

making a total length of 50 deg. The longest arcs of the meridian heretofore measured are the following:

The Anglo-French arc.....	22 deg. 10 min.
The Russian arc.....	25 " 20 "
The Indian arc.....	23 " 49 "

It will thus be seen that the arc here proposed is double the longest arc of the meridian which has up to this time been measured. The value of this arc, as compared to the part lying in the United States, alone would be enormous. Dr. Gill has called attention, in the report on the Geodetic Survey of South Africa, 1883-1892, pp. 157-159, to the great advantages to geodesy, which accrue from the measurement of long arcs.

The length of the arc in the three countries is as follows: In Canada, to latitude 67 deg., 760 miles; in the United States, 1,590 miles; and in Mexico, 690 miles; in all, 3,040 miles. The character of the country through which the triangulation would need to be carried is such that it would be comparatively inexpensive, unless in Canada the forests should add to the expense. A very close estimate of the cost of this work can be gained from the cost of similar work in the measurement of the 39th parallel, since more than a thousand miles of this arc passed through a region which was entirely similar to that contained in the arc of the 98th meridian. I find, after a careful investigation, that the entire cost of this work, including salaries, expenses of travel, instruments, and erection of signals, subsistence of parties, and all expenses connected with the work, was at the rate of \$120 a mile. At the present time it could doubtless be done for less; probably at the rate of \$100 a mile. The sides of the triangles would be from ten to thirty miles, and the work would be in every way analogous to that which has already been carried on along the 39th parallel, through the States of Indiana, Illinois, Missouri, Kansas, and portions of Colorado. Part of this line, at the time when the observations were made, was heavily wooded; and required the cutting out of long and expensive lines, the removal of obstructions, and the building of signals, which made that work quite as expensive, if not more so, than the work of the 98th meridian would be. At this estimate, the cost to the three countries would be as follows: To Canada, \$76,000; to the United States, \$159,000; and to Mexico, \$69,000. The rapidity with which this work could be carried out, would depend on the number of parties that can be put in the field. It is expected that the part of the triangulation lying in the United States will be finished in from six to eight years.

Without going into any longer discussion of this matter, one may say, briefly, that the completion of this measurement of the