rainy, when suddenly streamers of light were seen in the northern sky running from west to east. They were seen twice, the first time lasting about a minute, but the second very short. The light was so intense that the streets became quite light.

THE Museum of the Kendal Literary and Scientific Institution possesses a valuable series of Carboniferous fossils. Most of the zoological groups are well represented, especially in relation to Brachiopoda and Gasteropoda, the former containing large examples of *Productus giganteus*, Martin, and the latter important specimens of *Euomphalus crotolostomus*, M'Coy, and *Phanerotinus cristatus*, Sowerby. The fossils are chiefly local, many of them having been collected by the once well-known geologist of Kendal, John Ruthven, who prepared the geological map for Miss Martineau's "English Lakes." This collection has recently been named, classified, and catalogued by Mr. R. Bullen Newton, F.G.S.

IN the letter by M. Antoine d'Abbadie in NATURE for May 29 (p. 101), the passage, "it was then 24m. 8s. past midnight," should be omitted.

THE additions to the Zoological Society's Gardens during the past week include two Squirrel Monkeys (*Chrysothrix sciurea* ♂ ♀) from Brazil, presented by Mr. Robert Thom; two Black-eared Marmosets (*Hapale penicillata* ♂ ♂) from South-East Brazil, presented by Mr. C. D. Middleton; a Common Squirrel (*Sciurus vulgaris*), British, presented by Mrs. Grover; a Marsh Ichneumon (*Herpestes galera*), a Dusky Ichneumon (*Herpestes pulverulentus*) from South Africa, presented by Dr. Holub, C.M.Z.S.; two Sociable Vultures (*Vultur auricularis*) from Africa, an Angolan Vulture (*Gypohierax angolensis*) from West Africa, presented by Sir Donald Currie; a Gray Amphisbæna (*Blanus cinereus*) from Spain, presented by Mr. W. C. Tait, C.M.Z.S.; a Burchell's Zebra (*Equus burchellii* ♀) from South Africa, two Common Camels (*Camelus dromedarius*) from Egypt, five Horned Lizards (*Phrynosoma cornutum*) from North America, deposited; five Goldeneyes (*Clangula glaucion*), five Common Snakes (*Tropidonotus natrix*), twenty-four Green Lizards (*Lacerta viridi*), European, purchased; a Japanese Deer (*Cervus sika* ♀), a Mexican Deer (*Cervus mexicanus* ♀), a Long-fronted Gerbille (*Gerbillus longifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE OBSERVATORY OF PARIS.—Admiral Mouchez's report on the state of this establishment and the work accomplished therein during the past year commences with some details of his scheme for erecting a succursal observatory at a distance from Paris, where the disadvantages of location in the midst of a great city would be avoided. His proposal was to dispose of a part of the actual grounds of the Observatory, a step which would be likely to realise a sum adequate to the erection of the new building, at the same time retaining the present one to form the head-quarters of the Bureau des Calculs, the Archives, and the Museum, the two establishments to remain under the same direction and to constitute together the Observatory of Paris. This scheme, it is known, has not met with general acceptance at the hands of the scientific authorities.

M. Lœwy, in charge of the Meridian Service, has been occupied with the reobservation of stars in the Catalogue of Lalande, while a large number of observations of the sun, moon, and planets has also been made, eighteen observers taking part in this work in the course of the year. The equatorials of 12 and 14 inches aperture and the equatorial *coudé* were employed on observations of comets and small planets. The Ecliptical Charts Nos. 12, 19, 48, and 67 have progressed, and attention has been paid to double-star measures. M. Mouchez reports that the construction and installation of the great telescope (0·74 m.) has been retarded by the difficulty of establishing it in the grounds of the Observatory at Paris. In the Department of Astronomical Physics MM. Thollon and Trépied had been occupied for six weeks on the Pic du Midi, where, with M. Naussinat, in present charge of the Observatory, they studied the advantages of the station, more especially for solar observations, concluding that great scientific interest would attach to work that might be accomplished during the four or five weeks of the fine season in a small observatory at that point. Funds for the purpose are not yet available.

M. Mouchez further reports upon the distribution of time in Paris, the additions to the Museum during the year, which consist of instruments of the last century found in the Observatory of Toulouse, a portrait of Copernicus, &c.; the work of the Bureau des Calculs, which remains in charge of M. Gaillot; the publications of the Observatory during the year, including vol. xvii. of the *Annales*, in which are some important memoirs theoretical and practical; and the personal work of the staff.

A plan of the grounds of the Institution is appended, on which are distinguished those portions which M. Mouchez had proposed to alienate with the view to providing means for the erection of an observatory at a distance from Paris.

THE GREAT COMET OF 1882.—In an appendix to the Washington Observations, 1880, is an account prepared by Mr. W. C. Winlock, at the desire of the Superintendent of the Naval Observatory, Admiral Shufeldt, on the great comet of 1882 as observed at Washington, first with the 9·6 inch and subsequently with the 26-inch refractor. The latest date on which the comet's position was determined is April 4, 1883. Micrometrical measures of the nucleus were made on a number of evenings, and from a plate showing its aspect and formation between February 1 and March 3 the difficulty of deciding upon the proper point for observations of position, owing to the existence of several almost equally luminous condensations in the head of the comet, is very apparent. For a similar reason, in another plate the points observed with the transit-circle from September 19 to March 3 are shown. There has rarely, if ever, existed a greater need for precautions of this nature, to assist in the combination of the places obtained at various observatories, for the accurate determination of the orbit. The comet was first seen at Washington shortly after noon on September 19, and was visible for several hours to the naked eye about twenty-eight minutes preceding the sun and 1°·2 further south. In the 9·6-inch equatorial "it presented the appearance of a bird with wings extended," a description that applies to other comets that have been seen in daylight or in a very strongly illuminated sky, as for instance the first comet of 1847, figured in Johnston's "Atlas of Astronomy."

GEOLOGICAL NOTES

CANADIAN COALS AND LIGNITES.—Dr. G. M. Dawson collects and publishes, chiefly from the Reports of the Geological Survey of Canada, some useful Notes on the Coals and Lignites of the Canadian North-West. These mineral fuels are all of Cretaceous and Tertiary age. They are extensively developed near the Bow and Belly Rivers and their tributaries, extending eastward from the base of the mountains to about the 111th meridian; but as this is the only region yet examined in detail by the Survey, there may yet prove to be other districts of equal value. Where the Cretaceous rocks have been much disturbed and folded, the coal passes into the condition of anthracite, of which a seam occurs on the Cascade River near its confluence with the Bow River and close to the line of the Canadian Pacific Railway. Out on the plains, however, the strata are nearly flat, and as they recede from the mountains the coals show a larger percentage of water, and assume more or less completely the character of lignites.

BELGIAN ERRATICS.—To the already cited examples of fragments of Scandinavian rocks in the post-Tertiary deposits of Belgium Mr. E. van den Broeck has recently added the discovery of a piece of granite (measuring 0·8 × 0·5 × 0·6 metre) in the most northern part of the kingdom, embedded in the fine Campinian sands of Wortel—apparently the first Belgian example of any fragment large enough to claim perhaps the name of an erratic block (*Ann. Soc. Géol. du Nord.* xi. p. 2).

POSITION OF THE CALLOVIAN ROCKS.—M. Paul Choffat protests against the inclusion of the Callovian among the Upper Jurassic formations, as was decided at the last Conference of the International Commission on Geological Nomenclature. This decision, based on the palæontological affinity of the Callovian and Oxfordian stages he believes to be theoretically false and to be practically impossible of application in any general map of the whole of Europe. He gives a *résumé* of obser-