

and every difficulty became clear, at least to my own satisfaction, their studies on the aurora furnishing the explanation for every question that might arise. Remembering the interchangeable nature of the aurora and lightning, as pointed out by Dr. Veeder, we are not baffled by any difficulty over the apparent absence of a morning maximum. The electrification of the higher parts of the atmosphere, due to the cathode rays from the sun deflected into helixes around the earth by magnetic attraction, may take place morning and evening alike. But the dissipation of the charges when cirro-stratus clouds are present may take place in two different ways: —

- (1) As a brush discharge, which we see as the aurora; or
- (2) As the electric flash of lightning, either in a single stroke to the earth, or in a sheet from one cloud to another, the sheet-form being confined to the higher regions of the atmosphere where the air pressure is reduced, just as in the Plücker or Crookes tubes of our laboratories the single spark under normal pressure takes the diffused form under reduced pressure, and yet in both cases is attended with X-ray effects.

Under the same conditions as prevail in the evening, therefore, *viz.*, when cirro-stratus clouds are present in any quantity, the morning maximum appears at the time expected, but as it happens, the maximum is manifested in a way entirely different from the usual aurora of the evening. The hygrometric conditions of the atmosphere in the morning are totally different from those of the evening, as everyone knows from the deposition of dew, greater cloudiness and other common phenomena. And the changed conditions bring about the change we find in the method of dissipation of the electrification from the solar cathode rays.

The delicate retinal effects of atmospheric electric discharges, whether of distant lightning strokes, or of sheet discharges unattended by any storms, are not by any means new in science; text-books in physiology mention such phenomena, calling them all Photopsia, but so far as I have seen they give only vague unscientific conjectures of their origin, failing to recognize the