features by Ionian philosophers of the sixth century B. C. Writers, however, are disagreed as to which of these may properly be considered as the earliest evolutionist. A collation of the extant fragments of Anaximander, with critical interpretation of the same, reveals an acuteness and suggestiveness on the part of their author such as entitle him to high estimation amongst the founders of the main theory.

A paper entitled 'Recent Exploration of a Pleistocene Fissure in Northern Arkansas,' by Mr. Barnum Brown, describes what might be termed a bone mine from which nearly ten thousand identifiable bones were taken.

It is shown that a large number of the animals entombed here have been dragged in by weasels, which are actually found in their lairs in the wall of the fissure. Other carnivorous animals, such as the saber-toothed tigers, probably inhabited this fissure and brought in the remains of deer and hogs.

Thirty-four genera and fifty-five species are recognized. A new genus of skunks, *Brachyprotoma,* is described; also nine new species of different animals.

The fauna is compared with recent and fossil forms and tends to show that the fossil forms are boreal types and that the climate at this latitude was much colder during the Pleistocene period than at present.

Although many of the fossil species can not be separated from living forms, the large number of extinct species places the age of this fauna at some time prior to the middle Pleistocene.

O. P. Hay,
Secretary.

THE ASSOCIATION OF AMERICAN GEOGRAPHERS.

The Association of American Geographers was organized in Philadelphia, December 29, 30, with about fifty members, of whom about twenty-five were present. The following officers were elected:

President—W. M. Davis, Cambridge, Mass.

Vice-Presidents—G. K. Gilbert, Washington; A. Heilprin, Philadelphia.

Secretary and Treasurer—A. P. Brigham, Hamilton, N. Y.

Councillors—R. S. Tarr, Ithaca, N. Y.; Cyrus C. Adams, New York; H. C. Cowles, Chicago.

The object of the association is "The cultivation of scientific geography in all its branches, especially by promoting acquaintance, intercourse and discussion amongst members, by encouraging and aiding geographical exploration and research, by assisting the publication of geographical essays, by developing better conditions for the study of geography in schools, colleges and universities, and by cooperating with other societies in the development of an intelligent interest in geography among the people of North America." No regular publication will for the present be issued by the association, it being the opinion of its members that existing geographical journals afford sufficient opportunity for bringing out their essays. The annual meetings of the association will ordinarily be held in connection with the winter meetings of the American Association; but it is probable that the meeting next year will be held in New York city. A summer field meeting is in consideration.

The desire of the organizers of the association is to bring together the investigating geographers of the country, and to lead those who are working on the organic and inorganic sides of geography on the human, economic, zoological, botanical, climatic, oceanographic and geologic sides of this many-sided subject—to present their results in each other's presence. While full membership is limited to those who have already accomplished some original work, it was suggested that inquiry be made to

learn whether others who have specialized less in geography would care to take associate membership. In any case the meetings of the association will be open to all interested persons, and a special welcome will be given to those whose further work would naturally lead them into the association.

The program of the meeting in Philadelphia included the following papers, all of which were presented by the authors, except where stated as read by title.

BAILEY WILLIS: 'Some Physical Aspects of China.'

F. E. CLEMENTS: 'The Interaction of Physiography and Plant Successions in the Rocky Mountains.' Read by title.

E. HUNTINGTON: 'The Seistan Depression in Eastern Persia.'

L. STEJNEGER: 'The Distribution of the Discoglossoid Toads, in the Light of Ancient Land Connections.'

A. P. BRIGHAM: 'The Development of the Great Roads across the Appalachians.'

R. W. PUMPELLY (by invitation): 'Physiography of the Northern Pamer.'

R. S. TARR: 'Some Instances of Moderate Glacial Erosion.'

D. W. JOHNSON: 'The Distribution of Freshwater Faunas as Evidence of Drainage Modifications.'

H. C. COWLES: 'The Relation of Physiographic Ecology to Geography.'

R. A. DALY: 'The General Accordance of Summit Levels in a High Mountain Region: the Fact and its Significance.'

I. BOWMAN (by invitation): 'Partly Submerged Islands in Lake Erie.' Read by title.

CYRUS C. ADAMS: 'The Improvement of American Maps.' Read by title.

R. E. DODGE: 'The Journal of Geography and its Purpose." Read by title.

F. E. MATTHES: 'The Study of River Flow.'

L. G. WESTGATE (by invitation): 'The Geographic Features of the Twin Lakes District, Colorado.'

N. H. DARTON: 'Geologic Expression in Contour Maps.' Read by title.

H. F. REID: 'The Forms of Glacier Ends.' Read by title.

F. P. GULLIVER: 'Muskeget a Complex Tombolo.' Read by title.

W. LIBBEY: 'The Physical Characters of the Jordan Valley.' Read by title.

W. M. DAVIS: 'A Chapter in the Geography of Pennsylvania.' Read by title.

G. K. GILBERT: 'Moulin Sculpture.'

G. W. LITTLEHALES: 'A New and Abridged Method of Finding the Locus of Geographical Position, and Simultaneously therewith the True Bearing.' Read by title.

In addition to the above, Professor W. M. Davis, in assuming the presidency of the association, presented a brief address on 'The Opportunity of the Association of American Geographers'; this paper will be printed in the *Bulletin of the American Geographical Society*. Most of the papers were accompanied by lantern illustrations, and it should be stated that most of the authors were present, whose papers were read by title, the papers being withheld from presentation for lack of time.

Extracts were read from a letter sent by Professor E. de Martonne, announcing that an international association of European geographers would probably be formed next spring. It was voted to send to Professor de Martonne the best wishes of the American Geographers for the formation of the European association.

Following is a list of the original members of the Association of American Geographers: C. Abbe, Jr., Washington; Ch. C. Adams, Ann Arbor; Cy. C. Adams, New York; O. P. Austin, Washington; R. L. Barrett, Chicago; A. P. Brigham, Hamilton, N. Y.; A. H. Brooks, Washington; H. G. Bryant, Philadelphia; M. R. Campbell, Washington; H. C. Cowles, Chicago; J. F. Crowell, Washington; R. A. Daly, Ottawa, Can.; N. H. Darton, Washington; W. M. Davis, Cambridge; R. E. Dodge, New York; C. R. Dryer, Terre Haute; N. M. Fenneman, Madison, Wis.; H. Gannett, Washington; M. K. Genthe, Hartford; G. K. Gilbert, Washington; J. P. Goode, Chicago; H. E. Gregory, New Haven; F. P. Gulliver, Southboro, Mass.; C. W. Hall,

Minneapolis; R. A. Harris, Washington; A. Heilprin, Philadelphia; R. T. Hill, Washington; E. Huntington, Milton, Mass.; M. S. W. Jefferson, Ypsilanti; Emory R. Johnson, Philadelphia; Wm. Libbey, Princeton; G. W. Littlehales, Washington; C. F. Marbut, Columbia, Mo.; F. E. Matthes, Washington (Camb.); W J McGee, Washington; R. Pumpelly, Newport, R. I.; H. F. Reid, Baltimore; W. W. Rockhill, Washington; R. D. Salisbury, Chicago; E. C. Semple, Louisville; G. H. Shattuck, Baltimore; L. Stejneger, Washington; R. S. Tarr, Ithaca; R. DeC. Ward, Cambridge; B. Willis, Washington.

ALBERT PERRY BRIGHAM,
Secretary.

SCIENTIFIC BOOKS.

Technical Mechanics. By EDWARD R. MAURER, professor of mechanics in the University of Wisconsin. New York, John Wiley & Sons. 1903.

Elements of Theoretical Mechanics. By ALEXANDER ZIWET, junior professor of mathematics in the University of Michigan. Revised edition of 'An Elementary Treatise on Theoretical Mechanics,' especially designed for students of engineering. New York, The Macmillan Company. 1904.

Die Technische Mechanik. Elementares Lehrbuch für Mittlere Maschinentechnische Fachschulen und Hilfsbuch für Studierende Höherer Technischer Lehranstalten. Von P. STEPHAN, Regierungsbaumeister, Lehrer an der Kgl. Höheren Maschinenbauschule in Posen. Erster Teil: Mechanik Starrer Körper. Leipzig und Berlin, B. G. Teubner. 1904.

The teacher of mechanics who undertakes to write a text-book for students of engineering is confronted with a difficult problem. He is compelled to recognize the justice of the demand that the course shall be practical, while resisting the tendency to interpret the practical too narrowly. While a rather extensive course seems to be demanded by the manifold applications of mechanics in engineering, his experience in the class-room emphasizes strongly the limitations imposed by restricted time and lack of maturity of students. It will scarcely be questioned that the matter of first importance to the student is a clear understanding of principles rather than an assortment of special rules for solving particular problems. The presentation of principles in a sound and intelligible manner should, therefore, be the chief aim of a text-book, and methods of presentation and illustrative examples should be chosen primarily with reference to this aim.

The success with which this requirement is met by the three books under review will be differently estimated by different teachers. Each possesses merit of a high order, and there is little room for adverse criticism except such as implies a fair difference of opinion as to what methods of treatment are to be regarded as best. It will here be attempted only to indicate the character and scope of each of the books, and to make some general observations regarding methods of presenting the principles of mechanics in an elementary text-book.

As a sound and practical text-book for the use of students of engineering Professor Maurer's book possesses high merit. The exposition is nearly always concise—indeed, this is perhaps often carried to a fault—but the soundness of the logic is rarely open to question. The author shows close sympathy with the point of view of the beginner, and appreciation of the fact that at certain points the conventional treatment of fundamental principles fails to meet the needs of the ordinary student.

Professor Ziwet's book is an excellent introduction to the science of analytical mechanics. His exposition is in general sound and logical, and the book will be read with pleasure and profit by a student of mathematical tastes and ability who has the requisite mathematical training. The maturity and mathematical equipment required for reading it at all easily appear to be greater than are possessed by most of those who take up the subject in the second or third year of the ordinary four-year course in engineering, but