

suicidal, to establish facts in any other way than by observation. No vote of the most august scientific body can possibly establish a fact, and no vote can have any weight against a good observation." On these grounds, Mr. Gilbert said, "I am opposed to the classification by the congress of the sedimentary formations, and likewise to the classification of the volcanic rocks, and I also regard it as ill advised that the congress undertook the preparation of a map of Europe, for that — if more than a work of compilation — is a work of classification;" and "a classification, if it has any value whatever, is merely a generalized expression of the facts of observation, and is outside the domain of the voter."

The section was well prepared, after hearing this address, to listen on Friday to several abstracts of reports of semi-official character, by the various individual 'reporters' of the American committee, and submitted to it for approval at the recent meeting at Spring Lake. These were all read by Dr. Frazer, secretary of the committee, before discussion was opened, and their good judgment and conservatism excited general approval. The abstract presented by Dr. Frazer demands especial attention, both from the care in its preparation, and from its including at once a discussion of certain general principles, and of that most difficult of geological divisions, the Archæan; and it is to be hoped that these reports may be given to the association for publication, as expressing the matured opinions of many able workers on questions most frequently before American geologists. Among the paragraphs of Dr. Frazer's report, the following will doubtless be generally commended: "American geologists will acquiesce in the recommendations of the committee by sacrificing individual opinion to a reasonable degree, provided that these recommendations do not hamper the efforts of research by requiring more correlation of beds between the two continents than research can justify." "Until such time as the Archæan rocks can be correlated with each other in distant parts of the earth, it is best that geologists should distinguish them from each other petrographically, without attempting to ascribe more than local chronological value to such distinctions." On the other hand, the recommendation that all pre-Cambrian rocks should be called Archæan savors too much of pre-judgment, especially in view of the recent studies of Irving and Walcott. The possible metamorphism of eruptive rocks was properly emphasized; and, as they are thought to differ more as a result of such changes than by conditions characteristic of their eruption, their classification by composition as indicating age is not recommended.

The most animated discussion occurred over the recommendation that it should be "officially declared that neither the color-scheme for the proposed map of Europe, nor the classification of the eruptives of Professor Lossen, provisionally adopted by the map committee in order to bring out the map, are other than tentative schemes, subject to alteration when their application to the map shall have shown to what extent they are deficient." It was strongly objected by Major Powell that this implied the official adoption of the color-scheme alluded to, in case serious defects were not discovered in its test on the European map, and that it did not sufficiently dwell on the fact that the scheme of colors had been devised only by a committee of the congress, and not by the congress itself. A resolution approving the action of the committee, and hoping for its continuance, was adopted in the evening session; but it may be mentioned that it received only two or three affirmative votes, although the session was well attended at the time.

It is difficult to choose among the many papers read before the section, and we mention only the few that our space allows. Prof. H. S. Williams presented a model paper on the different types of Devonian in America; Mr. Hill gave the results of his recent studies in Texas; Professor Claypole described 'Lake Cuyahoga,' an extinct glacial lake in Ohio; Mr. Walcott contributed a paper on the so-called 'Taconic,' that promises, with his other studies, to bring about accord on this vexed problem; and Dr. G. H. Williams gave an excellent general account of petrographic methods and their application. These titles can only suggest others of like interest that are regrettably omitted from our report.

Section F.

THOSE who think that scientists are seriously divided on the question of evolution would have come to a different conclusion by

attendance at the Biological Section during the meeting of the American Association, just closed. Reputable scientists no longer avoid the question as formerly, or mention it only in defence, but accept it as the basis for the discussion of questions of structure and classification. Dr. Farlow, vice-president of the section, following in harmony with the subject chosen by the president of the association, Professor Morse, chose for his subject 'Vegetable Parasites and Evolution.' Botanists have a smaller basis than zoölogists for the study of development, owing to the incompleteness of the paleontological record, especially with reference to the lower plants, to which most parasites belong. The study of different degrees of parasitism has, however, rendered it probable that parasites may have originated at a remote period from non-parasitic plants, first as saprophytes, then as true parasites. The parallelism which exists between algæ and fungi seems also to indicate that the different groups of fungi have arisen from corresponding groups of algæ at different periods in the process of evolution.

The paper of Professor Cope, on the mechanical origin of the suctorial teeth of the *Carnivora*, showed in a striking manner the value which mechanical force may in some cases have as a factor in development. His statement, also, that a given structure may or may not be the best which could be devised for performing its particular function, but that it must be such as could be developed from a pre-existing form, is one which, if earlier understood, would have saved much misdirected effort.

Among the other papers presented, that of Professor Cook on the antennæ-cleaners of *Hymenoptera*, the series of structural papers by Dr. Beal, that of Dr. Schrenk on *Brasenia peltata*, and the papers on morphology by Professor Baur, were excellent examples of the present methods of study. The paper of perhaps the most practical importance was that of Dr. Rusby, on the cultivated cinchonas of Bolivia.

In the treatment of the topics relating to classification, there was manifested a tendency to restrict the number of species and increase the number of varieties. In regard to terminology, there was exhibited on one or two occasions a decided opposition to the introduction of comparatively unimportant new terms.

The proportion of botanical to zoölogical papers presented before the section was less than last year, although the attendance of botanists was greater. There is still a general desire, on the part of the botanists, to confine the discussions and short papers chiefly to the botanical club, and the necessity is felt of providing more time for that purpose. Among the work of the club was the appointment of a committee, consisting of Drs. Vasey, Britton, Watson, Morong, and Halstead, to devise a system for the exchange of specimens.

One of the most enjoyable features of the meetings was the excursions provided by the citizens of New York and the local societies. These gave an opportunity for the members to become acquainted, and to compare personal notes. Of especial interest was the excursion of the botanical and entomological clubs to Sandy Hook, which included an informal 'field-meeting' on board the boat during the return. Much is due from botanists to the Torrey Botanical Club, which, besides the delightful entertainments provided, furnished sets of the local plants to those in attendance.

Section H.

THE meetings of this section are always interesting on account of the great variety of papers read. At the present meeting the discussions were more lively than they used to be, and this is due to the skilful vice-president, Dr. D. G. Brinton, who encouraged discussion in every way, and, by giving summaries of the doubtful points, elicited remarks from all interested in the subject.

Among the different classes of papers, archæological ones take a prominent place. This is somewhat remarkable, when we consider that in many parts of America we have still the very best opportunities of studying the natives themselves; but the antiquity and doubtful origin of relics have always proved a stronger incentive for scientific remarks than the living neighbor, to whose customs and strange appearance we become accustomed. The most important one among this class of papers was Professor Putnam's report on the purchase of the serpent-mound of Adams County, O., by a number of ladies,