the time of the middle of the transit, we obtain the times of the first and last contacts, as seen from the Earth's centre, thus :

First external contact May 6d. 10h. 5.9 min. A.M.
Last external contact " 5h. 42.1 min. P.M.
Mean time at Washington,

The places which will have the Sun in the zenith at these times can be found in the same manner as in Art. 14, with the aid of the following elements :—

Obliquity of the Ecliptic 23° 27′ 25″.

Sidereal time at Washington at mean noon of May 6th (in arc) 44° 24′ 50″.46.

Since the relative parallax is only 7″ the time of the first or last contact will not be much influenced by the parallax in longitude and latitude, and therefore the preceding times for Washington are sufficiently accurate for all ordinary purposes.

The mean local time of beginning or end for any other place, is found by applying the difference of longitude, as below :—

The longitude of Washington is 5h. 8m. 11 sec. W.
The longitude of Toronto is 5h. 17m. 33 sec. W.

Therefore Toronto is 9 min. 22 sec. west of Washington.

Then, with reference to the centre of the Earth, we have for Toronto,

First external contact May 6d. 9h. 56.5m. A.M.
Last external contact " 5h. 32.7m. P.M.
Mean time.

For Quebec, longitude 4h. 44m. 48 sec. W.
First external contact May 6d. 10h. 29.3m. A.M.
Last external contact " 6h. 6.5m. P.M.
Mean time.

For Acadia College, longitude 4h. 17.6m. W.
First external contact May 6d. 10h. 56.5m. A.M.
Last external contact " 6h. 32.7m. P.M.
Mean time.

For Middlebury College, Vermont, longitude 4h. 52.5m. W.
First external contact, May 6h. 10h. 21.5m. A.M.
Last external contact " 5h. 57.7m. P.M.
Mean time at Middlebury.