

of what he termed "organic polarity," must be dependent upon like causes. In accounting for the lower forms of living matter, therefore, we may suppose, as he says,⁶ that their "organic molecules of each kind, no matter how complex, have a form of equilibrium in which, when they aggregate, their complex forces are balanced."

H. CHARLTON BASTIAN.

SMITHSONIAN GEOLOGICAL EXPLORATIONS.

DURING the past year, the Smithsonian Institution was represented in the field by nineteen parties and individuals engaged in the collection of data relative to astrophysics, geology, biology, and anthropology, besides nine representatives of the Bureau of American Ethnology, who secured information relative to the American Indian. While most of the exploration occurred in the United States, considerable work was carried on in Canada, the West Indies, Peru, Switzerland, Borneo, Cashmere, Egypt, Greece, and Italy.

A recent publication of the institution describing the various explorations, includes a report on the Palaeontological field-work of the secretary, Dr. C. D. Walcott, in the Canadian Rockies, near the Robson Peak district in British Columbia and Alberta, and in Field, British Columbia. The mountainous scenery in the former region is quite alpine in appearance, including snow-capped and glacier-covered peaks which tower 7500 to 9800 ft. above Lake Kinney, itself some 3000 ft. above sea-level. On this trip Dr. Walcott's party approached from the west in order to study the invertebrate fossils in this section, which he considers one of the finest in the world. At the base of the mountain at Lake Kinney, there exist fossil beds, 4000 ft. or more in thickness, where a number of important ancient Cambrian fossil fauna were secured, as well as many examples of the species found in 1912. At Field, work was carried on in the great Cambrian fossil quarry, where, after blasting out the solid beds to a depth of 22 ft., a fine collection for the U.S. National Museum was secured.

Another geological research party was also in the field for fossils, but, instead of the very early forms of life sought by Dr. Walcott, this second party, under the direction of Mr. J. W. Gidley, was in search of fossil mammals from a later epoch. In this connection, the party again excavated in the Pleistocene cave deposit near Cumberland, Maryland, discovered in 1912, and found many new forms of mammals, and more complete remains of several species represented in the first collection solely by jaw fragments. The collection now numbers about 300 specimens, which represent forty or more distinct types of hitherto undescribed animals, many of which are now extinct, including the bear, peccary, wolverine, badger, martin, porcupine, woodchuck, dog and the American eland-like antelope. Other specimens found in less complete form were the mastodon, tapir, horse, and beaver, besides several smaller rodents, shrews, and bats. All these different animal remains occur intermingled and comparatively thickly scattered through the deposits of this ancient limestone cave, which was exposed by a cut made by the Western Maryland Railroad, and reported to the museum by Mr. Armbruster. Mr. Gidley is pursuing his studies in identifying these different remains, and expects to continue his excavations from time to time.

Mr. C. W. Gilmore, of the National Museum, con-

⁶ "Principles of Biology" (revised edition, 1898), vol. i., Appendix D, p. 704.

ducted explorations in the north-western part of Montana, where some vertebrate fossil bones were discovered by a member of the Geological Survey in 1912. A total of more than 500 separate fossil bones was collected, among them a nearly complete skeleton of a new Ceratopsian or horned dinosaur, the smallest known of the great horned reptiles, and the first to be found having a complete articulated tail and hind-foot. Another find was a partial skeleton of the new Trachodont or duck-billed dinosaur, recently described from specimens obtained in Canada.

Dr. R. S. Bassler spent some time in the Appalachian Valley of Maryland studying the post-Palaeozoic geologic history of the region as indicated by the present surface conditions, under the auspices of the U.S. National Museum, and the Maryland Geological Survey.

Another field research party which concerned the collection of fossils was maintained in Illinois by Mr. F. Springer, in connection with the preparation of his monograph on the fossil crinoidea, and to add to the museum collections of these fossil invertebrate marine animals. The field-work was undertaken in co-operation with the geological work of the State of Illinois, in order that the horizons from which these fossils were taken might be definitely determined. This resulted in securing several large cases of material, among which were several very large slabs containing numbers of specimens.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

DR. E. G. FEARNSIDES, Miss F. M. G. Micklethwait, and Dr. E. P. Poulton have been elected to Beit Memorial Fellowships for Medical Research. Each fellowship is of the annual value of 250*l*.

THE third annual conference of educational associations will be held from January 4 to January 9, 1915, at the University of London, South Kensington. The inaugural address on the principles of educational science will be given by Bishop Welldon. In addition to the addresses and discussions in connection with the meetings of the Geographical Association, to which attention was directed in our issue of last week, mention may be made of the following contributions to the conference. At the meeting of the Froebel Society on January 4 Prof. J. J. Findlay will speak on educative toys and apparatus. On January 5 the Rev. Canon Masterman's presidential address to the Teachers' Guild will be on education for national service. The Provisional Committee for the Development of Regional Survey will meet on January 6, and a number of speeches will be delivered on regional survey in relation to education. During the evening of this date the School Nature Study Union will meet, and Mr. E. E. Unwin will speak on nature-study and the teacher. On January 8 the Science Teachers' Association holds its meeting, and Miss Muriel Robertson will speak on some sleeping sickness problems in Uganda; and on the same day Dr. G. R. Parkin will address the Association of Assistant-mistresses on the responsibilities of Empire.

THE annual Convocation of the Allahabad University for conferring degrees was held in November. The Chancellor, Sir James Meston, delivered an address which is reported in the issue of the *Pioneer Mail* for November 20. Towards the end of his remarks he said:—"My sole aim is the greater efficiency of our University. Now there are two kinds of efficiency. One kind, wrongly so called, seeks for a mechanical perfection, an official symmetry, a standardising of work and ideals with little thought