrodeless Discharge at Low Pressures, Effect of Temperature: C. C. TROWBRIDGE.

The purpose of the investigation was to determine the nature of the glow that often appears after the cessation of the electrodeless discharge in gases at low pressures. Measurements made thus far on the duration of the glow in air show a sharp maximum of duration between .1 and .05 millimeter pressures and that this maximum point varies with the electrical conditions of the experiment. It was also determined that there is a critical point between .7 and .3 millimeter pressures where the glow is only occasionally formed, after which as the pressure is further reduced, the duration of the glow increases rapidly to the maximum. The electrodeless discharge was also made to take place at liquid air temperature and it was found that the afterglow accompanying the discharge was diminished considerably in duration and intensity at the low temperature of about $-186°$ C.

The officers of this section for 1905 were then elected and are as follows:

Chairman—Ernest R. van Nordroff.
Secretary—Charles C. Trowbridge.

THE next regular meeting of the section was held on Monday, December 5, with Professor William Hallock in the chair in the absence of Professor Poor.

The papers of the evening were as follows:

The Combination of Ions with the Solvent in Solutions: C. W. KANOLT.

The object of Dr. Kanolt's investigation was to determine whether or not the ions of a salt in solution are combined with the solvent. The method used was the electrolysis of a salt dissolved in a mixture of two solvents, with the subsequent analysis of the portions of the solution around the two electrodes. If the ions are combined with either of the solvents, this solvent will be carried from one electrode to the other, and changes in the proportions of the two solvents are to be expected. Positive results were obtained with silver nitrate dissolved in a mixture of pyridine and water, indicating that pyridine was combined with the silver ions. With the same salt in a mixture of alcohol and water only negative results have so far been obtained. Other salts are being investigated.

Chemical Combination of Knall-gas under the Action of Radium: BERGEN DAVIS and C. W. EDWARDS.

The experiments described relate to the chemical combination of hydrogen and oxygen