

plain around it. But there is a more direct method of finding out whether or not the Ozark uplift really does possess the great age ascribed to it. Marbut, Davis, Griswald and others, who have recently given the region special study from both the geographic and geologic standpoints, all agree in regarding the uplift, as it now stands, as a very modern feature of relief—that is, they assign the age as not earlier than middle or late Tertiary. The proofs that these authors bring forth seem indisputable. Furthermore, there is ample evidence for believing that there were two periods of uprising—one in which the region was bowed up and then reduced to a peneplain, and the other in which the peneplained surface was again uplifted to near its present position. The remnants of the once level plain are still plainly discernible in the existing general surface.

There is another wholly different line of evidence, going to show that during all Paleozoic time no island existed in the present Ozark region, and that the formations later than Cambrian were not laid down in concentric zones around the central crystallines. It is believed that there is ample proof that all Paleozoic formations now represented around the foot of the uplift extended in unbroken sheets over the entire area now elevated, and were not removed until Cretaceous or Tertiary time. Part of the evidence has been published for many years, though it appears to have escaped notice, but much new information bearing directly on this point has been obtained lately. It is essentially this: Far up on the back of the dome—more than three-fourths of the distance from the foot, where the main bodies of the several formations exist, to the central part of the elevation—there are still preserved outliers of Devonian, Lower Carboniferous and Coal Measures. Some of those of the age first mentioned occur very near the summit of

the great dome, while those last referred to extend to within 300 feet of the crest. Abundant fossils leave no doubt as to the proper reference to the age of these isolated deposits lying on the older magnesian limestones which constitute the main mass of the dome.

Without going fully into details it must be conceded that the widespread idea of the existence, during Paleozoic times, of a wondrous Ozark Isle, in the midst of a vast continental sea, is a trifle mythical, and it, therefore, must be relegated to the realm of the fanciful.

CHARLES R. KEYES.

*NEW YORK STATE SCIENCE TEACHERS' ASSOCIATION—SECOND ANNUAL MEETING,
ITHACA, DECEMBER 30–31, 1897.*

THE growth of this Association during the past two years has been most encouraging to all friends of science in the State. The Ithaca meeting was marked by a deep interest in the objects of the Association; this was manifest not only in the large attendance, especially of college and normal school professors, but in the earnest discussions at each session, particularly after the Report of the Committee of Nine. The meetings of the American Society of Naturalists and their affiliated societies on Tuesday and Wednesday, and the presence of a number of their members at the meetings of the Teachers' Association, created an atmosphere especially favorable to the objects of the convention. If, perchance, anything could have been lacking to make the environment perfectly auspicious it was supplied by the words and spirit of President Schurman's welcome. He showed himself warmly interested in raising science teaching to the highest efficiency and was ready to recognize thorough preparation in science as a requirement for entrance to college. Throughout all the sessions there was abundant evidence that in accepting

the hospitality of Cornell University the Teachers' Association had found for itself a host of friends. Invitations to go this year to Syracuse and Utica were set aside, and the Council voted to meet with Columbia University and the Teachers College in 1898, following, again, the American Naturalists.

At the first session, Thursday afternoon, Miss Mary E. Dann, of the Girls' High School in Brooklyn, read a paper on 'Physical Laboratory Work in Secondary Schools.' It was evident from this paper and the discussion following it that the sentiment of the Association is unanimous in favor of laboratory work by the pupil in physics, the chief questions being 'how much? and how? No one questioned the desirability of making some sort of a beginning in schools where such laboratories do not exist.

Dr. E. L. Nichols, the President, lectured in the evening on 'The use of the Lantern in Science Teaching.' He demonstrated the comparative virtues of kerosene, the lime light and electricity, by throwing these three lights side by side on the same screen from three separate lanterns. A number of demonstrations in physics were then projected by the electric lantern.

The evening reception by Dr. Nichols and Mrs. Nichols was a very delightful feature of the meetings.

On Friday morning Professor Cooley, Chairman of the Committee of Nine, read the preliminary report prepared for this meeting. The full text may be obtained from members of the committee. It is printed in the April number of the *Journal of Pedagogy*, Syracuse, together with the papers by Miss Dann and Professor Underwood. The report concludes with three significant theses, which may be summed up as follows:

1. An immediate effort should be made to formulate the objects, lay out plans and

- surmount the difficulties in the way of a continuous course of nature study in elementary schools.
2. The sciences should be taught in secondary schools by a combination of oral instruction, text-book study and laboratory work; laboratory work should be definitely provided for in the planning of courses, programs and examinations.
3. Science should be accepted as preparation for college when the science has been pursued five hours per week for a year by the method outlined above; when the original records of laboratory work are submitted for inspection by the college, and when all tests of the quality of the work are not less severe than those applied in mathematics and Latin.

These conclusions were well sustained by the speakers of the morning. Lack of suitable preparation on the part of science teachers in the secondary schools was frequently referred to, and it was urged by several speakers that the Association should do something definite in the way of assisting such unprepared teachers in making the right beginning in their science work. This matter and several other propositions dealing with more thorough science work in secondary schools, and the recognition of this work as a requisite for entering college, were referred to the Committee of Nine, to be acted upon before the next annual meeting.

'The Study of Botany in High Schools' was the subject of Professor L. M. Underwood's paper, and of the well sustained discussion following it. Here, again, the importance of trained teachers who can teach lessons from plants as well as from books was repeatedly emphasized, and various means of self improvement were suggested, such as summer schools and special courses in our colleges and universities.

The claims of the American Association for the Advancement of Science were presented by Mr. William Orr, Jr., of the

Springfield, Mass., High School. He urged the science teachers in secondary schools to interest themselves in this national organization, and extended an especial invitation to attend the anniversary meeting next August.

The closing session, Friday afternoon, began with three round tables. The representatives of union schools and academies were led by Principal Thomas B. Lovell, of the Niagara Falls High School, Normal School teachers by Professor Howard Lyon, of Oneonta, and College teachers by Professor B. G. Wilder.

Principal Frederick A. Vogt, of the Central High School in Buffalo, introduced the topic of 'Out-door Science Work in Secondary Schools.' He outlined a number of ways in which the 'laboratory method' may be most profitably employed in the open air, and he contended that many schools, especially in rural districts, are neglecting this most fruitful and convenient means of education and leaning too much on the traditional grind of the school book. The discussion showed that out-door study wherever it has grown to be a feature of science courses is becoming more systematic and rational than formerly. The demand for better work in this line is met by special courses in summer schools and by the preparation of leaflets and guides such as have been issued by the College of Agriculture of Cornell University and many similar institutions.

The following are the officers for 1898:

President, Charles W. Hargitt, Syracuse University.

Vice-President, John F. Woodhull, Teachers College, New York.

Secretary and Treasurer, Franklin W. Barrows, 45 Park Street, Buffalo, of Central High School.

Executive Council:

Professor William Hallock, Columbia University, New York.

Miss Mary E. Dann, Girls' High School, Brooklyn.

Professor D. L. Bardwell, State Normal School, Cortland.

Dr. Charles W. Dodge, University of Rochester.

Principal Thomas B. Lovell, High School, Niagara Falls.

Professor W. C. Peckham, Adelphi College, Brooklyn.

Professor J. McKeen Cattell, Columbia University, New York.

Professor Le Roy C. Cooley, Vassar College, Poughkeepsie.

Professor E. R. Whitney, High School, Binghamton.

Professor Irving P. Bishop, State Normal School, Buffalo.

Mr. Charles N. Cobb, Regents' Office, Albany.

Professor C. S. Prosser, Union University, Schenectady.

A more detailed report of the meeting is published in *The School Journal*, New York, for March 19th and 26th. Dr. Nichols' lecture and Principal Vogt's paper are published in later numbers of the same periodical.

FRANKLIN W. BARROWS,
Secretary.

THE NATURAL HISTORY MUSEUM, LONDON.*

THOSE who have visited the Natural History Museum recently and have marked the admirable manner in which the specimens are classified, labelled and arranged in the gallery of mammalia will readily appreciate how valuable an addition to the resources of the student the improvements in the mode of exhibition and the methods of mounting specimens now in progress in the other zoological galleries will afford when the work is complete. As regards the mammals the rearrangement is in a fairly finished state, though of course the process of elimi-

* From the *London Times*.