## [CLINE] RADIATION AT THE SURFACE OF THE EATH

With the apparatus set up in the manner just described sets of readings were taken during the afternoons of March 15, 22 and 20, 1909. The results of these measurements are recorded in Tables XII, XIII and XIV, and curves illustrating them are shewn in Figs. X, XI and XII.

The readings for the three afternoons, it will be seen, approximated to 11 ions per cc. per second.

By comparing the three curves it will be seen that although the readings were not uniformly regular still no periodic daily variation was brought into evidence. On March 28 and 29 and again on A pril 4 and 5, 1909, readings were again taken with this apparatus continuously over periods of twenty-four hours. The readings taken during these observation periods are given in Tables XV and XVI and the corresponding curves are shewn in Figs. XIII and XIV. These readings it will be seen are far from being so uniform as those of the earlier observations. The variations from the mean it will be seen are very considerable, and are attributable in the judgment of the writer, to the lack of sensitiveness in the instrument and the consequent difficulty in taking the readings, rather than to any variations in external influences.

In Fig. XIII the barometric curve is drawn for the corresponding twenty-four hour period. From an inspection of the two curves there does not appear to be any connection between the changes in conductivity and the changes in atmospheric pressure as indicated by the barometric readings.

In order to see whether a combination of the curves shewn in Figs. XIII and XIV would give any indication of a pronounced maximum and minimum conductivity the two curves were compounded by taking the mean of the readings for the same time of the day. The individual curves are shewn overlapping in the upper portion of Fig. XV, and the compound curve is shewn at the bottom of the same figure. From the figure, however, it is impossible to draw the conclusion that any maximum or minimum conductivity was associated with any particular hours of the day.

While the lack of sensibility in the measuring instruments prevented these later observations from leading to as satisfactory conclusions as might be desirable, still they agree with the earlier ones in failing to point to any variation of a regular diurnal character, and in this they seem to show that the conditions at Toronto are somewhat different from those which prevail in a number of other localities where similar observations have been made.

The writer had hoped to continue the investigation out in the open country with the electroscope arranged as adjusted for maximum

33