Petrological Sketches. The rocks of the region belong to three periods of activity: (1) the leucitic characterized by leucites and leucite-tephrites, (2) the trachytic and (3) the basaltic. Among the rocks of the first period is a biotite-vulsinite, a rock intermediate between the trachytes and andesites. The silica is lower than in the vulsinites, the lime, iron and magnesia very much higher and the alkalies considerably lower. Chemically the rock is almost identical with ciminite, but in deference to the present mineralogical classification of rocks it is put with the vulsinites.

Are the Bowlder Clays of the Great Plains marine? is asked by Dr. George M. Dawson, and as a reason for the question he enumerates several species of foraminifera, in part modern forms, determined from the Canadian bowlder clays by Mr. Joseph Wright.

The Beauxite deposits of Arkansas are described by Professor John C. Branner. The beauxite deposits were discovered by the recent Geological Survey of that State and are of ferruginous, earthy and kaolin-like varieties with pisolitic structure. In age they probably belong to the Tertiary. They appear to have been laid down in water near the shore and, in part at least, to have been uncovered at low tide or broken up by storm waves, rolled, and finally left at or near where the material had originally lain. In the opinion of Professor Branner, before the eruptive syenites had cooled they were sunk beneath the Tertiary sea, and either by the contact of the sea water or the issuing of springs, whose waters had been in contact with the hot syenites, the aluminous materials were segregated as pisolite and sank near where they were formed. The beds have not been developed, though they could be used to advantage as a refractory material in the manufacture of iron and steel. The paper includes a considerable bibliography.

H. F. B.

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES—SECTION OF GEOLOGY, APRIL 19, 1897.

The evening of the monthly meeting of the Section was devoted to a reception, by the whole Academy, to Sir Archibald Geikie, Director-General of H. M. Geological Survey of Great Britain, who had just returned to this country for a brief visit after an absence of eighteen years. After an informal reception the meeting was called to order and addressed briefly by the President of the Academy, Professor J. J. Stevenson, who extended a most hearty welcome from the scientists of New York to the guest of the evening. Professor Stevenson was followed by Professor J. F. Kemp, the Chairman of the Section, who reviewed in a few words the greater contributions of Sir Archibald Geikie to the cause of geology. He spoke of his early work in Scotland, in France and in the western United States in the study of vulcanism, and paid particular attention to the work that had been done in Scotland on the metamorphic rocks. Professor Kemp concluded with a tribute to Sir Archibald as a naturalist, and spoke of the superior quality of work that is given the world by the man who is in love with nature and finds in the solitude of the wildness of nature his greatest company and inspiration.

The next speaker was the Secretary of the Section, who spoke particularly of the work of Sir Archibald Geikie as looked at from the standpoint of the teacher and physiographer. He reviewed hastily the character and quality of Geikie's Text-book and Class-book of Geology, and spoke more especially of the example this distinguished geologist has set in physiography in the masterly analysis of the physical features of Scotland given in his Scenery of Scotland.

The last address of welcome was given by Professor Angelo Heilprin, of Philadelphia, who spoke as a traveler and contrasted the knowledge of the geology of the world now with our knowledge at the time of Humboldt. He spoke of how much we owed to the guest we were welcoming for his work in bringing together the shreds of knowledge from all parts of the world and in building up a great mass of geological information, which is a vast help to all workers in geology and a stimulus to all.

In reply Sir Archibald Geikie expressed his thanks to the Academy for the very cordial reception that had been tendered him in New York. He contrasted the appearance of the

city eighteen years ago and now, and spoke of the great growth of New York vertically as well as horizontally. He paid a brief word of tribute to his friends of his former visit, particularly Newberry, Leidy, Dana, Cope and Hayden, whose help and good will have ever been a great inspiration to him.

In reviewing the work of world-wide reputation that the American geologists are producing, Sir Archibald Geikie paid a warm tribute to their industry, their perseverance, their breadth and their scientific acuteness. He contrasted, in a very favorable way to the United States, the policy of the British and United States governments in regard to the printing, publishing and distribution of government reports.

After these brief addresses an opportunity was given for meeting the guest of the evening, for personal social meetings among the members of the Academy, and for greeting the guests from a distance, including several well-known geologists.

RICHARD E. DODGE,
Secretary.

BOSTON SOCIETY OF NATURAL HISTORY.

THE Society met February 17th; seventy-three persons present.

Professor N. S. Shaler spoke of the subterranean water of southeastern New England, stating briefly the distribution of earth water, the characters of the superficial deposits, and of the supply yielded by the deeper rocks. In America the bed rocks yield but little water, a case of supply being unknown. Good water depends upon the length of time the rocks have had to decay; it is obtained from the uncompacted rocks and from drift deposits; in Massachusetts the supply from the latter rarely fails. Wells that penetrate into preglacial deposits are largely charged with iron and seldom furnish good water. The till or boulder clay gives good water, except where lime abounds; the water-holding power of these clays is, however, small. Sand plains are favorable for a good water-supply. Professor Shaler gave a detailed description of the sources of the water-supply of southeastern Massachusetts, especially of that of Martha's Vineyard, and in closing said that the desire for pure water was increasing and would shortly be a demand. Boston, from its proximity to the Bristol, Plymouth and Cape sand plains, is favorably situated for an abundant supply, and a reservation of 10,000 acres in the region mentioned would be a benefaction for future generations.

Dr. C. R. Eastman prefaced his paper on some Devonian bone- and fish-beds of North America with an account of the difficulties encountered in the study of fossil fishes, owing to the imperfectness of the material and the lack of systematic exploration. He discussed the structure of *Coccosteus* and described remains of lung-fishes that simulate shark's teeth, found in the Devonian of Iowa.

At the meeting on March 3d sixty-five persons were present. Mr. T. A. Jaggar, Jr., gave an account of his experimental studies of mountain building, illustrating his remarks with a series of models. The scope of geological experimentation was explained, and the conditions under which rocks fracture, the determinant of flexibility and the influence of initial dip noted. A most interesting experiment shows deformation at both ends; the opposite direction of thrusts shows on one side only; the ratio of force to resistance is not influenced by the scale. Mr. J. B. Woodworth remarked upon the geology of the Gay Head Cliff, describing briefly the geological characteristics of the New England group of islands, and giving a detailed account of the formation studied at Gay Head.

A general meeting was held on March 17th; ninety-three persons were present. Mr. Frank Russell gave an account, illustrated by lantern views, of his two years' voyage down the Mackenzie, sketching briefly the characters of the surrounding country and describing with some detail the difficulties that arose owing to the customs and traditions of the Dog-rib Indians. Some of the customs of the Eskimos were noted, also the natural history of the musk ox, Barren ground caribou and bison.

SAMUEL HENSHAW,
Secretary.

THE TEXAS ACADEMY OF SCIENCE.

THE regular monthly meeting of the Texas Academy of Science was held on the evening of April 2d.

A paper on 'Experiments with X-Rays on the Blind' was read by Dr. H. L. Hilgartner, oculist to the State Institution for the Blind. This contribution is the joint production of Dr. Hilgartner and Professor E. F. Northrup, of the chair of physics in the University. As the authors state, the experiments were stimulated by the extraordinary claims made by Dr. Louis Bell in a letter to the editor of the *Electric World* (December 12, 1896), in which it was maintained that a man totally blind from paralysis of the optic nerve was able to distinguish the flickering of a Crook's tube. This the authors wished to verify or disprove. As to their apparatus they say: "The outfit employed in our test is of the best. A double focus tube is excited by a Tesla coil capable of giving an eight-inch discharge. The X-Rays produced will show a shadow of the hand upon the fluorescent screen at a distance of twenty-five or thirty feet." Of the eleven persons experimented upon, seven had no light perception; they were suffering from atrophy of the optic nerve. Of the four having some light perception, three were blind from affections of the cornea and lens, and one from atrophy of the optic nerve. After describing their experiments the authors give as their conclusion "that the X-Rays themselves have no power whatever of exciting vision or even light perception in any kind of an eye, diseased or normal. Of course, these results regarding the blind apply only to the eleven subjects experimented upon, and it would be unscientific to say that no subject can ever be found in whom the X-Rays will excite light sensations. None of the blind subjects could see anything by looking into the fluoroscope, even those having some light perception getting no sensation, and our experiments gave us no hint that the X-Rays, or any other kind of rays, proceeding from the Crook's tube are able to give any light perception to those who are totally blind from any cause whatever." * * * * * * *

"We should not have thought the above negative results worthy of record if the matter had not been taken up by scientists of eminence and the newspapers filled with trashy and misleading myths."

Mr. J. R. Bailey gave an account of his investigations of the Hydrazine Derivatives of Propionic Acid, being a continuation of his studies begun more than a year ago in the laboratory of Professor Thiele at Munich.

A paper by Mr. M. B. Porter, now of Harvard University, 'On the Roots of Bessel's Functions,' was announced by title.

Frederic W. Simonds.
University of Texas.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

At the meeting of the Academy of Science of St. Louis, held on the 19th of April, 1897, twenty-one persons present. Dr. C. Barck delivered an address on Helmholtz—his life and work; and Dr. C. R. Keyes, the State Geologist of Missouri, presented papers on the relations of the Devonian and Carboniferous systems of the upper Mississippi basin and the distribution of Missouri coals.

William Trelease,
Secretary.

NEW BOOKS.

The Ancient Volcanoes of Great Britain. Sir Archibald Geikie. London and New York, the Macmillan Co. 1897. Vol. I., pp. xxiv +477, Vol. II., pp. xv+492. $11.25.

The Theory of Electricity and Magnetism. Arthur Gordon Webster. London and New York, the Macmillan Co. Pp. x+576. $350.

Elements of Astronomy. Sir Robert Stawell Ball. London, New York and Bombay, Longmans, Green & Co. 1896. Pp. xvi+469.

Numerical Problems in Plane Geometry with Metric and Logarithmic Tables. J. C. Estell. New York, London and Bombay, Longmans, Green & Co. 1897. Pp. vii+144.

Topics and References in American History, with Numerous Search Questions. George A. Williams. Syracuse, N. Y., C. W. Bardeen. 1897. Pp. viii+176. $1.00.

ERRATA: P. 591, col. 1, line 42 and col. 2, lines 14 and 29 for *Puppis* read ζ *Puppis*. P. 592, col. 2, line 36 for March 19th read March 26th.