

pages. For Toronto, subtract 2.55 seconds; for Kingston, add 0.22 sec.; for Montreal add 2.24 sec.; for Quebec, add 3.35 sec.; for Fredericton, add 6.32 sec.; and for Halifax, add 8.78 sec.

The times of greatest eastern elongation of the Polar Star, may be found for any day by *subtracting* the following constants from the time of Upper Transit; and the time of greatest Western elongation may be found by *adding* the same constants. For Toronto, 5 h. 53 m. 26.9 sec.; for Kingston, 5 h. 53 m. 21.4 sec.; for Halifax, 5 h. 53 m. 15 sec.; for Montreal, 5 h. 53 m. 4.4 s.; for Fredericton, 5 h. 52 m. 56.8 s.; and for Quebec 5 h. 52 m. 46.75 s. In computing these constants, the mean polar distance of the North Star for 1855 was assumed at $1^{\circ} 28'$, and the slight variations in that distance will not produce an error of more than two seconds in the constants, when the variations have their greatest value.

There is not sufficient room for a table of the "Azimuth of Greatest Elongation" of the Pole Star. But this can be very easily found for any place by the following formula, the star's polar distance, and the co-latitude of the place being known; the former of which is given for every day in this Almanac.

$$\text{Log. Sine Azimuth} = 10 + \text{Log. Sine Polar distance} - \text{Log. Sine co-Lat.}$$

Eclipses for the Year 1856.

There will be two Eclipses of the sun, and two of the Moon this year as follows:—

I.—A Total Eclipse of the Sun, April 5th, invisible.

II.—A partial Eclipse of the Moon, April 20th, In the morning, *visible*. The Moon will set in the Canadas at about 5 h. 9 m. with 1.2 digits eclipsed. Size at the Middle 8.544 digits on the northern limb. See the Table below.

III.—An Annular Eclipse of the Sun, September 28th, invisible in Canada.

IV.—A Partial Eclipse of the Moon, October 13, In the Evening, *visible*. The Moon will rise at 5 h. 11 m. with 8.64 digits eclipsed. Size when largest, 11.976 digits on the Southern limb. See the Table below.

PLACES.	ECLIPSE OF APRIL 20.		ECLIPSE OF OCT. 13.	
	Begins.	Middle.	Middle.	Ends.
	h. m.	h. m.	h. m.	h. m.
St. John's.....	4 5	5 37	7 25	8 59
Halifax.....	3 29	4 52	6 40	8 14
Fredericton.....	3 7	4 39	6 27	8 1
Quebec.....	2 49	4 21	6 9	7 43
Three Rivers.....	2 44	4 16	6 4	7 38
Montreal.....	2 40	4 12	6 0	7 34
Cornwall.....	2 35	4 7	5 55	7 29
Prescott.....	2 32	4 4	5 52	7 26
Plymouth.....	2 30	4 2	5 50	7 24
Kingston.....	2 27	3 59	5 47	7 21
Colbourg.....	2 25	3 57	5 45	7 19
Toronto.....	2 17	3 49	5 37	7 11
Hamilton.....	2 14	2 46	5 34	7 8
London C. W.....	2 9	3 41	5 29	7 3

JUPITER will be eclipsed by the Moon on the 19th of August, at about 1 o'clock in the morning, *visible*. Duration 54 minutes.

Mathematical Acknowledgements.

We have the pleasure to notice a very large number of Solutions of the Problems in the Almanac for 1855 from various correspondents. We cannot print the Solutions for want of room, nor was this our design, as we do not intend to make the Almanac take the place or character of a mathematical work. The *Answers* of the Problems will be published, and those who solve them correctly will be noticed. In examining the solutions, we have discarded mistakes in the operations, where the *principles* of working were correct. In such cases we accord to the author the honour of a right solution. We cannot pledge ourselves to look for such errors when the answers are wrong, and correspondents are requested to be very careful in the operations. In some instances we may have overlooked the merits of our correspondents, where their results have been wrong, not from any want of skill, but from some small mistakes they have made. The majority of the solutions sent were correct. Particular notice is due to Messrs. Jordan, Dunne, Cowan, Clark, Ralph, Somerville and Sheehan, for full solutions, and finely executed diagrams. We give *instead* of the solutions, the answers in *literal formulae* as far as possible, by which rules can be made. We invite all to send for the Almanac, original and well-selected problems, with solutions on *separate* sheets of paper, and if approved will be inserted next year. They should be in the hands of the publishers on or before the 15th of May, 1856.

The Problems in this Almanac are of a highly practical character, and combine utility with the theoretical. Persons who send *correct solutions* of 15 or more of these Problems (post-paid) to the Publishers, Messrs. MACLEAR & Co., Toronto, before July 1st, 1856, will have the same publicly acknowledged in the issue for 1857.

We have received correct solutions from our Correspondents as shown below:—

Mr. THOMAS JORDAN, School Teacher, of Oxford, Probs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 24, 28, 29, 31, 32, 33, 34, 35, and Exs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, and Geom. Prob. 1.

Mr. WILLIAM COWAN, School Teacher, No. 6, Guelph, Probs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, (in part) 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 26, 29, 31, 32, 33, 34, 35; and Exs. 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, and Geom. Prob. 1.

Mr. WILLIAM RALPH, London, C. W., Probs. 1, 2, 5, 6, 7, 8, 9, 10, 12, (in part) 13, 14, 15, 16; and Exs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23, 24, 25, 26, 28, 29, 30, 31, 33, 34, 35, 37, 39, 40, 42, 43, 44, 46, 49, 50, 53, 54, 55, 56, and Geom. Prob. 1.

Mr. CHARLES CLARK, C. M. Teacher, Cayuga, Probs. 1, 2, 4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 17, 18, 22, 24, 28, 29, 30, 31, 32, 33, 34; and Exs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, and Geom. Prob. 1.

Mr. WILLIAM DUNNE, of St. James, and Teacher in No. 4, Onondaga, Probs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35; and Exs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, and Geom. Prob. 1.

Mr. JOHN SHEEHAN, C. T., Onondaga, Brant Co., Probs. 1, 2, 5, 6, 7, 8, 10, 12, 13, 14, 15, 16, 20, 21, 22, 23, 24, 27, 28, 29, 31, 32, 33, 34, 35, and Exs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 28, 29, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59; and Geom. Prob. 1.

Mr. ROBERT SCMERVILLE, School Teacher, in Darlington, Probs. 2, 5, 6, 7, 8, 9, 10, 13, 15, 32, and Exs. 1, 2, 3, 4, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 24, 25, 26, 28, 29, 30, 40, 42, 43, 46, 48, 49, 50, 53, 54.

Mr. JAMES
Exs. 1, 2, 3
Mr. WAL
11, 12, 13,
Mr. V. M
Mr. DENI
12, 13, 14, 1
Mr. JAME
14, 15, 16, 1
Mr. THOM
26, 29, 30, 3
Mr. JAMES
Prob. 1.
Mr. JOSEPH
Mr. JOHN
Mr. BENJ
Mr. THOM
Mr. JAMES
8, 9, 10, 11, 1
Mr. JOHN
and Exs. 1, 4
48, 49, 50, 53,
MARY CAM
Mr. CHARL
Mr. GEORGE
25, 28, 43, 50
Mr. NICHOL
Mr. GEORGE
24, 26, 29, 30,
Mr. JAMES
Mr. JOHN I
Mr. JOHN N
12, 13, 24, 25,
Mr. DAVID
35.
Mr. WILLIAM
7, 8, 10, 11, 12
Mr. A. C. O
15, 16, 19, 20,
Mr. G. W. S
and Geom. Pr
Mr. BERNAR
6, 7, 8, 11, 13
Mr. GEORGE
Mr. MARSH
Mr. WM. LE
Mr. ARCHIB
Mr. D. MUR
Mr. JAMES I
Mr. JAMES T
Mr. JOHN C
nearly.
Mr. JAMES J
26, 31, 29, 40,
Mr. J. HN J
Mr. JOHN M
Mr. DANIEL
Mr. JOHN L
Mr. JAMES F
Mr. CHARL
Mr. WM. II
Mr. PETER S
Mr. DONALD
Mr. ANGUS
Mr. WILSON
Mr. MALCOLM
NOTE.—The
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July 15th, 1