with scale erect, for example, would be taken, then the needle would be turned around 180° in the stirrup—this by reason of the octagonal form of the magnet and stirrup was a very simple matter—and the reading of the new position obtained, about 8-10 readings on the average being taken in all. The inversion of the magnet in the stirrup gave the means of correcting for non-coincidence of the magnetic axis and of the geometric axis of the magnet. Generally, additional readings for declination would be taken at the close of the other observations, usually at the end of the oscillation observations for intensity. A factor of prime importance, however, is the elimination of the torsion in the silk fibre by which the magnet is suspended. This torsion must either be removed or allowed for in some manner. The general method is to remove it before making the declination observations by suspending instead of the magnet a copper bar of the same weight. Every one who has made observations in the field knows that generally the removal of the torsion is a tedious matter, especially if the observer is obliged to wait for it and is prevented from doing something else in the meanwhile. In times of windy weather the removal of the torsion by this method is especially likely to put the observer in a bad humor. It was my endeavor, therefore, to reduce the torsion factor to such an extent that the error due to the probable amount of torsion in the fibre at any time would not cause a greater error in the declination than the reading error of the horizontal circle, which was divided by two opposite verniers to whole minutes and allowed ½ minute to be estimated. The number of silk fibres supporting the magnet was reduced from two to one and the fibres invariably soaked in glycerine before using. For this purpose a small bottle of glycerine containing silk fibres was always carried along. If the amount of torsion in the single silk fibre was such that the position of rest assumed by the copper weight was at right angles to the magnetic meridian, then this amount of torsion was equivalent, on the average, to an angular deviation of the magnet from the position it would have assumed had there been no torsion of somewhat over 1′. For 30° of torsion the angular deviation would be about 0.′4. The torsion, with the exception of a few special instances, was rarely removed in the field, but instead was