Dec	emb	or	6th	,—Toro	nto an	d C	Itca	wa.								
	T.	9	29	4·00 26·26	O. 9	9	17 27	1 1·50 O. 7 16·27	9 40 3 27 1	30̀∙00 16•31	Ť.	9	52	32·40 26·24		
		9	29	30-26		9 9	44 29	17.77 30 26		10 7 9 52 14	46·31 58·64		9	42	58.64	
							14	47.51			14 47.67					
						=					_					

On the night of the 5th, the comparison with Cobourg gave, as the error of the Chronometer at Cobourg, on Toronto mean time fast, 2 m. 27<sup>o</sup> 3 s. at 14 hours; and on the night of the 6th, at 9 20 fact, 2 m. 29<sup>o</sup> 2 s.

The longitude of Toronto is usually been taken as 5 h. 17 m. 33:49 sec. W. This result was obtained by an interchange of time between Quebec and Toronto in January, 1857. Some recent interchanges of time have, however, led me to infer that it may be somewhat too small. Arrangements have now been made to connect Montreal Observatory with Cambridge, and an interchange will be made at the same time between Montreal and Toronto, the result of which I will furnish in a supplementary report.

At Ottawa, the chronometer which was employed was unfortunately subjected to a very great range of temperature. I have estimated as closely as I could, from Meteorological observations in Ottawa, the approximate temperature of the chronometer during various periods, from one set of observations taken there, to another, and the temperature when within the Hotel and Telegraph Office has been taken at 70° fahr., an estimate rather below than above the mark. The rate of the chronometer at different temperatures was taken from comparisons made in Toronto, one period extending from January 1st to February 11th, at a mean temperature of 29°.14, and a second period from February 12th to March 6th, at a mean temperature of 59°.35. The daily rate of this chronometer at temperature  $29^\circ$ .14 was found to be 7.892 sec. per day, and at temperature  $59^\circ.35-4.023$  sec. Assuming the change of rate with temperature to be uniform and taking the error at 1 D. 7 H. 55 M. by chronometer as 26 m. 32.82 sec. I obtained the following tabular errors of the chronometer.

	Date.		Error.					
			-					
D.	H.	<b>M.</b>	min.	sec.				
1	7	55	26	$32 \cdot 82$				
3	9	49		53.38				
5	8	30	27	11.92				
5	19	30		13.14				
5	20	30		•45				
6	2	0		$15 \cdot 15$				
6	8	30		$17 \cdot 29$				
7	3	0		19.34				
7	4	44		20.01				

The error given by this table at 7 d. 4 h. 44 m. exceeded that obtained by observation by 1.28 secs. Dividing this change uniformly over the period from the first observation we should have errors and rates as follows :--

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