

# SCIENCE.

FRIDAY, MARCH 26, 1886.

## COMMENT AND CRITICISM.

A REPORT FOR THE YEAR 1884 was made to the New York legislature early in 1885 by Prof. James Hall, state geologist: it was accompanied by a large preliminary geological map of the state, compiled by Mr. W. J. McGee, of the U. S. geological survey, from all available material which was of special value on account of its candid departure from the usual form of geological maps in coloring only those areas that had been pretty well studied, and leaving the rest conspicuously blank. There is no question that the publication of such a map would be an incentive to local investigation by explicitly pointing out where it is especially needed; and Professor Hall seems to have made this clear to the legislature, as it was ordered to be published by a resolution of the senate and assembly, and an appropriation was made for this purpose. But a note added to the report in November states that the governor has vetoed this item in the supply bill, and thus the appearance of the map has been indefinitely postponed,—a most regrettable piece of political economy. The same report contains a geological map of Ontario county, with accompanying text, giving a brief outline of its geological succession, by Professor J. M. Clarke. Apart from the valuable local details of stratigraphy, it excites our interest from the indication it gives of the true physical relations of some of the north and south lakes of western New York,—called the ‘finger-lakes’ by Chamberlin,—which the author refers to briefly as lying in separate preglacial valleys. When the ice of glacial times was breaking up in these valleys, “which had then had, no doubt, a long previous existence as valleys of water erosion,” they discharged their waters into a basin where the town of Naples now stands, whence a southward overflow was found by the Conhocton River. A little distance west of Canandaigua Lake, another valley is shown on the map, now filled with alluvium, but equal in size to the average of those near by, now occupied by lakes. It would thus appear that the northern edge of the Devonian plateau of

western New York is pretty well dissected by valleys of the ordinary type, in only some of which lakes are caught. The more numerous these valleys, the less aid need be called for from glacial erosion in originating them.

THE REPORT OF OBSERVATIONS of the annular eclipse of the sun, March 15–16, 1885, by Commander A. D. Brown and Ensign A. G. Winterhalter, U.S.N., has been issued as Appendix II. to the Washington observations for 1882. At least, we suppose that this appendix belongs to the volume of observations issued by the U. S. naval observatory, for it was received from the superintendent of that institution. The titlepage, however, simply states that it is ‘Appendix II., 1882,’ and the reader must learn from other sources to what publication it belongs. Unfortunately this omission, trivial in itself, is indicative of the character of the paper. It begins with a jerk, ends abruptly, and throughout resembles patchwork in which the pieces are fitted together with little regard for symmetry. Beginning with the preliminary circular calling for observations from volunteers in the north-west, it next describes the preparations for photographic work at Washington, and gives the number of plates exposed, with a few comments on the success attained. Then follow the contact and transit observations made at the observatory. Returning to the volunteers in the north-west, the authors give the reports in full, with two sketches showing the relative positions of the stations. The thread of the Washington narrative is then resumed (without the slightest intimation that the scene has been changed), the measurements of the photographs are given in detail, and a reproduction, by phototype process, of one of the negatives, closes the report. While the faults of arrangement are quite glaring, there are other defects which provoke criticism. Thus, two kinds of plates were used, collodion and gelatine, having different degrees of sensitiveness; but we are frankly told, though the reason therefor is not stated, that the slide was arranged for the former only, and that in consequence the latter were necessarily over-exposed. Again, the observations are only partially discussed, and we

are left in the dark as to their accuracy or utility. The reports of the volunteer observers show the lack of careful editing by the compilers. We are told at the beginning that the photographic work was undertaken at the request of Professor Newcomb, for certain investigations he was pursuing. It would have been wiser to have turned over to him at once the observations made, instead of publishing them in their present crude form. The publication is certainly not to the credit of the institution from which it proceeds. We should hardly have devoted as much space to the above report, had it not been published at a time when the status of the observatory is under discussion. If it indicates the character of the scientific work which is done by naval officers under naval management, the position of the committee of the National academy, that it would be unwise to build a new naval observatory, is amply confirmed. Contrast with this weak paper the appendix which precedes it in the same volume, — 'The orbit of Iapetus,' by Professor Hall, a model of scientific writing, — and further comment is unnecessary. The paper also emphasizes the need of a scientific head for the observatory. If under the present management such a publication is allowed to see the light, and thus make the institution the laughing-stock of the scientific world, it is time the management was changed.

THE PRIZE offered a year ago by H. H. Warner of Rochester, for 'the best three-thousand-word paper' on the brilliant sunsets of 1883-84, has lately been awarded. The judges were Professors Kirkwood of Bloomington, Ill., Harrington of Ann Arbor, Mich., and Stone of Virginia; and their opinion of the essays was so high that Mr. Warner was induced largely to increase the awards. Meteorologists will universally read with satisfaction that Kiessling of Hamburg received the first prize of two hundred dollars. Other prizes were given to J. E. Clark of York, England, H. C. Maine of Rochester, N.Y., and Rev. Sereno C. Bishop of Honolulu; the last is now well known in connection with his early observation of the new solar corona, which is now generally called after him. It is further stated in the *Rochester Democrat and chronicle*, that a 'special Warner medal of honor' will be awarded to Professor Abbe of the signal service, Professor Upton of Brown university, Prof. H. A. Hazen of the signal service, Professor Davis of Harvard col-

lege, Mr. F. Cowle of Lauriston, Tasmania, and Rev. R. Graham of Errol, Scotland. Mr. Warner's extension of his first offer of a single prize, so that there should be a more general recognition of the efforts made by a number of the competitors, is characteristic of his generosity, already well known to astronomers from his hundred-dollar prize for the discovery of new comets. It is said to be his intention to publish the sunset essays as soon as they can be put into shape for the printer.

A VERY GREAT INTEREST attaches to the brief notice of the new objectives of Dr. Carl Zeiss of Jena, by Dr. H. van Heurck, director of the botanical gardens at Antwerp. The success of Zeiss's experiments to discover a new glass which should give more perfect objectives than it is possible to make with crown and flint glass has apparently exceeded expectation, almost surpassed the highest hopes; for, according to van Heurck, the new homogeneous immersion  $\frac{1}{3}$  objective, with a numerical aperture of 1.4, manufactured by Zeiss from the new glass, excels the best English lenses in the perfection of its sharp definition: "The images are of wonderful clearness, and the objective has a greater resolving power than any that we have had hitherto. With the vertical illuminator, *Amphipleura argenteum* is resolved into pearls, not merely at some points, but over the whole surface, and with such sharpness that they may be counted. No doubt this objective will show us, in many diatoms, details which have hitherto escaped observers. Bacteria will probably exhibit details of structure as yet unknown, and which will perhaps enable us to better differentiate the species." We have heard from other sources equal praise of the new objective, which seems to surpass the present much admired — we might almost say beloved — oil immersions, as these surpass the water immersions. It will be remembered that Professor Abbe, the son-in-law of Dr. Zeiss, pointed out, in 1878, that we could not hope for any considerable improvement in objectives until we should have some better materials than crown and flint glass. Since then the German government appropriated twenty-five thousand marks to enable Zeiss to make experiments in manufacturing new glasses suitable for lenses. All scientific men will rejoice that the experiments have had such a very successful result. We trust that the new objectives and oculars will soon be upon the market.