

dark segments, flickering motions, etc. It lasted until nearly midnight." This is the description which offers the closest analogy to Mr. Arctowski's aurora, except that at Minneapolis no colouring is mentioned. But such resemblances are evidently fortuitous. On September 9th the aurora seen on the *Belgica* was not reported from Minneapolis, but of that aurora, the writer has analyzed eight American reports. Their principal feature was the appearance and persistence of detached masses of auroral radiance, while nothing of the kind is mentioned by Mr. Arctowski. These accounts, too, differ widely among themselves. It will be in order, then, to examine the hygrometric conditions of the atmosphere attendant on these various kinds of display, for differences therein at various levels may cause the variations in the auroral effects of the same magnetic influence—the height of the streamers and their colouring.

Arctowski writes as follows :—

" Dans mes remarques, je n'ai insisté quelque peu que sur l'identité probable des distributions géographiques, par rapport au pôle magnétique, du phénomène auroral, et j'ai posé un point d'interrogation au sujet de toutes les autres analogies qui sans doute seront découvertes dans la suite. Mais voilà que M. Harvey vient de nous démontrer une remarquable concordance entre les aurores observées en 1898 au Canada et dans le Nord des États Unis et celles que j'ai notées dans l'Antarctique."

He further says :—

" Mr. Arthur Harvey ayant sous la main des documents beaucoup plus importants que ceux dont je dispose, je ne puis que l'inviter d'étudier, au point de vue auquel il est placé, les observations que la Commission de la *Belgica* publiera sous peu."

He formulated several questions which we can now answer—

Q.—Was the duration of the auroræ of September 2nd and 9th, 1898, the same in the Northern United States and Canada as at the station of the *Belgica*?

Ans.—At the points where the auroræ were best noticeable, the duration was about the same, but was not alike at all places.

Q.—Were the fluctuations of intensity the same, north and south?

Ans.—They differed among themselves here, in this particular also.

Q.—Do the maxima and minima correspond, to the moment?

Ans.—No, these too differ here.

Q.—Are the heights to which the auroral arch rises the same, at homologous points, *i.e.*, at points equi-distant from the magnetic pole and on the same magnetic meridian?

Ans.—All we can say is that so far as our observations go, the higher the latitude, the higher the arch and its streamers rise. We cannot say which of the places at which we have observers is to be considered most homologous to that of the *Belgica* with respect to the magnetic pole. The positions are as follows :—

N. magnetic pole lat., 70° 30' N. ; long., 97° W.

S. magnetic pole lat., 73° 39' S. ; long., 146° 15' E.

Toronto lat., 43° 39' N. ; long., 79° 24' W.

*Belgica* lat. (September 2nd, 1898), 70° 00' S. ; long., 82° 45' W.

Thus Toronto is 1,950 miles from the north magnetic pole, and the *Belgica* nearly 2,300 miles from the south magnetic pole. Toronto is 600 miles east of the agonic line, the *Belgica* 1,000 miles west of it.

If, then, anything is to be gained by comparing auroræ in homologous positions (which is very doubtful, as the condition of the air as to moisture, and electrical conductivity at various heights is changeable and seems to govern the brilliancy and colouring and even the character of the movements of auroral displays), better points must be chosen than the *Belgica*'s winter station and Toronto City.

Beautiful auroral displays here are, however, things of the past, owing to the electric lighting which now dims their brilliancy and dulls their colours. One must get beyond the range of arc and even incandescent lights to see the grandeur of the mighty illuminations which formerly often seemed to rival, if not to transcend, the glories of the dawn of day, whose name was for the time usurped. The opaline clouds, delicately tinged with exquisite elusive tints of ethereal amber, verging on chrome yellow, Niagara green, rose pink or spring lilac—sometimes