horizontally ; the axis of collimation is adjusted parallel to the straight edge by so placing the instrument that some distant point remains on the central line, while the instrument is slid from one end of the straight edge to the other. Some well-defined object is then placed at a convenient distance off, at right angles to the direction of and in the same horizontal plane as the straight edge. A screen with a narrow vertical slit, behind which an illuminated white surface is placed, will answer this purpose well ; the flame of a lantern is not as good on account of irradiation. The instrument is then shifted, bringing by reflection the image of the slit on each line in succession, and marking the corresponding point on the straight edge. The distance of the slit from the outer focus of the objective of the telescope is then measured, when the image of the slit is on the middle line, and the observer is then in possession of all the data necessary for the calculation of the constants. This operation may be carried on in any good-sized room, and a few determinations will give the values of the constants as accurately as can be desired.

Another necessary adjustment is to insure the parallelism of the lines and the reflecting surface of the prism. This may be done by placing the instrument in a horizontal position, bringing some point which is in the horizontal plane of the axis of collimation to the centre of the field of view by reflection, and then turning the diaphragm until the middle line coincides with a plumb line seen directly.

A few trials made with an instrument constructed for the writer leads to the conclusion that distances may easily be found with an error of less than one per cent., and possibly with a much smaller percentage of error by combining the results of all the lines.