Otto Klotz

However, as the latter can only be determined *a/ter* the location and connection of the astronomic points, entailing revision of the whole work, and besides the difficulty of re-establishing points on the mean parallel in case of loss or disappearance of monuments and marks, it has generally been decided to adhere to the simpler and more readily established astronomic parallel. All such parallels traced upon the earth are irregular curves.

On the line from the Lake of the Woods to the Rocky Mountains, 860 miles, 40 astronomic stations were established, and 388 monuments erected.

After due consideration, the commissioners for this part of the parallel agreed upon the astronomic parallel. The recommendation for this, by the chief astronomers of the commission, was based on the following grounds :--1st : That the portion of the parallel of 49° included within the operations of the commission, being only about one-twentieth of the entire circle of latitude, was not sufficient to fix, with any mathematical accuracy, the true position of the mean line of 49°, and that, therefore, if such a parallel were described, depending on the mean of the astronomic stations, no known point of the boundary would be in latitude 49°; 2nd: That as the amplitude of the arcs, included between the mean and the astronomical parallels, would in many cases be very considerable, grave errors and complications might arise in the subsequent re-survey of any lost portion of the boundary ; 3rd : That the definition of a mean line would involve a re-adjustment of the whole boundary, after the first careful survey should have been completed, and consequently a very considerable increase of expense, without any practical benefit accruing ; 4th : That for every purpose, except that of geodetic computation, a parallel of points determined astronomically (instrumental errors aside), is a true parallel of latitude, and, therefore, fulfils the stipulations of the treaty under which the joint commission was organized.

Accordingly, astronomic positions were determined at approximate intervals of twenty miles. These stations were connected by tracing upon the ground tangents or the prime

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