

## THE SCIENTIFIC VALUE OF THE CENTRAL PARK.

Twenty years ago, Ambrose C. Kingsland, the Mayor of the city, transmitted to the Board of Aldermen a special message setting forth the limited extent of the places devoted to the public on the island of New York, and urging the importance of prompt action towards the creation of a great park for the moral, scientific, and sanitary benefit of the people. His message attracted much attention and originated the movement which finally ended in the establishment of the Central Park. The Mayor and Street Commissioners were a few years later, created Commissioners of the Central Park, and they associated with them "certain well-known citizens, whose public reputation, peculiar avocations, and cultivated taste, gave assurance that their opinions would possess the force of a clear, unbiased judgment."

Invitations were extended to Washington Irving, George Bancroft, Stewart Brown, and others, and these gentlemen met on the 29th of May, 1856, and organized by electing Washington Irving as President of the Board, and settled the preliminaries for carrying into effect the objects of the commission.

It is not necessary to pursue the history of this important work, as it is fresh in the memory of the youngest inhabitant, and down to a recent period was the pride and glory of our city. Our object is to call attention to the value of the Central Park as an agent in the scientific education of the people. We have before us the thirteen annual reports of the Board of Commissioners of the Central Park, and are gratified to trace in them the progress of public opinion in favor of the establishment of Museums, Zoological Gardens, Historical Collections, and Art Galleries, within the Park, for the instruction as well as the amusement of the people. The Commissioners have all the time recognized the value of such aids to knowledge, and have done all in their power to promote them.

As early as 1861, the Legislature chartered the American Botanical and Zoological Society, and gave the Commissioners of the Park authority to set apart a portion of the grounds, not exceeding sixty acres, for the use of the Society, for the establishment of a Zoological and Botanical Garden; and subsequently the Board, in compliance with the provisions of an act passed March 25, 1862, made to the New York Historical Society, a conditional appropriation of certain grounds about the Arsenal building for the purposes of establishing and maintaining therein, by the said society, a Museum of Antiquities and Science, and a Gallery of Art. It does not appear from the records that either of these societies ever availed itself of the opportunity thus afforded of obtaining a permanent foothold in the Park, and we fear that this neglect will result in a permanent loss to our community.

The Legislature of the State, at its last session, authorized the Board "to erect, establish, conduct, and maintain on the Central Park, a Meteorological and Astronomical Observatory, and a Museum of Natural History, and a Gallery of Art, and the buildings therefor, and to provide the necessary instruments, furniture, and equipments for the same."

In the meantime we have, in the city, the Lyceum of Natural History, chartered more than fifty years ago, the American Institute, founded forty years ago, and two new societies—the American Museum of Natural History, and the Metropolitan Museum of Art—they occupying, with the Historical Society, pretty much the whole field of letters, arts, and sciences.

So many societies and so many men of many minds, have evidently perplexed the Commissioners of the Central Park, and after waiting more than ten years to see what propositions these various organizations had to make, they appear to have taken the matter into their own hands, and to have had the act of Legislature, above cited, passed, to enable them to go to work on their own authority and in their own way.

The distinguished architects of the Parl., Messrs. Olmsted and Vaux, and the efficient comptroller, Mr. Green, have, to our personal knowledge, been in constant communication with the leading thinkers and workers in this country and in Europe.

They have all of them traveled over the continent of Europe for the purpose of studying the construction of museums, zoological gardens, pleasure grounds, and galleries of art, and they have had the advice and assistance of the officers of all the organizations named above; and, as a result, have planned and carried forward the best laid scheme that was ever yet devised for the instruction and amusement of a people. As a part of this scheme, the Commissioners employed Professor B. Waterhouse Hawkins to reconstruct some of the extinct animals of this continent, and to establish a paleozoic museum. Their action in this matter has been highly commended by the scientific societies abroad, and by the unanimous approval of the best minds of our country. It has been said by geologists in England that no one thing has exerted so great an influence upon the study of geology and natural history in England, or has done so much to give popular information upon the origin of the plants and animals on the globe, as the restorations made by Professor Hawkins in the gardens of the Sydenham Palace. As soon as it was understood that this celebrated naturalist had come to the United States, a rivalry at once arose in the large cities to secure his services for their respective parks, but as he first landed in New York, the Central Park Commissioners were so fortunate as to make arrangements to have the work done in our city; and Mr. Hawkins had made considerable progress, when the work was summarily stopped by the new Commissioners, who, having just been appointed, naturally enough did not know what great value the scientific men of the country put upon the success of this particular undertaking. Under the management that has made the Central

Park what it now is, there is no question that we should soon have had the best organized Zoological Garden, the most complete Museum of Art and Natural History, to be found in this or any other country. The Commissioners, after a study of many years, were in possession of all the requisite information to enable them to push the whole scheme to perfect success; and under their direction the Park would have become the right hand of our public schools as an aid to amusement, health, and instruction. They ought never to have been removed, and their departure from the conduct of affairs awakens the fear that the artistic and scientific value of the Park may be considered as gone forever.

How long will it take the present Commissioners to acquire as much knowledge of all the details of a great park as was obtained by the gentlemen who have just been removed from office, after a service of nearly fifteen years? Is there such a thing as scientific administration in this country, or must we always be subject to the whims and caprice of the moment? Surely if there were ever a public undertaking requiring knowledge and experience, it is the Central Park; and yet we see old public servants removed, and new men appointed, without any regard to the lessons of the past, or to services already rendered. And as a consequence we read that the work on the Paleozoic Museum is to be stopped, the Zoological Garden to be removed from the site which had been selected after years of study and consultation with experts. And what is to become of the other museums, we do not know; but we may be justified in predicting a foreclosure of the whole concern. What are the names of "the well-known citizens whose public reputation, peculiar avocations, and cultivated taste give assurance that their opinions would possess the force of a clear, unbiased judgment," who are in consultation with the present Board of Public Parks? What artists and men of science are members of the advisory board?

## THE ECLIPSE EXPEDITIONS.

So far as heard from, the Eclipse expeditions seem to have been, if not total failures, unsuccessful in doing very much useful scientific work. Bad weather interfered with the operations of nearly all of them. We shall summarize as briefly as possible the news received up to the present date in regard to them.

Our European exchanges inform us that the Oran, Gibraltar, and Cadiz expeditions accomplished very little. The private expedition of Lord Lindsay had better luck, and, being favored by a break in the clouds at just the right moment, obtained, by means of long exposure, two pictures of the corona, and, by means of shorter exposures, seven photographs of the prominences, including one of Baily's beads. The official expedition at Cadiz, under the leadership of Father Perry, detected some bright lines in the spectrum of the corona; also that the light of the corona was polarized. The work of the Gibraltar expedition was spoiled by clouds, and Mr. Buckingham, who went to Estepona, thirty miles north, with a great heavy telescope and portable house for photographic operations, had all his labor in vain, for rain came on during the total phase. Some of the observers near Gibraltar had a glimpse of the total phase, and in that short instant detected bright lines in the spectrum of the corona. The Oran expedition was a total failure, because of bad weather. The expedition to Sicily also could do little, because of the clouds and bad weather; a telegram from Mr. Norman Lockyer says that the American observations of last year are confirmed.

The *Gibraltar Chronicle* publishes communications from a number of private observers on the Rock, one of whom writes:

As the moment of "totality" approached, and the moon's shadow, perceptibly traveling from west to east across the sun's disk, veiled his light more and more, earth and sky began to assume a weird, unnatural aspect; and the effect was so solemn and fascinating that it was with painful anxiety one saw one of the dense clouds, with which the sky was largely covered, moving speedily from the west in the direction of the sun, and threatening to hide the whole phenomenon. Heavy and looming, on it came, and at seven minutes before totality the view was completely lost. It was fortunately blowing hard. The friendly gale soon swept off the interloper, and at about four minutes before the eclipse the brilliant crescent again appeared. At 11h 34m. 30s. (1½ minutes before totality), the clouds having left a considerable space of pretty clear sky, an extensive halo of deep shadow, with a faintly luminous fringe of prismatic rays, became visible. It was concentric with the sun, and in diameter about one third of the arc between the zenith and the horizon, seemingly about fifty times the apparent diameter of the moon's shadow. This halo, visible only for half a minute, was effaced by another cloud, which again obscured the view. After a minute's breathless anxiety, the "curtain again rose," revealing the longed-for *tableau*, a grand, impressive sight! It presented itself through a rent in the clouds not greater in area than ten times that of the disk of the moon's shadow. That part of the opening which was above the eclipsed orb was clear like the sun at twilight, and in it were visible to the naked eye the planets Venus, Mercury, and half a dozen stars. The remaining part was covered with a thin haze. The moon's shadow appeared to the eye, assisted by a somewhat weak binocular glass, to be a dark circular disk, with an even boundary and of uniform shade. Within the corona, and touching the circumference of this shadow, appeared five or six spots of brilliant carmine, varying in form and size, and at irregular distances apart. Two of these spots, or "red flames," as they are called, on the eastern side of the disk, and at about fifty-five degrees and eighty degrees, respectively, from the vortex, seemed decidedly the largest and most prominent; they were tongue-shaped, and protruded about one sixth the width of the corona. In their neighborhood the corona was brightest and widest. There, too, the rays of the corona appeared to be gathered more distinctly into groups than elsewhere, faint shadows being visible between the groups. The corona consisted of brilliant rays of extremely faint prismatic hues; these rays, at first sight, appeared pretty evenly distributed all round, but closer examination seemed to detect the

fact of their being bundles of rays in nearly regular groups. The width of the corona was about one eighth the apparent diameter of the moon's shadow. It was very nearly concentric with the disk of the shadow; its boundary was well defined, but "jagged;" the perimeter, except opposite the two most prominent red flames above mentioned, where the boundary slightly protruded, was circular. It was blowing a gale of wind while these notes were taken, which interfered somewhat with the steadiness of one's sight, either naked or assisted by glasses.

The scientific world will feel great disappointment at the results of these expeditions. It was hoped that the success, of last year in America might be followed with equal success this year in Europe, and that more light would be shed upon the great scientific problem of the sun's constitution, and the origin of solar heat and the mystery of the corona. As it is, another opportunity must patiently be waited for.

The results of Lord Lindsay's expedition will, in view of the failures attending the others, be of double importance. Some substantial results are reported, by Mr. J. Norman Lockyer, of the Sicilian expedition, so that the astronomers will have something to discuss and speculate upon during the interval that will elapse before other observations of a similar character can be made.

So far as we can gather from the news now received, the results obtained seem to indicate that the corona is a real appendage of the sun, not ether made luminous by the sun's light, and whether it shine by its own, or by reflected light, that it is the origin of the green line in the spectrum, which has been supposed by some to indicate the presence of some substance yet unknown to chemistry.

## THE PRESENT AND THE PAST.

## NO. II.—FACTS OF THE PRESENT—DESTROYING AGENCIES.

As a preliminary step towards the right comprehension of geological history, man must endeavor to realize his own insignificance in the vast scheme of creation. A may-fly coming into perfect existence with the morning sun and perishing before the close of the day, may well imagine, as she reposes for a few moments upon the water-lily, that no change is going on within the plant; she has not seen the gradual growth of stem and leaf, the formation of the bud and its blossoming, nor can she be cognizant of the movements that are in progress within, whereby in a few hours the flower, scarcely less ephemeral than herself, will fade away and perish. Yet the years of the whole human race do not bear as great a proportion to the periods of the earth as the moments of the insect to the days of the lily; and man has remained for thousands of years as unconscious of the mutations around him, as the may-fly is of the vital actions of the growing plant.

The next point with which the student must familiarize himself is, that in Nature there is no such thing as rest and repose; laws alone remain unaltered, but the matter which they control is forever shifting its forms and its combinations. That gases and liquids are forever in motion is easy of comprehension, but you must also unfix all your notions of the stability of solids, you must become vividly alive to the fact that the land and the hardest rocks are undergoing incessant changes; change from without and change from within; mechanical change and chemical change; change of form and change of substance. Both these kinds of change take place alike on the surface and within the crust of the earth; they are intimately blended together and incessantly react on each other. For instance, the chemical action of the atmosphere eats into a rock, mechanical abrasion detaches an eroded fragment; the fragment is mechanically reduced to sand and deposited in the depths of the ocean where chemical action cements many such fragments again into a solid rock.

With mutations taking place at or near the surface, the geologist may make himself familiar by observations in the field or in the laboratory, but with deep-seated actions he must remain more or less in doubt, as the conditions under which they are effected are so different from any that he can see in operation or that he can hope to imitate. For these he must rely upon inferences from circumstantial evidence. But even of most superficial changes, man can only hope to see the full proof in their accumulated effects; for his earliest lessons will teach him that Nature's transformations are often of the slowest. She has infinite time at her disposal, and she uses it without stint; her might and power are none the less therefore. It requires as great an exercise of Omnipotence to build up a continent in a million of years as in the twinkling of an eye; but in the latter case we miss the workings of that infinite foresight which provides that every atom throughout time shall fall at the exact moment into its exact place, and which has peopled the vast past as it has done the present, with an endless succession of living forms, each coming in when required and dying out when its day of service has expired.

Now, let us see what are the most remarkable of these geological changes that are in progress incessantly around us.

It has been a dry summer; the roads are covered with dust; the fields are dried up, and the soil is cracked and pulverized. It is the fall of the year—every plant has been robbing the dry land of some of its constituents, and now that the season of growth is over, its leaves strew the surface. Presently heavy rains will turn the dust to mud, every roadside be but fluid mud, every brook will be foul with it, every river will be dense with sediment, all bound with their common burden on one course onward to the estuary, and thence to the open sea, whose waters will be stained for many a league from shore by the abundance of earthy particles. Leaves and branches, and dead trunks of trees, and the carcasses of animals will mingle with them in the tide.