Table Showing the Illuminated Portions of the Discs of Venus and Mars.

1889.	VENUS.	MARS.	1889.	VENUS.	MARS.
January 15	0.665	0.948	July 15	0.525	0.998
February 14	0.535	0.965	August 15	0.666	0.991
March 15	0.355	0.979	September 15	0.776	0.980
April 15	0.079	0.990	October 15	0.859	0.964
May 15	0.068	0.997	November .. 15	0.924	0.944
June 15	0.338	1.000	December ... 15	0.966	0.924

Eclipses.

In the year 1889 there will be three Eclipses of the Sun, and two of the Moon.

I.—A Total Eclipse of the Sun, January 1st, 1889, visible as a Total Eclipse just before sunset in Manitoba, and as a partial Eclipse in some other portions of the Dominion.

The line of Central Eclipse passes through:—

Longitude	Latitude
100° 41' W.	49° 3' N.
94 18 "	52 16 "

At Toronto the Eclipse begins at 16h. 26m. '4 Standard time. Angle of first contact from the North Pole, 80° towards the west ; for direct image.

At sunset .286 of the Sun's diameter will be eclipsed.

The Eastern Standard time of first contact for places near Toronto, may be found from the following formulæ : *

$$\cos \omega = 1\text{·}54924 -[0\text{·}22898] \sin l + [9\text{·}85767] \cos l \cos (337° 57' 44"-\lambda)$$
$$- 1\ 6h.\ 2m.\ 5s. - [3\text{·}60351] \sin \omega + [2\ 9\ 950] \sin l - [3\text{·}86583] \cos l \cos (232° 52' 13"-\lambda)$$

* In these formulæ the co-efficients of the various terms, are the numbers whose logarithms are the numbers within the brackets [ ]; also, l denotes the *geocentric* latitude, and λ the longitude west of Grenwich.

II —A Partial Eclipse of the Moon, January 16-17, 1889.

		h.	m.
First Contact with the Penumbra, January 16		21	39·8
First Contact with the Shadow, " 16		22	58·9
Middle of the Eclipse, " 17		0	29·7
Last Contact with the Shadow, " 17		2	00·5
Last Contact with the Penumbra, " 17		3	19·6

Magnitude of the Eclipse (Moon's diameter = 1), 0·696.

III.—An Annular Eclipse of the Sun, June 28, 1889. Invisible in Canada.

IV.—A Partial Eclipse of the Moon, July 12, 1889. Invisible in Canada.

V.—A Total Eclipse of the Sun, December 22, 1889. Invisible in Canada except as a partial eclipse for a short time after sunrise in Nova Scotia.

Table Showing the Averages of Certain Meteorological Quantities.

(From Observations at the Toronto Observatory.)

MONTH.	Barometer, average of 47 years.	Temperature, average of 48 years.	Resultant direction of Wind 13 y'rs.	Resultant velocity of Wind 13 years.	Mean velocity of Wind, average of 13 yrs.	Amount of Rain, averages of 45,46 yrs.	Days of Rain, average of 45,46 years.	Amount of Snow, average of 44 years.	Days of Snow, average of 46 years.	Total Rain and Melted Snow.	Average No. of Fair Days.	Clouded Sky, average of 32 years.
	in.	o		miles.	miles.	in.		in.		in.		
January	29.6506	22.36	N. 81 W.	3.41	11.56	1.102	4.67	17.23	14.33	2.825	11.81	0.7
February	.6831	22.54	N. 61 W.	3.43	10.96	0.854	4.52	17.00	12.44	2.563	11.81	.7
March	.6011	28·77	N. 52 W.	3.66	11.62	1.494	6.29	13.12	10.75	2.866	14.03	.6
April	.5888	40.80	N. 25 W.	2.31	10.82	2.246	9.60	2.51	3.75	2.497	16.81	.6
May	.5771	52.13	N. 17 W.	1.75	8.96	3.017	12.12	0.14	0.35	3.031	17.61	.6
June	.5690	61.96	N. 65 W.	0.89	7.66	2.840	11.75	....	....	2.840	17.77	.5
July	.5866	67.69	N. 80 W.	0.91	7.58	3.060	10.93	....	....	3.000	18.42	.5
August.......	.6193	66.18	N. 64 W.	0.96	7.69	2.842	10.84	....	....	2.842	10.35	.5
September....	.6658	58.48	N. 54 W.	1.31	8.56	3.380	11.67	....	....	3.386	18.23	.5
October	.6500	46.34	N. 68 W.	2.13	9.06	2.348	12.57	0.75	1.85	2.423	16.45	.6
November	.6192	35.99	N. 82 W.	2.84	10.67	2.684	9.94	4.56	7.67	3.140	12.68	.7
December	.6496	25.89	N. 77 W.	3.67	11.02	1.512	6.13	14.90	14.06	3.002	11.42	.8
Average...	29.6206	44.09	N. 62 W.	2.48	9.68	27.379	111.03	70.30	65.20	34.409	186.38	0.61

Magnetic Observatory, Toronto.

Latitude, 43°.39'.4 North. Longitude, 79°.23'.32 West, or 5h., 17m., 34.6s. slow of Greenwich Time. Elevation above Lake Ontario, 108 feet. Approximate Elevation above the Sea, 350 feet.