only when they have a thinness commensurate with the light waves, and a similar state of things exists with the halo conditions. In summer time when the snowline is high, say two miles high, the snow-crystal-film of the higher air is thinner than in winter time, and the circular halo then often has the rainbow colors; but in winter this is rare because the snow film is usually too thick to give the pure spectrum colors, there being then too much overlapping of the colors, with the result of making white halos, or nearly so. When there is a moderate amount of overlapping of colors, only the edges of the halos show color.

The cirrus haze of the stratosphere is subject to the action of electro-magnetic forces, and the repulsion of similarly electrified particles of snow amongst themselves may also account for the very diffuse condition of the cirrus haze and for the cloud-wisps, which also produce halos.

Electro-magnetic forces are especially present in "mock suns," and in sun pillars and other halos of reflexion. Some electrification of the particles of snow dust must occur.

I have seen the statement in pri. that the halos are linked with the sunspot phenomena. Dr. Besson, in an article on halos in the U.S. Monthly Weather Review (Washington) for July, 1914, p. 437, alludes to this connection in the following words:— "The annual number of days with halo seems to show a variation that is either parallel with or inversely as the variation in sunspots." It is also obvious that they are numerous when auroras are numerous.

Finally, a halo is often in the forepart of a cyclone, and thus serves as a warning or signal of the coming storm. For many ages this has been cherished in weather lore as a sign of a future storm, and it is often a good sign, but not always so.

The foregoing general remarks on halos may help us to understand the particular cases we will now take up, in their order of time, most of which were observed by the writer at Barrie, Ont.

Great White Horizontal Circles. On March 3rd, 1890, at 7.30 p.m., there was an unusual halo of the moon at Barrie. A