

Toronto Observatory. Height above sea level 342 feet.

LOCAL MEAN TIME.	THER. IN SHADE.			AQUEOUS VAPOUR.		RADIATION.		Barom. reduced to 32°.	WIND.	
	Dry Bulb.	Wet Bulb.	Difference.	Ten. in inches.	Humidity.	Solar.	Terrestrial.		Direction.	Velocity in miles.
3.30	66.9	61.1	5.8	0.459	.71	86.4	60.1	29.632	SW b S	
.35	67.0	61.1	5.9	.458	.71	86.2	60.1			
.40	66.7	60.7	6.0	.454	.71	86.9	60.0	29.630		
.45	66.9	60.9	6.0	.451	.71	81.0	59.8			
.50	65.8	59.9	5.9	.426	.70	82.7	59.2			
.55	66.1	60.0	6.1	.437	.70	82.8	59.6	29.628		
4.00	66.0	60.0	6.0	.438	.71	82.6	59.2		SW b S	2.9
.05	65.8	59.6	6.2	.428	.70	82.5	59.0			
.10	65.7	59.6	6.1	.429	.70	82.4	58.2	29.628		
.15	65.6	59.5	6.1	.427	.70	80.1	57.9			
.20	65.6	59.5	6.1	.427	.70	77.8	57.8			
.25	65.2	58.5	6.7	.402	.67	77.6	58.0	29.620		
.30	65.4	58.3	6.1	.408	.70	75.0	58.0			
.35	65.0	58.6	6.4	.408	.68	74.1	57.8			
.40	64.9	57.6	7.3	.381	.64	72.6	58.0			
.45	64.9	58.8	6.1	.416	.70	72.4	58.0			
.50	64.8	58.3	6.5	.402	.67	69.4	58.0	29.624		
.55	64.0	58.1	5.9	.405	.70	67.2	57.8			
5.00	64.0	57.9	6.1	.401	.69	65.1	57.2		SW b S	2.7
.05	64.1	57.7	6.4	.393	.68	63.4	56.8			
.10	64.0	57.6	6.4	.391	.68	63.5	55.4			
.15	63.8	57.1	6.7	.379	.66	64.2	54.8	29.626		
.20	64.0	56.8	7.2	.368	.64	65.4	53.8			
.25	62.3	56.9	5.4	.390	.72	67.2	54.3			
.30	62.6	57.1	5.5	.393	.72	69.8	53.2			
.35	62.8	56.8	6.0	.381	.68	71.6	53.2			
.40	63.1	57.0	6.1	.385	.69	72.4	53.0	29.626		
.45	63.0	56.1	6.9	.359	.64	73.2	53.8			
.50	63.1	56.6	6.5	.373	.66	73.6	54.2			
.55	63.1	56.8	6.3	.378	.67	73.8	54.8			
6.00	63.6	57.0	6.6	.378	.66	73.5	55.0			
.05	64.1	57.1	7.0	.376	.65	75.4	55.4	29.626	SW b S	1.2
.10	64.3	57.3	7.0	.380	.65	75.2	55.2			
.15	64.1	57.1	7.0	.376	.65	76.4	55.2			
.20	64.8	57.5	7.3	.381	.64	78.2	54.8			
.25	65.3	57.6	7.7	.381	.62	76.4	54.6			
.30	65.3	57.5	7.8	.374	.61	75.6	54.0	29.626	SW b S	0.8

The dry and wet bulb thermometers were the Observatory Standards in their usual position.

The thermometer for solar radiation was a mercurial by Watkins & Hill, its bulb covered with a coating of lamp-black dissolved in spirits of wine, and freely exposed to the sun's rays.

The usual thermometer for terrestrial radiation was employed, its bulb in the focus of a polished plane-sphere, and protected from the sun's direct rays.

In considering the meteorological effects produced by the abnormal extinction of the sun's heat in an eclipse, it is evident that these effects are always mixed up with the ordinary changes that are produced by the ever-varying conditions of the atmosphere and the other causes that determine the meteorological conditions at a given time and place, and it is only by a comparison of results obtained at numerous stations that these latter can be eliminated. Still, an examination of even the few sets in the preceding tables will furnish several points of interest. Thus, at Montreal, the rise of the barometer is

marked and steady; at Toronto, on the contrary, the barometer sank during the early part of the eclipse, and then, after a slight rise, remained perfectly steady during the latter half of the period, showing that the rise at Montreal was not a phenomenon peculiarly connected with the eclipse. Again, at Prescott, the tension of aqueous vapour fell somewhat suddenly about ten minutes before the annularity, reached its lowest point five minutes after the end of the annularity, and then increased during the remaining period; at Toronto, the changes are more irregular, but indicate, on the whole, a descent throughout; while at Montreal the same fact may be noted, though with still greater irregularity.

The following abstract gives the values of this tension for the three places at the times of beginning and end, and greatest observation, and also the mean values for the first and latter halves of the duration of the eclipse:—

Tension of Vapour.....	Prescott.	Toronto.	Montreal.
Beginning of Eclipse.....	0.304	0.459	0.481
Middle.....	.276	.393	.464
End.....	.304	.376	.435
Mean of First Half.....	.293	.418	.489
Mean of Latter Half.....	.289	.369	.457

In the total eclipse of 1842, it was noticed at Perpignan that a strong dew was deposited after the total obscuration, falling in drops from the leaves, the explanation of which is clearly that the temperature of the earth had been more reduced by radiation than that of the air by the deprivation of the sun's rays, and to such an extent as to reduce the contiguous strata of air below the dew-point temperature, and thus cause them to deposit dew. It is, therefore, a point of interest to examine if, during the eclipse, any increase of humidity can be detected in the atmosphere, which can fairly be traced to such a cause. An examination of the tables shows that none such can be detected, the humidity decreasing at Toronto and increasing at Prescott with about equal steadiness, while at Montreal the changes are less regular, but give an increase in the latter half of the period over the former.

As might be expected, the effect of the deprivation of the sun's heat on the temperature of the air is decisively manifested by the thermometrical observations, of which those at Toronto and Prescott, having been made by standard instruments and with all possible precautions, may claim a certain degree of precision; those at Montreal are less available by reason of the unfavourable nature of the day. As regards the march of the ordinary dry bulb thermometer, two causes are involved, at first conspiring but afterwards opposing each other, namely,—the ordinary diminution of temperature by the decline of day, and the gradual extinction and subsequent restoration of the sun's rays. In the earlier interval of the period of eclipse both combine to lower the temperature, but, later on, the descent of the sun and the gradual enlargement of his visible disc produce opposite effects, and we are thus prepared to find the fall of the thermometer not afterwards compensated for by the subsequent rise. At Prescott, the fall during the eclipse was 6°.5, and the subsequent rise only 0°.8; at Toronto, these quantities were 4°.6 and 3°.0; at Kingston 8° and 3°. The