TIDE HOURS, RANGE, AND COMPASS VARIATION.

PLACE.	H. W. F. & C. H. M.	RANGE. FEET.	VARIATION. EAST.
			° ′
NORTH ISLAND.			
Three Kings Island ...	8 0	7	14 55
Bay of Islands ...	7 15	4 to 9	14 20
Wanganrei Harbour ...	7 0	5 to 9	14 20
Auckland Harbour ...	7 5	7 to 11	14 18
Tauranga Harbour ...	7 10	6	
Cape Runaway ...	9 16		14 47
East Cape ...	8 55	7	
Poverty Bay ...	6 5	5 to 6	14 49
Ahuriri Harbour ...	7 50		16 0
Port Nicholson ...	4 30	2¼ to 5	15 0
Kapiti Island ...	9 0	6	14 52
Manawatu River ...	10 0	4 to 8	
Wanganui River ...	10 15	4 to 8	
Taranaki ...	9 30	6 to 14	14 45
Kawhia Harbour ...	9 30	12	
Manukau Harbour ...	10 0	7 to 13	
Kaipara Harbour ...	10 55	8 to 11	
Hokianga Harbour ...	9 45	10	
MIDDLE ISLAND.			
Cape Campbell ...	6 0		
Kaikora Peninsula ...	5 30		
Lyttelton	4 20	6 to 8	14 53
Akaroa	3 24	6 to 8	15 24
Otago Harbour ...	3 30	4 to 8	15 40
Molyneux River ...	3 8	4 to 8	
Ruapuke Island ...	1 0	4 to 8	16 1
Bluff Harbour ...	1 10	4 to 8	16 16
Preservation Inlet ...	11 20	4 to 8	15 31
Cape Farewell ...	9 20	6 to 14	
Motupipi River ...	0 50	6 to 14	
Nelson Haven ...	9 50	6 to 14	15 9
Port Hardy	9 55	6 to 8	
Pelorus Sound ...	10 0	3 to 11	16 10
Port Gore	9 0	6 to 8	
Queen Charlotte Sound ...	8 50	6 to 8	14 5
Tory Channel ...	8 15	6 to 8	
Port Underwood ...	6 10	6 to 8	13 54
SOUTH ISLAND.			
Port William	12 45	4 to 8	16 6
South Cape	12 0	7	
Traps Rocks	12 0		18 0

HIGH WATER.

TABLE,

From which to find approximately the times of High Water in the Harbours of Nelson, Lyttelton, and Port Chalmers, from the Age of the Moon.

Calculated for the afternoon of each day.

MOON'S AGE.	NELSON.*	LYTTELTON.	PORT CHALMERS.
Days.	H. M.	H. M.	H. M.
0	9 50	4 20	3 30
1	10 27	4 57	4 7
2	11 4	5 34	4 44
3	11 39	6 5	5 15
4	...	6 36	5 46
5	0 38	7 8	6 18
6	1 20	7 50	7 0
7	2 10	8 40	7 50
8	3 13	9 43	8 53
9	4 30	11 0	10 10
10	5 50	0 20	10 10
11	6 58	1 28	0 38
12	7 53	2 23	1 33
13	8 39	3 9	2 19
14	9 20	3 50	3 0
15	9 58	4 28	3 38
16	10 35	5 5	4 15
17	11 11	5 41	4 53
18	11 48	6 18	5 28
19	0 6	6 36	5 46
20	0 45	7 15	6 26
21	1 31	8 1	7 11
22	2 22	8 52	8 2
23	3 29	9 59	9 9
24	4 47	11 17	10 27
25	6 6	0 36	11 46
26	7 11	1 41	0 51
27	8 5	2 35	1 45
28	8 48	3 18	2 28
29	9 28	3 58	3 8

* At Marlborough the tide is three hours earlier than at Nelson. Thus, at full and change it is High Water at Nelson at 6.50, and at Marlborough at 6.30.

ECLIPSES IN 1865.

DURING this year there will be two Eclipses of the Sun and two of the Moon, none of which will be visible in New Zealand.

I.—A partial Eclipse of the Moon, April 11, 1865, partly visible in England; invisible in New Zealand or Australia. The following calculations are reduced to mean time at Lyttelton:—

First contact with the Penumbra	1h.	35m.	p.m.
First contact with the Shadow	3h.	17m.	p.m.
Middle of the Eclipse	4h.	10m.	p.m.
Last contact with the Shadow	5h.	2m.	p.m.
Last contact with the Penumbra	6h.	45m.	p.m.

N.B.—Should the Moon rise clear, the presence of the Penumbra will be visible for a few minutes after rising, especially in the Eastern parts of New Zealand. The Moon will rise about 5h. 30m. p.m. mean time at Lyttelton, on the evening of the 11th.

II.—A total Eclipse of the Sun, April 25—26, invisible either in England or New Zealand. The following are reduced to mean time at Lyttelton:—

Begins on the Earth generally,—
April 25, 11h. 9m. p.m.; longitude, 76° 35′ W.; latitude, 31° 24′ S.

Central Eclipse begins generally,—
April 26, 0h. 9m. a.m.; longitude, 87° 56′ W.; latitude, 41° 34′ S.

Central Eclipse at Noon,—
April 26, 1h. 28m. a.m.; longitude, 29° 33′ W.; latitude, 16° 40′ S.

Central Eclipse ends generally,—
April 26, 3h. 11m. a.m.; longitude, 31° 7′ E.; latitude, 14° 46′ S.

Ends on the Earth generally,—
April 26, 4h. 11m. a.m.; longitude, 18° 30′ E.; latitude, 4° 25′ S.

This Eclipse will be visible in Southern Africa and the Southern part of South America, and over parts of the South Atlantic and Great Southern Oceans intervening.

III.—A partial Eclipse of the Moon, October 5th, 1865, visible in England; invisible in New Zealand. The following are reduced to mean time at Lyttelton:—

First contact with the Penumbra	7h.	58m.	a.m.
First contact with the Shadow	9h.	11m.	a.m.
Middle of the Eclipse...	10h.	12m.	a.m.
Last contact with the Shadow	11h.	12m.	a.m.
Last contact with the Penumbra	12h.	26m.	p.m.

The Moon will set, as the Eclipse commences, about the longitude of Western Australia, to the Westward of which the Eclipse will begin to be visible.

IV.—An annular Eclipse of the Sun, October 20th, 1865, invisible in New Zealand; partly visible in England. The following are reduced to mean time at Lyttelton:—

Begins on the Earth generally,—
October 20, 0h. 57m. a.m.; longitude, 107° 53′ W.; latitude, 35° 1′ N.

Central Eclipse begins generally,—
October 20, 2h. 12m. a.m.; longitude, 122° 52′ W.; latitude, 47° 12′ N.

Central Eclipse at Noon,—
October 20, 3h. 35m. a.m.; longitude, 64° 35′ W.; latitude, 23° 53′ N.

Central Eclipse ends generally,—
October 20, 5h. 33m. a.m.; longitude, 7° 10′ W.; latitude, 16° 50′ N.

Ends on the Earth generally,—
October 20, 6h. 49m. a.m.; longitude, 23° 46′ W.; latitude, 4° 26′ N.

This Eclipse will be visible over the greater part of North America, and partially in Western Europe and Africa, where it will occur partly after sunset.