and where adjustable spider lines may be used when desired. Thus comparisons and line bisections may be made at the same time.

2. When the half-silvered surface is used, it is possible to place the images in coincidence in order to detect differences.

3. The new device makes possible the employment of the comparator for measuring photographs of spectra by the promising method suggested by Evershed, namely, that of using, with the negative to be measured, a positive plate made from it, and placed reversed to negative end for end.[1] I have adapted the Hartmann comparator for this purpose and have found it very satisfactory. It overcomes the disadvantages of the method Evershed has employed of sliding positive above negative, in that by the new method the films of positive and negative may be [illegible] in the same plane. (The difficulty of having the films not in the same focus has been practically overcome by Evershed by employing an objective of long focus.) The new method possesses [illegible] advantage in that the intensity or color of the beams of light from positive and negative may be altered independently, thus making it possible, by matching the intensities of the positive and negative or by increasing the contrast, to measure the displacements of spectral lines of almost any character, even the broad lines in stellar spectra.

4. By overlapping the spectra no parts of them need be cut out, as is the case in using the arbitrary masks of the Hartmann instrument.

In Table I are given the means of the measurements of displacements (produced mechanically) of 15 lines (λλ 4196.590 4291.630, intensities 1–5), of six exposures of the spectrum of the solar limb by: (1) the ordinary method of bisecting with spider line, taking the differences between means of four settings on the middle strip and means of two settings on each of two outside strips of spectrum, each way (violet right and violet left)[2]; (2) by measuring negative (violet left) with positive of itself (violet right) on the adapted Hartmann comparator, taking differences

[1] *Kodaikanal Observatory Bulletin*, No. 32, 1913.

[2] *Journal Royal Astronomical Society of Canada*, **5**, 398, 1911.