

TABLE I.

TRACE ON THE EARTH OF THE PATH OF THE METEORS

Longitude	Latitude	Longitude	Latitude
104° 59' W.	50° 25' N.	50° 00' W.	21° 53' N.
100 00	49 34	35 00	4 29 N.
95 00	48 28	20 00 W.	14 2 S.
90 00	47 06	0 00	33 20
85 00	45 25	20 00 E.	44 36
82 00	44 15	40 00	50 5
81 00	43 50	60 00	51 34
80 00	43 24	80 00	49 34
79 00	42 57	100 00	43 24
75 00	41 00	120 00	31 5
65 00	34 53	140 00 E.	10 38 S.

The first entry in the table is Pense, and the seventh is the determined point in Ontario; the succeeding points are on this line extended.

At Watchung, N. J., 22 miles west of New York City, an observer reported that the meteors appeared to be overhead. The line drawn as described passes a little to the south of this place. The meteors were also seen by observers in the Bermuda Islands (W. Long. 64° 50', N. Lat. 32° 15') and the calculated line runs 131 miles to the north-east. The display was seen at North Bay, Ont., 186 miles, and at Winchester, Ont., 221 miles, from its trace on the earth. It must be remembered, however, that Pense and the Ontario point, which we took to fix our line, may be a few miles north or south of the true path, and so the true trace might come somewhat (perhaps 10 miles) nearer to or farther from Bermuda.

The angles made with the east-and-west line by this line are:—at Pense, 12° 49'; at the determined Ontario point, 31° 14'; and when passing the Bermudas, 40° 46'.

From Mortlach, Sask., to Bermuda, the extreme points at which the bodies were seen, the distance is 2437 miles; from the determined Ontario point to Bermuda is 1184 miles. In figure 2 is shown the path from Mortlach to Bermuda.

As the observed path of the meteors was so extraordinarily long I thought it interesting to examine the position beyond Bermuda of the great circle over which they were believed to have passed. I found that it went over the South Atlantic Ocean, around the Cape of Good Hope at a distance of about 600 miles from it, through the Indian Ocean, and that the first land to be reached was Western Australia. Of course one cannot say that the bodies ever arrived there, though I would not be surprised to learn that they did. No reports of observations of the phenomenon by mariners have come to my notice.

THE HEIGHT OF THE BODIES ABOVE THE EARTH

Having determined the trace on the earth's surface of the path of the meteors, their height can be easily deduced if their angle of elevation at any place is known. Many estimates of this angle were communicated to me, but as a large portion of them were made without reference to any object whose elevation could be measured, these have not been of great assistance in fixing the height. A few, however, allow the deduction of definite results and, as we shall see, many of the others when interpreted properly corroborate these results.

In Toronto Mr. Gustave Hahn, to whom I am indebted for the sketch from which Plate IX. has been made, observed the bodies to pass about midway between Rigel and the Belt of Orion; and Rev. F. Herman, of Caledon East, in his report sketched the Belt and the sword and stated: "The meteors went over, or nearly over, the face of this group." Now a line joining Toronto and Caledon East, (see Fig. 1) is almost parallel to the path of the meteors and these places are only about 27½ miles apart. Hence at the two places the bodies would appear to take very nearly the same course in the sky.

Now at 9.05 p.m. E.S.T., February 9, in Toronto a point midway between Rigel and the Belt had an elevation of about 40° and azimuth 16° west of south. Taking the path of the bodies to make an angle of 31° with the east-and-west line we