ASTRONOMICAL PHENOMENA.

ECLIPSES, 1861.

There will be *Four* Eclipses this year; three of the SUN and one of the MOON; two only of which are visible in this Island, namely, one of the Sun and one of the Moon.

I.—*An annular Eclipse of the Sun*, January 10, invisible in Newfoundland.

II.—*An annular Eclipse of the Sun*, July 7, invisible in Newfoundland.

These two Solar Eclipses are visible in the North and South Pacific Oceans and in the Indian and Great Southern Oceans.

III.—*A partial Eclipse of the Moon*, December 17, visible in Newfoundland:—

	h. m.	
First contact with Penumbra (Dec.17)	2 12m.	Mean time St. John's.
First contact with Shadow	3 55m.	
Middle of Eclipse	4 46m.	
Last contact with Shadow	5 37m.	
Last contact with Penumbra	7 20m.	
Magnitude of Eclipse (Moon's diameter=1)	0.185	

IV.—*A Total Eclipse of the Sun*, December 31, visible as a partial one in Newfoundland.

This eclipse will commence on the Earth generally near the southern part of the Isthmus of Darien, on the 31st December at sun-rise, and after traversing the more northern portions of the American Continent, passing rapidly over the Atlantic Ocean, visiting Newfoundland, Greenland, the British Islands, &c., will terminate on the earth generally in Africa, at longitude 12° 38 E., near the shores of the Mediterranean Sea, at sun-set.

ELEMENTS:

		d.	h.	m.	s.
Greenwich Mean Time of Conjuction in R.A.		31	1	58	22·3
Sun's and Moon's Right Ascension			18	43	19·65
		deg.		min.	sec.
Moon's Declination	S.	22		33	24·5
Sun's Declination	S.	23		5	1·4
Moon's hourly motions in R.A.				38	55·7
Sun's hourly motion in R.A.				2	45·8
Moon's hourly motion in Declination	N.			6	3·2
Sun's hourly motion in Declination	N.				11·4
Moon's Equatorial Horizontal Parallax				59	56·1
Sun's Equatorial Horizontal Parallax					8·7
Moon's true Semidiameter				16	22·1
Sun's true Semidiameter				16	18·2