ASTRONOMICAL CALCULATIONS

MADE EXPRESSLY FOR THIS PUBLICATION AT THE MAGNETIC OBSERVATORY IN TORONTO, FOR THE YEAR 1897.

Chronological Cycles.

Golden Number	17	Dominical Letter	C
Epact	26	Roman Indiction	10
Solar Cycle	2	Julian Period	6610

Epochs.

The year 5658 of the Jewish Era begins Sept. 27	1897	The 61st of Queen Victoria's Reign begins June 20,	1897
The year 1315 of the Mahommedan Era begins on June 2	1897	The 31st of the Dominion of Canada begins July 1,	1897
		The 122nd of the Indep. of the U. S. begins July 4,	1897

Fixed and Movable Festivals and Anniversaries.

St. David	March	1	Whitsunday	June	6
Ash Wednesday	March	3	Midsummer Day	June	24
St. Patrick	March	17	Dominion Day	July	1
Lady Day	March	25	Labour Day	Sept.	6
Good Friday	April	16	Michaelmas Day	Sept.	29
Easter Sunday	April	18	Birth of Prince of Wales (1841)	Nov.	9
St. George	April	23	St. Andrew	Nov.	30
Birth of Queen Victoria	May	24	Christmas Day (Saturday)	Dec.	25
Holy Thursday	May	27			

Explanation of the Articles in the Calendar.

These pages are calculated for Toronto, Quebec and Winnipeg, and for ordinary purposes will serve with sufficient accuracy for every city in the Dominion of Canada. For Latitude and Longitude of Observatory see page 16.

NOTE—Standard times* are given in all columns headed Toronto, Quebec and Winnipeg.

The times* of the SUN'S RISING AND SETTING† are given for the upper limb, and are corrected for refraction for Toronto, Quebec and Winnipeg.

The standard times* both for the rising and setting of the Moon's centre are given for every day for Toronto, Quebec and Winnipeg.

The column, SUN ON MERIDIAN, gives the time that a watch keeping local mean time should show when the shadow of a sun dial is on the noon mark.

MOON'S AGE.—This column shows to the nearest tenth of a day the Moon's age at Toronto mean noon.

The column, UPPER TRANSIT OF POLE STAR, shows for every day the mean time* at which the Pole Star makes its upper transit across the meridian of longitude 4h. 46m. W. It passes the meridian twice on October 11.

The time at which the lower transit of the Pole Star occurs may be found by adding 11h. 58m. 2s. to the time of the preceding upper transit.

The seven last columns are calculated for Lat. 45°, Long. 4h. 46m. W., but will serve with sufficient accuracy for the whole of Canada.

GREATEST ELONGATION OF THE POLE STAR.—This column gives the greatest azimuth of the Pole Star east or west from the meridian as observed at a place in latitude 45°. When the greatest elongation corresponding to any other Latitude is required, the number given in the column should be corrected by means of the following Table.

Latitude	42°	43°	44°	45°	46°	47°	48°	49°	50°
1st Correction for Degrees	−5′ 10″	−3′ 32″	−1′ 49″	0′ 00″	+1′ 55″	+3′ 55″	+ 6′ 3″	+8′ 17″	+10′ 39″
2nd Correction for each minute of latitude	+ 1″.6	+ 1″.7	+ 1″.8	+ 1″.9	+ 2″.0	+ 2″.1	+ 2″.2	+ 2″.4	+ 2″.5

The 1st correction for the degrees of latitude is to be subtracted from the greatest elongation given in the calendar or added to it, according as the degrees of latitude are less or greater than 45°.

The 2nd correction, which is always additive, is found by multiplying the number given in the third line of the Table by the number of minutes in the latitude.

Thus for latitude 43° 20′..1st correction = − 3′ 32″ 2nd correction + 1.7 × 20 = + 0′ 34″
" " 47° 40′.. " " = + 3′ 55″ " " + 2.1 × 40 = + 1′ 24″
" " 45° 10′.. " " = 0′ 0″ " " + 1.9 × 10 = + 0′ 19″

MOON'S PHASES.—This Table gives the times (standard 75th meridian)* when the Moon passes the geocentric longitudes of 0°, 90°, 180°, and 270° east of the sun. It gives also the times of her greatest and least distance from the earth.

From the time of the upper transit of the Pole Star may be found the time of its greatest western or eastern elongation, by adding or subtracting the constants given in the annexed Table.

Latitude	42°	43°	44°	45°	46°	47°	48°	49°	50°
	h m s	h m s	h m s	h m s	h m s	h m s	h m s	h m s	h m s
Constant	5 54 31	5 54 21	5 54 11	5 54 1	5 53 50	5 53 39	5 53 27	5 53 16	5 53 3
Difference for 10′ of latitude.	−1.7	−1.7	−1.7	−1.8	−1.8	−1.8	−2.0	−2.2	

* In the present Almanac, the hours are numbered from 0 (midnight) to 23.

† Although these times are calculated for Toronto, Quebec and Winnipeg only, the standard times at other places not differing much from them in latitude may be obtained with sufficient accuracy for ordinary purposes, by adding four minutes for every degree west, and subtracting four minutes for every degree east of these places.