about the same hour angle as already stated, or to observe the latitude by means of circum-meridian altitudes of the sun. The former method would very often have necessitated the loss of an additional station, and the second method involved additional observation and computation and often considerable annoyance, as other work would have to be abandoned for the sake of the latitude observation. The latitude error is besides a temporary error which can be allowed for when more correct positions have been obtained. I therefore decided that generally I would not attempt to eliminate the latitude error at any one station, but endeavor to arrange the work so that at some of the stations the azimuth observations would be made in the morning and some in the afternoon. Some of the errors to be ascribed to defective latitudes would be plus and some would be minus. I believe I can safely trust that an isogonic line which, in a certain sense, represents an adjustment of all the observations on either side of it, will not be in error by *reason of imperfect latitudes* to an amount greater than 1′, if as much as that. The error due to direct interpolation between two stations will far exceed any error that may be due to defective latitudes of the station. It was my endeavor, therefore, to reduce the *interpolation* error rather than the *latitude* error. And the only way to reduce the interpolation error is by increasing the number of points of observation, or what amounts to the same thing, by decreasing the distance between the stations.

We next come to the *observing error of the purely magnetic part* of the determination of the magnetic declination. Here we must remember in the first place that we are not observing a fixed object, but one in ceaseless motion. All we can aim at is an average position corresponding to a definite moment of time. At some other moment the average position assumed by the needle will be a different one. If the interval of time over which the observations are made is too long, then will the arithmetical mean of the different positions assumed not correspond to the arithmetical mean of the times of observation. For an interval of about 15-30 minutes this will generally, however, be the case, except of course in times of magnetic storms. This was about the interval used in this work. A reading of position of needle