

There is nothing in the nature of the question to suggest any difference between the two circumstances, and the purpose of my present remarks is to describe some observations which may tend to throw light upon the morning maximum.

Soon after the publication of Dr. Veeder's articles, Professor Roentgen announced in 1895 his epoch-making discovery of X-rays, or rather his discovery of the method of recording their presence by photography, the radiations themselves having been known to scientific men before his time. The discovery created a great wave of popular interest, and immediately everyone interested in such phenomena became familiar with photographs of the bones in the hands and feet, as well as other marvellous appearances. It also became obvious at once why a flash of lightning may be seen with closed eyelids, — the X or other rays of the electric discharge passing through the eyelid and producing a strong effect upon the retina of the eye. The X-ray* effects of lightning occupied my attention, and I made calculations of the distances of the discharges in comparison with the effects produced upon the retina, the distance of a discharge being of course calculated by the time in seconds before the arrival of the sound of the thunder. Speaking generally, the X-ray effects of lightning discharges at a distance of more than five miles are feeble, yet many of the distant flashes are discernible when a person acquires familiarity with phenomena of the kind, notwithstanding that it is known by experiment that X-rays fall off rapidly in strength as they leave their source, on account of absorption by air.

After acquiring some familiarity with distant flashes of lightning in this way, I began to realize the existence of frequent distant electric discharges of some kind when there was no thunderstorm of any sort in the country around. The most rigid enquiry and search in meteorological reports failed to yield any trace of thunderstorms anywhere upon this continent at times when the retina of my eye, familiarized with the X-ray

* It is not suggested that these rays are certainly identical with those usually so-called, but the effects are somewhat similar.