

ence of local influences can not, therefore, be denied in these cases. Wrangel saw the brilliancy diminish as he left the shores of the Polar Sea, about Nischne-Kolymsk. The observations made in the North Polar expedition appear to prove that in the immediate vicinity of the magnetic pole the development of light is not in the least degree more intense or frequent than at some distance from it.

The knowledge which we at present possess of the altitude of the polar light is based on measurements which, from their nature, the constant oscillation of the phenomenon of light, and the consequent uncertainty of the angle of parallax, are not deserving of much confidence. The results obtained, setting aside the older data, fluctuate between several miles and an elevation of 3000 or 4000 feet; and, in all probability, the northern lights at different times occur at very different elevations.* The most recent observers are disposed to place the phenomenon in the region of clouds, and not on the confines of the atmosphere; and they even believe that the rays of the Aurora may be affected by winds and currents of air, if the phenomenon of light, by which alone the existence of an electro-magnetic current is appreciable, be actually connected with material groups of vesicles of vapor in motion, or, more correctly speaking, if light penetrate them, passing from one vesicle to another. Franklin saw near Great Bear Lake a beaming northern light, the lower side of which he thought illuminated a stratum of clouds, while, at a distance of only eighteen geographical miles, Kendal, who was on watch throughout the whole night, and never lost sight of the sky, perceived no phenomenon of light. The assertion, so frequently maintained of late, that the rays of the Aurora have been seen to shoot down to the ground between the spectator and some neighboring hill, is open to the charge of optical delusion, as in the cases of strokes of lightning or of the fall of fire-balls.

Whether the magnetic storms, whose local character we have illustrated by such remarkable examples, share noise as well as light in common with electric storms, is a question

* Farquharson in the *Edinburgh Philos. Journal*, vol. xvi., p. 304; *Philos. Transact.* for 1829, p. 113.

[The height of the bow of light of the Aurora seen at the Cambridge Observatory, March 19, 1847, was determined by Professors Challis, of Cambridge, and Chevallier, of Durham, to be 177 miles above the surface of the Earth. See the notice of this meteor in *An Account of the Aurora Borealis of Oct. 24, 1847*, by John H. Morgan, Esq., 1848.]—*Tr.*